

**SPECIAL PROVISIONS
FOR HIGHWAY CONSTRUCTION**



**OREGON DEPARTMENT OF TRANSPORTATION
SALEM, OREGON**



GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING,

ILLUMINATION, AND ROADSIDE DEVELOPMENT

OR22: CENTER ST BRIDGE (PHASE 1) PROJECT

WILLAMINA-SALEM HIGHWAY

MARION & POLK COUNTIES

SEPTEMBER 22, 2026

**A mandatory prebid meeting has been scheduled for this Project, see
00120.15 for the meeting time and location.**

PREFACE

General:

These Specifications, provisions, and Special Provisions are issued for the information of Bidders submitting Bids for the Project or Work described herein at the time and place specifically indicated herein, subject to such revision as may be made in accordance with provisions stated below, and will be incorporated in and made a part of any Contract for said Project or Work that may be awarded on the basis of a Bid received at said specifically indicated time and place.

Revisions Prior to Bid Closing:

All information herein is subject to revision by the Agency at any time prior to the time specified herein for the receiving of Bids. Prospective Bidders for the Work are responsible for checking the Agency website for Addenda. The website should be checked weekly until the week of Bid Closing and daily the week of Bid Closing.

Booklet May Be Retained by Bidder:

This booklet need not be returned to the Agency, either with the Bid or otherwise.

DESCRIPTION OF WORK
and
TIME AND PLACE OF RECEIVING BIDS

The work to which the Specifications, provisions, and Special Provisions contained herein apply, the time and place at which Bids for the Work are to be received, and other information pertinent to the Specifications and provisions, including any statements required to accompany the Bid, and their application are described and stated on the sheet or sheets inserted between printed pages [2] and [3] hereof.

DESCRIPTION OF WORK

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

TIME AND PLACES OF RECEIVING BIDS (BID CLOSING)

Bid Closing for the work described above will be at 9:00:00 a.m. on the 22nd day of September, 2026. Bids will be received by BJ McCartney, Construction Contracts Manager.

Submit electronic bids, on-line through Bid Express® (www.bidx.com) before 9:00:00 a.m. on the day of Bid Closing.

Submit paper bids to BJ McCartney, Construction Contracts Manager:

Before 9:00:00 a.m. on the day of Bid Closing.

For Bids submitted by mail or parcel delivery service, send to:

Oregon Department of Transportation
Procurement Construction Contracts, MS #33
355 Capitol Street NE
Salem, Oregon 97301.

For Bids submitted by hand delivery, date stamp the Bid with the provided date stamping device and place into the ODOT Procurement Bid Box located in the 1st floor lobby at the following address:

Oregon Department of Transportation
355 Capitol Street NE
Salem, Oregon 97301.

Bids, Bid modifications, and Bid withdrawals will not be accepted at or after 9:00:00 a.m. on the day of Bid Closing.

PLACE, TIME, AND DATE OF READING BIDS (BID OPENING)

Bid Opening for the work described above will be at the following address: Oregon Department of Transportation, 355 Capitol Street NE, Salem, Oregon, beginning at 9:00:00 a.m. on the day of Bid Closing.

COMPLETION TIME LIMIT

See Subsection 00180.50(h).

CLASS OF PROJECT

This is a Federal-Aid Project.

CLASS OF WORK

The Class of Work for this Project is: Bridges and Structures.

PROJECT INFORMATION

Information pertaining to this Project may be obtained from the following:

Steven Schultz, P.E., Resident Engineer, 3700 SW Philomath Blvd., Corvallis 97333; or
Email CorvallisConstruction@ODOT.Oregon.Gov. All requests for information must be in writing with reference to the Project name.

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SPECIFICATIONS and PROVISIONS

Subject to such revision as may be made in accordance with provisions stated in the Preface hereto, the Specifications and provisions stated on the sheets inserted between printed pages [4] and [5] hereof are additional required provisions and supplements, identified by this reference as a part of the Specifications, which will be incorporated in and made a part of any Contract that may be awarded for the Work on the basis of a Bid received at the time and places stated herein under the headings "Description of Work" and "Time and Places of Receiving Bids (Bid Closing)".

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work

performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide

sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants /

Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:

The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (1) Withholding monthly progress payments;
- (2) Assessing sanctions;
- (3) Liquidated damages; and/or
- (4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway

Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40 U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division

under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its procurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901–3907](#).

3. Records and certified payrolls (29 CFR 5.5)

a. Basic record requirements (1) Length of record retention. All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) Information required. Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) Additional records relating to fringe benefits. Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) Additional records relating to apprenticeship. Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. Certified payroll requirements (1) Frequency and method of submission. The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting

agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) Information required. The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHDL/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) Statement of Compliance. Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) Use of Optional Form WH-347. The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address

of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

- (1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- (2) A contracting agency for its procurement costs;
- (3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- (4) A contractor's assignee(s);
- (5) A contractor's successor(s); or
- (6) A claim asserted under the Prompt Payment Act, [31 U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the

event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and

health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which

this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or

cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

**ATTACHMENT A - EMPLOYMENT AND MATERIALS
PREFERENCE FOR APPALACHIAN DEVELOPMENT
HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS
ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)**

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

ON-SITE WORKFORCE AFFIRMATIVE ACTION REQUIREMENTS FOR WOMEN AND MINORITIES ON FEDERAL-AID CONTRACTS

Pursuant to 41 CFR 60-4.6 (see also 41 CFR 60-4.2(a)) the following notice concerning Affirmative Action Requirements for Women and Minorities shall be included in, and shall be a part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in geographical areas designated by the United States Department of Labor (USDOL) Director. The USDOL, Office of Federal Contract Compliance Programs (OFCCP) has made the following statement concerning Goals, Timetables and Good Faith Efforts:

"Numerical goals are established based on the availability of qualified applicants in the job market or qualified candidates in the employer's work force. Executive Order [E.O. 11246] numerical goals do not create set-asides for specific groups, nor are they designed to achieve proportional representation or equal results. Rather, the goal-setting process in affirmative action planning is used to target and measure the effectiveness of affirmative action efforts to eradicate and prevent discrimination. The Executive Order and its supporting regulations do not authorize OFCCP to penalize contractors for not meeting goals. The regulations at 41 CFR 60-2.12(e), 60-2.30 and 60-2.15, specifically prohibit quota and preferential hiring and promotions under the guise of affirmative action numerical goals. In other words, discrimination in the selection decision is prohibited."

For purposes of these "On-Site Workforce Affirmative Action Requirements for Women and Minorities on Federal-Aid Contracts", "Good Faith Effort" means affirmative action measures designed to implement the established objectives of an Affirmative Action Plan 23 CFR 230.407(o).

A. AFFIRMATIVE ACTION REQUIREMENTS

Notice of Requirement for Affirmative Action To Ensure Equal Employment Opportunity (Executive Order 11246)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goal and Timetable for Female Utilization Statewide

Timetable	Goal (Percent)
From Apr. 1, 1980 until further notice.....	6.9

Goals for Minority Utilization by County

Goal (Percent)

Clackamas, Multnomah, and Washington Counties....	4.5
Marion and Polk Counties	2.9
Benton, Clatsop, Columbia, Crook, Deschutes, Hood River, Jefferson, Lincoln, Linn, Sherman, Tillamook, Wasco, and Yamhill Counties	3.8
Lane, Coos, Curry, Douglas, Jackson, Josephine, Klamath, and Lake Counties	2.4
Baker, Gilliam, Grant, Morrow, Umatilla, Union, Wallowa, and Wheeler Counties	3.6
Harney and Malheur Counties.....	4.4

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

2. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 business days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

3. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is the county or counties shown in the Solicitation Documents. In cases where the work is two or more counties covered by different percentage goals, the highest percentage will govern.

B. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

- a.** "Covered area" means the geographical area, described in the solicitation from which this contract resulted;
- b.** "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
- c.** "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- d.** "Minority" includes:
 - (i)** Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii)** Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii)** Asian American and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv)** American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitation from which this contract resulted.

3. A contractor participating, either individually or through an association, in an approved Hometown Plan (including heavy highway affirmative action plans) shall comply with its affirmative action obligations under Executive Order 11246 by complying with its obligations under the plan; provided, that each contractor or subcontractor participating in an approved plan is individually required to comply with the equal opportunity clause set forth in 41 CFR 60-1.4; to make a good faith effort to achieve the goals for each trade participating in the plan in which it has employees; and that the overall good performance by other contractors or subcontractors toward a goal in an approved plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the plan's goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minorities and female utilization the Contractor should

reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minorities and female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or a community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the

Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the Contractor's EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female employees for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and Contractor's activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor union, contractor-community; or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The contractor will designate an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active contractor program of EEO and who must be assigned adequate authority and responsibility to do so. Additionally, the contractor EEO Officer shall ensure that the company EEO policy is being carried out, to submit reports relating to the specifications hereof as may be required by the Agency and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws, which establish different standards of compliance, or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

16. The Office of Federal Contract Compliance Programs (OFCCP) may conduct compliance evaluations to determine if the contractor maintains nondiscriminatory hiring and employment practices and is taking affirmative action to ensure that applicants are employed and that employees are placed, trained, upgraded, promoted, and otherwise treated during employment without regard to race, color, religion, sex, or national origin. In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

EQUAL EMPLOYMENT OPPORTUNITY PROVISIONS

As used in these provisions, "Engineer" means the Chief Engineer of the Oregon Department of Transportation acting either directly or through authorized representatives. "Good Faith Efforts" means "affirmative action measures designed to implement the established objectives of an Affirmative Action Plan" 23 CFR 230.407(o).

Section 140 of Title 23, United States Code, EQUAL EMPLOYMENT OPPORTUNITY, as in effect on May 1, 1982, is incorporated by this reference and made a part of these provisions.

Written Notification

The Contractor shall provide to the Engineer within two weeks of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the Contract resulting from this solicitation written notification with the following information: the name, address and telephone number of the Subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

The Contractor shall provide immediate written notification to the Engineer when (1) the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor minorities or women that the Contractor sent to the union, or (2) the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its equal opportunity obligations. This is in addition to the notification required in item 7d in the "On-Site Workforce Affirmative Action Requirements for Women and Minorities on Federal-Aid Contracts".

Monthly Report

The Contractor and each Subcontractor (on contracts that require certified payrolls) shall submit each month to the Engineer a "Monthly Employment Utilization Report" (Form 731-0668). The electronic form is available at:

<https://www.oregon.gov/ODOT/Business/OCR/Pages/Forms.aspx>

Annual Report

Each July for the duration of the Project, each Contractor and Subcontractor shall submit Form FHWA-1391. This report shall be sent directly to the ODOT Office of Equity and Civil Rights.

PURSUANT TO 23 CFR PART 230, SUBPART D, THE STATE HIGHWAY AGENCY HAS A RESPONSIBILITY TO ASSURE COMPLIANCE BY CONTRACTORS WITH THE REQUIREMENTS OF FEDERAL-AID CONSTRUCTION CONTRACTS, 23 CFR 230.405(b). THEREFORE, THE STATE HIGHWAY AGENCY HAS THE FOLLOWING OBLIGATIONS CONCERNING MONITORING AND COMPLIANCE, INCLUDING SHOW CAUSE NOTICE REQUIREMENTS.

Monitoring and Compliance

The Agency will maintain a vigorous monitoring process to ensure nondiscrimination and affirmative action on all federally funded Projects. Monitoring shall include at a minimum, monthly meetings to review the "Monthly Employment Utilization Report" (Form 731-0668) with the Contractor's Equal Employment Opportunity (EEO) Officer and quarterly reviews of the Contractor's Good Faith Efforts as outlined in FHWA 1273.

The Agency shall determine the Contractor's compliance with equal opportunity requirements including:

- Non-discrimination in selection and retention of subcontractors, material suppliers and vendors;
- Maintenance of non-segregated facilities;
- Adequate representation and utilization of minorities and women (by craft and trade) in the Contractor's workforce;
- Good Faith Efforts in meeting on-the-job training and training special provisions contained in FHWA 1273;
- Fair treatment in all terms and conditions of employment; and,
- Adherence (where applicable) to Indian preference provisions.

If the Agency or the FHWA becomes aware of any possible violations of Executive Order 11246 or 41 CFR 60, each has the authority and the responsibility to notify the Office of Federal Contract Compliance Programs. The Contractor has the responsibility either to meet all the craft goals set forth in the applicable "Covered Area" of "On-Site Workforce Affirmative Action Requirements for Women and Minorities on Federal-Aid Contracts" or demonstrate Good Faith Efforts to meet these goals (as specified in paragraphs 7a through 7p of the "On-Site Workforce Affirmative Action Requirements for Women and Minorities on Federal-Aid Contracts").

Show Cause Notice

If an investigation or review reveals that a Contractor or Subcontractor has not complied with these EEO Provisions, the Agency shall issue a Show Cause Notice to initiate efforts to bring the Contractor or Subcontractor into compliance. This written notice shall state the deficiencies found during the review, and shall advise the Contractor or Subcontractor to show cause within 30 Calendar Days why the Agency shall not impose administrative

sanctions. The Contractor or Subcontractor must then show good cause or must provide an acceptable agreement for corrective action within 30 Calendar Days.

If the Contractor or Subcontractor does not provide this information by the end of the 30 Calendar Days, the Engineer shall withhold all project progress payments in process as of the date the Show Cause Notice was issued and will continue to withhold project progress payments until the Contractor or Subcontractor responds in an acceptable manner. If the Contractor or Subcontractor fails to meet the conditions of the corrective action agreement, no further Show Cause Notice is required; the Agency shall immediately initiate enforcement proceedings.

If a Contractor's prequalification certification is revoked or disqualified because the Contractor has been found on at least two occasions to be in breach of these EEO Provisions of Federal-Aid highway construction contracts, the Contractor must be determined to be in compliance with these EEO Provisions prior to the Contractor's prequalification certificate being reinstated.

**SUSPENSION OF DISADVANTAGED BUSINESS ENTERPRISE (DBE)
REQUIREMENTS EFFECTIVE 10/03/2025**

In accordance with the Interim Final Rule, effective October 3, 2025 and published at 90 Fed Reg 47,969 (2025), modifying the certification, compliance and reporting requirements of the Disadvantaged Business Enterprise program (DBE IFR), ODOT's DBE requirements that were applicable to federally funded projects prior to the 10/03/2025 effective date of the rule are no longer in effect, and the associated DBE contractual requirements have been suspended pending implementation of the DBE IFR. Contractor will cooperate in processing any contractual revisions ODOT deems necessary or appropriate to effectuate the updated DBE Program requirements that may result from the DBE IFR implementation.

APPRENTICESHIP REQUIREMENTS

For projects with a contract price that exceeds \$3 million, the Contractor is subject to the apprenticeship requirements found in ORS 279C.533 and set forth herein.

I. Apprenticeship Goal

Contractor shall employ Apprentices to perform 12 percent of the Work hours that Contractor's employees in Apprenticeable Occupations perform under this Contract.

Contractor shall also require that each subcontractor with a subcontract of an estimated value of \$750,000 or more at the time of Agency's consent to the subcontract ("Covered Subcontractors") employ Apprentices to perform 12 percent of the Work hours that its employees in Apprenticeable Occupations perform under the subcontract.

Contractor has the primary responsibility to ensure the apprenticeship requirements set forth herein are met. Contractor shall ensure that the applicable subcontracts contain the appropriate clauses, obligating Subcontractor to the Apprenticeship goal as applicable; however, this shall not relieve the Contractor of the Contractor's primary responsibility.

Contractor and Covered Subcontractors shall use apprentices that the BOLI Apprenticeship & Training Division certifies are registered with the Oregon State Apprenticeship and Training Council in a Registered Apprenticeship Training Program. Contractor shall be an Oregon Bureau of Labor and Industries (BOLI) Registered Training Agent in accordance with OAR 839-011-0162 at time of time of contract execution. Reciprocal approval for federal purposes is accorded to contractors, apprentices, apprenticeship programs and standards that are registered with the USDOL Office of Apprenticeship ("OA") or registered to other State Apprenticeship Registration Agencies duly recognized by OA for federal public works projects in Oregon that are subject to the Davis-Bacon Act, in accordance with 29 CFR 29.5(b)(13) (see OAR 839-011-0162(6)). A Covered Subcontractor must be an approved training agent at the time of consent to subcontract unless it will not be performing work in an Apprenticeable Occupation.

Contractor and Covered Subcontractors shall pay an Apprentice for Work on the Project at the hourly rate to which the Apprentice is entitled under the applicable Apprenticeship Agreement or as otherwise specified by the Apprenticeship Training Program.

Apprenticeable Occupations are those designated by BOLI as available trades with apprenticeships. The list of those trades is available at: <https://www.oregon.gov/boli/apprenticeship/Pages/trades.aspx>

II. Reporting.

A. Required Forms. Contractor shall submit weekly the BOLI Enhanced WH-38 Form to BOLI with a copy to the Agency to report the extent of Contractor's and Covered Subcontractor's compliance with these Apprenticeship Requirements. Agency may disclose the reports as provided under ORS 279C.845(6).

At any time, BOLI may change the required form or method to identify, collect, and report the information required under this Subsection II. Contractor is under a continuing obligation to use the most current form required by BOLI for this purpose.

B. Failure to Report. Failure of Contractor to provide reports as described in Subsection A above may result in withholding of payment as provided in ORS 279C.845(7).

C. Obligation to Provide Additional Information. Upon request by Agency, and in a form and schedule specified by Agency, Contractor shall provide the following information:

- i. The name of or other identification for this Contract;
- ii. The city or county in which the public improvement is located;
- iii. A detailed accounting of:
 - a. The total number of hours of work that workers performed under this Contract and each Covered Subcontract;
 - b. The total number of hours of work that workers performed in each Apprenticeship Occupation for the Contract and each Covered Subcontract on the public improvement;
 - c. The total number of hours of work that Apprentices performed under this Contract and each Covered Subcontract; and
 - d. The total number of hours of work that Apprentices in each Apprenticeship Occupation performed under this Contract and each Covered Subcontract.
- iv. The total number of workers who performed construction work and the total numbers of minority individuals, women and veterans who performed construction work under this Contract. A report under this subparagraph must separately list for each worker the worker's race, ethnicity, gender, veteran status and, as applicable, trade, craft or job category.

D. Final Report. Upon request by Agency prior to final completion, Contractor shall provide Agency with a final report regarding its employment of Apprentices, which shall contain the following information for Contractor and each subcontractor subject to the Apprenticeship requirements:

- Total amount of Work hours that workers performed in each Apprenticeship Occupation
- Total amount of Work hours performed by Apprentices
- Number of hours subject to calculation of reduction in payment as described in Subsection II(C)(iii)(b)

III. Noncompliance and Reduction in Payment.

As required by ORS 279C.533, Agency will reduce payment due to Contractor under this Contract if Contractor does not meet the Apprenticeship Goal set forth in Section I. The reduction will be the equivalent of the difference between the total number of work hours that Apprentices in Apprenticeship Occupations should have performed to meet the apprenticeship requirements less the total number of work hours that Apprentices in Apprenticeship Occupations actually performed, multiplied by \$15 per hour.

Contractor may apply reduction in the amount due to a Covered Subcontractor if that Covered Subcontractor fails to meet the Apprenticeship Goal. In such case, Contractor must notify Agency and reduce its invoices to Agency accordingly. In no event shall Contractor charge Agency for the amount reduced from the Subcontract.

OUTREACH, RECRUITMENT AND RETENTION

For projects with a contract price that exceeds \$3 million, the Contractor is subject to the outreach, recruitment and retention requirements found in ORS 279C.533 and set forth herein.

Contractor shall comply fully with the provisions of ORS 279C.533. It is a material provision of this public improvement contract that Contractor establish and implement a plan for outreach to and recruitment and retention of women, minority individuals and veterans, with an aspirational target of having individuals in one or more of these groups to compose at least 15 percent of the total number of workers who perform work under this contract ("Outreach, Recruitment and Retention Plan") that meets the Plan Requirements set forth herein. Additionally, Contractor shall require any subcontractor with which the contractor has a subcontract with a contract price of \$750,000 or more ("Covered Subcontractors") to establish and implement an Outreach, Recruitment and Retention Plan for Subcontractor's outreach to and recruitment and retention of women, minority individuals and veterans, with an aspirational target of having individuals in one or more of these groups to compose at least 15 percent of the total number of workers who perform work under that subcontract.

Outreach, Recruitment and Retention Plans must require, at a minimum, that Contractor (or Covered Subcontractor):

- (i) Advertise employment opportunities available under the public improvement contract in general circulation publications, trade association publications and publications that serve an audience or readership that consists primarily of minority individuals, women or veterans;
- (ii) Follow upon the contractor's initial solicitations of interest by contacting minority individuals, women or veterans who expressed interest in or responded to the initial solicitation to determine with certainty whether the minority individual, woman or veteran is interested in the opportunities described in subsection (i);
- (iii) Provide all persons who express continued interest with adequate information about hiring qualifications, pay rates, benefits, the expected duration of employment, work hours and other conditions of employment under the public improvement contract;
- (iv) Make efforts to encourage minority individuals, women and veterans to seek employment under the public improvement contract that the contractor may reasonably expect will produce a level of participation that meets the aspirational target described herein; and
- (v) Use the services of minority community organizations, local, state, federal and tribal governments or other organizations that have recruiting, training and otherwise assisting minority individuals, women and veterans as the organization's primary purpose or mission to assist the contractor with outreach, recruitment and retention.

Contractor shall submit its Outreach, Recruitment, and Retention Plan ten (10) days prior to the preconstruction conference. Contractor shall submit the Outreach, Recruitment, and Retention Plans of Covered Subcontractors with Contractor's request for Agency's consent to subcontract. Contractor shall follow the reporting requirements Section II of the Apprenticeship Requirements Special Provision to satisfy the reporting requirements of 279C.533 as it relates to the Outreach, Recruitment and Retention Plan. Upon request of Agency, Contractor shall provide any other supporting information Agency deems necessary or appropriate to determine compliance with this provision and requirements of ORS 279C.533.

Contractor shall demonstrate adequate good faith efforts to comply with this provision. While the aspirational target is not a requirement for this Contract and is not binding on the Contractor, ODOT desires to encourage the highest possible participation of women, minority individuals, and veterans in the workforce. Neither the Contractor nor its Subcontractors are under any obligation to meet or achieve the aspirational targets set forth herein.



DATE ORIGINALLY ADOPTED: 11/06/13
SUBJECT: Employment
DATES AMENDED: 10/28/15; 05/04/16;
08/03/16; 01/13/21
RESOLUTIONS: 192-13; 188-15; 076-16; 118-
16; 001-21

**THE CONFEDERATED TRIBES OF THE
GRAND RONDE COMMUNITY OF OREGON**

**CHAPTER 604
TRIBAL EMPLOYMENT RIGHTS ORDINANCE**

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**THE CONFEDERATED TRIBES OF THE
GRAND RONDE COMMUNITY OF OREGON**

**Chapter 604
Tribal Employment Rights Ordinance**

PART I – GENERAL PROVISIONS

(a) PREAMBLE. The Tribe has enacted this Ordinance pursuant to its inherent sovereign powers in order to promote the interests of self-governance and to ensure that Indian people have employment, training, contracting, subcontracting, and other business opportunities on and near the Grand Ronde Reservation.

(b) PURPOSE. This Ordinance shall be liberally construed to fulfill the following purposes:

(1) To provide Tribal laws and rules governing preference in employment and contracting within the Tribe’s jurisdiction;

(2) To increase employment of Grand Ronde Tribal Members and other Indians;

(3) To establish the Tribal Employments Rights Office (“TERO”) and empower the Tribal Employment Rights Commission (“Commission”) and TERO staff to enforce the laws and rules governing employment and contracting preference; and

(4) To provide a fair, enforceable, and effective system of priorities in contracting or subcontracting where a significant part of the work will be performed on or near the Tribe’s Reservation.

(c) DEFINITIONS. Terms used in this Ordinance are hereby defined as follows:

(1) Compliance Agreement. An agreement between a Construction Contractor or ODOT Contractor and the TERO, setting forth how the contractor will meet the Tribal and/or Indian preference in hiring, and if applicable, subcontracting goals and other obligations under this Ordinance.

(2) Construction Contractor. A Covered Employer, other than an Oregon Department of Transportation (“ODOT”) Contractor or Tribal Employer, who contracts or subcontracts to perform construction work on the Tribe’s Reservation.

(3) Covered Employer. An Employer subject to this Ordinance pursuant to Part I, Section (d) below.

(4) Employer. Any person, partnership, corporation, company, government, governmental enterprise, contractor, subcontractor or other entity that employs for wages or other remuneration two (2) or more individuals. The term shall not include state or

county governments or state or county governmental agencies, but shall include contractors and subcontractors of said governments or governmental agencies.

(5) Executive Level Position. A position that reports directly to the Tribal Council or to the Spirit Mountain Gaming, Inc. Board of Directors.

(6) Grand Ronde Owned Business. A business that is at least 51% or more owned, operated, and controlled by a Grand Ronde Tribal Member or the Grand Ronde Tribe.

(7) Grand Ronde Tribe or Tribe. The Confederated Tribes of the Grand Ronde Community of Oregon.

(8) Grand Ronde Tribal Member. An enrolled member of the Grand Ronde Tribe.

(9) His/Himself. Shall refer equally to “Her/Herself.” The use of masculine pronouns throughout this Ordinance is in the interest of simplicity, uniformity, and expediency only.

(10) Human Resources Department. The individual, staff, division, or unit of a Tribal Employer responsible for finding, screening, and recruiting job applicants, as well as administering personnel policies and employee benefits.

(11) Immediate Family. A brother, sister, child, mother, father, or spouse, regardless of whether they are step, half, or adoptive relations.

(12) Indian. A member of a federally recognized Indian Tribe.

(13) Indian Owned Business (“IOB”). A business that is at least 51% owned, operated and controlled by an Indian or Indian Tribe.

(14) Indian Tribe. Any federally recognized Indian Tribe.

(15) Local Resident. A person who lives on or within a reasonable daily commuting distance of the Tribe’s Reservation.

(16) ODOT Contractor. Any contractor engaged in specified highway construction projects under contract with ODOT subject to the Tribal/ODOT MOU.

(17) Qualified. The individual meets the minimum job qualification criteria set forth in the job description and in any written personnel requirements of the Covered Employer. An individual’s work performance for a Covered Employer, including any failure to comply with workplace policies, may be considered in assessing the individual’s qualifications. In general, only individuals with a history of chronic or serious violations of workplace policy (e.g., harassment, criminal activity) or repeated involuntary separations from employment should be disqualified under this provision. An individual should not be disqualified based on activities occurring more than seven years

before the date of interview unless those activities give rise to current workplace safety concerns. In the case of Executive Level Positions or licensed health providers, qualified shall also mean that the individual's work history and references demonstrate their competency to perform the job as reasonably determined by the Covered Employer. In the case of contracting, it shall also mean a responsive and responsible bidder.

(18) Registered Workers. Enrolled Grand Ronde Tribal Members and other Indians who are Local Residents and who are registered with the TERO.

(19) Tribal Council. The nine (9) member governing body of the Grand Ronde Tribe.

(20) Tribal Employer. Includes the Tribal government and all wholly owned corporations, companies, businesses, or other entities of the Tribe.

(21) Tribal/ODOT MOU. The Agreement between the Grand Ronde Tribe and ODOT providing preference in employment for Indians on ODOT specified transportation projects and authorizing TERO to impose a compliance fee on ODOT contractors on these projects.

(22) Tribe's Reservation. Includes the Grand Ronde Reservation and all other land within the jurisdiction of the Tribe.

(d) JURISDICTION. This Ordinance shall apply to all Employers who:

(1) Are located or operating a business on the Tribe's Reservation;

(2) Contract with the Tribe to perform work on the Tribe's Reservation; or

(3) Are otherwise within the jurisdiction of the Tribe, including ODOT Contractors as authorized by applicable federal law, this Ordinance, and the Tribal/ODOT MOU.

(e) NOTIFICATION. TERO staff shall make good faith efforts to educate all Covered Employers and the public about this Ordinance. All contracting agencies shall also make good faith efforts to notify contractors/subcontractors of their obligations under this Ordinance. Notwithstanding the above, it shall not be a defense to any enforcement action for a person or entity to allege that they have failed to receive notification of the requirements of this Ordinance.

PART II – TRIBAL EMPLOYMENT RIGHTS OFFICE

(a) **ESTABLISHMENT OF COMMISSION.** The Tribal Employment Rights Commission is hereby established as the regulatory body charged with enforcement of the provisions set forth in this Ordinance. The Commission will consist of at least three (3), but no more than five (5) individuals who are appointed, and may be removed with or without cause, by the Tribal Council. Commissioners shall be Public Officials subject to the Tribal Ethical Standards Ordinance, Tribal Code Chapter 107.

(1) At least three of the Commissioners shall have education or experience in one or more of the following areas:

- (A) Human Resources;
- (B) Tribal Employment Rights;
- (C) Construction Management;
- (D) Regulatory Enforcement; or
- (E) Auditing or Investigations.

(2) Commissioners shall serve for terms of three (3) years; provided that the appointments to the Commission shall be made in such a manner that their terms shall be staggered, so that the terms of no more than two (2) Commissioners shall terminate in any year.

(3) Three (3) Commissioners shall constitute a quorum to transact business. All decisions of the Commission shall be made by a majority vote.

(4) Current Human Resources Department employees are not eligible to serve on the Commission.

(5) Commissioners may receive a stipend for their services at a rate established by the Tribal Council. Commissioners shall be reimbursed for actual expenses incurred on Commission business, including necessary travel expenses in a manner consistent with applicable Tribal policies and procedures.

(6) The Commission shall meet at least quarterly.

(7) At its first meeting, and annually thereafter, the Commission shall select a Chair, Vice-Chair, and Secretary. The Chair shall preside at all meetings of the Commission and shall be authorized to sign required documents in accordance with the powers of the Commission.

(b) DUTIES AND POWERS OF THE COMMISSION. The Commission has the power, jurisdiction, responsibility, and authority to:

- (1) Take all appropriate actions necessary to implement the provisions of this Ordinance.
- (2) In consultation with the TERO Director perform the following:
 - (A) Make recommendations to Tribal Council on amendments to this Ordinance; and
 - (B) Formulate, adopt, amend, and rescind rules and guidelines consistent with and necessary to carry out the provisions of this Ordinance.
- (3) Establish a system for certifying firms as Indian Owned Businesses or Grand Ronde Owned Businesses.
- (4) Hold public hearings on matters covered by this Ordinance.
- (5) Assist in presentations to the public on Indian employment and contracting preference requirements.
- (6) Issue notices to appear and order relief or sanctions that are necessary and appropriate to enforce this Ordinance.
- (7) Review and recommend the annual TERO budget prepared by the TERO Director for approval.
- (8) Consult with the Tribal Attorney's Office on legal questions, appeals, and rule-making.

(c) RECUSAL OF COMMISSION MEMBERS.

- (1) No member of the Commission shall participate in any action or decision by the Commission directly involving himself, a member of his Immediate Family or any person, business, or other entity of which he or a member of his Immediate Family is an employee, has a substantial ownership interest, or with which he or a member of his Immediate Family has a contractual relationship.
- (2) No member of the Commission shall have contact with a Complainant (as that term is defined in Part V, Section (b)(1)) regarding the specifics of a complaint prior to a Commission hearing or decision on the complaint. In the event of such contact, the Commissioner shall recuse himself from participating in any hearing and decision on the complaint.

(3) A Commissioner shall recuse himself and decline to participate in any action or decision when the Commissioner, in his discretion, believes that:

(A) He cannot act fairly or without bias; or

(B) There is or may be a perception that they cannot act fairly or without bias.

(4) If a Commissioner does not voluntarily recuse himself or decline to participate in an action or decision of the Commission when required by Part II, Sections (c)(1)-(3) above, and the Commission determines, after hearing any arguments for and/or against recusal, that recusal is appropriate and necessary to preserve the integrity and fairness of the process, the Commissioner may be disqualified from participating in the action or decision by a majority vote of the remaining Commissioners.

(5) Nothing in this Ordinance shall be deemed to prevent a Commissioner from entering into a contractual relationship or business relationship with the Tribe, provided that such relationship does not violate the terms of this Ordinance or any Commission policies and procedures, and that the Commissioner has disclosed the nature of the relationship to the Commission. If a Commissioner has an employment or ownership interest in a business that bids on, or contracts to perform, construction work on the Tribe's Reservation, then the following shall apply: (1) the Commissioner shall be prohibited from viewing any documents for the construction work that are not generally available to all bidders; (2) the Commissioner shall not directly or indirectly participate in the negotiation of any compliance agreement with TERO staff for the construction work; and (3) the Commissioner shall be recused from participating in any Commission review of matters arising out of or related to the construction work.

(d) TERO DIRECTOR.

(1) The Tribe shall, with input from the Commission, hire a Director of the TERO, who shall be an employee of the Tribe and, subject to the direction of the Commission, be responsible for administering the provisions of this Ordinance, including implementing and enforcing rules and regulations promulgated by the Commission. The TERO Director shall be responsible for the development and day-to-day management of the TERO Program and the Program budget. The TERO Director shall also provide direction, leadership, and management of TERO staff. The TERO Director shall be subject to administrative supervision by the Chief of Staff, or in his/her absence the General Manager, but only with regard to compliance with Tribal policies including without limitation, all personnel, finance, travel, and procurement policies. The Commission shall be responsible for review and evaluation of the TERO Director's job performance, but may seek input from the General Manager.

(2) The authority and duties of the TERO Director, or his designee, shall include, but are not limited to, the following:

- (A) Implement and enforce the provisions of this Ordinance, as well as any properly adopted rules, regulations, or policies promulgated by the Commission.
- (B) Hire and manage staff, administer the TERO budget, and expend designated funds from the approved TERO budget.
- (C) Recommend regulations, amendments, and agreements to the Commission.
- (D) Establish Construction Contractor and ODOT Contractor record keeping requirements.
- (E) Enter Compliance Agreements with Construction Contractors and ODOT Contractors.
- (F) Investigate and process complaints alleging violations of this Ordinance.
- (G) Impose penalties or recommend remedies, as applicable, for violations of this Ordinance or any regulations adopted hereunder.
- (H) Represent the TERO at Tribal Council meetings, Commission hearings, and Tribal Court proceedings.
- (I) Coordinate and provide reports for Commission meetings.
- (J) For purposes of Compliance Agreements, negotiate workforce requirements that reflect the available labor pool and the TERO fee payment schedule, if applicable, with Construction Contractors and ODOT Contractors. The TERO Director shall consult with the Tribe's Project Manager regarding workforce requirements prior to negotiating or specifying the number of Registered Workers required on Tribal construction projects.
- (K) Work cooperatively with Tribal programs, including, but not limited to, any Tribal Career Development Programs to provide education, training, and other support programs for Tribal/Indian workers to assist them in acquiring and retaining employment.
- (L) Certify Grand Ronde Owned or Indian Owned Businesses.
- (M) Maintain a list of Grand Ronde Tribal Members and Indians who are Local Residents available for employment, and assist such persons with job placement.
- (N) Ensure compliance with the quarterly reporting requirements set forth in the Tribal/ODOT MOU.

(O) Conduct Certification Workshops for ODOT Contractors bidding on Tribal/ODOT MOU projects.

PART III – TERO EMPLOYMENT AND CONTRACTING OBLIGATIONS

(a) **APPLICATION.** Unless expressly stated otherwise, the provisions of this Part III shall not apply to ODOT Contractors

(b) **TRIBAL AND INDIAN PREFERENCE IN EMPLOYMENT.**

(1) **Covered Employers.** Unless prohibited by applicable federal law, all Covered Employers shall give preference to Qualified Grand Ronde Tribal Members in hiring, promotion, retention, training and all other aspects of employment and shall comply with the terms of this Ordinance and any applicable rules or policies adopted by the Commission.

(2) **Federal Law Requirements.** Where prohibited by applicable federal law, the preference set forth in Part III, Section (b)(1) above shall not apply. In such case, and to the extent permitted by federal law, Indian preference shall be given, with the first preference given to Qualified Indians who are Local Residents.

(3) **Job Qualifications and Requirements.** All Covered Employers shall establish written job requirements for each employment position in their work force. A Covered Employer shall not create excessive and unnecessary job skill qualification criteria or personnel requirements that are not required by business necessity and which serve as barriers to the preference objectives of this Ordinance. Written job requirements shall be provided to the TERO Director at least three (3) business days prior to posting a position. The TERO Director may grant a waiver of this requirement where the Covered Employer shows that the time period would result in an undue burden to the Covered Employer's business.

(4) **Layoffs.** Unless prohibited by applicable federal law, in the event of a reduction-in-force affecting a certain class of positions, Covered Employers shall retain Qualified Grand Ronde Tribal Members, until all non-Grand Ronde Tribal Members in that class of positions are laid off.

(c) **INDIAN PREFERENCE IN CONTRACTING.**

(1) All Covered Employers advertising or soliciting responses or bids for projects or contracts, including contracts to provide materials, goods, or services, shall include IOBs in the relevant trade who are certified and registered with the TERO, in the solicitation process. Unless prohibited by federal law, preference in the selection shall be given to qualified IOBs who submit responsive bids within five percent (5%) of the low bid as follows:

Order of Preference	Business
1 st Preference	Certified Grand Ronde Owned Businesses who submit a bid where 50% or more of the bid amount is for work to

	be performed by Grand Ronde Owned Business certified by TERO.
2 nd Preference	Certified Grand Ronde Owned Businesses.
3 rd Preference	IOB certified by TERO who submits a bid where 50% or more of the bid amount is for work that will be performed by Grand Ronde Owned Businesses certified by TERO.
4 th Preference	IOBs certified by TERO.
5 th Preference	Non-IOB who submits a bid where 50% or more of the work will be performed by Grand Ronde Owned Business certified by TERO.

(2) Where federal law prohibits Tribal preference in contracting, preference in contractor selection shall be given to IOBs as authorized by federal law.

(3) The preference requirements contained in this Ordinance shall be binding on all contractors and subcontractors of Covered Employers, regardless of tier, and shall be deemed part of all contract and subcontract specifications. The Covered Employer shall have the initial and primary responsibility for insuring all contractors and subcontractors comply with these requirements.

(4) The TERO Director shall maintain a list of Grand Ronde Owned Businesses and IOBs which shall be supplied to Covered Employers for their use.

(d) PROHIBITED ACTIVITIES. The following is a non-exhaustive list of prohibited activities. Covered Employers who engage in prohibited activities or otherwise violate this Ordinance shall be subject to penalties in accordance with Part V, Section (d) of this Ordinance.

(1) Submitting false or fraudulent information to TERO;

(2) Operating as a front or pass through company; or

(3) Preventing or interfering with a Covered Employer's compliance with this Ordinance.

(e) SPECIFIC PROVISIONS FOR CONSTRUCTION CONTRACTORS. The following provisions set forth additional requirements for Construction Contractors.

(1) Workforce.

(A) The TERO may specify the number of Grand Ronde Tribal Members or, when only Indian preference is applicable, the number of Indians a Construction Contractor shall hire by craft and skill level on a specific project. The TERO shall establish a TERO workforce utilization goal percentage on a project-by-project basis on each construction project. Contractor performance in attainment

of the goal will be monitored through regular submittals of payrolls and contractors may be directed to take corrective action to meet the set goal. A violation of the Ordinance may be issued and a penalty assessed if the contractor is unresponsive to corrective action.

(B) Construction Contractors must contact the TERO at least seventy-two (72) hours prior to commencing work to negotiate the workforce requirements and to provide the TERO an opportunity to locate and refer Qualified Registered Workers available to work. If no Qualified Registered Workers are available for work, the Construction Contractor may recruit from other resources.

(C) A contractor shall not create excessive or unnecessary job skill qualifications on TERO referred workers. If qualifications for a position require further review, a contractor shall submit any requested job descriptions to TERO. Upon review, if the skill qualifications appear to be excessive or unnecessary, the contractor shall submit a justification to TERO.

(2) Core Crew. Construction Contractors may, if necessary, have a core crew on a construction project which is exempt from the Tribal/Indian preference requirements of this Ordinance. A core crew is comprised of permanent and key employees. Any Indian already employed by a Construction Contractor shall be considered part of the Core Crew, but shall not be counted for purposes of calculating the maximum percentage of key and permanent employees.

(A) Prior to commencing work on or near the Tribe's Reservation, all Construction Contractors shall provide the TERO Director with a list of all permanent and key employees.

(B) A permanent employee is one who is and has been continuously employed by the Construction Contractor for at least one (1) year in a regular position of the employer or as an owner of the firm.

(C) A key employee is one who is in a top position or performs a critical function such that the Construction Contractor would likely risk financial damage or loss if that task were assigned to a person unknown to the employer.

(D) Permanent and key employees shall not exceed fifty percent (50%) of the workforce unless the total number of employees needed for the job is less than ten (10). The TERO Director may, at his or her discretion, grant an employer a larger core crew upon satisfactory demonstration by the employer that a larger core crew is necessary due to unique or specialized positions that are essential for the operation of business or performance of the work.

(3) Construction Wage Scale. All Construction Contractors shall compensate all Tribal/Indian workers at a rate consistent with the wages paid to their non-Indian employees performing the same jobs and shall ensure that Tribal/Indian workers are

afforded an opportunity to work as many hours as those non-Indian employees for the full term of the project. If the Construction Contractor is a signatory to a Construction Trade Union, the current pay scale and benefits of that trade will be paid. If Tribally determined wage rates or Davis Bacon wage rates are required by federal law, those wages shall be paid.

(4) Compliance Agreement.

(A) All Construction Contractors shall, no less than seventy-two (72) hours prior to commencing any work, prepare a plan acceptable to the TERO Director setting out how the Construction Contractor will comply with the requirements of this Ordinance regarding Indian employment and contract preference. A compliance agreement shall be used to monitor compliance with this Ordinance. Compliance agreement requirements and goals may be tailored to the individual circumstances of the Construction Contractor in order to maximize Indian employment and IOB contracting.

(B) A compliance agreement shall constitute a binding agreement; the terms of which shall be fully enforceable by the TERO. Failure to obtain or adhere to the terms of an approved compliance agreement, or supplying false information to the TERO, shall subject the non-complying party to monetary penalties of up to \$1,000 per violation, per day. Penalties assessed may be appealed to the Commission. Construction Contractors engaged in work without an approved compliance agreement will be required to stop work until an acceptable plan for implementing their obligations has been submitted to and approved by the TERO.

(C) Nothing in this Ordinance shall be construed to prohibit a Tribal Employer from requiring a Construction Contractor to submit a proposed Compliance Agreement as part of a response to a solicitation for bids or request for proposals.

(5) Compliance Monitoring. Upon the request of the TERO, all Construction Contractors shall submit reports and other information, including but not limited to contract documents and certified payroll and personnel records, as requested. On Tribal construction projects, contractors shall be required to regularly submit payroll information of all workers on the project to the TERO to determine compliance to the set workforce utilization goal. Payroll information will be due at the time the contractor issues their payroll. Contractors shall allow for onsite monitoring by TERO staff of construction projects for compliance and to confirm workforce utilization requirements.

(6) TERO Fee.

(A) A TERO fee of 2.5% shall be assessed on projects or contracts with a total contract price of one hundred thousand dollars (\$100,000) or more.

(B) The general contractor on a project shall be responsible for paying the entire TERO fee on the project prior to commencing any work; provided

however, where good cause is shown, TERO may authorize installment payments to be paid over the course of the contract.

(C) The TERO may invoice the general contractor and payment will be due within fourteen (14) days from the date of invoice; provided, however that the fee shall be paid prior to commencement of any work and the absence of an invoice shall not relieve the general contractor of the obligation to pay the TERO fee.

(D) If for any reason the cost of a project increases or decreases, the general contractor shall notify TERO of this change, and any change in the TERO fee shall be assessed and paid or refunded as applicable.

(7) Discipline Determination. Construction Contractors shall make every effort to provide counseling and guidance to employees to correct work performance deficiencies prior to terminating an individual entitled to employment preference pursuant to this Ordinance. The TERO shall be notified prior to the termination of an assigned TERO worker.

(f) SPECIFIC PROVISIONS FOR TRIBAL EMPLOYERS. The following provisions set forth additional requirements specific to Tribal Employers.

(1) Employment Statistics Report. All Tribal Employers, through their respective Human Resources Departments, shall be required to track employees for retention purposes. Tribal Employers shall submit a quarterly report to the TERO for Commission review by the fifteenth (15th) day after the end of each calendar quarter. The report must contain the following employment statistics: number of employees by department; employment level and preference status of current employees, including contract employees; resignations; and terminations.

Months	Report Due
January-March	April 15
April-June	July 15
July-September	October 15
October-December	January 15

(2) Tribal Member Career Development.

(A) *On the Job Training.* Tribal Employers may be required by the TERO to participate in on-the job training or mentor programs (including without limitation, job shadowing) designed by the TERO (or any Tribal career development program recognized by the Tribe) to assist Grand Ronde Tribal Members to become qualified in various job classifications used by the employer.

(B) *Succession Planning.* Tribal Employers shall work cooperatively with TERO in assisting current Tribal employees who demonstrate interest in and the

potential to fill key leadership positions, in developing the necessary experience and education to fill such positions.

(3) Counseling and Support Programs. The TERO (or any Tribal career development program recognized by the Tribe) may establish counseling and other support programs to assist Grand Ronde Tribal Members in obtaining and retaining employment. Tribal Employers shall be required to cooperate with the TERO regarding such counseling and support programs.

(4) Employment Process.

(A) *Assessment of Minimum Qualifications.* The TERO Director or his/her designee shall review all minimum qualification assessments conducted for Tribal member job applicants before job interviews are scheduled. The TERO Director may require reassessment of any Tribal member that TERO believes has been incorrectly assessed as not meeting the minimum qualifications. If Human Resources and/or the hiring manager still screens out the Tribal member applicant after reassessment, they shall provide the TERO Director with a written explanation detailing the reasons the Tribal member was screened out. If within five (5) days of receiving the written explanation, the TERO Director and hiring manager are unable to reach an agreement as to whether the Tribal member meets minimum qualifications, the matter will be referred to the TERO Commission for review. The TERO Commission shall promptly review the matter and issue a determination. The Tribal Employer may not proceed with candidate screening or selection for the position pending TERO Commission review. The Commission's determination shall be final.

(B) *Conducting Interviews.* TERO shall be provided an opportunity to review proposed interview questions prior to job interviews for the purposes of confirming consistency with posted job requirements. Tribal members who are offered a job interview may request TERO staff be present for the interview. TERO's role during the interview will be solely as an observer of the process and to gather information about the Tribal member's interview performance for the purpose of providing feedback and coaching to the Tribal member. TERO shall not participate in the assessment of interviewees or in the selection of the successful candidate. However, TERO may, upon request of the interview panel, offer any additional information it may have about a candidate's qualifications.

(C) *Selection of Candidate for Hire.* Tribal Employers shall notify the TERO Director of all hiring decisions, Tribal and Non-Tribal, prior to extending an offer of employment to the selected candidate.

(D) *Retention.* Tribal Employers shall notify provide any Tribal member approaching separation of employment for attendance or performance issues with written notice of their opportunity to seek job training or other job assistance services from TERO.

(5) Promotions. A Tribal Employer may promote an employee, in good standing, to an open position within a department which is no more than two (2) salary grades higher than the employee's current position without advertising the position. Tribal Employers must consult with TERO prior to making such a promotion. A Tribal Employer shall not promote a non-Tribal member over an equally qualified Tribal member within the department.

(6) Prohibition Against Retaliation. It shall be a violation of this Ordinance for any Tribal Employer, Tribal Council member, or any appointed Board Member or Commissioner, to retaliate against a Tribal employee or Tribal job applicant as a result of their preference status under this Ordinance. Any individual who believes they have been retaliated against because of the preference afforded by this Ordinance may file a complaint with TERO. The TERO Director shall investigate the complaint and may issue a notice of violation to any employee determined to have retaliated against a Tribal member in violation of this Ordinance. The notice of violation may be appealed to the TERO Commission as provided in Section (e) below. An employee who is determined to have retaliated in violation of this Ordinance is subject to disciplinary action by their employer.

(g) UNIONS.

(1) Nothing herein shall constitute official recognition by the Tribe of any union or endorsement of any union activities. The unions will honor the Tribe's sovereign authority and recognize the Tribe's jurisdiction to regulate employment and contracting activities within the boundaries of the Reservation.

(2) Covered Employers with collective bargaining agreements with a union are responsible for informing such unions of this Ordinance. No union agreement shall supersede the requirements of this Ordinance.

(3) As stated in the Tribe's Right to Work Ordinance, no Registered Workers shall be required to become or remain a member of any union or labor organization as a condition of employment, or continuation of employment, while they are working on the Reservation.

PART IV – ODOT CONTRACTORS

(a) **APPLICATION.** Unless expressly stated otherwise, the provisions of this Part IV shall apply only to ODOT Contractors.

(b) **ODOT CONTRACTOR OBLIGATIONS.** ODOT Contractors performing work within the MOU Boundary as defined in the Tribal/ODOT MOU shall:

- (1) Give preference to Indians who are Local Residents in hiring, promotion, training, and all other aspects of employment.
- (2) Notify the TERO Director whenever a Registered Worker is not performing adequately. The contractor shall not terminate an Indian employee until the TERO Director or his/her designee has had an opportunity to provide counseling.
- (3) In all layoffs and reductions in force, no Tribal/Indian worker shall be terminated if a non-Indian worker in the same job classification is still employed.
- (4) An ODOT Contractor shall not use qualification criteria or other personnel requirements that serve as barriers to Indian employment unless the ODOT Contractor is able to demonstrate that such criteria or requirements are required by business necessity.
- (5) Attend mandatory pre-bid certification workshops conducted by the TERO. ODOT Contractors must have a certificate of completion from the TERO in order to be eligible to bid on ODOT contracts that require compliance with the Tribal/ODOT MOU requirements.
- (6) Comply with the requirements of the Compliance Agreement executed pursuant to Section (c) below.
- (7) Pay the TERO fee as specified in the Tribal/ODOT MOU prior to commencement of work.
- (8) Provide certified weekly payroll reports to the TERO Director as required.
- (9) Allow on-site inspections by TERO representatives.

(c) **COMPLIANCE AGREEMENT.**

(1) Each ODOT Contractor shall be required to meet with the TERO Director to negotiate and execute a Compliance Agreement which sets forth:

- (A) The minimum number of Indians that shall be hired for a particular project with numerical goals for each craft, skill area, or job classification used by the ODOT Contractor including, but not limited to, general labor, skilled, administrative, supervisory, and professional categories. The Indian employment

goals are for the Contractor's work force who are other than "core crew" members as that term is used in Part III, Section (e)(2). Indian employees of an ODOT Contractor shall be included in the core crew, regardless of job function, but shall not count towards the Contractor's maximum core crew.

(B) The contractor's agreement to utilize qualified and available Registered Workers referred by the TERO Director.

(C) Periodic reporting requirements to the TERO Director on the number of Indians employed, record of persons hired, fired, or promoted during the reporting period, and a statement regarding compliance with the hiring goals set forth in the Compliance Agreement.

(D) Applicable wage scale provisions, prevailing wage standards, and salary compensation terms that may be applicable to a project or contract.

(2) No ODOT Contractor shall commence work or site mobilization until a Compliance Agreement has been negotiated and executed.

(3) Any violation of an executed Compliance Agreement shall be a violation of this Ordinance.

(4) An ODOT Contractor is subject to penalties and/or sanctions as provided in Part V below for violating this Ordinance or a Compliance Agreement.

PART V – ENFORCEMENT

(a) INVESTIGATIONS.

(1) The TERO Director or his designee may, upon his own initiative or pursuant to a complaint filed in accordance with Part V, Section (b), conduct such investigations as they deem necessary to ensure compliance with this Ordinance, or to determine whether a Covered Employer has violated this Ordinance.

(2) The TERO Director or his designee may enter the place of business of a Covered Employer for the purpose of conducting investigations and, in a manner consistent with orderly operation of business activity, interview employees of the Covered Employer, review and copy documents, and carry out such other activity as the TERO Director deems necessary to the investigation; provided that any review and copying of confidential and proprietary documents shall comply with Part V, Section (a)(4) of this Ordinance. Notwithstanding the above, the TERO Director shall not have authority to review regulatory files of the Grand Ronde Gaming Commission.

(3) If a Covered Employer unreasonably refuses to permit the TERO Director to enter onto business premises during business hours, or to reasonably inspect or copy documents, sanctions may be imposed.

(4) All proprietary and confidential information obtained in connection with an investigation hereunder shall be kept confidential and used only as necessary by the TERO Director, Commission, or parties to a hearing before the Commission or appeal to the Tribal Court, in a manner that, to the maximum extent possible consistent with the requirement of fairness to the parties, protects the confidentiality of the documents.

(5) If at the conclusion of any investigation hereunder, the TERO Director determines that a violation of this Ordinance has occurred, he may take any steps to resolve the violation that he deems appropriate and which are authorized by this Ordinance.

(b) COMPLAINTS.

(1) Filing and Contents of Complaint. Subject to Part V, Section (b)(2), any individual, business, or entity that believes that a Covered Employer has violated the requirements of this Ordinance (“Complainant”), may file a written complaint with the TERO Director. A copy of the complaint shall be provided to the Covered Employer. The complaint shall include a description of all relevant facts, evidence, witnesses, and such other information as is necessary to enable the TERO Director to carry out an investigation.

(2) Timeline for Filing Complaint.

(A) *Exhaustion Requirement.* No complaint may be brought against a Covered Employer unless the Complainant has first attempted to resolve the

complaint directly with the Covered Employer. In the case of a complaint against a Tribal Employer, no complaint may be filed unless the Complainant has, within five (5) days of the alleged violation: 1) filed a complaint directly with the Human Resource Department of the Tribal Employer, and thereafter exhausted any available administrative remedies provided by that Tribal Employer; or 2) filed a complaint with the Tribal Employer and seven (7) days have passed without any action by the Tribal Employer. A complaint is subject to dismissal by the TERO Director when these exhaustion requirements have not been satisfied.

(B) *Maximum Time.* In no event may a complaint be filed more than fourteen (14) days after the date of an alleged violation of this Ordinance.

(3) Action on Complaint. Within ten (10) days of receipt of a timely filed complaint, the TERO Director or his designee shall initiate and complete an investigation of the allegations in the complaint. If the TERO Director finds insufficient evidence of a violation of this Ordinance, he shall dismiss the complaint and notify the Complainant and Covered Employer that the matter is closed. If upon investigation, the TERO Director believes a violation of this Ordinance has occurred, he shall proceed to resolve the matter in accordance with Part V, Section (c) below.

(c) RESOLUTION OF VIOLATIONS.

(1) If, after conducting an investigation either on his own initiative or in response to a complaint, the TERO Director believes that a violation of this Ordinance has occurred (including without limitation, any failure to pay required TERO fees or to comply with an investigatory request), the TERO Director shall notify the Covered Employer, and Complainant if applicable, in writing of the specific violations found and the basis for the findings.

(2) The TERO Director shall make good faith efforts to reach an informal settlement of the violations with the Covered Employer.

(3) If an informal settlement cannot be reached, the TERO Director shall:

(A) In the case of an alleged violation by a Tribal Employer, issue a written notice to the General Manager (or similarly situated head of the Tribal Employer) and Human Resource Department of the Tribal Employer advising them of the nature of the alleged violation and setting forth any recommendations for addressing the violation;

(B) The General Manager (or similarly situated head of the Tribal Employer) of a Tribal Employer who receives a notice of an alleged violation from the TERO Director shall review the notice and determine which recommendations of the TERO Director it will implement and/or propose alternate resolutions to the alleged violation. The General Manager shall notify the TERO Director of his/her determination and provide a written explanation for his/her planned resolution.

(C) In the event the TERO Director is not satisfied by the General Manager's (or similarly situated head of the Tribal Employer's) written explanation, the TERO Director may submit a written request for review by the TERO Commission. The TERO Commission shall promptly hear the matter. The hearing shall be conducted in accordance with Part V, Subsection (f).

(D) In the case of a Covered Employer other than a Tribal Employer, issue a corrective order to the Covered Employer specifying any corrective action that must be taken by the Covered Employer and the timeframe in which the corrective action must be taken to avoid penalties. The notice shall also advise the Covered Employer of its right to appeal the corrective order to the Commission. If the TERO Director believes that immediate action is necessary to prevent irreparable harm resulting from an alleged violation of this Ordinance, he may request the Commission order a temporary injunctive order pending a hearing before the Commission on the matter. In no event shall the temporary injunctive order exceed fourteen (14) days.

(4) If a Covered Employer other than a Tribal Employer fails or refuses to comply with a corrective order within the timeframe set forth in the order, and fails to request a hearing before the Commission, the TERO Director may impose additional penalties on the Covered Employer as set forth below.

(d) PENALTIES/SANCTIONS. The following corrective actions, penalties, or sanctions may be imposed on a Covered Employer, other than a Tribal Employer, who violates any provision of this Ordinance.

- (1) A civil fine in an amount not to exceed \$1,000 per violation;
- (2) An order that the employer make payment of back pay or other damages to any aggrieved party;
- (3) Deny the Covered Employer the right to commence business on the Tribe's Reservation;
- (4) Order the Covered Employer to hire, promote, or train a preference individual or IOB;
- (5) Order the Covered Employer to dismiss any employees hired in violation of this Ordinance;
- (6) Order a percentage of lost profits (contract price less estimated expenses, materials, and labor costs); or
- (7) Suspend the Covered Employer's business activity on the Tribe's Reservation.

All monetary penalties assessed under this Ordinance shall be paid within thirty (30) days from the date imposed. If the Covered Employer fails to pay any fine as required, the TERO Director may request a Commission hearing be scheduled. Any Commission hearing so requested shall be conducted in accordance with the hearing procedures set forth in Part V, Section (f).

(e) APPEALS TO THE COMMISSION. Any person or Covered Employer aggrieved by a decision or action of the TERO Director or TERO staff (including any claims that the TERO Director or staff have exceeded the authority granted under this Ordinance) may seek review of the action or decision by filing a petition for review with the Commission. The petition must be filed no later than fourteen (14) days from the date of the action or decision being appealed. The petition shall state the reasons review is being sought and shall include, if applicable, a copy of the decision or order being appealed. The person or Covered Employer filing the Petition shall have the burden of proving, by a preponderance of the evidence, that a violation of this Ordinance did not occur, that a penalty or sanction imposed or corrective action ordered by the TERO Director was improper, or that the TERO Director exceeded his authority.

(f) COMMISSION HEARINGS.

(1) Hearings before the Commission shall be governed by rules of practice and procedure that are adopted by the Commission; provided that the Commission may consider any evidence that it deems relevant to the hearing and the Commission shall establish such procedures and safeguards to ensure the due process rights of all parties are protected.

(2) The Chair of the Commission will direct the proceedings and shall take whatever action is necessary to ensure an equitable, orderly, and expeditious hearing.

(3) The TERO Director shall represent and defend any TERO action or determination challenged at the hearing; provided that the TERO Director may be represented by the Tribal Attorney's Office.

(4) Upon receiving notice of a hearing, a party may review any TERO files relevant to the issues to be addressed at the hearing; provided that TERO staff may remove proprietary or confidential information from the file, which will not be relied upon in the presentation of TERO Director's case.

(5) For good cause, the Chair of the Commission may postpone a hearing to a later date upon the written request of a party.

(6) Within fourteen (14) days of a hearing on a petition for review, the Commission shall issue a written order affirming; modifying, or reversing the TERO Director's decision.

(7) The Commission's order shall be a final order for purposes of appeal to the Tribal Court of the Confederated Tribes of the Grand Ronde Community of Oregon.

(g) APPEALS TO TRIBAL COURT.

(1) Any party adversely affected by a final order of the Commission may file an appeal with the Grand Ronde Tribal Court. A copy of the appeal must be sent to the TERO Director and any other party to the Commission proceeding no later than fourteen (14) days of the date of the Commission order.

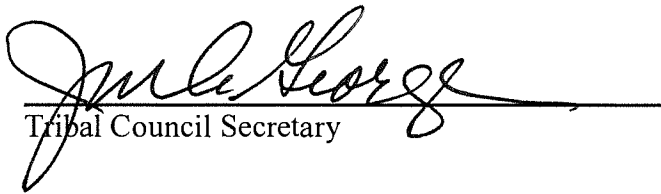
(2) The notice of appeal shall set forth the order from which the appeal is taken and the grounds upon which reversal or modification is sought.

(3) The Commission's decision or order shall be stayed pending the determination of the Tribal Court.

(4) The Tribal Court shall uphold the decision of the Commission unless it is demonstrated that the decision of the Commission was arbitrary and capricious, in violation of the Grand Ronde Constitution, or in excess of the authority granted the Commission.

(h) ENFORCEMENT ORDERS. If a Covered Employer has failed to comply with an order of the Commission or the TERO Director, and the time for filing an appeal of such order has passed, the TERO Director may petition the Tribal Court for enforcement of the order and the Tribal Court may grant such relief as is necessary and appropriate to enforce the Commission or TERO Director order, including, without limitation, confiscation of property within the jurisdiction of the Tribe.

I certify this to be a true copy of the Confederated Tribes of the Grand Ronde Community of Oregon Tribal Employment Rights Ordinance.


Tribal Council Secretary

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SPECIAL PROVISION

INDIAN PREFERENCE IN EMPLOYMENT ON FEDERAL-AID HIGHWAY PROJECTS ON AND NEAR INDIAN RESERVATIONS

July 1, 2024

PURPOSE

The purpose of this Special Provision is to outline the Indian Employment Preference requirements and procedures to be followed by The Confederated Tribes of Grand Ronde (CTGR), the Oregon Department of Transportation (ODOT), and all Contractors or subcontractors engaged in highway construction work that is under contract with ODOT on federal-aid highway projects that are located on and near the Grand Ronde Indian Reservation.

BACKGROUND

Section 140(d) of Title 23, U.S.C., was amended by Section 1026 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) to include that, "States may implement a preference for employment of Indians on projects carried out under this title near Indian reservation."

AUTHORITY

ODOT acknowledges the inherent sovereign authority of the CTGR to promulgate and enforce the Tribal Employment Rights Ordinance ("TERO Ordinance") within the boundaries of the Grand Ronde Indian Reservation and acknowledges Title 23, Section 140(d) of the USC.

The current TERO Ordinance of the CTGR and its compliance requirements and procedures are incorporated herein and made part of this Special Provision.

ODOT and CTGR entered into a Memorandum of Understanding (MOU) to implement TERO Ordinance provisions into ODOT contracts.

APPLICABILITY

Eligible projects for Indian employment preference consideration under this Special Provision are those projects which are on or near Indian Reservation Roads or on the Grand Ronde Reservation. Roads "near" The Grand Ronde Reservation are defined by mileposts as shown on Exhibit A attached to the MOU.

ELIGIBLE EMPLOYEES

All Indians are eligible for Indian preference without regard to Tribal affiliation or place of enrollment. However, recruiting efforts will be targeted toward those living on or near the Grand Ronde Indian Reservation.

Employers with collective bargaining agreements with a union are responsible for informing such unions of this requirement.

INDIAN EMPLOYMENT PREFERENCE GOAL

The Indian Employment Preference goal is indicated in the project Special Provisions.

Classifications for Indian Employment Preference goal consideration are:

- Carpenter
- Laborer
- Equipment Operator
- Cement Masons
- Truck Drivers
- Electricians
- Ironworkers

Classification shall be according to requirements for certified payrolls.

Indian Employment Preference goals will apply to total project work hours and will not be applied individually to the Contractor and subcontractors. Indian Employment Preference goals do not apply to number of persons employed at any given period of time.

Indian Employment Preference goals are for the Contractor's work force who are other than core crew members. A Contractor's core crew is composed of full-time employed individuals necessary to satisfy his/her reasonable needs for supervisory or special experienced personnel to assure an efficient execution of the contract work. Indian employees of the Contractor shall be included in the core crew, regardless of job function, to avoid the unintended results of having a Contractor lay-off or terminate an Indian employee to hire another under this provision.

In setting the Indian Employment Preference goals, consideration has been given to the availability of skilled and unskilled Indian workers, the type of work to be performed, the Contractor's employment requirements, the need for new hires, and unemployment rates prevailing among non-Indians. Consideration has also been given to the employment goals for minorities and women established for the area by the U.S. Department of Labor's Office of Federal Contract Compliance Programs pursuant to Chapter 41, Code of Federal Regulations, Part 60-4.

The Indian Employment Preference goals may only be changed by ODOT after consultation with the CTGR and the Contractor, and after consideration of the good faith efforts of the Contractor together with the ability of the CTGR to refer workers in

numbers and in time for the Contractor to meet the Indian Employment Preference goals and to perform the work.

If the CTGR is unable to provide sufficient qualified or qualifiable applicants to meet the Indian Employment Preference goal within 48 hours of the placement of a job order by the Contractor, the Contractor, ensuring nondiscrimination and providing equal employment opportunity, may recruit from other sources off the Grand Ronde Indian Reservation. The Contractor shall give full consideration to all qualified job applicants referred by the CTGR. The Contractor is not required to employ any applicant who, in the Contractor's opinion, is not qualified to perform the classification of work required.

FRINGE BENEFITS

All fringe benefits for Indian workers referred by the Tribal Employment Rights Office of the CTGR shall be paid in cash. Indian workers who are union members will have the option of fringe benefits in cash or paid into a bonafide plan or program. However, this does not change any agreements between Indian union members and their respective unions.

PRECONSTRUCTION CONFERENCE

The preconstruction conference will be the forum for finalizing all compliance agreements and requirements between the CTGR and the Contractor and subcontractor(s) and to answer any questions regarding the Indian Employment Preference goal and applicable Special Provisions.

MANDATORY TERO WORKSHOP

The Tribal Employment Rights Office of the CTGR agrees to conduct mandatory prebid quarterly TERO/MOU workshops, and shall issue certificates of completion to those Contractors who sign in, attend, and participate. Contractors must have a certificate in order to be eligible to bid on ODOT Contracts that require compliance with these TERO/MOU requirements. The certificate will be good for 3 years.

COMPLIANCE

The State will follow normal contract compliance procedures to effect compliance. The State may elect to invite the CTGR to assist their monitoring efforts in all or any part of its compliance process. The State will review the Contractor's employment practices and take appropriate enforcement actions when the goal is not reached after consideration of good faith efforts. See attached "ON-SITE WORKFORCE AFFIRMATIVE ACTION REQUIREMENTS FOR WOMEN AND MINORITIES ON FEDERAL AID CONTRACTS" or contact the Tribal Employment Rights Office for sanctions that may be imposed for failure to meet these goals.

COMPLIANCE FEE

The Contractor shall pay the compliance fee directly to the TERO before beginning work subject to this Special Provision. Use the Contract Amount to calculate the compliance fee. See Section 4 of the MOU for percentages.

MEMORANDUM OF UNDERSTANDING BETWEEN
STATE OF OREGON DEPARTMENT OF TRANSPORTATION
And
THE CONFEDERATED TRIBES OF THE GRAND RONDE COMMUNITY OF
OREGON

THIS AGREEMENT, hereinafter “Agreement” or “MOU,” is made and entered into by and between the STATE OF OREGON, acting by and through the Oregon Department of Transportation (ODOT or State); and the CONFEDERATED TRIBES OF THE GRAND RONDE COMMUNITY OF OREGON (CTGR or Tribe), acting by and through its elected officials and the Tribal Employment Rights Office (TERO), hereinafter individually referred to as “Party” and collectively referred to as the “Parties.” The Agreement pertains to cooperation between the Parties to apply the Indian Employment Preference to Federal-Aid highway projects (“Federal-Aid Highway Projects”) taking place on or near the Grand Ronde Reservation.

RECITALS

Oregon Revised Statutes (ORS) 190.110 et seq. grants authority to state agencies to enter into agreements with an American Indian tribe or an agency of an American Indian tribe for the performance of any or all functions and activities that a party to the agreement, its officers, or agents have the authority to perform.

CTGR has the inherent sovereign authority to promulgate and enforce the Tribal Employment Rights Office Ordinance (“TERO Ordinance” or “Ordinance”) within the boundaries of the Grand Ronde Reservation (“Reservation”).

Section 140(d) of the United States Code, Title 23 provides, “States may implement a preference for employment of Indians on projects carried out under this title near Indian reservations.”

USDOT Notice 4720.7 states,

In off reservation situations, [Tribal Employment Rights Offices] can bill Contractors at an agreed upon rate for services rendered, i.e., recruitment, employee referral and related supportive services. The proceeds are used by the tribes to develop and maintain skills banks, to fund job referral, counseling, liaison, and other services and activities related to the employment and training of Indians.

ODOT recognizes that jobs in the private employment sector on and near the Reservation are an important resource for Indians residing on or near the reservation.

ODOT considers the availability of a pool of skilled and trained workers in heavy highway construction trades to be beneficial to Federal-Aid highway projects on or near the Reservation.

The purpose of this Agreement is to establish procedures to be followed by both Parties to aid in ensuring that when Contractors are performing work on Federal-Aid Highway Projects under an ODOT MOU Contract within the CTGR MOU TERO Boundary, the Contractors comply with the Ordinance.

Parties enter into this Agreement in the spirit of partnership, transparency, and communication. In the event problems arise with Contractors under this MOU, both Parties agree that it is in the best interest of their ongoing partnership to proactively consult and confer with each other on proposed solutions for the mutual benefit of their separate and combined goals.

This MOU amends and replaces a prior MOU between the Parties which took effect on January 3, 2019, and was amended on December 28, 2023, to extend the term until June 30, 2024.

NOW THEREFORE in consideration of the mutual understandings and agreements herein set forth, CTGR and ODOT enter into the following Agreement:

1. EFFECTIVE DATE AND DURATION.

Once the Agreement has been fully executed, the term of this Agreement shall begin on the July 1, 2024, and shall remain in effect for five (5) years, unless earlier terminated per Section 8.

2. DEFINITIONS.

- 2.1. Compliance Agreement or MOU Compliance Agreement** – An agreement between a Contractor or Subcontractor and TERO, setting forth how the Contractor will meet the Indian preference in hiring and other obligations under the Ordinance. The Compliance Agreement is attached as Exhibit B.
- 2.2. Contractor** – Any Contractor engaged to perform services on a highway construction project that is subject to this MOU.
- 2.3. CTGR/CTWS TERO Boundary Overlap** – Region that is within both the CTGR MOU TERO Boundary and CTWS MOU TERO Boundary, as identified in Exhibit C.
- 2.4. Federal-Aid Highway Project** – Projects that occur on Federal-Aid highway that are funded under USC Title 23, and which may be eligible for Indian Preference in Employment if they are on or near the Reservation, per USDOT Notice 4207.7.
- 2.5. Indian** – Any person enrolled in a federally recognized tribe.
- 2.6. Indian Preference in Employment** – Preference for Indians in all aspects of employment, including but not limited to, hiring, training, promotions, layoffs, contracting and subcontracting for work in whole or in part within MOU TERO Boundary.
- 2.7. MOU TERO Boundary** – Region of land near and including the Reservation, as identified on map attached as Exhibit A.

- 2.8. ODOT MOU Contract** – Contract for work on a Federal-Aid highway between ODOT and a Contractor for work in whole or in part within MOU TERO Boundary that by agreement of the Parties, is subject to this MOU and the Indian Preference in Employment. ODOT requires Contractors for these projects to sign the Compliance Agreement and comply with the TERO Ordinance, adopted on November 6, 2013 and amended on January 13, 2021.
- 2.9. On-Reservation Contract** – Contract for work on a Federal-Aid Highway Project between ODOT and a Contractor for work on the Grand Ronde Reservation. ODOT requires Contractors for these projects to comply with the TERO Ordinance and sign the Compliance Agreement.
- 2.10. Reservation** – the Grand Ronde Reservation.
- 2.11. TERO Ordinance or Ordinance** – Tribal Employment Rights Ordinance, adopted November 6, 2013, and last amended January 13, 2021.

3. ODOT MOU CONTRACTS.

3.1. Selection

ODOT and TERO will work together to identify projects eligible under this MOU to promote and support Indian employment Federal-Aid Highway Projects. ODOT will share the State Transportation Improvement Program (STIP) with the TERO and identify those projects that are Federal-Aid Highway Projects that are within the MOU TERO Boundary (TERO eligible projects).

ODOT and TERO will meet annually each spring to mutually decide which TERO eligible projects will be subject to this MOU and the Indian Preference in Employment as well as any specific project workforce training and needs, project schedule, bid documents (applicable deadlines, Compliance Agreement template and applicable Ordinance amendments), scope, and duration. ODOT will provide TERO a list of TERO eligible projects subject to the MOU and the Indian Preference in Employment on a monthly basis.

Parties may also discuss fee-supported training activities, goal setting process, reporting summaries, and challenges or successes in Contractor compliance, such as participation and performance of Contractors under respective compliance agreements.

ODOT shall notify TERO of any TERO eligible projects that come up after the **Parties' annual meeting**. At **CTGR's election**, such projects shall become subject to this MOU and Contractor will be required to enter into a compliance agreement with TERO, to the extent it does not interfere with ODOT procurement or contract administration. To the extent a TERO eligible project lies within the CTGR/CTWS TERO Boundary Overlap, the selection process outlined in 4.2 shall apply; provided, however, that the Tribe which selected first during a given year shall have the second selection of any TERO eligible projects within the Boundary Overlap that come up later that year.

3.2. Projects in the MOU TERO Boundary Overlap

The Confederated Tribes of the Grand Ronde (CTGR) MOU TERO Boundary and the Confederated Tribes of Warm Springs (CTWS) MOU TERO Boundary overlap as indicated in Exhibit C hereto (CTGR/CTWS TERO Overlap). Each MOU TERO boundary is established to define “near reservation” and is based solely on a reasonable commuting distance from a tribe’s reservation (approximately 60 miles). The boundary is established with no relation to tribal historic or ceded lands. For this reason, MOU TERO boundaries among Oregon tribes may overlap.

In order to provide for the efficient and equitable distribution of the opportunity to participate in Federal-Aid Highway Projects within the CTGR/CTWS TERO Overlap, should it exist beyond 2024, the following project identification and selection process will be used:

1. ODOT shall provide a list of the planned Federal-Aid Highway Projects, if any, that fall within the CTGR/CTWS TERO Overlap to the CTGR and CTWS TERO Programs on a yearly basis;
2. ODOT, CTGR TERO and CTWS TERO shall meet annually in or around March of each year to determine which TERO Program shall administer and set the Indian preference goals for which eligible projects within the CTGR/CTWS TERO Overlap;
3. During the annual meeting, CTGR TERO and CTWS TERO shall take turns selecting TERO eligible projects within the CTGR/CTWS TERO Overlap to administer, with CTWS selecting first in odd numbered years and CTGR selecting first in even numbered years;
4. The selection process will continue until all eligible projects within the CTGR/CTWS TERO overlap have been selected or both TEROs indicate they are unable to administer additional projects.
5. CTGR and CTWS will jointly provide notes of the results of this selection to ODOT.

In the event CTWS TERO selects, but is subsequently unable or unwilling to administer, an eligible project within the MOU TERO Boundary Overlap, CTGR shall have the option to administer the project as provided in this MOU, to the extent it does not interfere with ODOT procurement or contract administration.

3.3. Goal Setting

TERO shall analyze each project selected to become an ODOT MOU Contract to establish an accomplishable hiring goal. The established goal shall be based on an assessment of workforce availability and worker skill needs for the project.

Eligible employees for goals include all Indians without regard to tribal affiliation or place of enrollment. However, TERO recruiting efforts shall be targeted towards those living on or near the CTGR.

Hiring goals apply to employees in job classifications for heavy highway construction trades.

3.4. MOU Compliance Agreement

TERO agrees to meet with each Contractor engaged under an ODOT MOU Contract to develop a numerical hiring goal for each eligible job craft which shall be used on the contract. TERO will formalize the hiring goals using the MOU Compliance Agreement form, attached as Exhibit B, or a form substantially similar to it. This includes numerical hiring goals and timetables for each craft, skill area, job classification, etc., as a percentage of total hours worked on the project, used by the Contractor. This Compliance Agreement form may be revised from time to time by mutual consent of the parties, without formal amendment to this MOU.

ODOT agrees it will require a Contractor for an ODOT Contract to execute the MOU Compliance Agreement form.

3.5. Mandatory MOU Workshop

TERO agrees to conduct mandatory pre-bid quarterly TERO/MOU workshops and shall issue certificates of completion to those Contractors who sign in, attend, and participate. ODOT agrees to make a good faith effort to participate in such workshops. TERO agrees that the certificate shall be valid for three (3) years from the date of the workshop.

ODOT will require Contractors to obtain a valid certificate of completion issued by TERO in order to be eligible to bid for an ODOT MOU Contract.

3.6. Pre-Construction Conference

Pre-construction conferences for Contractors of projects that are subject to this MOU shall be held on or at a location near the Reservation. At the pre-construction conference TERO and ODOT shall be available to provide a detailed explanation of, and answer questions about, the provisions of the Ordinance, if applicable, and Indian Preference goals. The pre-construction conference shall be the forum for finalizing all compliance agreements and requirements between TERO and the Contractor and Subcontractor and answering any questions on Indian Preference and applicable special contract provisions.

3.7. Specialty and Service Provider Contractor Exclusion

All specialty and service provider Contractors who are not required by ODOT to have a full subcontract will be exempt from entering into a compliance agreement with TERO.

3.8. On-Reservation Contracts

The State acknowledges the inherent sovereign authority of CTGR to assess and collect the Compliance Fees set forth in the Ordinance, Part III (e)(6) for On-Reservation Contracts.

ODOT will require that Contractors located on or engaged in work on the Reservation shall give preference to Indian owned businesses in the award of subcontracts. The TERO program manager shall maintain a list of Indian owned business directory which shall be supplied to Contractors upon request.

Nothing in this subsection changes that On-Reservation Contracts are also ODOT MOU Contracts.

4. MOU COMPLIANCE FEE.

4.1. Compliance Fee Calculation

Parties agree that TERO may assess a Compliance Fee on ODOT MOU Contracts. The MOU Compliance Fee for an ODOT MOU Contract is the percentage of the total cost of the project, as set forth below:

Contract Value	Fee % allowed
\$1 to \$500,000	1.00%
\$500,001 to \$999,999	0.75%
\$1,000,000 to \$1,999,999	0.50%
\$2,000,000 to full contract value	0.25%

When a Federal-Aid Highway Project results in a contract that occurs both on the Reservation and within the MOU TERO Boundary, the portion of work on the Reservation is subject to the fee percentage established in the Ordinance and the portion of the work that is within the MOU TERO Boundary is subject to the MOU Compliance Fee.

4.2. Reporting

Parties agree that the Compliance Fees paid under this Agreement are to be used by the TERO to develop and maintain a TERO Program including a Tribal Hiring Hall, to fund job referral, conduct screening, career counseling, liaison representation, training, and apprenticeship.

TERO will provide a Tribal Hiring Hall referral report (Referral Report) on a monthly basis to ODOT. Each Referral Report will provide the following data:

- month and year of report submitted,
- names of TERO employee referrals,
- dates referred,
- contractors referred to,
- trades,
- last four digits of employees' social security number,
- notation if registered apprentice, and
- active or terminated dates.

TERO will provide to ODOT quarterly reports summarizing Compliance Fee-supported activities (Quarterly Fee Report) within thirty (30) days after the completion of each quarter of CTGR's fiscal year. Reports will provide the following data:

- total Compliance Fees collected,
- number of Tribal Hiring Hall referrals,
- trade breakout of referrals,
- gender breakout of referrals,
- support activities such as screening, orientations, counseling, trainings, and
- other activities supported with Compliance Fees collected under this Agreement.

The Parties agree to consult within thirty (30) days of any failure to deliver the Quarterly Fee Report in a timely manner.

ODOT shall provide TERO with, at a minimum, a copy of the “TERO Project Employment” report, or its future equivalent, on a monthly basis.

5. NOTICES; ADMINISTRATORS.

5.1. Notice.

Except as otherwise expressly provided in this Agreement, any communications between the Parties hereto or notices to be given hereunder shall be given in writing by email, personal delivery, or mailing the same, postage prepaid, to ODOT or CTGR at the address, number or email address set forth in this Agreement. Any communication or notice so addressed and mailed shall be effective five (5) days after mailing. Any communication or notice given by personal delivery shall be effective when actually delivered. Any communication or notice given by email shall be effective upon the sender’s receipt of confirmation generated by the recipient’s email system that the notice has been received by the recipient’s email system.

5.2. Service.

All notices required or authorized to be served on either Party shall be served by first class mail to Party’s Administrator in Section 6.3.

5.3. Administrators for this Agreement are:

ODOT	CTGR
ODOT IGA #	CTGR #
Administrator: Angela M. Crain Title: Manager, Office of Equity & Civil Rights Address: 800 Airport Rd SE Salem, OR 97301 Phone: 503-931-2575 Email: angela.m.crain@odot.oregon.gov	Administrator: Harris Reibach Title: Director, Tribal Employment Rights Office Address: 9615 Grand Ronde Rd Grand Ronde, OR 97347 Phone: Office 503-879-1455 Cell: 503-871-4816 Email: harris.reibach@grandronde.org

ODOT may make changes to ODOT’s Administrator specified in this section, and such changes shall constitute contract administration for purposes of this Agreement. ODOT shall provide the CTGR notification of any such change in writing, which shall be effective without the necessity of a formal amendment to this Agreement.

6. CHOICE OF LAWS.

This Agreement shall be governed by and construed in accordance with the laws of the State of Oregon. In no event shall anything be construed as a waiver by either Party of any form of defense or immunity, whether sovereign immunity, governmental immunity, Tribal immunity, immunity based on the eleventh amendment to the Constitution of the United States or otherwise, from any Claim or from the jurisdiction of any court.

7. AMENDMENTS.

This Agreement may be amended by mutual agreement of both Parties, but only to the extent permitted by applicable statutes and administrative rules. No amendment to this Agreement shall be effective unless it is in writing signed by the Parties and all approvals required by applicable law have been obtained.

In the event CTGR amends its Ordinance before the expiration of this Agreement, the Parties agree to confer regarding any necessary amendments to this Agreement.

In the event there is a change in federal law, regulation, or guidance applicable to this MOU, or that the Federal Highway Administration changes its interpretations of these laws and regulations, such change will automatically apply to the MOU from the date of the adoption or publication.

8. TERMINATION.

8.1. This Agreement shall remain in effect for five (5) years, unless one (1) of the following events occurs:

8.1.1. This Agreement is terminated by written agreement of both Parties.

8.1.2. Either Party serves the other with notice of termination at least 30 days prior to proposed termination.

8.1.3. If federal or state laws, regulations, or guidelines are modified or interpreted in such a way that either the work under this Agreement is prohibited from paying for such work from the planned funding source.

8.2. In the event the Parties terminate this Agreement and there is on-going work on a project within the MOU TERO Boundary or Reservation, the Parties agree that ODOT may enter the project site and finish work by whatever method ODOT deems expedient.

8.3. Any termination of this Agreement shall not prejudice any rights or obligations accrued to the Parties prior to termination.

9. REPRESENTATIONS AND WARRANTIES OF THE PARTIES.

9.1. The CTGR represents and warrants to ODOT that (1) the CTGR has the power and authority to enter into and perform this Agreement, (2) this Agreement, when executed and delivered, shall be a valid and binding obligation of the CTGR enforceable in accordance with its terms, (3) the person executing this Agreement on behalf of the CTGR has the necessary authority to execute this Agreement for and on behalf of the CTGR.

9.2. ODOT represents and warrants that (1) ODOT has the power and authority to enter into and perform this Agreement, and that (2) this Agreement, when executed and delivered, shall be a valid and binding obligation of the State of Oregon enforceable in accordance with its terms.

10. COUNTERPARTS.

This Agreement may be executed in two or more counterparts, electronically or otherwise, each of which is an original, and all of which together are deemed one and the same instrument, notwithstanding that all Parties are not signatories to the same counterpart.

11. NONAPPROPRIATION.

Nothing in this Agreement is to be construed as permitting any violation of Article XI, section 7 of the Oregon Constitution or any other law regulating liabilities or monetary obligations of the State of Oregon.

**CONFEDERATED TRIBES OF THE
GRAND RONDE COMMUNITY OF
OREGON**

By Harris Reibach

Name: Harris Reibach

Title: TERO Director

Date _____

APPROVED AS TO LEGAL FORM

By _____

Name:

Title:

Date _____

**STATE OF OREGON, by and through
its DEPARTMENT OF TRANSPORTATION**

By Angela Crain
Angela CRAIN (Jun 27, 2024 16:31 PDT)

Name: Angela M. Crain

Title: Manager, Office of Equity & Civil Rights

Date 06/27/2024

APPROVED AS TO LEGAL SUFFICIENCY

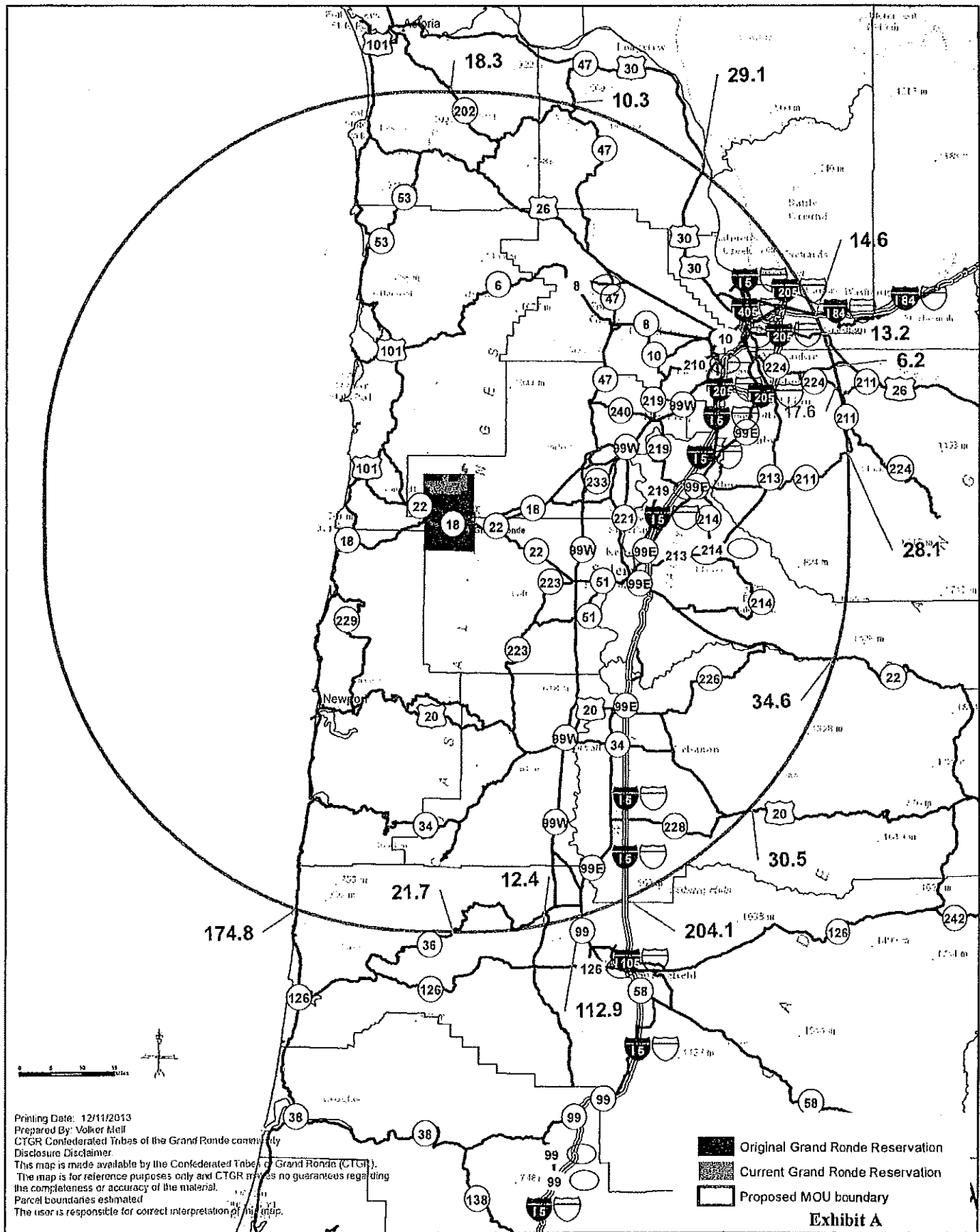
By /s/ Karen E. Clevering

Karen E. Clevering

Assistant Attorney General

Date June 27, 2024 (approved via email)

Reservation MOU Boundary





TRIBAL EMPLOYMENT RIGHTS OFFICE

Confederated Tribes of the Grand Ronde

MOU COMPLIANCE AGREEMENT

Project Name: _____

Contractor: _____

Address: _____

Contract # _____

Approximate Start Date: _____ Duration _____

The Confederated Tribes of the Grand Ronde, through the Tribal Employment Rights Office (TERO) program, and the State of Oregon Department of Transportation (ODOT) have executed a **Memorandum of Understanding** which applies Indian preference for employment and subcontracting opportunities within 60 miles of the Grand Ronde Reservation boundary. The prime contractor (Contractor) and its subcontractors involved in any project within the MOU boundary will negotiate with the TERO program representative to meet the goals prescribed on this project.

The CTGR TERO program and _____ (contractor),

through its representative (name and title) _____,

Contact Person: _____, Phone Number: _____, E-mail: _____,

have entered into an agreement as a result of their company being awarded a contract (or subcontract)

for the _____ project and hereby agree to the following:

ARTICLE I – CONTRACTOR – agrees to comply with the TERO provisions for the selection of American Indian employees and subcontractors. The Contractor will be responsible for relating these provisions to each of its subcontractors who are all subject to these hiring provisions; the Contractor will ensure that each subcontractor enter into a CTGR TERO Compliance Agreement prior to commencing work on the project.

ARTICLE II – EMPLOYMENT PRIORITY – The Contractor agrees to utilize to the greatest extent, TERO workers that are qualified, in the hiring of its employees for the duration of the project. Wages will be paid according to applicable laws. Monthly payroll reports will be submitted to the TERO program as required. Whenever the Contractor determines an Indian employee referred by TERO is not performing adequately the Employer shall notify TERO immediately about the problem. Contractor agrees not to terminate any Indian employee until a TERO representative has had an opportunity to provide counseling. If the situation is not remedied after counseling, TERO will refer another qualified worker.

Though the Contractor is not required to employ applicants who, in the Contractor’s opinion, are not qualified to perform the work required, the Contractor will make good faith effort to give those that are hired every opportunity to retain employment. Use of adverse employment practices or failure to meet hiring goals, shall cause the Contractor to be subject to sanction(s). Such sanction(s) include: 1) immediate replacement with Indian workers, 2) back pay and/or reinstatement where applicable, 3) if flagrant violations in hiring and/or employment practices by an employer occur, a monetary fine, not to exceed \$1,000 per violation, can be assessed.

Any form of harassment or discrimination directed towards TERO referrals by company employees on the project will not be tolerated. The TERO program will work with ODOT Civil Rights staff to investigate, frame charges, establish prima facie evidence, mediate and settle complaints associated with all forms of discrimination and/or harassment.

ARTICLE III – EMPLOYMENT GOALS – Employment goals for each project will be set by the TERO program and ODOT representatives. The Contractor shall give full consideration to all qualified Indians referred by the TERO program and meet the prescribed number of TERO referrals according to the “Hiring Goals” established in **ATTACHMENT 1** (below). The Contractor must make every effort to place a job order with the TERO program 48 hours prior to needing a TERO referral. If after placing a job order with TERO, no qualified Indian workers are available, a waiver will be provided to the Contractor allowing them to hire from their own sources.

Core crew employees must have been on the company payroll for at least six months to qualify as core crew. Any training opportunities on this project must be extended to Indians.

ARTICLE IV – COMPLIANCE FEE- The Federal Highway Administration allows for payment of this fee from the Prime Contractor to the TERO program, which must be paid prior to commencement of work on this project. The fee on each project is determined and published in the pre-bid document “Special Provisions” issued by ODOT and based on the MOU between the Tribe and State of Oregon.

_____ Contractor Representative	_____ Title	_____ Date
_____ TERO Representative	_____ Title	_____ Date

TRIBAL EMPLOYMENT RIGHTS OFFICE

Confederated Tribes of the Grand Ronde

MOU COMPLIANCE AGREEMENT

ATTACHMENT 1

HIRING GOALS

Project Name: _____ Contractor: _____

Goal: _____%

TERO Representative Approval: _____ Date: _____

Contractor Approval: _____ Date: _____

Positions by trades skill on project	Estimate of each skill	TERO utilization	% of TERO workers	Wage
TOTALS				

Duration of work on project: _____

TERO reserves the right to negotiate for any positions listed above in order to meet the prescribed employment goals. This attachment supplements the TERO Compliance Agreement in which the Employer agrees to meet their obligation pursuant to the CTGR Tribal Employment Rights Ordinance.

TRIBAL EMPLOYMENT RIGHTS OFFICE

Confederated Tribes of the Grand Ronde

CONTRACTOR'S SPECIFIC OBLIGATIONS

As a contractor/subcontractor conducting business on or near the Grand Ronde Reservation, your specific obligations under the Tribal Employment Rights Code and this contract include the following:

1. Provide TERO with a precise listing of positions you will use on this project from the superintendent on down, and the number of each craft. These positions will be negotiated for as well as any Core Crew requested:
2. Core Crew requests must be in writing with rationale for each. The listing of positions and the Core Crew requested must be submitted to TERO at least three (3) days prior to a required pre-construction meeting with TERO staff or start up of the project. Core Crew must have been on the Company payroll for at least six (6) months in order to qualify as Core Crew.
3. Inform TERO of all signatory trade unions to be involved in the project. TERO obligations have priority over union obligations by a contractor signatory to any trade unions. However, TERO will consider Indian workers of the trade unions in order for contractors to meet their hiring goals.
4. Notify TERO of all job vacancies. All available Indian applicants shall be considered first before any non-Indians are considered for employment and training. If no qualified Indians are available, TERO will provide a consent form to waive this obligation;
5. Employees referred by the TERO program will have preference in retention of employment from the beginning to the end of the project. Inform TERO of any lay-offs.
6. Before any TERO referral is terminated from the project you must inform TERO immediately to allow for informal counseling;
7. Allow on-site inspections by TERO representatives;
8. Provide copies of Monthly Employment Utilization Report to the TERO program as specified in the TERO Compliance Agreement;
9. No work on the scheduled program will begin until all applicable agreements are signed. Failure to sign the required agreements shall serve as just cause for the contractor/subcontractor to be subject to sanction(s) as prescribed in the TERO Compliance Agreement and CTGR TERO Ordinance.

Respectfully submitted by me as evidenced by my signature found below, and under my authority vested in me as a duly-appointed representative for TERO:

TERO Representative

Date

CERTIFICATION OF SERVICE:

I, _____, duly swear that I have been provided the specific obligations of Indian preference as a contractor conducting business on or near the Grand Ronde Reservation. I attest to the fact that the TERO representative whose signature is found above did in fact read these specific obligations and allowed for an opportunity to present questions, comment or discussion on these requirements related to this contract.

Employer Representative

Date

Company

Exhibit C – CTGR/CTWS TERO Boundary Overlap

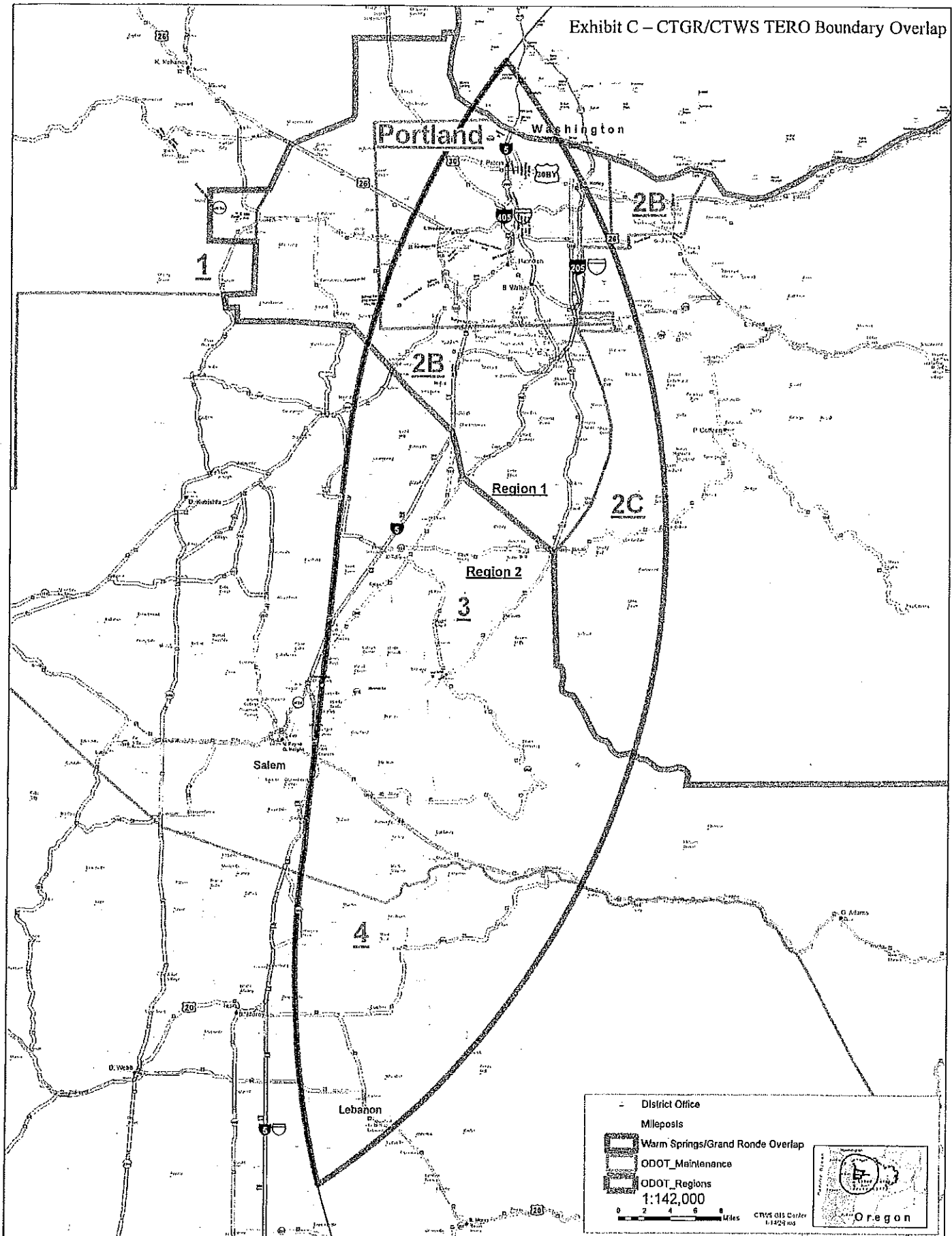


Exhibit C – CTGR/CTWS TERO Boundary Overlap

OR22: Center St Bridge (Phase 1) Project

INDIAN EMPLOYMENT GOALS AND COMPLIANCE FEE

Indian Employment Preference Goal

The assigned Indian Employment Preference goal for this Project is 10%

Compliance Fee

As established in separate Memorandum of Understanding (MOU) with the Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) a project in which any work takes place within reservation boundary or within the TERO boundary may be subject to a TERO compliance fee. The TERO boundary is described in Exhibit A to the MOU.

The Contractor is required to determine the compliance fee for this Project. Use the following calculations to determine the fee. The Compliance Fee for this Project is the summation of the following four calculations:

\$1 to \$500,000 of Contract Amount × 1.00%	=	_____
\$500,001 to \$999,999 of Contract Amount × 0.75%	=	_____
\$1,000,000 to \$1,999,999 of Contract Amount × 0.50% ..	=	_____
\$2,000,000 up to the full Contract Amount × 0.25%	=	_____
Total COMPLIANCE FEE for this Project is:	=	_____

PORTLAND & WESTERN RAILROAD COMPANY

Contractors Access/Occupancy on Railroad Property

The following Portland & Western Railroad Company agreements and exhibits are included in this Project for information and reference only. The actual Contractors Access/Occupancy on Railroad Property will be provided and executed by the Portland & Western Railroad Company.

The Contractor shall obtain all necessary permits and licenses and pay all fees and obtain a fully executed copy of the railway agreement according to 00170.01(e). Permits and licenses are located at:

- www.gwrr.com/real-estate/accessing-property

In addition, when Railroad flagger services are required, the Agency will pay for the services according to 00170.01(e).

Genesee & Wyoming Railroad Services, Inc.

Real Estate Department, 13901 Sutton Park Dr., S, Suite 270, Jacksonville, FL 32224

Contractors Access/Occupancy on Railroad Property

☐ Check box if Contractor unknown at this time *(this form will need to be completed with contractor information and submitted prior to any work once bid process is complete)*

Incomplete or Inaccurate Information will delay application request.

Section 1 - Applicant Data

Complete Legal Name of
Applicant to appear on License
Agreement:

Applicant Mailing Address:

Applicant Overnight Address:

Type of Entity:

☐ Corporation ☐ Partnership ☐ Sole Proprietorship ☐ Individual
☐ Municipality ☐ Developer ☐ Other

If other please explain:

State of Incorporation or
Partnership:

Contact during Application Process:

Name:

Contact

Telephone

Email

Address

Section 2 - Location Data

Railroad Name:

Estimated Start Date

Specify the amount of time access
is required:

**Reason for
extension of time
beyond 60 days

****\$500 extension fee for each additional 30 days being requested.**

Nearest City:

County:

State:

REQUIRED: Latitude/Longitude
(Convert to Decimal Format)
(ex 12.3456789/-64.101112):

Address of
proposed
worksite:

Railroad

Subdivision - If
known

US DOT/AAR Crossing Number - If
available

Section 3 - Existing Agreement Data

Is there an Existing Agreement at this Location which will be affected by this Request?

☐ Yes

☐ No

If YES, List Agreement Number(s):

Will facility be exclusively used by Applicant?

☐ Yes

☐ No

If YES, List Name of Lessee:

Describe the complete scope of work on or around Railroad property (REQUIRED):

Section 4 - Department of Transportation (D.O.T.)

Is this installation associated
with a Department of
Transportation project?

☐ Yes

☐ No

If Yes, complete the following:

D.O.T. Contract
Number:

D.O.T. Project
Number:

D.O.T. Project
Name:

D.O.T. Contact
Information:

Name:

Address:

City:

State:

Zip Code:

Phone Number

Email Address

Some important items to note when completing the application:

Checklist prior to submittal

- ☐ Latitude & longitudinal information converted to digital decimal format with an aerial map of location
- ☐ Payment for fees included - check payable to specific railroad
- ☐ If paying fees by credit card a completed signed credit card release is included - only Visa, MasterCard or Discover can be accepted - US Roads only
- ☐ Applications can be emailed with a copy of the check in order to start the approval process. Only the check for the doc prep fees needs to be mailed or overnighted when the complete application packet is emailed. Include a copy of the application to make sure the payment is matched to the correct project.
- ☐ When returning the signed agreement and proof of insurance for final review and execution please allow 2-3 weeks prior to the start of work. Once all required fees are paid and documentation in place the agreement must go through an approval process before it can be finalized.

Section 5 - Insurance Requirements - US Roads

Insurance Requirements prior to any construction project - Both the Utility Owner and the Contractor completing installation are required to provide proof of current Commercial General Liability Insurance. Prior to construction the Contractor is required to provide current proof of Railroad Protective Liability Insurance.

General Liability Insurance must meet the minimum requirements of \$2M per occurrence and \$6M aggregate per the terms of the written contract.

Automobile Insurance must meet the minimum requirements of \$1M bodily injury and property damage per occurrence.

The General Liability certificate is required to show proof of **CG2417 or its equivalent**. (Contractual Liability Railroads)

Evidence of **Workers Compensation** must be provided on certificate and meet the minimum requirements of \$1M. Certificate Holder naming **(specified Railroad)** **Specified Railroad names can be found at www.gwm.com**

General Liability, Automobile Liability and Umbrella/Excess Liability provides additional insured status to the certificate holder and any other party(ies) specified in or required by written contract between the named insured and the certificate holder.

Where applicable and permitted by law, all policies include a blanket automatic waiver of subrogation endorsement that provides this feature in favor of the certificate holder and any other party(ies) specified in or required by written contract between the named insured and the certificate holder.

Prior to Construction or any access within 50' of Railroad - current Certificate of Railroad Protective Liability Insurance (RPL) which shows the **specific Railroad** as named insured. If the Contractor does not carry a policy of Railroad Protective Liability Insurance, this coverage can be secured through the railroad. An application and current Fee structure for this coverage is available upon request.

****Insurance Requirements for polluting hazardous pipelines such as natural gas, oil, petroleum, etc. to be provided as shown below****

General Liability Insurance which names the **specific Railroad** as additional insured and must meet the limits of \$5M per occurrence and \$10M aggregate. Such policy shall be endorsed to provide Waiver of Subrogation in favor of the certificate holder per written contract.

Pollution Legal Liability Insurance with minimum limits of Five Million Dollars (\$5,000,000) per occurrence naming the **certificate holder** as additional insured per written contract. Such policy shall be endorsed to provide Waiver of Subrogation in favor of the certificate holder per written contract.

Section 6 - Insurance requirements - Canadian Roads

Insurance Requirements prior to any construction project - Both the Utility Owner and the Contractor completing Installation are required to provide proof of current Commercial General Liability Insurance.

General Liability Insurance must meet the minimum requirements of \$2M per occurrence and \$2M aggregate per the terms of the written contract.

Automobile Insurance must meet the minimum requirements of \$1M bodily injury and property damage per occurrence.

Where applicable, the General Liability certificate is required to show proof of **CG2417 or its equivalent**.
(Contractual Liability Railroads)

Evidence of **Workers Compensation** must be provided on certificate and meet the minimum requirements of \$1M. Certificate Holder naming **(specified Railroad)** ""Specified Railroad names can be found at www.gwrr.com""

General Liability, Automobile Liability and Umbrella/Excess Liability provides additional Insured status to the certificate holder and any other party(ies) specified in or required by written contract between the named Insured and the certificate holder.

Where applicable and permitted by law, all policies include a blanket automatic waiver of subrogation endorsement that provides this feature in favor of the certificate holder and any other party(ies) specified in or required by written contract between the named Insured and the certificate holder.

IMPORTANT

Prior to application submittal, Questions can be answered and additional contact information obtained by visiting the website at www.gwrr.com - select the specific railroad and click on the link for Real Estate.

Plans for proposed Installations shall be submitted and approved by the Railroad, on behalf of itself, its subsidiaries, and affiliates, and designed engineer before work can begin! Applications submitted not meeting current specifications as outlined in the General Specifications for Sub-grade and Above grade Utility Crossings of Railway's Right-of-Way will be returned and may incur additional engineering review fees. For your convenience a copy of these specifications can be found on the website at www.gwrr.com.

Materials and Installations are to be in accordance with specifications of National Electrical Safety Code, AREMA, current edition, and requirements of the Railroad.

Upon application approval, applicant agrees to reimburse Railroad for any cost incurred by Railroad incident to the installation, maintenance and/or supervision necessitated by the installation. Applicant further agrees to assume all liability for accidents or injuries that arise as a result of this installation.

This section must be completed in full, signed and dated prior to submittal to the Real Estate Department for processing. Unsigned applications, incomplete or inaccurate information will delay application request and may incur additional fees.

Date:	_____	Signature:	_____
Phone Number	_____	Printed Name:	_____
Fax Number:	_____	Title:	_____

Right of Entry Application - 6.29.2023

Please make check payable to the specific Railroad where proposed work is to occur. A list of Genesee & Wyoming, Inc. subsidiary railroads can be found at: www.gwrr.com. W-9 Information available upon request.

Mall the application for proposed project, along with the applicable non-refundable fee(s) in U.S. Funds (Canadian Applicants please pay all fee in Canadian Funds plus HST) to:

Genesee & Wyoming Railroad Services, Inc.

Attn: Real Estate Department

13901 Sutton Park Dr. S., Suite 270

Jacksonville, FL 32224

In order for the application to be complete ALL required details pertinent to the proposed installation must be completed in full and submitted along with the following fees:

	# of Copies	Amount Due	Description
☐	1	\$2,250	Engineer review fee, plans/drawings no larger than 11 x 17. Larger drawings may incur additional engineering fees.
☐	1	\$1,750	Completed Contractor's Access/Occupancy Application and Fee required with ALL application submittals. If the contractor is unknown at time of submittal, just check the box under the heading on the form.
		\$4,000	Full amount due with submittal for new utility installations - Unless prior arrangements are made, applications received without payment will not be processed until receipt of payment. This could extend the time frame for the processing of your request.
Only applicable for projects over 60 days		\$500	Extension fee for each additional 30 days over the initial 60 days

Standard Application processing takes approximately 6-8 weeks. PLEASE READ IN FULL - "Expedited processing" is available and will reduce the processing time to between 1-2 weeks at an additional cost of \$3,000. For all expedited requests, the application and plans submitted must meet engineering specifications and be approved in order for the applicable agreement(s) to be forwarded to the applicant for signature within 2 weeks from receipt of all required information and full payment of required fees. It is important to note that an incomplete application and plans submitted that do not meeting engineering specifications will cause a delay in the processing of expedited request and the two week guarantee no longer applies if revisions are required to be made by the applicant in order for them to meet engineering specs for engineering to approve the request.

The expedited processing of an application does not apply to the final review and execution phase of the agreement process. Once a signed agreement has been received and ALL required fees and insurance has been submitted the agreement(s) is(are) forwarded for final review by a VP of Real Estate, Legal and the signatory for the Railroad. This final review and execution process can take up to 2 weeks from receipt of all required documentation and fees. This part of the agreement process cannot be expedited.

At this time we are unable to expedite requests for the installation of new private grade crossings, industrial track agreements, and track leases. The process for these requests varies somewhat from the review and approval process for new utilities and takes a little longer to secure all required approvals.

Entering or working on the railroad right of way or any other railroad property without the permission of the railroad is trespassing and illegal. Violators risk the possibility of serious, even fatal injury and will be prosecuted.

PROJECT WAGE RATES

Applicable Wages - The following federal prevailing wage rates and the State prevailing wage rates (including any wage rate determinations, modifications, or amendments), last published prior to Bid Opening apply to this Project and will be incorporated into the Contract:

(1) U.S. Department of Labor (USDOL), "General Wage Determinations Issued under the Davis-Bacon and Related Acts: Oregon Highway Construction Projects", and

(2) Oregon Bureau of Labor and Industries (BOLI), "Prevailing Wage Rates For Public Works Contracts".

Wage Rates are Subject to Change - Modifications or amendments to the Davis-Bacon and BOLI wage rates applicable to this Project may occur any time before Bid Opening. Bidders are responsible to monitor the USDOL website, BOLI website, and the ODOT web page for modifications and amendments up until Bid Opening.

Wage Rates are Internet-Accessible - Contractor may access the Davis-Bacon/BOLI Combined Prevailing Wage Rates, on the table provided by Bid Opening Date on the web page located at:

<https://www.oregon.gov/ODOT/Business/Pages/Project-Wages.aspx>

Covered Occupations – The BOLI publication titled "Definitions of Covered Occupations" last published prior to bid opening applies to this project and is located at:

<https://www.oregon.gov/boli/employers/pages/occupational-definitions.aspx>

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SPECIAL PROVISIONS

Subject to such revision as may be made in accordance with provisions stated in the Preface hereto, the provisions stated on the sheets inserted between pages [6] and [7] hereof are the Special Provisions which will be incorporated in and made a part of any Contract that may be awarded for the Work on the basis of a Bid received at the time and places stated herein under the headings "Description of Work" and "Time and Places of Receiving Bids (Bid Closing)".

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

EXPIRES: 12/31/27	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge No. 00123K seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00255, 00501, 00503, 00504, 00530, 00531, 00535, 00540, 00560, 00568, 00583, 00587, 00592, 00594, 00820, 02001, 02030, 02050, 02080, 02210, 02415, 02440, 02510, 02515, 02530, 02560, 02690, 02810, 03010.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 18663PE DIGITALLY SIGNED 2026.01.27 15:45:02 -08'00' OREGON JULY 16, 1996 STEVEN LLOYD DAY RENEWS: 12-31-2027	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for hazardous material. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00294, 00295, 00296
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 EXPIRES: 12/31/2027	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge Nos. 00123G and 00123K seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00253, 00255, 00442, 00501, 00504, 00515, 00530, 00531, 00535, 00538, 00539, 00540, 00542, 00546, 00554, 00560, 00568, 00581, 00584, 00585, 00587, 01050, 02001, 02005, 02010, 02020, 02030, 02050, 02080, 02210, 02415, 02440, 02510, 02515, 02530, 02560, 02570, 02690, 02810, 03010.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 100246PE Digitally Signed 2026.06.22 15:14:46-07'00' OREGON JULY 12, 2022 JASON BENJAMIN GALEAZZI EXPIRES: <u>06/30/2027</u>	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for erosion control, drainage and sewers, bases, wearing surfaces, and right of way development and control. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00205, 00230, 00232, 00237, 00270, 00280, 00305, 00310, 00320, 00330, 00331, 00350, 00440, 00480, 00495, 00620, 00641, 00730, 00744, 00759, 00760, 00765, 00815, 00830, 01050, 01095, 02001, 02050, 02080, 02110, 02210, 02320, 02440, 02510, 02630, 02640, 02690, 03010, 03020.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 EXPIRES: 6-30-2027	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge Nos. 00123G, 00123K, 22519, 22524 seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00253, 00255, 00501, 00503, 00504, 00510, 00515, 00530, 00535, 00540, 00568, 00582, 00585, 00592, 02001, 02010, 02020, 02030, 02050, 02080, 02210, 02415, 02440, 02510, 02513, 02515, 02530, 02560, 02570, 02571, 02690, 02810.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 60181 Digitally Signed 2026.06.12 07:54:20-07'00' OREGON JULY 13, 2004 ANDREW DEAN HOWE EXPIRES: 6/30/2027	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Water line and impact attenuator installation on Bridge 00123K. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00292, 00501, 00535, 00560, 01180, 02510, 02560.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 97292PE Digitally Signed 2026.06.12 11:11:04-06'00' OREGON MAY 11, 2021 KEVIN R. JOHNSON EXPIRES: JUNE 30, 2027	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for waterline structures. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00405, 00815, 01140, 01150, 01160, 02470, 02475, 02480, 02485.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED 0513 Digitally Signed 2026.06.16 14:04:26-07'00' KRISTINA M. KOLTAVARY OREGON 11/08/02 LANDSCAPE ARCHITECT EXPIRES 11/30/2026	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for irrigation. Modified Special Provisions were prepared by me or under my supervision. Section(s) 01030, 01040, 01120
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 RENEWS: 12-31-2026	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for temporary traffic signals. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00960, 00990, 02120
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 Digitally Signed 2026.06.12 11:38:25-07'00'	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge No. 00123G seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00504, 00505, 00510, 00515, 00530, 00535, 00538, 00539, 00540, 00542, 00559, 00581, 00584, 00585, 02001, 02010, 02020, 02030, 02050, 02080, 02440, 02510, 02515, 02530, 02560, 02690.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 Digitally Signed 2026.06.12 12:17:50-07'00' EXPIRES: DEC. 31, 2026	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for temporary features and appurtenances, permanent traffic safety and guidance devices, permanent traffic control and temporary and permanent illumination systems. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00220, 00221, 00222, 00223, 00224, 00225, 00226, 00227, 00228, 00440, 00820, 00850, 00860, 00865, 00867, 00869, 00905, 00910, 00920, 00930, 00940, 00950, 00960, 00962, 00970, 00990, 02001, 02110, 02120, 02190, 02510, 02530, 02560, 02910, 02926.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 85555 Digitally Signed 2026.06.30 14:39:09-07'00' OREGON DEC. 21, 2011 MICHAEL G. MCNULTY EXPIRES: 12/31/2026	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge No. 00123K seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00231, 00252, 00253, 00255, 00291, 00501, 00510, 00512, 00515, 00520, 00530, 00535, 00538, 00539, 00540, 00542, 00546, 00555, 00560, 00568, 00575, 00582, 00583, 00586, 02001, 02005, 02010, 02020, 02050, 02080, 02320, 02415, 02440, 02510, 02515, 02520, 02530, 02540, 02560, 02570, 02571, 02690, 02810.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 REGISTERED PROFESSIONAL ENGINEER 92505PE Digitally Signed 2026.06.12 12:26:46-07'00' OREGON JANUARY 14, 2025 TANNER TORKELSON EXPIRES: 06/30/ 2028	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for Bridge No. 00123K and 00123G seismic retrofit. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00501, 00530, 00535, 00538, 00539, 00540, 00542, 00568, 02001, 02030, 02050, 02080, 02510, 02560, 02690.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

FOR

Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties

PROFESSIONAL OF RECORD CERTIFICATION:

 Digitally Signed, 2026.06.12 11:21:27-07'00' EXPIRES: 06/30/2028	I certify the Special Provision Section(s) listed below are applicable to the design for the subject project for temporary and permanent drainage structures. Modified Special Provisions were prepared by me or under my supervision. Section(s) 00240, 00245, 00405, 00415, 00440, 00445, 00470, 00490, 00495, 00820, 01012, 01030, 02010, 02050, 02320, 02410, 02415, 02420, 02440, 02450, 02510, 03020.
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OR22: Center St Bridge (Salem) Project

SPECIAL PROVISIONS

WORK TO BE DONE

The Work to be done under this Contract consists of the following:

1. Construct seismic retrofits to structures.
2. Install water supply systems.
3. Install drainage and sewers
4. Construct highway improvements, including earthwork, bases, and paving.
5. Construct electrical and communication systems, including illumination and interconnect system.
6. Install barriers, signing and striping.
7. Install right-of-way development and control, including seeding, planting and stormwater management facilities.
8. Perform additional and Incidental Work as called for by the Specifications and Plans.

APPLICABLE SPECIFICATIONS

The Specifications that are applicable to the Work on this Project is the 2024 edition of the "Oregon Standard Specifications for Construction", as modified by these Special Provisions. All Sections in Part 00100 apply, whether or not modified or referenced in the Special Provisions.

All number references in these Special Provisions shall be understood to refer to the Sections and subsections of the Standard Specifications bearing like numbers and to Sections and subsections contained in these Special Provisions in their entirety.

CLASS OF PROJECT

This is a Federal-Aid Project.

SECTION 00110 - ORGANIZATION, CONVENTIONS, ABBREVIATIONS AND DEFINITIONS

Comply with Section 00110 of the Standard Specifications modified as follows:

00110.05(e) Reference to Websites - Add the following bullet list to the end of this subsection:

- AASHTOWare Project TM
www.oregon.gov/odot/Construction/Pages/AW-Construction.aspx
- American Traffic Safety Services Association (ATSSA)
www.atssa.com
- BidExpress
www.bidx.com
- EquipmentWatch
www.equipmentwatch.com
- ODOT Construction Section
www.oregon.gov/odot/construction/pages/index.aspx
- ODOT Construction Section - Qualified Products List (QPL)
www.oregon.gov/ODOT/Construction/Pages/Qualified-Products.aspx
- ODOT Construction Surveying Manual for Contractors
www.oregon.gov/ODOT/ETA/Documents_Geometronics/Construction-Survey-Manual-Contractors.pdf
- ODOT Electronic Bidding Information Distribution System (eBids)
(Also referred to as ODOT eBids website)
<https://ecmnet.odot.state.or.us/ebidse>
- ODOT Environmental Product Declaration
<https://www.oregon.gov/odot/Construction/Pages/Environmental-Product-Declarations.aspx>
- ODOT Estimating
www.oregon.gov/ODOT/Business/Pages/Steel.aspx
- ODOT Oregon Trucking Online - "Highway Restriction Notice - Size and/or Weight"
(Form No. 734-2357)
<https://www.oregon.gov/odot/Forms/2ODOT/7342357.pdf>

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- ODOT Procurement Office - Conflict of Interest Guidelines and Disclosure Forms
www.oregon.gov/ODOT/Business/Procurement/Pages/PSK.aspx
- ODOT Procurement Office - Construction Contracts Unit Notice of Intent
www.oregon.gov/ODOT/Business/Procurement/Pages/NOI.aspx
- ODOT Procurement Office - Construction Contracts Unit prequalification forms
www.oregon.gov/odot/business/procurement/pages/bid_award.aspx
- ODOT Traffic Control Plans Unit
www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx
- ODOT Traffic Standards
www.oregon.gov/ODOT/Engineering/Pages/Signals.aspx
- Oregon Legislative Counsel
www.oregonlegislature.gov/lc
- Oregon Secretary of State: State Archives
sos.oregon.gov/archives/Pages/default.aspx

00110.10 Abbreviations – Add the following paragraph to the end of this subsection:

EPD – Environmental Product Declaration

PCD - Pedestrian Channelizing Device

Delete the following paragraph:

DBE – Disadvantaged Business Enterprise

00110.20 Definitions – Add the following paragraphs to the end of this subsection:

Environmental Product Declaration - An environmental declaration providing environmental data using predetermined parameters and, where relevant, additional environmental information. *ISO 14025* refers to these as Type III Environmental Declarations.

Materially Unbalanced Bid - A Bid which generates a reasonable doubt that Award to the Bidder submitting a Mathematically Unbalanced Bid will result in the lowest ultimate cost to the Agency.

Mathematically Unbalanced Bid - A Bid containing lump sum or unit Pay Items (bid items) which do not reflect reasonable actual costs plus a reasonable proportionate share of the Bidder's anticipated profit, overhead costs and other indirect costs.

Pedestrian Accessible Route - An area for the use of pedestrians to navigate along sidewalks, driveways, curb ramps, crossings, and pedestrian facilities.

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Pedestrian Channelizing Device - Devices used for channelizing pedestrians along a Temporary Pedestrian Accessible Route.

SECTION 00120 - BIDDING REQUIREMENTS AND PROCEDURES

Comply with Section 00120 of the Standard Specifications modified as follows:

00120.00 Prequalification of Bidders – Add the following bullet to the end of the bullet list:

- If delivered by electronic mail, the application shall be sent to:

ODOTProcurementOfficeConstruction@odot.oregon.gov

Replace the bullet that begins “If delivered by mail...” with the following bullet:

- If delivered by mail or parcel delivery service, the application shall be sent to:

Oregon Department of Transportation
Procurement Construction Contracts, MS #33
355 Capitol Street NE
Salem, OR 97301

00120.01 General Bidding Requirements - Replace the paragraph that begins “If the Bidder submits the Bid...” with the following paragraph:

If the Bidder submits the Bid electronically through BidExpress® as a joint venture, in addition to the joint venture signing with the digital signature and unique ID for the joint venture, the Bidder must also submit the signature pages from the Bid Booklet signed by each member of the joint venture, together with a statement the Bidder adds above or with the signatures as follows: “The following joint venture member signatures are for the Bid for the [Insert Project Name] Project submitted by the joint venture through BidExpress®. The signatures are on behalf of each joint venture member and the joint venture and also confirm that the signatory in BidExpress® was authorized to submit the Bid on behalf of the joint venture.” The Bidder must also email .pdf copies of the signature pages showing the signatures of the joint venture members with the required statement which must be received by BJ McCartney, Construction Contracts Manager, at the ODOT Procurement Office at: ODOTProcurementOfficeConstruction@odot.oregon.gov before the Closing date and time for the Bid. The signature pages with the original signatures must also be mailed or delivered to and received by BJ McCartney, Construction Contracts Manager, at the address given in the Bid Book as a condition of Award.

00120.05 Request for Plans, Special Provisions, and Bid Booklets - Add the following to the end of this subsection:

The Plans, which are applicable to the Work to be performed under the Contract, bear title and date as follows:

OR22: Center St Bridge (Phase 1) Project

"Grading, Drainage, Structures, Paving, Signing, Illumination, And Roadside Development
OR22: Center St Bridge (Phase 1) Project
Willamina-Salem Highway
Marion & Polk Counties
September 2026"

00120.10 Bid Booklet – Replace the bullet that begins “Appendix, which includes...” with the following bullet:

- Appendix, which includes required time-sensitive forms, sample forms, and other informational pages

00120.15 Examination of Work Site and Solicitation Documents; Consideration of Conditions to be Encountered - Add the following to the end of this subsection:

Certain Specifications included in the Project require additional experience or personnel qualifications. Refer to the subsection requirements that may affect bidding considerations, including but not limited to the following:

Subsection	Title
00231.30	Personnel Qualifications
00291.30	Personnel Qualifications
00292.30	Personnel Qualifications
00294.30	Personnel Qualifications
00295.30	Personnel Qualifications
00296.30	Personnel Qualifications
00350.30	Personnel Qualifications
00520.42(h)(2)(c)	Dynamic Pile Testing Personnel
00535.30	Personnel Qualifications
00538.30	Personnel Qualifications
00585.30	Personnel Qualifications
00592.30	Personnel Qualifications
00759.30	Personnel Qualifications
00765.30	Personnel Qualifications
01030.30	Personnel Qualifications
01040.30	Personnel Qualifications
01120.01	Qualifications

Add the following to the end of this subsection:

The Agency will hold a prebid meeting for all holders of Solicitation Documents at the ODOT Transportation Building, located at 355 Capitol Street NE in Salem, Oregon at 10:00 a.m. on August 25, 2026.

All prospective Bidders must attend this meeting. Those not attending will have their Bids declared non-responsive.

Prospective Bidders will be given the opportunity to ask questions relating to any details involved in the performance of the Work under the Contract.

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Information distributed, statements made or responses given to questions, by the Agency's representatives at the prebid meeting will not in any way alter or affect any of the provisions contained in the Solicitation Documents or Contract requirements and will not be binding upon the Agency unless confirmed by Addenda.

00120.40(b) Bidding Considerations – Add the following to the end of the list:

00160.20(d) Build America Buy America Act Requirements

00120.40(f) Disclosure of First-Tier Subcontractors – Replace the paragraph beginning “If no subcontracts subject to the above...” with the following paragraph:

If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering "NONE" or by filling in the appropriate check box. For each Subcontractor listed, Bidders shall provide all requested information. Failure to submit a form or submission of a form that does not include the information required by ORS 279C.370 for each Subcontractor listed, specifically the name of each Subcontractor, the dollar amount of each subcontract and the category of Work that each Subcontractor will perform, will result in the rejection of the Bid. The Agency is not required to determine the accuracy or the completeness of the Subcontractor disclosure. See ORS 279C.370 and OAR 731-005-0420.

Replace both of the bullets that begin “Using the form provided on the Agency's website...” with the following bullet:

- Using the fillable form provided on the Agency's website, identified in the Bid Booklet on the ODOT eBIDS website, filling the form out and submitting the completed form via email to the email address given in the paper Bid Booklet.

00120.70 Rejection of Nonresponsive Bids - Delete the bullet that begins “The Bidder has not complied with the DBE...”.

Add the following bullet to the end of the bullet list:

- The Bid is found to be Mathematically Unbalanced and Materially Unbalanced.

SECTION 00130 - AWARD AND EXECUTION OF CONTRACT

Comply with Section 00130 of the Standard Specifications modified as follows:

00130.00 Consideration of Bids - Replace the paragraph that begins “The Agency reserves...” with the following paragraph:

The Agency reserves the right to waive minor informalities and irregularities, seek clarification of any Bid or response that, in its sole discretion, it deems necessary or advisable, and to reject any Bids for irregularities under 00120.70 or all bids for good cause after finding that it is in the public interest to do so (ORS 279C.395). The Agency may correct obvious clerical errors, when the correct information can be determined from the face of the documents, if it finds that the best interest of the Agency and the public will be served thereby.

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00130.40 Contract Submittals - Add the following paragraph to the end of this subsection:

The Agency, in its sole discretion, may require execution of documents identified in subsections (a), (b) and (c) with a form of electronic signature (including but not limited to sealing and signing) acceptable to the Agency.

00130.40(c) Workers' Compensation – Replace this subsection, except for the subsection number and title, with the following:

To certify compliance with the workers' compensation insurance coverage required by 00170.61(a) and 00170.70(e), the successful Bidder shall complete and sign the "Certification of Workers' Compensation Coverage" form bound in the Contract booklet.

00130.50 Execution of Contract and Bonds - Add the following paragraph to the end of this subsection:

The Agency, in its sole discretion, may require execution of documents identified in subsection (a) with a form of electronic signature (including but not limited to sealing and signing) acceptable to the Agency.

00130.80 Project Site Restriction - Replace the paragraph that begins "Until the Agency sends the Contractor ..." with the following paragraph:

Until the Agency sends the Contractor written Notice to Proceed with the Work, and the Contractor has filed the public works bonds required in 00170.65(b), the Contractor shall not go onto the Project Site on which the Work is to be done, nor move Materials, Equipment, or workers onto that Project Site.

SECTION 00140 - SCOPE OF WORK

Comply with Section 00140 of the Standard Specifications.

SECTION 00150 - CONTROL OF WORK

Comply with Section 00150 of the Standard Specifications modified as follows:

00150.15(b) Agency's Responsibilities - Replace this subsection, except for the subsection number and title, with the following:

The Engineer will perform the Agency responsibilities described in the *Construction Surveying Manual for Contractors*, Chapter 1.5 (see Section 00305).

00150.15(c) Contractor's Responsibilities - Replace this subsection, except for the subsection number and title, with the following:

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The Contractor shall perform the Contractor responsibilities described in the *Construction Surveying Manual for Contractors*, Chapter 1.6 (see Section 00305).

The Contractor shall perform slope staking including intersections and set stakes defining limits for clearing which approximate Right-of-Way and easements.

00150.30 Delivery of Notices - Replace the paragraph and bullets that begin “Following Notice to Proceed, all notices and other documents submitted...” with the following paragraph and bullets:

Following Notice to Proceed, all notices and other documents submitted to the Contractor by the Engineer, or to the Engineer by the Contractor, electronically under 00170.08 or 00170.09:

- If recorded in Doc Express® or AASHTOWare Project™ as received before 5:00 p.m. PST on a business day it shall be considered as received on the business day on which it was actually received in Doc Express® or AASHTOWare Project™.
- If recorded in Doc Express® or AASHTOWare Project™ as received on a non-business day, or after 5:00 p.m. PST on a business day, it shall be considered as received at 8:00 a.m. PST on the next business day.

00150.50(c) Contractor’s Responsibilities – Replace the bullet that begins “In addition to the notification required...” with the following bullet:

- In addition to the notification required in OAR 952-001-0090(7), notify the Engineer and the Utility as soon as the Contractor discovers any previously unknown Utility conflicts or issues. Contrary to the OAR, stop excavating until directed by the Engineer and allow the Utility a minimum of two weeks to relocate or resolve the previously unknown Utility issues; and

Add the following bullet to the end of the bullet list:

- Hold a Utility scheduling meeting and monthly Utility coordination meetings (see also 00180.42)

Add the following subsection:

00150.50(f) Utility Information (No Anticipated Relocations) - Within the Project limits, there are no anticipated relocations with the Utilities listed in Table 00150-1. The Contractor shall contact those Utilities having buried facilities and request that they locate and mark them for their protection prior to construction.

Table 00150-1

Utility	Contact Person's Name, Address, Email, and Phone Number
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NW Natural	Andrew Schurter 3123 Broadway NE Salem, OR 97303 Andrew.Schurter@nwnatural.com 503-610-7759
Portland General Electric	Corey Beal 4245 Kale St NE Salem, OR 97305 Corey.Beal@pgn.com 503-323-6700

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project. Utilities may require an on-site observer, at no cost to the Contractor.

NW Natural - **Gas Utilities** - The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the gas pipeline.

The Gas Utility operates two high pressure gas pipelines within the Project limits and may require an on-site safety watcher, at no cost to the Contractor. One high pressure gas pipeline is located:

- From Sta. "W" 9+87, 10 feet left to Sta. "W" 12+19, 35 feet left, perpendicular to Center Street NE, and
- From Sta. "W" 12+19, 35 feet left to Sta. "W" 12+19, 131 feet left, parallel to Center Street NE, and
- From Sta. "W" 12+19, 35 feet left (gas main) to Sta. "W" 12+22, 32 feet right (gas blowoff), parallel to Center Street NE, and
- From Sta. "W" 12+19, 131 feet left to Sta. "W" 13+15, 145 feet left, perpendicular to Center Street NE

The second high pressure gas pipeline is located:

- From Sta. "W" 9+87, 3 feet right to Sta. "W" 11+22, 2 feet right, perpendicular to Center Street NE, and
- From Sta. "W" 10+38, 3 feet right (gas main) to Sta. "W" 10+38, 29 feet right (gas blowoff), parallel to Center Street NE

Keep Equipment and Materials a minimum of 11 feet clear of the gas blowoffs. Do not impede or block the Gas Utility's access to the gas blowoffs. Allow the Gas Utility to access the gas blowoffs at all times.

Except during parking lot pavement reconstruction, when operating Equipment directly above the high pressure gas pipeline, the Contractor shall keep Equipment on the paved surfaces only.

The Contractor shall notify the Gas Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work that requires operating equipment on unpaved

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surfaces within 10 feet of the high pressure gas pipeline(s). When operating Equipment directly above the high pressure gas pipeline is required for parking lot pavement reconstruction, the Gas Utility may require an on-site safety watcher at no cost to the Contractor for monitoring purposes.

In the immediate area of the high pressure gas lines, when moving any Equipment, excavating, driving piles, pounding guardrail posts, boring, or other road construction activities, the Contractor shall increase the tolerance zone from 24 inches, as defined in OAR 952-001-010, to 10 feet. Exceptions require written approval from the Gas Utility. The Contractor shall provide the Engineer a copy of the written approval of the exception before beginning Work.

In the event of an emergency, and in addition to the calls required by the Utilities notification system, the Contractor shall call:

- Northwest Natural Gas 1-800-882-3377

Portland General Electric - Power Suppliers - Energized power lines overhang portions of the Work with a minimum vertical clearance of 18 feet. The Contractor shall maintain at least 10 feet of safety clearance. Exceptions require written approval from the Power Supplier(s) and may require an on-site safety watcher, at no cost to the Contractor. The Contractor shall provide the Engineer a copy of the written approval of exception before beginning Work.

Add the following subsection:

00150.50(g) Utility Information (Anticipated Relocations):

The organizations list in Table 00150-2 may be adjusting Utilities within the limits of the Project during the period of the Contract with relocation Work estimated to be completed by the following dates and times:

Table 00150-2

Subsection	Utility	Contact Person's Name, Address, Email, and Phone Number	Estimated Completion Date
00150.50(g)(1)	Salem Electric	Adam Deshon 633 7th Street NW Salem, OR 97304 Deshon@salemelectric.com 503-362-3601	3/27/2026
00150.50(g)(2)	Comcast Cable	Jason McDonald 1710 Salem Industrial Dr NE Salem, OR 97301 Jason_McDonald3@comcast.com 503-924-9120	3/27/2026

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00150.50(g)(3)	Lumen	Travis Vaughn 740 State St, RM 407 Salem, OR 97301 Travis.Vaughn@lumen.com 971-346-4141	4/30/2026
00150.50(g)(4)	City of Salem (Traffic Signal Fiber)	Ben Haney PO Box 14300 Salem, OR 97309-1457 BHaney@cityofsalem.net 503-910-0994	During Construction
00150.50(g)(5)	City of Salem (Water)	Ben Haney PO Box 14300 Salem, OR 97309-1457 BHaney@cityofsalem.net 503-910-0994	During Construction

The Contractor shall contact the Engineer to view the approved utility relocation Plans.

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project. Utilities may require an on-site observer, at no cost to the Contractor.

(1) Salem Electric - "Power Supplier":

The Contractor shall notify the Power Supplier(s) in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the power line(s).

(2) Comcast - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

(3) Lumen - "Telecommunication Utility":

The Contractor shall notify the Telecommunication Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Telecommunication Utility facilities.

The Contractor shall obtain written approval from the Telecommunication Utility for excavating within 10 feet of a buried fiber optic communications cable. The Telecommunication Utility may require an on-site safety watcher at no cost to the Contractor for monitoring purposes. The Contractor shall provide the Engineer a copy of the written approval before beginning work.

(4) City of Salem - "Traffic Signal Fiber Utility":

The Contractor shall notify the Traffic Signal Fiber Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Traffic Signal Fiber Utility.

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The Contractor shall notify the Traffic Signal Fiber Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor is scheduled to begin performing construction of the interconnect modification. After the Traffic Signal Fiber Utility receives the notification, the Contractor shall then allow the Traffic Signal Fiber Utility 14 Calendar Days to schedule and complete the removal of existing fiber before the Contractor begins performing construction of the interconnect modification.

The Contractor shall notify the Traffic Signal Fiber Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of the interconnect modification. After the Contractor has completed this Work or 14 Calendar Days after the Traffic Signal Fiber Utility receives the notification, whichever occurs later, the Contractor shall then allow the Traffic Signal Fiber Utility 14 Calendar Days to schedule and complete installing fiber in the modified interconnect.

(5) City of Salem - "Water Utility":

The Contractor shall notify the Water Utility in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the Water Utility facilities.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of 10 inch waterline east of Front Street NE. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 7 Calendar Days to schedule and complete the post work to remove temporary blow off from 10 inch pipe at approximate Sta. "A" 17+45 and connect to the existing 10 inch waterline.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of the following:

- 24 inch waterline on Front Street NE between Sta. "A" 15+35 and Sta. "B" 21+64.1
- 36 inch waterline between Front Street NE and Bent 20 (Approx. "A" 11+11)
- 12 inch waterline between Bent 20 and west side of Water Street NE
- 36 inch waterline from "A" 10+00 to "A" 11+11.

After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 14 Calendar Days to schedule and complete the post work to:

- Isolate, cut, and cap the 12 inch waterline

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to existing 12 inch waterline west of Sta. "C" 30+03. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to tap existing 12 inch waterline and construct 12 inch valve for Contractor's connection.

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The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to complete work on the west side of the river to install temporary connection to existing 24 inch main. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 14 Calendar Days to remove the temporary blow off from the Contractor-installed 24 inch pipe and connect to the existing 24 inch waterline near Bent 15.

After City has connected to the existing 24 inch waterline near Bent 15 and placed the pipeline back into service, Contractor shall allow the City of Salem an additional 14 Calendar Days to isolate, cut, cap and grout the 24-inch waterline between Front Street NE and Bent 20.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "A" 11+11. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "A" 15+35. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "B" 20+03. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "B" 21+64.1. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "C" 30+66. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring

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for City Water Utility access to remove the chlorination tap at Sta. "D" 1+00. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The Contractor shall notify the City Water Utility in writing, with a copy to the Engineer, 14 Calendar Days before the Contractor's estimated completion of excavation and shoring for City Water Utility access to remove the chlorination tap at Sta. "D" 3+25.6. After the Contractor has completed this Work or 14 Calendar Days after the City Water Utility receives the notification, whichever occurs later, the Contractor shall then allow the City Water Utility 2 Calendar Days to remove the chlorination tap.

The estimated completion date for the City Water Utility to perform all other pre-work, adjustments, and relocation work is April 30, 2026.

00150.55 Cooperation with Other Contractors - Add the following to the end of this subsection:

The following contract work will be ongoing within the Project Site during the following times:

Contract Name (Contractor or Engineer's Name)	Estimated Times (From - To)
Northwest Oregon 2024 - 2027 ADA Curb Ramps Design, Phase 2 (C15536) K&E Excavating Brandon Young 503-949-0219 (on-site)	Oct 2025 to Dec 2027
Civic Center Retrofit Howard S. Wright Travis Schutzler 503-961-2479 (on-site)	Oct 2025 to Dec 2027
K22728) Northwest Oregon curve warning upgrades ODOT A.J. Jacobson 541-517-0472 (on-site)	Nov 2026 to Dec 2028
Ferry St. Sewer Pump Station City of Salem Brian Reis 512-619-2301 (on-site)	March 2027 to Dec 2028

00150.60(a) Load and Speed Restrictions for Construction Vehicles and Equipment - Add the following bullet to the end of the bullet list:

- The Contractor shall restrict the combined weights of construction vehicles, Equipment, and Materials on Bridges according to 00220.45.

00150.91 Post-Construction Review - Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall attend a Post-Construction Review meeting to be held by the Agency prior to issuance of Third Notification but not earlier than 45 Days following the date of

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Second Notification. The time and place of this meeting will be announced by the Engineer at least 15 Days prior to the meeting date. The purpose of this meeting is to examine the Project for possible process improvements that may benefit future projects. The Contractor's attendance at the Post-Construction Review meeting is mandatory.

SECTION 00160 - SOURCE OF MATERIALS

Comply with Section 00160 of the Standard Specifications modified as follows:

00160.01(a) All Materials - Replace the paragraph that begins "The Contractor shall identify..." with the following paragraph:

When the estimated value is over \$10,000, the Contractor shall submit a copy of the materials purchase order or supply agreement.

Delete the paragraph that begins "For this purpose..."

00160.05 Qualified Products List (QPL) – Replace this subsection, except for the subsection number and title, with the following:

The QPL is a listing of manufactured products available on the market (shelf items) that ODOT has evaluated and found suitable for a specified use in highway construction. The QPL is available from ODOT's Construction Section website (see 00110.05(e)).

The most current version of the QPL on ODOT's Construction Section website at the time of Advertisement is the version in effect for the Project. When the Contract specifies the use of the QPL, unless specified as the subject of an exemption per ORS 279C.345, the Agency may approve for use a product qualified for inclusion in a later edition of the QPL, or other equivalent product that meets the requirements of the QPL, following the Standard Guidelines for Product Review, if the Agency finds the product acceptable for use on the Project.

Use of listed products shall be restricted to the category of use for which they are listed. The Contractor shall install all products as recommended by the manufacturer. The Contractor shall replace qualified products not conforming to Specifications or not properly handled or installed at no additional cost to the Agency.

00160.20(a) Buy America - Replace this subsection, except for the subsection number and title, with the following:

If \$500,000 or more of federal highway funds are involved on the Project, the Contractor shall limit the quantity of foreign Materials incorporated into the Work as follows. Section 635.410 of Title 23, Code of Federal Regulations, and the Intermodal Surface Transportation Efficiency Act require that all iron or steel manufacturing processes, including, without limitation, the casting of ingots, for iron or steel Materials permanently incorporated into the Project shall occur in the United States, unless the cost of foreign-origin iron or steel Materials does not exceed one-tenth of one percent (0.1%) of the Contract Amount or \$2,500, whichever is greater. Buy America requirements apply to any steel or iron component of a manufactured product regardless of the overall composition of the manufactured product

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(e.g., Buy America applies to the steel wire mesh or steel reinforcing components of a precast reinforced concrete pipe). The Contractor shall not incorporate foreign-origin iron or steel Materials in excess of this amount into the Project. All foreign-origin iron or steel Materials incorporated in the Project in excess of the amount indicated above shall be removed and replaced with domestic iron or steel Materials at the Contractor's expense. For purposes of this Specification, the cost of foreign-origin iron or steel Materials shall be the value of the iron or steel products as of the date they are delivered to the Project Site.

Manufacturing processes include without limitation the casting of ingots and the application of coatings to finished iron or steel products or components. Coatings include epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of the steel or iron product or component. The Contractor shall provide the Engineer with a Certificate of Materials Origin, on a form furnished by the Engineer, before incorporating any iron or steel products into the Project. Unless a Certificate of Materials Origin has been provided to the Engineer, the Materials shall be considered of foreign origin.

The Contractor shall retain manufacturers' certificates verifying the origin of all domestic iron or steel Materials for 3 years after the date of final payment for the Project, and shall furnish copies to the Engineer upon request.

The Contractor shall include this provision in all subcontracts.

00160.20(d) Build America Buy America Act Requirements – Replace this subsection, except for the subsection number and title, with the following:

If federal highway funds are involved on the Project, the Contractor shall comply with the Build America Buy America Act and implementing regulations (Infrastructure Investment and Jobs Act ("IIJA"), Pub. L. No. 117-58, which includes the Build America, Buy America Act ("the Act"). Pub. L. No. 117-58, Sections 70901-70941).

The Build America Buy America Act requirements apply to construction materials and manufactured products permanently incorporated in the Project. All construction materials and manufactured products permanently incorporated in the Project must be produced in the United States.

Construction materials include an article, Material, or supply that is or consists primarily of only one of the following, with the standard for the material to be considered "produced in the United States":

- **Non-ferrous metals** - All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.
- **Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables)** - All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.
- **Glass (including optic glass)** - All manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

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- **Fiber optic cable (including drop cable)** - All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing, occurred in the United States. All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.
- **Optical fiber** - All manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.
- **Lumber** - All manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.
- **Drywall** - All manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.
- **Engineered wood** - All manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

The classification of an article, material, or supply as construction material is based on its status at the time it is brought to the work site for incorporation in the Project. In general, the work site is the location of the Project at which the construction materials will be incorporated.

FHWA issued a final rule on January 14, 2025 amending FHWA's Buy America regulation to terminate FHWA's general waiver for manufactured products and establish Buy America requirements for manufactured products with respect to Federal-aid highway projects. <https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products>

Manufactured products assembled outside the Project Site are also subject to the Build America Buy America requirements. Manufactured products means articles, materials, or supplies that have been:

- Processed into a specific form and shape; or
- Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

For manufactured products, the final assembly of the product shall occur within the United States for projects obligated on or after October 1, 2025. For projects obligated after October 1, 2026, the cost of the components of the product that are mined, produced or manufactured in the United States shall be more than 55 percent of the total cost of all components of the product.

The USDOT issued a Public Interest Waiver for De Minimis Costs and Small Grants. The final waiver can be viewed here:

<https://www.federalregister.gov/documents/2023/08/16/2023-17602/waiver-of-buy-america-requirements-for-de-minimis-costs-and-small-grants> and this waiver applies to Materials covered by the Build America Buy America Act.

The public interest waiver is for manufactured products and construction materials for which:

- The total value of the non-compliant products (foreign or unknown origin) is no more than the lesser of \$1,000,000 or 5% of total applicable costs for the project*; or

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- The total amount of Federal financial assistance applied to the project, through awards or subawards, is below \$500,000.

*The “total value of the non-compliant products” includes construction materials and manufactured products only. The “total applicable costs” includes construction materials, iron and steel, and manufactured products. The value of materials are the actual cost of the materials, not the anticipated cost of materials. Furthermore, this bullet does not apply to iron and steel subject to the requirements of 23 U.S.C. 313. The de minimis threshold in 23 CFR 635.410(b)(4) continues to apply for steel and iron. (See 00160.20(a).)

Strict compliance with the Build America, Buy America domestic preferences is required, except to the extent the above public interest waiver applies. The Contractor shall not incorporate construction materials and manufactured products in excess of this amount into the Project. All foreign origin construction materials and manufactured products incorporated in the Project in excess of the amount indicated above shall be removed and replaced with domestic construction materials at the Contractor's expense.

The Contractor shall provide the Engineer with a Certificate of Materials Origin, on a form furnished by the Engineer, before incorporating any applicable construction materials and manufactured products into the Project. Unless a Certificate of Materials Origin has been provided to the Engineer, the products and Materials shall be considered of foreign origin.

The Contractor shall retain manufacturers' certificates verifying the origin of all applicable construction materials and manufactured products for 3 years after the date of final payment for the Project, and shall furnish copies to the Engineer upon request.

Iron and steel Materials and manufactured products that are predominately iron or steel are subject to 00160.20(a).

The Contractor shall include this provision in all subcontracts.

00160.21 Cargo Preference Act Requirements - Add the following to the end of this subsection:

Additional information may be available at the following websites:

<https://www.fhwa.dot.gov/construction/cqit/cargo.cfm>

<https://www.fhwa.dot.gov/construction/cqit/cargo/qa.cfm>.

00160.30 Agency-Furnished Material - Add the following to the end of this subsection:

The Agency will furnish the listed items at the following location:

- Waterline Materials:

David W Anderson at 503-986-2643(office) or 503-930-3099 to schedule pick-up at the following location, 455 Airport Road SE Salem, OR 97301. Provide at least a

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one week advance notice of pickup. ODOT personnel must be present during pick-up.

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Item description	Quantity	Station(s)
24" BFV, FLxFL	1	15+68 (N)
24" Blind Flange	1	9+96 +/-
24" FCA	4	9+96+/-, 9+96+/-, 20+03, 21+64
24" MJ coupling, RJ	1	21+50
24" Tee, MJ	1	21+30
24"x12" Red, FLxMJ	1	15+68 (S)
24"x12" Red, MJxPE	1	21+30
24"x12" Reducer, MJ	1	3+72
36" 22 1/2 Deg Bend, MJ	4	10+45, 10+61, 12+33, 14+69
36" 90 Deg Bend, MJ	2	10+01 (lower), 3+37
36" 90 Deg FL Base 90 Deg Bend	1	10+00 (upper)
36" BFV, FLxFL	1	11+06
36" Blind Flange	1	2+96 (N)
36" FCA	8	11+11(N), 11+11(S), 15+35 (W), 15+35 (E), 15+68 (W), 2+96 (E), 3+25 (W), 3+25 (E)
36" MJ COUPLING, RJ	2	10+20 or similar, 15+50+/-
36" Tee, FL	1	2+96 (W)
36", 11 1/4 Deg Bend, MJ	2	12+39, 14+64
36", 45 Deg Bend, MJ	4	10+77, 11+11, 12+06, 12+10
36"x12" Tee, FLxMJ	1	11+11
36"x16" Red, FL	3	11+02, 15+68 (E), 2+96 (W)
36"x24" Cross, FL	1	15+68
36"x24" Reducer, MJ	1	3+72
36"x6" Tee, MJxFL	1	14+94
36x24 Ecc Reducer, FL	1	9+96 +/-
12" BFV, MJ	5	Blowoffs at 11+04, 15+68, 21+30, 2+96, 3+72

Add the following subsection:

00160.65 Environmental Product Declaration – Pursuant to ORS 184.879 and OAR 731-005-0910, provide an Environmental Product Declaration for the following materials:

- Concrete, including ready mix concrete, shotcrete, precast concrete and concrete masonry units;
- Asphalt paving mixtures;
- Steel, including rebar, reinforcing steel and structural steel, hot-rolled sections, hollow sections, plate steel and cold-formed steel.

Submit an EPD according to the *ODOT Environmental Product Declaration Manual* (see 00110.05(e)).

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The most current published PDF version of the *ODOT Environmental Product Declaration Manual* on the date of Advertisement is the version in effect for the Project.

The EPD must be accepted by the Engineer before the product is incorporated into the Project unless the product is procured under a listed exemption in ODOT's *Environmental Product Declaration Manual*.

SECTION 00165 - QUALITY OF MATERIALS

Comply with Section 00165 of the Standard Specifications modified as follows:

00165.10(b) Nonfield-Tested Materials – Replace this subsection, except for the subsection number and title, with the following:

Nonfield-tested Materials will be accepted according to the ODOT Nonfield Tested Materials Acceptance Guide (NTMAG), unless otherwise specified in the Contract. The NTMAG is available on the ODOT Construction Section website (see 00110.05(e)). The most current version of the NTMAG on the date of Advertisement is the version in effect for the Project.

(1) Rejections – The inspection at the mill, shop, or precaster of any Material, Work or finished members will not prevent subsequent rejection, if later found damaged or defective, nor relieve the Contractor of the responsibility to correct or replace the Work at no additional cost to the Agency.

(2) Transport – Do not ship members or piece of fabricated steel or precast member, that requires a fabrication inspection report, without the Inspector's label or marking.

Add the following subsection:

00165.15 AASHTOWare™ – Field-tested Materials and Nonfield-tested Materials will be tracked within AASHTOWare Project™ for this Project. The acceptance criteria for Materials in AASHTOWare Project™ can be viewed at the <https://www.oregon.gov/odot/Business/Pages/AASHTOWare-Project.aspx> (see 00110.05(e)). The most current version of AASHTOWare™ on the date of Advertisement is the version in effect for the Project.

00165.20 Materials Specifications and Test Method References - Replace this subsection, except for the subsection number and title, with the following:

References to materials specifications and test methods of ODOT, WAQTC, AASHTO, ASTM, other governmental agencies, or other recognized organizations mean those officially adopted and in current use by the agency or organization on the date of Advertisement.

If there are conflicting references, or if no reference is made to materials specifications, sampling and testing frequencies, or test method, the Engineer will resolve any discrepancies between these documents in the following orders of precedence:

Field-Tested Materials:

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- Contract Change Orders;
- Special Provisions;
- ODOT Laboratory Manual of Test Procedures;
- MFTP;
- Standard Specifications; and
- AASHTOWare™

Nonfield-Tested Materials:

- Contract Change Orders;
- Special Provisions;
- ODOT Laboratory Manual of Test Procedures;
- Standard Specifications; and
- AASHTOWare™

Material test methods:

- ODOT;
- WAQTC;
- AASHTO;
- ASTM;
- Other recognized national organizations, such as ANSI, AWP, IMSA, ISSA, and UL; and
- Industry standards in the location where the Work is being performed.

Sampling and testing frequencies:

- Contract Change Orders;
- Special Provisions;
- MFTP;
- Standard Specifications; and
- AASHTOWare™.

If the Contractor identifies conflicting references or if no reference is made, the Contractor shall immediately request a clarification from the Engineer.

00165.35(d) Certificate of Origin of Steel Materials - Replace this subsection with the following subsection:

00165.35(d) Certificate of Origin of Steel Materials, Construction Materials, and Manufactured Products - When a certificate of material origin is specified, complete the form furnished by the Engineer as required by 00160.20.

00165.35(e) Certificate of Origin of Construction Materials - Delete this subsection.

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00165.91 Fabrication Inspection Expenses - Replace the table with the following table:

TABLE 00165-3

Zone	Place of Fabrication	Reduction in Payment
1	All of State of Oregon, and the portion of the State of Washington within 50 airline miles of Portland International Airport (PDX)	\$0
2	Outside of Zone 1, and up to 250 airline miles of Portland International Airport (PDX)	\$300 per Calendar Day
3	Outside of Zone 2, up to 1,000 airline miles of Portland International Airport (PDX).	Round trip coach airfare from Portland, Oregon plus \$300 per Calendar Day
4	Outside of Zone 3, or outside of the continental United States.	Round trip coach airfare from Portland, Oregon plus \$500 per Calendar Day

SECTION 00170 - LEGAL RELATIONS AND RESPONSIBILITIES

Comply with Section 00170 of the Standard Specifications modified as follows:

Add the following subsection:

00170.01(e) Railroads - An agreement between the Contractor and the Railroad to Work near or within Railroad property is required for this Project. A copy of the Railroad agreement and corresponding requirements is included near the front of this Special Provision booklet. The Railroad agreement and requirements are subject to change by the Railroad. The Railroad will provide the actual agreement and requirements for execution. The Contractor shall obtain all necessary permits and licenses and pay all fees. The Contractor shall obtain a fully executed copy of the agreement and requirements between the Contractor and the Railroad and provide a copy of it to the Engineer before beginning Work near or within the Railroad property or Right-of-Way.

The USDOT Number for this Project is 938926M.

Railroad company owning the track: BNSF.

Operating Railroad company at track: PNWR.

Railroad MP: 71.16.

Railroad Subdivision: OE.

City: Salem.

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County: Marion.

When Railroad flagger services are required, the Agency will pay the flagger services costs up to a total of 300 Days. If this value is exceeded and additional flagging services are needed, the Contractor shall pay the Agency an amount of \$1,500 per Day for each Day in excess of the total value identified above.

Add the following subsection:

00170.06 Federal-Aid Participation - This Project is to be conducted according to the regulations applying to Federal-Aid Highway Projects.

00170.07 Record Requirements - Replace the paragraph that begins "For purposes of this Subsection, the term ..." with the following paragraph:

For purposes of this Subsection, the term "Contractor" includes the Contractor, all Subcontractors, Material Suppliers, and providers of rented operated Equipment (except truck drivers), at all tiers, for all subcontracts with first-tier Subcontractors, all subcontracts between the first-tier Subcontractors and their Subcontractors and any other lower-tier subcontracts, and "Related Entities" as that term is defined in OAR 734-010-0400. The Material Suppliers included in this definition are those for Aggregates, asphalt cement concrete, Portland cement concrete and the supply and fabrication of structural steel items, and Material Suppliers that provide quotes.

00170.07(a) Records Required - Replace the paragraph that begins "The Contractor shall include in its subcontracts ..." with the following paragraph:

The Contractor shall include in its subcontracts, purchase orders, and all other written agreements, a provision requiring all Subcontractors, Material Suppliers and providers of rented operated Equipment (except truck drivers), at all tiers, to comply with 00170.07. The Contractor shall also require all Subcontractors, Material Suppliers, and providers of rented operated Equipment (except truck drivers), at all tiers, and Related Entities to include in their contracts, purchase orders, and all other written agreements, a provision requiring all lower-tier Subcontractors, Material Suppliers and providers of rented operated Equipment (except truck drivers) to comply with 00170.07. The Material Suppliers to which this applies are those for Aggregates, asphalt cement concrete, portland cement concrete and the supply and fabrication of structural steel items and Material suppliers that provide Material quotes and Related Entities as defined in OAR 734-010-0400.

00170.08 Electronic Document Management - Replace this subsection with the following subsection:

00170.08 Electronic Data and Document Management – The requirements of this Subsection do not apply to claims. Claims must be submitted on paper documents according to Section 00199.

For additional Specifications applicable to AASHTOWare Project™ see 00170.09.

Following Notice to Proceed, the Contractor shall submit all data and documents for this Contract to the Agency in an electronic format using Doc Express®, or using AASHTOWare Project™ for data and documents as specified in 00170.09. No paper documents, faxes or

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other similar paper methods or media are permitted, unless otherwise allowed or directed by the Engineer. The Contractor shall be solely responsible for submitting data and documents to the Agency using Doc Express® or AASHTOWare Project™, as applicable, for the Contractor and for Subcontractors, Suppliers, vendors and other third parties. Only data and documents submitted by the Contractor to the Agency and recorded in Doc Express® or AASHTOWare Project™, as applicable, as received will be considered valid and received by the Agency.

Following Notice to Proceed, all data and documents for this Contract will be managed in Doc Express® or AASHTOWare Project™, as applicable, unless otherwise allowed or directed by the Engineer. Following Notice to Proceed, the Contractor shall use Doc Express® or AASHTOWare Project™, as applicable, to submit data and documents to the Agency, and the Agency will use Doc Express® or AASHTOWare Project™, as applicable, to submit, or make available, data and documents to the Contractor.

If authorized to do so, Subcontractors, Suppliers, vendors and other third parties may enter data and documents into AASHTOWare Project™, but such data and documents shall not be considered submitted to Agency until the Contractor reviews the data or document and completes the workflow transition to submit the data or document to the Agency within AASHTOWare. Required workflow transitions are defined in the ODOT AASHTOWare Project™ User Guide for Construction Contractors for specific data and documents that are required to be submitted to the Agency. Completion of required workflow transitions by the Contractor will constitute submittal to the Agency. See 00170.09.

Subcontractors, Suppliers, vendors and other third parties shall not be authorized to and shall not enter data or documents into Doc Express®.

The Contractor shall comply with naming conventions, drawer structure, and other Doc Express® instructions as specified in the ODOT Doc Express® User Guide for Construction Contractors, as may be revised from time to time and available from the Engineer. Instructions for entry and submittal of data and documents using AASHTOWare Project™ are specified in 00170.09.

The Contractor shall provide all Subcontractors, Suppliers, vendors, and any other third parties receiving payment from the Contractor or any Subcontractor, Supplier, vendor, or any other third party, with read-only access to the Doc Express® drawer that contains payment documents from the Agency and the Contractor. The Contractor may provide Subcontractors, Suppliers, vendors, and any other third parties receiving payment from the Contractor or any Subcontractor, Supplier, vendor or other third party with read-only access to other Doc Express® drawers at the Contractor's discretion. The Contractor shall not grant write access in Doc Express® to Subcontractors, Suppliers, vendors or any other third parties or their respective officers, employees or agents. Additional access requirements and limitations for AASHTOWare Project™ are specified in 00170.09.

Data and documents submitted according to this Subsection, from the Agency to the Contractor and from the Contractor to the Agency, are official data and documents for the Contract and will be accepted as such by both parties.

By submitting data and documents that originate from the Contractor to the Agency using Doc Express® or AASHTOWare Project™, as applicable, the Contractor is certifying that the data and documents are true and accurate and that if the data or document was required to

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be signed, it has been signed by a person with appropriate authority. By submitting data and documents to the Agency using Doc Express® or AASHTOWare Project™, as applicable, that originate from a Subcontractor, Supplier, vendor, manufacturer or other third party, the Contractor is certifying that the data and documents are a true and complete copy of the data and documents the Contractor received, that if the data or document was required to be signed, it has been signed, and that the Contractor does not know, nor does it have reason to believe, that the data and documents are not true and accurate, are not complete, are not what was required, or were signed by a person without appropriate authority.

In the event of a conflict between this Subsection and the Standard Specifications or other Special Provisions, this Subsection shall control except for, as applicable, 00170.09 and 00199.30.

Costs associated with obtaining and maintaining access to Doc Express® and AASHTOWare Project™ and the use of Doc Express® and AASHTOWare Project™ are Incidental to Mobilization.

Failure to submit data and documents electronically, as required by 00170.08 and 00170.09, may result in payments being withheld according to 00195.50.

The Contractor shall be responsible for causing access to Doc Express® (or to notify the Agency for AASHTOWare Project™) to be disabled for any Entity or individual that is no longer assigned, employed or under contract in relation to the Project or whose access is to be disabled due to improper activity. The Contractor's obligation to disable access applies to its own officers, employees and agents and to all Subcontractors, Suppliers, vendors and other third parties and their respective officers, employees and agents.

The Agency reserves the right to suspend or disable, or cause to be suspended or disabled, the access to Doc Express®, or AASHTOWare Project™, or both, for any Entity or individual at any time.

Use and access for Doc Express® and AASHTOWare Project™ are provided "as is". The Agency does not warrant that access to or functioning of Doc Express® or AASHTOWare Project™ will be error free, uninterrupted, or will meet the Contractor's needs. The Agency is not responsible for any damage that may occur due to error, omission, lack of timeliness or other malfunction of Doc Express® or AASHTOWare Project™ or their supporting systems. The Agency disclaims all liability arising from interference or interruption, viruses, telephone faults, malicious damage by anyone, electronic system downtime, overloading of the Internet or sites or any cause beyond the control of the Agency. The Agency reserves the right to temporarily suspend or cause to be suspended access to Doc Express® or AASHTOWare Project™, or both, without notice, because of maintenance, repair or any other reason deemed necessary for the proper functioning of Doc Express® or AASHTOWare Project™ by the Agency, AASHTO, or Info Tech, Inc.

In no event shall the State of Oregon, the Oregon Transportation Commission or the Agency or their respective members, officers, agents and employees be liable for any claims, suits, actions, losses, liabilities, damages, costs or expenses, including but not limited to attorney fees, of whatsoever nature, resulting from or arising out of the use of Doc Express® or AASHTOWare Project™ by the Contractor or Subcontractors, Suppliers, vendors or other third parties at any level or their respective officers, employees or agents.

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The Contractor's indemnification, defense and hold harmless obligations under the Contract shall apply to the terms, conditions and requirements of 00170.08 and 00170.09 and to the use of Doc Express® and AASHTOWare Project™ and the acts, errors and omissions of the Contractor, Subcontractors, Suppliers, vendors and other third parties and their respective officers, employees and agents respecting access to and use of Doc Express® and AASHTOWare Project™.

The terms, conditions and requirements of 00170.08, 00170.09, and 00150.30 shall be included in all contracts with all Subcontractors, Suppliers, vendors and other third parties at all levels for which access to Doc Express® or AASHTOWare Project™ will or may be required.

(a) User Terms and Conditions - The Contractor shall comply with, shall require its officers, employees and agents to comply with, and shall require all Subcontractors, Suppliers, vendors and other third parties to comply with and to require their officers, employees and agents using or accessing Doc Express® or AASHTOWare Project™, or both, as applicable, to comply with 00170.08, 00170.09, and the following User Terms and Conditions, all as may be revised from time to time:

As an officer, employee or agent of the Contractor or any Subcontractor, Supplier, vendor or other third party, respecting my use of or access to Doc Express®, AASHTOWare Project™, or both, I agree to the following, all as may be revised from time to time:

- The terms, conditions and requirements of 00170.08;
- The terms, conditions and requirements of 00170.09;
- The Info Tech, Inc. Doc Express® Privacy Policy and Terms of Use and the Digital Millennium Copyright Act (DMCA) Policy, accessible from the Doc Express® registration site;
- The AASHTOWare Project™ Privacy Policy and Terms of Use and the Digital Millennium Copyright Act (DMCA) Policy, accessible from the AASHTOWare Project™ registration site;
- The ODOT Doc Express® User Guide for Construction Contractors available from the Engineer;
- The AASHTOWare Project™ Directory available from the Engineer;
- The ODOT AASHTOWare Project™ User Guide for Construction Contractors available from the Engineer; and
- The following Additional User Terms and Conditions:

My use of and access to Doc Express® or AASHTOWare Project™, or both, as applicable, are conditioned on my agreement to and my compliance with the foregoing and these Additional User Terms and Conditions.

I may have access to sensitive personnel, business, financial and/or security related information ("Confidential Information") through use of Doc Express® or AASHTOWare Project™, and, except to the limited extent necessary to perform my duties, I will maintain its confidential status and will not share, publish or disseminate Confidential Information or other information obtained through Doc Express® or AASHTOWare Project™, without regard to how ODOT may treat any such Confidential Information or other information. All information is also subject to the Oregon Public Records law (see

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00170.07(d)). In addition, if I know or have reason to believe any information was inadvertently or improperly included in Doc Express® or AASHTOWare Project™, I will immediately notify my employer for purposes of notification to the Contractor and the Contractor's notification to ODOT.

I will not access any information, data or documents I am not authorized to use or access and I will not browse or otherwise use or access information, data or documents that exceed the minimum necessary to perform my duties.

If my authorized use of and access to Doc Express® or AASHTOWare Project™ includes entering data and documents (or "read-write" access) into Doc Express® or AASHTOWare Project™, I will not enter any data or documents into Doc Express® or AASHTOWare Project™ except those I am authorized to enter (or in the case of the Contractor, to enter or submit, or both) and are necessary to perform my duties.

I have no expectation of privacy, rights or ownership of anything I may access, create, store, send or receive within Doc Express® or AASHTOWare Project™, respecting any data or documents, including but not limited to Confidential Information of any individual or Entity. For audit or system security purposes, ODOT may monitor and record all activity conducted within Doc Express® and AASHTOWare Project™. This includes but is not limited to the login identification information, times, dates and duration of access, as well as resources, data, or documents accessed.

Unauthorized access or activities that could compromise the systems or Confidential Information are strictly prohibited and patterns of unauthorized or unusual activity may result in access being immediately disabled, and possible further investigation.

If a breach of these terms and conditions or a security incident occurs, I will immediately notify my employer for purposes of notification to the Contractor and the Contractor's notification to ODOT.

I will not share my password or other means of access with any other individual or Entity. Violation of this restriction or of any of these other Terms and Conditions may result in my access being immediately disabled.

I understand that my use of and access to Doc Express® or AASHTOWare Project™, or both, as applicable, are conditioned on my relationship to my employer and my employer's relationship to one or more of: ODOT, the Contractor, a Subcontractor, Supplier, vendor or other third party, and that if I am no longer so employed, my job position or duties no longer require my access to Doc Express® or AASHTOWare Project™, or my employer no longer has such relationship, I will immediately cease my use of and access to Doc Express® and AASHTOWare Project™ and will immediately notify my employer for purposes of notification to the Contractor and the Contractor's notification to ODOT.

(b) Electronic Submittal Requirements - Unless otherwise allowed or directed by the Engineer, all data and documents submitted to the Agency for this Contract that require a signature shall be signed by a person with appropriate authority by applying:

- An original handwritten signature to a document and scanning the document into PDF format;

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- An electronic signature to a document and converting the document into PDF format;
- A third-party verifiable digital signature to a PDF document;
- A Doc Express® electronic signature when prompted during submission of the document into Doc Express®; or
- An AASHTOWare Project™ electronic signature when prompted during entry or submission of the data or document into AASHTOWare Project™.

Data and documents that require a signature, but do not have a signature according to 00170.08 or 00170.09, or were signed by a person without appropriate authority, will be considered as not received and of no effect. Notice requirements will not be satisfied and payments may be withheld for any affected Work items until the required data or documents with compliant signatures have been received by the Engineer.

Unless otherwise allowed or directed by the Engineer, all data and documents submitted to the Agency for this Contract that do not require a signature shall be submitted using Doc Express® or AASHTOWare Project™, as applicable.

Add the following subsection:

00170.09 AASHTOWare Project™ - The requirements of this Subsection do not apply to claims. Claims must be submitted on paper documents according to Section 00199.

This subsection applies to data and documents identified in the AASHTOWare Project™ Directory (AWD), as data or documents to be managed in AASHTOWare Project™, as may be revised from time to time. The AWD is available from the Engineer and can be downloaded from the Agency's AASHTOWare Project™ website (see 00110.05(e)).

Following Notice to Proceed, the Contractor, Subcontractors, Suppliers, vendors, and any other third parties, shall use AASHTOWare Project™ to enter certain data and upload certain documents, as identified in the AWD, for submittal by the Contractor to the Agency. The Agency will use AASHTOWare Project™ to submit or make available certain data and documents, as identified in the AWD, to the Contractor.

The Contractor, Subcontractors, Suppliers, vendors, and any other third parties authorized to enter data and documents into AASHTOWare Project™, shall comply with naming conventions, processes and other AASHTOWare Project™ instructions as specified in the ODOT AASHTOWare Project™ User Guide for Construction Contractors, as may be revised from time to time and available from the Engineer.

Data and documents that are required to be submitted to the Agency using AASHTOWare Project™ are identified in the AWD. Data and documents identified in the AWD to be submitted using AASHTOWare Project™ that are not submitted as required will be considered as not received and of no effect.

Data or documents that are not identified in the AWD as required to be submitted using AASHTOWare Project™ shall be submitted according to 00170.08 using DocExpress®, unless otherwise specified, allowed or directed by the Engineer.

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The Contractor shall coordinate and identify to the Engineer the Subcontractors, Suppliers, vendors, and any other third parties requiring access to AASHTOWare Project™ to enter or access data or documents. Once identified, the Agency will work with Subcontractors, Suppliers, vendors and third parties for access rights in AASHTOWare Project™ per the AWD.

See also 00170.08, including but not limited to user terms and conditions and signature requirements which also apply to AASHTOWare Project™.

00170.10(g) Paid Summary Report – Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall submit a *Paid Summary Report* to the Engineer certifying payments made to all of its Subcontractors.

The *Paid Summary Report* shall be completed on the form provided by the Engineer and submitted to the Engineer within 20 Calendar Days of receipt of payment from the Agency for each month in which payments were made to each Subcontractor.

At the completion of the Project, submit a final *Paid Summary Report* form that provides the total amounts paid to each Subcontractor.

The Contractor shall require each Subcontractor at every tier to comply with the requirement to submit a *Paid Summary Report* within 20 Calendar Days of receipt of payment for Work on the Project and submit a final *Paid Summary Report* that provides the total amounts paid to the Subcontractor for its Work under the subcontract at the completion of the Project or completion of its Work.

00170.20 Public Works Bond – Delete this subsection.

00170.61(a) Workers' Compensation - Replace this subsection with the following subsection:

00170.61(a) Workers' Compensation and Employer's Liability - The Contractor shall provide workers' compensation and employer's liability coverage for on-the-job injuries as required by 00170.70(e).

00170.65 Minimum Wage and Overtime Rates for Public Works Projects – Replace this subsection with the following subsection:

00170.65 Requirements for Public Works Projects:

(a) General - The provisions of ORS 279C.800 through ORS 279C.875 and OAR 839-25 are applicable to this Public Works Project ("Prevailing Wage Rate Provisions"). The Contractor, a Subcontractor or other person or Entity Contractor uses in performing all or part of the Contract who are required to comply with the Prevailing Wage Rate Provisions are collectively referred to as "Covered Employers" for the purposes of 00170.65. Covered Employers include employers of workers described in 00170.65(c)(1). "Covered Occupation" as used in 00170.65, refers to each occupation defined in the applicable Oregon Bureau of Labor and Industry ("BOLI") publication titled *Definitions of Covered Occupations for Public Works Contracts in Oregon*.

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As required by ORS 279C.520, the Contractor shall comply with ORS 652.220 and shall not unlawfully discriminate against any of the Contractor's employees in the payment of wages or other compensation for work of comparable character on the basis of an employee's membership in a protected class. "Protected class" means a group of persons distinguished by race, color, religion, sex, sexual orientation, national origin, marital status, veteran status, disability, or age. The Contractor's compliance with this provision constitutes a material element of the Contract and failure to comply constitutes a material breach that entitles the Agency to exercise any remedies available under the Contract, including, but not limited to, termination for default.

As required by ORS 279C.520, the Contractor shall not prohibit any of the Contractor's employees from discussing the employee's rate of wage, salary, benefits or other compensation with another employee or another person and shall not retaliate against an employee who discusses the employee's rate of wage, salary, benefits or other compensation with another employee or another person.

(b) Public Works Bond - Before starting Work, Covered Employers shall each file with the Construction Contractors Board, and maintain in full force and effect, a separate public works bond, in the amount of \$30,000 unless otherwise exempt, as required by ORS 279C.830(2) and ORS 279C.836. The Contractor shall verify each Covered Employer has filed a public works bond before that employer begins work.

(c) Prevailing Wage Requirements - Each Covered Employer must pay its workers on the Project in each Covered Occupation not less than the prevailing rate of wage for each Covered Occupation as set by BOLI in the applicable version of its publication entitled Prevailing Wage Rates for Public Works Contracts.

If the Class of Project is Federal-aid, each Covered Employer must pay its workers on the Project in each Covered Occupation not less than the applicable BOLI prevailing wage rate or the federal prevailing wage rate required under the Davis Bacon Act (40 U.S.C. 3141 et seq.), whichever is higher.

The Contractor is responsible for investigating local labor conditions. The Agency does not imply that labor can be obtained at the minimum hourly wage rates specified in State or federal wage rate publications, and no increase in the Contract Amount will be made if wage rates paid are more than those listed.

The applicable Project Wage Rates and *Definitions of Covered Occupations for Public Works Contracts in Oregon* are included in the Special Provisions.

(1) Satellite Location Bespoke Work Subject to ORS 279C.800(G) - As required in ORS 279C.800(G) and OAR 839-025-0800, Covered Employers include employers of workers performing bespoke work at satellite locations when the applicable version of the BOLI publication entitled Prevailing Wage Rates for Public Works Contracts has expressly made a wage rate applicable to the satellite location bespoke work. Contractor must provide the Engineer with written notice of the satellite work that will be performed as part of its Consent to Subcontract. If the Covered Employer is not a Subcontractor, Contractor must provide the Engineer with a copy of its agreement with that Covered Employer prior to that Covered Employer performing any Work on the Project. The agreement must meet the requirements of 00170.65(f).

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(2) Payroll and Certified Statements - As required in ORS 279C.845, every Covered Employer shall submit written certified statements to the Engineer on the form prescribed by the Commissioner of BOLI in OAR 839-025-0010 certifying compliance with wage payment requirements and accurately setting out the Contractor's or Subcontractor's weekly payroll records for each worker employed on the Project.

If the Class of Project is Federal-aid, in addition to providing the payroll information and certified statements required under ORS 279C.845, every Covered Employer shall submit written certified statements that also meet the requirements in FHWA Form 1273.

The Covered Employers shall preserve the certified statements for a period of 6 years from the date of completion of the Contract.

(3) Retainage for Noncompliance with 279C.845:

a. Agency - As required in ORS 279C.845(7) the Agency will retain 25% of any amount earned by the Contractor on the Project until the Contractor has filed the certified statements required in ORS 279C.845 and in FHWA Form 1273, if the Class of Project is Federal-aid. The Agency will pay to the Contractor the amount retained within 14 Days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

b. Contractor - As required in ORS 279C.845(8) the Contractor shall retain 25% of any amount earned by a first-tier Subcontractor on the Project until the first-tier Subcontractor has filed with the Agency the certified statements required in ORS 279C.845 and in FHWA Form 1273, if the Class of Project is Federal-aid. Before paying any amount retained, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 Days after the first-tier Subcontractor files the required certified statement, the Contractor shall pay the first-tier Subcontractor any amount retained.

(4) Posting Requirements - Every Covered Employer must post the prevailing wage rates and notices in accordance with OAR 839-025-0033.

(d) Overtime Requirements - As a condition of the Contract, the Contractor shall comply with the pertinent provisions of ORS 279C.520 and ORS 279C.540. If the Class of Project is Federal-aid, the Contractor shall comply with the overtime provision affording the greatest compensation required under FHWA Form 1273 and ORS 279C.540.

(1) Maximum Hours of Labor and Overtime Pay - According to ORS 279C.540, no person shall be employed to perform Work under this Contract for more than 10 hours in any 1 Day, or 40 hours in any 1 week, except in cases of necessity, emergency, or where public policy absolutely requires it. In such instances, the Contractor shall pay the employee at least time and a half pay:

- For all overtime in excess of 8 hours a day or 40 hours in any 1 week when the work week is 5 consecutive days, Monday through Friday; or

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- For all overtime in excess of 10 hours a day or 40 hours in any 1 week when the work week is 4 consecutive days, Monday through Friday; and
- For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

For additional information on requirements for overtime and establishing a work schedule see OAR 839-025-0050 and OAR 839-025-0034.

(2) Notice of Hours of Labor - The Contractor shall give written notice to employees of the number of hours per day and days per week the employees may be required to work. Provide the notice either at the time of hire or before commencement of work on this Contract, or by posting a notice in a location frequented by employees.

(3) Exception - The maximum hours of labor and overtime requirements under ORS 279C.540 will not apply to the Contractor's Work under this Contract if the Contractor is a party to a collective bargaining agreement in effect with any labor organization. For a collective bargaining agreement to be in effect it shall be enforceable within the geographic area of the Project, and its terms shall extend to workers who are working on the Project (see OAR 839-025-0054).

(e) State Time Limitation on Claim for Overtime - According to ORS 279C.545, any worker employed by the Contractor is foreclosed from the right to collect any overtime provided in ORS 279C.540 unless a claim for payment is filed with the Contractor within 90 Days from the completion of the Contract, provided the Contractor posted and maintained a circular as specified in this provision. Accordingly, the Contractor shall:

- Cause a circular, clearly printed in boldfaced 12-point type and containing a copy of ORS 279C.545, to be posted in a prominent place alongside the door of the timekeeper's office or in a similar place that is readily available and freely visible to any or all workers employed to perform Work; and
- Maintain such circular continuously posted from the inception to the completion of the Contract on which workers are or have been employed.

(f) Required Terms for Agreements with Covered Employers - Contractor must have agreements with all Covered Employers. For each Covered Employer that is not a Subcontractor, the Contractor's agreement must include:

(1) A clause or condition that if the Contractor fails, neglects, or refuses to make payment to the Covered Employer, the Covered Employer may file a complaint with the Construction Contractors Board, unless payment is subject to a good-faith dispute as defined in ORS 279C.580.

(2) A provision requiring the Covered Employer to have a public works bond filed with the Construction Contractors Board before starting Work on the Project, unless exempt.

(3) A provision that requires the Covered Employer's workers on the Project to be paid not less than the specified minimum hourly rate of wage.

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(4) A provision that requires the Covered Employer to be registered as a vendor in OregonBuys, the on-line electronic Automated Oregon Procurement System administered by the State's Department of Administrative Services; and

(5) A clause that requires the Covered Employer to include (1) – (4) in each of the Covered Employer's agreements with other Covered Employers of Workers on the Project that are also subject to the requirements of ORS 279C.800 through ORS 279C.870.

00170.70(a) Insurance Coverages - Replace the paragraph that begins "**Contractor** – The Contractor shall..." with the following paragraph:

Contractor - The Contractor shall obtain the insurance specified below prior to the execution of the Contract. The Contractor shall maintain the insurance in full force at the Contractor's expense throughout the duration of the Contract and as required by an extended reporting period or tail coverage requirements, and all warranty periods that apply.

Replace the paragraph that begins "**Insurance Provisions** - The Contractor and Subcontractor(s), if..." with the following paragraph:

Insurance Provisions - The Contractor and Subcontractor(s), if any, shall obtain insurance from insurance companies or entities that are authorized to transact the business of insurance and issue coverage in the State and that are acceptable to the Agency. Insurance coverage shall be primary and noncontributory with any other insurance and self-insurance, with the exception of Workers' Compensation/Employer's Liability. The Contractor, or appropriate Subcontractor, but not the Agency, shall pay for all deductibles, self-insurance retentions and self-insurance, if any.

Replace the paragraph that begins "**Commercial General Liability** - The Contractor shall provide Commercial..." with the following paragraph:

Commercial General Liability - The Contractor shall provide Commercial General Liability Insurance written on an occurrence basis and covering the Contractor's liability for bodily injury, property damage, personal and advertising injury, products and completed operations, and contractual liability. Coverage may be written in combination with Commercial Automobile Liability Insurance with separate limits for Commercial General Liability and Commercial Automobile Liability. Combined single limit per occurrence shall not be less than the dollar amount specified in the Special Provisions. The annual aggregate limit shall not be less than the dollar amount specified in the Special Provisions. The policy shall be endorsed to state that the annual aggregate limit of liability shall apply separately to the Contract.

Add the following to the end of this subsection:

The following insurance coverages and dollar amounts are required pursuant to this subsection:

Insurance Coverages	Combined Single Limit per Occurrence	Annual Aggregate Limit
Commercial General Liability	\$5,000,000	\$10,000,000
Commercial Automobile Liability	\$2,000,000	(aggregate limit not required)

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Pollution Liability	\$2,000,000	\$4,000,000
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- With Asbestos Liability Endorsement or separate coverage
- With Lead Liability Endorsement or separate coverage

Commercial Automobile Liability with Pollution Coverage	\$2,000,000	(aggregate limit not required)
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Marine Liability insurance with a minimum limit of \$5,000,000 per occurrence for bodily injury and property damage is required.

Protection and Indemnity Insurance coverage shall be evidenced on the SP-23 form or equivalent, including, by endorsement or otherwise, collision liability, tower's liability, specialist operations, and liability for seepage, pollution, containment and cleanup, with extensions for marine contractual liability, with a minimum limit of liability of \$5,000,000.

Pollution Liability Insurance - With a minimum limit of \$5,000,000, if pollution coverage is provided outside of a P&I Club entry or outside of Protection and Indemnity Insurance coverage evidenced on the SP-23 form or equivalent.

00170.70(b) Extended Reporting - Replace the paragraph that begins "The Contractor or Subcontractor shall..." with the following paragraph:

The Contractor or Subcontractor shall furnish certification of this extended reporting requirement as a condition to receive Third Notification under 00150.90(b) and 00180.50(g).

00170.70(c) Excess/Umbrella Liability - Replace this subsection, except for the subsection number and title, with the following:

A combination of primary and Excess/Umbrella Liability Insurance may be used to meet the required minimum limits of insurance. If any Excess/Umbrella Liability policies are in place, they must be on a true "following form" or broader coverage basis, with coverage at least as broad as provided on the underlying insurance. In addition, the limits of the underlying insurance must be sufficient to prevent any gap between such minimum limits and the attachment point of the coverage provided by the Excess/Umbrella Liability policy.

00170.70(d) Additional Insured - Replace the paragraph that begins "The liability insurance coverages of 00170.70(a)..." with the following paragraph:

The liability insurance coverages of 00170.70(a) shall include an Additional Insured Endorsement endorsing the "State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation, and their respective officers, members, agents, and employees" as Additional Insureds, but only with respect to the Contractor's activities to be performed under the Contract. Coverage shall be primary and non-contributory with any other insurance and self-insurance. The liability coverages of 00170.70(a) that are permitted by the Agency to be obtained by an appropriate Subcontractor shall include all of the foregoing as Additional Insureds and shall also include the Contractor and its officers and employees as Additional Insureds.

Add the following paragraph and bullets to the end of this subsection:

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Add the following as Additional Insureds under the Contract:

- The City of Salem and its officers, agents, and employees
- Salem City Council
- DOWL

00170.70(e) Workers' Compensation - Replace the title of this subsection with **"Workers' Compensation and Employer's Liability"**

00170.70(g) Certificate(s) of Insurance - Replace the bullet that begins "List the "State of Oregon..." with the following bullet:

- List the "State of Oregon, the Oregon Transportation Commission and the Oregon Department of Transportation, and their respective officers, members, agents and employees" as a Certificate holder and endorse as an Additional Insured;

Replace the bullet that begins "Specify that all liability insurance ..." with the following bullet:

- Specify that all liability insurance coverages shall be primary and noncontributory with any other insurance and self-insurance, with exception of Workers' Compensation/Employer's Liability;

Replace the bullet that begins "Include a list of all policies..." with the following bullet:

- Include a list of all policies that fall under the Excess/Umbrella Liability Insurance if Excess or Umbrella Liability Insurance is used to meet the minimum insurance requirements .

00170.70(i) Insurance Requirement Review - Replace this subsection, except for the subsection number and title, with the following:

The Contractor agrees to periodic review of insurance requirements by Agency. Agency reserves the right to periodically assess risks and the adequacy of insurance coverage and in its discretion to require additional insurance coverage or increased coverage limits on existing coverages, or both.

00170.72 Indemnity/Hold Harmless - Add the following paragraph and bullet(s) to the end of this subsection:

Extend indemnity, defense and hold harmless to the Agency and the following:

- The City of Salem and its officers, agents, and employees
- Salem City Council
- DOWL

SECTION 00180 - PROSECUTION AND PROGRESS

Comply with Section 00180 of the Standard Specifications modified as follows:

00180.20(d) Disadvantaged Business Enterprise (DBE) – Delete this subsection.

00180.20(e) Trucking - Replace the paragraph that begins "This Section does not apply to..." with the following paragraph:

This Section does not apply to delivery of Materials by or for or from a Supplier. This Subsection applies to all truck hauling of materials not performed with trucks owned (or rented) and operated by the Contractor.

00180.20(e)(1) Trucking Services Agreement - Delete the bullet that begins "Statement specifying whether the services will be provided by a DBE...".

00180.20(e)(2) Limitations - Replace the paragraph that begins "The approved trucking services agreements..." with the following paragraph:

The approved trucking services agreements shall be used for all trucking services for hauling materials not provided by trucks owned (or rented) and operated by the Contractor. The Contractor shall execute a trucking services agreement with every trucking services provider for hauling materials prior to the trucking services provider doing any Work on the Project Site.

00180.20(e)(3) Submittals - Replace this subsection, except for the subsection number and title, with the following:

The Contractor shall provide the Engineer with an executed copy of the trucking services agreement not later than 2 Days after the trucking services provider for hauling materials has started work. The Contractor shall make certain that the provider of approved trucking services submits payrolls required under Section 00170, complies with applicable Contract provisions, including, without limitation, 00170.07, and complies with applicable trucking services agreement provisions. The work or service provider will not be considered a Subcontractor under the Contract, but the work or services will be considered to have been performed by the Contractor's own organization for the purposes of determining compliance with 00180.20(a). If the trucking services are provided by an owner/operator attach a copy of the following data to the trucking services agreement before the time the services are performed and include without limitation for each owner/operator:

- Driver's name;
- Present driver license upon request;
- Vehicle identification number;
- Present vehicle registration upon request;
- Motor vehicle license plate number;
- Motor Carrier account number;
- Present ODOT Motor Carrier 1A Permit upon request; and
- Name of owner/operator from the side of the truck.

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Each truck shall have the name of the owner/operator clearly displayed on the side of the truck.

00180.21(a) General – Replace the bullet that begins "If the Subcontractor is providing any..." with the following bullet:

- If the Subcontractor is providing any of the insurance coverages as permitted under 00170.70(a), the Agency will respond within 35 Calendar Days after the Engineer's receipt of the request. (28 Calendar Days for the Agency to review and approve the Certificates of Insurance required by 00170.70(g) plus 7 Calendar Days to review and approve the subcontract request.)

00180.40(b) On-Site Work – Replace the bullet that begins "Filed with the Construction Contractors..." with the following bullet:

- Filed with the Construction Contractors Board the public works bond as required in 00170.65(b);

Add the following subsection:

00180.40(c) Specific Limitations - Limitations of operations specified in these Special Provisions include, but are not limited to, the following:

Limitations	Subsection
Cooperation with Utilities	00150.50
Cooperation with Other Contractors	00150.55
Railways	00170.01(e)
Contract Time	00180.50(h)
Closed Lanes	00220.40(e)(1)
Limited Duration Road Closure	00220.40(f)
Extended Duration Lane Closures	00220.40(g)
Ramp Closures	00220.40(h)
Noise Control	00290.32
Regulated Work Areas	00290.34(a)
Maintenance Under Traffic	00620.43
Opening Sections to Traffic.....	00744.51

When submitting the supplemental "look ahead" Project Work schedule, the Contractor shall show all Work that impacts the City of Salem 24 inch waterline.

From October 1, 2026 through May 31, 2027, the Contractor is allowed to restrict all flow of water through the City of Salem owned 24 inch waterlines.

From October 1, 2027 through May 31, 2028, the Contractor is allowed to restrict all flow of water through the City of Salem owned 24 inch waterlines.

From October 1, 2029 through May 31, 2030, the Contractor is allowed to restrict all flow of water through the City of Salem owned 24 inch waterlines.

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Contractor is allowed to restrict all flow of water, year-round, through the City of Salem owned 24 inch waterlines at STA 2+96 to 3+72 for up to 14 Calendar Days.

Restricting flow of water through the City of Salem owned 24 inch waterlines outside the approved windows is not allowed.

The Contractor shall be aware of and subject to schedule limitations in the Standard Specifications that are not listed in this subsection.

00180.41 Project Work Schedules - After the paragraph that begins "One of the following Type..." add the following paragraph:

In addition to the "look ahead" Project Work schedule, a Type C schedule as detailed in the Standard Specifications is required on this Contract.

00180.42 Preconstruction Conference - Add the following to the end of this subsection:

Before beginning On-Site Work and before the preconstruction conference, the Contractor shall conduct a Utility scheduling meeting with representatives from the Utilities involved with this Project and with the Engineer. The Contractor shall incorporate the time needs of the Utilities into the Contractor's schedule submitted at the preconstruction conference.

The Contractor shall submit a written Utility Coordination Report to the Engineer not later than seven Calendar Days after the Utility scheduling meeting. The Utility Coordination Report shall:

- Identify each specific Utility;
- Identify Utility contact names and numbers;
- Identify dates for Utility scheduling for the entire Project;
- Contain documents showing that the Contractor has accomplished Utility locates; and
- Contain documents showing that Utility locates, along with applicable construction activities, have been reviewed and discussed on-site with Utility representatives.

The Contractor shall hold monthly Utility coordination meetings with Utilities and the Engineer to coordinate Project activities with Utilities and on-going Utility relocation work. The Contractor shall hold monthly Utility coordination meetings in the office or in the field, as appropriate. The Utility coordination meetings shall include, but not be limited to:

- Detailed discussions of existing and abandoned Utilities,
- Detailed discussions of de-energizing and re-energizing service lines,
- Detailed discussions of critical locations for potholing of Utilities,
- Detailed discussions of Project activities, and
- Detailed discussions of on-going Utility relocations in upcoming Project activity areas.

During the monthly Utility coordination meetings, the Utilities will provide Utility drawings and discuss the scope, extent, locations, and significance of all Utility facilities before the Contractor begins work in a new activity area. The Contractor shall incorporate this

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information into the Project schedules and furnish the Utilities copies of the updated Project schedules.

The Contractor shall plan and schedule all Utility adjustment operations well in advance of On-Site Work. When the Contractor becomes aware of Utility conflicts not previously identified, the Contractor shall notify the applicable Utilities in writing the same Calendar Day. The Contractor shall allow Utilities at least 14 Calendar Days to relocate (adjust) the Utility conflicts not previously identified.

Add the following subsection:

00180.50(h) Contract Time - There are three Contract Times on this Project as follows:

(1) The Contractor shall complete all Work to be done under the Contract required to; complete seismic retrofit Work on the north half of Bent 15 and 19 at deck level, except only install temporary modular joints; complete the north half of the east approach span Work from Bents 19 to 28; other associated work; and reopen OR22, and the OR22 EB Ramp to Front St NB to traffic before the elapse of 55 Calendar Days, or not later than October 31, 2030, whichever occurs first.

Recording of Calendar Days will begin on the Day the Contractor closes Traffic Lanes on OR22, or the OR22 EB Ramp to Front St NB as set forth under extended duration Lane Closures in 00220.40(g)(1) and Ramps Closures in 00220.40(h).

(2) The Contractor shall complete all Work to be done under the Contract required to; complete seismic retrofit Work for the south half of Bent 15 and 19 at deck level, except only install temporary modular joints; complete the south half of the east approach span Work from Bents 19 to 28; other associated work; and reopen OR22 and the OR22 EB Ramp to Front St SB to traffic before the elapse of 55 Calendar Days, or not later than October 31, 2030, whichever occurs first.

Recording of Calendar Days will begin on the Day the Contractor closes Traffic Lanes on OR22, or the OR22 EB Ramp to Front St SB as set forth under extended duration Lane Closures in 00220.40(g)(2) and Ramps Closures in 00220.40(h).

(3) The Contractor shall complete all Work to be done under the Contract, except for plant establishment, not later than May 31, 2031.

00180.85(b)(2) Multiple Contract Times - Add the following paragraph and bullet list to the end of this subsection:

The Agency determined percentages of the value of Work required to be complete by the Contract Times listed under 00180.50(h) are as follows:

- For Contract Time 00180.50(h)(1) the Agency determined percentage of Work is 73 percent.
- For Contract Time 00180.50(h)(2) the Agency determined percentage of Work is 77 percent.
- For Contract Time 00180.50(h)(3) the Agency determined percentage of Work is 100 percent.

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Add the following subsection:

00180.85(c) Lane Closures - Lane closures beyond the limits specified will inconvenience the traveling public and will be a cost to the Agency.

It is impractical to determine the actual damages the Agency will sustain in the event Traffic Lanes are closed beyond the limits listed in 00220.40(e) or 00220.40(f). Therefore, the Contractor shall pay to the Agency, not as a penalty, but as liquidated damages, the amounts listed below per 15 minutes, or for a portion of 15 minutes, per lane, for any lane closure beyond the limits listed in 00220.40(e) or 00220.40(f).

- \$1,500 on the OR22: Willamina-Salem Highway
- \$500 all other roads

It is impractical to determine the actual damages the Agency will sustain in the event Traffic Lanes are closed beyond the limits listed in 00220.40(g) or 00220.40(h). Therefore, the Contractor shall pay to the Agency, not as a penalty, but as liquidated damages, the amounts listed below per 15 minutes, or for a portion of 15 minutes, per lane, for any lane closure beyond the extended duration Lane Closure limits listed in 00220.40(g) or 00220.40(h).

- \$1,000 on the OR22: Willamina-Salem Highway
- \$500 all other roads

The Engineer will determine when it is safe to reopen lanes to traffic. Assessment of liquidated damages will stop when all lanes have been safely reopened. Any liquidated damages assessed under these provisions will be in addition to those listed in 00180.85(b).

Add the following subsection:

00180.85(e) Traffic Delays Beyond 20 Minutes - Stopping or holding vehicles beyond the limits specified will inconvenience the traveling public and will be a cost to the Agency.

It is impractical to determine the actual damages the Agency will sustain in the event traffic is stopped or held longer than the 20-minute limit listed in 00220.02. Therefore, the Contractor shall pay to the Agency, not as a penalty, but as liquidated damages, \$1,500 per 20 minutes, or for a portion of 20 minutes, for stopping or holding traffic longer than 20 minutes.

Assessment of liquidated damages will stop when the Engineer determines that traffic is no longer stopped or held beyond the 20-minute limit. Any liquidated damages assessed under these provisions will be in addition to those listed in 00180.85(b).

SECTION 00190 - MEASUREMENT OF PAY QUANTITIES

Comply with Section 00190 of the Standard Specifications modified as follows:

00190.20(f)(2) Scale Without Automatic Printer - Replace the paragraph that begins "The Contractor shall inform..." with the following paragraph:

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If the scales require manual entry of gross weight information, the Agency may periodically have a representative weigh witness at the scales to observe the weighing procedures. The Contractor shall inform the Engineer of their intent to use a scale without an automatic printer at least 3 working days before weighing begins or before the Contractor changes to a scale that does not have an automatic printer. The Contractor shall pay costs for the weigh witness. The hourly cost of the weigh witness will be as stated in the Special Provisions. In addition, the Engineer may periodically check the weight for a load of Materials by directing the haul vehicle to reweigh on a different scale that has been inspected and certified according to 00190.20(b) and 00190.20(d).

Add the following paragraph after the paragraph that begins " If the scales require manual entry...":

Pay costs for the weigh witness at \$35.00 per hour.

00190.20(g) Agency-Provided Weigh Technician - Add the following paragraph to the end of this subsection:

Pay costs for the weigh technician at \$35.00 per hour.

SECTION 00195 - PAYMENT

Comply with Section 00195 of the Standard Specifications modified as follows:

Add the following subsection:

00195.11 Fuel Cost Price Escalation/De-escalation - A fuel escalation/de-escalation clause will be in effect during the life of the Contract.

The Agency reserves all of its rights under the Contract, including, but not limited to, its rights for suspension of the Work under 00180.70 and its rights for termination of the Contract under 00180.90, and this escalation/de-escalation provision will not limit those rights.

(a) Monthly Fuel Price (MFP) - A monthly fuel price (MFP) is established by the Agency each month. For the actual MFP, go to the Agency website at:

<https://www.oregon.gov/ODOT/Business/Pages/Asphalt-Fuel-Price.aspx>

The MFP for a given month is the average rack price obtained from the Oil Price Information Service (OPIS) listing dated the first Friday of that month for ultra low sulfur distillate No. 2 diesel fuel for Portland, Oregon. If the average rack price is not posted by OPIS or is otherwise not available to the Agency for the first Friday of any month for any reason, the Agency may use the average rack price posted by OPIS immediately before or after the first Friday of that month. If the average rack prices cease to be available from OPIS for any reason, the Agency in its discretion will select and begin using a substitute price source or index to establish the MFP each month. The Agency does not guarantee that fuel will be available at the MFP.

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(b) Base Fuel Price (Base) - The base fuel price for this Project is the MFP published on the Agency website for the month immediately preceding the Bid Opening date.

(c) Monthly Fuel Adjustment Factor - A monthly fuel adjustment factor is determined each month as follows:

- If the MFP is within $\pm 10\%$ of the Base, there will be no adjustment.
- If the MFP is more than 110% of the Base, then:

$$\text{Adjustment Factor} = (\text{MFP}) - (1.10 \times \text{Base})$$

- If the MFP is less than 90% of the Base, then:

$$\text{Adjustment Factor} = (\text{MFP}) - (0.90 \times \text{Base})$$

(d) Fuel Price Adjustment - A fuel price adjustment for fluctuations in the cost of fuel will apply only to the major fuel usage Pay Items shown in the following list and at the respective fuel factors listed:

Item	Fuel Factor
REMOVAL OF INLETS	25.00 GAL./EACH
REMOVAL OF MANHOLES	25.00 GAL./EACH
GENERAL EXCAVATION	0.33 GAL./CUYD
12 INCH SUBGRADE STABILIZATION	0.33 GAL./SQYD
10 INCH STORM SEWER PIPE, 5 FT DEPTH	5.00 GAL./FOOT
12 INCH STORM SEWER PIPE, 5 FT DEPTH	5.00 GAL./FOOT
12 INCH STORM SEWER PIPE, 10 FT DEPTH	10.00 GAL./FOOT
CONCRETE STORM SEWER MANHOLES	30.00 GAL./EACH
CONCRETE MANHOLES, FLOW CONTROL	30.00 GAL./EACH
CONCRETE MANHOLES, WITH INLET	30.00 GAL./EACH
CONCRETE MANHOLES, POLLUTION CONTROL	30.00 GAL./EACH
CONCRETE MANHOLES, SHALLOW	30.00 GAL./EACH
CONCRETE MANHOLES, SHALLOW LARGE	30.00 GAL./EACH
CONCRETE INLETS, TYPE CG-3	30.00 GAL./EACH
CONCRETE INLETS, TYPE D (MODIFIED)	30.00 GAL./EACH
CONCRETE INLETS, TYPE G-2	30.00 GAL./EACH
CONCRETE INLETS, TYPE G-2 (MODIFIED)	30.00 GAL./EACH
ADJUSTING BOXES	15.00 GAL./EACH
CONNECTION TO EXISTING STRUCTURES	30.00 GAL./EACH
ADJUSTING INLETS	15.00 GAL./EACH
MINOR ADJUSTMENT OF MANHOLES	30.00 GAL./EACH
EXTRA FOR MANHOLES OVER EXISTING SEWERS	30.00 GAL./EACH
COLD PLANE PAVEMENT REMOVAL, 2 INCHES DEEP	0.45 GAL./SQYD
COLD PLANE PAVEMENT REMOVAL, 4 INCHES DEEP	0.45 GAL./SQYD
AGGREGATE BASE	0.69 GAL./TON
LEVEL 3, 1/2 INCH ACP MIXTURE	2.93 GAL./TON
CONCRETE CURBS, CURB AND GUTTER	0.22 GAL./FOOT
CONCRETE CURBS, STANDARD CURB	0.12 GAL./FOOT
CONCRETE DRIVEWAYS	0.11 GAL./SQFT

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CONCRETE WALKS	0.07 GAL./SQFT
6 INCH CONCRETE SURFACING	0.11 GAL./SQFT
BLOWOFF ASSEMBLY, 12 INCH	10.00 GAL./EACH
BLOWOFF ASSEMBLY, 6 INCH	10.00 GAL./EACH
6 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	20.00 GAL./FOOT
10 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	20.00 GAL./FOOT
12 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	20.00 GAL./FOOT
24 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	20.00 GAL./FOOT
36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	20.00 GAL./FOOT
36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS IN CASING	20.00 GAL./FOOT
36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS ON BRIDGE	20.00 GAL./FOOT

The following Pay Items associated with the following Bridges and Structures:

Bridge No. 00123K 19 Gal/\$1,000

Item
TEMPORARY WORK ACCESS AND CONTAINMENT
BRIDGE JACKING AT BENT 15
BRIDGE JACKING AT BENT 19
BRIDGE JACKING AT BENT 21
BRIDGE JACKING AT BENT 22
BRIDGE JACKING AT BENT 23
BRIDGE JACKING AT BENT 24
BRIDGE JACKING AT BENT 26
BRIDGE JACKING AT BENT 27
BRIDGE JACKING AT BENT 28
BRIDGE REMOVAL WORK
BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP
CLASS 2 PREPARATION
BONDED MEMBRANE REMOVAL
CONCRETE DECK MICRO-MILLING, 0.25 INCH DEPTH
SELECTIVE HYDRODEMOLITION
SHORING, CRIBBING, AND COFFERDAMS
STRUCTURE EXCAVATION, BENTS 16 - 19
STRUCTURE EXCAVATION, BENTS 20 - 28
PROVIDE DRILLING EQUIPMENT
DRILLED SHAFT CONCRETE
DRILLED SHAFT REINFORCEMENT, GRADE 60
DRILLED SHAFT REINFORCEMENT, GRADE 80
CSL TEST ACCESS TUBES
CSL TESTS
DRILLED SHAFT EXCAVATION, 106 INCH DIAMETER
PERMANENT STRUCTURAL CASING, 106 INCH DIAMETER

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PERMANENT SHAFT CASING, 106 INCH DIAMETER
PROVIDE PILE DRIVING EQUIPMENT
FURNISH PP 24 X 0.750 STEEL PILES
DRIVE PP 24 X 0.750 STEEL PILES
PILE LOAD TEST (DYNAMIC)
REINFORCED PILE TIPS
PP 24 X 0.750 STEEL PILE SPLICES
REINFORCEMENT, GRADE 100
REINFORCEMENT, GRADE 60
REINFORCEMENT, GRADE 80
INJECT AND SEAL CRACKS
FOUNDATION CONCRETE, CLASS 4000
FOUNDATION CONCRETE, CLASS TMC 4000
DECK CONCRETE, CLASS HPC 4500
GENERAL STRUCTURAL CONCRETE, CLASS 4000
GENERAL STRUCTURAL CONCRETE, CLASS TMC 4000
GENERAL STRUCTURAL CONCRETE, CLASS 5000
GENERAL STRUCTURAL CONCRETE, CLASS TMC 5000
SURFACE TEXTURING
LOCATE CONCRETE REPAIR
CONCRETE REPAIR
POST-TENSIONING, BENT 15 CROSSBEAM
POST-TENSIONING, BENT 16 FOOTING
POST-TENSIONING, BENT 17 FOOTING
POST-TENSIONING, BENT 18 FOOTING
STRUCTURAL CONCRETE OVERLAY MATERIAL
CONSTRUCT STRUCTURAL CONCRETE OVERLAY
MODIFYING EXISTING BRIDGE DRAINS
REMOVE AND REINSTALL STORM DRAIN PIPE EXPANSION JOINTS
BEARING DEVICES, 12 INCH WIDE, 18 INCH LONG, 2.875 INCH THICK
LEAD-RUBBER ISOLATION BEARINGS, BENT 22
LEAD-RUBBER ISOLATION BEARINGS, BENT 23
LEAD-RUBBER ISOLATION BEARINGS, SPAN 15 BENT 15
LEAD-RUBBER ISOLATION BEARINGS, SPAN 18 BENT 19
PTFE SLIDING BEARING ASSEMBLY, SPAN 14 BENT 15
GRC CONDUIT SYSTEM, 2 INCH DIAMETER
ELASTOMERIC CONCRETE NOSING MATERIAL
CONSTRUCTING ELASTOMERIC CONCRETE NOSING
POURED JOINT SEAL
PRECOMPRESSED FOAM SILICONE JOINT SEAL
HOT APPLIED JOINT SEALANT REPLACEMENT
MODULAR BRIDGE JOINT SYSTEMS, 4 GLANDS
MODULAR BRIDGE JOINT SYSTEMS, 5 GLANDS
TEMPORARY MODULAR BRIDGE JOINT SYSTEMS, 4 GLANDS
TEMPORARY MODULAR BRIDGE JOINT SYSTEMS, 5 GLANDS
TYPE "G" CONCRETE RAIL
PEDESTRIAN RAIL
10 FOOT TYPE "B" PROTECTIVE FENCE
8 FOOT TYPE "C" PROTECTIVE FENCE
ROLLED WATERPROOF MEMBRANE
CROSS-FRAMES

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FURNISH VERTICAL GROUND ANCHOR EQUIPMENT
GROUTED STRUCTURAL RODS, BENT 15
GROUTED STRUCTURAL RODS, BENT 19
ISOLATION BEARING COVER PLATES
MODIFY EXISTING BRIDGE DRAINAGE SYSTEMS
NSM STEEL REINFORCEMENT SYSTEM, #4 GRADE 80
NSM STEEL REINFORCEMENT SYSTEM, #5 GRADE 80
NSM STEEL REINFORCEMENT SYSTEM, #6 GRADE 80
SEISMIC LONGITUDINAL RESTRAINERS
TEMPORARY BIRD DETERRENT DEVICES
TEMPORARY CROSS-FRAMES
UNGROUTED STRUCTURAL RODS, BENT 16
UNGROUTED STRUCTURAL RODS, BENT 17
UNGROUTED STRUCTURAL RODS, BENT 18
THERMAL INTEGRITY PROFILE TESTS
VERTICAL GROUND ANCHOR PROOF LOAD TEST
VERTICAL GROUND ANCHOR VERIFICATION LOAD TEST
VERTICAL GROUND ANCHORS, BENT 16
VERTICAL GROUND ANCHORS, BENT 17
VERTICAL GROUND ANCHORS, BENT 18
VERTICAL GROUND ANCHORS, BENT 19
VERTICAL GROUND ANCHORS, BENT 20
VERTICAL GROUND ANCHORS, BENT 21
VERTICAL GROUND ANCHORS, BENT 24
VERTICAL GROUND ANCHORS, BENT 25
VERTICAL GROUND ANCHORS, BENT 28
THERMAL INTEGRITY WIRES
SINGLE LAYER POLYMER CONCRETE OVERLAY

Bridge No. 22519

19 Gal/\$1,000

Item

TEMPORARY WORK ACCESS AND CONTAINMENT
BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP
BRIDGE APPROACH SLAB COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP
CLASS 2 PREPARATION
BONDED MEMBRANE REMOVAL
STAINLESS STEEL REINFORCEMENT, GRADE 60
ASPHALTIC PLUG JOINT SEALS
ASPHALTIC PLUG JOINT SEAL MATERIAL
ROLLED WATERPROOF MEMBRANE

Bridge No. 00123G

19 Gal/\$1,000

Item

TEMPORARY WORK ACCESS AND CONTAINMENT
BRIDGE JACKING AT BENT 3
BRIDGE JACKING AT BENT 4
BRIDGE JACKING AT BENT 5
BRIDGE REMOVAL WORK

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BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCH DEEP
CONCRETE DECK MICRO-MILLING, 0.25 INCH DEPTH
SELECTIVE HYDRODEMOLITION
STRUCTURE EXCAVATION, BENTS 3 - 5
PROVIDE MICROPILE EQUIPMENT
MICROPILES, BENT 3
MICROPILES, BENT 4
MICROPILE VERIFICATION LOAD TEST
MICROPILE PROOF LOAD TEST
REINFORCEMENT, GRADE 100
REINFORCEMENT, GRADE 60
REINFORCEMENT, GRADE 80
INJECT AND SEAL CRACKS
FOUNDATION CONCRETE, CLASS 4000
GENERAL STRUCTURAL CONCRETE, CLASS 4000
GENERAL STRUCTURAL CONCRETE, CLASS TMC 4000
SURFACE TEXTURING
STRUCTURAL CONCRETE OVERLAY MATERIAL
CONSTRUCT STRUCTURAL CONCRETE OVERLAY
LEAD-RUBBER ISOLATION BEARINGS, BENT 3
LEAD-RUBBER ISOLATION BEARINGS, BENT 4
ASPHALTIC PLUG JOINT SEALS
ASPHALTIC PLUG JOINT SEAL MATERIAL
8 FOOT TYPE "C" PROTECTIVE FENCE
FURNISH VERTICAL GROUND ANCHOR EQUIPMENT
ISOLATION BEARING COVER PLATES
VERTICAL GROUND ANCHOR PROOF LOAD TEST
VERTICAL GROUND ANCHOR VERIFICATION LOAD TEST
VERTICAL GROUND ANCHORS, BENT 5

Bridge No. 22524

19 Gal/\$1,000

Item

TEMPORARY WORK ACCESS AND CONTAINMENT
BRIDGE JACKING AT BENT 5
BRIDGE JACKING AT BENT 6
BRIDGE REMOVAL WORK
STRUCTURE EXCAVATION, BENTS 5 & 6
REINFORCEMENT, GRADE 60
FOUNDATION CONCRETE, CLASS 4000
GENERAL STRUCTURAL CONCRETE, CLASS 4000
10 FOOT TYPE "B" PROTECTIVE FENCE

The Contractor is cautioned to consider that its operations may require more or less fuel.

A price adjustment ($\pm$) to the Contractor for fuel cost changes will be made monthly if the MFP differs more than 10% or more from the Base. This adjustment will be the product of the monthly fuel adjustment factor and the estimated monthly fuel used. The monthly fuel used will be determined by multiplying the quantities of Work accomplished during the month for subject Pay Items, by the appropriate fuel factors.

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Fuel cost adjustments will continue to be made as specified and will not be revised for any reason, including the Contractor's election to use an alternative fuel (natural gas, wood pellets, propane, or other).

00195.12(d) Steel Materials Pay Item Selection - Add the following paragraphs to the end of this subsection:

If the Contractor elects not to participate in the steel escalation/de-escalation program for this Project, no response from the Contractor is required.

The Contractor may elect to participate in the steel escalation/de-escalation program for this Project under 00195.12 through 00195.12(d) by marking each check box for each Pay Item in the list below the Contractor is selecting for participation in the program. The completed list must be submitted in writing, signed and dated by the Contractor, to the Project Manager before or within 7 Calendar Days after the date of the preconstruction conference.

PARTICIPATE	PAY ITEM DESCRIPTION	COST BASIS (CB)
☐	DRILLED SHAFT REINFORCEMENT, GRADE 60	40%
☐	DRILLED SHAFT REINFORCEMENT, GRADE 80	40%
☐	PERMANENT STRUCTURAL CASING, 106 INCH DIAMETER	28%
☐	PERMANENT SHAFT CASING, 106 INCH DIAMETER	28%
☐	FURNISH PP 24 X 0.750 STEEL PILES	90%
☐	REINFORCED PILE TIPS	90%
☐	REINFORCEMENT, GRADE 60	40%
☐	REINFORCEMENT, GRADE 80	40%
☐	REINFORCEMENT, GRADE 100	40%
☐	STAINLESS STEEL REINFORCEMENT, GRADE 60	40%
☐	PEDESTRIAN RAIL	19%
☐	PIPE BREAKAWAY SIGN SUPPORTS	20%
☐	PERFORATED STEEL SQUARE TUBE SLIP BASE SIGN SUPPORT	20%
☐	PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	20%

Regardless of the number of Pay Items listed by the Agency or selected by the Contractor, or if no Pay Items qualify for the steel escalation/de-escalation program for this Project or the Contractor elects not to participate in the steel escalation/de-escalation program for this Project, the steel price escalation/de-escalation clause (and program) contained in 00195.12 through 00195.12(d) are included in this Contract and are the only steel price escalation/de-escalation clause (and program) that apply to this Contract.

Contractor's Signature

Date

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00195.50(b) Retainage – Replace the paragraph that begins “As provided in...” with the following paragraph:

As provided in 00170.65(c)(3) in addition to any retainage, a withholding of 25% of amounts earned will be withheld and released according to ORS 279C.845 when the Contractor fails to file the certified statements required in ORS 279C.845, FHWA Form 1273, and 00170.65.

00195.50(c)(1) Cash, Alternate A – Replace this subsection, except for the subsection number and title, with the following:

Retainage will be deducted from progress payments and held by the Agency until final payment is made according to 00195.90, unless otherwise specified in the Contract.

Except as otherwise provided, the Agency will deposit the cash retainage withheld in an interest bearing account, established through the State Treasurer for the benefit of the Agency, as required by ORS 279C.560(5). Interest earned on the account shall accrue to the Contractor. Amounts retained and interest earned will be included in the final payment made according to 00195.90, unless otherwise specified in the Contract.

Any retainage withheld on Work performed by a Subcontractor will be released to the Contractor according to 00195.50(d).

00195.50(c)(2) Cash, Alternate B (Retainage Surety Bond) - Replace this subsection, except for the subsection number and title, with the following:

The Contractor may submit a Surety bond in lieu of all or a portion of the retainage required under the Contract. The Agency will accept this Surety bond unless the Agency first finds in writing good cause for rejection based on unique project circumstances in accordance with ORS 279C.560(1)(c).

The Surety bond must be in substantially the form specified in ORS 701.435 (4) (Oregon House Bill 4006, 2024), and executed by a Surety bonding company that is authorized to transact Surety business in the State of Oregon and may not be a Surety obligation of an individual. The Surety bond and any proceeds of the Surety bond must be made subject to all claims and liens and in the same manner and priority specified for retainage under ORS 279C.550 to 279C.570 and ORS 279C.600 to 279C.625. Agency will reduce the cash retainage held by an amount equal to the value of the Surety bond and pay the amount of the reduction to Contractor according to ORS 279C.570. Any retainage withheld on Work performed by a Subcontractor will be released to the Contractor according to 00195.50(d).

When the Agency accepts a Surety bond in lieu of retainage from the Contractor, the Contractor shall accept Surety bonds from Subcontractors or Suppliers from which the Contractor has withheld retainage. At any time before final payment a Subcontractor may submit a Surety bond to the Contractor and request that the Contractor submit a Surety bond as described above for the portion of the Contractor's retainage that pertains to the Subcontractor. The Surety bond the Subcontractor provides to the Contractor must meet the Agency requirements specified in the paragraph above. When a Contractor at a Subcontractor's request obtains and submits a Surety bond under this subsection, the Contractor may withhold from payments to the Subcontractor an amount equivalent to the

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portion of the Contractor's Surety bond premium for which the Subcontractor is responsible in accordance with ORS 279C.560 (Oregon House Bill 4006, 2024).

Within 30 Days after a Subcontractor's request the Contractor shall provide a Surety bond as described above, and the Agency will accept the Surety bond unless:

- The Agency finds in writing good cause for rejection based on unique project circumstances in accordance with ORS 279C.560;
- A Surety bond is not commercially available;
- The Subcontractor refuses to pay to the Contractor the Subcontractor's portion of the Surety bond premium; or
- The Subcontractor refuses to provide the Contractor with a Surety bond that meets the requirements of ORS 279C.560(1)(b).

Notwithstanding 00195.50(d), within 30 Days of receiving a Surety bond from Contractor at a Subcontractor's or Supplier's request, Agency will release to the Contractor the amount held as retainage that is equivalent to the amount the Contractor submitted as a Surety bond. Contractor shall, within 30 Days after receiving a Surety bond from a Subcontractor or Supplier, release to the Subcontractor or Supplier the amount the Contractor holds as retainage that is equivalent to the amount of the Surety bond submitted, in accordance with ORS 279C.560(8).

00195.50(c)(3) Bonds, Securities, and Other Instruments - Replace this subsection, except for the subsection number and title, with the following:

Contractor may deposit bonds, securities or other instruments with the Agency or in a bank or other financial institution, to be held by Agency instead of cash retainage for the benefit of the Agency, which the Agency will accept unless the Agency first finds in writing good cause for rejection based on unique project circumstances, in accordance with ORS 279C.560(1)(c).

If the Contractor deposits bonds, securities or other instruments, and Agency does not reject the bonds, securities or other instruments as permitted by ORS 279C.560(1)(c), the Agency will reduce the cash retainage by an amount equal to the value of the bonds, securities and other instruments. Interest or earnings on the bonds, securities and other instruments accrue to the Contractor.

Bonds, securities and other instruments deposited instead of cash retainage shall be of a character approved by the Director of the Oregon Department of Administrative Services, including, but not limited to:

- Bills, certificates, notes or bonds of the United States;
- Other obligations of the United States or agencies of the United States;
- Obligations of a corporation wholly owned by the federal government;
- Indebtedness of the Federal National Mortgage Association;
- General obligation bonds of the State of Oregon or a political subdivision of the State of Oregon;
- Irrevocable letters of credit issued by an insured institution, as defined in ORS 706.008.

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00195.50(f) Prompt Payment Policy - Replace this subsection, except for the subsection number and title, with the following:

Payments shall be made promptly according to ORS 279C.560, ORS 279C.570, ORS 279C.580 and other applicable legal requirements.

SECTION 00196 - PAYMENT FOR EXTRA WORK

Comply with Section 00196 of the Standard Specifications.

SECTION 00197 - PAYMENT FOR FORCE ACCOUNT WORK

Comply with Section 00197 of the Standard Specifications modified as follows:

00197.20(e) Standby Time - Replace this subsection, except for the subsection number and title, with the following:

If ordered by the Engineer, standby time will be paid at 50% of the hourly rental rate calculated according to this Subsection, excluding the hourly operating rate. Rates for standby time that are calculated at less than \$1 per hour will not be paid. Payment will be limited to not more than 8 hours in a 24-hour period or 40 hours in a 1 week period.

00197.80 Percentage Allowances - Replace the table that shows Subsection and Percent with the following:

Subsection	Percent
00197.10 Materials	19
00197.20 Equipment	19
00197.30 Labor	29
00197.40 Special Services	19

Replace the paragraph that begins "When a Subcontractor performs ordered..." with the following paragraph:

When a Subcontractor performs ordered Force Account Work, the Contractor will be allowed a supplemental markup of 10% on each Force Account Work order.

SECTION 00199 - DISAGREEMENTS, PROTESTS, AND CLAIMS

Comply with Section 00199 of the Standard Specifications modified as follows:

00199.20(g) Protest Evaluation by Third Party Neutral – Replace this subsection with the following subsection:

00199.20 (g) Protest Evaluation by a Dispute Review Board – If the Contractor has fully complied with the requirements described in 00199.20(a) through 00199.20(e), and if the Engineer fully or partially denies, in writing, the Contractor's protest according to 00199.20(f), the Contractor shall, within 14 calendar days after receipt of the Engineer's determination, notify the Engineer in writing if the Contractor does not accept the Engineer's evaluation and requests that the Engineer's full or partial denial of the protest be presented to the Dispute Review Board (DRB) according to 00199.25. Agreeing to the Contractor's request is within the full discretion of the Engineer. If the Engineer agrees to present the protest to the DRB, the parties may proceed with the dispute resolution procedures described in 00199.25.

If the Contractor does not accept the Engineer's evaluation of the protest and does not request presentation of the protest to the DRB, or if the Engineer denies the Contractor's request to present the protest to the DRB, the Contractor may pursue a claim as described in 00199.30.

Add the following subsection:

00199.25 Dispute Review Board -

(a) General –

- To assist in the resolution of a protest before initiating a claim according to 00199.30, the Contractor and the Engineer may use the Dispute Review Board (DRB) established pursuant to this Specification, which will provide an independent recommendation related to the Engineer's full or partial denial of a protest.
- To implement this Specification, the Three-Party Agreement set forth in 00199.25(j) shall be entered into among the Agency, the Contractor and each DRB member.
- The provisions of this DRB Specification take precedence over the language in the Three-Party Agreement; if there is a discrepancy between the two documents, this DRB Specification shall govern.
- Notwithstanding the submittal of any protests to the DRB or any DRB procedures resulting therefrom, the Contractor shall proceed promptly with the Work, including but not limited to, Work ordered by the Engineer.

(b) Dispute Eligible for Consideration – As set forth in 00199.20(g), disputes eligible for consideration by the DRB are limited to those contained in the Engineer's full or partial denial of a protest. The DRB is expected to provide recommendations on whether the Engineer's denial of time, compensation or both was supported by the Contract, facts, and circumstances.

(c) DRB Establishment –

(1) DRB Member Qualifications -

Qualification Requirements -

DRB members shall:

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- Be experienced in the interpretation of construction Contract Documents and technical specifications.
- Be experienced in the resolution of construction disputes and protests.
- Be experienced in the type of construction involved in the Project, including, if applicable, heavy highway construction, bridge construction, highway safety improvements, or infrastructure maintenance.

While not required, it is desirable for DRB members to have:

- Attended training by the Dispute Resolution Board Foundation in dispute resolution within the last ten years or be willing to attend such training.
- A minimum ten years of experience with the type of construction and delivery method involved in the Project, the interpretation of contract documents, and contract dispute resolution.
- If applicable, experience in alternative delivery methods including but not limited to CM/GC, Design-Build, Progressive Design-Build, and Best Value Selection.

Conflict of Interest Requirements -

For the purposes of this Specification:

- “DRB member” includes the member’s current primary or full-time employer.
- “Involved” means having a contractual relationship with the Agency or the Contractor at any tier.
- “Financial interest” means any ownership interest, loans, receivables or payables.

No prospective DRB member shall:

- Have a financial interest in the Agency, Agency consultants, the Engineer, the Contractor or any Subcontractor, Supplier or other Entity involved in the Project, or any parent, subsidiary or affiliate of the Contractor or any Subcontractor, Supplier or other Entity involved in the Project.
- Have a financial interest in the Contract or the Project, except payment for services as a member of the DRB.
- Except for fee-based consulting services on other projects, currently be employed by, or have been employed within the prior 24 months by, the Agency, Agency consultants, the Engineer, the Contractor or any Subcontractor, Supplier or other Entity involved in the Project, or any parent, subsidiary or affiliate of the Contractor or any Subcontractor, Supplier or other Entity involved in the Project.
- Have a past or present professional or personal relationship with, or a past financial interest in, the Agency, Agency consultants, the Engineer, the Contractor or any Subcontractor, Supplier or other Entity involved in the Project, or any parent, subsidiary or affiliate of the Contractor or any

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Subcontractor, Supplier or other Entity involved in the Project, without full disclosure to all parties.

- Otherwise have had prior involvement in the Project of a nature which could, in the opinion of either the Contractor or the Engineer, compromise the member's ability to participate impartially in the activities of the DRB.

(2) DRB Member Selection -

The Engineer and Contractor shall meet prior to First Notification to jointly select three prospective DRB members. At the meeting, the Engineer and Contractor will each nominate, in writing, three individuals to serve on the DRB. The nominating party shall only nominate individuals that the party reasonably believes meets the Qualification and Conflict of Interest requirements in 00199.25(c)(1) and will be available to serve on the DRB for the duration of the Project. The qualifications of some potential DRB members have been reviewed and deemed potentially acceptable by the Agency. This list of potential DRB members is available upon request from the Engineer.

At the meeting, the Engineer and the Contractor shall review the combined list of six nominees and jointly agree on three prospective DRB members.

Following the meeting, the Engineer and the Contractor shall provide to the three DRB candidates a list of the firms involved with the Project, including, but not limited to, designers, architects, engineers, professional service firms, consultants, JV partners, Subcontractors and Suppliers, which must include a listing of key personnel of each firm. In addition, the Engineer and the Contractor shall provide to each DRB candidate the anticipated timeframe for the Project.

The Engineer and the Contractor shall have three weeks to solicit and receive the following information from each of the three DRB candidates:

1. A cover letter describing why the candidate is qualified to serve on the DRB and attesting to their availability to serve on the DRB for the duration of the Project.
2. A resume showing:
 - i. Full name, contact information and current employer (including self-employment, if applicable).
 - ii. Experience demonstrating that the candidate meets the qualifications in 00199.25(c)(1), including experience qualifying the nominee as a DRB member for the Project and DRB-related experience (including experience serving as a DRB Chair).
3. A disclosure statement that meets the Conflict of Interest requirements in 00199.25(c)(1) and addresses:
 - i. Previous or current employment by the Agency, Agency consultants, the Engineer, the Contractor or any Subcontractor, Supplier or other Entity involved in the Project, or any parent, subsidiary or affiliate of the Contractor, or any Subcontractor, Supplier or other Entity involved in the Project.

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- ii. Previous or current engagement as a consultant to the Agency, the Contractor or any other Entity involved in the Project.
- iii. Previous, current or future financial ties to the Agency, the Contractor, or any other Entity involved in the Project.
- iv. Previous or current service as a DRB member on projects with the Agency, the Contractor or any Entity involved in the Project.
- v. Any prior involvement in the Project

The Engineer and the Contractor shall have another two weeks to review the submissions and jointly agree on the final selection of three DRB members. The Engineer and the Contractor may reject a DRB candidate for any reason. If either the Engineer or the Contractor rejects a DRB candidate, the Engineer and the Contractor shall replace the rejected candidate with a different individual from the combined list of nominees and thereafter solicit and receive information from that individual. That process will be repeated for all candidates not agreed upon until all three positions are filled.

The Engineer and Contractor shall promptly notify the DRB members of their selection and schedule the first DRB progress meeting as soon as practicable.

Prior to first DRB progress meeting:

- The Engineer and the Contractor shall execute the Three-Party Agreement set forth in 00199.25(j) with each DRB member.
- The Engineer will provide the DRB with a conformed set of the Contract documents, including Change Orders, for the Project and the current approved Schedule. The DRB may ask for other documents as needed to get background information on the Project scope and status.
- The DRB members shall determine amongst themselves who will act as the DRB Chair.

At the first DRB progress meeting, the parties shall discuss the expectations for the DRB and the subjects addressed in the Three-Party Agreement and Operating Procedures, including the schedule and location for DRB progress meetings and site visits and DRB hearings.

(d) DRB Procedures –

(1) Three-Party Agreement - The Engineer and the Contractor shall execute the Three-Party Agreement set forth in 00199.25(j) with each DRB member prior to the first DRB progress meeting.

(2) Operating Procedures - The Engineer will, in cooperation with the Contractor, coordinate the operations of the DRB. At the first DRB progress meeting, the DRB, the Engineer and the Contractor shall mutually develop and approve Operating Procedures consistent with this Specification and Agency's Standard Operating Procedures. The Operating Procedures are intended to be modifiable to suit the

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needs of the Project and its DRB process and may be amended from time to time by agreement of the Engineer, the Contractor and the DRB.

(e) DRB Progress Meetings –

(1) Purpose: The purpose for DRB progress meetings is to keep the DRB informed of the Project's progress and circumstances so that it is better prepared to address issues that may become subject to the DRB Dispute Resolution Procedures. DRB progress meetings shall not be used to informally resolve any issues or disagreements. The merits of any protests that the Contractor has requested to be presented to the DRB under 00199.20(g) shall not be discussed during a DRB progress meeting.

(2) Pre-Meeting Submittals:

Prior to each progress meeting, the Engineer will furnish to the DRB a pre-meeting submittal consisting of the following:

- Three sets of source documents which are or may become pertinent to the activities of the DRB, which may include payment requisitions, schedule updates, Requests for Information (RFIs), submittals and Change Orders.
- A cover letter summarizing the nature and purpose of each source document to be furnished.

The Contractor shall thereafter furnish to the DRB a pre-meeting submittal consisting of the following:

- Three sets of documents which are or may become pertinent to the activities of the DRB, except documents furnished by the Engineer. Pertinent documents may include any drawings or sketches, calculations, procedures, schedules, estimates, correspondence or other documents that are created in the planning or the performance of the Work.
- A cover letter summarizing the nature and purpose of each source document to be furnished.

Copies of each party's pre-meeting submittal must be furnished to the other party simultaneous to submittal to the DRB.

(3) Meeting Procedures: The Engineer and the Contractor must have a representative at all DRB progress meetings. Other attendees are expected to include selected personnel from the Engineer and the Contractor. The location and frequency of progress meetings will be mutually agreed to by the DRB, the Engineer, and the Contractor in the Operating Procedures.

Each progress meeting is expected to consist of a report on the status of the Project and a construction site visit. The Engineer is expected to facilitate the report based on the Pre-Meeting Submittals furnished to the DRB by each party. The DRB shall prepare an agenda for each meeting in consultation with the Engineer and the Contractor, which may include the following elements:

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- Meeting opened by Chair of the DRB.
- By the Engineer:

A report on the status of the Work based on the source documents furnished to the DRB, which may include a breakdown of payments made since the last progress meeting, current Project schedule, in-progress submittals and Change Orders.

A list of any present disputes or protests filed by the Contractor and the status of each, including the Engineer's determination, if one has been made.

- By the Contractor: A description of the Work accomplished since the last meeting, the current status of the Project Work schedule, and a forecast for the coming period, which may include any RFIs that have been submitted since the last progress meeting.
- A construction site visit. The DRB must be accompanied by both Engineer and Contractor personnel.

(f) DRB Dispute Resolution Procedures –

(1) Dispute Referral -

The Contractor may, in writing, request a protest that is eligible for DRB consideration be presented to the DRB according to 00199.20(g).

If the Engineer agrees to present a protest to the DRB, the Engineer shall refer the dispute to the DRB. The dispute referral shall be made in writing to the DRB with a copy simultaneously provided to the Contractor. The dispute referral shall contain:

- A copy of the protest at issue and the Engineer's response.
- An issue statement that:

Defines the nature and extent of the dispute contained in the Engineer's full or partial denial of the protest in accordance with the dispute eligibility requirements in 00199.25(b).

Requests the DRB's recommendations on whether the Engineer's full or partial denial of time, compensation or both was supported by the Contract, facts, and circumstances.

Within 7 calendar days after receipt of the dispute referral, the DRB shall confer with the parties to establish a briefing schedule for delivering and exchanging prehearing submittals and establish a date, time and location for convening the DRB hearing.

(2) Pre-Hearing Submittals -

The Engineer and the Contractor shall prepare and submit a pre-hearing submittal to the DRB members and the other party at least 21 Calendar Days before convening the DRB hearing unless a different timeframe is set in the Operating Procedures. Each party's pre-hearing submittal shall consist of a written position paper and any written evidence or other documentation the party intends to rely on to substantiate

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their position. The position papers and any supporting documentation shall be organized, tabbed, indexed and consecutively numbered in the submittal.

Each party's position paper shall, at a minimum, contain the basis and justification for the party's position, with reference to the Contract documents and any other supporting documentation for each element of the dispute. A party's position paper shall only address issues within the scope of the issue statement contained in the dispute referral. If a party's position paper raises or otherwise addresses issues outside the scope of the issue statement, the DRB shall identify those portions of the position paper and provide written notice suspending the submission schedule and requiring the party to resubmit the position paper, excluding the portions outside the scope of the issue statement, no later than 7 Calendar Days after the date on which the original position paper was submitted. The DRB shall simultaneously provide a copy of the notice to the other party. Upon the party's resubmission of the position paper, the DRB shall resume the submission schedule, allowing for additional time for the submission of rebuttal papers as necessary to account for the suspension of time to submit the position paper.

The Engineer and the Contractor shall prepare and submit a rebuttal paper in response to the position paper of the other party. The parties shall submit the rebuttal papers to the DRB and the other party at the same time, which must be at least 7 Calendar Days before convening the DRB hearing unless a different timeframe is set in the Operating Procedures. A rebuttal paper may only respond to the issues raised in the other party's position paper. If a party's rebuttal paper raises or otherwise addresses issues that have not been addressed in the other party's position paper, the DRB shall identify the portions of the rebuttal paper that are outside the permissible scope for a rebuttal and provide written notice requiring the party to resubmit the rebuttal paper, excluding those portions, within 7 Calendar Days after the date on which the original rebuttal paper was submitted. The DRB shall simultaneously provide a copy of the notice to the other party.

The Contractor and the Engineer shall also produce such additional supporting documentation as the DRB may deem necessary and furnish copies to the other party simultaneous to submittal to the DRB.

(3) DRB Hearings -

Attendance:

- The Engineer and the Contractor must have a representative at all DRB hearings.
- The Engineer and Contractor shall both limit attendance at DRB hearings to personnel directly involved in the protest and participants in the good-faith negotiations conducted prior to submittal to the DRB, except as noted below.
- At least 14 Calendar Days before the hearing, each party shall provide a list of proposed attendees to the DRB and the other party. In the event of a disagreement, the DRB shall make the final determination as to who attends the hearing.

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- Attorneys for either party shall not participate in the DRB hearing. If the Engineer, the Contractor, and the DRB mutually agree, attorneys may attend the DRB hearing as an observer provided that the attorneys are identified as such on the list of proposed attendees.
- If a dispute includes Work done or costs incurred by any Subcontractors, Suppliers or any other Entity other than the Contractor, the Contractor remains solely responsible for presenting the dispute at the DRB hearing.

Time and Place of Hearing: The DRB will conduct hearings consisting of a meeting or meetings as necessary at which the Engineer and Contractor will present their positions and arguments. In large or complex protests, it may be necessary for the hearing to consist of more than one meeting to review the issues, positions and arguments. The hearings shall be held at times and places mutually agreeable to the Engineer, the Contractor and the DRB members.

Requests for Postponement: Either the Engineer or the Contractor may request to postpone the hearing until 7 Calendar Days before the hearing. If agreed to by the other party, a request for postponement will be forwarded to the DRB. The DRB shall determine if the request for rescheduling the hearing is acceptable.

Hearing Procedures: The DRB, the Engineer and the Contractor will establish the process to be followed at DRB hearings in the Operating Procedures. The DRB chair will facilitate each hearing and assure deliverables of the DRB are met within agreed upon timelines.

The hearings may generally be conducted within the following guidelines:

- The Contractor shall present to the DRB first, followed by the Engineer. The DRB shall ensure that, in presenting their positions, the parties do not address issues outside the scope of the issue statement contained in the dispute referral. Should a party's presentation exceed the scope of the issue statement, the DRB shall not consider those portions of the presentation in reaching its recommendations.
- To ensure each party has a full and adequate opportunity to present their position, both parties shall be allowed successive rebuttals until, in the DRB's opinion, all aspects of the protest have been fully and fairly covered. In a rebuttal, a party may only respond to the issues covered in the preceding presentation by the other party. The DRB shall ensure that neither party uses a rebuttal to raise new issues that are not in response to the preceding presentation or otherwise outside the scope of the issue statement, and shall not consider any portions of a rebuttal that exceed those limits in reaching its recommendations.
- The DRB shall be fully prepared to, and may at any time, ask questions, request clarifications, or ask for additional data, documents, job records or other information that would assist the DRB in making its recommendation. A refusal by either the Engineer or the Contractor to provide information requested by the DRB may be considered by the DRB in making the findings and recommendations.

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- Either party may request that the DRB direct a question to, or request a clarification from, the other party or their representatives, including their Subcontractors and consultants. The DRB shall determine at what point in the proceedings such requests may be made and if they will be granted. In general, the DRB will not allow one party, their representatives, Subcontractors or consultants, to be questioned directly by the other party.
- During the hearing, DRB members may not express opinions concerning the merits of any facet of the protest.

(4) Postponement of a DRB Hearing Caused by the Fault of Either Party -

In the event either party fails to deliver a pre-hearing submittal or rebuttal by the date established by the DRB, the DRB shall, at its discretion, determine whether the hearing shall proceed as originally scheduled, or allow additional time for the submittal, reschedule the hearing or both. If the DRB determines that the hearing shall proceed as originally scheduled or either party fails to deliver a pre-hearing submittal by a revised date established by the DRB, the DRB shall proceed with the hearing utilizing the information that has been submitted.

In the event representatives of either the Engineer or the Contractor fail to appear at the appointed time of a DRB hearing, or request postponement of a hearing after the time frame established by 00199.25(f)(3) has expired, the DRB shall postpone the hearing until such time as representatives from both parties are available to proceed with the hearing.

A party that causes a hearing to be postponed under this Section will bear all costs incurred by the DRB arising from the postponement according to 00199.25(g)(1) below.

(5) Use of Experts -

By the Engineer or Contractor:

A party intending to offer an outside expert's testimony at the hearing shall notify the other party and the DRB in writing no less than 60 Calendar Days prior to the due date for delivering the pre-hearing submittal. The written notification must include the following information:

- The expert's name and general statement of the area of the protest that will be covered by the expert's testimony.
- A disclosure statement prepared by the proposed expert that addresses the requirements of 00199.25(c)(1) and (2).
- A statement prepared by the proposed expert which identifies the experience and training which qualifies them as an expert.

Upon receipt of the above notification, the other party shall have the opportunity to secure the services of an outside expert to address or respond to those issues that may be raised by the opposing party's outside expert. If the other party secures an expert, the party shall provide written notification that complies with the requirements

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specified above, except the time requirement is 21 Calendar Days prior to the due date for delivering the pre-hearing submittal.

By the DRB:

When requested by the DRB and subject to approval of the parties, outside experts may be needed to assist the DRB. In such cases, the outside expert shall in no way be deemed authorized to usurp the DRB's authority to issue the DRB recommendations. Such authority shall remain vested solely in the DRB.

(6) DRB Recommendation -

After conclusion of the hearing, the DRB shall meet in private, conduct strictly confidential deliberations, and reach a conclusion pertaining to the issues, questions, positions, arguments and evidence presented to the DRB by the Engineer and the Contractor. Within 30 Calendar Days after the DRB closes the hearing, unless extended by agreement of the parties, the DRB shall furnish a written, nonbinding, independent report simultaneously to the parties, setting forth its recommendations on whether the Engineer's full or partial denial of time, compensation or both was supported by the Contract, facts, and circumstances.

The DRB shall make every effort to reach a unanimous recommendation. If all three members of the DRB do not agree on the findings and recommendation, the DRB shall provide majority and minority recommendations including reasons for their lack of agreement. The majority and minority recommendations shall be submitted anonymously in a single report.

(7) Clarification; Reconsideration -

Clarification: Either party may request clarification of the DRB recommendation within 14 Calendar Days following receipt of the DRB's recommendation. Requests for clarification shall be submitted in writing simultaneously to the DRB and the other party. Within 14 Calendar Days following the DRB's receipt of the request clarification, the DRB shall provide the requested written clarification to both parties.

Reconsideration: Reconsideration by the DRB may be requested by either party, provided the following:

- The request is made within 14 Calendar Days of receipt of the DRB's recommendation.
- New information is obtained or developed that was not presented at the hearing nor contained within a pre-hearing submittal or, in the party's opinion, the DRB misunderstood or failed to consider pertinent facts or Contract provisions or legal arguments.
- The DRB shall give the party not requesting reconsideration the option of submitting a rebuttal to any information that is the basis for or otherwise included in the request for reconsideration, with no less than 14 days for preparing and submitting the rebuttal.

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- Within 14 Calendar Days of the request for reconsideration or the rebuttal to the request for reconsideration, as applicable, the DRB shall provide to both parties, in writing, the results of the DRB's reconsideration.

(8) Acceptance -

Although the Engineer and the Contractor should place a large measure of importance upon the DRB resolution process and recommendations, the DRB recommendations are considered advisory only and are not binding on either Party. Within 30 Calendar Days of receiving the DRB's recommendation or within 14 Calendar Days of receiving the DRB's clarification, reconsideration or both, the Engineer and the Contractor shall exchange in writing their acceptance or rejection of the DRB recommendation, with a copy simultaneously provided to the DRB. Failure by either Party to accept or reject within the specified timeframes shall be deemed acceptance of the recommendation by that Party. If either the Contractor or the Engineer rejects the recommendation of the DRB, the Contractor may proceed under the provisions of 00199.30.

DRB recommendations are non-admissible as they pertain to future legal proceedings.

(g) DRB Costs -

(1) Costs Billed by the DRB:

- Eligible and ineligible costs billed by the DRB will be set forth in the Three-Party Agreement. Eligible costs include, but are not limited to, initial and regularly scheduled meetings and site visits, discussions of issues in internal DRB meetings and discussion of issues by the parties and the DRB, costs for the DRB to prepare, hear, and develop recommendations on a protest and use of an outside expert, if any.
- Except for costs arising from the postponement of a DRB hearing caused by one party under 00199.25(f)(4), eligible costs shall be shared equally between the Engineer and the Contractor whether or not the DRB recommendations are accepted by both the Engineer and the Contractor. Where a party causes a DRB hearing to be postponed under 00199.25(f)(4), that party will bear all DRB costs arising from the postponement.
- When payment is requested by a DRB member, the DRB member will submit an invoice with detailed billing and claimed expenses to both the Engineer and the Contractor. The Engineer and the Contractor will separately review the invoice to confirm it is consistent with the Three-Party Agreement. If a party approves the invoice, the party shall pay half of the invoice within 30 Calendar Days of receipt. If a party requires further documentation to substantiate the invoice, believes that the invoice contains a mistake or otherwise has questions concerning the invoice prior to making payment, the party shall contact the DRB member who submitted the invoice to resolve the inquiry prior to paying the party's half of the invoice and provide a copy of the inquiry to the other party. If the invoice is adjusted in response to the party's inquiry, the party shall pay half of the adjusted

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invoice, and thereafter reimburse, or seek reimbursement from, the other party such that each party bears half of the adjusted invoice amount.

Other Expenses:

- The Contractor and the Engineer shall each pay their own costs associated with participation in the DRB process.
- The Engineer will pay the costs of the DRB's recording secretary, if any.

(h) DRB Member Termination; Replacement –

(1) DRB Member Termination: A DRB member may be terminated at any time as follows:

- By mutual agreement between the Engineer and the Contractor.
- By agreement between the other two DRB members.

(2) DRB Member Replacement: If a DRB member is terminated, resigns, dies or is otherwise unable to serve, a replacement member will be appointed using the selection process described in 00199.25(c)(2), except as modified by the following:

- The appointment of the replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 21 Calendar Days of the determination of the need for replacement.
- The Engineer and the Contractor shall each solicit and receive the submissions required by 00199.25(c)(2) from one individual that the party intends to nominate as the replacement DRB member.
- If the nominating party determines, based on the individual's submissions, that the individual meets the Qualification and Conflict of Interest requirements in 00199.25(c)(1) and will be available to serve on the DRB for the duration of the Project, the party shall thereafter provide the nomination and submissions to the other party.
- The Engineer and the Contractor shall review the submissions from the other party's nominee and jointly agree on the replacement DRB member.

Upon replacement of a DRB member, the Engineer and the Contractor shall execute an updated Three-Party Agreement with each DRB member that reflects the new DRB membership.

Regardless of changes to the DRB Members, any protest presented to the DRB that resulted in a final written recommendation from the DRB shall not be subject to re-evaluation by the DRB.

(i) Suspension of DRB Process - Either the Engineer or the Contractor may temporarily suspend the DRB process at any time if they reasonably believe that the impartiality and independence of one or more DRB members has been compromised. If, upon suspension of the DRB process, the party demonstrates to the satisfaction of the other party that a DRB

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member or members no longer meets the Conflict of Interest requirements in 00199.25(c)(1) or the Three-Party Agreement, the DRB member or members shall be terminated and replaced according to 00199.25(h). The DRB process will resume upon replacement of the terminated DRB member or members.

(j) Three-Party Agreement - The Engineer and the Contractor shall execute the following Three-Party Agreement with each DRB member prior to the first DRB progress meeting.

THREE PARTY AGREEMENT

I. PARTIES

- A. _____ ("Contracting Agency").
- B. _____ ("Contractor").
- C. Dispute Review Board ("DRB"), consisting of three members:
 - 1. _____
 - 2. _____
 - 3. _____

II. CONTRACT

- A. The Contractor and the Contracting Agency have entered into a Contract for the construction of the project titled _____, Contract Number _____ ("Project").
- B. The Contract for the Project provides for the establishment and operation of a DRB to assist in resolving protests.
- C. The DRB is composed of three members, selected in accordance with the Contract.
- D. In the event of a conflict between this Three-Party Agreement and the Contract, the Contract shall govern.

III. PURPOSE OF DRB

The DRB is expected to assist in the resolution of a protest by providing an independent recommendation on whether the Engineer's full or partial denial of time, compensation or both was supported by the Contract, facts, and circumstances.

IV. DRB SCOPE OF WORK

- A. **DRB Chair.** Upon selection of DRB members, the DRB shall appoint, among the selected DRB members, one member to act as DRB Chair.
- B. **DRB Operating Procedures.**

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1. At the first DRB progress meeting, the DRB, the Contracting Agency and the Contractor shall mutually develop and approve Operating Procedures consistent with the requirements and general guidelines set forth in the Contract and the Contracting Agency's Standard Operating Procedures.
2. The Operating Procedures shall establish the administrative processes for the DRB, and address issues including:
 - a. Whether the Parties will designate a person to act as the recording secretary for DRB progress meetings and DRB hearings.
 - b. The location and frequency of DRB progress meetings.
 - c. The location and conduct of DRB hearings.
 - d. Content and format of information which may be presented at DRB progress meetings and DRB hearings.
3. Following the Parties' approval of the Operating Procedures, the DRB shall provide the Contracting Agency and the Contractor with a written copy of the procedures.

C. DRB Progress Meetings.

1. The DRB shall use progress meetings to stay informed of the Project's progress and circumstances so that it is better prepared to address issues that may become subject to the DRB Dispute Resolution Procedures. DRB progress meetings shall not be used to informally resolve any issues or disagreements. The merits of any protests that the Contractor has requested to be presented to the DRB shall not be discussed during a DRB progress meeting.
2. In advance of all progress meetings, the DRB shall review the pre-meeting submittals from the Contracting Agency and the Contractor and, in consultation with the Contracting Agency and the Contractor, prepare an agenda that is consistent with the submittals and the agenda set forth in the Contract.
3. Following each progress meeting, the DRB will prepare a summary of the topics discussed at the meeting. The summary will be reviewed by the Contracting Agency and the Contractor, corrected as necessary, and approved at the next DRB progress meeting.

D. Dispute Resolution.

1. Within seven days after receipt of a dispute referral, the DRB shall confer with the Contracting Agency and the Contractor to establish a briefing schedule for delivering and exchanging prehearing submittals and establish a date, time and location for convening the DRB hearing
2. When proper evaluation of the dispute requires expertise that is not within the collective experience of the DRB, the DRB shall request written approval from the Contractor and the Contracting Agency to engage the services of one or more outside experts as may be needed to advise the DRB as provided in the Contract. A request for written approval shall contain:

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- a. A statement explaining why the expert assistance is needed.
 - b. An estimate of the cost of the expert assistance.
 - c. The expert's name and a general statement of the area of expertise they will provide.
 - d. A statement prepared by the proposed expert which addresses the requirements of Subsection 00199.25(c)(1) of the Contract for the Project.
 - e. A statement prepared by the proposed expert which identifies the experience and training which qualifies them as an expert.
 - f. A confidentiality statement, consistent with the confidentiality obligations of the DRB described in the Three-Party Agreement, executed by the proposed expert.
 3. The DRB shall convene internal meetings as needed to review and discuss the dispute and formulate the recommendation.
 4. Within 30 Calendar Days after the DRB hearing, unless extended by agreement of the Parties, the DRB shall furnish a written, nonbinding, independent report of its recommendation simultaneously to the Contracting Agency and the Contractor. The report will consist of:
 - a. A concise description of the dispute and the relief requested.
 - b. Statements of each party's position.
 - c. Findings as to the facts and circumstances of the dispute.
 - d. A recommendation on whether the Engineer's full or partial denial of time, compensation or both was supported by the Contract, facts, and circumstances, which must be supported by:
 - i. Citation to applicable parts of the Contract Documents, Project records and Party submissions.
 - ii. Analysis explaining how the recommendation is supported by the Contract, facts, and circumstances involved in the protest and the rationale and basis relied upon by the DRB to arrive at its recommendation.
 5. The DRB shall make every effort to reach a unanimous recommendation. If all three members of the DRB do not agree on the findings and recommendation, the DRB shall provide majority and minority recommendations including reasons for their lack of agreement. The majority and minority recommendations shall be submitted anonymously in a single report.
 6. When requested by the Contracting Agency or the Contractor, the DRB shall written responses to requests for clarification or reconsideration within 14 days of the request for clarification or reconsideration or, as applicable, a rebuttal to the request for reconsideration.
- E. Other.** The DRB shall perform services and assume responsibilities, as agreed by the Parties, as may be required, including those necessary but not listed herein, to achieve the purpose of this Agreement.

V. RESPONSIBILITIES OF THE PARTIES

A. DRB Responsibilities:

1. **Conflicts of Interest.** DRB members shall maintain their impartiality and independence by abiding by the following requirements for the duration of DRB activities:
 - a. DRB members shall follow the Dispute Resolution Board Foundation's Code of Ethical Conduct as set forth in Chapter 6 of the current edition of the DRBF's *Dispute Board Manual: A Guide to Best Practices and Procedures*. The Dispute Resolution Board Foundation's *Dispute Board Manual* is available at: <https://www.drbf.org/view-ebook/1499>.
 - b. DRB members shall abide by the Conflict of Interest requirements set forth in the Contract.
 - c. Disclosure of present and potential conflicts of interest is a continuing obligation of DRB members for the duration of DRB activities. DRB members shall as soon as it is known disclose any fact or circumstance that arises during the Project that could reasonably be considered as likely to affect the DRB's ongoing impartiality or independence.
 - d. During DRB members' service on the Project, no DRB member shall engage in a discussion or make an agreement regarding employment following the DRB member's service on the Project with the Contracting Agency, the Contractor or any Subcontractor, Supplier or other Entity involved in the Project, or any parent, subsidiary or affiliate of the Contractor or any Subcontractor, Supplier or other Entity involved in the Project.
 - e. DRB members shall not, individually or collectively, discuss issues with the Contracting Agency or the Contractor that could possibly be construed as compromising the DRB's ability to impartially resolve future disputes, such as the conduct of the work and the resolution of construction problems.
 - f. DRB members shall not express an individual or collective opinion of merit, in whole or in part, for any potential or present dispute at any time prior to the issuance of a recommendation. Opinions of DRB members expressed in private DRB deliberations shall be kept strictly confidential.
2. **Communications.** All communications to and from the DRB shall be as jointly agreed among the Contracting Agency, the Contractor and the DRB. Except as jointly agreed by the Contracting Agency, the Contractor and the DRB, there shall be no ex-parte communications between the Contracting Agency or the Contractor and the DRB or DRB members, jointly or individually.
3. **Recommended Resolution of Disputes.**
 - a. DRB members shall promptly and diligently discharge their responsibilities and complete their review of information, deliberations and issuance of recommendations within agreed timeframes.

- b. The DRB shall, in DRB hearings with the Contractor and the Contracting Agency, review Contract protests agreed to by the Contractor and the Contracting Agency and render written recommendations consistent with the terms of the Contract, facts, and circumstances involved in the protest. In doing so, the DRB shall not:
 - i. Supplant or otherwise interfere with respective rights, authorities, duties and obligations of the Contractor or the Contracting Agency as defined in the Contract and applicable law.
 - ii. Make a recommendation that ignores, disregards, or undermines the intention, requirements or allocation of risk established by the Contract.
 - iii. Consider or otherwise address issues outside the scope of the issue statement contained in the dispute referral.

B. Contracting Agency Responsibilities:

1. The Contracting Agency will, in cooperation with the Contractor, coordinate the operations of the DRB to facilitate the timely and impartial resolution of disputes. In doing so, the Contracting Agency shall:
 - a. Furnish to the DRB, before the first DRB progress meeting, a conformed set of the Contract documents, including Change Orders, for the Project and the current approved Schedule.
 - b. Furnish to the DRB, before each DRB progress meeting, a pre-meeting submittal consisting of the following:
 - i. Three sets of source documents which are or may become pertinent to the activities of the DRB, which may include payment requisitions, schedule updates, Requests for Information (RFIs), submittals and change orders.
 - ii. A cover letter summarizing the nature and purpose of each source document to be furnished.
 - c. Arrange or provide conference facilities at a mutually agreeable location on or near the job site.
2. Except for participation in the DRB's activities as provided in the Contract and this Agreement, the Contracting Agency shall not solicit advice or consultation from the DRB or its members on matters dealing with the conduct of the work or resolution of problems which might compromise the DRB's ability to impartially resolve future disputes.
3. All communications to and from the DRB shall be as jointly agreed among the Contracting Agency, the Contractor and the DRB. Except as jointly agreed by the Contracting Agency, the Contractor and all DRB members, the Contracting Agency shall not engage in any ex-parte communications with the DRB or DRB members, jointly or individually.

C. Contractor Responsibilities:

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1. The Contractor will, in cooperation with the Contracting Agency, coordinate the operations of the DRB to facilitate the timely and impartial resolution of disputes. In doing so, the Contractor shall furnish to the DRB, before each DRB progress meeting, a pre-hearing submittal consisting of the following
 - a. Three sets of documents which are or may become pertinent to the activities of the DRB, except documents furnished by the Contracting Agency. Pertinent documents may include any drawings or sketches, calculations, procedures, schedules, estimates, correspondence, or other documents that are created in the planning or the performance of the Work.
 - b. A cover letter summarizing the nature and purpose of each source document to be furnished
2. Except for participation in the DRB's activities as provided in the Contract documents and this Agreement, the Contractor shall not solicit advice or consultation from the DRB or its members on matters dealing with the conduct of the work or resolution of problems which might compromise the DRB's ability to impartially resolve future disputes.
3. All communications to and from the DRB shall be as jointly agreed among the Contracting Agency, the Contractor and the DRB. Except as jointly agreed by the Contracting Agency, the Contractor and all DRB members, the Contractor shall not engage in any ex-parte communications with the DRB or DRB members, jointly or individually.

VI. PAYMENT

A. Compensation.

1. Payments made to the DRB members shall constitute full compensation for work performed, travel time and services rendered, and for all materials, supplies and incidentals necessary to serve on the DRB.
2. Eligible Costs. DRB members may be compensated for the following services and related expenses:
 - a. Time performing DRB activities, including, but not limited to, initial and regularly scheduled meetings and site visits, discussions of issues in internal DRB meetings and discussion of issues by the Contracting Agency, the Contractor and the DRB, time spent preparing, hearing, and developing recommendations on a protest.
 - b. Time travelling from home office to hotel or job site.
 - c. Direct expenses incurred in the performance of DRB activities, including automobile mileage, parking, and travel expenses from the point of departure to the initial point of arrival, automobile rental, taxi fares, lodging, printing, postage, and courier delivery.
3. Ineligible Costs.
 - a. If a DRB member is terminated for failure to abide by the conflict of interest requirements set forth in the Contract or this Agreement, the terminated DRB

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member shall not be entitled to compensation for any services performed or expenses incurred on or after the date on which the Contracting Agency and Contractor agree that the conflict of interest arose.

4. Rates.

- a. Time performing DRB activities: \$200/hr
- b. Time travelling from home office to hotel or job site: \$150/hr
- c. Direct expenses: DRB members will be reimbursed for direct expenses incurred in the performance of DRB activities at the U.S. General Services Administration (GSA) rates in effect at the time of the expense. GSA rates are available at: <https://www.gsa.gov/travel/plan-book/per-diem-rates>.

B. Payment Procedure.

- 1. When compensation is requested by a DRB member, the DRB member shall submit an invoice to both the Contracting Agency and the Contractor. Invoices shall:
 - a. Not be submitted by a DRB member more often than once per month.
 - b. Be for eligible costs and based on the agreed compensation rates set forth in this Agreement.
 - c. Be accompanied by a description of activities performed during the invoice period, and an itemization of allowable expenses incurred (together with copies of original bills, receipts, and other expense back-up).
- 2. The Contracting Agency and the Contractor will separately review the invoice to confirm it is consistent with the Three-Party Agreement.
 - a. If a party approves the invoice, the party shall pay half of the invoice within 30 Calendar Days of receipt.
 - b. If a party requires further documentation to substantiate the invoice, believes that the invoice contains a mistake or otherwise has questions concerning the invoice prior to making payment, the party shall contact the DRB member who submitted the invoice to resolve the inquiry prior to paying the party's half of the invoice and provide a copy of the inquiry to the other party. If the invoice is adjusted in response to the party's inquiry, the party shall pay half of the adjusted invoice, and thereafter reimburse, or seek reimbursement from, the other party such that each party bears half of the adjusted invoice amount.

VII. CONFIDENTIALITY AND RECORDKEEPING

- A. No DRB member shall divulge information identified as confidential that has been acquired during DRB activities without obtaining prior written approval from the Contracting Agency and the Contractor.
- B. DRB members shall maintain cost records pertaining to this Agreement for inspection by the Contracting Agency or the Contractor for a period of three years following the end or termination of this Agreement.

VIII. ASSIGNMENT

No party to this Agreement shall assign any duty established under this Agreement.

IX. TIME FOR BEGINNING AND COMPLETION OF DRB ACTIVITIES

- A. The DRB shall begin its activities upon all DRB members' notification of selection by the Contracting Agency and the Contractor.
- B. The DRB's jurisdiction under this Agreement shall end by mutual agreement of the Contracting Agency and the Contractor.
- C. This Agreement will not automatically terminate upon the termination, resignation or death of any DRB member. Upon the termination, resignation or death of any DRB member, the Parties shall proceed under the replacement procedure in Section XI.C of this Agreement.

X. AGREEMENT TERMINATION

This Agreement may be terminated by mutual agreement of the Contracting Agency and Contractor at any time upon not less than 30 Calendar Days written notice to the DRB.

XI. TERMINATION OR RESIGNATION OF DRB MEMBER; REPLACEMENT

A. Termination of a DRB Member.

- 1. A DRB member may be terminated at any time as follows:
 - c. By mutual agreement of the Contracting Agency and the Contractor.
 - d. By agreement between the other two DRB members.
- 2. Unless a DRB member is terminated by the Contracting Agency and the Contractor for failure to abide by the conflict of interest requirements set forth in the Contract or this Agreement, the terminated member shall be compensated for services performed up to the effective date of the termination.

B. Resignation of a DRB Member.

- 1. In the event a DRB member resigns, the member shall:
 - a. Give at least 30 Calendar Days written notice to both the Contracting Agency and the Contractor.
 - b. Cooperate with the Contracting Agency and the Contractor in transitioning off the Project
- 2. The DRB member shall be compensated for services up to the effective date of the resignation.

C. Replacement of a DRB Member. If a DRB member resigns, is terminated, dies or is otherwise unable to serve, the member shall be replaced within 21 Calendar Days using the procedure set forth in the Contract for the Project. Upon replacement of a DRB member, the Contracting Agency and the Contractor shall execute an updated

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Three-Party Agreement with each DRB member that reflects the new DRB membership.

XII. LEGAL RELATIONS

- A. The Parties expressly acknowledge that each DRB member, in the performance of his or her duties on the DRB, is acting in the capacity of an independent agent and not as an employee of the Contracting Agency or the Contractor.
- B. DRB members shall not participate in subsequent claim proceedings.
- C. The Contracting Agency and the Contractor acknowledge that each DRB member is acting in a capacity intended to facilitate the resolution of protests. Accordingly, it is agreed and acknowledged that, to the fullest extent permitted by law, each DRB member shall be accorded quasi-judicial immunity for any actions or decisions associated with DRB activities.
- D. Subject to the limitations of Article XI, § 7 of the Oregon Constitution and the Oregon Tort Claims Act (ORS 30.260 through 30.300), the Contracting Agency shall indemnify, within the limits of and subject to the restrictions in the Tort Claims Act, the DRB members against any liability for personal injury or damage to life or property arising from the Contracting Agency's activity under this Agreement provided, however, the Contracting Agency shall not be required to indemnify the DRB members for any such liability arising out of the wrongful acts of the DRB members, their officers, employees or agents.
- E. Contractor shall indemnify the DRB members against any liability for personal injury or damage to life or property arising from the Contractor's activity under this Agreement provided, however, the Contractor shall not be required to indemnify the DRB members for any such liability arising out of the wrongful acts of the DRB members, their officers, employees or agents.

XIII. DISPUTES REGARDING THIS THREE-PARTY AGREEMENT

- A. This Agreement shall not be construed against either party regardless of which party drafted it. Other than as modified by this Agreement, the applicable rules of contract construction and evidence shall apply. This Agreement shall be governed by and construed and enforced according to the laws of the State of Oregon without regard to principles of conflict of laws.
- B. Disputes among the Parties arising from or relating to this Agreement that cannot be resolved by negotiation, and actions to enforce any right or obligation under this Agreement, shall be brought and conducted solely and exclusively within the Circuit Court for the State of Oregon in the county where the Contracting Agency's main office is located; provided, however, if a dispute must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this Subsection be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States, or otherwise, from any claim or from the jurisdiction of any court..

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- C. The DRB by execution of this Agreement hereby consents to the in personam jurisdiction of the courts referenced in this Section.

XIV. FEDERAL FUNDING AGENCY REVIEW

If the Project includes federal funds, the federal agency that provided funding has the right to review DRB recommendations and to attend DRB hearings, but not to attend private DRB deliberations. The Contracting Agency shall be responsible for coordination of any federal agency participation, including the notification requirements for attendance at DRB hearings.

XV. THREE-PARTY AGREEMENT

This Agreement shall be effective as of the following date: [INSERT DATE DRB WAS APPOINTED].

DRB MEMBER

By: _____
(Signature)

(Name)

CONTRACTOR

By: _____
(Signature)

CONTRACTING AGENCY

By: _____
(Signature)

By: _____
(Name)

By: _____
(Name)

Title: _____

Title: _____

SECTION 00205 - FIELD LABORATORY, WEIGHHOUSE, ETC.

Section 00205 is not a Standard Specification and is included in this Project by Special Provision.

Description

00205.00 Scope - This Work consists of providing facilities for Agency use to perform necessary functions during the course of the Project.

Materials and Equipment

00205.14 Job Office Trailer - At least 15 Calendar Days before beginning On-Site Work, or as otherwise agreed to by the Engineer, provide a leveled office trailer for sole use by the Agency at the location directed by the Engineer. Obtain approval of the trailer and the proposed trailer location from the Engineer before delivery and installation. Provide an office trailer that meets the safety and health requirements of the Oregon Department of Consumer and Business Services, the Oregon Health Division, the State Fire Marshall, and the following requirements:

- 12' x 56' Mobile Office Trailer by Pacific Mobile Structures
- Include the following furniture and accessories packages according to Pacific Mobile Structures' *Mobile Office Furniture & Accessories Brochure*, or similar:
 - Two basic office packages
 - Two basic access packages
 - One basic conference/lunch room package
- Have a minimum ceiling height of 7 feet 6 inch.
- At a minimum, be insulated in the walls, ceiling, and floor with R 11 insulation.
- Have at least one 3-foot-wide exterior door with locks. Provide the Engineer with two sets of keys to the exterior door locks.
- Have windows that:
 - Provide adequate lighting to the interior of the trailer.
 - Are equipped with blinds or other window coverings, as approved.
 - Can be opened for ventilation.
- Have a light colored ceiling and light colored interior walls.
- Be wired according to the *National Electrical Code* with 120/240-volt, single phase, 60-amp minimum service.
- Have electrical service 24 hours per Day for the duration of the Project. The Engineer may waive the continuous requirement if it is unavailable.
- Have at least eight, evenly spaced, 120-volt duplex electrical outlets.
- Have adequate electrical light fixtures to provide good overall interior lighting.
- Have an adequate heater and air conditioning unit to maintain a temperature of 68 to 72 °F.
- Have adequate parking for four Agency vehicles, near the trailer, on an aggregate pad or other surface free of mud and standing water.

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- Have a walkway between the Agency vehicle parking area and the trailer, free of mud and standing water.
- Have high -speed internet service, minimum of 100Mbps download speed and a minimum of 30Mbps for upload speed, 24 hours per Day for the duration of the Project, at no additional cost to the Agency.
- Have steps with a handrail at each exterior door.

Provide and maintain a portable toilet for use by the Agency employees.

Similar facilities, such as Agency space in a shared trailer or space in a building close to the Project, may be allowed if approved by the Engineer.

Remove the job office trailer when the Project is complete.

Measurement

00205.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(d) **Job Office Trailer** - Job office trailers will be measured on the unit basis.

Payment

00205.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(d) Job Office Trailer	Each

Payment will be payment in full for providing facilities for Agency use, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for:

- Maintenance or repairs as directed by the Engineer.
- Portable toilet

SECTION 00210 - MOBILIZATION

Comply with Section 00210 of the Standard Specifications modified as follows:

00210.90 Payment - Replace the paragraph that begins “No separate or additional...” with the following paragraph:

No separate or additional payment will be made for any costs associated with obtaining and maintaining access to Doc Express® and AASHTOWare Project™ or the use of Doc Express® and AASHTOWare Project™.

SECTION 00220 - ACCOMMODATIONS FOR PUBLIC TRAFFIC

Comply with Section 00220 of the Standard Specifications modified as follows:

00220.01(b) Abbreviations - Delete this subsection.

00220.02(a) General Requirements - Add the following bullets to the end of the bullet list:

- Before activating a modified traffic signal, revising lane usage, implementing new roadway geometry, or removing a "STOP" sign, protect traffic by installing "NEW TRAFFIC PATTERN AHEAD" (W23-2) signing according to 00222.40. Keep the signs in place for 30 Calendar Days after completing the modifications.
- When flagging operations may extend traffic queues onto the railroad crossing, protect traffic at the intersection of Front Street and Union Street by providing an additional flagger. Position additional flagger signs according to the "Advance Flagger for Extended Traffic Queues" configuration shown on the Standard Drawings. Do not allow traffic to stop on the railroad crossing.
- Protect pedestrians in pole base excavation areas by placing approved covers over all pole base excavations. Place a minimum of two B(II)LR barricades adjacent to and on either side of the excavated area, facing pedestrian traffic, or place covers and barricades as directed.

00220.02(b) Temporary Pedestrian Accessible Route Plan – Replace the title of this subsection with **"Temporary Pedestrian Accessible Route"**

Replace the paragraph that begins "For the safety and accessibility ..." with the following paragraph:

For the safety and accessibility of pedestrians, provide and maintain TPAR for pedestrian pathways impacted by construction or construction staging, and the following:

Replace the bullet that begins "TPAR shall meet ..." with the following bullet:

- Meet the requirements of Part 6 of the MUTCD.

Replace the bullet that begins "Mount signs between the panels..." with the following bullet:

- Mount signs between the panels of a Type II barricade, on a PCD, or on a single-post temporary sign support, as shown. Place signs facing pedestrian traffic.

Add the following bullets to the end of the bullet list:

- Maintain access to bus stops and Pedestrian Accessible Routes.

00220.03(b) Closures – Add the following to the end of this subsection:

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Coordinate with the City of Salem and obtain right of way permits, as required, for all work on City streets.

Add the following subsection:

00220.03(c) Emergency Vehicle Access - During full Bridge closure as specified in 00220.40(f)(1) and 00220.40(f)(2); and the two lane closures on OR22 as specified in 00220.40(g), do the following:

- Submit daily Everbridge notification to designated police, fire, and emergency medical service contacts provided by the Engineer. Everbridge notification to include lane closure updates for that Day, traffic control information, on-site Contractor representative and on-site Agency representative.
- Provide continuous communication via approved radios on dedicated channels between emergency services dispatch, on-site Contractor representative, on-site Agency representative, and all on-site flaggers to facilitate immediate emergency vehicle access, at all times.

Furnish one radio each to the emergency service dispatch, on-site Contractor representative and on-site Agency representative. Furnish radios to all on-site flaggers. Furnish radios meeting the following requirements and channel programming:

800 Mhz Public Safety banded radio (806-870 Mhz)
Capable of FM Analog modulation @ 12.5 Khz bandwidth
Power output: 3 watts minimum, 5 watts maximum
Receiver sensitivity 12db SINAD
Antenna- 800 Mhz whip banded

Channel 1. Primary communications between flaggers. (C1 talk around)
Simplex operation BW: 12.5 Khz Mod.
TX Frequency: 851.4250 Mhz PL: 110.9
RX Frequency: 851.4250 Mhz PL: CSQ

Channel 2. Public Safety (C1)
Repeated operation BW: 12.5 Khz Mod
TX Frequency: 806.4250 Mhz PL: 118.8
RX Frequency: 851.4250 Mhz PL: CSQ

00220.40(e)(1) Closed Lanes - Replace this subsection, except for the subsection number and title, with the following:

Traffic Lanes may be closed on the OR22: Willamina-Salem Highway (030), Front Street and Water Street when allowed, shown, or directed during the following periods of time except as specified in 00220.40(e)(2):

Front Street:

Single Lane Closures - One Traffic Lane on Front Street northbound may be closed during the following times:

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- Nightly, between 11:00 p.m. and 5:00 a.m.

Shoulders may be closed on southbound Front Street at all times.

OR22: Willamina-Salem Highway (030):

Single Lane Closures – One Traffic Lane on the OR22: Willamina-Salem Highway (030) may be closed during the following times:

- Nightly, between 11:00 p.m. and 5:00 a.m.

Single Lane Closures – One Traffic Lane on the OR22: Willamina-Salem Highway (030) may be closed for Stage V, Phase 1 Work, for a maximum of 20 lane closures total, during the following times:

- Daily, between 9:00 a.m. and 3:00 p.m.

Two Lane Closures – Two Traffic Lanes on the OR22: Willamina-Salem Highway (030) may be closed for Stage V, Phase 2 and Phase 3 Work, for a maximum of 40 two lane closures total, during the following times:

- Nightly, between 11:00 p.m. and 5:00 a.m.

Water Street:

Single Lane Closure – One Traffic Lane on Water Street may be closed during the following times:

- Nightly, between 9:00 p.m. and 6:00 a.m.

Single Lane Closure – One Traffic Lane on Water Street may be closed for Stage IV Work during the following times:

- At all times.

OR221: Salem-Dayton Highway (150) – Wallace Rd:

Single Lane Closures – One Traffic Lane on the OR221: Salem-Dayton Highway (150) – Wallace Road may be closed for Stage V, Phase 2 and Phase 3 Work, for a maximum of 40 lane closures total, during the following times:

- Nightly, between 11:00 p.m. and 5:00 a.m.

One Traffic Lane may be closed on all other adjacent Roadways within the Project Site not listed above, when allowed, shown, or directed during the following periods of time:

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- Nightly, Sunday night through Friday morning, between 9:00 p.m. and 6:00 a.m.

00220.40(e)(2) Opened Lanes - Replace the paragraph that begins "Keep all Traffic Lanes and ..." with the following paragraph:

Keep all Traffic Lanes and pedestrian facilities open during the following periods. Remove all barricades and objects from the Roadway during the periods that Traffic Lanes are to remain open.

00220.40(e)(2)(a) Holidays - Replace the paragraph that begins "When a holiday falls ..." with the following paragraph:

When a holiday falls on Sunday, the following Monday is recognized as a legal holiday. When a holiday falls on Saturday, the preceding Friday is recognized as a legal holiday.

Add the following subsection:

00220.40(f) Limited Duration Road Closures:

- (1) 20 Minute Closures on OR22 Eastbound (MP 25.81 – MP 26.05)** - The Contractor will be permitted to close all Traffic Lanes, except as specified in 00220.40(e)(2), for periods not to exceed 20 minutes in duration during jacking and bridge bearings installation Stage VII, Phase 1. This Work will only be permitted nightly, all Days, between the hours of 11:00 p.m. and 5:00 a.m. on the OR22: Willamina-Salem Highway.

A maximum of twenty 20-minute closures are allowed.

- (2) 6 Hour Closures on OR22 and adjacent roadways (MP 25.45 – MP 26.05)** - The Contractor will be permitted to close all Traffic Lanes and associated on-ramps (Edgewater St at Rosemont Ave and OR22W at Rosewood Dr), except as specified in 00220.40(e)(2), for periods not to exceed 6 consecutive hours in duration during modular Bridge joint installation Stage VI, Phase 4. This Work will only be permitted nightly, Friday night through Monday morning between the hours of 11:00 p.m. and 5:00 a.m. on the OR22: Willamina-Salem Highway.

A maximum of four 6-hour closures are allowed.

The road closure will not be allowed until the area detour route and emergency vehicle detour route are signed according to the TCP and the requirements of Section 00221 and Section 00222.

- (3) 6 Hour Closures on Front Street (MP 4.99 – MP 5.05)** - The Contractor will be permitted to close all Traffic Lanes, except as specified in 00220.40(e)(2), for periods not to exceed 6 consecutive hours in duration during Waterline installation Stage I, Phase 4. This Work will only be permitted nightly, all Days, between the hours of 11:00 p.m. and 5:00 a.m. on southbound Front Street.

A maximum of three 6-hour closures are allowed.

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The road closure will not be allowed until the area detour route is signed according to the TCP and the requirements of Section 00221 and Section 00222.

The Contractor must maintain immediate emergency vehicle access as shown, at all times, through limited duration road closures. See also 00220.03(c).

Succeeding roadway closures will not be allowed until traffic clears from a preceding closure.

Do not close the road until all Materials and Equipment are on hand or guaranteed to be delivered so that the Work can be done in an efficient manner with a minimum period of road closure.

Add the following subsection:

00220.40(g) Extended Duration Lane Closures:

- (1) OR22 Eastbound and OR221 Stage VI, Phase 2** - Traffic Lanes may be closed on the OR22: Willamina-Salem Highway (030) and OR221: Salem-Dayton Highway (150) for an extended duration during Stage VI, Phase 2 Work as shown once for a maximum total duration closure period of 55 consecutive Calendar Days. See also 00180.50(h)(1).
- (2) OR22 Eastbound and OR221 Stage VI, Phase 3** - Traffic Lanes may be closed on the OR22: Willamina-Salem Highway (030) and OR221: Salem-Dayton Highway (150) for an extended duration during Stage VI, Phase 3 Work as shown once for a maximum total duration closure period of 55 consecutive Calendar Days. See also 00180.50(h)(2).
- (3) Front Street Stage I, Phase 1, 2 and 3** - Two Traffic Lanes may be closed on Front Street northbound for an extended duration during Stage I, Phase 1, 2 and 3 Work as shown for a maximum total duration closure period of 60 Calendar Days. Closure duration does not include Days between phases when no closure is in place.
- (4) Front Street Stage III, Phase 2** - Two Traffic Lanes may be closed on Front Street northbound for an extended duration during Stage III, Phase 2 Work as shown once for a maximum total duration closure period of 90 consecutive Calendar Days.
- (5) Front Street Stage VI, Phase 1** - One Traffic Lane may be closed on Front Street northbound for an extended duration during Stage VI, Phase 1 Work as shown once for a maximum total duration closure period of 180 consecutive Calendar Days.

00220.40(h) Ramp Closures - The Contractor will be permitted to close the following ramps when allowed, shown, or directed.

Table 00220-1 Extended Duration Ramp Closures

Ramp	Stage/Phase	Allowable Closures and Hours
Front St NB to Marion St WB	Stage I, Phase 3	Once for a maximum total duration closure period of 5 consecutive Calendar Days.

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Ramp	Stage/Phase	Allowable Closures and Hours
	Stage III, Phase 1	Twice, for two separate continuous closure periods of 5 Calendar Days each.
OR22 EB Ramp to Front St NB	Stage VI, Phase 2	Once for a maximum total duration closure period of 55 consecutive Calendar Days. See also 00180.50(h)(1).
OR22 EB Ramp to Front St SB	Stage VI, Phase 3	Once for a maximum total duration closure period of 55 consecutive Calendar Days. See also 00180.50(h)(2).

Do not close Ramps until all Materials and Equipment are on hand or guaranteed to be delivered so that the Work can be done in an efficient manner with a minimum period of ramp closure. The Ramp Closures will not be allowed until the area and the detour route are signed according to the TCP and the requirements of Section 00221 and Section 00222.

Add the following subsection:

00220.45 Load Restrictions on Bridges - For Structure No's 00123K, 00123G, and 22519, limit the combined weight of construction vehicles, Equipment, and daily Material usage to 65,000 pounds for every 1,000 square feet of surface area plus the weight of long term storage of Materials to 25,000 pounds for every 100 square feet of surface area of the Bridge or a total of 200,000 pounds for each span of the Bridge, whichever is less.

The Contractor may request alternate loadings by submitting, 30 Calendar Days before proposed loadings, stamped loading calculations and data according to 00150.35.

00220.60(a)(1) Contractor Responsibility - Replace this subsection, except for the subsection number and title, with the following:

If this Work is not completed and in place, the Agency may do the Work according to 00220.60(d).

(a) Do the following at no additional cost to the Agency:

- Keep surfaces being used by Public Traffic free of all dirt, mud, gravel, materials, and debris.
- Repair damage to surfaces caused by the Contractor's operations.
- Maintain all detour and stage construction Surfacing as specified or directed.

(b) Before periods of no active Work that last longer than seven consecutive Days, unless otherwise directed, do the following:

- Provide temporary pedestrian surfaces meeting the requirements of the MUTCD and Section 00228.
- Provide traversable bicycle and pedestrian routes with surfaces free of dirt, mud, gravel, and debris.

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(c) Before periods of no active Work that is anticipated to last or lasts longer than 30 consecutive Days, unless otherwise directed, do the following:

- Pave Traffic Lanes at least 12 feet wide, with 2-foot-wide paved Shoulders for each direction of traffic.
- Do not leave abrupt edges.
- Remove or cover temporary construction signs unless otherwise directed.
- Clean, install, and reinstall all necessary pedestrian, motor vehicle, and bicycle channelization and pavement markings, unless otherwise directed.

00220.60(a)(2) Agency Responsibility - Replace the paragraph that begins "The Agency is responsible ..." with the following paragraph:

The Agency is responsible to do the following at Agency expense:

00220.60(b) During Suspensions - Replace the paragraph that begins "During suspensions of the Work ..." with the following paragraph:

During suspensions of the Work, maintain Surfacing that the Contractor is responsible for under 00220.60(a)(1), and maintain Work Zone traffic control according to the Specifications and the following:

00220.70 Opening to Traffic - Replace the paragraph that begins "When it is in the public interest, the ..." with the following paragraph:

When it is in the public interest, the Engineer may order any portion of the Work opened to traffic. If the portion opened to traffic has been finished in an acceptable manner, it will be designated as "accepted for traffic", and the Contractor will be relieved of maintaining it for legal, Public Traffic. If the portion of the Work to be opened to traffic has not been finished in an acceptable manner, maintain that portion of the Work under traffic in a condition serviceable and adequate for traffic until it is finished in an acceptable manner, except as specified in 00220.60(b).

Replace the paragraph that begins "Maintain portions of the Work designated ..." with the following paragraph:

Maintain portions of the Work designated "accepted for traffic" if so ordered. Maintain portions of the Work opened to traffic but not "accepted for traffic" at no additional compensation, except watering ordered to protect the Work or to alleviate dust will be paid for according to Section 00340.

Replace the paragraph that begins "If the Contractor delays the completion ..." with the following paragraph:

If the Contractor delays the completion of Shoulders, sidewalks, curb ramps, drainage Structures, or other feature of the Work, the Engineer may order all or any portion of the Work to be opened to traffic. In this case, the Contractor is responsible for maintenance as described in 00220.60(a)(1), during the period the Work is opened to traffic, until Final Acceptance. Conduct the remaining operations to cause the least obstruction to traffic, and pay all additional costs caused by the presence of traffic.

SECTION 00221 - COMMON PROVISIONS FOR WORK ZONE TRAFFIC CONTROL

Comply with Section 00221 of the Standard Specifications modified as follows:

00221.05 Regulations and Codes - Replace this subsection with the following subsection:

Provide all electrical Equipment, Materials, and Work conforming to NEC requirements and all other laws that apply.

00221.06 Traffic Control Plan - Replace this subsection with the following subsection:

00221.06 Traffic Control Plan and Tourist-Oriented Directional and Business Logo Signs -

(a) **Traffic Control Plan** - Submit one of the following, 5 Calendar Days before the preconstruction conference:

(1) **Agency Traffic Control Plan** - If the Contractor intends to use the Agency TCP without modification, a written notification indicating that the Agency TCP will be used without modification.

(2) **Contractor-Modified Traffic Control Plan** - The Contractor may request to use a Contractor-modified Agency TCP, or a TCP developed by the Contractor. Do not use a modified TCP, or a TCP developed by the Contractor, unless approved by the Engineer. Use the Agency TCP unless a modified TCP, or a TCP developed by the Contractor is accepted.

The Engineer is not obligated to consider any modified Agency TCP or a TCP developed by the Contractor. The Agency will not be liable to the Contractor for failure to accept or act upon any request for a modified Agency TCP or a TCP developed by the Contractor.

To conserve time and funds, the Contractor may first submit a written request for a preliminary review by the Engineer. The request should contain a description of the proposal together with a rough estimate of anticipated dollar and time impacts. The Engineer will, within a reasonable time, respond to the Contractor in writing whether or not the request would be considered by the Agency.

Meet all requirements of the Contract documents and comply with the Project transportation management plan (TMP) if requesting a Contractor-modified Agency TCP, or a Contractor developed TCP. Provide the following information:

- Stamped Working Drawings according to 00150.35 that include the proposed TCP showing all TCM and quantities of TCD.
- A TPAR plan that includes:
 - Details and features used to provide pedestrian accessibility.

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- Pedestrian staging Plans at a scale no smaller than 1 inch = 50 feet.
- Temporary alternate facilities or detour routes for pedestrian traffic.
- Staging sequences and details for Work affecting vehicular, pedestrian, and bicycle traffic.
- Proposed order and duration of the TCM.
- A detailed temporary striping plan.

If the Contractor's request to use a Contractor-modified Agency TCP, or a TCP developed by the Contractor is approved in whole or in part, acceptance will be made by a Change Order.

The Engineer will establish prices that represent a fair measure of the value of Work to be added, changed, or deleted as a result of any accepted modifications to the Agency TCP or an accepted TCP developed by the Contractor.

Once a TCP has been accepted by the Engineer, submit any additional modifications for Agency review following the procedure described above. The Engineer is not obligated to consider additional modifications to a previously approved TCP.

(b) Tourist-Oriented Directional and Business Logo Signs - Submit one of the following for approval, at least 5 Calendar Days before the preconstruction conference:

(1) No Signs - If there are no tourist-oriented directional (TOD) or business logo signs on the Project, a written notification that no TOD or business logo signs exist within the Project limits or

(2) Signs - Submit one copy of a sketch map of the Project showing all existing TOD and business logo signs and a written narrative describing how these signs will be kept in service and protected throughout all the construction stages. If modifications are necessary, submit updated information to the Engineer for approval at least 21 Calendar Days before the change is needed.

00221.10 General - Replace the paragraph that begins "All Work Zone TCD shall..." with the following paragraph:

Provide Work Zone TCD complying with the crashworthiness requirements of the *National Cooperative Highway Research Program (NCHRP) Report 350* or with the *AASHTO Manual for Assessing Safety Hardware (MASH)*.

00221.20 Safety Apparel - Replace the paragraph that begins "Workers, except flaggers, working ..." with the following paragraph:

Workers, except flaggers, working within Highway Right of Way and exposed to traffic or construction Equipment are required to wear high visibility safety apparel that meets the Performance Class requirements of the most current version of ANSI/ISEA 107, *American National Standard for High Visibility Safety Apparel and Headwear Devices*. Wear safety apparel that at least meets the following minimum requirements:

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00221.40 General - Replace the paragraph that begins "Existing operational TCD's shall remain..." with the following paragraph:

Maintain existing TCD's in operation throughout the Contract or until replaced by new, permanent TCD as appropriate.

00221.60 Temporary Traffic Control Devices - Replace the paragraph that begins "TCD delivered to the Project Site found..." with the following paragraph:

Repair or replace TCD delivered to the Project Site found to be in "marginal" or "unacceptable" condition, at no additional cost to the Agency.

00221.90(b) Temporary Protection and Direction of Traffic – Replace the bullet that begins "Providing, Surfacing, maintain..." with the following bullet:

- Providing, surfacing, maintaining, removing, and restoring the TPAR.

00221.98 Payment, Method "B" - Lump Sum Basis - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00222 – TEMPORARY TRAFFIC CONTROL SIGNS

Comply with Section 00222 of the Standard Specifications modified as follows:

00222.10 Temporary Signs - Replace the paragraph that begins "Furnish temporary signs meeting ..." with the following paragraph:

Furnish temporary signs meeting the requirements of the "Acceptable" category shown in the *ATSSA Quality Guidelines for Temporary Traffic Control Devices and Features* handbook, available from the ATSSA website. Use Materials and fabricate signs according to Section 00940, Section 02910 and the following:

00222.11(b) Portable Sign Supports - Replace the paragraph that begins "Use portable sign supports ..." with the following paragraph:

Use portable sign supports from the QPL and according to the following:

00222.12(b) Permanent Signs - Replace the paragraph that begins "Sign covers for permanent signs ..." with the following paragraph:

Provide sign covers for permanent signs according to Section 00941.

00222.13 Sign Flags - Replace the paragraph that begins "Sign flags shall be ..." with the following paragraph:

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Provide sign flags that are:

00222.40(e) Temporary Sign Placement - Add the following to the end of the bullet list:

- Place a "WAIT FOR FLAGGER" (CR4-23) sign approximately 50 feet in advance of each flagger station, facing incoming pedestrian traffic when a flagger is required to coordinate pedestrian movements. Install the sign on a conical marker or other temporary sign support, as shown or as directed. Do not allow the sign installation height or location to block the visibility of the flagger for incoming Public Traffic.
- At least ten Calendar Days before closing a pedestrian pathway at Front Street or Water Street, continuously lasting longer than 24 hours, place a "SIDEWALK CLOSED, Full Time" (CW11-4) sign in advance of each future closure point. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade or on a single-post TSS. Do not place the sign or sign support such that it narrows the pedestrian pathway to a width of less than 4 feet.
- Before opening the TPAR, place TPAR signing and other TCM as shown, or as directed. Maintain the "SIDEWALK CLOSED, Full Time" (CW11-4) signs while the TPAR is open to pedestrian traffic.
- Install a 54-inch "TRUCKS LEAVING HIGHWAY XXXX FT" sign, when construction vehicles are leaving a Roadway, in advance of each entrance point to the Work Area at sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings.
- Install a 54-inch "TRUCKS ENTERING HIGHWAY XXXX FT" sign, when construction vehicles are entering a Roadway, in advance of each exit point from the Work Area at sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings.
- Install a "PROJECT IDENTIFICATION" (CG20-8) sign with an "ODOT" logo rider on the Willamina-Salem Highway. Place the sign according to sign spacing "A" from the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Supplemental Drawings, in advance of the "ROAD WORK AHEAD" sign at each end of the Project, facing incoming traffic. The Engineer will determine the sign legend.
- Install "ROAD WORK AHEAD" (W20-1-48) signs with a 36 by 24-inch "FINES DOUBLE" (R2-6aP) rider on the Willamina-Salem Highway, according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans except do not install the "FINES DOUBLE" rider on concrete barrier mounted signs.
- Install beyond each end of the Project, facing outgoing traffic, an "END ROAD WORK" (CG20-2A-24) sign a distance of $(A \div 2)$ according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans.
- When the horizontal clearance for the Roadway is less than 19 feet, install horizontal clearance (CW21-12-48) signs, identifying the narrowest width of the Roadway. Locate these horizontal clearance signs as shown or as directed.
- When the vertical clearance is less than 15 feet 6 inches, install low clearance (W12-2-48) and (OW12-2-36) signs. The clearance shown on the signs shall be 4 inches less than the shortest height of the opening. Locate these low clearance signs as shown or as directed.
- Install two sign flag boards, as shown on the Standard Drawings, above the following detour and road closed advance warning signs, where applicable:
 - "DETOUR AHEAD", "DETOUR XXXX FT", "DETOUR X/X MILE" (W20-2) signs.

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- "ROAD CLOSED AHEAD", "ROAD CLOSED XXXX FT", "ROAD CLOSED X/X MILE" (W20-3) signs.
- Install a "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 300 feet in advance of Center Street/Commercial Street intersection, facing eastbound incoming traffic.
- Install a "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 300 feet in advance of Center Street/Liberty Street intersection, facing eastbound incoming traffic.
- Keep the "NEW TRAFFIC PATTERN AHEAD" signs in place 30 Calendar Days after installing the modified lane configurations.
- For paving operations on non-freeways, place "ABRUPT EDGE" (CW21-9) and "ROAD WORK XX MPH" (CW20-1a) signs as shown. Use an "XX" value equal to 10 mph below the current posted regulatory speed. If a speed is posted for a temporary regulatory speed reduction, that speed is the current posted regulatory speed.
- For all other moving operations that do not create an abrupt edge adjacent to traffic, omit the "ABRUPT EDGE" signs.

00222.41(d) Temporary Sign Supports - Replace the bullet that begins "Provide reflective sheeting ..." with the following bullet:

- Furnish reflective sheeting on TSS posts as shown in the Standard Drawings.

00222.45(b) Portable Changeable Message Signs - Replace the bullet that begins "Messages shall not scroll ..." with the following bullet:

- Do not use messages that scroll horizontally or vertically across the face of the sign.

Add the following bullet to the end of this subsection:

- At least seven Calendar Days before the Willamina-Salem Highway northbound ramp and southbound ramp closures, place one or more PCMS displaying the message as shown.

00222.45(c) Radar Speed Trailers - Replace the bullet that begins "Use a blackout speed threshold ..." with the following bullet:

- Use a blackout speed threshold of 85 mph, that does not allow the radar speed trailer to display a speed or message when the measured speed exceeds 85 mph.

00222.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

SECTION 00223 - WORK ZONE TRAFFIC CONTROL LABOR AND VEHICLES

Comply with Section 00223 of the Standard Specifications modified as follows:

00223.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

In addition to the requirements of Section 00221, this Work consists of providing flaggers, traffic control supervisors, and providing, operating, and maintaining associated Work Zone traffic control vehicles.

00223.22 Flagger Station Lighting - Replace the paragraph that begins "Use flagger station lighting ..." with the following paragraph:

Use flagger station lighting from the QPL and according to the following:

00223.23 Automated Flagger Assistance Device - Replace the paragraph that begins "Furnish an automated flagger ..." with the following paragraph:

Provide an automated flagger assistance device (AFAD) from the QPL. Submit the following information for approval for the use of an AFAD to the Engineer, according to 00150.37, a minimum of 21 Calendar Days in advance of using an AFAD. The Engineer will respond within 14 Calendar Days after receipt of the submittal.

00223.26 Pedestrian Transport Vehicle - Replace the bullet that begins "A roof or post-mounted rotating ..." with the following bullet:

- A roof or post-mounted rotating amber light or strobe light that is visible for 360 degrees. Provide a light that is visible and functioning at all times while operating within the Project limits.

00223.31(a) Traffic Control Supervisor - Replace the paragraph that begins "When the Schedule of Items ..." with the following paragraph:

When the Schedule of Items includes an item for a TCS, provide a TCS who meets the requirements of 00223.30. Do not designate the Project superintendent as the TCS. The TCS is required to possess a current ODOT "Oregon Certified Traffic Control Supervisor" card. A TCS with a current card from another state's transportation department, or from the American Traffic Safety Services Association, may obtain an Oregon Certified TCS card upon successful completion of ODOT's Recertification Class.

Replace the paragraph that begins "Before beginning Work ..." with the following paragraph:

Before beginning Work on the Project, the TCS is required to:

Replace the bullet that begins "File with the Engineer and ..." with the following bullet:

- File with the Engineer and local police, their name and a telephone number where the TCS can be contacted at all times.

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Replace the bullet that begins "If the Contractor requests to ..." with the following bullet:

- If the Contractor requests to use a modified Agency TCP or a TCP developed by the Contractor, ensure stamped Working Drawings showing the revisions are submitted according to 00221.06 and 00150.35.

Replace the paragraph that begins "The TCS shall not act as ..." with the following paragraph:

The TCS cannot perform the duties of a flagger or pilot car operator, except in the event of an emergency. The TCS may relieve the flagger or pilot car operator for a period of less than 15 minutes, not to exceed 1 hour per construction work shift.

Replace the paragraph that begins "Make arrangements so that the ..." with the following paragraph:

Make arrangements so that the TCS is available every Day, on call at all times, and available upon the Engineer's request at other than normal working hours.

Replace the paragraph that begins "The TCS shall report to the ..." with the following paragraph:

The TCS is required to report to the Project Site within 1 hour after being notified in the event of a Work Zone incident during non-work periods. Have appropriate personnel, Equipment, and Material available at all times to expeditiously correct any deficiency in the TCM for the Project.

Replace the paragraph that begins "Notify the Engineer of an alternate ..." with the following paragraph:

Notify the Engineer of an alternate TCS who can assume the duties of the assigned TCS in the event of that person's inability to fulfill the duties of the position. Provide an alternate TCS adequately trained and certified according to 00223.30 and 00223.31. Notify the Engineer at least 12 hours before designating the TCS for the following 12-hour period. Make succeeding notifications within 24 hours every time a subsequent TCS is appointed to the Project.

00223.31(b) Traffic Control Inspection Without TCS - Replace the paragraph that begins "When the Schedule of Items does ..." with the following paragraph:

When the Schedule of Items does not include an item for a TCS, or when TCS is not on-site for a work shift, designate a trained person who is on the Project Site during work hours and on call at all other times, and who:

Replace the bullet that begins "Notifies the Engineer of any ..." with the following bullet:

- Notifies the Engineer of any corrective measures made to the TCP if the TCP is not functioning as required, or to accommodate site conditions. Follow the TCP and do not implement changes to the TCP before revisions are approved by the Engineer.

Replace the bullet that begins "Shall report to the Project ..." with the following bullet:

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- Reports to the Project Site within 1 hour after being notified in the event of a Work Zone incident during non-work periods.

Replace the bullet that begins "Designate an area for ..." with the following bullet:

- Designates an area for pedestrians to wait for, load and unload the transport vehicle.

00223.32 Automated Flagger Assistance Device Operator - Replace this subsection, except for the subsection number and title, with the following:

Use a certified flagger who has been trained in the operation of the AFAD.

The AFAD operator duties include:

- Attending the AFAD at all times during the operation of the device.
- Not flagging traffic and operating an AFAD at the same time.
- Operating a single AFAD. Each AFAD is required to have a separate AFAD operator.

00223.40 Flaggers - Replace this subsection, except for the subsection number and title, with the following:

Locate flaggers far enough in advance of the Work Area to permit adequate time for the motorist to respond to the flagger's instructions. All flaggers, including advance flaggers, are required to use a STOP/SLOW paddle. Do not use roll-up STOP/SLOW paddles for non-emergency flagging operations.

During advance flagging operations, the advance flagger is required to only display the "SLOW" face of the paddle. Cover the "STOP" face of the paddle with a sign cover according to 00222.12(a).

Position flaggers, as directed, at locations where traffic can enter the Highway within the limits of the Work Zone.

Direct vehicles entering the Highway to follow the pilot car line.

Direct pedestrians to wait for flagger instructions. Stop and hold motor vehicle traffic to allow pedestrians to enter the TPAR or exit the TPAR. Ensure pedestrians are clear of all Traffic Lanes before flaggers release motor vehicle traffic.

Direct pedestrians to use the pedestrian transport vehicle to pass through or around the Work Zone. Direct pedestrians to wait for the pedestrian transport vehicle in designated areas identified under 00223.31.

If a TPAR is designed and installed with a width less than 5 feet, and 5-foot-by-5-foot passing spaces at 200-foot intervals are not provided, inform pedestrians of the narrowed TPAR. Before allowing pedestrians in wheelchairs or similar devices to use the TPAR, direct the flagger at the opposite end of the TPAR to stop and hold opposing pedestrian traffic until the pedestrian in the wheelchair has reached the other end of the narrowed TPAR.

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Provide flaggers at flagging stations continuously or until the Engineer determines flagging is no longer required.

00223.43 Automated Flagger Assistance Device - Replace the bullet that begins "Provide illumination when using ..." with the following bullet:

- Provide illumination when using an AFAD during nighttime hours. Provide AFAD illumination meeting the following requirements:

00223.80 Measurement - Replace the bullet that begins "The replacement of TCD and TCM..." with the following bullet:

- The replacement of flagger station lighting damaged by Public Traffic and replaced by the Contractor.

Add the following paragraph to the end of the bullet list:

No additional measurement will be made for automated flagger assistance devices damaged by Public Traffic and replaced or repaired by the Contractor.

00223.90 Payment - Replace the paragraph that begins "Item (c) includes furnishing..." with the following paragraph:

Item (c) includes providing, operating, moving, and removing the flagger station lighting. No separate or additional payment will be made for backup unit in event it is used or not.

Replace the paragraph that begins "Item (f) includes furnishing..." with the following paragraph:

Item (f) includes providing, operating, maintaining, repairing, replacing moving and removing each AFAD device, regardless of size or type. No separate or additional payment will be made for AFAD replacement, repair, or for AFAD illumination. The AFAD operator will be paid for as a flagger.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

SECTION 00224 - TEMPORARY TRAFFIC CHANNELIZING DEVICES

Comply with Section 00224 of the Standard Specifications modified as follows:

00224.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

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In addition to requirements of Section 00221, this Work consists of providing, installing, moving, maintaining, inspecting, and removing channelizing devices including, but not limited to, tubular markers, conical markers, surface mounted tubular markers, plastic drums, and delineators throughout the Project area as shown or specified.

00224.14 Delineators - Replace the paragraph that begins "Use new delineators from ..." with the following paragraph:

Use new delineators from the QPL or salvaged reflectorized delineators (W-1) or (Y-1), as appropriate, and according to the requirements of Section 00840 and the following:

00224.90 Payment - Replace the paragraph that begins "Item (a) includes ..." with the following paragraph:

Item (a) includes providing and installing the complete assembly of each device in its initial location and for removing the device from the surface.

Replace the paragraph that begins "Item (b) includes ..." with the following paragraph:

Item (b) includes providing new or refurbished devices to replace damaged or missing devices.

Replace the paragraph that begins "In item (e), the type ..." with the following paragraph:

In item (e), the type of barricade is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

SECTION 00225 - TEMPORARY PAVEMENT MARKINGS

Comply with Section 00225 of the Standard Specifications modified as follows:

00225.40 Temporary Pavement Markers - Replace the paragraph that begins "Temporary pavement markers..." with the following paragraph:

Maintain temporary pavement markers in place until the permanent markings are complete. Replace damaged or missing markers when directed by the Engineer. On the final Pavement wearing Course and along final alignment, place permanent markings a maximum of 28 Calendar Days after placing temporary pavement markers, or as directed.

00225.45 Pavement Marking Removal - Replace the bullet that begins "Do not use grinding to ..." with the following bullet:

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- Do not use grinding to remove stripes, durable markings, legends, or bars from the wearing Course or existing surfaces, unless the area is paved over, obliterated, or the pavement markings are replaced to match the original striping configuration.

00225.60 Temporary Traffic Pavement Markings - Replace the paragraph that begins "Temporary pavement markings ..." with the following paragraph:

Maintain temporary pavement markings in place until the permanent markings are complete. Replace missing or damaged temporary markings when directed by the Engineer. On the final Pavement wearing Course and along final alignment, place permanent markings a maximum of 28 Calendar Days after placing temporary pavement markings, or as directed.

Replace the paragraph that begins "If permanent pavement ..." with the following paragraph:

If permanent pavement markings are not placed within 28 Calendar Days after placing temporary pavement markings, replace missing or damaged temporary pavement markings on wearing Course and along final alignment at no additional cost to the Agency, unless otherwise directed.

00225.90 Payment - Replace the paragraph that begins "Item (a)..." with the following paragraph:

Item (a) includes installation and removal of temporary pavement markers having either one or two reflective faces.

Replace the paragraph that begins "Item (b)..." with the following paragraph:

Item (b) includes installation of flexible temporary pavement markers and removal of flexible temporary pavement markers and temporary flexible pavement marker covers.

Add the following paragraph after the paragraph that begins "Item (b)...":

Items (c) and (e) include removal of the temporary tape.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

SECTION 00226 - TEMPORARY ROADSIDE BARRIERS AND IMPACT ATTENUATORS

Comply with Section 00226 of the Standard Specifications modified as follows:

00226.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

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In addition to the requirements of Section 00221, this Work consists of providing, installing, moving, operating, maintaining, and removing guardrail, barrier, and impact attenuators for temporary traffic control, as shown and directed.

00226.11(a)(2) Temporary Concrete Barrier - Replace the paragraph that begins "The concrete barrier shall ..." with the following paragraph:

Provide concrete barrier with functioning scuppers, unless otherwise approved.

00226.12 Temporary Impact Attenuators - Replace this subsection, except for the subsection number and title, with the following:

Provide temporary impact attenuators from the QPL and as shown on the Standard Drawings.

00226.23 Truck Mounted Attenuator - Replace the title of this subsection with "**Temporary Impact Attenuator, Truck Mounted**".

Replace the paragraph that begins "The support vehicle ..." with the following paragraph:

Provide a support vehicle for a TL-2 rated TMA with a minimum weight of 9,900 pounds. Provide a support vehicle for a TL-3 rated TMA with a minimum weight of 22,000 pounds.

Replace the paragraph that begins "If used in a mobile ..." with the following paragraph:

If a TMA support vehicle is used in a mobile operation, maintain a consistent distance from the mobile operation, as shown in Table 00226-1, or as directed.

00226.41(c) Glare Shields - Replace the bullet that begins "Firmly attach the base plate ..." with the following bullet:

- Firmly attach the base plate anchor bolts to the Temporary Barrier to withstand a 1,000-pound vertical pull and to prevent horizontal and rotational displacement. The maximum spacing between anchor bolts on modular units is 30 inches.

Replace the bullet that begins "Modular or single element ..." with the following bullet:

- Use modular or single element glare shields from the same manufacture and of like appearance throughout the entire installation when installed in a continuous run.

00226.43 Truck Mounted Attenuator - Replace the title of this subsection with "**Temporary Impact Attenuator, Truck Mounted**".

Replace the paragraph that begins "When workers or construction Equipment..." with the following paragraphs:

Use a temporary truck mounted impact attenuator (TMA), when workers or construction Equipment are exposed to Public Traffic on a Freeway or Multi-Lane Highway and are not located behind a rigid barrier system, as follows unless otherwise shown or directed:

- Each Shoulder or each lane closure where the preconstruction posted speed is 45 mph or more.

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- Each lane closure, when Work on Bent 15/19 on the Willamina-Salem Highway is occurring in the Traffic Lane.
- Each lane closure, when foundation and waterline Work is being completed on Front Street is occurring in the Traffic Lane.

Place the TMA in advance of the exposed workers or Equipment, located as shown in the TMA Support Vehicle Placement tables, or as directed. If the TMA is not available when the Work requires its use, postpone the Work until the TMA is available.

00226.63 Truck Mounted Attenuators - Replace this subsection with the following subsection:

00226.63 Temporary Impact Attenuator, Truck Mounted - Repair damage to support vehicles that TMAs are mounted on at no additional cost to the Agency.

00226.80(b)(2) Temporary Barrier - Add the following to the end this subsection:

The quantities will be limited to those shown in Table 00226-1. The estimated quantity of Temporary Barrier is:

TABLE 00226-1

Stage/Phase	Location (STA to STA)	Temporary Barrier (foot)	Temporary Barrier, Minimum Deflection (foot)
Stage I Phase 1	"F" 21+32 to "F" 23+36		204
Stage I Phase 2	"F" 21+36 to "F" 22+26		90
Stage I Phase 3	"F" 21+36 to "F" 23+94		258
Stage II	"F" 21+51 to "F" 24+27		276
Stage III	"F" 21+85 to "F" 24+40		204
Stage IV	No Station Available	300	
Stage VI Phase 1	"F" 20+81 to "F" 25+85	504	
Stage VI Phase 1	"F" 21+85 to "F" 25+21		336
Stage VI Phase 1	"F" 21+07 to "F" 24+43		336
Total Quantity		804	1,704

00226.80(b)(4) Minimum Deflection Bridge Temporary Barrier - Add the following to the end this subsection:

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The quantities will be limited to those shown in Table 00226-2. The estimated quantity of Minimum Deflection Bridge Temporary Barrier is:

TABLE 00226-2

Stage/Phase	Location (STA to STA)	Minimum Deflection Bridge Temporary Barrier (foot)
Stage VI Phase 2	"CE" 40+18 to "CE" 52+48	1,230
Stage VI Phase 3	"CE" 39+92 to "CE" 52+22	1,230
Total Quantity		2,460

00226.90 Payment - Replace the paragraph that begins "In items (a) and (b), the ..." with the following paragraph:

In items (a) and (b), the type of guardrail or terminal is inserted in the blank.

Replace the paragraph that begins "Item (e) includes Type 5 ..." with the following paragraph:

Item (e) includes Type 5 delineators, including removing and replacing Type 5 delineators on the barriers, as necessary. Item (e) also includes providing, installing, connecting, securing, unsecuring, maintaining, temporary storage, and final removal of the Temporary Barrier, including Minimum Deflection Temporary Barrier.

Replace the paragraph that begins "Item (f) includes Type ..." with the following paragraph:

Item (f) includes Type 5 delineators, including removing and replacing Type 5 delineators on the barriers, as necessary. Item (f) also includes providing, installing, connecting, securing to the Bridge deck, unsecuring, maintaining, temporary storage, and final removal of the Minimum Deflection Bridge Temporary Barrier.

Replace the paragraph that begins "In items (g) and (h) ..." with the following paragraph:

In items (g) and (h), the type of attenuator is inserted in the blank.

Replace the paragraph that begins "In item (i), the ..." with the following paragraph:

In item (i), the words "Sand Module" or the type of attenuator is inserted in the blank.

Items (g) and (i) include truck mounted temporary impact attenuators attached to mobile barrier(s).

Item (q) includes moving the temporary glare screens from one location of actual use to another location of actual use on the temporary barrier.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

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Payment will be payment in full for furnishing, stockpiling, installing, moving, operating, maintaining, inspecting, placing, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

Add the following paragraph to the end of this subsection:

No separate or additional payment will be made for TMAs when the Contractor elects to use them where they otherwise are not required.

SECTION 00227 - TEMPORARY TRAFFIC SIGNALS AND ILLUMINATION

Comply with Section 00227 of the Standard Specifications modified as follows:

00227.12 Temporary Traffic Signals - Replace the paragraph that begins "Use Materials for temporary traffic ..." with the following paragraph:

Use Materials for temporary traffic signals according to Sections 00960, 00990, 02120, and the following:

00227.12(c) Wood Poles - Replace this subsection, except for the subsection number and title, with the following:

Use poles that are of acceptable condition without visible signs of deterioration or significant longitudinal splits. Furnish poles having no more than 8 drilled holes, with holes at least 6 inches apart, for messenger and tether cable eyebolt attachments.

00227.14 Temporary Flashing Beacons - Replace the paragraph that begins "Use materials for temporary ..." with the following paragraph:

Use materials for temporary flashing beacons according to Sections 00960, 00990, and the following:

00227.16 Work Zone Presence Lighting System - Replace the paragraph that begins "Furnish Work Zone presence lighting ..." with the following paragraph:

Provide Work Zone presence lighting system using flagger station lighting devices from section 00223.22 of the QPL and meeting the following requirements:

00227.42(a) Removal - Replace this subsection, except for the subsection number and title, with the following:

Remove the temporary traffic signal when directed. Remove all wood poles and guy anchors in their entirety. Abandon vehicle detector loops in place. Contractor provided Equipment remains the property of the Contractor. Return all Agency-furnished Materials according to 00160.30. Contact the Traffic Systems Service Unit at 503-378-2645 to confirm delivery of Agency-furnished Materials 48 hours prior to delivery.

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00227.42(e) Testing and Turn-on - Replace this subsection, except for the subsection number and title, with the following:

Certify that all traffic signal cabinets and related control Equipment for temporary signals for all stages of construction have passed the ODOT laboratory tests. Successfully tested cabinets and related control Equipment are assigned permanent certification tags and will not require further environmental testing. Deliver controllers to the Traffic System Services Unit for functional testing.

00227.43(a) Location and Setup - Delete the sentence that begins "Do not install portable..."

00227.43(c) Testing and Turn-on - Replace the paragraph that begins "Before turning on the portable ..." with the following paragraph:

Before turning on the portable temporary traffic signal, correct all deficiencies identified by the Engineer. Do not change the timing parameters without the approval of the Engineer. Use flaggers according to Section 00223 to control traffic during initial turn on of the signal. The flaggers are required to remain on standby for 2 hours after the signal is turned on and operating properly.

00227.45 Work Zone Presence Lighting System - Replace the paragraph and bullets that begins "Turn off system ..." with the following paragraph and bullets:

Turn off system lights:

- During daytime hours;
- When no active Work is taking place; or
- All TCD have been removed from the Shoulders and Traffic Lanes.

00227.46(a) Removal - Replace this subsection, except for the subsection number and title, with the following:

Remove the temporary flashing beacons when directed. Contractor provided Equipment remains the property of the Contractor.

00227.62 Temporary Traffic Signals - Replace the paragraph that begins "The operation and maintenance ..." with the following paragraph:

The operation and maintenance of the Equipment inside the controller cabinet is the responsibility of the Agency, including:

Replace the paragraph and bullets that begins "The Contractor is responsible..." with the following paragraph and bullets:

The Contractor is responsible for:

- Providing replacement parts that fail within the controller cabinet while the temporary traffic signal is in use.
- Installing new field wiring as shown without terminating into the controller cabinet.

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00227.63 Portland Traffic Signals - Replace the paragraph that begins "The log shall ..." with the following paragraph:

Keep the log with the corresponding portable traffic signal at all times.

00227.66 Temporary Flashing Beacons - Replace this subsection, except for the subsection number and title, with the following:

After successful turn-on of the temporary flashing beacons assume maintenance of the temporary flashing beacons until it is removed. The operation of the equipment inside the controller cabinet is the responsibility of the Agency, except the Contractor is required to provide replacement parts that fail within the controller cabinet while the temporary flashing beacons are in use.

00227.80 Measurement Replace this subsection, except for the subsection number and title, with the following:

No measurement of quantities will be made for temporary traffic signals, portable traffic signals, temporary flashing beacons, or temporary illumination.

The Work Zone presence lighting system will be measured on the unit basis, for each complete system, where initially installed on the Project. A complete system consists of the number of flagger station lighting from the "PRESENCE LIGHTING SPACING TABLE" as shown.

00227.90 Payment - Add the following paragraph to the end of this subsection:

Item (a) includes all Materials called for by the Plans and Specifications, and providing electrical power and providing, placing, maintaining, adjusting, and removing temporary falsework illumination.

Replace the paragraph that begins "Item (c) includes furnishing ..." with the following paragraph:

Item (c) includes providing, operating, moving, and removing the signals and all required earthwork, Bases, Surfacing, and hard-wired interconnections.

Replace the paragraph that begins "Item (d) includes furnishing ..." with the following paragraph:

Item (d) includes providing, operating, moving, maintaining and removing the Work Zone presence lighting system.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

SECTION 00228 - TEMPORARY PEDESTRIAN AND BICYCLIST ROUTING

Comply with Section 00228 of the Standard Specifications modified as follows:

00228.13 Temporary Curb Ramps - Replace this subsection, except for the subsection number and title, with the following:

Furnish temporary curb ramps from the QPL or the Conditional Use List; or construct temporary curb ramps on site according to the Standard Drawings. Use ACP, PCC, or other approved Materials for on-site constructed temporary curb ramps. Furnish truncated dome detectable warning surface for temporary curb ramps from the QPL according to Section 00765.

00228.40 Pedestrian Channelizing Devices - Replace this subsection, except for the subsection number and title, with the following:

Install PCD as shown or directed. Provide a continuous route by interconnecting all adjacent PCD. Provide a clean unobstructed path for pedestrians according to 00220.02 and MUTCD requirements.

00228.42 Bicycle Channelizing Devices - Replace this subsection, except for the subsection number and title, with the following:

Install bicycle channelizing devices as shown or directed. Provide a continuous route by interconnecting all adjacent BCD. Provide a clean unobstructed path according to 00220.02(c).

00228.43 Temporary Curb Ramps - Replace the paragraph that begins "Install or construct temporary curb ..." with the following paragraph:

Install or construct temporary curb ramps as shown or directed. Temporary curb ramp dimensions and grades are required to comply with the Standard Drawings or requirements approved by the Engineer. Repair or reconstruct unacceptable temporary curb ramps before opening to pedestrian traffic.

00228.63 Temporary Curb Ramps and Temporary Walks - Replace the paragraph that begins "After completion of the Work ..." with the following paragraph:

After completion of the Work, restore the area occupied by the temporary curb ramp or temporary walk as directed.

00228.80 Measurement - Replace this subsection, except for the subsection number and title, with the following:

The quantities of Work performed under this Section will be measured according to the following. The quantities for Work Zone Traffic Control Measures will be limited to the following:

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- The initial installation of Pedestrian channelizing devices and bicycle channelizing devices necessary to complete the Project based on the Contract Schedule of Items further limited to the maximum simultaneous use as shown, specified, or directed.
- The initial installation of additional Pedestrian channelizing devices and bicycle channelizing devices that the Engineer and Contractor agree are necessary to ensure a safe Work Zone.
- The replacement of TCD and TCM damaged by Public Traffic and replaced by the Contractor.

(a) Length Basis - Pedestrian channelizing devices and bicycle channelizing devices will be measured on the length basis upon delivery to the Project.

(b) Unit Basis - Temporary curb ramps will be measured on the unit basis, at each location where a temporary curb ramp is constructed or placed as shown or directed.

(c) Area Basis - Temporary walks will be measured on the area basis, at each location where a temporary walk is constructed or placed limited to the Neat Lines as shown or directed.

00228.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
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(a) Pedestrian Channelizing Devices	Foot
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Payment for item (a) will be payment in full for furnishing, installing, moving, operating, maintaining, inspecting, and removing the Materials and TCD, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified, except as covered in 00221.90(b).

TCD items included under this Section damaged by Public Traffic and replaced by the Contractor will be paid for at the Contract price for the Pay Items listed in the Contract Schedule of Items or in approved Contract Change Orders, unless otherwise specified. Payment for replacing damaged TCD will only be made when:

- The Engineer orders it.
- The replacement devices are used on the Project.
- The damaged devices are disposed of to the Engineer's satisfaction.

SECTION 00230 – TEMPORARY ROADBED AND SURFACING

Section 00230 is not a Standard Specification and is included in this Project by Special Provision.

Description

00230.00 Scope - This Work consists of constructing, maintaining, and removing temporary Roadbeds and Surfacing, as shown or directed.

Materials

00230.10 Materials - Furnish Materials meeting the following requirements:

Aggregate Base	00640.10
Asphalt Concrete Pavement (ACP).....	00745.50
Emulsified Asphalt Tack Coat	00730.11
Geotextile	02320

00230.11 Earthwork - Furnish Materials required to construct the Roadbed according to Section 00330 and as shown.

Construction

00230.40 Earthwork - Construct temporary embankments and excavation outside the permanent Roadbed according to the applicable parts of Section 00330, except density testing to verify compaction will not be required. Compact the embankment material according to 00330.43(c). Ensure that Earthwork that remains in place as permanent Roadbed meets all requirements of Section 00330.

00230.41 Geotextile - Place embankment geotextile according to Section 00350.

00230.43 Aggregate Base - Place and compact Aggregate Base according to the applicable parts of Section 00640.

00230.44 Asphalt Concrete Pavement - Place ACP to the lines and grade shown or directed. Compact ACP according to 00745.49(d).

00230.45 Emulsified Asphalt Tack Coat - Apply Emulsified Asphalt according to the applicable parts of Section 00730.

Maintenance

00230.60 Surface Maintenance - Maintain temporary surfaces according to 00220.60.

Finishing and Cleaning Up

00230.70 General - When temporary surfaces are no longer needed, do the following:

- Remove all related materials.
- Restore the area the temporary Surfacing and associated Roadbed occupied to the original ground contours, or as directed.
- Apply permanent seeding to the area occupied by the temporary Surfacing and associated Roadbed, if required, according to Section 01030.

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- Dispose of excess materials according to 00330.41(a)(4).

Measurement

00230.80 Measurement - No measurement of quantities will be made for Work performed under this Section. It is estimated that the following approximate quantities of Materials will be required:

Material	Amount
Construct Temporary Roadbed and Surfacing:	
Excavation	505 cu. yd.
Geotextile.....	1,635 sq. yd.
Aggregate Base	495 ton
Asphalt Concrete Mixture	339 ton
Emulsified Asphalt Tack Coat	0.27 ton
Remove Temporary Roadbed and Surfacing:	
Excavation	423 cu.yd.

Quantities include only those quantities placed or removed outside the permanent Roadbed Neat Line.

Permanent seeding will be measured according to 01030.80.

Payment

00230.90 Payment - The accepted quantities of Work performed under this Section, except for permanent seeding Work, will be paid for at the Contract lump sum amount for the item "Construct and Remove Temporary Roadbed and Surfacing".

Payment will be payment in full for constructing, maintaining, and removing Roadbeds and Surfacing, and for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Permanent seeding will be paid for according to 01030.90.

SECTION 00231 - TEMPORARY ACCESS ROAD

Section 00231 is not a Standard Specification and is included in this Project by Special Provision.

Description

00231.00 Scope - This Work consists of designing, furnishing, constructing, maintaining, and removing temporary, unpaved access roads, and temporary retaining walls, for the use of Contractor and Agency Equipment and personnel as needed, shown, or directed.

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00231.04 Working Drawings, Calculations, and Design Submittals - Submit temporary retaining wall stamped Working Drawings and design calculations according to 00150.35, except as modified by this Section. Design temporary retaining walls according to Section 15.3.27, and other applicable sections, of the most current version of the ODOT Geotechnical Design Manual (GDM) at the time of Advertisement and as shown.

Submit five sets of the stamped Working Drawings, and three copies of the design calculations, summary, and checklist.

(a) Defined Temporary Retaining Wall Systems - Select temporary retaining wall systems for construction from the list of defined temporary retaining walls according to Section 16.3.27 of the ODOT GDM.

(b) Atypical Temporary Retaining Wall Systems - Temporary retaining wall systems which are not on the list of retaining walls according to Section 16.3.27 of the ODOT GDM are considered atypical retaining wall systems. If proposing an atypical temporary retaining wall system, submit stamped Working Drawings according to 00150.35. The review and response time allowed for the Agency to return the Working Drawings will be 120 Calendar Days. The submittal of calculations and other data must satisfy the requirements of the Special Provisions and include sufficient detail and explanation of the design for the Agency to process and comment on the Working Drawings. If the Engineer requests additional information or explanation related to the review of the atypical retaining wall system, the Engineer may restart the 120 Calendar Day review period.

Include the following additional information in the atypical retaining wall system submittal:

- If applicable, a list of projects that used the atypical retaining wall system. Include reference contacts.
- A list of supervisory personnel that will be on-site during construction of the atypical retaining wall system and documentation of their experience and qualifications to perform the Work.

Perform temporary retaining wall design according to the most current version at the time of Advertisement of one or more of the following design standard:

- ODOT Geotechnical Design Manual (GDM)
- AASHTO Standard and Guide Design Specifications
- U.S. Department of Transportation Federal Highway Administration (FHWA) design manuals

The geotechnical and structural analysis and design for the temporary retaining wall is to include but not be limited to the items listed in the temporary retaining wall design checklist. Submit a completed temporary retaining wall design checklist and a written temporary retaining wall design summary, prepared by the retaining wall design engineer, to accompany the stamped Working Drawings and calculations. Include the following in the design summary:

- Identification of the design manuals and specific methodologies used for the analysis and design.

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- Identification of the methods of analysis and all computer programs used.
- Soil and material properties used in the retaining wall design. Include any additional boring logs and laboratory test data performed.
- Design loading assumptions and loading diagrams for each wall (including all construction staging loads).
- Design performance requirements, including design life, allowable settlement, and alignment tolerance.
- Performance requirements and methods and frequency for monitoring performance requirements during construction. Performance requirements include actual threshold limits of tolerable differential foundation settlement and lateral movement that could result in structural damage to adjacent construction.
- Construction requirements (specifications), including Materials, Equipment, and labor necessary for construction of the atypical temporary retaining wall system.
- Quality control plan, including required performance and verification tests.
- If applicable, temporary wall removal plan.
- All other applicable information for design, detail, sequencing, and construction of the temporary retaining wall.

Materials

00231.10 Temporary Retaining Walls Materials - Furnish Materials with design properties according to the design requirements and reviewed Working Drawings for the temporary retaining wall and applicable subsections of Sections 00596A and 00596B.

00231.11 Geotextile - Furnish subgrade geotextile, embankment geotextile, or riprap geotextile, at the Contractor's option that meets the requirements of Section 02320, with documentation according to 02320.10(c).

00231.12 Geogrid - Furnish subgrade reinforcement geogrid, if used, that meets the requirements of Section 02320.

00231.13 Road Material - Furnish crushed Aggregate Base, stone embankment, or other suitable Granular Material capable of supporting the weight of Equipment intended to use the temporary access road.

Labor

00231.30 Personnel Qualifications –

(a) Temporary Retaining Walls - Perform the temporary retaining wall construction Work using personnel experienced in retaining wall construction work. Submit a list to the Engineer for approval identifying the on-site supervisors and Equipment operators assigned to the Project and their experience relevant to the Project. The Engineer will respond within 21 Calendar Days after receipt of the submittal.

Do not begin Work on any temporary retaining walls until the qualifications have been approved. The Engineer may suspend the temporary retaining wall construction if the Contractor substitutes unapproved personnel during construction. Submit requests for

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substitution of on-site supervisors, Equipment operators, or testing personnel to the Engineer, who will have 7 Calendar Days to respond to each request. Additional costs resulting from the suspension of Work due to the changing of personnel will be at no additional cost to the Agency, and no adjustment in Contract Time resulting from the suspension of Work will be allowed.

Construction

00231.40 Temporary Retaining Walls - Construct temporary retaining walls according to the reviewed Working Drawings and the applicable subsections of Section 00596A and Section 00596B.

00231.41 Clearing - Clearing brush and vegetation for temporary access roads is allowed in the areas shown or where directed. Preserve and protect trees as shown or directed.

00231.42 Temporary Access Road - Construct temporary access roads to the width, grade, profile, and depth of base sufficient to support the weight of Equipment using the road. Install geotextile or geogrid prior to placement of road material.

00231.43 Not for Public Traffic - Do not direct or allow Public Traffic to use temporary access roads constructed according to this Section.

00231.44 Verification of Subgrade - In areas where permanent earthwork construction is required on ground that has been occupied by a temporary access road, rework or replace unstable Materials to avoid and correct, according to 00330.40(c), excessive stress or strain that could be detrimental to the Subgrade.

00231.45 Verification of Original Ground - Test the density of the original ground according to TM 158, in the presence of the Engineer, before beginning construction of the temporary access road and after removing it. If post-removal density testing indicates that the original ground has been weakened by construction activities, or the presence or use of the temporary access road, correct the deficient condition in an approved manner and at no additional expense to the Agency.

Maintenance

00231.60 Surface Maintenance - Maintain temporary access roads so that the road surfaces remain firm, smooth, free of ruts or standing water, and are graded to prevent concentrations of runoff water. Promptly remove accumulations of mud or debris.

00231.61 Temporary Retaining Walls - Maintain temporary retaining walls in a safe and functional condition as long as the walls are in service. Keep all wall facing elements intact. Repair or replace damaged wall elements as necessary to maintain the retaining walls integrity and safe operational function. Submit stamped Working Drawings for replacement of damaged wall elements or for any wall repairs to the Engineer for review.

Finishing and Cleaning Up

00231.70 General - When a temporary access road and temporary retaining walls are no longer needed, do the following:

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- Remove all Materials.
- Restore areas occupied by the temporary access road and temporary retaining walls to the original ground contours or as directed.
- Apply permanent seeding to the area occupied by the temporary access road and temporary retaining walls according to Section 01030.
- Dispose of excess materials according to 00330.41(a)(5).

Measurement

00231.80 Measurement - Except for permanent seeding, no measurement of quantities will be made for Work performed under this Section.

Permanent seeding will be measured according to 01030.80.

Payment

00231.90 Payment - The accepted quantities of Work performed under this Section, except for permanent seeding work, will be paid for at the Contract Lump Sum amount for the item "Construct and Remove Temporary Access Road".

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for removing and disposing of temporary access road Materials, including any temporary retaining wall(s), or for restoring the areas to original ground contours.

Permanent seeding Work will be paid for according to 01030.90.

TEMPORARY RETAINING WALL DESIGN CHECKLIST

Instructions - This checklist was developed to facilitate the design, review, and construction of temporary retaining walls. It is intended to remind the Design Engineer of Record to design and to check for specific aspects of construction. It is not a substitute for plan and design criteria or specification requirements.

The checklist is to be completed and signed by the temporary retaining wall Design Engineer of Record. Submit a checklist with each temporary retaining wall submittal. Answer every question. Attach explanations of all "No" or "N/A" responses to this checklist. Submit this checklist with the submittals.

	YES	NO	N/A
A. General			
1. Are the temporary wall stamped Working Drawings and supporting calculations prepared, stamped and signed by an engineer registered to practice in Oregon?	_____	_____	_____
2. Are the temporary retaining wall location, construction sequence, and removal plan compatible with the project construction staging?	_____	_____	_____
B. Design Standards			
1. Does the temporary retaining wall design comply with the standards identified in ODOT GDM 16.3.27 and related sections?	_____	_____	_____
2. Is the design standard and edition identified in the temporary retaining wall design calculations and summary?	_____	_____	_____
C. Loading			
1. Have the anticipated design loads, including live load and construction surcharge loads, and changing conditions, for different stages of construction been considered and included in the calculations?	_____	_____	_____
2. Have the appropriate load and resistance factors or factors of safety on the retaining wall been identified, for all applicable load combinations or load cases?	_____	_____	_____
3. Have construction equipment loads been included in the calculations for the temporary walls?	_____	_____	_____
4. Have the construction loads for different stages of construction been considered and included in the calculations?	_____	_____	_____

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5. Have loading diagrams been included? _____

D. Geotechnical and Structural Analysis

1. Has Internal stability been evaluated? _____
2. Has external stability been evaluated? _____
3. Has global stability been evaluated? _____
4. Are all existing, adjusted or new utilities in proximity with the proposed temporary retaining wall shown on the temporary wall stamped Working Drawings and is protection of these utilities addressed? _____
5. Has a rational method for determining the ultimate bearing capacity of the foundation materials been presented and described in the calculations? _____
6. When spread footings are founded near the top of a slope or in a slope, have the ultimate bearing capacity calculations been modified accordingly? _____
7. Are wall settlement and lateral deflection estimates provided, including consideration of any settlement effects on adjacent structures or facilities? _____
8. Are mitigation measures required to limit the amount(s) of wall settlement? _____

E. Materials

1. Have the soil parameters and groundwater elevations used in the design calculations been provided and confirmed by the design EOR? _____
2. Are retaining wall material specifications and dimensions identified in the stamped Working Drawings and calculations? _____

F. Temporary Retaining Wall Working Drawings

1. Is the field verified ground topography above and below the wall shown? _____
2. Are all existing, adjusted or new utilities, structures, "no work zones", and Right-of-Way in proximity to the proposed retaining wall shown on the temporary retaining wall stamped Working Drawings? _____

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3. Are plan view, elevation and cross sections drawn to scale, with dimensions defining location and size of the retaining wall including top and bottom of wall elevations, horizontal and vertical alignment, original and final ground lines, excavation and fill limits?

Design Engineer of Record Signature

Date

SECTION 00232 - TEMPORARY RIVER TRAFFIC CONTROL

Section 00232 is not a Standard Specification and is included in this Project by Special Provision.

Description

00232.00 Scope - This Work consists of obtaining United States Coast Guard (USCG) Bridge Work Plan concurrence; and setup, maintenance, and removal of temporary river zone traffic control to comply with USCG and Oregon State Marine Board (OSMB) regulations. Preliminary approval of the temporary clearances and river traffic control shown has been provided by the USCG and OSMB but is subject to final approval based on the USCG Bridge Work Plan submittal.

00232.01 Submittals

(a) Notification – Submit to the Engineer in writing for approval any limitation to river usage or traffic patterns for either recreational or commercial craft that would prevent the through passage of any currently permitted craft. Such changes include but are not limited to partial river closures such as a closure under a bridge span not in the navigable channel, installation of debris booms, warning signs and buoys. Notify the Engineer a minimum of 90 Calendar Days before making any changes that affect such river usage.

(b) USCG Bridge Work Plan Submittal – At least 90 Calendar Days prior to beginning activities and operations affecting any part of the waterway in the vicinity of the bridge work, submit the following:

- Plan view and elevation view sketches of bridge and associated waterway with proposed obstructions that reduce permanent horizontal and vertical clearances and recreational navigation channel(s) (work bridge, cofferdams, vessels, barges, containment, etc.).
- Prime Contractor contact for the Project, with associated email and phone number.
- Scheduled on-site start work date and finish work date.
- Days and times of operation over the normal work week.
- Dates and times of stages of work, as applicable for operations involving sequential or staged activities.
- Location of the Work by latitude and longitude, river mile, and geographic point of land, with latitude and longitude expressed in degrees, minutes, seconds, and thousandths of seconds.
- Identification and description of barges, vessels and Equipment present in the waterway, if any, to facilitate operations. Include the descriptions of vessel type, vessel name (as applicable), means of voice contact (VHF frequencies, cell phone number, etc.) to the vessel, means of anchoring and mooring the vessel and the location of such anchoring and mooring, the extent to which the vessel is encroaching into the defined recreational navigation channel, and lighting support vessels in accordance with the Coast Guard Rules of the Road as applicable.
- Point of contact phone number available for 24-hour-seven-days-a-week contact from local mariners through the duration of the Project.

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- Detailed identification of work operation hazards to mariners, if any, created by operations (cables, buoys, machinery, tools, tows, containment and platform structures, cofferdams, falling debris such as during waterline removal or installation, etc.), including details such as size, diameter, color as applicable.
- Precautions regarding the in-water vessels, Equipment, and work operation hazards, if any, affecting local mariners such as operating speed and wake, clearance distance, etc.
- Systems and Equipment causing a reduction in the existing available vertical clearance beneath the bridge, if any, such as containment and platform systems and supports and the Equipment necessary to install, maintain, and remove such systems, and the identification of any falling debris hazard to waterway traffic.
- Description of advisory signage and lighting to be implemented by the Contractor to advise local mariners of the operations, reduced clearances, and presence of work operation hazards, as applicable. Include description of the advisory message, and placement and orientation of the signage and flashing amber lighting (4-seconds/15 per minute).

Submit the Bridge Work Plan to the Engineer and the following US Coast Guard contact for concurrent review.

Bridge Administrator
U.S. Coast Guard District 13
915 Second Avenue Suite 3510
Seattle, WA 98174-1067
D13-pf-d13bridges@uscg.mil
Telephone: (206) 220-7282

Approval from the US Coast Guard and the Engineer is required prior to the US Coast Guard issuing a Local Notice to Mariners advising of the operations and allowing the operations to commence.

Throughout the Project, submit Addendums to the Plan as necessary to stay consistent with Contractor's planned operations. Submit any Addendums a minimum of 90 Calendar Days prior to the anticipated start date of the Work and include the same information listed above.

(c) Local Notice to Mariners – At least 30 Calendar Days prior to beginning activities and operations affecting any part of the waterway in the vicinity of the bridge work, submit a Local Notice to Mariners to the Engineer and the following US Coast Guard contact for concurrent review.

Local Notice to Mariners Desk Phone: (206) 220-7280 (7270)
Local Notice Email: D13-SMB-D13-LNM@uscg.mil
Mailing address:
USCG District Thirteen (dpw)
915 – 2nd Avenue, Suite 3510
Seattle, WA 98174-1067

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The Local Notice to Mariners is a short summary of the impacts to the waterway and the mariner. The target audience is the mariner (commercial, government, recreational). The following is an example notice:

WILLAMETTE RIVER – Corvallis - ODOT and their contractor will conduct the complete demolition and reconstruction of the Van Buren Bridge (Oregon Highway 34), across the Willamette River at river mile 131.7 in Corvallis, OR between Jun 2023 and Dec 2026. Construction activity will take place across the entire river at the bridge location. Construction activities will take place primarily from the hours of 0700 to 1800, Monday through Saturday. Bridge construction work will include geotechnical drilling, removal and replacement of the existing bridge, the installation of a temporary work bridge spanning the river just upstream of the existing bridge, and the installation a temporary diversion bridge just downstream of the existing bridge spanning the river and carrying vehicular traffic. A temporary navigable channel for mariners will be maintained with reduced horizontal and vertical clearances for the duration of the project. The temporary channel will provide an horizontal clearance of at least 40 feet and vertical clearance of at least 17.4 feet from the ordinary highwater elevation (OHW). A temporary river clearance gauge will be mounted to the bridge adjacent to the navigable channel at the upstream side of the temporary work bridge and at the downstream side of the diversion bridge. The river clearance gauge will be white with black letters and will show the actual vertical clearance between the water line and overhead obstructions above the navigable channel. Buoy lines, lighting, and signage will direct mariners through the temporary navigable channel and away from “no-entry” construction areas. The temporary navigable channel will be marked with a floating buoy line consisting of orange floating buoys fitted with white colored reflective tape and white flashing lights (FI W 4s) mounted at 100-foot intervals along the buoy line. Flashing yellow lights (FI Y 4s) will be installed on both the temporary diversion bridge and the temporary work bridge trestle at 100-foot intervals along the outside edge of each structure with one centered over the navigable channel at the upstream edge of the temporary work bridge and the downstream edge of the diversion bridge. Red (FI R 4s) and green (FI G 4s) lights will be mounted on the upstream edge of the temporary work bridge and the downstream edge of the diversion bridge, marking the reduced navigable channel limits. Informational signs (white with black lettering) will be mounted on the upstream side of the temporary work bridge and the downstream side of the temporary diversion bridge. Mariners are advised to use caution while transiting the area. A diagram of the placement of warning signs and buoys is included as enclosure (4) of this LNM. For more information contact Markus Schaaf, at (541) 757-4280 or email markus.schaaf@odot.oregon.gov

Throughout the Project submit Local Notices to Mariners as necessary to stay consistent with Contractor’s planned operations. The Local Notice to Mariners is published weekly every Tuesday. Submit information at least four weeks before an event or operation is scheduled to commence.

Materials

00232.10 Materials - Included is all temporary Materials and labor needed to meet the Work as shown and as detailed below. Also included are any modifications to these Materials made as a result of the Contractor's traffic control methods.

(a) Buoy Lines – Furnish round orange buoys with a minimum diameter of 16 inches that have a 3-inch reflective band near the top of each buoy. Space buoys 10 feet on center,

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with connecting ropes and anchors, for placement in the Willamette River. Buoy lines may consist of separate buoys with individual anchors, or strings of buoys anchored at the ends. Submit materials for approval prior to installing buoy lines.

(b) Temporary River Navigation Signs – Use Materials and signs according to Section 00222.

Construction

00232.40 General - Do not occupy or impede navigation in the river at any time, unless otherwise approved in writing.

(a) Buoy Lines - Install buoy lines at locations shown. Anchor securely, using as many anchors as required to keep buoy lines in indicated locations. Adjust anchor lines as needed due to changing river level or as required.

(b) Temporary River Navigation Signs – Install signs at locations shown or directed.

Maintenance

00232.60 Buoy lines and Temporary River Navigation Signs - Evaluate and maintain or immediately replace all unacceptable buoy lines and signs.

Measurement

00232.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00232.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following item:

Pay Item	Unit of Measurement
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(a) Temporary River Traffic Control.....	Lump Sum
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Payment will be payment in full for furnishing, installing, maintaining in good Working order, replacing, and removing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00237 - AGENCY-PROVIDED STAGING AREAS

Section 00237, is not a Standard Specification and is included in this Project by Special Provision.

Description

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00237.00 Scope - This Work consists of utilizing Agency provided prospective or mandatory staging areas as the Contractor elects or as required for the construction of the Contract.

Locate staging area(s) in previously improved area(s) that have been paved or compacted and graveled, unless otherwise shown or approved.

00237.01 Prospective Staging Areas - If the Contractor elects not to utilize the listed prospective staging areas or elects to use other or additional staging areas, 00290.10 applies.

(a) Prospective Staging Area, Musgrave Avenue Staging:

- **Location** – Portion of S22 T7S R3W Tax Lot 101, 297 Musgrave Ln NW, Salem
- **Access** – May be accessed from Glen Creek Road NW within Wallace Marine Park
- **Available Area** – 1.41 acres

(b) Prospective Staging Area, Division Street Staging- West:

- **Location** – Portion of S22 T7S R3W Tax Lot 2700, 170 Division Street NE, Salem
- **Access** – May be accessed via alley from Union Street NE or directly from Division Street NE
- **Available Area** – 0.81 acre

(c) Prospective Staging Area, Division Street Staging- East:

- **Location** – Portion of S22 T7S R3W Tax Lot 3200, 110 Division Street NE, Salem
- **Access** – May be accessed via alley from Union Street NE or directly from Division Street NE
- **Available Area** – 0.78 acre

(d) Prospective Staging Area, Wallace Marine Park - North:

- **Location** – Portion of S22 T7S R3W Tax Lot 100, No situs address
- **Access** – May be accessed via the access drive to the Wallace Marine Park boat ramp parking lot off Musgrave Ave NW.
- **Available Area** – 1.55 acre

(e) Prospective Staging Area, Wallace Marine Park - South:

- **Location** – Portion of S22 T7S R3W Tax Lot 100, No situs address
- **Access** – May be accessed via the access drive to the Wallace Marine Park boat ramp parking lot off Musgrave Ave NW.
- **Available Area** – 0.40 acre

(f) Prospective Staging Area, Riverfront Park Parking Lot:

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- **Location** – Portion of S22 T7S R3W Tax Lot 401, No situs address
Portion of S22 T7S R3W Tax Lot 500, 314 Water Street NE, Salem
Portion of S22 T7S R3W Tax Lot 600, 310 Water Street NE, Salem
- **Access** – May be accessed directly from Water St NE.
- **Available Area** – 1.06 acre

Delineate the limits of each site with temporary fence according to Section 00270 for the duration of the Project. Remove the fencing when the Project is complete and the site has been restored to preconstruction conditions. Do not stage Equipment, store Materials, or operate beyond the staging area boundary shown or delineated unless otherwise directed in writing.

If used, restore the site to preconstruction condition, as directed, by:

- Removing all imported fabric, rock, and other construction and non-combustible debris
- Removing all solid waste and hazardous materials, including spills, and dispose properly
- Removing work zone fencing
- Leveling and scarifying the ground
- Applying seed and mulch to all disturbed earth according to Section 01030

00237.41 Restrictions and Protection of Resources - Comply with the following for all operations within the staging area operations:

- Protect cultural resources according to 00290.50.
- Protect migratory birds according to 00290.36(a).

00237.47 Staging Area Vacating - Before vacating the staging area(s) the following apply:

- Remove all structures, construction debris and trash, and equipment from the staging area.
- Remove solid waste and hazardous material from the site and dispose of properly. Provide documentary evidence of proper disposal and verify the amount of material removed.
- If a spill or dumping has occurred or if a spill or dumping is suspected to have occurred, 00290.20(3)(g) applies.
- Attend a post-work meeting at each staging area to evaluate staging area rehabilitation work with the Engineer.

Measurement

00237.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

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00237.90 Payment - No separate or additional payment will be made for Work performed under this Section.

SECTION 00240 - TEMPORARY DRAINAGE FACILITIES

Comply with Section 00240 of the Standard Specifications modified as follows:

00240.40 Construction - Add the following paragraph at the end of this subsection:

Reconstruct, adjust and restore existing drainage facilities used in temporary drainage facilities as shown or directed according to Section 00470 and Section 00490.

00240.90 Payment – Replace this subsection, except for subsection number and title, with the following:

The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Temporary Drainage Facilities _____".

The location of the facility is inserted in the blank.

Payment will be payment in full for furnishing, placing, maintaining, and removing temporary drainage facilities, including reconstructing, adjusting and restoring existing drainage facilities used in the temporary drainage facilities as shown or directed and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00245 - TEMPORARY WATER MANAGEMENT

Section 00245 is not a Standard Specification and is included in this Project by Special Provision.

Description

00245.00 Scope - This Work consists of providing, installing, operating, maintaining, and removing temporary water management facilities in regulated Work areas.

00245.01 Abbreviations:

TWM - Temporary Water Management
TWMF - Temporary Water Management Facility
TWMP - Temporary Water Management Plan

00245.02 Definitions:

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Temporary Water Management Facility - A TWMP that conveys water around or through Work areas, removes water from Work areas, and treats and discharges water at locations outside Work areas.

00245.03 Temporary Water Management Plan - The Agency TWMP is a concept plan. 28 Calendar Days before beginning Work in regulated Work areas, submit stamped Working Drawings of a Contractor-developed TWMP, according to 00150.35, based on either the Agency's concept plan or an independent plan that meets water quality and environmental guideline requirements and does not negatively affect neighboring properties or water rights.

Include the following minimum information in the TWMP:

- The sequence and schedule for dewatering and re-watering, including when to contact the Engineer prior to dewatering and re-watering.
- How the Work area is isolated from the active stream flow upstream, through, and downstream.
- How the stream flow is routed and conveyed around or through the isolated Work area.
- How fish passage is provided around the Work area, if required.
- How the isolated Work area is de-watered.
- How the pumped water is treated, if necessary, before it is discharged downstream.
- Description of all construction stages, including appropriate contact points for each stage.
- A list of on-site backup Materials and Equipment.
- Provide the name of the TWM Subcontractor (if applicable) and Contractor's superintendent, and their 24-hour contact phone number 10 Days before the pre-Work meeting. If changes in the appointment of the TWM Subcontractor or Contractor's superintendent occur during the term of the Contract, provide written notice to the Engineer within 5 Calendar Days of the change.
- Calculations of water withdraw pump's capacity.
- Details of the proposed water intake screen used to isolate in-water Work area and how it meets the requirements of 00290.34(c)(3).

Any change to the TWMP during construction requires approval prior to implementation.

Obtain the Engineer's written approval before beginning Work in in-water Work areas.

00245.04 Pre-Work Meeting - Before beginning any TWM Work, attend a pre-work meeting at the Project Site with the Engineer no more than 8 Calendar Days prior to implementation of TWM. Required meeting attendees include:

- Engineer
- Contractor
- TWM Subcontractor (if applicable)
- Agency Environmental Coordinator or their appointed representative

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The pre-Work meeting agenda typically includes the method of TWM, the TWMP, fish salvage plan and strategy, describe environmental risks, turbidity monitoring, energy dissipation, dewatering and re-watering plan and strategy, site clean-up expectations, and the circumstances when contacting the Engineer is required.

Materials

00245.10 Materials - Furnish Materials meeting the following requirements:

Pipe	00445.11
Plastic Sheeting	00280.14(a)
Riprap	00390.11
Sandbags.....	00280.15(a)
Water Intake Screening.....	00290.34(c)

Provide pumps that are:

- Self-priming.
- Equipped with a variable speed governor.
- Equipped with a power source.
- Able to pump water that contains soft and hard solid.

Construction

00245.40 Fish Removal - Qualified Agency, ODFW, or ODOT consultant biologists will remove fish and other aquatic organisms from the isolation Work areas. Coordinate fish removal with the Engineer at least 28 Calendar Days before beginning Work in regulated Work areas. Allow access into the isolation Work areas before, during and after installation of the TWMF to perform the specified tasks as follows:

- **Before Installation of TWMF** - Before any in-water Work, including installing TWMF, qualified personnel will remove fish and other native aquatic organisms from within the proposed isolated Work area.
- **After Installation of TWMF** - After installing TWMF and the reduction of the water level through the isolated Work area has begun, qualified personnel will remove all fish and aquatic organisms as the water level is reduced. Do not completely de-water the isolation area until all fish and aquatic organisms have been removed.

00245.41 Installation - During installation of the temporary water management facility, maintain a downstream water flow rate of at least 50 percent of the upstream water flow rate.

00245.42 Operation - Operate temporary water management as follows:

- Protect fish and fish habitat according to 00290.34.
- Maintain and control water flow downstream of the isolated Work area for the duration of the diversion to prevent downstream de-watering.
- Clean, maintain and repair water intake screening to ensure adequate flows and protection of aquatic organisms.

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- In the event of containment failure immediately notify the Engineer so arrangements can be made to remove fish and aquatic organisms from the isolation Work areas prior to the continuation of Work within the ordinary high water limits.

Maintenance

00245.60 Maintenance - Monitor water turbidity according to 00290.30(a)(8).

Finishing and Cleaning Up

00245.70 Removal - Prior to removal of the TWMF, obtain approval from the Engineer after completion of all Work within ordinary high water limits. Remove the TWMF and re-water and restore the stream flow. Maintain downstream water flow during removal of the facility. Staged or metered re-watering may be required as determined by the Engineer.

Measurement

00245.80 Measurement - No measurement of quantities will be made for temporary water management facilities.

The estimated quantities of Materials required for the temporary water management facility are:

Temporary Water Management Facility at Station "CE" 41+80:	
Pipe	80 Feet
Plastic Sheeting	361 Square Yard
Riprap	4 Cubic Yard
Sandbags	9750 Each

Turbidity monitoring will be measured according to 00290.80.

Payment

00245.90 Payment - The accepted quantities of temporary water management facilities will be paid for at the Contract lump sum amount for the item "Temporary Water Management Facility at Station _____".

The location of the facility is inserted in the blank.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Turbidity monitoring will be paid for according to 00290.90.

No separate or additional payment will be made for TWMP, maintaining, operating, monitoring, moving, or removing the facility.

SECTION 00252 - TEMPORARY WORK BRIDGES

Section 00252 is not a Standard Specification and is included in this Project by Special Provision.

Description

00252.00 Scope - This Work consists of designing (if applicable), constructing, maintaining, and removing temporary work bridges or trestles necessary to construct the new structure.

Materials

00252.10 Material - Furnish materials for temporary work bridges or trestles meeting the requirements of the applicable Sections of Part 00500.

Construction

00252.40 Construction - Provide stamped Working Drawings and calculations of the work bridges or trestles according to 00150.35.

Design work bridges or trestles according to AASHTO *Guide Design Specifications for Bridge Temporary Works*.

Construct work bridges or trestles at the locations shown and according to AASHTO *Construction Hand Book for Bridge Temporary Works*.

Construct the work bridges or trestles so they satisfy all the requirements of applicable permitting agencies.

Maintenance

00252.60 Maintenance - Maintain work bridges or trestles in a safe and functional condition.

Provide and place suitable approved barriers on or near the work bridges or trestles to prevent public access.

Finishing and Cleaning Up

00252.70 Structure Removal - When the temporary work bridges or trestles are no longer needed, remove them according to Section 00310.

Satisfy all requirements of applicable permitting agencies during work bridge or trestle removal.

Restore all areas occupied by the work bridges or trestles to original condition.

Measurement

00252.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00252.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Temporary Work Bridges".

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for designing, constructing, maintaining, or removing temporary work bridges.

SECTION 00253 - TEMPORARY WORK ACCESS AND CONTAINMENT

Comply with Section 00253 of the Standard Specifications modified as follows:

00253.00 Scope – Replace the bullet that begins with "Temporary access to the Work via..." with the following bullet:

- Temporary work access to the Work via platforms, scaffolding, barges, and mobile access equipment (such as manlifts and boom trucks with personnel baskets)

Add the following paragraphs to the end of this subsection:

On Structure No. 00123K, provide temporary work access and containment systems for seismic retrofit and waterline installation work on spans 14 through 28.

On Structure No. 00123G, provide temporary work access and containment systems for seismic retrofit work on spans 1 through 5.

On Structure No. 22519, provide temporary work access and containment systems for seismic retrofit work on spans 1 through 2.

On Structure No. 22524, provide temporary work access and containment systems for seismic retrofit work on spans 4 through 6.

See Section 00252 for temporary work bridges.

00253.03(a) Work Access Submittal - Replace the bullet that begins "Maximum wind speed ..." with the following bullet:

- Maximum wind speed where work access structure(s) may remain on the Structure

00253.03(b) Work Containment Submittal - Replace the bullet that begins "Maximum wind speed ..." with the following bullet:

- Maximum wind speed where containment wall materials may remain on the Structure.

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00253.04 Design Services - Replace the paragraph that begins "If barges will be ..." with the following paragraph:

If barges are used, provide marine design services by an engineer licensed in the State of Oregon to practice in the field of Naval Architecture and Marine Engineering or other Professional Engineer licensed in the State of Oregon with relevant naval architecture experience as accepted by the Engineer.

00253.05 Containment Requirements - Add the following paragraph to the end of this subsection:

Contain work debris and protect the surrounding environment from bridge Work as specified according to 00290.30 and the approved Work Containment Plan specified in 00290.42.

00253.07 Work Bridge Structural Design Requirements - Replace this subsection, except for the subsection number and title, with the following:

Unless otherwise specified in Section 00252, design work Bridges according to *AASHTO Guide Design Specifications for Bridge Temporary Works*. Provide materials for temporary work Bridges meeting the requirements of the applicable Sections of Part 00500. Comply with all requirements of applicable permitting agencies according to Section 00290.

00253.08(a) Contractor-Designed – Add the following to the end of the sentence beginning with "For Contractor-designed...."

And AASHTO Guide Design Specifications for Bridge Temporary Works.

Replace the bullet that begins "Detail the anchoring system ..." with the following bullet:

- Detail the anchoring system that is used to connect the temporary platform or scaffolding to the existing Structure.

Add the following to the end of this subsection:

Design and construct work platforms and scaffolding to support the total applied loads and provide enough redundancy in the design to prevent a failure of the entire system.

Add the following subsection:

00253.44 Marine Traffic Restrictions - Bridge No. 00123K may not be closed to marine traffic.

00253.45 Navigation Lighting - Replace the paragraph that begins "Mark each work platform ..." with the following paragraph:

Mark each work platform with flashing yellow lights along the outside edge at 100-foot intervals. Mark each work platform from the outer end near the navigation channel to the first set of pilings near the bank. Provide flashing yellow lights visible to boat traffic from either side of the platform. Flashing yellow lights may be equivalent to flashing yellow lights on construction barricades.

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00253.90 Payment – Replace the paragraph that begins with “The accepted quantities of work access...” with the following paragraph:

The accepted quantities of work access and containment, including barges, work platforms, scaffolding, containment Structures, and heating and ventilation will be paid for at the Contract Lump Sum amount for the item “Temporary Work Access and Containment”.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph that begins with “No separate or additional payment...” with the following paragraph:

No separate or additional payment will be made for designing, installing, maintaining, and removing work access and containment, including barges, work platforms, scaffolding, containment Structures, heating and ventilation, or restoring the existing Structure.

Add the following paragraph to the end of this subsection:

Temporary work bridges will be paid according to Section 00252.

SECTION 00255 - TEMPORARY BRIDGE JACKING

Section 00255 is not a Standard Specification and is included in this Project by Special Provision.

Description

00255.00 Scope - This Work consists of temporarily shoring existing spans as shown using Jacking Support Systems. The Work includes designing, furnishing, installing, monitoring, and removing the Temporary Jacking System.

00255.01 Definitions:

Agency’s Conceptual Plan – A conceptual plan to temporarily support, raise, or lower the bridge as shown. The Agency’s Conceptual Plan may or may not represent a complete Jacking Support System.

Jacking Support System – A system that includes all components necessary to safely support and transfer loads during jacking operations and temporarily support and brace the bridge between jacking operations. This includes jacking equipment, temporary support seats, falsework jacking bents, temporary corbels, and any other structural elements required to facilitate load transfer, alignment, and stability during the jacking process and performance of the Work which requires bridge jacking.

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Global Analysis – The evaluation of the load path from the Superstructure through the Substructure to the foundation and evaluation of all structural elements where the temporary load path may create a more critical loading situation than the existing condition.

Partial Global Analysis – The evaluation of the load path through portions of the Superstructure or Substructure where it can be shown that the remainder of the load path is either unchanged from the existing condition or unchanged from the Agency's Conceptual Plan. A Partial Global Analysis includes a clear depiction of the entire load path from the Superstructure through the Substructure to the foundation and analysis of all structural elements where the variation in load path from either the existing condition or the Agency's Conceptual Plan results in a more critical load condition than the existing condition or the Agency's Conceptual Plan, as applicable.

Local Analysis – The evaluation of specific elements and connections directly involved in jacking operations such as girder webs at jacking points, diaphragms, bearing seats, and temporary support interfaces.

00255.02 Plans - Plans for the existing Structure are available from the Engineer upon request.

00255.03 Submittals - Submit a stamped and detailed bridge jacking work plan according to 00150.35, to the Engineer for review at least 28 Days prior to bridge jacking work.

Include the following information in the submittal, as applicable to the proposed jacking and temporary support configuration and site conditions:

- Plans for the Jacking Support System which illustrate the structural configuration at each stage of construction, including all components supporting or bracing the Structure and all attachments to the Structure. Include any required temporary or permanent stiffening or strengthening of existing bridge members.
- Descriptions of jacking equipment to be used. Include the sizes, strokes, and capacities of jacking cylinders and capacities of associated pumps.
- Detailed descriptions of installation and operation sequences for the Jacking Support System and jacking equipment, including instructions describing maximum differential displacements, how to complete the Work without exceeding the maximum displacements, how to monitor bridge displacements, and how to safely release pressure in the jacking equipment.
- Detailed calculations for the Jacking Support System demonstrating compliance with 00255.20 as applicable.

During construction, submit displacement monitoring records prepared according to 00255.40(c) at the times specified.

This review does not relieve the Contractor of the responsibility for the safety of the method or Equipment. Do not perform Work until the work plan has been approved by the Engineer and all comments are adequately addressed.

Design Criteria

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00255.20 General - Design the Jacking Support System according to the current AASHTO LRFD Bridge Design Specifications, the AASHTO Guide Design Specifications for Bridge Temporary Works, and the jacking load diagram as shown. Design the temporary support to carry all Structure dead loads, live loads if allowed, construction loads and lateral design forces, as well as any additional loads resulting from jacking equipment and activities.

Explicitly account for lateral loads including wind, temperature induced movements, live loads, and other lateral forces as applicable. At a minimum, the horizontal load to be resisted in any direction for the Jacking Support System and temporary bracing is:

- The sum of actual horizontal loads due to Equipment, construction sequence, or other causes plus an allowance for wind load, and
- Not less than 2 percent of the total dead load of the Structure being jacked.

Design temporary supports which carry traffic live loads permitted during the Work that use only mechanical means. Hydraulic support is not allowed.

Design the Jacking Support System with cross-bracing or other appropriate measures to prevent differential movement or lateral displacement of the Superstructure and Substructure. Incorporate positive restraint systems for lateral loads to maintain the geometry and stability of the Structure.

Include a redundant support system at each hydraulic jack location which can be adjusted to continuously maintain a means of mechanical support for the Structure within 1/4 inch of the bottom of the Structure during jacking operations.

(a) Agency's Conceptual Plan - Design the Jacking Support System to substantially conform to the conceptual jacking plan shown. Perform Local Analysis as required to demonstrate adequacy of structural elements included in the Jacking Support System which are not fully detailed in the Agency's Conceptual Plan.

Where the proposed Jacking Support System results in a load path which locally differs from the Agency's conceptual plan, perform a Partial Global Analysis to demonstrate a satisfactory load path. Where loads or load paths have changed, verify that the Structure can safely accommodate the jacking operations, load redistributions, temporary construction loads, and all other relevant load cases. Address stability, strength, serviceability, and lateral load considerations. Design temporary supports that do not induce permanent forces into the completed Structure. Provide details to temporarily strengthen existing bridge members if required.

The use of comparative analysis methods to demonstrate that proposed member loadings are not more critical than either the existing condition or the Agency's Conceptual Plan is acceptable in lieu of strength evaluation of existing members.

(b) Alternative Jacking Plan – When no conceptual jacking plan is shown or when the Agency's conceptual jacking plan is not followed, design and detail a complete Jacking Support System.

Perform a Global and Local Analysis to determine loads on all members in the Jacking Support System and all existing bridge members for which a load path has changed. Verify that the Structure can safely accommodate the jacking operations, load redistributions,

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temporary construction loads, and all other relevant load cases. Address stability, strength, serviceability, and lateral load considerations. Design temporary supports that do not induce permanent forces into the completed Structure. Provide details to temporarily strengthen existing bridge members if required.

The use of comparative analysis methods to demonstrate that proposed member loadings are not more critical than the existing condition is acceptable in lieu of strength evaluation of existing members.

Construction

00255.40 Jacking Operations:

(a) General - Control and monitor the jacking operations to ensure that the jacking loads are applied simultaneously to prevent distortion and excessive stresses that would damage the Structure. Adjust the redundant mechanical support system to be within 1/4 inch of the bottom of the Structure at all times during jacking operations.

Equip each jack, or each group of jacks connected through a common manifold, with a pressure gauge, pressure transducer, or load cell capable of accurately determining the jacking force. If a common manifold is used, provide a monitoring system that has adequate means to verify uniform force distribution to each jack and detect any imbalance or malfunction. Where precise control of individual jack loads is required due to Structure geometry, differential reactions, or site conditions, provide individual monitoring for each jack. Provide each pressure gauge with an accurate reading dial at least 4 inches in diameter. Provide each load cell with an indicator to determine the jacking force.

Before starting full jacking activities at a supported location, pre-load the Jacking Support System using an initial force equal to approximately 60 percent of the estimated dead load or the initial jacking load shown. Hold this load to allow for initial seating, compression, and settlement of the temporary support system.

After verifying system stability and uniform response, gradually increase the jacking force to achieve the target lift-off load necessary to support the full dead load of the Structure. During jacking activities, apply loads simultaneously. During jacking and while the Jacking Support System is in use, maintain total vertical displacements at control points to less than 1/8 inch from the elevations recorded prior to jacking unless otherwise directed. Monitor Jacking Support System displacements according to 00255.40(c).

Once the Work requiring bridge jacking is completed and concrete members have reached the specified strength for subsequent loading shown, transfer the weight of the Structure to the final load path and remove the Jacking Support System.

(b) Jacking Equipment - Calibrate each jack within 6 months of use and after each repair. Provide each jack and its gauge that:

- Is calibrated as a unit with the cylinder extension in the approximate position at the final jacking force.
- Is accompanied by a certified calibration chart. Calibrate each load cell by an authorized laboratory.

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(c) Displacement monitoring - Perform an initial survey of vertical and horizontal control points to record the location of the Structure before starting work. Locate control points on the bridge rail or edge of deck at the following locations:

- At the location of jacking
- At midspan of any adjacent span

Locate additional control points on the face of concrete Substructure at or below the point of jacking. Use vandal-resistant displacement monitoring equipment.

At a minimum, record the horizontal and vertical position of the Structure at the control points at the following times:

- Before starting jacking activities
- Immediately after completing jacking
- Weekly while Jacking Support System is in use
- After completing associated bridge removal at each stage
- After completing bridge reconstruction at each stage
- Before connecting the associated Superstructure to the Substructure
- After removing the Jacking Support System

(d) Unanticipated Displacements - If, during construction, unanticipated displacements, cracking or other damage occur, do the following:

- Discontinue the construction until corrective measures satisfactory to the Engineer are performed.
- Repair damage to the structure as a result of the Contractor's operations.

Measurement

00255.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00255.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Bridge Jacking at Bent _____".

The Bent number is inserted in the blank.

Payment will be payment in full for providing the bridge jacking work plan, furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for designing, constructing, maintaining, inspecting, or removing the temporary Jacking Support System.

SECTION 00270 - TEMPORARY FENCES

Comply with Section 00270 of the Standard Specifications as modified:

Add the following subsection:

00270.01 Coordination - The Agency will provide a qualified, Agency contracted, hazmat contractor to remove biological hazards and personal properties from the Work Areas. Coordinate and submit hazardous item and personal property removal needs according to 00170.08, including locations and Work schedule, to the Engineer and Agency hazmat contractor at least 28 Calendar Days before beginning Work in these locations. Allow Agency hazmat contractor access to the Work areas needing hazardous item and personal property removal before, during and after the Work.

- **Before hazardous item removal** - Before any hazardous item or personal property removal Work, furnish all Materials and Equipment on hand for Contractor installed temporary fencing.
- **After hazardous item removal** – Immediately after the Agency hazmat contractor has removed all hazardous items and personal properties, install temporary fencing to surround the Work areas as directed. If hazardous items are found within the temporary fenced area, immediately contact the Engineer and Agency hazmat contractor.

Upon Contractor notification to the Engineer, according to 00170.08, that hazardous items and personal properties are found, the Agency will have 21 Days to remove items, identified by the Contractor, from the Work Area. No additional Contract Time or cost to the Agency will be considered or approved when the Agency removes Contractor identified hazardous items and personal property in the Work Area, within 21 Days of Contractor notice.

00270.10 Material - Replace the sentence that begins “Provide new Material...” with the following paragraph:

Furnish new Material meeting the requirements of 01050.10. Used Materials in like new condition may be furnished if approved. See 00270.70.

00270.40 Construction – Replace this subsection, except for subsection number and title, with the following:

Construct temporary fences, gates, and gateways as directed or as approved according to the applicable parts of Section 01050.

00270.80 Measurement – Replace the sentence that begins “Measurement will be from center to center...” with the following sentences:

Measurement will be from center to center of posts, measured along the line and grade of each separate continuous run of fence as constructed, including gates. The quantities of temporary fencing will be limited to the initial installation of quantities necessary to surround the Work areas as directed, unless otherwise specified.

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Delete the sentence that begins “The quantities of temporary gates will...”.

00270.90 Payment – Delete Pay Item (b).

Replace the sentence that begins “In item (a) the type ...” with the following paragraph:

In item (a) the type of fence is inserted in the blank.

Replace the sentence that begins “Payment will be payment...” with the following paragraph:

Payment will be payment in full for furnishing, placing, maintaining, and removing all Materials, including the temporary barrier, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00280 - EROSION AND SEDIMENT CONTROL

Comply with Section 00280 of the Standard Specifications modified as follows:

00280.00 Scope - Replace the paragraph that begins "This Work also consists of providing temporary ..." with the following paragraphs and bullets:

This Work also consists of providing temporary erosion and sediment control (ESC) measures and furnishing, installing, moving, operating, maintaining, inspecting, and removing ESC throughout the Project area according to the Standard Drawings, the erosion and sediment control plan (ESCP), the Specifications, or as directed, until the site is permanently stabilized. Included also is the monitoring of weather, of stormwater and receiving waters, the reporting of monitoring observations, the reporting of corrective actions (when necessary) and the updates and revisions of the ESCP, including ESCP cover sheet, necessary to keep it representative of current site conditions and compliant with the NPDES 1200-CA, 1200-CN, OR 1200-C permit if applicable.

Conditions requiring NPDES 1200 permits are as follows:

- Projects with one acre of ground disturbance or more on Agency owned land are regulated under the Agency's 1200-CA permit.
- When Project Work on Agency owned land disturbs less than one acre, but ground disturbances on non-Agency owned lands combined with Project ground disturbances on Agency owned land total one acre or more the Agency Project Work will be regulated by the Agency's 1200-CA permit. The Contractor is responsible for acquiring the 1200-C permit for all areas of disturbance on non-Agency owned land.

When the combined areas of disturbance of all Project related activities is less than one acre, no NPDES 1200 permit coverage is required.

The area of ground disturbance on Agency owned land is 1.8 acres.

Delete the paragraph that begins “When contaminants, pollutants or hazardous materials...”.

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Add the following paragraph to the end of this subsection:

The Agency's NPDES 1200-CA permit is applicable to the Project.

00280.01 Abbreviations - Replace this subsection with the following subsection:

00280.01 Abbreviations and Definitions:

BMP - Best Management Practices
EMP - Environmental Management Plan
ESC - Erosion and Sediment Controls
ESCP - Erosion and Sediment Control Plan
ESCM - Erosion and Sediment Control Manager

Effective Functioning - Preventing Erosion, controlling Runoff, or controlling Sediment in each location where an ESC is needed so Erosion-related impacts of site construction are mitigated as required.

Erosion - The wearing away of the land surface by water, wind, ice, gravity or other geological agents.

Perimeter Controls - Perimeter Controls include sediment fences, ditches, filter berms in flatter areas, and other methods for preventing Sediment and other construction-generated pollutants from leaving the construction site.

Permanent Stabilization - Maintenance-free measures or methods necessary to prevent Erosion or Sediments from leaving the Project Site.

Runoff - That portion of precipitation that flows from drainage area on the land surface, in open channels or in stormwater conveyance systems.

Sediment - Fragmented material originated from weathering and Erosion of Rock and unconsolidated deposits. Sediment also includes fragmented materials from man-made materials. The material is transported by, suspended in, or deposited by water.

Temporary Stabilization - Covering soil or other measures to prevent Erosion until Permanent Stabilization measures are in place and established.

00280.02 Definitions - Replace this subsection with the following subsection:

00280.02 Submittals - Submit documentation that the compost material meets the requirements of Section 03020 for its intended use and is available for use according to the Project schedule in 00180.41 according to 00150.37, within 30 Calendar Days of Award of the Contract.

00280.04 Erosion and Sediment Control Plan on Agency Controlled Lands - Replace the bullet that begins "Information required under 1200-CA..." with the following bullet:

- Information required under 1200-CA permit, if applicable.

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Replace the bullet that begins "When using a Contractor developed ..." with the following bullet:

- When using a Contractor developed ESCP, develop, provide, and stamp the ESCP by a professional with one of the following credentials. Include their name and credentials in the ESCP.

Replace the paragraph that begins "Ensure that the Contractor's construction ESCP ..." with the following paragraph:

Ensure that the Contractor's construction ESCP and implementation schedules are prepared by an individual who meets qualifications of 00280.30. Provide a signed copy of the ESCP with individual's name, title, state certifications, and employing firm if different than Contractor's firm.

Add the following paragraphs to the end of this subsection:

When required on the Project fill in the required information listed on the ESCP cover sheet prior to the beginning of construction and submit revised cover sheet to Engineer 10 Days before the preconstruction meeting. Monitor weather, stormwater runoff, and receiving waters, and document monitoring observations. Immediately upon discovery, notify Engineer if a 1200-CA permit non-compliance occurs. Provide updates and revisions of the ESCP, including ESCP cover sheet, necessary to keep it representative of current site conditions and compliant with the 1200-CA permit.

When contaminants, pollutants or hazardous materials are discovered in the Project location in soils or groundwater comply with 00290.20(f), and provide an environmental management plan (EMP) as required by the 1200-CA permit if applicable.

00280.14(a) Plastic Sheeting - Replace the bullet that begins "**Plastic Sheeting** - Minimum 6-mil thick..." with the following bullet:

- **Plastic Sheeting** - Minimum 6-mil thick polyethylene plastic sheeting or plastic sheeting that meets or exceeds the performance properties outlined in ASTM D4397.

Replace the bullet that begins "**Rock** – Class 50..." with the following bullet:

- Class 50 riprap according to Section 00390.

00280.14(f) Compost Erosion Blanket – Add the following to the end of this subsection:

Furnish plantain based tackifier when applying compost erosion blanket during rainfall or within 48 hours after rainfall.

00280.15(a) Check Dams - Replace the bullet that begins "**Type 5: Prefabricated System** - Prefabricated ..." with the following bullet:

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- **Type 5: Prefabricated System** - Prefabricated check dam system according to the manufacturer's recommendations and on the QPL. Field fabricated systems are not acceptable.

00280.15(f)(1) Filter Sock Material - Add the following sentence to the end of this subsection:

Furnish filter sock Material with a diameter of 12 inches.

00280.16(a) Construction Entrances - Replace the bullet that begins “**Geotextile...**” with the following bullet:

- **Geotextile** - Riprap geotextile meeting the requirements of 02320.20 Table 02320-2. Provide documentation according to 02320.10(c).

Replace the bullet that begins “**Prefabricated Construction Entrance ...**” with the following bullet:

- **Prefabricated Construction Entrance** - Provide reusable prefabricated construction entrance mats (track out mats) with the following characteristics:

00280.16(c) Sediment Fence - Replace the bullet that begins “**Geotextile...**” with the following bullet:

- **Geotextile** - Geotextile meeting requirements of 02320.20 Table 02320-3. Provide documentation according to 02320.10(c).

00280.16(d) Inlet Protection - Replace the bullet that begins “**Geotextile...**” with the following bullet:

- **Geotextile** - Type 1 geotextile meeting the requirements of 02320.20 Table 02320-1. Provide documentation according to 02320.10(c).

Replace the bullet that begins “Sand bags conforming...” with the following bullet:

- Sandbags according to 00280.15(a).

00280.16(i) Concrete Washout - Replace the paragraph that begins "Furnish impermeable, spill resistant ..." with the following paragraph:

Provide impermeable, spill resistant, leak proof concrete washout basin of sufficient size and quantity to retain all concrete wash water and concrete waste developed during construction, meeting the following requirements:

00280.16(k) Active Treatment System - Add the following sentence to the end of this subsection:

Obtain approval of the active treatment system from DEQ prior to use.

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00280.30 Erosion and Sediment Control Manager - Add the following bullet to the beginning of the bullet list under “The ESCM duties include:”

- Be present at the Project Site during all ground disturbing activities.

Replace the bullet that begins “Monitor rainfall, snow melt and runoff ...” with the following bullet:

- Visually monitor rainfall, snow melt and runoff at the Project Site.

Replace the bullet that begins “Monitor water quality in receiving streams in ...” with the following bullet:

- Visually monitor water quality in receiving streams in the vicinity of the Project Site.

Replace the bullet that begins “Monitor water in sediment traps receiving ...” with the following bullet:

- Monitor the pH of the water in sediment traps receiving runoff from soils amended with cementitious material for acidity or alkalinity.

Add the following bullet to the end of the bullet list:

- Monitor locations identified in Section 00294 for compliance.

00280.41(a) Disturbance Limits - Replace this subsection, except for the subsection number and title, with the following:

Prior to any ground disturbing activity, delineate all construction site clearing limits with high visibility markings and do not disturb areas outside the clearing limits. Prior to beginning construction activities, delineate and protect riparian areas including trees, root zones and vegetation to be preserved and delineate and protect vegetated buffer zones according to 00280.41(e). Protect post-construction stormwater facilities, unless used during construction as sediment trap, then repair according to 00280.46(h).

00280.41(c) Wet Season Work and Temporary Work Suspension - Replace this subsection with the following subsection:

00280.41(c) Temporary Work Interruption - Update the ESCP and schedule for Work proposed between October 1 and May 31 to ensure that all appropriate controls, including ESC during Work interruption, are implemented and maintained. Submit the updated ESCP and schedule to the Agency and receive approval before beginning any Work between October 1 and May 31.

Between October 1 and May 31, limit excavation and bare ground activities to only those required for immediate operations. Stabilize stockpiles at the end of each workday by diverting flows, placing covers, or installing Sediment barriers.

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00280.41(d) Disturbance Restrictions - Replace this subsection, except for the subsection number and title, with the following:

Limit the amount of disturbed areas to what can be effectively controlled.

00280.41(f) Hauling Material - Replace this subsection, except for the subsection number and title, with the following:

Cover loads carrying soil or sediment that may generate dust. Haul saturated loads in watertight beds or drain saturated loads prior to leaving the Project Site.

00280.41(g) Underground Injection Controls (UIC) - Replace this subsection, except for the subsection number and title, with the following:

Do not allow storm water from work area to enter Underground Injection Control (UIC) inlets, UIC catch basins or UIC wells.

00280.44(d) Temporary and Permanent Mulching and Seeding - Replace the bullet that begins "**Mulching** - Evenly apply ..." with the following bullet:

- **Mulching** - Evenly apply dry mulch and tackifier materials according to Section 01030. In areas not accessible to heavy Equipment, mulch by hand or by other approved methods. Areas not prepared according to 01040.48(d) require a greater rate of application to obtain complete coverage, at no additional cost to the Agency.

00280.48 Emergency Materials - Add the following paragraphs after the paragraph that begins "Provide, stockpile, and protect...":

Furnish and stockpile the following emergency Materials on the Project Site:

Item	Quantity
Plastic Sheeting	100 SqYd
Matting, Type C.....	750 SqYd
Straw Bale	30 Ea
Sediment Barrier, Type 3	100 Ft

When emergency materials are used, restock emergency materials within 48 hours of use.

00280.61 Ineffective Controls - Replace this subsection, except for the subsection number and title, with the following:

If an ESC device does not meet Effective Functioning, repair, replace, or provide additional devices. Provide devices repaired, replaced, or added due to improper installation, insufficient maintenance, or damage from Contractor operations at no additional cost to the Agency.

00280.62 Inspecting and Monitoring - Delete the paragraph that begins "Inspect the Project Site...".

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00280.62(a) Inspection - Replace the paragraph that begins "Perform site inspection, complete..." with the following paragraph:

Inspect the Project Site and all ESC devices for Effective Function and potential erosion or sediment movement and complete all applicable parts of the ODOT Erosion Control Monitoring Form, and submit the form to the Agency as follows:

00280.62(b) Rainfall - Replace this subsection, except for the subsection number and title, with the following:

Provide and install a temporary rain gauge at the Project Site. Upon approval, storm event information may be derived from weather stations that are representative of precipitation levels at the site.

The closest on-line rain gauge is located at:
forecast.weather.gov/MapClick.php?lat=44.90493&lon=-123.00096&unit=0&lg=english&FcstType=graphical

00280.64(a) Corrective Action Timelines - Delete the bullet that begins "If completion of corrective action is not feasible..."

Delete the bullet that begins "Provide a schedule for clean-up and corrective actions..."

Delete the bullet that begins "Provide all corrective action documentation and photographs..."

00280.64(b) Corrective Action Documentation - Add the following bullets to the beginning of the bullet list:

- If completion of corrective action is not feasible within 24 hours, document the reasons why the time line cannot be met.
- A schedule for clean-up and corrective actions that restores Effective Functioning as soon as feasible. If schedule cannot be met document the reasons for the delay.
- All corrective action documentation and photographs to Agency within 24 hours of completion of corrective actions.

00280.90 Payment - Replace the paragraph that begins "In item (f), the word ..." with the following paragraph:

In item (f), the word "Hydromulch", "Straw", or "Compost" is inserted in the blank.

Replace the paragraph that begins "In items (g), the ..." with the following paragraph:

In item (g), the type is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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00280.91 Payment – Replace the paragraph that begins “In items (a), (f), (g)...” with the following paragraph:

In items (a), (f), (g), (j), and (k), the type is inserted in the blank.

Replace the paragraph that begins “Emergency Materials that are incorporated...” with the following paragraph:

Materials listed in 00280.48 that are incorporated into the Project will be paid for under the appropriate items listed in the Contract Schedule of Items.

Replace the paragraph that begins “Payment will be payment ...” with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00290 - ENVIRONMENTAL PROTECTION

Comply with Section 00290 of the Standard Specifications modified as follows:

00290.00 Scope - Replace the paragraph that begins “If any provision of the Specifications ...” with the following paragraph:

If any provision of the Specifications appears to conflict with one or more Laws, the more stringent requirement applies, unless the Engineer directs otherwise in situations where the Specifications are more stringent.

00290.10 Staging and Disposal Sites - Replace the paragraph that begins “Locate staging areas...” with the following paragraph:

Locate staging areas and disposal sites in previously improved or disturbed sites, including existing Roadways, pullouts, turnouts, parking lots, and storage yards that have been compacted, and graveled or paved, unless otherwise specified in Section 00237 or approved, in writing, by the Engineer.

00290.20(c)(2) Clean Fill - Add the following paragraph to the end of this subsection:

Manage all excavated soil that does not meet the definition of clean fill according to Section 00294.

00290.20(c)(3)d. Concrete and Masonry - Replace the paragraph that begins "If the Engineer provides written ..." with the following paragraph:

If the Engineer provides written approval, concrete may be reused as Aggregate as directed.

00290.20(c)(3)f. Off-Site Disposal - Replace the paragraph that begins "Subject to local zoning codes ..." with the following paragraph:

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Subject to local zoning codes and the requirements of 00280.05, materials that meet the definition of clean fill may be placed on other properties in a manner consistent with environmental requirements, and with the written permission of the property owner. Provide the Engineer a copy of the signed agreement with the owner before placing the clean fill material. Do not place the clean fill material at locations that are visible from a public Highway, road, or street unless the site is zoned and licensed for landfill.

00290.20(d) Hazardous Waste Management - Replace the bullet that begins "Fill in the Comments section with ..." with the following bullet:

- Fill in the Comments section with the following statement:
"[Contractor name] is responsible for the following: All hazardous waste management on-site for the duration of this construction Project, for delivery of the waste to a permitted recycling or disposal facility, and for all forms and fees associated with the hazardous waste management including cancellation of the RCRA site identification number at the end of the Project. ODOT is the owner of the waste and maintains long-term responsibility for the waste as required by RCRA, excluding all wastes generated solely from materials brought to the site by the Contractor that remain the property of the Contractor."

Replace the bullet that begins "All employees involved in the handling ..." with the following bullet:

- The Contractor is responsible to ensure that all employees involved in the handling and waste management of CEG hazardous waste comply with the federal and State Laws for hazardous waste management. Train all employees involved in the handling of SQG and LQG hazardous waste according to federal and State Laws. For LQG hazardous waste projects, keep employee training records on-site and readily available.

Replace the bullet that begins "If hazardous waste is treated on-site ..." with the following bullet:

- If hazardous waste is treated on-site, obtain approval from DEQ and the Engineer for each specific treatment or recycling process, treat wastes within accumulation tanks or closed containers that meet RCRA requirements, conduct treatment within the storage time for the applicable generator category, maintain current copies of all required notifications and waste analysis plans readily available on-site and request DEQ technical assistance prior to starting any on-site recycling or treatment.

00290.20(f) Unexpected Contamination - Replace the paragraph that begins "The Engineer will attempt to resolve ..." with the following paragraph:

The Engineer will attempt to resolve the unanticipated situation expeditiously according to 00140.40. Delays to Work due to the discovery of unexpected contamination may be considered for exclusion from Contract Time according to 00180.50(e).

00290.20(g) Spills and Releases - Replace the bullet that begins "Provide a written report to the Engineer ..." with the following bullet:

- Provide a written report to the Engineer, using the DEQ Spill/Release Report form, within 10 Calendar Days of completing spill response, but no more than 30 Calendar

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Days after the initial event. If the spill was reported to DEQ, submit the report to DEQ concurrently. Include a description of how to prevent future releases.

00290.30 Pollution Control - Replace the paragraph that begins "Prevent, control, and abate..." with the following paragraph:

Prevent, control, and abate pollution of the environment.

00290.30(a)(1) General - Replace this subsection, except for the subsection number and title, with the following:

- Do not allow any foreign substances or objects to enter waters of the State and U.S. that exceed regulated or permit limits.
- Do not cause turbidity in waters of the State and U.S. that exceeds regulated or permit limits.

Add the following subsection:

00290.30(a)(7) Water Quality:

- Do not discharge water contaminated by pollutants including sediment, drilling fluids and waste, concrete, grout, or water contained within a work area isolation, into any waters of the State or U.S. or conveyances draining thereto until it has been treated using Materials such as those listed in 00280.15 or 00280.16 or by pumping to a vegetated upland location. Do not allow Project discharges to increase the concentration of any pollutant in the receiving water to a level that exceeds the limits prescribed by OAR 340-041.
- Do not use permanent stormwater quality treatment facilities to treat construction runoff unless prescribed by an ESCP approved under Section 00280.
- If construction discharge water is released using an outfall or diffuser port, do not exceed velocities more than 4 feet per second, and do not exceed an aperture size of 1 inch.
- Implement containment measures adequate to prevent pollutants from entering waters of the State or U.S. Such pollutants include but are not limited to construction and demolition materials, waste spoils, fuel or petroleum products, detergents, silt, welding slag and grindings, concrete sawcutting by-products and sandblasting abrasives.
- Do not allow curing concrete or grout to be submerged within waters of the State or U.S. less than 24 hours after placement, except within work area isolation. Do not end-dump riprap into the waters of the State or U.S. Place riprap from above the ordinary high water line.
- At least 21 Calendar Days prior to beginning Work within the special flood hazard area as defined by FEMA, submit and receive Engineer approval for a Flood Response Plan (FRP) according to 00150.37.

Include in the FRP the following:

- Names and contact information for responsible personnel available 24 hours per day during construction.

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- Identification of stream gages, river forecast points, National Weather Service forecast locations, and other monitoring sources to be used during construction.
- Site map showing:
 - Work areas.
 - Material storage areas.
 - Equipment staging areas.
 - Access and evacuation routes.
 - Location of the special flood hazard area
- Notification procedures.
- Equipment and Material removal procedures.
- Procedures for securing partially completed Work.
- Estimated time necessary to remove Equipment, Materials from the special flood hazard area.
- Trigger elevations and forecast conditions that initiate response actions.

Approval of the FRP does not relieve the Contractor of responsibility for protecting the Work.

Engineer reserves the right to require modifications to the FRP, at no additional cost to the Agency.

- Monitor weather and streamflow forecasts and conditions to anticipate high flows that may unintentionally inundate any portion of the Project Site. Notify the Engineer immediately when forecast stage is within 1 foot elevation of the lowest Work (trigger elevation), Material storage or Equipment staging area elevation. Provide updates as requested by the Engineer until conditions have stabilized.
- If the trigger elevation is met, remove all potentially affected Equipment, Materials, and debris from the potential inundation area and complete all flood response actions outlined in the approved FRP before inundation occurs. Cease Work in the area until water recedes and the risk of further high water events passes. The Engineer retains the authority to temporarily halt or modify the Work in case of excessive turbidity or damage to natural resources.
- If Work in or around waters of the State or U.S. violate permit conditions or any requirement of this subsection, stop such Work and notify the Engineer.

Add the following subsection:

00290.30(a)(8) Meter Turbidity Monitoring - In addition to the requirements of 00280.62(c) to monitor the receiving stream to identify water quality issues, during Work in waters of the State or U.S., implement best management practices (BMPs) to minimize turbidity, and monitor turbidity using a turbidity meter that has been maintained and calibrated according to the manufacturer's specifications and according to the following:

- Measure upcurrent and downcurrent turbidity at two-hour intervals and perform work based on turbidity measurements according to the following:
 - Take upcurrent samples at a location representative of background turbidity approximately 100 feet from the work area.

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- Take downcurrent samples at a location approximately 100 feet from the work area at approximately mid-depth of the water body and within any visible turbidity plume.
- If the downcurrent reading is less than 5 nephelometric turbidity units (NTU) higher than the upcurrent reading, continue to Work and take readings every two hours.
- If the downcurrent reading is greater than or equal to 5 and less than 30 NTU higher than the upcurrent reading, modify work procedures and repair or upgrade BMPs, continue Work, and continue to take readings every two hours. If after four hours the downcurrent reading is still greater than or equal to 5 NTU higher than the upcurrent reading, stop all work in water and repair or upgrade BMPs. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent reading.
- If the downcurrent reading is greater than or equal to 30 and less than 50 NTU higher than the upcurrent reading, modify work procedures, repair or upgrade BMPs and continue Work. If, at the subsequent two-hour reading, the downcurrent reading is still more than 30 NTU higher than the upcurrent reading, stop all work in water and repair or upgrade BMPs. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent NTU reading.
- If the downcurrent reading is 50 NTU or more higher than the upcurrent reading, stop all work in water, repair or upgrade BMPs, and inform the Engineer. Resume work in water only after the downcurrent reading is less than 5 NTU above the upcurrent NTU, as determined by continued readings made no more than two hours apart.
- Document all turbidity monitoring observations on form 734-2755, "Turbidity Monitoring Report", or another form approved by the Engineer. Submit reports to the Engineer weekly during work in water and keep copies of the reports at the Project Site.
- Meter turbidity monitoring may be temporarily suspended if all of the following conditions are met:
 - Temporary water management and work area isolation measures have been installed and are functioning as designed.
 - The Engineer, after consultation with DEQ, has authorized the suspension of turbidity monitoring. The Engineer will provide information to be documented on the turbidity monitoring form, including the date of the DEQ authorization and the name of the DEQ employee providing the authorization.
- Resume the turbidity monitoring protocol if Work during a temporary suspension of meter turbidity monitoring causes a release of a visible turbidity plume.

00290.32 Noise Control - Replace the bullet that begins "Notify nearby residents whenever extremely ..." with the following bullet:

- Notify nearby residents whenever extremely noisy Work is planned to occur.

Add the following paragraphs to the end of this subsection:

Do not perform loud noise exceeding 65 dB at 50-feet away during the following special events:

- Two events to be determined at least 9 months in advance of each event

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- Salem World Beat Festival: Typically, the last weekend in June
- Salem Iron Man Competition: Last or second to last weekend in July

00290.34 Protection of Fish and Fish Habitat - Add the following paragraph:

Meet with the Agency Biologist, Resource Representative, Engineer, and inspector on site, before moving equipment on-site or beginning any work, to ensure that all parties understand the locations of sensitive biological sites and the measures that are required to be taken to protect them.

00290.34(a) Regulated Work Areas - Add the following to the end of this subsection:

The regulated work area is the area at or below the ordinary high water (OHW) elevation shown on the plans.

Perform work within the regulated work area only during the in-water work period. The in-water work period is from June 1st to October 31st.

Do not exceed 63,792 cubic yards total volume of material filled or discharged into waters of the State and waters of the U.S..

Do not exceed 43,187 cubic yards total volume of material excavated from the waters of the State and waters of the U.S..

Submit a schedule to complete all work within the regulated work area within the in-water work period at least 10 Days prior to the preconstruction conference.

00290.34(b) Prohibited Operations - Add the following to the end of this subsection:

- Allow entry within the regulated work area or between stations.
- Install steel piles greater than 24 inches in diameter or H-pile larger than designation HP 24 within the regulated work area.

Add the following subsection:

00290.34(c) Aquatic Species Protection Measures Required by Environmental Permits:

(1) General Requirements:

- Do not install fish ladders (for example: pool and weirs, vertical slots, fishways) or fish trapping systems.
- Do not apply surface fertilizer within 50 feet of any stream channel.

Use heavy equipment as follows:

- Choose equipment that has the least adverse effects on the environment (for example: minimally sized, low ground pressure).

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- Secure absorbent material around all stationary power equipment (for example: generators, cranes, drilling equipment) operated within 150 feet of wetlands, waters of the State, waters of the U. S., drainage ditches, or water quality facilities to prevent leaks, unless suitable containment is provided to prevent spills from entering waters of the State or waters of the U.S.
- Do not cross directly through a stream for construction access, unless shown or approved. If shown or approved, cross perpendicular to the stream and do not block stream flow. When a crossing is no longer needed, completely remove the crossing and restore the soils and vegetation to the original condition.
- Store fuel and maintain all equipment in staging areas that are at least 150 feet away from any waters of the State, waters of the U.S., or storm inlet or on an impervious surface that is isolated from any waters of the State, waters of the U.S., or storm inlet.
- If temporary access roads are needed within 150 feet of any body of water, use existing routes unless new routes are shown or approved.
- Before beginning work on temporary access routes that are not shown, submit a proposal to the Engineer for approval.

(2) Work Area Isolation - Provide work isolation according to Section 00245. Provide safe passage around or through the isolated work area for adult and juvenile migratory fish unless passage did not previously exist.

(3) Water Intake Screening - Install, operate, and maintain fish screens on each water intake used for project construction, including pumps used to isolate an in-water work area and cofferdam vents used to draw water into cofferdams. When drawing or pumping water from any stream, protect fish by equipping intakes with screens having a minimum 27 percent open area and meeting the following requirements:

- Furnish perforated plate openings 3/32 inch or smaller.
- Furnish mesh or woven wire screen openings 3/32 inch or smaller in the narrowest direction.
- Furnish profile bar screen or wedge wire openings 1/16 inch or smaller in the narrow direction.

Choose size and position of screens to meet the following criteria in Table 00290-1:

Table 00290-1

Type	Approach Velocity ¹ (Ft./Sec.)	Sweeping Velocity ² (Ft./Sec.)	Wetted Area of Screen (Sq. Ft.)	Comments
Ditch Screen	≤ 0.4	Exceed approach velocity	Divide max. water flow rate (cfs) by 0.4 fps	If screen is longer than 4 feet, angle 45° or less to stream flow
Screen with proven self-cleaning system	≤ 0.4	—	Divide max. water flow rate (cfs) by 0.4 fps	—

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Screen with no cleaning system other than manual	≤ 0.2	–	Divide max. water flow rate (cfs) by 0.2 fps	Pump rate 1 cfs or less
¹ Velocity perpendicular to screen face at a distance of approximately 3 inches ² Velocity parallel to screen				

Furnish ditch screens with a bypass system to transport fish safely and rapidly back to the stream.

(4) Site Restoration - Restore damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation unless precluded by pre-project conditions (for example: natural rock substrate):

- Replant all damaged streambanks before the first April 15 following construction.
- If use of large wood, native topsoil, or native channel material is required for the site restoration according to the roadside development plans, stockpile all large wood, native vegetation, weed-free topsoil, and native channel material displaced by construction. Cut trees or large wood and trees into pieces of no less than 20 feet in length, or as shown on the roadside development plans or as directed. Stockpiled native wood and vegetation remain the property of the Agency.
- Stabilize all disturbed soils, including obliteration of temporary access roads, following any break in work unless construction will resume in 4 Calendar Days.

(5) Surface Water Diversions - Surface water may be diverted to meet construction needs other than work area isolation, consistent with Oregon law, only if water from sources that are already developed, such as municipal supplies, small ponds, reservoirs, or tank trucks, is unavailable or inadequate, and meeting the following conditions:

- When alternative surface sources are available, divert from the stream with the greatest flow.
- Install, operate, and maintain a temporary fish screen.
- Do not exceed a pumping rate and volume of 10 percent of the available flow. For streams with less than 5 cubic feet per second, do not exceed drafting of 18,000 gallons per Day. Do not use more than one pump for each site.

(6) Hydro-Acoustic - Unless otherwise shown or approved, steel piling may be installed below the ordinary high water as follows:

- Minimize the number and diameter of pilings, as feasible.
- Repairs, upgrades, and replacement of existing pilings consistent with these conditions are allowed. In addition, up to 5 single pilings or 1 dolphin consisting of 3 to 5 pilings may be added to an existing facility.
- Whenever feasible, use vibratory hammer for piling installation. Otherwise, use the smallest drop or impact hammer necessary to complete the job, and set the drop height to the minimum necessary to drive the piling.

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- For all pile installed or removed, maintain a pile installation and removal log and submit the log when the related work is completed. Include types, sizes, locations, installation or removal methods, and dates in the log.
- When using an impact hammer to drive or proof steel piling within a body of water, or as directed, use one of the following sound attenuation devices to effectively dampen sound:
 - Completely isolate the pile from the waters of the State and waters of the U.S. by dewatering the area around the pile according to Section 00245.
 - If water velocity is 1.6 feet per second or less, surround the pile being driven with a bubble curtain that distributes small air bubbles around 100 percent of the piling perimeter for the full depth of the water column and is in accordance to the guidance in the Appendix of The ODOT-FHWA Federal Aid Highway Program Programmatic User's Guide titled *NMFS and USFWS Impact Pile Driving Sound Attenuation Specifications*. The FAHP User's Guide is available on the Agency's website at:

<https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/Manuals.aspx>

- If water velocity is greater than 1.6 feet per second, surround the piling being driven by a confined bubble curtain (for example: a bubble ring surrounded by a fabric or metal sleeve) that will distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column and is in accordance to the guidance in the Appendix of The ODOT-FHWA FAHP User's Guide titled *NMFS and USFWS Impact Pile Driving Sound Attenuation Specifications*.

(7) Drilling, Boring, or Jacking - If drilling, boring, or jacking is used, the following conditions apply:

- Design, build, and maintain facilities to collect and treat all construction and drilling discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present. An alternate to treatment is collection and proper disposal offsite.
- Isolate drilling operations from wetted stream to prevent drilling fluids from contacting waters of the State or waters of the U.S.
- Use casing to prevent loss of drilling fluid to the subsurface formation. Do not drill without a containment method to keep drilling fluids and slurry isolated.
- If it is necessary to drill through an over-water bridge deck, use containment measures to prevent drilling debris from entering the stream channel.
- If drilling fluid or waste is released to surface water, wetland or other sensitive environment, cease all drilling pending written approval from appropriate regulatory agencies through the Engineer to resume drilling.
- Recover all waste and spoils if precipitation is falling or imminent. Recover, recycle, or dispose of all drilling fluids and waste to prevent entry into flowing water.
- Recycle drilling fluids using a tank instead of drill recovery/recycling pits, whenever feasible.

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- When drilling is completed, make attempts to remove the remaining drilling fluid from the sleeve (for example: by pumping) to reduce turbidity when the sleeve is removed.

(8) Treated Wood - Treated wood includes any wood treated with any pesticide or wood preservatives. Do not use lumber, pilings, or other wood products that are treated or preserved with pesticidal compounds below the ordinary high water (OHW) or as part of an in-water or over-water structure, except as described below:

- Store treated wood shipped to the Project out of contact with standing water and wet soil, and protected from precipitation.
- Visually inspect each load and piece of treated wood. Reject for use in or above aquatic environments if visible residues, bleeding of preservative, preservative-saturated sawdust, contaminated soil, or other matter is present.
- Use pre-fabrication to the extent feasible. When field fabrication is necessary, perform all cutting and drilling of treated wood, and field preservative treatment of wood exposed by cutting and drilling, above the OHW. Use tarps, plastic tubs, or similar devices to contain the bulk of any fabrication debris, and wipe off any excess field preservative.
- Furnish all treated wood structures, including pilings, that have design features to avoid or minimize impacts and abrasion by livestock, pedestrians, vehicles, vessels, and floats.
- Treated wood may be used to construct a bridge, over-water structure or an in-water structure, with the exception of the work containment system, provided that all surfaces exposed to leaching by precipitation, overtopping waves, or submersion are coated with a water-proof seal or barrier are maintained. Apply and contain coatings and paint-on field treatment to prevent contamination. Surfaces that are not exposed to precipitation or wave attack, such as parts of a timber bridge completely covered by the bridge deck, are exempt from this requirement.
- During demolition of treated wood, ensure that no treated wood debris falls into the water. If treated wood debris does fall into the water, remove it immediately.
- Store removed treated wood debris in appropriate dry storage areas, at least 150 feet away from the regulated work area.

(9) Piling Removal - Remove temporary or permanent piling according to the following:

- Dislodge the piling with a vibratory hammer, whenever feasible.
- Once loose, place the piling onto the construction barge or other appropriate dry storage site.
- When piles are not completely removed, locate each unremoved pile and submit the locations to the Agency. Submit pile locations accurate to within 10 feet of the actual pile location.

a. Non-Treated Piling - Use the following methods to remove non-creosote piling:

- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump off at least 3 feet below the surface of the sediment and cover

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with a cap of clean, native substrates that match surrounding streambed materials.

- If a pile in contaminated sediment cannot be removed or breaks above the sediment line, cut the pile or stump off at the sediment line. If the pile breaks below the sediment line, make no further effort to remove it.
- Fill holes left by each pile with clean, native sediments whenever feasible.
- Do not excavate to remove piling.

b. Treated Piling - To minimize toxic release, sediment disturbance, and total suspended solids, use the following methods to remove treated piling:

- Install a floating surface boom to capture floating surface debris.
- Keep all equipment out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
- Dislodge the piling with a vibratory hammer, whenever feasible. Do not intentionally break a pile by twisting or bending.
- Slowly lift the pile from the sediment and through the water column.
- Place the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment.
- If a pile in uncontaminated sediment cannot be removed or breaks, cut or push the pile or stump at least 3 feet below the surface of the sediment and cover with a cap of clean, native substrates that match surrounding streambed materials.
- If a pile in contaminated sediment cannot be removed or breaks above the sediment line, cut the pile or stump off at the sediment line. If the pile breaks below the sediment line, make no further effort to remove it.
- Fill the hole left by each removed or partially removed pile with clean, native sediments and cap with clean, native substrates that match surrounding streambed materials immediately after removal.
- Dispose of all removed piles, floating surface debris, contaminated supplies, and sediment spilled on work surfaces at a permitted upland disposal site.

(10) Floating Structures - The following types of over-water or in-water structures are not allowed:

- boat house
- boat ramp made of asphalt
- buoy or float in an active anchorage or fleeting area
- covered moorage
- floating storage unit
- houseboat
- marine
- pier
- non-water related facilities (including staging areas) inside riparian management areas

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- any other over-water structure more than 6-feet wide unless otherwise approved in writing by appropriate regulatory agencies through the Engineer

The following conditions apply to over-water or in-water structures:

- Concrete boat ramps that consist of pre-cast concrete slabs below the ordinary high water elevation, and higher elevation portions that are completed in the dry so that no wet concrete that has cured less than 24 hours is allowed to contact any wetland or waters of the State or waters of the U.S.
- Fit all pilings, mooring buoys, and navigational aids with devices to prevent perching by piscivorous birds.
- Permanently encapsulate all synthetic flotation material to prevent breakup into small pieces and dispersal in water.
- Barge use is allowed only at the Center Street Bridge.

When using a barge:

- Barge decks must be watertight.
- Connect modular barge systems structurally to produce a single, fixed deck.
- Fit bar deck perimeters with watertight curbing sufficient to contain Materials on the barge deck. If scuppers are present, they will be plugged.
- The Agency will need to approve any barge being used.
- Before moving the barge to the Project Site, unless the barge is transported solely by water and entirely within the State, inspect the barge and ballast for invasive species to ensure that invasive species are not brought to the Project Site. Notify the Oregon State Marine Board if invasive species are found.
- Before moving the barge to the Project Site, clean and pressure wash the barge deck.
- Do not use impact hammers for spud placement.
- Install and maintain containment measures to prevent barge surface runoff from flushing oil, fuel, or other contaminants into the water.
- Secure all Equipment, portable toilet facilities, and containers with fuel, hazardous materials, or waste to the barge deck.
- If the barge is equipped with a toilet facility, pump it out into an approved waste removal system when work requiring a barge is complete, or as often as is necessary. Move temporary toilet facilities to shore before pumping them out.
- If a fuel container is used on the barge, provide a double-walled fuel container and place an absorbent containment boom around the container when it is on the barge.
- Remove hand carried fuel containers from the barge at the end of each work shift unless containers are secured to the barge and stored within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Refill hand carried fuel containers within a secondary containment vessel of sufficient capacity to hold the entire volume of liquid available.
- Provide individual containment for each piece of Equipment on the barge, including containment pans or absorbent booms to locally contain minor spills.
- Remove waste material from the barge at least every 3 working days and:

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- Before any pause in work that is longer than 1 Day; or
- Before reaching the calculated safe load weight of the barge according to Section 00253.

(11) Injured Fish Notification - If a dead or injured fish is found in the project area, immediately notify the Agency. If the injured fish is in a location where further injury or stress may take place, attempt to move the fish to a safer location, if one is available, near the capture site while keeping the fish in the water and reducing its stress as much as possible. Do not disturb the fish after it has been moved. If the fish is dead or dies while being captured or moved, save the fish and any tags. The Agency will notify appropriate regulatory agencies about the injured or dead fish and provide additional direction to the Contractor.

00290.36(a) Migratory Birds - Replace the paragraph that begins "Comply with the Migratory Bird Treaty Act ..." with the following paragraph:

Comply with the Migratory Bird Treaty Act (16 U.S.C. 703-712) that protects most species of birds in Oregon and prohibits the removal of nests containing eggs or dependent young (i.e., active nest) without a permit. Migratory birds include most birds in Oregon; the few exceptions include rock pigeons, house sparrows, and European starlings.

Replace the paragraph that begins "Except where allowed by the Contract ..." with the following paragraph:

Except where allowed by the Contract and by permit, do not disturb an active migratory bird nest, do not inhibit the ability of adult birds to care for eggs or dependent young, and do not impact the supporting structure where an active nest is built.

Add the following to the end of this subsection:

(1) Bird Management - Bird management activities to comply with the Migratory Bird Treaty Act (16 U.S.C. 703 712) will be performed by the Agency. Ensure that the Agency and its permitted agents have access to the project area, as needed to prevent migratory bird nesting. Nesting prevention may include daily bird harassment and the installation and maintenance of devices that exclude birds.

Do not disturb migratory bird nesting habitats (shrubs, trees, and structures), or clear vegetation from March 1 to September 1 of each calendar year without prior written approval from the Engineer. Notify the Engineer, in writing, a minimum of 10 Calendar Days prior to starting activities that could harm nesting birds.

Add the following subsection:

00290.36(c) Wildlife Avoidance/Harassment (High Noise) - For purposes of this project, "high noise" is defined as sound emitted during active pile driving activities:

- High-noise producing activities are allowed only June 1 through Dec 31 and only as described in the Eagle Disturbance Take Specific Permit MBPER20812942 issued by U.S. Fish and Wildlife Service on August 20, 2025.

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00290.38 Protection of Plants - Replace this subsection, except for the subsection number and title, with the following:

Plant habitats to be protected are shown with the plant habitat boundaries flagged by the Engineer. Avoid destruction of plant habitats by ensuring construction personnel, Equipment, and associated pollutants, including sediment, chemical contaminants, discharge water, non-native grass and weed seed, do not enter the habitat.

00290.41 Protection of Waters of the U.S. or State - Add the following to the end of this subsection:

Permits have been obtained for this project from the US Army Corps of Engineers (Corps) and the Department of State Lands (DSL). Keep a copy of Corps and DSL permits at the project site during construction. Changes to the project that may increase the amount of fill placed or material removed in waters of the U.S. or State, or the acreage of waters impacted are not authorized. The following waters of the U.S. or State are present and have been determined to be unavoidable as indicated in Table 00290-2:

Table 00290-2

Impact Waters of the US or State	Removal Volume (cu yds.)	Fill Volume (Cu yds)	Station	Duration of Impact (Temporary or Permanent)	Area of impact (Acres)
Willamette River	5,943	26,548	"CE" 41+67 to "CE" 50+33	Permanent	0.640
Willamette River	37,244	37,244	"CE" 41+67 to "CE" 50+33	Temporary	0.520

00290.41(a) Identifying Waters of the U.S. or State, Including Wetlands - Replace the paragraph that begins "Wetlands known to be ..." with the following paragraph:

Wetlands known to be on the Project Site are shown and identified either as "permanently filled or excavated" or as "temporarily impacted". Wetlands to be protected are shown as "no Work Zones".

00290.41(b) Disturbing Waters of the U.S. or State, Including Wetlands - Replace the paragraph that begins "If Wetlands are shown, ..." with the following paragraph:

If Wetlands are shown, meet with the Agency Wetland Specialist, the Engineer, and Inspector on-site prior to moving Equipment onto the site or beginning any Work, to ensure that all parties understand the locations of Wetlands and the measures that are necessary to protect them.

Add the following subsection:

00290.42 Work Containment Plan - A Work Containment Plan (WCP) is required on this Project for seismic retrofit and waterline installation activity(ies).

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Develop and submit a WCP for approval at least 28 Calendar Days prior to mobilization for seismic retrofit and waterline installation activity(ies). Maintain a copy of the WCP on the Project Site at all times during construction, readily available to employees and inspectors. Ensure that all employees comply with the provisions of the WCP. Design the WCP to avoid or minimize disturbance to protected features (sensitive cultural or natural resources, regulated work areas, aquatic life or habitat in regulated work areas) related to Contractor operations.

Before developing the WCP, meet with Agency to review the Contractor's activities that require the WCP to ensure that all parties understand the locations of protected features to be avoided and the measures needed to avoid and protect them.

Notify the Engineer at least 10 Calendar Days before beginning work access or containment construction activities.

The Agency reserves the right to stop Work and require the Contractor to change the WCP methods and Equipment before any additional Contract Work, at no additional cost to the Agency, if and when, in the opinion of the Agency, such methods jeopardize sensitive cultural or natural resources, regulated work areas, or aquatic life or habitat in regulated work areas.

Provide a WCP that identifies how the Contractor's construction operations will protect regulated features during mobilization, construction, maintenance, and demolition. Include a narrative describing compliance with Section 00290 as related to construction, operation, and demolition activities specified in Section 00253.

Design, construct, maintain, and remove temporary work access and containment systems according to Section 00253.

00290.50 Protection of Cultural Resources - Replace the paragraph that begins "Comply with all Laws..." with the following paragraph:

Comply with all Laws governing preservation of cultural resources. Cultural resources include, but are not limited to:

- Historic buildings (i.e. typically 50 years of age and older)
- Historic structures (i.e. bridges)
- Sites (i.e. sites with artifacts)
- Objects (i.e. monuments)
- Districts (i.e. historic districts, or linear historic districts like historic roads).

Replace the paragraph that begins "If cultural resources are..." with the following paragraph:

If cultural resources not previously identified in preconstruction are encountered on the Project area or in material sources, and their disposition is not addressed in the Special Provisions, do the following:

00290.51 Protection of Sensitive Cultural Sites - Add the following to the end of this subsection:

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There are sensitive cultural sites or areas of high probability for cultural resources on this Project. At the time of preparation of the Plans, one site was identified.

The Region Environmental Coordinator for this Project is Sarah Eastman-Flores.

The Agency Archaeology Representative for this Project is Jessica Curteman.

The Engineer will coordinate all contact with the Agency Archaeology Representative and the Region Environmental Coordinator.

An Inadvertent Discovery Plan (IDP) has been developed for this project. The IDP is available from the Engineer.

Meet with the Engineer at least 10 Calendar Days prior to beginning ground disturbing activities to discuss the Project IDP. Required attendees include:

- The Contractor's supervisory personnel.
- Subcontractors, including contract archaeological monitors, and supervisory personnel involved in ground disturbing activities.
- Agency archaeology representative or region environmental coordinator.
- When applicable, tribal representative(s) or monitor(s).

Archaeological and Tribal Monitors are required to be on-site during all ground-disturbing activities for this Project, unless otherwise notified. Notify the Engineer 10 Calendar Days before beginning ground-disturbing activities, or 14 Calendar Days if ground-disturbing activities are anticipated to occur simultaneously in more than two locations.

00290.51(b) Disturbing Unknown Sensitive Cultural Sites - Replace the paragraph that begins "If the Contractor finds a previously undiscovered..." with the following paragraph:

If the Contractor finds a previously undiscovered sensitive cultural site, immediately cease all activities at that site, follow procedures listed in 00290.50, and notify the Engineer. If the Contractor inadvertently disturbs unknown sensitive cultural sites, but immediately ceases all activities and follows the procedures listed in 00290.50, the Agency, to the extent permitted by Article XI, section 7 of the Oregon Constitution and by the Oregon Tort Claims Act, will indemnify, within the limits of the Tort Claims Act, the Contractor for costs associated with monitoring, recovery, site restoration or other required archaeological Work, provided neither the Agency nor the State are required to indemnify the Contractor for such costs resulting from, arising out of or relating to the willful misconduct, negligence or other wrongful acts attributable to the Contractor or other persons on the Project site.

Replace the paragraph that begins "Delays to Work due to new ..." with the following paragraph:

The Engineer may consider for exclusion from Contract Time according to 00180.50(e) delays to Work due to new cultural resource finds.

00290.90 Payment – Add the following bullet to the bulleted list that begins "Payment includes, but is not limited to...":

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- Flood Response Plan

Add the following paragraph(s) to the end of this subsection:

The work containment plan will be paid for at the Contract lump sum amount for the item "Work Containment Plan".

Payment will be payment in full for providing all Materials, Equipment, labor, and Incidentals necessary to complete the Work as specified. Payment includes providing and updating the Work Containment Plan.

The accepted quantities of turbidity monitoring will be paid for at the Contract lump sum amount for the item "Turbidity Monitoring".

Payment for turbidity monitoring will be payment in full for furnishing and placing all Materials and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for work zone fencing.

SECTION 00291 – VIBRATION MONITORING AND CONTROL

Section 00291 is not a Standard Specification and is included in this Project by Special Provision.

Description

00291.00 Scope - This Work consists of conducting pre-construction and post-construction condition surveys; development, implementation and maintenance of a Vibration Monitoring Plan to protect buildings specified during pile driving east of Bent 18 and cofferdam or shoring installation for Bent 19 footing construction; submittal of reports illustrating compliance with the monitoring plan, submittal of notices for noncompliant activities, a final written report summarizing the monitoring that was completed, and supply of all other labor and Equipment to complete work specified.

Monitor the following buildings during specified construction activities:

- Josiah L. Parish House, 470 Water Street NE Salem OR 97301
- Little Gem Grocery Store, 450 Water Street NE Salem OR 97301

00291.03 Submittals - Submit to the Engineer the defined submittals. The Engineer will note any noncompliance issues in the submittal within 14 Calendar Days of receiving the submittal. Agency review of submittals is to confirm that the submittal requirements have been achieved and that submittal results are compliant with the Vibration Monitoring Plan that the vibration specialist has developed. Review of submittals does not constitute Agency assuming any liability for damages to buildings. Bear all risk and costs of any Work delays caused by the return of non-compliant submittals:

(a) Vibration Monitoring Plan (Due 30 Calendar Days prior to starting construction activities specified in 00291.00). Employ qualified vibration specialist according to

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00291.30 to develop, implement, and supervise a Vibration Monitoring Plan that protects buildings from damage during vibration producing activities. Include in the Vibration Monitoring Plan the following:

- (1) Qualifications of the vibration specialist with a project reference list. Include a brief description of each project and the owner's contact person's name, current phone number, and email for each project listed.
- (2) Details of the Vibration Monitoring Plan including but not limited to the following:
 - a. Product data sheets for monitoring equipment to be used for measurement, acquisition, and data storage.
 - b. Details illustrating equipment locations, installation details, and electrical power requirements.
 - c. Details describing the process and schedule for vibration data transfer from the field to the vibration specialist and Engineer for review.
 - d. List of buildings that have been selected to receive pre-construction condition surveys, post-construction condition surveys, and monitoring during construction.
 - e. The expected vibrations at each building.
 - f. Vibration thresholds for each building receiving monitoring.
 - g. A vibration threshold Shutdown Value for the Project or defined areas within the Project, as appropriate.
 - h. Property-specific plans for documentation of pre-construction conditions observable from accessible locations for any property where access for a complete pre-construction condition survey is denied, as applicable.
 - i. Schedule confirming delivery of Compliant Vibration Monitoring Reports and Noncompliant Vibration Notices to the Agency.
- (3) If Contractor plans to place instrumentation within the site at strategic locations that allow for interpolation of results to apply to nearby properties without specific monitoring, the rationale for the proposed interpolation needs to be included in the Vibration Monitoring Plan.

(b) Pre-construction Condition Report summarizing all pre-construction condition surveys that were completed according to 00291.10. Property owners declining pre-construction condition surveys of their properties must be documented in the pre-construction condition report and summaries of observed pre-construction conditions also included. Property owners denying access to their properties for installation and monitoring of equipment proposed in the Vibration Monitoring Plans must be documented in the Pre-construction Condition Report. Also submit additional surveys conducted on Structures and buildings deemed appropriate by the Contractor. Document in the report any revisions to the vibration thresholds established in the Vibration Monitoring Plan based on the results of the pre-construction condition surveys. Submit the Pre-construction Condition Report within 7 Calendar Days following the condition surveys.

(c) Vibration Monitoring Reports submitted weekly during construction within 200 ft of a monitored building, submitted by Tuesday of each week for the previous week's

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monitoring. Include results of the continuous readings and summary sheet. Use Microsoft Excel electronic format for the summary sheet and indicate the following:

- (1) Peak particle velocity for the day by activity, if multiple activities occur in a single day.
- (2) Time and date corresponding to peak particle velocity.
- (3) Description of construction activity and primary vibration including equipment.
- (4) Distance between the machinery and vibration monitoring point.
- (5) Vibration point identification number.

(d) Noncompliant Vibration Notices submitted the day following an activity that is not compliant with the Vibration Monitoring Plan. Specify the following in the notices; the time, date, and location of the noncompliant activity; and the Contractor's action to be taken, either means or methods mitigation, to reduce the vibrations.

(e) Post-construction Condition Report summarizing all post-construction condition surveys completed according to 00291.10 for all buildings with pre-construction condition surveys. Also submit additional surveys conducted on Structures deemed appropriate by the Contractor. Submit the Post-construction Condition Report within 7 Calendar Days following the condition surveys.

(f) Final Monitoring Summary Report submitted at conclusion of the project. Summary Report will include a brief overview of the Vibration Monitoring Plan that were implemented in the project, a summary of peak measured vibrations, and discussion of the source of the peak vibrations and the potential that construction activities produced any damage. The appendix of the Summary Report will contain all Submittals 1-6.

00291.10 Condition Survey - Conduct pre-construction condition survey of the building identified in 00291.00. The survey must include documentation of cracks, deformations, and settlements that are observable from the ground level of the exterior and accessible area of the interior of the building. It must detail (by sketches, video tape, photographs, and notes) any existing structural, cosmetic, plumbing, or electrical damage. Deliver a copy of the complete survey form to the owners and occupants.

Submit a Pre-construction Condition Report according to 00291.03. The Contractor may elect to complete additional condition surveys of the property listed in 00291.00, at no additional cost to the Agency. The Contractor may also elect to complete additional pre-construction condition surveys of any other Structures, buildings or facilities the Contractor deems appropriate, at no additional cost to the Agency.

Complete post-construction condition surveys for the buildings specified in 00291.00 and evaluate if any damage occurred as a result of the construction project.

Submit the Post-construction Condition Report according to 00291.03.

Coordinate all condition surveys through the Agency. All communication with the property owners for coordination of condition surveys will be through the Agency. The property owner and Agency may elect to accompany the Contractor during the survey.

Equipment

00291.20 Materials and Equipment - Furnish, install, operate, and maintain all Equipment required to successfully implement the Vibration Monitoring Plan developed by qualified vibration monitoring specialist and submitted by the Contractor according to 00291.03. The Vibration Monitoring Plan is to include the following Equipment at minimum in addition to all other Equipment required to execute the Vibration Monitoring Plan:

(a) Vibration Monitoring Equipment:

- (1)** Portable seismographs capable of recording ground motion in three orthogonal directions plus one channel of sound level.
- (2)** Data recording and transmission electronics will be housed in weather, tamper and theft proof enclosures. This requirement may be waived if Equipment is kept within the buildings to be monitored.
- (3)** Two power sources: internal battery and charger and 110 volts AC. Provide a battery capable of supplying power to monitor vibrations continuously for up to 30 Calendar Days.
- (4)** Self-triggering waveform capture mode that provides the following information: plot of wave forms, peak particle velocities, peak overpressure, frequencies of peaks.
- (5)** Continuous monitoring mode are to be capable of recording single-component peak particle velocities, and frequency of peaks with an interval of one minute or less.
- (6)** Audible and visual alarm system.
- (7)** The following performance characteristics:
 - a. Range: up to 10 inches per second
 - b. Resolution: 0.0005 inch per second
 - c. Accuracy: +5% or 0.002 inch per second between 4 and 125 Hertz (Hz)
 - d. Frequency range: 2 to 250 Hz

(b) Automatic Data Acquisition Systems (ADAS) - The Automatic Data Acquisition system or systems are to consist of the following main components and capabilities:

- (1)** Each seismograph will be connected via a wireless modem to a computer at the office of the qualified vibration specialist.
- (2)** Data will be downloaded daily to this computer.
- (3)** Text and email messages will be sent daily to key Contractor personnel.

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(4) Message will list the peak recorded vibration for each location for the preceeding 24-hour period.

(5) If vibrations exceed the preset trigger threshold, the data are downloaded immediately, and text message and email alerts are sent to the qualified vibration specialist and the Engineer.

(c) Monitoring Points and Locations - The Contractor is responsible for determining exact locations of instrumentation for vibration monitoring for existing buildings identified to receive monitoring.

Labor

00291.30 Personnel Qualifications - Provide vibration specialist experienced in successfully specifying, installing, maintaining, and monitoring all the major components of vibration monitoring system including wireless download and monitoring on at least five successfully completed similar projects within the last three years. Provide a vibration specialist registered as a engineer in Oregon.

Construction

00291.40 Vibration Controls - Employ a qualified vibration specialist to develop, implement, and supervise a Vibration Monitoring Plan that measures and monitors peak particle velocity for the buildings identified in 00291.00 and confirms that peak particle velocities remain below established thresholds that will prevent damage to the building due to construction operations.

(a) Peak Particle Velocity (PPV) Thresholds – Buildings specified in 00291.00 adjacent to the Project Site are categorized as Type III building according to the *Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual, September 2018 (FTA Report No. 0123)*. The PPV threshold for this Project is 0.2 inch/second.

If vibrations reach the threshold peak particle velocity at a building, immediately notify the Engineer and submit a Noncompliant Vibration Notice according to 00291.03.

If measured data indicate vibrations greater than the PPV threshold value, the Engineer may direct the Contractor to stop all Work immediately. Meet with the Engineer to develop a plan of action before Work can be resumed.

00291.41 Vibration Control Protections - Perform all required system maintenance to provide continuous operation for construction activities specified in 00291.00, and protect all monitoring equipment through the duration of vibration producing activities during this Work. If damage to monitoring equipment occurs, stop all Work for which monitoring is required until monitoring equipment is repaired. Immediately repair damage to monitoring equipment at no additional cost to the Agency.

00291.42 Public Relations - The Engineer will coordinate and obtain signed property owner agreements prior to installation of vibration monitoring equipment and completing pre-construction and post-construction condition surveys. The Engineer will handle all contact with property owners and tenants. The Engineer may request Contractor communication with

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property owners and tenants if appropriate. Communications beyond site coordination will be handled through the Engineer.

When accessing private property, contact the Engineer 48 hours in advance to arrange entrance or to join the Engineer on site. Wear a yellow or orange safety vest and carry photo identification such as a work badge that is visible at all times when on private property. Provide property owners and tenants with contact information of the Engineer if questions or concerns arise while independently on site.

Measurement

00291.80 Measurement - No measurement of quantities will be made for work performed under this Section.

Payment

00291.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Vibration Monitoring and Control".

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals necessary to complete the Work as specified. No additional compensation will be provided to the Contractor for Work stoppages to revise means and methods to reestablish compliance with the Vibration Monitoring Plan, and no additional compensation will be provided for the Contractor to change Work activities if necessary. No additional compensation will be provided for Work stoppages resulting from measured vibration values at or above the specified shutdown values.

No additional payment will be made for additional condition surveys and monitoring of any other Structure the Contractor deems appropriate.

SECTION 00292 – BIRD, BAT AND RODENT DROPPING CLEANUP AND DISPOSAL

Section 00292 is not a Standard Specification and is included in this Project by Special Provision.

Description

00292.00 Scope - In addition to the requirements of Section 00290 and these Specifications, this Work consists of cleanup of bird, bat, or rodent droppings and their disposal prior to working on the bridge Structure.

Bird, bat or rat droppings were noted inside the Bridge 00123K Span 19 box girder during field investigation efforts performed for this Project. The droppings were observed to be up to 3 inches in depth. While not noted in bridge inspection reports or during field investigations, other locations such as flat areas on bents, girder flanges, cross-frames, and exposed pipes may have droppings which need to be removed prior to completing Work.

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When additional testing of generated waste is required to characterize the material for reuse, recycle, or disposal, conduct the tests according to 00290.20(c).

00292.03 Submittals – Submit the following documents at least 10 Calendar Days before the pre-construction conference:

- A site specific Health and Safety Plan (HASP), approved and signed by a Certified Industrial Hygienist (CIH)
- The name and qualifications of the CIH
- Catalog sheets, specifications, MSDSs and installation instructions for each detergent, disinfectant and /or biocide and chemical used in removing the droppings
- Current employee training certificates and medical surveillance information, including a pulmonary function test and respirator fit test

Submit details, means, and methods of Work containment to fully contain solid wastes, aerosolized wastes, and liquids from cleanup activities as specified with the Work Containment Plan required in 00290.42.

Submit written notification to the Engineer at least 10 Calendar Days before beginning Work in locations where bird, bat or rat droppings are expected to be encountered.

Submit the following documents within 48 hours of completing or receiving them:

- Permits, permit applications, and documentation of compliance
- All reuse, recycled, and disposal receipts
- Final quantities of Materials disposed and their final location
- All analytical test results

Materials

00292.10 Cleaners, Disinfectants and Solutions - Furnish Materials meeting the requirements of any of the following:

- Formalin Solution: Dilute commercially available formaldehyde (containing 37-40 percent by weight of formaldehyde gas in water, stabilized with 10-15 percent methanol) with water to create a 5-percent, by volume, formalin solution.
- Chlorine Solution: 10% Chlorine Bleach and 90% warm water mixture.

Equipment

00292.20 Air Filtration Units - Provide and operate air filtration uses according to the following:

- Comply with ANSI Z9.2, Local Exhaust Ventilation
- Provide a HEPA type filter with a minimum efficiency of 99.97 percent when challenged with 0.3 micron particulates.
- Replace HEPA filters at a sufficient frequency to prevent a rupture and according to the manufacturer's instructions.

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- Filters must be marked with the manufacturer's name, model number, airflow rating, efficiency and resistance, and the direction of air flow.
- Dispose of used filters as contaminated wastes.
- Equip the fan with:
 - An automatic shut down in the event of a rupture in the HEPA filter or blocked air discharge.
 - Warning lights and or alarms to indicate excessive or insufficient pressure drop across the filters.
 - Non-resettable elapsed time meter
 - Pressure gage or manometer

00292.21 Vacuums - Provide and operate vacuums with new HEPA filters and operate according to the manufacturers' instructions.

Labor

00292.30 Personnel Qualifications - Provide employees who are trained, have medical clearance and have recently received a pulmonary function test (PFT) and a respirator fit test by a trained professional.

Construction

00292.40 Work Containment – Minimize employee exposure to bird, bat, or rat droppings. Provide containment that prevents release of the droppings, aerosolized waste, or cleaning liquids to the environment and according to the following:

- Provide critical barriers on all openings (open doors, broken windows, etc.) in the work area. Use minimum 6 mil thick polyethylene sheeting on openings for the duration of the removal.
- Provide a HEPA filtered negative pressure containment for any enclosed area to be worked in. Provide a minimum of 4 air changes per hour. Refer to OSHA Asbestos Standard for further information.
- Provide a containment Structure sufficient to contain the bird, bat or rat droppings as well as all water, chemicals or cleaning agents used in the cleanup.
- No visible emissions are allowed during the performance of the Work.
- Provide a decontamination area that complies with the OSHA Asbestos standard and require all workers to wash upon leaving a Work Area.

00292.41 Cleanup – Complete removal and cleanup of bird, bat, and rat droppings according to the following:

- Provide a respiratory protection program as required by 29 CFR 190.134, OAR 437-004-104 and according to the HASP.
- Remove bird, bat, and rat droppings prior to completing work on and inside the bridge Structure.

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- Do not use cleanup methods that cause the bird, bat, or rat droppings to become suspended in the air.
- Only complete the amount of removal and cleanup necessary to complete bridge repairs and rehabilitation and to protect workers. Full removal of all droppings on the bridge Structure is not required.
- Deliver cleaning and disinfection/biocidal Materials in manufacturer's original sealed and labeled containers. Store according to the manufacturer's instructions.
- Perform the work using HEPA vacuums or wet methods. Keep dust and spores to a minimum. No visible emissions are allowed during the performance of the Work.
- Do not use tools such as wire bristle brushes or pressure washing that will damage the underlying substrate.
- When using disinfectants, biocides or cleaners, follow the manufacturer's instructions for use and application.
- Work from top to bottom to avoid re-contaminating or spreading of Material onto previously cleaned or non-contaminated areas.
- Remove solid residue first and place directly into disposal containers. Keep the Material wet.
- Wet wipe or HEPA vacuum all surfaces where droppings are located. Cleaned surfaces must be free of all waste, dirt, debris or haze.
- Prior to the removal of any containment or critical barrier, complete an inspection with the Engineer to verify that removal is complete.
- Areas will be considered clean when all visible contamination on surfaces has been removed from the work area.
- Do not remove containment or critical barriers until the work has been accepted by the Engineer.
- Where existing Work is damaged or re-contaminated, restore Work to its original condition at no additional cost to the Agency.
- Unless analytical testing shows otherwise, assume all droppings removed from the bridge Structure also contain lead in excess of hazardous waste disposal requirements and manage it accordingly.

00292.42 Disposal- Dispose of Materials generated from cleanup activities according to the following:

- Dispose of droppings removed from the painted portions of the bridge Structure according to Section 00296. Dispose of other dropping wastes including PPE, plastics, etc. in a landfill permitted to accept such wastes.
- Obtain the Engineer's approval of the disposal facility before disposing of the waste.
- Complete and sign all manifests and bill-of-lading forms for handling, loading, transporting, and disposing of the droppings.
- Pay all filing and permit fees.

Measurement

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00292.80 Measurement – No measurement of quantities will be made for droppings removal.

Payment

00292.90 Payment – The accepted quantities of droppings removed will be paid for at the Contract lump sum amount for the item “Droppings Removal”.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for containment, permits, and disposal fees.

SECTION 00294 - CONTAMINATED MEDIA

Section 00294 is not a Standard Specification and is included in this Project by Special Provision.

Description

00294.00 Scope - In addition to the requirements of Section 00290 and the Specifications, this Work consists of the following:

- Excavate, segregate, stockpile, transport, and dispose of Contaminated Soils and contaminated grubbing materials, as defined by 00294.01, from the following locations:

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Contaminated Soil Location Table 00294-1

Structure	Location	Depth below grade (feet)	Approximate Quantity (cy)	Known Contaminants
00123K	Bent 18	0-32	4,931	Copper
	Bent 19	0-15	2,259	Polycyclic aromatic hydrocarbons, antimony, arsenic, copper
	Bents 20-22	0-5	1,456	Benzo(a)pyrene, Lead, Antimony, Zinc, Mercury
		15-30	16	Gasoline, Diesel
	Bents 23-25	0-5	1,617	Benzo(a)pyrene, Lead, Antimony, Mercury
		15-30	8	Gasoline, Diesel
	Bents 26-29	0-6	2,993	Heavy oil; polycyclic aromatic hydrocarbons, lead, antimony, mercury
		15-30	2	Gasoline, Diesel
0123G	Bents 3	0-5	259	Benzo(a)pyrene, Lead, Antimony, Zinc, Mercury
		15-30	11	Gasoline, Diesel
	Bents 4 and 5	0-5	894	Benzo(a)pyrene, Lead, Antimony, Mercury
		15-30	11	Gasoline, Diesel
36 Inch Waterline Excavation	"A" 10+00 to 12+55	0-5	377.8	Benzo(a)pyrene, Lead, Antimony, Zinc, Mercury
	"A" 11+60 to 12+55	15-30	42.2	Gasoline, Diesel
	"A" 12+55 to 13+90	15-30	125	Gasoline, Diesel
	"A" 13+90 to 14+50	0-5	133.3	Benzo(a)pyrene, Lead, Antimony, Mercury
		15-30	80	Gasoline, Diesel
	"A" 14+50 to 14+94	0-5	65.2	Benzo(a)pyrene, Lead, Antimony, Mercury
	"A" 14+94 to 15+75	0-5	120	Heavy oil; polycyclic aromatic hydrocarbons, lead, antimony, mercury
	"A" 20+00 to 21+50	0-5	222.2	Heavy oil; polycyclic aromatic hydrocarbons, lead, antimony, mercury
12 Inch Waterline Excavation	"A" 15+75 to 17+35	0-5	237	Heavy oil; polycyclic aromatic hydrocarbons, lead, antimony, mercury
	"A" 0+00 to 0+53	0-5	78.5	Benzo(a)pyrene, Lead, Antimony, Zinc, Mercury

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Approximate Total Quantity	15,938.2 cy
Quantity to be reused on Project	4,610 cy
Quantity to be disposed at landfill	20,182 Tons

- In areas where excavation is not required, leave contaminated Material and clearing and grubbing Material in place.
- Pump, test, treat, and dispose of contaminated groundwater from the following locations in Table 00294-2:

Table 00294-2

Location/Station	Depth below grade (feet)	Known Contaminants
Bents 20-29	15'	Gasoline, Diesel

- Prepare a Health and Safety Plan (HASP) for work within the contaminated areas of the Project.

The June 6, 2025, Northwest Geotech, Inc. report, titled Site-Specific Investigation, K21705 OR22 Center Street Bridge, Salem, Oregon and December 14, 2022, Northwest Geotech, Inc. report titled Environmental Sampling of Geotechnical Borings, K21705 OR22 Center Street Bridge, Salem, Oregon documenting the contaminated media identified within the Project, are available from the Engineer.

00294.01 Definitions:

Contaminated Soil - Soil that does not meet the DEQ definition of "Clean Fill", as defined by OAR 340-093-0030(18). This Contaminated Soil is a regulated waste, subject to OAR 340-093-0005 through OAR 340-093-0290. If the grubbing Material has been determined to be contaminated, it is considered and treated as Contaminated Soil for the purposes of this Section.

Shoulder Soil - Soil outside of the existing Highway Pavement and within Highway Right-of-Way generated during Highway maintenance or construction activities. This definition applies to excess Soil generated to a maximum depth of 1.5 feet below ground surface. This definition does not apply to Soil that is covered by existing impervious surfaces, including but not limited to curbs, sidewalks and parking lots constructed of asphalt or concrete.

ODOT Beneficial Use Determination (ODOT BUD) - The statewide ODOT Beneficial Use Determination (ODOT BUD), approved by DEQ (No. BUD-20181204), outlines a series of pre-approved non-residential reuse options for excess Soil Materials that do not meet DEQ's Clean Fill Standards in some circumstances. These options may vary based on project scope and location, and documentation may vary, as directed by the Engineer.

00294.02 Testing of Contaminated Soil and Groundwater - When additional testing of Contaminated Soil or groundwater is required to characterize the Material for reuse, recycle, or disposal, conduct the tests according to 00290.20(c).

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Use analytical methods meeting DEQ's Clean Fill Guidance Screening Levels for each analyte. Perform all Contaminated Soil and groundwater sampling by an Oregon Registered Geologist or Professional Engineer who has experience characterizing contaminated media.

Collect at least 3 composite Soil samples and submit for the following required testing:

- TPH-Gx and TPH-Dx by Northwest methods.
- The following volatile organic compounds (VOCs) by EPA Method 8260.
 - Benzene, toluene, ethylbenzene, xylenes.
 - Iso-propylbenzene and n-propylbenzene.
 - 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene.
 - Ethylene dibromide (EDB), ethylene dichloride (EDC), and Methyl tert-butyl ether MTBE.
- Polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270SIM.
- Total metals (RCRA 8) by EPA 6000 and 7000 series.
- One TCLP lead by using EPA Method 1311.

00294.03 Submittals - Submit the following documents:

- A site specific HASP at least 10 Calendar Days before the pre-construction conference.
- The site specific HASP, completed and signed by a qualified health and safety professional meeting the requirements of 00294.30.
- The name and qualifications of the qualified health and safety professional.

Submit all modifications to the HASP that are requested by the Engineer or the qualified health and safety professional within 7 Calendar Days of the request.

- Current employee training certificates and medical surveillance information before beginning Work within the contaminated areas.

Submit the following documents within 48 hours of removal of contaminated media:

- Permits, permit applications, and documentation of compliance.
- All reuse, recycled, and disposal receipts.
- Final quantities of Soil and groundwater reused, recycled, and disposed and their final location.
- All analytical test results.

00294.05 Health and Safety Plan - Prepare a site specific HASP that meets or exceeds the requirements of 29 CFR 1910.120 and include a personnel and equipment decontamination plan that details how decontamination media is to be contained and disposed.

Maintain a copy of the HASP on site at all times and readily available to employees and Inspectors during construction activities. If additional information becomes available regarding the site specific conditions, revise the HASP and submit the revised version to the Engineer. Review or acknowledgment of the HASP by the Engineer is not an indication or

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representation that the HASP is fully compliant with State or federal requirements. Compliance is the responsibility of the Contractor. Review by the Engineer will not impose liability upon the Agency or relieve the Contractor of any responsibilities under the Contract.

Do not begin Work in contaminated areas until the Engineer provides written acknowledgement of the HASP.

Ensure all personnel entering contaminated areas follow the requirements of the HASP.

Labor

00294.30 Personnel Qualifications - Provide employees meeting the following requirements:

- Hazardous Waste Operations and Emergency Response (HAZWOPER) trained workers (29 CFR 1910.120) that:
 - Have completed a 40-hour HAZWOPER training course.
 - Have completed an 8-hour HAZWOPER refresher training course within the last 12 months.
 - Participates in the HAZWOPER Medical Surveillance Program.
- A Supervisor that:
 - Has at least 2 years of experience cleaning up and managing Contaminated Soil or groundwater in Oregon.
 - Meets the HAZWOPER training requirements plus completed an 8-hour HAZWOPER supervisor training course.
- An Oregon Registered Geologist or Professional Engineer who has experience handling contaminated media.

Construction

00294.40 Contaminated Soil Excavation - Excavate and handle Contaminated Soil from Project excavations according to the following:

- Notify the Engineer 3 Calendar Days before beginning excavation activities within contaminated areas.
- Allow the Agency to collect Soil and groundwater samples during excavation activities.
- Field screen Soil using a portable photo ionization detector, portable flame ionization detector, field test kits, or other instrumentation capable of detecting the contaminants identified for this Soil.
- Segregate non-Contaminated Soil from Contaminated Soil during excavation activities, based on the field screening and the provided Contaminated Soil location information.
- Load Contaminated Soil directly into trucks and transport directly to the recycling or disposal facility, or on-site reuse areas or, when approved by the Engineer, temporarily store Contaminated Soil on-site.
- Store Contaminated Soil from Bents 18 to 29 excavations in covered water tight containers or place Contaminated Soil on minimum 6 mil thick polyethylene sheeting that has an impermeable berm around the edge. Cover the Contaminated Soil with

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minimum 6 mil thick polyethylene sheeting. Do not allow precipitation run-off to enter the excavated Contaminated Soil. Label all stored Material with the type of Material, the contaminants, and the dates of accumulation.

- Remove contaminated media from the exterior of all vehicles before they leave the Project Site
- Cover trucks transporting contaminated materials to prevent spillage during transit to the disposal facility according to OAR 340-093-0220.
- Where over excavation is required, backfill the excavation according to 00330.42.

00294.41 Contaminated Soil Management - Reuse, recycle, or dispose of Contaminated Soil according to any of the following:

(a) Landfill Disposal:

- Obtain the Engineer's approval of the disposal facility before disposing of the Contaminated Soil.
- Transport the Contaminated Soil to a DEQ permitted municipal solid waste landfill or a permitted construction and demolition landfill for disposal. Dispose of temporarily stored Contaminated Soils within 30 Days of beginning excavation work or before Second Notification, whichever occurs first.
- Complete and sign all manifests and bill-of-lading forms for handling, loading, transporting, and disposing of the Contaminated Soil .
- Pay all filing and permit fees.

(c) Reuse On-Site:

- Temporarily stockpile the Contaminated Soil from Bents 23 to 29 excavations above the groundwater table.
- Reuse the Contaminated Soil on the Project between Bent 23 and Bent 29 as shown. Place the Contaminated Soil with a minimum of three feet of Clean Fill cover.
- Within 30 Calendar Days of completing on-site reuse or before Second Notification, whichever occurs first, transport all Contaminated Soil that is not reused on the Project to a DEQ permitted municipal solid waste landfill or a permitted construction and demolition landfill (or a permitted recycling facility).

00294.43 Contaminated Groundwater Pumping - Remove and handle contaminated groundwater as follows:

- Allow the Agency to collect groundwater samples during pumping activities and subsequent storage.
- Remove contaminated groundwater from the Project Site or, when approved temporarily store contaminated groundwater on-site in water tight containers compatible with the contaminants. Label each container with the contents and dates of accumulation.
- Dispose of stored contaminated groundwater within 30 Days from the date of beginning generation of it or before Second Notification, whichever occurs first, according to 00294.44.

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00294.44 Contaminated Groundwater Management - Recycle or dispose of contaminated groundwater according to any of the following:

- **Discharge to a Permitted Sanitary Sewer Facility:**
 - Submit all groundwater analytical data and proposed treatment information to the local sewer authority, and obtain written permission or a permit to discharge the contaminated groundwater to the sanitary sewer system.
 - Complete and sign the sewer permit application as the applicant and pay all associated fees.
 - Comply with all permit requirements and all other local sewer authority requirements.
- **Transport to an Off-Site Recycling or Disposal Facility:**
 - Submit all groundwater analytical data to the receiving facility and obtain written acceptance from that Entity.
 - Complete and sign bill-of-lading forms and all other documentation required by the receiving facility.
 - Pay all permit fees.

Measurement

00294.80 Measurement - Work performed under this Section will be measured according to the following:

No measurement of quantities will be made for the following:

- HASP.
- Segregate and stockpile Contaminated Soil.
- Contaminated groundwater mobilization.

Soil sample and analytical testing will be measured on the unit basis for each sample submitted and tested according to 00294.02 when test results are submitted according to 00294.03.

The quantities of Contaminated Soil disposed will be measured on the weight basis, based on weigh tickets from the recycling or disposal facility.

The quantities of contaminated groundwater removed and disposed will be measured on the volume basis, per gallon, based on the receiving facility approved meter tickets or approved on-site meters.

Clearing and grubbing will be measured according to 00320.80.

Payment

00294.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

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Pay Item	Unit of Measurement
(a) Health and Safety Plan	Lump Sum
(c) Segregate and Stockpile Contaminated Soil	Lump Sum
(d) Soil Sample Collection and Analytical Testing	Each
(e) Contaminated Soil Disposal	Ton
(f) Contaminated Groundwater Mobilization	Lump Sum
(g) Contaminated Groundwater Removal	Gallon

Item (c) includes segregating, handling, and stockpiling Contaminated Soil (or Shoulder Soil) within the Project Site for the purpose of analytical testing, on-site reuse, or disposal.

Item (d) includes mobilization, Soil sampling, testing, analyses, and preparation of reports for tests required in 00294.02. Additional testing beyond that listed in 00294.02 will only be paid if authorized by the Engineer.

Item (e) includes all costs involved with the disposal of Contaminated Soil (or Shoulder Soil) at a recycling or disposal facility.

Item (f) includes all mobilization costs for groundwater removal work.

Item (g) includes obtaining all permits and providing all Equipment and labor necessary to treat and store contaminated groundwater.

No separate or additional payment will be made for the excavation or reuse of Contaminated Soil or contaminated Shoulder Soil. Payment will be included in payment made for the appropriate items under which the excavation or reuse of Contaminated Soils or contaminated Shoulder Soil is required.

Clearing and grubbing will be paid for according to 00320.90.

Payment will be payment in full for removing and disposing of all Materials, and for providing all Equipment, labor, Plans, test results, and Incidentals necessary to complete the Work as specified.

SECTION 00295 - ASBESTOS MATERIALS

Section 00295 is not a Standard Specification and is included in this Project by Special Provision.

Description

00295.00 Scope - This Work consists of removing and disposing of materials containing asbestos. This Work may also consist of testing materials for the presence of asbestos and removing and disposing of materials containing asbestos.

00295.01 Asbestos Survey and Sampling - An asbestos survey was performed on the OR22 Center Street Bridge column bearings, deck membrane, expansion joint filler, and rail

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joint filler at Bents 15 and 19 that is to be repaired or demolished for this Project. No asbestos-containing materials (ACMs) were identified at these locations on the inspected Structure. The asbestos survey also describes suspect ACMs identified in Table 00295-2. The July 23, 2025 Northwest Geotech, Inc. report, titled Asbestos & Paint Structure Survey documenting the asbestos survey within the Project is available from the Engineer. Maintain a copy of this report and all additional asbestos survey results on site at all times and readily available to employees and inspectors during demolition and repair activities.

This Work consists of testing materials for the presence of asbestos and removing and disposing of materials containing asbestos.

The suspected asbestos containing materials listed in Table 00295-2 were not sampled.

Table 00295-2

Location/Address	Material Description	Quantity (ft. or sq.ft.)	Friable or Non-Friable
Beneath bridge deck	24-inch ductile iron waterline with high density polyethylene liner. Potential gaskets, expansion joints, sealants, insulation, or other suspect ACMs.	1100 ft.	Unknown
Buried in Water Street and north of Center Street at Bents	24-inch ductile iron waterline with potential gaskets, expansion joints, sealants, insulation, or other suspect ACMs.	250 ft.	Unknown
Water Street south of Center Street	12-inch cast iron waterline with potential gaskets, expansion joints, sealants, insulation, or other suspect ACMs.	20 ft.	Unknown
East of Front Street	10-inch cast iron waterline with potential gaskets, expansion joints, sealants, insulation, or other suspect ACMs.	20 ft.	Unknown

00295.02 Definitions:

Asbestos Containing Material (ACM) - Any material containing more than 1% asbestos.

00295.03 Submittals - The following forms and reports are required:

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- Asbestos survey report documenting sample locations and analytical results according to Oregon Administrative Rule (OAR) 340-248-0270 (3)(d).
- If test results confirm ACMs are present at locations identified in Table 00295-2, do the following:
 - At least 10 Calendar Days before beginning asbestos removal, submit to the Agency applicable DEQ notification forms completed and signed as applicable based on test results.
 - At least 3 Calendar Days after receiving them from disposal facility, submit DEQ Waste Shipment Report Form as applicable based on test results.

Labor

00295.30 Personnel Qualifications - Provide employees meeting the following requirements:

- A current AHERA Inspector Training Certification according to 40 CFR 763, Part 763, Appendix C - TSCA Tile II
- If test results confirm ACMs are present at locations identified in Table 00295-2, provide DEQ certified personnel as applicable based to test results.

Materials Testing

00295.35 Testing of Suspect Asbestos Containing Material - When additional testing is needed for suspected ACM listed in Table 00295-2, complete the following with an Asbestos Hazard Emergency Response Act (AHERA) Inspector prior to removal of material listed in the Table 00295-2:

- Collect at least 2 samples of each material listed in Table 00295-2 to determine if asbestos is present.
- Submit samples to a National Voluntary Laboratory Accreditation Program (NVLAP) certified laboratory for analysis by polarized light microscopy (PLM) following EPA Method 600/R-93/116.
- Submit the laboratory test results to Engineer for review.

If asbestos is detected in any material sample then all similar material are considered asbestos containing material and all similar materials are to be removed according to 00295.40.

Construction

00295.40 Asbestos Removal - Comply with Section 00290, 29 CFR 1910, 29 CFR 1926.1101, 40 CFR 61, 40 CFR 763, OAR 340-248, ORS 468A and the following:

- Before beginning asbestos removal work, sign and submit all notifications and pay all fees to DEQ. Provide copies to the Engineer.
- Complete and sign all manifests and bill-of-lading forms for transporting and disposing the ACM.
- Maintain the ACM in an undamaged and non-friable condition by keeping the material wet during demolition or by using methods approved by DEQ.

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- Keep material sealed during transport to the disposal facility. Transport and dispose of all ACM according to OAR 340-248-280 and OAR 340-248-290.
- Do not crush asbestos containing pipe and do not cut or break each pipe section into more than 3 pieces.
- Handle asbestos containing pipe according to the DEQ Publications *Asbestos Advisory for those who work with AC Water Pipe* and *How to Remove Asbestos (AC) Water Pipe – A Guide for Meeting DEQ Rules*.
- Remove and dispose of the materials identified as having less than 1% asbestos according to 29 CFR 1926.1101, where that regulation refers to "asbestos" rather than "asbestos containing material" or "ACM".

Measurement

00295.80 Measurement - The quantities of removing asbestos containing materials will be measured on either the length basis or the area basis.

No measurement of quantities will be made for bulk asbestos sampling, analytical testing, and reporting.

Materials containing 1% or less asbestos will not be measured.

Payment

00295.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following item(s):

Pay Item	Unit of Measurement
(a) Remove Asbestos Material, _____	Foot
(c) Bulk asbestos sampling, analytical testing, and reporting	Lump Sum

In item (a), the type of Material is inserted in the blank.

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for materials containing 1% or less asbestos.

SECTION 00296 - PAINT AND PAINTED MATERIALS

Section 00296 is not a Standard Specification and is included in this Project by Special Provision.

Description

00296.00 Scope - In addition to the requirements of Section 00290, remove lead, chromium, and cadmium based paints, and materials coated with lead, chromium, and cadmium based paints, according to the following Specifications.

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Lead, chromium and cadmium based paints coat the concrete on the soffits, beams, columns, and rail on the Center Street Bridge. Analysis of paint samples collected from this Bridge detected concentrations of total lead, cadmium and chromium in the concrete paint indicated in Table 00296-1 below:

Table 00296-1

Sample Location and Material	Total Lead (mg/kg)	Total Chromium (mg/kg)	Total Cadmium (mg/kg)
Span 20 Soffit North, Off-white texture	7.64	30.8	0.395
Span 20 Beam, Off-white texture	8.21	8.07	0.0986
Span 20 Soffit South, Off-white paint	40.7	35.7	ND
Bent 21 Column (1980s), Off-white texture	6.28	29.1	0.287
Bent 21 Column (1950s), Off-white texture with underlying brown paint	142	30.3	3.00
Pedestrian Ramp Column, Off-white paint	17.4	34.1	0.359
Pedestrian Ramp Soffit, Off-white texture	24.7	15.7	0.266
Span 26 Soffit, Off-white texture	39.8	41.0	0.0904
Bent 27 Column, Off-white texture	17.9	11.2	ND
Bent 24 Rail, Off-white texture	18.7	24.4	0.278
Bent 15 Column, Off-white texture with graffiti cover paint	18.4	22.6	0.250
Bent 15 Rail, Off-white texture	63.6	24.5	0.196
Bent 19 Rail, Off-white texture	25.1	11.6	ND
Bent 21 Column (sample B), Off-white texture with underlying brown paint	34.5	10.7	0.854

ND = not detected above the laboratory detection limit.

Toxicity Characteristic Leaching Procedure (TCLP) analysis of bulk painted concrete samples, representative of the waste that are generated during demolition, detected the concentrations of TCLP lead, chromium, and cadmium indicated in Table 00296-2 below:

Table 00296-2

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Sample Location and Material	TCLP Lead (mg/L)	TCLP Chromium (mg/L)	TCLP Cadmium (mg/L)
Bent 21 Column (1950s), Off-white texture with underlying brown paint	ND	-	-

ND = not detected above the laboratory detection limit.

Lead, chromium and cadmium based paints coat the metal on the beams on the underneath side of the OR22 Center Street Bridge. Analysis of paint samples collected from this Bridge detected the concentrations of total lead, cadmium, and chromium in the metal paint indicated in Table 00296-3 below:

Table 00296-3

Sample Location and Material	Total Lead (mg/kg)	Total Chromium (mg/kg)	Total Cadmium (mg/kg)
Bent 15 Green Paint	2100	682	94.5
Bent 19 Green Paint	1580	6450	66.3

ND = not detected above the laboratory detection limit.

The June 23, 2025 Northwest Geotech, Inc. report, titled Asbestos and Paint Survey, K21705 OR22 Center Street Bridge, Salem, Oregon and January 20, 2026 Northwest Geotech, Inc report titled Painted Concrete Survey K21705 OR22 Center Street Bridge, Salem, Oregon documenting these analyses, are available from the Engineer.

Unless otherwise tested, assume that all coatings contain lead, chromium, and cadmium and handle paint and painted materials accordingly during demolition.

00296.03 Submittals - Submit the following documents:

- A job specific written compliance program, according to 29 CFR 1926.62(e)(2), at least 10 Calendar Days before the pre-construction conference. When applicable, include compliance procedures for cadmium and chromium VI, according to 29 CFR 1926.1127 and 29 CFR 1926.1126.
- Modifications to the written compliance program within 7 Calendar Days of the modifications.
- Current employee training certificates and medical surveillance information before beginning work that disturbs paint containing lead, cadmium or chromium.
- Within 48 hours of completing or receiving them:
 - Disposal and recycling facility permits.
 - Transport manifests and bill-of-ladings.
 - All reuse, recycling, and disposal receipts.
 - All analytical test results.

00296.04 Documentation - Include paint and painted materials management and planned reuse, recycling, and disposal information in the pollution control plan. Obtain Engineer

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approval for the specific reuse, recycling, and disposal methods for all materials before beginning demolition work.

Complete, sign and pay all required fees for all required permits, manifests, and bill-of-lading forms for transport and disposal of the paint and painted materials.

Labor

00296.30 Personnel Qualifications - Provide employees trained in lead awareness, according to 29 CFR 1926.62(l), and also trained according to 29 CFR 1926.1126(j)(2) for chromium and 29 CFR 1926.1127(m)(4) for cadmium, during demolition of painted portions of the Structures.

Construction

00296.40 Handling - Minimize employee exposure to the metals contained in the paint. Provide containment that prevents release of paint chips to the environment. Do not remove or separate paint from painted substrates, unless required to accomplish repair activities.

00296.42 Painted Concrete Debris Management - Reuse, recycle, or dispose of painted concrete debris according to any of the following:

- **Recycle as New Concrete** - Recycle the concrete into new concrete on site or at an off-site fixed facility. Only use concrete containing recycled concrete debris on the Project when testing demonstrates that the mix meets applicable design standards for the intended use and is acceptable to the Engineer. Before beginning on-site crushing, obtain permits required under OAR 340-216-0020 and comply with all the permit conditions.
- **Recycle or Dispose of at Landfill** - Recycle at a permitted municipal solid waste landfill or a permitted construction and demolition landfill as aggregate material for roads or other infrastructures within the landfill area or dispose of at a permitted municipal solid waste landfill or a permitted construction and demolition landfill for disposal.

00296.43 Painted Metal Management - Reuse, recycle, or dispose of painted metal according to any of the following:

- **Reuse by Others** - Furnish or sell painted non-structural scrap metal to the following:
 - ODOT for use on other projects.
 - ODOT Maintenance Section.
 - To other government Agencies.
 - To contractors for their reuse.

Obtain the recipients signature on the attached disclaimer form, acknowledging their awareness that the scrap metal contains lead, chromium, and cadmium based paint before giving them possession.

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- **Recycle at Recycling Facility** - Transport the painted scrap metal along with the paint analytical results to a recycling facility. Obtain the recipients signature on the attached disclaimer form, acknowledging their awareness that the scrap metal contains lead, chromium and cadmium based paint.

00296.45 Non-Hazardous Waste Paint Management - When non-hazardous paint is separated from its substrate, contain all the paint waste and dispose of it at a permitted municipal solid waste landfill.

00296.46 Hazardous Waste Paint Management - When hazardous waste paint is separated from its substrate, store all the separated paint waste in labeled, sealed, watertight containers and handle the hazardous waste according to 00290.20(d).

Measurement

00296.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00296.90 Payment - No separate or additional payment will be made for Work performed under this Section. Payment will be included in payment made for the appropriate items under which this Work is required.

Attachment A
Lead, Chromium, and Cadmium Based Paint Acknowledgement Form

[Contractor] _____
[Bridge Identification] _____
[Description of Scrap Metal] _____

_____ [Recipient] acknowledges that they are aware that metal and materials received from _____ [Contractor] on _____ [Date(s)] may contain lead, chromium, or cadmium based paint. Recipient further acknowledges that it is aware of the risk to human health and the environment posed by exposure to lead, chromium and cadmium based paint. All storage, use, sale, and disposal of materials containing lead, chromium or cadmium based paint and any removal of lead, chromium, or cadmium based paint from the materials by Recipient will be conducted in compliance with all applicable Federal and State statutes and regulations, including but not limited to 40 CFR 262 through 265 and OAR Chapter 340, Divisions 100 through 106. Recipient acknowledges that they are solely responsible for any liability or damages resulting from the storage, use, sale, and disposal of the materials and removal of lead, chromium or cadmium based paint by Recipient and Recipient will indemnify and hold harmless the Contractor and the Oregon Department of Transportation from any such claims of liability or damages.

_____ [Signature]
_____ [Title]
_____ [Date]

SECTION 00305 - CONSTRUCTION SURVEY WORK

Comply with Section 00305 of the Standard Specifications modified as follows:

00305.05 3D Engineered Models - Replace this subsection, except for the subsection number and title, with the following:

If the Contractor elects to use the 3D Engineered Models to control the work, provide unstamped 3D Construction Models according to 00150.35 that include the following:

- An automated machine guidance (AMG) work plan containing a detailed outline, list of the Pay Items and Work controlled by the 3D Construction Models, and a narrative outlining any differences between the Agency prepared 3D Engineered Models and the 3D Construction Models.
- A copy of the 3D Construction Models used by the Contractor's Equipment for machine guidance or verification that include and represent the Agency prepared 3D Engineered Models with changes identified in the narrative. Provide files in LandXML format or as directed.

SECTION 00310 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Comply with Section 00310 of the Standard Specifications modified as follows:

00310.80 Measurement - Replace the bullet "Length and Area..." with the following bullet:

- **Length and Area** - The length or area of the Structure or item actually removed, will be measured along the line and grade of the Structure or item for each continuous Structure or item removed. Measurement will be on the length or area basis, limited to the Neat Lines shown or directed.

Asphalt Pavement Sawcutting and Concrete Sawcutting will be measured by the linear foot of sawcut, limited to the Neat Lines shown or directed unless otherwise specified. Methods other than sawcutting will not be measured.

Additional concrete sawcutting beyond what is shown or directed by the Engineer will not be measured.

00310.92 Separate Item Basis - Replace the Pay Item Asphalt Pavement Sawcutting with the following Pay Item:

Pay Item

Unit of Measurement

(g) Asphalt Pavement Sawcutting, _____ Inches DeepFoot

Replace the paragraph that begins "Item (g) applies..." with the following paragraph:

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In item (g), “less than 6”, “6 to 14”, or “greater than 14” is inserted in the blank.

Add the following Pay Item to the Pay Item list:

(i) Concrete Sawcutting, _____ Inches Deep Foot

Add the following paragraph after the paragraph that begins “Item (g) applies...”

In item (i), “less than 6”, “6 to 14”, or “greater than 14” is inserted in the blank.

Add the following paragraph to the end of the subsection:

No separate or additional payment will be made when methods other than sawcutting are utilized where sawcutting is shown or directed.

SECTION 00320 - CLEARING AND GRUBBING

Comply with Section 00320 of the Standard Specifications modified as follows:

00320.02(a) Clearing - Replace the bullet that begins “Cutting and removing vegetation...” with the following:

- Cutting and removing vegetation, such as weeds, grasses, crops, and brush.

Add the following subsection:

00320.02(d) Tree Removal - Tree removal consists of removing trees above the ground surface as shown.

00320.40 Clearing Operations - Replace the title of this subsection with the following title:

Clearing and Tree Removal Operations

00320.40(b)(3) Vegetation and Materials to be Saved - Replace the paragraph that begins “Do not work within the no Work ...” with the following paragraph:

Do not work within the no Work Zones or critical root zone of marked trees unless written approval is obtained from the Engineer. Be responsible for all damage to and removal of trees, landscaping, vegetation or other natural materials designated to be saved. The Engineer will select a specialist who will evaluate the damage.

Add the following to the end of this subsection:

If excavation occurs within any portion of the critical root zone of trees in the Work Area that are to be saved, consult with the Engineer and City of Salem Urban Forester regarding appropriate treatment of any exposed or cut roots.

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00320.40(c) Tree and Vegetation Trimming - Replace the bullet that begins "Trim branches obstructing sight..." with the following bullet:

- Trim and remove branches, vegetation, or other materials obstructing sight distance at intersections or impairing visibility of signs, signals, illumination, and other TCD.

00320.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Add the following to the end of this subsection:

The accepted quantities of tree removal Work will be paid for at the Contract lump sum amount for the item "Tree Removal".

No separate or additional payment will be made for critical root zone protection measures.

SECTION 00330 - EARTHWORK

Comply with Section 00330 of the Standard Specifications modified as follows:

00330.00 Scope - Replace the paragraph that begins "The term "earthwork" will be..." with the following paragraph:

The term "earthwork" is used as a general term to designate the Work included within the scope of this Section.

00330.01 Lines, Grades, and Cross Sections - Replace the paragraph that begins "All earthwork..." with the following paragraph:

Conform all earthwork to the lines, grades and Cross Sections established.

Replace the paragraph that begins "Roadbed Cross Sections ..." with the following paragraph:

Roadbed Cross Sections are subject to variation from the Typical Sections , if directed, to:

00330.02 Definitions - Replace the paragraph that begins "**Construction Slide** - A Slide outside ..." with the following paragraph:

Construction Slide - A Slide outside the designated limits of excavations, or below the foundation within designed limits of embankments or within embankments, that occurs after excavation or embankment construction starts and before Final Acceptance of the Contract.

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00330.03 Basis of Performance - Add the following paragraph to the end of this subsection:

Perform all earthwork under this Section on the excavation basis.

00330.03(a) General - Replace this subsection, except for the subsection number and title, with the following:

Except as provided in 00330.00, perform all earthwork on either the excavation basis or the embankment basis. The basis of performance for each earthwork Pay Item is specified in the Special Provisions and the Contract Schedule of Items.

00330.04 Sources of Borrow - Replace this subsection, except for the subsection number and title, with the following:

(a) Agency-Furnished Borrow - Use Materials obtained from Agency-provided sources lying outside of, separated from and independent of planned Roadbed excavations, or other required excavations within the Project limits, only when called for by the Contract or when specifically directed. (See 00330.41(d).)

(b) Contractor-Furnished Borrow - Unless otherwise specified or directed, furnish all Borrow. Use sources that are wholly outside of and beyond the limits of Agency-Controlled Lands. Acquire at Contractor's own expense. The provisions of 00160.60 and 00160.80 apply.

00330.10 Selected Materials - Replace this subsection, except for the subsection number and title, with the following:

When the Contract contains a Pay Item "Extra for Selected ____ Material", furnish the Material from required excavations. The Specifications for the selected Materials are in the Special Provisions, if different than specified in these Specifications. If other provisions of this Section call for selecting or sorting Material for various parts of the Work, select and sort the Materials to meet the directed requirements.

00330.16(a) Requirements - Replace the paragraph that begins "If the 1" - 0 portion exceeds ..." with the following paragraph:

If the 1" - 0 portion exceeds 10 percent of the total volume by the Engineer's visual examination, the 1" - 0 material will be randomly sampled for testing. The Agency will perform the wet sieve test, according to AASHTO T 11, on the sampled material. The limit on the amount of material passing the No. 200 sieve is not to exceed 5.0 percent by weight.

00330.16(b) Control Sample - Replace this subsection, except for the subsection number and title, with the following:

Provide, at a location acceptable to the Engineer, in close proximity to the Project, at least a 5-cubic yard sample of stone embankment meeting the gradation specified. This sample is used as a frequent reference for judging the gradation of the material supplied.

00330.40(a) Quantities - Replace the paragraph that begins "The Agency makes no guarantee ..." with the following paragraph:

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The Agency makes no guarantee or representation by implication or otherwise, that any Material available on the Project site is suitable for incorporation into any portion of the Project. No Material is considered unsuitable on the sole basis that special or additional processing or handling is required to make it suitable for incorporation into the Project.

00330.40(c) Avoidance and Correction of Detrimental Operations - Replace the paragraph that begins "Perform all operations involved ..." with the following paragraph:

Perform all operations involved in excavating, hauling and placing of earthwork Materials so no damage or detriment to the completed or partially completed Work results. At all times provide sufficient drainage of completed or partially completed earthwork to prevent damage or loss due to rainfall, surface water or any other cause. In all cases, take proper precautions to ensure that embankment construction and filling do not move, endanger or cause undue strain or stress to any Structure or adjacent ground. Do not construct temporary and final embankment slopes within any Cross Section steeper than the Slope staked for that Cross Section.

00330.41(a)(3) Unsuitable Materials - Replace this subsection, except for the subsection number and title, with the following:

Unsuitable Materials encountered in required excavations are classed as waste material and disposed of according to 00330.41(a)(5).

00330.41(a)(9) Excavation Below Grade - Delete subsection 00330.41(a)(9)(c).

00330.41(a)(12) Outside Earthwork Limits - Replace this subsection, except for the subsection number and title, with the following:

Outside earthwork limits but within the Clear Zone, (see 00320.02(c)), remove partially buried natural objects, such as Boulders, that the Engineer determines would be dangerous to an errant vehicle. Place them within embankments as specified or dispose of them as directed.

00330.41(b) Foundation Excavation - Replace this subsection, except for the subsection number and title, with the following:

Excavate Unsuitable Materials in embankment foundations and elsewhere as designated. This Work is classed as "Foundation Excavation". Dispose of these materials according to 00330.41(a)(5) and replace with selected general backfill, selected granular backfill or other suitable Materials as directed.

00330.41(d) Borrow Excavation - Replace this subsection, except for the subsection number and title, with the following:

Whenever the Specifications or Contract Plans call for an Agency-provided Borrow source for earthwork materials, the Material excavated from such source and used in the Work as earthwork materials are classed as "Borrow Excavation". Excavate and use these materials according to the Contract provisions, or as directed.

00330.42(a) Embankment Foundation Preparation - Replace the paragraph that begins "In addition to the excavation ..." with the following paragraph:

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In addition to the excavation and replacement of Unsuitable Materials as provided in 00330.41(b), and before constructing embankments, prepare the areas where embankments are to be constructed as follows:

00330.42(a)(1) Unstable Areas - Replace this subsection, except for the subsection number and title, with the following:

Where the embankment foundation will not support hauling or compaction Equipment and only if directed, place an initial layer of selected Materials. Place the initial layer by dumping successive loads in a uniformly distributed layer of a thickness not greater than necessary to support the Equipment and not greater than 3 feet, unless otherwise authorized. Do not place the initial layer higher than 3 feet below Subgrade. Commence consolidation of the initial layer by routing construction Equipment uniformly over the entire layer. Meet the compaction requirements of 00330.43 for the initial layer, except for layer thickness. Meet all requirements of 00330.43 for subsequent layers.

00330.42(a)(3) Drainage - Replace this subsection, except for the subsection number and title, with the following:

Provide drainage and drainage Structures as shown or directed.

00330.42(a)(4) Backfilling Inside Roadbed Limits - Replace this subsection, except for the subsection number and title, with the following:

Break up concrete or asphalt floors, slabs, or walls, as specified in 00310.41(d), before backfilling or placing embankment. Backfill basements, trenches and holes within embankment limits with selected stone backfill Material. Backfill Material placed in basements may include pieces of broken concrete and masonry not exceeding 15 inches in any dimension provided they are placed and compacted according to 00330.42(c). Protruding reinforcement is not allowed in the broken concrete and masonry used as backfill.

00330.42(a)(7) Foundation Benching - Replace the paragraph that begins "Make the bottom bench ..." with the following paragraph:

Make the bottom bench at least 10 feet wide. Penetrate each succeeding bench into the slope at least 3 feet horizontally beyond the vertical side of the previous bench. Ensure the bench is wide enough to operate placing and compaction Equipment. Bring each bench and embankment layer surface to a Slope flatter than 1V:10H. Perform the benching, placing and compaction operation simultaneously from the bottom up.

00330.42(c)(1) General - Replace the paragraph that begins "Except as provided in ..." with the following paragraph:

Except as provided in 00330.42(a)(1), do not construct embankments or fillings when the embankment Material, the foundation or the embankment where it would be placed is frozen, not stable or not compacted, unless otherwise directed.

00330.42(c)(2)(c) Oversize Durable Rock Fragments - Replace the paragraph that begins "Placing isolated individual ..." with the following paragraph:

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Placing isolated individual Durable Rock fragments having dimensions greater than the specified layer thickness is allowed if:

00330.42(c)(2)(d) Durable Rock - Replace the paragraph that begins "If the visible quantity of Silt ..." with the following paragraph:

If the visible quantity of Silt and Clay Materials passing the No. 200 screen is less than 20 percent by volume, as determined by the Engineer, the maximum Rock fragment size and layer thickness may be increased to 36 inches, but do not exceed the layer thickness of the average maximum size of the Rock fragments.

00330.42(c)(2)(e) Nondurable Rock - Replace the bullet that begins "The moisture content of ..." with the following bullet:

- Compact the Material when the moisture content is within the requirements of 00330.43.

Replace the bullet that begins "Compact the Material to density ..." with the following bullet:

- Compact the Material to density/deflection requirements specified in 00330.43 with a tamping-foot roller that meets the requirements of 00330.20. Perform a minimum of three Coverages on each embankment layer with the tamping-foot roller. Operate the roller at a uniform speed not exceeding 3 mph. No additional compensation will be made for additional roller Coverages to meet the requirements of 00330.43.

00330.42(c)(3) Embankment Slope Protection - Replace the paragraph that begins "Construct outer portions of ..." with the following paragraph:

Construct outer portions of embankments exposed to erosion by stream flow or other erosive action with Rock fragments, or other desirable Materials, if directed, and such are available in the excavations. Also, if directed, place similar Material as a protective layer on the outside of the regular embankment slopes as embankment widening, closely following construction of the embankment. Compaction is not required for protective Materials placed as embankment widening. Place protective Materials with a reasonably smooth surface, resistant to washout or slippage.

00330.42(c)(5) Embankment Construction Around Minor Structures - Replace this subsection, except for the subsection number and title, with the following:

Backfill prior excavations in the vicinity of curbs, walks, driveways, inlets, manholes and other such minor Structures with selected general backfill, or selected granular backfill as directed with no particles larger than 1 inch and that is compatible with the adjacent material, unless otherwise specified. Place backfill in layers according to 00330.42(c)(1), compact according to 00330.43, and with a moisture content according to 00330.43.

00330.42(c)(7) Embankment Construction at Bridge Ends - Replace this subsection, except for the subsection number and title, with the following:

At the ends of Bridges and for a distance of at least 100 feet from the Bridge, place and compact the embankments before beginning Bridge construction, unless otherwise directed. Unless the embankment is constructed according to 00330.42(c)(8), furnish and place

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selected stone backfill Material, meeting the requirements of 00330.15 when such is available from excavations, in all embankments within 100 feet of Bridges, or as directed.

00330.42(c)(8) Engineered Fills - Replace the paragraph that begins "Place the granular structure ..." with the following paragraph:

Place the granular structure backfill, meeting the requirements of 00510.13, in maximum 6-inch Lifts and compact to 100 percent maximum density from the top of the selected stone backfill to the footing elevation shown. Place these Materials at the thickness and extent according to the details shown, or as directed.

Replace the paragraph that begins "The foundation compaction ..." with the following paragraph:

The foundation compaction requirements in 00330.43 are subject to the higher requirements of this subsection. Compact according to the percentages required above.

00330.42(d) Stone Embankment - Replace the paragraph that begins "If the Contract Plans or ..." with the following paragraph:

If the Contract Plans or Specifications require embankments, or parts of embankments, to be constructed of stone embankment Material, furnish and place the stone embankment Material according to this provision and as directed. Furnish Materials from Contractor-provided sources according to the requirements of 00330.16, unless otherwise specified.

Replace the bullet that begins "Material placed in the ..." with the following bullet:

- Material placed in the upper 1-foot of embankments or within 1-foot of a culvert or other Structure, are not more than 3 inches in size.

00330.43(b)(2) Replace the paragraph that begins "In place Materials shall ..." with the following paragraph:

Meet the following moisture content, density, and deflection requirements for in-place Materials:

00330.43(b)(2)(a) Moisture Content - Replace this subsection, except for the subsection number and title, with the following:

At the time of compaction, compact the Materials at a moisture content to within minus 4 percent to plus 2 percent of optimum moisture content. Add water to Material that does not contain sufficient moisture to obtain proper compaction and thoroughly mix as directed. Dry Material containing an excess of moisture by manipulation, aeration, drainage or other means before being compacted.

00330.43(b)(2)(b) Density - Replace the paragraph that begins "After compaction of each ..." with the following paragraph:

After compaction of each layer provide a density of at least:

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00330.43(d) Small, Irregular Fill Areas - Replace the paragraph that begins "The density requirements of 00330.43 do not apply..." with the following paragraph:

The density requirements of 00330.43 do not apply to irregular fill areas outside of the travel lanes that have a total volume of no more than 150 cubic yards at each location. Construct these areas according to the following:

00330.44(a) Preparation - Replace this subsection, except for the subsection number and title, with the following:

Do not start excavation for each segment until a stockpile of stone embankment Material is immediately available at or near the site. Locate the stockpile at a site approved by the Engineer. Provide a stockpile size sufficient to fill one excavated segment.

00330.44(b) Sequence of Construction - Replace this subsection, except for the subsection number and title, with the following:

Excavate the area according to 00330.40 and 00330.41 to provide a backslope to the lines, Slopes and details shown, or as directed. Excavate and backfill in segments to minimize aggravating stability conditions. For each segment do not exceed 75 feet in length as measured across the top of each open excavation segment, unless otherwise specified or directed.

00330.47 Specified Selected Courses or Layers of Materials - Replace the paragraph that begins "Place and construct selected ..." with the following paragraph:

Place and construct selected Courses or layers according to the requirements of 00330.42 and 00330.43, unless otherwise specified.

00330.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph that begins "No separate or additional ..." with the following paragraph:

No separate or additional payment will be made for blasting done according to 00330.41(e) unless a blasting item is listed in the Contract Schedule of Items.

00330.91(c) Toe Trench Excavation - Replace the bullet that begins "At the toe of riprap slopes ..." with the following bullet:

- At the toe of riprap slopes as shown and elsewhere as directed to provide a suitable foundation toe trench where to place riprap geotextile or filter blanket, and riprap Material.

00330.91(d) General Excavation - Delete the bullet that begins "Includes Unsuitable Material...".

SECTION 00331 - SUBGRADE STABILIZATION

Comply with Section 00331 of the Standard Specifications modified as follows:

00331.10 Materials - Replace the Material that begins "Aggregate Base..." with the following Material:

Aggregate Base 02630.10

00331.90 Payment - Replace the paragraph that begins "The depth of stabilization ..." with the following paragraph:

The depth of stabilization is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00350 - GEOSYNTHETIC INSTALLATION

Comply with Section 00350 of the Standard Specifications modified as follows:

00350.01 Definitions - Add the following definition:

Geomembrane - An essentially impermeable geosynthetic composed of one or more synthetic sheets.

Replace the definition "**Geogrid**" with the following definition:

Geogrid - A geosynthetic used for reinforcement that is formed by a regular network of tensile elements with apertures of sufficient size to allow strike-through of surrounding Soil, Rock or other geotechnical material.

Replace the definition "**Seam Type**" with the following definition:

Seam Type - A designation of Geotextile positioning and rows of stitching in a specified sewn seam as shown (for example Type SSn-1, "J" Seam SSn-1). The designated method of joining Geomembrane sheets (for example thermal fusion welding, extrusion welding).

00350.40 General - Replace this subsection, except for the subsection number and title, with the following:

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Furnish geosynthetic from the manufacturer and protect against damage and deterioration. Prevent excessive mud, wet concrete, epoxy and like materials from coming in contact with the geosynthetic. Store all Geosynthetics in a dry place and off the ground at all times according to ASTM D4873. Cover all Geosynthetics with a dark protective covering when received. The geosynthetic will be rejected for use if the Engineer determines it has defects or deterioration or has been damaged.

00350.41(a)(3)(a) General - Replace the paragraph that begins "Sew field seams with polymeric ..." with the following paragraph:

Sew field seams with polymeric thread consisting of polypropylene, polyester or kevlar, and as resistant to deterioration as the Geotextile being sewn. Use a color of thread that contrasts with the Geotextile being sewn so the stitches are exposed for inspection when the Geotextile is placed. Meet the testing requirements of 02320.11(b).

00350.41(a)(3)(b) Stitch Requirements - Replace the paragraph that begins "Use two rows of lock-type ..." with the following paragraph:

Use two rows of lock-type stitching, Type 401, spaced 1/2 inch apart with a tolerance of plus or minus 1/4 inch as shown, to make the seams. Do not cross stitches except for restitching.

00350.41(f)(2) Weather Limitations - Replace this subsection, except for the subsection number and title, with the following:

Do not place sealant and Geotextile unless the weather limitations of 00745.40 are met, as appropriate, except the minimum air temperature is 50 °F for paving grade asphalt sealant placement and 60 °F for asphalt emulsion sealant placement.

00350.41(f)(3) Surface Preparation - Replace the paragraph that begins "Prepare the Pavement surface ..." with the following paragraph:

Prepare the Pavement surface that the sealant is to be placed according to 00730.42 and the following:

00350.41(f)(4) Sealant Application - Replace the paragraph that begins "Uniformly spray the asphalt ..." with the following paragraph:

Uniformly spray the asphalt sealant at normal application temperature by means of a pressure distributor according to 00350.21 on the prepared dry Pavement surface. Apply at the rate of 0.20 - 0.30 gallon per square yard, or as recommended by the Geotextile manufacturer or as directed.

Replace the paragraph that begins "The target width of the sealant ..." with the following paragraph:

The target width of the sealant application is the Geotextile width plus 6 inches. Apply the sealant only as far in advance of the Geotextile installation as appropriate to ensure a tacky surface at the time of Geotextile placement. Place the Geotextile the same Day as the sealant. Do not allow traffic on the sealant. Clean excess asphalt from the road surface.

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00350.42(a) Placement - Replace the bullet that begins "Unroll the Geogrid ..." with the following bullet:

- Unroll the Geogrid in the same direction the cover Material is placed. If the Geogrid shifts or becomes misaligned, realign it and anchor it according to the manufacturer's recommendations.

00350.90 Payment - Replace the paragraph that begins "In items (a) and (c), ..." with the following paragraph:

In items (a) and (c), the type of Geotextile is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00405 - TRENCH EXCAVATION, BEDDING, AND BACKFILL

Comply with Section 00405 of the Standard Specifications modified as follows:

00405.02 Definitions – Replace the definition “**Trench Foundation**” with the following definition:

Trench Foundation - The bottom of the trench where the Pipe Bedding is to lie and that provides support for the pipe.

00405.03 Lines, Grades, and Cross Sections - Replace this subsection, except for the subsection number and title, with the following:

Excavate trenches to the lines, depths, grades and Cross Sections as shown or as established. Variations are allowed only when necessary to ensure firm foundations and when such variations will not be detrimental to the Work.

00405.14 Trench Backfill - Replace the paragraph that begins "Furnish the following ..." with the following paragraph:

Furnish the following Materials as shown or required:

00405.14(b) Class B Backfill - Replace the paragraph that begins "Use Granular Material..." with the following paragraph:

Use Granular Material consisting of Gravel or crushed Rock meeting the requirements of Section 00641. Use 1" - 0 or 3/4" - 0 Aggregate.

00405.14(d) Class D Backfill - Replace the paragraph that begins "Use pit run or bar ..." with the following paragraph:

Use pit run or bar run Material, well-graded from coarse to fine. The maximum dimension is 3 inches.

00405.41(b) Open Trench Limit - Replace this subsection, except for the subsection number and title, with the following:

Limit the length of open trench to 100 feet, or as allowed. Complete related resurfacing within 800 feet of the open trench limit.

00405.41(f) Trench Protection - Replace the paragraph that begins "Provide the Materials ..." with the following paragraph:

Provide the Materials, labor and Equipment necessary to protect trenches at all times. Provide safe working conditions in the trench and protect the Work, existing property, utilities, Pavement, and the public. Design the method of protection. The Contractor may elect to use any combination of shoring, overbreak, tunneling, boring, sliding trench shields or other methods of accomplishing the Work, provided the method meets with the approval of the Engineer and complies with all applicable local, state, and federal safety codes.

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00405.43 Dewatering - Replace the paragraph that begins "When dewatering near a ..." with the following paragraph:

When dewatering near a river, lake, or stream, meet the requirements of 00290.30(a) and Section 00280. When the presence of water or other conditions in the excavated area would be detrimental to the purpose of the Work, obtain approval of the Engineer for the temporary measures required to correct or care for the condition.

00405.44 Trench Foundation - Replace the paragraph that begins "When, in the judgment of ..." with the following paragraph:

When, in the judgment of the Engineer, the existing material in the bottom of the trench is unsuitable for supporting the pipe, excavate below grade, as directed. Replace the excavated material with imported Trench Foundation Material meeting the requirements of 00405.11. Place the Trench Foundation Material in 6-inch layers and compact according to 00330.43 except compact selected stone backfill material in 12-inch layers. Bring the Trench Foundation Material to the elevation established.

00405.45 Pipe Bedding - Replace this subsection, except for the subsection number and title, with the following:

Spread the bedding smoothly to the proper grade so that the pipe is uniformly supported along the barrel. Excavate bell holes at each joint to permit proper assembly and inspection of the joint. Furnish bedding under the pipe that provides a firm, unyielding support along the entire pipe length.

00405.46 Backfilling - Replace the paragraph that begins "Backfill with Material ..." with the following paragraph:

Backfill with Material meeting the requirements of 00405.13 and the details shown, or as directed.

00406.46(d) Ponding or Jetting of Backfill Materials - Replace the paragraph that begins "Ponding or jetting is ..." with the following paragraph:

Ponding or jetting is not allowed within Roadbed lateral limits. Ponding or jetting is allowed outside Roadbeds when approved by the Engineer in writing.

Replace the paragraph that begins "Furnish Equipment that provides ..." with the following paragraph:

Provide Equipment that provides a minimum gauge pressure of 35 psi at the discharge nozzle. Use a Rigid Pipe that will reach within 1 foot of the bottom of the backfill. Insert the pipe at intervals not exceeding 4 feet throughout the entire width and length of the Trench Backfill.

00406.46(e) Temporary Trench Plating - Replace this subsection, except for the subsection number and title, with the following:

When temporary steel plates are required over a street cut, install plates capable of carrying at least a minimum of MS-18 loading. Place steel plates with a minimum of 12 inches bearing

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on all sides of a cut. Anchor steel plates to minimize shifting. Shim the edges of all steel plates with cold mix asphalt.

00405.48(b) Topsoil - Replace the paragraph that begins "Where trenches cross lawns ..." with the following paragraph:

Where trenches cross lawns, garden areas, pastures, cultivated fields or other areas where Topsoil exists, remove the Topsoil to a minimum 12-inch depth and place the Material in a stockpile. Do not mix the Topsoil with other excavated material. After the trench has been backfilled, replace the Topsoil.

00405.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

In the paragraph that begins "No separate or additional..." delete the following bullet:

- sawcutting

Add the following sentence to the end of the subsection:

Sawcutting will be paid for according to Section 00310.

SECTION 00415 - VIDEO PIPE INSPECTION

Comply with Section 00415 of the Standard Specifications modified as follows:

Add the following subsection:

00415.02 Definitions:

Flexible Pipe - Pipes constructed of corrugated metal are considered Flexible Pipes.

Rigid Pipe - Pipes constructed of concrete and ductile iron are considered Rigid Pipes.

Thermoplastic Pipe - Pipes constructed of polyvinyl chloride, polyethylene, and polypropylene are considered Thermoplastic Pipe.

00415.20(b) Transporter - Replace the paragraph that begins "Use an all-wheel..." with the following paragraph:

Use an all-wheel drive or track mounted transporter capable of inspecting pipes ranging in size from 12 to 60 inches in diameter. Provide a transporter with an adjustable operating speed while recording not to exceed 30 feet per minute.

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00415.20(c) Recording Device - Replace the paragraph that begins "Provide a device capable ..." with the following paragraph:

Provide a device capable of recording video with the pipe identification, a remote meter counter displaying length along the profile in tenths of feet and indicating the camera's position from the starting point. Calibrate the meter counter to be accurate within 0.5 percent over the length of pipe being inspected. Provide a device capable of recording a digital video with a minimum resolution of 720 x 480.

00415.23 Manual Inspection - Replace this subsection, except for the subsection number and title, with the following:

For pipes larger than 48 inches and when the entire length of the pipe is accessible, a handheld video camera and a light source may be used. Provide video camera and lighting meeting the requirements of 00415.20(a). A digital camera may be used as a supplement for taking photographs. Use a light source that provides a clear, focused and high-quality photograph of the culvert surface under all conditions.

00415.41 Pre-Installation Video Inspection - Replace the paragraph that begins "Perform a pre-installation video inspection..." with the following paragraph:

Perform a pre-installation video inspection at least 5 Calendar Days before beginning Work. Begin Inspection at one end of the pipe and proceed through the entire pipe length at a speed not greater than 30 feet per minute. Move the camera through the pipe, along the approximate center of the pipe, and provide a continuous 360 degree pan of each pipe joint. Stop and record all cracks, deformities, and defects to document the pipe condition, including the location of all lateral connections to the mainline.

00415.42 Post Installation Video Inspection - Replace the paragraph that begins "Perform post construction video inspection..." with the following paragraph:

Perform post construction video inspection according to 00415.40 and 00415.41. Video inspect the pipe interior no sooner than 30 Days after the trench backfill and compaction have been completed, and before any paving is performed. If the Contract duration does not permit a 30-Day waiting period, the Engineer may allow the inspection when the compacted backfill reaches a minimum of 2 feet above the pipe crown.

00415.42(a) Deflection Testing for Flexible Pipe - Replace this subsection with the following subsection:

00415.42(a) Post Installation Deflection Testing - Perform post construction deflection testing for all Flexible Pipe and Thermoplastic Pipe as described.

- Flexible Pipe for new pipe installations and extensions greater than 15 feet in length.
- Thermoplastic Pipe for new pipe installations and extensions greater than 10 feet in length.

If any portion of the new pipe interior is not accessible for a visual inspection, then perform deflection testing for the entire installation of new pipe or extension regardless of pipe length.

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Use one of the approved following methods:

00415.42(a)(1) Remote Video Inspection with Laser Profiler – Replace the paragraph that begins “Calibrate and perform...” with the following paragraph:

For pipe 48 inches or less in diameter, calibrate, and perform deflection inspection according to ASTM F3080. Use video inspection equipment meeting the requirements of 00415.22.

00415.42(a)(2) Manual Deflection Test - Replace the paragraph that begins “Use equipment meeting...” with the following paragraph:

For pipes larger than 48 inches and when the entire length of the pipe is accessible, use equipment meeting the requirements of 00415.23.

00415.70 Video Inspection Recording and Inspection Report - Replace the paragraph that begins “Furnish two copies...” with the following paragraph:

Provide two copies of all preconstruction and post construction inspection video and reports within 3 Calendar Days after completing the inspections. If inspection video or audio recording quality is poor, the Engineer has the right to reject the recording and request new video inspection at no additional cost to the Agency.

00415.71 Corrections to Deficiencies in Work - Replace the paragraph that begins “Where the pipe deflection...” with the following paragraph:

Where the pipe deflection is greater than 5 percent and less than 7.5 percent of the nominal diameter, submit a remediation plan as a stamped Working Drawing according to 00150.35. Replace pipe where the deflection exceeds 7.5 percent of the nominal diameter at no additional cost to Agency.

00415.90 Payment - Replace the paragraph that begins “Payment will be payment ...” with the following paragraph:

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00440 - COMMERCIAL GRADE CONCRETE

Comply with Section 00440 of the Standard Specifications modified as follows:

00440.11 Proportions . Replace the paragraph that begins "Furnish, in writing to the Engineer ..." with the following paragraph:

Provide, in writing to the Engineer, the proportions by weight of the following Materials before using any CGC:

00440.12 Properties of Commercial Grade Concrete - Replace the bullet that begins “**Entrained Air...**” with the following bullet:

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- **Entrained Air** - 4.0 to 7.0 percent
 - Entrained air not required for precast elements utilizing dry cast mix designs.

00440.13 Field-Mixed Concrete . Replace the paragraph that begins "CGC Work items listed in 00440.14(a)..." with the following paragraph:

CGC Work items listed in 00440.14(a) may be field-mixed conventionally, or by volumetric/mobile mixers according to ASTM C685. When approved, concrete sidewalks, concrete curb ramps, concrete driveways, and other flat concrete surfaces may be field-mixed using volumetric/mobile mixers according to ASTM C685, request approval prior to placement. For all other CGC applications, submit written request to the Engineer for approval to use volumetric/mobile mixers according to ASTM C685 at least 21 Days prior to placement.

00440.14(a) General . Replace the paragraph that begins "Acceptance sampling..." with the following paragraph:

Acceptance sampling and testing is based on tests performed by the Contractor's QCT from samples obtained at the site of placement from the discharge of the delivery vehicle.

00440.40(b) Placing . Replace the paragraph that begins "Place CGC..." with the following paragraph:

Place CGC according to the appropriate Sections where CGC is required and the following:

00440.40(c) Forms . Replace the paragraph that begins "Provide forms for CGC ..." with the following paragraph:

Provide forms for CGC according to the appropriate Sections where CGC is required and best common practices. Place to the lines and grades shown or directed.

00440.40(e) Curing - Replace this subsection, except for the subsection number and title, with the following:

Cure CGC for a minimum of 7 Calendar Days by one of the following methods:

- Cover with wet burlap, canvas, Sand, or other acceptable Material, and keep moist.
- Apply curing compounds at a rate of not less than 1 gallon per 150 square feet. Do not use on surfaces that come into contact with adjacent pours and avoid overspray on exposed reinforcement. Use curing compounds according to the following:

Table 00440-1

Section	Item	Type 1 or 1-D (Clear)	Type 2 (White-Pigmented)
00480	Drainage Curbs	*	*
00599	Slope Paving Curbs and Berm Paving	Yes	No

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00759	Walks, Curb Ramps, Driveways, Surfacing, Curbs, and Islands	*	*
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*Use Type 2 except when the Engineer requires Type 1 or 1-D

SECTION 00442 - CONTROLLED LOW STRENGTH MATERIALS

Comply with Section 00442 of the Standard Specifications modified as follows:

00442.01 Definition - Replace this subsection, except for the subsection number and title, with the following:

Controlled low-strength material is highly flowable lean concrete mix; that may contain cement, supplementary cementitious material, Fine Aggregates, water and chemical admixtures, if necessary.

00442.10 Materials - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials meeting the following requirements:

Cement.....	02010
Chemical Admixtures	02040
Supplementary Cementitious Materials.....	02030
Water	02020

00442.12 Proportioning of CLSM Mixture - Replace this subsection, with the following subsection:

00442.12 Submittals - Provide the following, to the Engineer, prior to using any CLSM on the Project:

- Proposed mix design proportions by weight and volume.
- 28-Day compressive strength test reports from trial batch or field data.

00442.13 Compressive Strength - Replace this subsection, except for the subsection number and title, with the following:

Furnish CLSM attaining a 28-Day compressive strength of 100 psi - 200 psi.

00442.14 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance is based on the Engineer's review and approval of the documentation required by 00442.12, and visual inspection during placement.

SECTION 00445 - SANITARY, STORM, CULVERT, SIPHON, AND IRRIGATION PIPE

Comply with Section 00445 of the Standard Specifications modified as follows:

00445.02 Contractor's Options - Replace the paragraph that begins "If the Contractor has an option ..." with the following paragraph:

If the Contractor has an option of using different kinds of pipe, the option and its installation and other limits are as shown or on the Pipe Data Sheet.

00445.03 Size Determination - Replace this subsection, except for the subsection number and title, with the following:

The nominal size of pipe is determined according to AASHTO tolerances for pipe dimensions for the appropriate kind or class of pipe.

00445.10 General - Replace this subsection, except for the subsection number and title, with the following:

Furnish appropriate certification from the manufacturer or fabricator, based on the manufacturer's quality control tests, that the Materials used in the production of the pipe meet the Specifications. Materials and strength are as specified for the particular kind of pipe and fittings required.

Use flexible elastomeric gasket Joints on all pipes and fittings. Furnish caps or plugs with each fitting, outlet or stub as required, with the same type of gasket or Joint as the pipe.

For sanitary sewers provide tee or wye fittings in the main of the same Materials as the pipe. Furnish fittings of sufficient strength to withstand all handling and load stresses encountered. Furnish Material joining the fittings to the pipe that is free from cracks and that adheres tightly to each joining surface.

Cap or plug all fittings and provide with gaskets of the same Material as used in the pipe Joint. Fit with an approved mechanical stopper or install an integrally cast knockout plug. Provide a cap or plug capable of withstanding test pressures without leaking and, when later removed, permits continuation of piping with jointing similar to Joints in the installed line.

00445.11(a) Pipe Anchors - Replace this subsection, except for the subsection number and title, with the following:

Use pipe anchors according to the Standard Drawings and as shown. Furnish metal bands according to the material Specifications for the Metal pipe that they are attached to.

00445.11(b) Slip Joints - Replace this subsection, except for the subsection number and title, with the following:

Construct slip Joints according to the details shown. Furnish the outer sleeve and tapered section according to the material Specifications for the Metal pipe that they are installed with.

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00445.11(c) Safety End Sections - Replace this subsection, except for the subsection number and title, with the following:

Use safety end sections according to 02420.10 and the Standard Drawings. Provide safety bars unless otherwise shown.

00445.11(e) Tracer Wire - Replace this subsection, except for the subsection number and title, with the following:

Use 12-gauge stranded or solid copper insulated high molecular weight polyethylene (HMW-PE) tracer wire or 12-gauge copper clad steel reinforced insulated HMW-PE tracer wire. Use a green, minimum 45 mil thick HMW-PE insulated cover. Use a tracer wire that is UL rated for 140 °F.

00445.11(f) Fittings for Concrete Pipe - Replace this subsection, except for the subsection number and title, with the following:

Where fittings are fabricated by inserting a stub into a hole cut in the pipe, grout with a non-shrinking grout. Coat surfaces to receive grout with an epoxy bonding agent prior to grouting. Do not allow fitting stubs to protrude inside of the sewer pipe.

00445.40(b) Line and Grade - Replace the paragraph that begins "Centerline and grade control ..." with the following paragraph:

Centerline and grade control is established prior to the start of construction and the Special Provisions will indicate if the Agency or the Contractor establishes the control.

Replace the paragraph that begins "Do not vary from established ..." with the following paragraph:

Do not vary from established line and grade by more than 1/32 inch per inch of pipe diameter or 1/2 inch for pipe diameter of 16 inches or longer, subject to the following limitations:

00445.40(d) Laying Pipe on Curves - Replace this subsection, except for the subsection number and title, with the following:

Lay pipe on horizontal or vertical curves as shown or approved. When deflecting the pipe from a straight line, either in the vertical or horizontal plane, or when long radius curves are shown, do not exceed the amount of deflection allowed by the pipe manufacturer.

00445.40(f) Installation of Sanitary Sewer Service Tees and Wyes - Replace the paragraph that begins "The maximum line or ..." with the following paragraph:

Accomplish line or grade changes with fittings and long radius curves or bends. Do not exceed 45 degrees line or grade change with any one fitting.

00445.43(a) General - Replace the paragraph that begins "Lay pipe proceeding upgrade ..." with the following paragraph:

Lay pipe proceeding upgrade with spigot ends in the direction of flow. Assemble Joints according to the recommendations of the manufacturer for the type of Joint used. Furnish a

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trench bottom that has a continuous and uniform bearing and support for the pipe at every point between Joints.

Replace the paragraph that begins "Prevent excavated or other ..." with the following paragraph:

Prevent excavated or other foreign material from getting into the pipe. Plug or close off pipes that are stubbed off for future connection. When cutting or machining of the pipe is necessary, use only the tools and methods recommended by the pipe manufacturer. Furnish field Joints that:

00445.43(d) Polyethylene Pipe - Replace the paragraph that begins "Assemble and join ..." with the following paragraph:

Assemble and join solid-wall HDPE pipe at the site using the thermal butt fusion method to provide a leak-proof Joint. Threaded or solvent-cement Joints are not allowed. Use Equipment and procedures in strict compliance with the manufacturer's recommendations. Use personnel certified as fusion technicians by the manufacturer of the pipe or fusing Equipment to accomplish the fusing.

00445.43(f) Polypropylene Pipe - Replace the paragraph that begins "When the ambient air ..." with the following paragraph:

When the ambient air temperature is less than 10 °F, do not install, move, cover, bury, or otherwise handle the polypropylene pipe. All polypropylene pipe handled at temperatures below 10 °F is rejected and not allowed to be used on the Project.

00445.44 Strutting Metal Pipe - Replace this subsection, except for the subsection number and title, with the following:

When the Plans or Special Provisions call for Metal pipe to be installed in a tied or strutted condition, place the ties or struts before backfilling, according to the details shown. Strutting with timber is not allowed in pipe furnished with paved inverts or with centrifugally applied bituminous inner linings. Remove the ties and struts after the embankment over the pipe is completed and compacted.

00445.47 Contact Surfaces, Aluminum to Concrete - Replace the paragraph that begins "Where uncoated aluminum ..." with the following paragraph:

Where uncoated aluminum pipe or aluminum coated steel pipe is touching portland cement concrete, give the contact surfaces of the pipe a coating of asphalt mastic applied at a rate that will give a minimum dry film thickness of 50 mils.

00445.71(a) General - Replace this subsection, except for the subsection number and title, with the following:

Provide storm gravity sewer systems, sanitary gravity systems, siphon systems and irrigation systems and appurtenances that successfully pass a hydrostatic or air test prior to acceptance and are free of visible infiltration of water. Test manholes as specified in Section 00470.

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On pipe 30 inches in diameter and larger, individual Joints may be tested by an approved Joint testing device. Submit all testing procedures and details for review by the Engineer.

00445.71(c) Testing Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide all necessary testing Equipment and perform the tests in a manner that provides observable and accurate measurements of either air or water leakage under the specified conditions. Calibrate and certify gauges at the direction of the Engineer. Provide the certification with the gauge.

00445.72(a) General - Replace the paragraph that begins "The method, Equipment ..." with the following paragraph:

Submit the method, Equipment and personnel used in testing for approval by the Engineer. The Engineer may, at any time, require a calibration check of the instrumentation used.

00445.72(a)(1) Safety Precautions - Replace this subsection, except for the subsection number and title, with the following:

Only qualified personnel are allowed to conduct the test. Furnish plugs used to close the system for the testing that are capable of resisting the expected internal pressures. Securely brace plugs, if necessary.

00445.72(b) Exfiltration Leakage Testing - Replace this subsection, except for the subsection number and title, with the following:

Prior to the exfiltration leakage test, the pipe test section may be filled with clear water to permit normal absorption into the pipe walls. Keep the test pipe section saturated for a minimum of 4 hours. After the absorption period, refill the pipe to the required test head.

Exfiltration leakage of more than 0.04 gallons per hour per inch diameter per 100 feet of pipe is unacceptable, except 0.3 gallons per hour, per inch per 100 feet may be used in arid climate zones if approved by the Engineer. The minimum hydrostatic head for testing is a minimum 6-foot water column above the crown of the highest section of pipe including service connections or exceed the maximum estimated groundwater level. The Engineer will make the final decisions regarding test height for the water in the pipe section.

Limit the length of pipe tested by exfiltration so that the pressure on the invert of the lower end of the section does not exceed 16 feet of water column. Account for all service connection footage for computing allowable leakage.

00445.72(c) Air Testing - Replace the paragraph that begins "The pressure gauge ..." with the following paragraph:

Provide a pressure gauge for use in air testing having minimum divisions of 0.1 psi and an accuracy of 0.0625 psi. All air testing is by the time pressure drop method. The test procedure is as follows:

00445.72(c)(2) - Replace this subsection, except for the subsection number, with the following:

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Determine the average height of the groundwater over the line. Increase the required test pressures by 0.433 psi for each foot of average water depth over the exterior crown of the pipe.

00445.72(c)(6) - Replace the paragraph that begins "For air permeable Materials ..." with the following paragraph:

For air permeable Materials (concrete & clay) the tested section is acceptable if the time recorded in paragraph (6) above is not less than the time in seconds (T) computed by the formula:

Replace the paragraph that begins "C = the sum of the ..." with the following paragraph:

C = the sum of the computations (0.0003882 dL) for each size of pipe and its length in the section, except that the minimum value for C is 1

Replace the paragraph that begins "For non-air permeable pipe ..." with the following paragraph:

For non-air permeable pipe (Metal, PVC, HDPE, ABS composite), the section tested is acceptable if the time recorded in (6) above is not less than the time determined by the following equation.

00445.72(d)(1) General - Replace this subsection, except for the subsection number and title, with the following:

The Contractor may test each individual Joint for leakage using a pneumatic Joint testing apparatus. The method, Equipment and personnel used in individual Joint testing is as approved. The Engineer may, at any time, require a calibration check of the instrumentation used. Use a pressure gauge having minimum divisions of 0.1 psi and have an accuracy of 0.0625 psi. Pass all air used through a single control panel.

00445.72(d)(2) Method - Replace this subsection, except for the subsection number and title, with the following:

All air testing is by the time pressure drop method. The test procedure is as follows:

- a. Determine the average height of the groundwater over the line. Increase the test pressures required below by 0.433 psi for each foot of average water depth over the exterior crown of the pipe.
- b. Add air slowly to the section being tested until the internal air pressure is raised to 4 psi greater than the average backpressure due to groundwater.

00445.72(d)(3) Acceptance - Replace this subsection, except for the subsection number and title, with the following:

The Joint is considered acceptable if the pressure drops less than 1 psi within 5 seconds.

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00445.75 Repairs - Replace the paragraph that begins "Following a successful ..." with the following paragraph:

Following a successful hydrostatic or air test, visible infiltration of groundwater in any section is considered evidence that the original test was in error or that failure of the section has occurred. Correct such failures and retest the repaired sections, at no additional cost to the Agency.

00445.80(j) Installation Under Railroad – Replace this subsection, except for subsection number and title, with the following:

No measurement will be made for additional Work necessary to install pipe under Railroads. Pipe installed under Railroads will be separately measured according to 00445.80(a), 01120.80. or 01140.90, as applicable.

00445.91 Payment – Replace the paragraph that begins, "Item (l) includes all additional..." with the following:

Item (l) includes all additional Work involved in placing pipe under existing Railroad tracks as specified, including installing cathodic protections system for casing, and within the limits shown.

00445.91 Payment - Replace the paragraph that begins "In item (a), the ..." with the following paragraph:

In item (a), the nominal pipe diameter is inserted in the first blank. The type of pipe is inserted in the second blank. The appropriate flow line depth range is inserted in the third blank.

Replace the paragraph that begins "In item (b), the nominal pipe ..." with the following paragraph:

In item (b), the nominal pipe diameter is inserted in the first blank. For arch type pipe, the nominal diameter of circular Metal pipe from which the pipe arch is formed, or reformed, is inserted in the first blank. The type of pipe is inserted in the second blank.

Replace the paragraph that begins "In items (c) and (d) ..." with the following paragraph:

In items (c) and (d), the nominal pipe size is inserted in the blank.

Replace the paragraph that begins "In item (e), the ..." with the following paragraph:

In item (e), the outer sleeve slip Joint size is inserted in the blank. The inner sleeve will be included in payment made for the smaller pipe.

Replace the paragraph that begins "In item (f) and (g)..." with the following paragraph:

In items (f) and (g), the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "In item (h), the ..." with the following paragraph:

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In item (h), the type of pipe slope anchor is inserted in the first blank and the nominal pipe diameter is inserted in the second blank.

Replace the paragraph that begins "In item (l), the ..." with the following paragraph:

In item (l), the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "In item (m), the ..." with the following paragraph:

In item (m) the nominal pipe diameter is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00470 - MANHOLES, CATCH BASINS, AND INLETS

Comply with Section 00470 of the Standard Specifications modified as follows:

00470.01 Cast-in-Place and Precast Construction - Replace this subsection, except for the subsection number and title, with the following:

Furnish concrete manholes that are cast-in-place or precast, as shown or specified. Concrete inlets and siphon boxes may be either cast-in-place or precast.

00470.11 Precast Concrete Manholes and Bases - Replace the paragraph that begins "Prior to delivery of precast ..." with the following paragraph:

Prior to delivery of precast manhole sections to the Project Site, yard permeability tests may be required at the point of manufacture. The precast sections to be tested are selected at random from the stockpiled Material to be supplied to the Project. Mat test all test specimens to meet the permeability test requirements of ASTM C497.

Replace the paragraph that begins "Precast manhole sections ..." with the following paragraph:

Furnish precast manhole sections that consist of circular sections in one of the following standard nominal inside diameters:

Replace the paragraph that begins "Heights of sections in ..." with the following paragraph:

Furnish heights of sections in multiples of 6 inches, except heights of manhole sections 72 inches through 96 inches in diameters are required to fit site conditions.

00470.12 Cap Screws - Replace this subsection, except for the subsection number and title, with the following:

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Furnish cap screws and washers for watertight manhole covers that are stainless steel with 60,000 psi minimum tensile strength according to the requirements of ASTM A453.

00470.14 Pipe and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Furnish pipe and fittings as specified and according to the applicable portions of Section 00445. Use tees, ells and other fittings for drop manholes made from the same material as the pipe connecting to the manhole.

00470.15 Pipe Stubouts for Future Sanitary Sewer Connections - Replace this subsection, except for the subsection number and title, with the following:

Furnish pipe stubouts that are the same type and strength classification as approved for use in the lateral, main or trunk sewer construction. Where there are two different classes of pipe at a manhole, the higher strength pipe will govern strength classification. Furnish watertight plugs with each stubout and adequately brace against hydrostatic or air test pressures.

00470.16 Sanitary Sewer Manhole Carry-Through - Replace this subsection, except for the subsection number and title, with the following:

Furnish ductile iron for all sanitary sewer carry-through pipes and fittings through storm sewer manholes according to Section 02420.

00470.40(b) Pipe Connections - Replace the paragraph that begins "Connect flexible pipe to manholes ..." with the following paragraph:

Connect flexible pipe to manholes using an adapter specifically manufactured for the intended service. Flexible pipe adapters are required to be watertight after installation. Follow the manufacturer's recommendations. Do not use field-fabricated water stops or improvised adapters. Anchor and finish adapters requiring the use of grout for installation using non-shrink grout according to 02440.50.

00470.43(b) Cast-in-Place Catch Basins and Inlets - Replace the paragraph that begins "Construct forms for both ..." with the following paragraph:

Construct forms for both the inside and outside walls of cast-in-place catch basins. Furnish forms that are tight and well braced, with chamfered corners. Remove all water and debris prior to placing concrete.

00470.47 Concrete Inlet Base Drains - Replace the paragraph that begins "Provide concrete inlets ..." with the following paragraph:

Furnish concrete inlets with base drains leading from abutting Aggregate base or selected granular backfill Material.

00470.48 Concrete Manhole Installation Requirements - Replace this subsection with the following subsection:

00470.48 Locator Posts - Construct locator posts as shown.

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00470.71(a) Hydrostatic Testing - Replace this subsection, except for the subsection number and title, with the following:

Perform hydrostatic testing according to ASTM C497. Plug all inlets and outlets and fill the manhole with water. Fill each manhole to the rim at the start of the test. Leakage in each manhole exceeding 0.3 gallons per hour per foot of head above the invert is unacceptable. Determine leakage by refilling to the rim using a calibrated container. Manholes may be filled 24 hours prior to the time of testing to permit normal absorption into the manhole walls.

00470.90 Payment - Replace the paragraph that begins "In items (c), (d) and ..." with the following paragraph:

In items (c), (d) and (k) the type of Structure is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor and Incidentals necessary to complete the Work as specified.

SECTION 00480 - DRAINAGE CURBS

Comply with Section 00480 of the Standard Specifications modified as follows:

00480.40 Preparation of Base - Replace this subsection, except for the subsection number and title, with the following:

Clean Pavements where drainage curbs are to be constructed so that they are free of dirt, dust, oil, grease or other extraneous matter.

00480.41(a) CGC Curbs - Replace this subsection, except for the subsection number and title, with the following:

Bond CGC curbs to underlying Pavements with an epoxy bonding agent from the QPL or according to 00480.10. Apply according to the manufacturer's recommendations and at a rate that provides a thorough coating to the surface with all voids and depressions filled. Place the new curb on the epoxy bonding agent within 15 minutes after spreading, or before it loses its tackiness, whichever is sooner.

00480.41(b) Asphalt Concrete Curbs - Replace the bullet that begins "An Emulsified Asphalt of ..." with the following bullet:

- An Emulsified Asphalt of the type designated by the Engineer and according to 00480.10. Apply Emulsified Asphalt at a rate of 0.05 to 0.10 gallons per square yard of curb. Place the new curb on the Emulsified Asphalt after the asphalt separates from the water (breaks), but before it loses its tackiness.

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00480.42(b) Transverse Expansion Joints - Replace the paragraph that begins "Space expansion joints as ..." with the following paragraph:

Space expansion joints as shown. Construct the width of the joint and thickness of the filler to a minimum of 1/2 inch. Construct each expansion joint at right angles to the curb alignment, normal to the surface of the curb and provide complete separation of new concrete.

00480.44 Line and Grade - Replace this subsection, except for the subsection number and title, with the following:

Place a 12-foot straightedge on the top or face of curb. The curb surface is unacceptable if it varies more than 1/4 inch from the edge of the straightedge, except at grade changes or curves.

00480.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00490 - WORK ON EXISTING SEWERS AND STRUCTURES

Comply with Section 00490 of the Standard Specifications modified as follows:

00490.10 Materials - Add the following to the end of this subsection:

Portland Cement Concrete Repair Materials.....02015.20

00490.11 High Early Strength Concrete - Replace this subsection, except for the subsection number and title, with the following:

Furnish high early strength concrete meeting one of the following requirements:

- Commercial Grade Concrete designed to achieve high early strength utilizing accelerating admixture from 02040.10, Type III cement from Section 02010, or rapid setting cement from Section 02011.
- A Portland cement concrete repair material from 02015.20, rapid setting or very rapid setting.

00490.40 General - Replace the paragraph that begins "Provide high early strength concrete ..." with the following paragraph:

Furnish high early strength concrete when shown, or when traffic is required to traverse the Structure due to staging requirements. The Engineer will determine the length of curing time.

Replace the paragraph that begins "New construction ..." with the following paragraph:

Provide new construction according to Section 00470.

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Replace the paragraph that begins "Bypass pump sanitary ..." with the following paragraph:

Bypass pump sanitary sewer and stormwater flows around the pipe section or manhole being repaired or replaced by plugging an existing upstream manhole and pumping the flow around the Work to a downstream manhole. Submit a bypass pumping plan to the Engineer at least 48 hours before beginning bypass pumping. Use a pump with adequate capacity to handle existing flows and additional flow due to rain. Use a pump that does not exceed a noise level of 86 dB at a distance of 50 feet. Do not operate bypass pumps at night except in an emergency. Do not discharge raw sewage onto private property or city streets, or into storm drain systems.

00490.41(b) Manholes over Existing Rigid Pipe Sewers - Replace the paragraph that begins "Construct manholes over existing ..." with the following paragraph:

Construct manholes over existing rigid sewers after first cleaning and applying an approved commercial concrete bonding agent to all surfaces of the pipe that are in contact with the manhole.

00490.41(c) Manholes over Existing Flexible Pipe Sewers - Replace the bullet that begins "Apply a coating of PVC ..." with the following bullet:

- Apply a coating of PVC solvent to the pipe that is in contact with the manhole.

00490.41(d) Manhole Connections - Replace this subsection, except for the subsection number and title, with the following:

Core or sawcut openings in the existing manhole base or barrel as required. Construct connections that are watertight and that will provide a smooth flow into and through the manhole. Provide all sanitary sewer pipe connections, including those at invert level as well as penetrations for drop connectors, conduits and carry-throughs, according to Section 00470.

00490.43 Abandoning Pipe in Place - Replace the paragraph that begins "Drain abandoned pipes and ..." with the following paragraph:

Drain abandoned pipes and plug watertight. Plug abandoned pipes with gasketed mechanical plugs or grout seals, as directed. Where abandoned pipes connect to sewer manholes, install the plugs or seals from the inside of the manhole and reshape the channel according to the Standard Drawings.

00490.44 Filling Abandoned Pipes, Manholes and Catch Basins - Replace this subsection, except for the subsection number and title, with the following:

Cap or plug all connecting pipes to manholes and catch basins that are scheduled to be abandoned. Remove the manhole cone or flat top and manhole sections, or the catch basin frame, to a minimum depth of 3 feet below finish grade and fill the remaining manhole barrel or catch basin with Granular Material meeting the requirements of 02630.10. Compact the Granular Material to 90 percent of maximum density according to AASHTO T 99. When in landscaped or unimproved Roadway sections, backfill with approved Materials meeting the

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requirements of 00330.13. Place Topsoil meeting the requirements of 00330.11 for the last 1 foot of backfill.

00490.45 Salvaging Manhole Frames, Covers and Grates - Replace the paragraph that begins "Remove manhole frames ..." with the following paragraph:

Remove manhole frames, covers and grates scheduled for salvage and store in an approved location. Frames, grates and covers meeting Specifications may be salvaged from Structures to be adjusted and may be reused in the Work if of suitable size and condition. Replace, at no additional cost to the Agency, all items damaged or lost by the Contractor with similar items that are comparable in all respects with those they are to replace, and that are adequate for the intended purpose.

00490.46(c) Raising Tops of Manholes - Replace the paragraph that begins "Do not exceed 24 inches ..." with the following paragraph:

Do not exceed 24 inches total distance from the top of the metal frame at its new adjusted grade to the top of the cone. Provide riser rings and repairs according to Section 00470. Extend manhole barrels of brick, block or concrete in kind.

00490.46(c)(1) Concrete Manholes - Replace the bullet that begins "Chip away the exposed ..." with the following bullet:

- Chip away the exposed top surface where new mortar or concrete is to be placed, to a depth of 1 1/2 inches or until firm concrete is exposed.

00490.49 Finish Grade - Replace this subsection, except for the subsection number and title, with the following:

Center a 12-foot straightedge, as nearly as practicable, over the center of the cover of manholes and boxes. The final grade of the Pavement surface and adjusted manholes and boxes is unacceptable if it varies more than 1/4 inch from the finish grade and Cross Section at any point along the straightedge.

00490.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00495 - TRENCH RESURFACING

Comply with Section 00495 of the Standard Specifications modified as follows:

00495.40(b) Emulsified Asphalt Concrete Paving - Replace this subsection, except for the subsection number and title, with the following:

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When temporary Surfacing is required prior to placing permanent Surfacing, place EAC paving a minimum of 1 inch thick. Place temporary paving that is smooth with surface variations not greater than 1/2 inch from the Existing Surfacing. Ensure the joint between the temporary patch and existing surfaces is not greater than 1/4 inch high. Maintain the temporary Surfacing until the permanent Surfacing is placed. ACP mix may be used if approved.

00495.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00501 - BRIDGE REMOVAL

Comply with Section 00501 of the Standard Specifications modified as follows:

00501.00 Scope - Add the following paragraph to the end of this subsection:

Remove portions of the existing bridges BR00123K Willamette River, Hwy 30 EB (Center Street), BR00123G Willamette River, EB Hwy 30 Ramp to SB Hwy 72, BR22519 Willamette River, Hwy 30 EB Ramp N, and BR22524 Willamette River, Hwy 30 Spiral Bike Ramp as shown.

Add the following subsection:

00501.02 Plans - Plans of the existing Structure are available from the Engineer. Prints of these plans are available upon request.

Add the following subsection:

00501.03 Submittals - Submit unstamped bridge removal plans according to 00150.35 21 Calendar Days before beginning removal work.

Include the following information in the submittal:

- Removal sequence, including contractor staging and traffic staging.
- Detailed schedule of bridge removal work.
- Type of Equipment, including size and capacity.
- Equipment location during removal operations.

Submit unstamped steel coping and removal plans meeting the requirements of 00560.01 according to 00150.35 21 Calendar Days before beginning removal work.

Do not begin bridge removal work until the bridge removal plans and steel coping and removal plans have been approved.

00501.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00503 - BRIDGE DECK COLD PLANE PAVEMENT REMOVAL

Comply with Section 00503 of the Standard Specifications modified as follows:

00503.41 Surface Tolerance - Replace this subsection, except for the subsection number and title, with the following:

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Test with a 12-foot straightedge furnished and operated by the Contractor, as directed. Ensure the variation of the top of the ridges from the testing edge of the straightedge, between any two ridge contact points, does not exceed 1/4 inch.

00503.43 Maintenance Under Traffic - Replace this subsection, except for the subsection number and title, with the following:

If the cold planed Pavement surface is exposed to traffic, sweep and clean prior to allowing traffic to use the Roadway.

00503.90 Payment - Replace the paragraph that begins "In items (a) and (b) ..." with the following paragraph:

In items (a) and (b), the depth is inserted in the blank. If the depth is variable, the depth range is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00504 - CONCRETE DECK SURFACE PREPARATION

Comply with Section 00504 of the Standard Specifications modified as follows:

00504.01 Definitions: Replace this subsection with the following subsection:

00504.01 Definitions and Acronym:

(a) Definitions:

Bonded Membrane - A polymer or spray-on waterproofing membrane system that is fully or partially bonded to the concrete deck.

Class 1 Preparation - Deck surface preparation for a membrane or overlay system on an existing bridge deck, where the existing concrete is sound, and minimal concrete removal is required to reach sound concrete.

Class 2 Preparation - Deck surface preparation in areas that are determined by the Engineer to have Unsound Concrete that requires concrete removal beyond the limits of Class 1 Preparation.

Class 3 Preparation - Deck surface preparation in areas where concrete removal extends through the full thickness of the deck.

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Fabric Membrane - A rolled or sheet waterproofing membrane system that is installed below or between layers of asphalt Pavement.

Unsound Concrete - Delaminated or otherwise deteriorated concrete identified by a deck delamination survey or during surface preparation operations.

(b) Acronym:

ICRI - International Concrete Repair Institute

00504.02 Submittals - Replace this subsection, except for the subsection number and title, with the following:

Submit the type of Equipment that is used for deck preparation to the Engineer for approval at least 21 Calendar Days before the pre-placement conference.

00504.21(a) Sawing Equipment - Replace the paragraph that begins "Furnish power-operated diamond grinding..." with the following paragraph:

Provide power-driven concrete saws adequate for sawing joints and for surface texture.

00504.21(b) Scarifying Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide power-operated diamond grinding, micro-milling, or shot blasting scarifying Equipment capable of uniformly removing the existing surface to depths required.

(1) Diamond Grinding - Provide power-driven self-propelled machines with the cutting head made up of diamond cutting blades.

(2) Micro-milling - Provide cold plane or rotomill grinding machines using carbide cutting tools on a rotary drum. Provide Equipment with tooth spacing of not more than 1/4 inch, capable of leaving a smooth, uniform pattern of striations. Limit machines to a gross operational weight of no more than 35 Tons and a forward speed to 2.5 feet per minute. Operate at a drum speed of at least 120 RPM.

(3) Shot-blasting - Provide mono-directional or bi-directional shot blast machines with single or multiple blast wheels that conform to EPA air pollution requirements by containing dust and steel abrasive media and that can prepare concrete surfaces according to *ICRI Technical Guideline No. 310.2R*, to the project specific Concrete Surface Profiles (CSP) profile. Furnish type S-330 or larger diameter shot. If the Equipment is not equipped for simultaneous bi-directional blasting, make separate passes in opposite directions to ensure equal cleaning on all sides of the exposed aggregate.

00504.21(c) Power-Driven Hand Tools - Replace the paragraph that begins "Furnish power-driven hand tools ..." with the following paragraph:

Provide power-driven hand tools for removal of Unsound Concrete meeting the following requirements:

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00504.21(d) Hand Tools - Replace this subsection, except for the subsection number and title, with the following:

Provide hammers and chisels to remove final particles of Unsound Concrete or to achieve the required depth.

00504.21(e) Air Compressor - Replace this subsection, except for the subsection number and title, with the following:

Provide air compressors equipped with functioning oil traps. Ensure air used for blow-down of prepared surfaces is free of oil.

00504.40 General Surface Preparation - Replace the paragraph that begins “Furnish surface preparation Equipment ...” with the following paragraph:

Provide surface preparation Equipment according to 00504.21. Remove surface concrete by approved hand methods that cannot be reached by power-driven Equipment.

00504.40(c) Bonded Membrane Removal - Replace the paragraph that begins “If rutting is present in ...” with the following paragraph:

If rutting is present in the existing concrete deck resulting in additional thickness of Bonded Membrane material, remove all existing Bonded Membrane material with Equipment that can sufficiently remove the material without exceeding 1/4 inch of PCC deck surface removal.

00504.40(d) Multi-Layer Polymer Concrete Overlay (MPCO) Removal - Replace the paragraph that begins “If rutting is present in ...” with the following paragraph:

If rutting is present in the existing concrete deck resulting in additional thickness of MPCO material, remove all existing MPCO material with Equipment that can sufficiently remove the material without exceeding 1/4 inch of PCC deck surface removal.

00504.40(e) Premixed Polymer Concrete (PPC) Removal - Replace the paragraph that begins “If rutting is present in ...” with the following paragraph:

If rutting is present in the existing concrete deck resulting in additional thickness of PPC material, remove all existing PPC material with Equipment that can sufficiently remove the material without exceeding 1/4 inch of PCC deck surface removal.

00504.40(f) Structural Overlay Removal - Replace the paragraph that begins “Remove the existing Structural Overlay to the parent ...” with the following paragraph:

Remove the existing Structural Overlay to the parent deck surface. Use Equipment that can sufficiently remove the overlay without exceeding 1/2 inch of parent deck removal.

00504.41(b) Class 1 Preparation – Replace this subsection, except for the subsection number and title, with the following:

- Roughen the existing concrete surface to an exposed aggregate surface texture meeting the following volumetric profiles and ICRI CSP:

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- Polymer overlays (MPCO's and PPC's) and membranes require minimum profile depth of 1/16 inch and CSP 5.
- Structural cementitious overlays (SCO's and HESC's) require a minimum profile depth of 1/8 inch and CSP 7.
- Determine profile depth according to ASTM E965 (standard volumetric test). Perform four tests per 500 square yards of concrete surface prepared, with a minimum of four tests per Day. Visually verify CSP profile with ICRI CSP chips.
- Protect visible reinforcing steel and reinforcing steel where the Plans show it to be within 1/2 inch of the surface.
- When not in conflict with this Specification, follow surface preparation requirements in ICRI Technical Guideline No. 310.2R.

00504.42(a) PPC, MPCO, and Membrane Installations – Replace this subsection with the following:

00504.42(a) PPC, MPCO, Deck Seal, and Membrane Installations - Prepare all surfaces that are to be in contact with the membrane, deck seal or overlay, including vertical contact areas, as follows:

- Clean the entire surface by shot-blasting within 24 hours of placing the membrane or overlay.
- Sweep the area magnetically to remove metal residue.
- Blow clean the surfaces with compressed air.
- Immediately after surface preparation is complete cover the prepared deck with clear plastic, overlapping it to prevent contaminants from construction vehicles or other sources from contacting the deck. Maintain the covering until PPC, MPCO, deck seal or membrane installation.
- If the prepared surface becomes contaminated by spills, rain, or other contaminant before placing the membrane or overlay, prepare the surface again according to this Subsection.

00504.42(b) SCO Overlays – Replace the bullet that begins “Clean the entire surface by shot-blasting...” with the following bullet:

- Clean the entire surface by shot-blasting. Shot-blasting is not required on final surfaces that were prepared by chipping or jack hammering.

00504.80 Measurement – Add the following bullet at the end of this subsection:

- Removal of existing bonded membranes within areas of structural concrete overlay being prepared according to Section 00505 will not be measured.

00504.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00505 – CONCRETE DECK HYDRODEMOLITION

Section 00505 is not a Standard Specification and is included in this Project by Special Provision.

Description

00505.00 Scope - This Work consists of partial depth removal and preparing of concrete decks for structural concrete overlays and inlays with hydrodemolition Equipment and associated operations.

00505.01 Definitions and References:

(a) Definitions:

Blow-through - An unanticipated full-depth removal of deck concrete during hydrodemolition operations.

Selective Hydrodemolition - Preparation of deck concrete with hydrodemolition Equipment that creates a scarified surface profile and removes approximately 1/2 inch of concrete in areas of sound concrete and Unsound Concrete is removed in the same operation.

Deep Cut Hydrodemolition - Removal of deck concrete to the depth shown or specified.

Unsound Concrete - Delaminated or otherwise deteriorated concrete identified by a deck delamination survey or during surface preparation operations.

(b) References - In these Specifications, the reference ICRI 310.3R refers to Guideline No. 310.3R, *Guide for the Preparation of Concrete Surfaces for Repair Using Hydrodemolition Methods*.

00505.02 Submittals - Submit the following to the Engineer for approval at least 21 Calendar Days before the pre-placement meeting:

- Wastewater control and debris management plan. Include details of water supply system, pumping system, and vacuum Equipment.
- Plan and Materials to be used to shield traffic from hydrodemolition debris.
- Blow-through contingency plan. Provide a written plan for potential Blow-through scenarios. Include Materials used to contain water and debris both above and below the deck.
- Type of Equipment used for deck preparation.

Equipment

00505.20 General - Provide Equipment to perform hydrodemolition of the concrete deck surface. Remove all Equipment that leaks oil or other contaminants from the work area until they are repaired.

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00505.21 Hydrodemolition Equipment - Hydrodemolition Equipment consists of a water supply system, a high-pressure pumping system, vacuum Equipment, and a robotic hydrodemolition unit.

(a) Water Supply System and Pumping System - Provide a water supply system and pumping system compatible with the hydrodemolition units and that supplies water that meets the requirements of Section 02020.

(b) Hydrodemolition Unit - Provide a hydrodemolition unit that is robotic, computerized, and self-propelled, that is capable of removing concrete at a rate and volume as specified and as accepted by the Engineer without leaving a striated surface. Provide either rotating or oscillating nozzles. For Selective Hydrodemolition, provide Equipment capable of operating in the pressure range of 14,000-20,000psi.

(c) Vacuum Equipment - Provide vacuum Equipment suitable for removal of wastewater and construction debris.

00505.22 Wastewater Recycling Equipment - The Contractor may provide a wastewater recycling unit that removes solid waste from the wastewater such that the water may be reused for hydrodemolition operations.

00505.23 Hand Lances - Provide hand-operated high-pressure lances that operate at pressures of 10,000 to 40,000psi.

00505.24 Micro-Milling Equipment - Provide cold plane or rotomill grinding machines using carbide cutting tools on a rotary drum. Provide Equipment with tooth spacing of not more than 1/4 inch, capable of leaving a smooth, uniform pattern of striations. Limit machines to a gross operational weight to comply with the load limitations of 00220.45 and a forward speed to 2.5 feet per minute. Operate at a drum speed of at least 120 RPM.

Construction

00505.40 General - When not in conflict with this Specification, perform hydrodemolition according to ICRI 310.3R.

00505.41 Partial Depth Concrete Deck Removal - Perform partial depth concrete deck removal on Bridge No. 00123K to the depths shown as follows:

(a) Existing Deck Elevation - Measure and identify existing deck elevations and cross slopes according to 00559.01, to verify removal depths and to establish final grade. Provide a vertical reference for approval by the Engineer before beginning removal work.

(b) Reinforcement Survey - Using a rebar locator or other approved means, measure and mark the depth of reinforcement at least every 10 feet, in each lane of traffic prior to beginning micro-milling operations.

(c) Existing Repairs - Prior to micro-milling or hydrodemolition operations, remove existing repair patches from the deck using power-driven hand tools. The Contractor may elect to proceed with micro-milling and hydrodemolition operations prior to removing existing repairs if it is demonstrated during hydrodemolition calibration that existing repairs

can be removed without increasing the depth of removal at the perimeter of the repairs or causing Blow-throughs.

(d) Micro-milling - Limit micro-milling to the depth shown or within 1/2 inch of reinforcement, whichever is least, measured from the nominal roadway surface. If reinforcement is encountered during milling operations, stop Work immediately and notify the Engineer. Repair any damage to the reinforcement caused by micro-milling operations at no additional cost to the Agency.

(e) Hydrodemolition - Perform Selective Hydrodemolition or Deep Cut Hydrodemolition as shown. In the presence of the Engineer, calibrate hydrodemolition Equipment on the deck in a location with sound concrete. Measure the removal depth to the mean paste elevation. Mean paste elevation is defined as the average elevation of parent deck concrete paste, excluding exposed aggregate. Record the calibrated settings, including: water pressure gauge, machine staging control, nozzle size and type, nozzle travel speed, and water usage rate. Provide calibrated settings to the Engineer. Do not adjust calibrated settings without notifying the Engineer. Monitor the removal depths to verify the desired depth of sound concrete and all Unsound Concrete is removed. Perform additional calibration in an area with Unsound Concrete if directed by the Engineer.

Hydrodemolition Equipment is operated in the pressure range of 14,000-20,000 psi during Selective Hydrodemolition operations. During Deep Cut Hydrodemolition operations the prescribed depth of removal is achieved with one or more passes of the hydrodemolition unit.

(1) Depth of Removal - Removal depth is measured from the original parent deck surface, or the top of the milled surface, to the mean paste elevation. When performing Selective Hydrodemolition, remove approximately 1/2" of parent deck concrete. When performing Deep Cut Hydrodemolition, remove parent deck concrete to the depth shown or specified, +/- 1/2". The depth of removal is measured from the original parent deck surface accounting for the depth of milling performed. If shown or specified, remove to a depth below the bottom of the top mat of reinforcement.

(2) Deck Blow-Through - If hydrodemolition operations cause a full depth deck Blow-through, immediately stop Work and notify the Engineer. Contain water and debris above and below deck, as necessary. Use equal to or less than 30-pound class chipping hammers to excavate all remaining Unsound Concrete. Square off the repair area and slope the sides to avoid vertical edges. Perform Blow-through repair Work according to 00140.30.

(3) Wastewater and Debris Management - Contain wastewater and debris as outlined in the wastewater control and debris management plan. Provide sufficient shielding during hydrodemolition process to contain dislodged concrete and prevent damage to surrounding property.

(4) Cleaning - Do not allow debris and slurry to dry. Use pressurized water and vacuum Equipment to remove dislodged debris and slurry from the bridge deck. Repeat cleaning until the wastewater is clear. If slurry dries prior to cleaning, use a minimum of 7500 psi water to remove dried slurry. Remove standing water from deck surface prior to surveying the deck for additional removal.

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(f) Post Hydrodemolition Survey - In the presence of the Engineer, perform a visual inspection and sounding of the concrete surface. Identify locations of Unsound Concrete for removal. Remove additional Unsound Concrete using 15-pound class power-driven hand tools or hand lances. Identify locations of exposed reinforcement that require removal of concrete surrounding the reinforcing bars. Using a straightedge, stringline, or other approved methods, ensure minimum overlay thickness is achieved. Remove high areas of concrete with power driven hand tools, hand lances, or additional passes of hydrodemolition Equipment to ensure minimum required overlay thickness. Provide reinforcement chairs or blocks to place reinforcement at required elevation and to prevent deformation of the bars from construction vehicle loading.

(g) Removal of Concrete Surrounding Reinforcing Bars - Remove a minimum of 3/4 inch of concrete around and below reinforcing steel in the following scenarios:

- When there is exposed reinforcement that exceeds 24 inches in length, is within the mean paste elevation, and is not bonded to the concrete as identified by hammer sounding.
- When power-driven hand tools are used to remove Unsound Concrete that exposes greater than 50 percent of the reinforcing bar.

(h) Reinforcing Bar Repair - Abrasive blast reinforcing steel that is pitted or has flaking corrosion, that would inhibit adequate bonding to the concrete, to a bright finish. Light rust staining may remain in place.

When exposed reinforcement has greater than 50 percent section loss, required repairs will be designated by the Engineer and performed according to 00140.30.

(i) Surface Preparation Accommodations - Clean the entire surface by using abrasive blast or 7500 psi high pressure water blast. Saturate the surface with water for a minimum of 1 hour before resurfacing. Remove standing water with compressed air or wet-dry vacuum ahead of concrete placement. Repeat cleaning and water saturation on areas that are allowed to dry or become contaminated before resurfacing. Immediately after surface preparation is complete cover the prepared deck with clear plastic, overlapping it to prevent contaminants from construction vehicles or other sources from contacting the deck. Maintain the covering until overlay installation.

00505.43 Special Repair Zones - A special repair zone is a specific zone or location on the bridge deck as indicated in the plans. Perform Work in special repair zones as shown according to the following:

(a) Negative Moment Regions - Deck reinforcement cover is anticipated to be greater than the deck removal depth. If unanticipated negative moment reinforcement is encountered in areas designated as negative moment regions, do not excavate below the top of the reinforcement. If negative moment reinforcement is exposed, stop Work and recalibrate the hydrodemolition Equipment in the presence of the Engineer.

Measurement

00505.80 Measurement - The quantities of Work performed under this Section will be measured on the area basis.

Payment

00505.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Concrete Deck Micro-milling, _____ inch depth.....	Square Yard
(b) Selective Hydrodemolition.....	Square Yard

Item (a) includes removal of existing bonded membranes.

Item (b) includes hand tool removal of concrete surrounding reinforcing bars.

Removal of Unsound Concrete is included in the hydrodemolition operations and the associated Pay Item including additional removal of Unsound Concrete following the post hydrodemolition survey.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00510 - STRUCTURE EXCAVATION AND BACKFILL

Comply with Section 00510 of the Standard Specifications modified as follows:

00510.00 Scope - Replace the paragraph that begins “This Work does not include any ...” with the following paragraph:

This Work does not include any earthwork covered under any sections of Parts 00300 or 00400, or any earthwork that may be specifically included and provided for as Incidental Work for particular items or parts of the Work. The construction, measurement, and payment of embankment at bridge ends and engineered fills is according to Section 00330.

00510.03 Cofferdam Working Drawings, Calculations, and Design Submittals – Replace this subsection with the following subsection:

00510.03 Cofferdam Submittals - Submit stamped cofferdam Working Drawings and design calculations according to 00150.35 except as modified by this Subsection.

Design cofferdams according to the ODOT Bridge Design Manual.

Submit a Cofferdam Design Summary and complete a Cofferdam Design Checklist prepared by the cofferdam design engineer, to accompany the Working Drawings and calculations. Include the following in the summary:

- A list of cofferdam members with their capacities and design stresses
- Design loading assumptions for each member

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- Design specifications
- Subsurface materials and conditions used in design

Complete the checklist included in the Special Provisions.

Submit five sets (nine sets if Railroad approval is required) of the Working Drawings, and three copies (five copies if Railroad approval is required) of the calculations, summary, and checklist.

Submit unstamped Cofferdam Installation Work Plans according to 00150.35. Include the following in the work plans:

- A review of equipment suitability based on the Contractor's understanding of the site subsurface conditions which specifically addresses the conditions described in 00510.05 and as shown on sheet JA09.
- Details of cofferdam installation methods including proposed methods for removing the natural and manmade objects described in 00510.05 and as shown on sheet JA09.
- Equipment to be used for installing and removing cofferdam system.
- Any measures to be taken to comply with the requirements of Section 00290.

00510.04(a) Defined Shoring Systems – Replace the sentence that begins “Select Shoring systems...” with the following sentence:

Select Shoring systems for construction from the list of defined Shoring systems provided in Section 16.3.26 of the ODOT GDM.

Add the following to the end of this subsection:

Construct shoring at the location(s) listed below:

Beginning Station	Ending Station	Shoring System Type(s) Allowed
51+90.71 – 35.29' Rt.	52+13.37 – 35.29' Rt.	All
54+64.34 – 48.30' Lt.	54+64.34 – 28.21' Rt.	All
55+41.65 – 51.42' Lt.	55+36.06 – 66.01' Lt.	All
55+36.06 – 66.01' Lt.	55+54.75 – 75.18' Lt.	All

00510.04(b) Atypical Shoring Systems - Replace the paragraph that begins “Shoring systems that are not on the list...” with the following paragraph:

Shoring systems that are not on the list of Shoring types published in Section 16.2.4.2 of the ODOT GDM are considered atypical Shoring systems. If proposing an atypical Shoring system, submit stamped Working Drawings according to 00150.35. The review and response time allowed for the Agency to return the Working Drawings will be 120 Calendar Days. Submit calculations and other data satisfying the requirements of the Specifications and include sufficient detail and explanation of the design for the Agency to process and comment on the Working Drawings. If the Engineer requests additional information or explanation related to the review of the atypical Shoring system the Engineer may restart the 120-Calendar Day review period.

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Replace the bullet that begins "A list of supervisory personnel ..." with the following bullet:

- A list of supervisory personnel who are on-site during construction of the atypical Shoring system and documentation of their experience and qualifications to perform the Work.

Replace the paragraph that begins "Geotechnical and structural analysis ..." with the following paragraph:

Geotechnical and structural analysis and design for the Shoring include, but are not limited to the items listed in the Shoring Design Checklist. Submit a completed Shoring Design Checklist and a written Shoring Design Summary, prepared by the shoring design engineer, to accompany the Working Drawings and calculations. Include the following in the Design Summary:

Replace the bullet that begins "Performance requirements (actual threshold ...)" with the following bullet:

- Performance requirements (actual threshold limits of tolerable differential foundation settlement and lateral movement). Indicate how the performance requirements are monitored during construction.

Add the following subsection:

00510.05 Existing Conditions at Cofferdams – The existing conditions at Bridge 00123K, Bents 16 through 19 are consistent with an active river channel disturbed by development. In addition to the subsurface investigations of the Project Site performed for the purpose of obtaining data for planning and design of the Project, data has been collected to better understand the subsurface conditions relevant to construction activities. These investigations include a paper study of past work at the Project Site, review of photographs, a survey of the channel bottom, and a subsurface scan of the channel bottom.

The following subsections, combined with the information shown, describe the conditions expected to exist at the cofferdams. The locations shown are approximate due to the nature data was collected.

(a) Abandoned Footings and Piles – At least two prior Bridges have crossed the Willamette River at this location. Records indicate that intact abandoned foundation elements consisting of structural concrete and timber piles from these Bridges may remain in the river channel.

The following objects are shown on sheet JA09 in the location indicated by historical records and where unable to be confirmed due to limitations of the subsurface scan of the channel bottom:

- Abandoned concrete bridge foundations
- Abandoned timber piles

(b) Riprap – Historical records indicate the presence of riprap at the Project Site. The extent of riprap shown on sheet JA09 has been inferred from the historical records.

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(c) Manmade Debris – As-constructed drawings and photographs from prior construction projects suggest the presence of manmade debris on and under the river bottom. The objects shown on sheet JA09 represent structural concrete and abandoned timbers of varying sizes and depths.

The following objects are shown on sheet JA09 in the location inferred from the subsurface scan of the channel bottom:

- Concrete rubble near east side of Bent 17

The following objects are shown on sheet JA09 in the location indicated by historical records and where unable to be confirmed due to limitations of the subsurface scan of the channel bottom:

- Abandoned timber cribbing
- Large pieces of concrete and concrete rubble

(d) Natural Debris – Existing tree trunks and stumps have been observed during channel bottom survey efforts. These objects are shown at their identified locations in the July 2025 survey. These objects were in different locations during the 2024 survey and can be expected to migrate due to fluvial action.

00510.13(1) Material Passing No. 200 Sieve - Replace the paragraph that begins “The amount of Materials passing ...” with the following paragraph:

Ensure the amount of Materials passing the No. 200 sieve does not exceed 15 percent by weight. Test according to AASHTO T 11.

00510.13(2) Plasticity Index - Replace the paragraph that begins “The plasticity index of the ...” with the following paragraph:

Ensure the plasticity index of the Material passing the No. 40 sieve does not exceed 6. Test according to AASHTO T 90.

Add the following subsection:

00510.14 Controlled Low Strength Material (CLSM) Backfill - Furnish CLSM backfill according to Section 00442.

00510.40 Clearing, Grubbing, and Removal Work - Replace this subsection, except for the subsection number and title, with the following:

Perform clearing, grubbing and removal work according to Section 00310 and Section 00320.

Perform clearing, grubbing, and removal at least 10 feet outside of the entire Structure, including the ends of the Structure but within the Right-of-Way.

00510.41 Structure Excavation - Replace the paragraph that begins “Concrete placed against steel ...” with the following paragraph:

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Concrete placed against steel sheet piles in cofferdams or cribs are considered placed against undisturbed material, whether or not the steel sheets are later removed.

00510.41 Structure Excavation - Replace the bullet that begins “Placement of all backfill...” with the following bullet:

- Placement of all backfill, including CLSM backfill, except granular wall backfill and granular structure backfill.

00510.44(a) Cofferdams and Cribs – Add the following bullet after the bullet that begins, “Prepare and submit Working Drawings...”:

- Prepare and submit Cofferdam Installation Work Plans according to 00510.03.

Replace the paragraph that begins “Do not begin cofferdam or crib ...” with the following paragraph:

Do not begin cofferdam or crib construction Work until all submittals have been approved. Upon completion of the cofferdam construction, and immediately after dewatering, field inspect the cofferdam with the cofferdam design engineer of record and accompanied by the Engineer. Do not continue construction until the cofferdam design engineer provides the Engineer a written statement that the cofferdam conforms to the design and will serve the intended purpose.

Add the following to the end of this subsection:

Prepare and submit a ‘Cofferdam Daily Installation Report’, using the template provided by the Engineer, by the end of each Day that cofferdam installation work occurs. The Engineer will independently prepare a copy of the Daily Installation Report for each Day that that cofferdam installation Work occurs and provide a copy to the Contractor at the end of that Day. Resolve any differences between the Contractor and Engineer copies of the ‘Cofferdam Daily Installation Report’ before the end of the following Day and sign the Engineer’s copy.

No more than two cofferdams may be in place outside the in-water work window at one time.

00510.44(b) Shoring - Replace the paragraph that begins “Upon completion of the Shoring construction ...” with the following paragraph:

Upon completion of the Shoring construction, field inspect the Shoring with the shoring design engineer of record, accompanied by the Engineer. Do not continue construction until the shoring design engineer provides the Engineer a written statement that the Shoring conforms to the design and will serve the intended purpose.

00510.45 Pumping - Replace the paragraph that begins “No pumping of water from the ...” with the following paragraph:

No pumping of water from the interior of any foundation enclosure is allowed during the placing of concrete or for a period of at least 24 hours thereafter unless an effective means of eliminating moving water through fresh concrete is employed. Water may then be pumped, if approved.

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00510.48(b)(3)(a) Test Pad Method - Replace the paragraph that begins “Before placing the wall backfill ...” with the following paragraph:

Before placing the wall backfill, determine the number of Passes necessary to achieve the specified density by constructing a test pad that is at least 5 feet wide, 15 feet long, and 3 feet in final depth. Construct test pad fill in layers no more than 8 inches thick using the same Equipment and methods that are used to compact the wall backfill. Perform at least one density test according to AASHTO T 310 on each test pad layer. Construct and test a new test pad when changes in Material occur or different Equipment is used during the construction of the wall backfill.

00510.48(d) Reinforced Concrete Box Culverts, Structural Plate Structures and Pipe Culverts Over 72 Inches in Diameter - Replace the paragraph that begins “Provide bedding, if required ...” with the following paragraph:

Provide bedding, if required, according to 00405.12. Use backfill Materials meeting the requirements of 00510.12 or 00510.13 unless otherwise specified. Place and compact as shown and according to 00405.46. Place backfill up to the surrounding ground surface, to the top of trench, or the upper backfill pay limits shown or as directed.

00510.80(b)(1) Lump Sum - Add the following to the end of this subsection:

The estimated quantity of Structure excavation is:

Location	Structure Excavation (Cubic Yard)
Bridge No. 00123K	
Bent 16	4,000
Bent 17	2,620
Bent 18	1,930
Bent 19	1,260
Bent 20	704
Bent 21	788
Bent 22	69
Bent 23	69
Bent 24	746
Bent 25	709
Bent 26	842
Bent 27	1,005
Bent 28	510
Bridge No. 00123G	
Bent 3	76
Bent 4	63
Bent 5	249

Bridge No. 22524

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Bent 5	30
Bent 6	30

00510.90(a) Shoring, Cribbing and Cofferdams - Add the following to the end of this subsection:

No separate or additional payment will be made for furnishing and placing seal concrete for cofferdams.

00510.90(b) Structure Excavation - Delete this subsection, except for the subsection number and title and replace with the following:

Structure excavation will be paid for at the Contract lump sum amount or the Contract unit price, per cubic yard, for the item "Structure Excavation, ____".

The bent locations are inserted in the blank.

Except for granular wall backfill, no separate or additional payment will be made for backfilling and compacting to the elevations specified.

00510.90(d) Granular Wall/Structure Backfill - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

COFFERDAM DESIGN CHECKLIST

Instructions - This cofferdam design checklist was developed to facilitate the design, review, and erection of cofferdams to be used for ODOT bridge construction projects. This checklist is intended to act as a reminder to design or check for specific important aspects of this construction. It is not a substitute for plan and/or design criteria or specification requirements.

The Checklist is to be completed and signed by the cofferdam design engineer. Answer every question. Attach to the Checklist an explanation of any negative responses.

Submit the Checklist according to 00510.03.

A. Contract Plans, Specifications, Permits, etc.	YES	NO	N/A
1. Are the cofferdam Working Drawings prepared, stamped and signed by an engineer registered to practice in Oregon?	_____	_____	_____
2. Have three copies (five copies if railroad approval is required) of the complete design calculations accompanied the cofferdam drawings submittal?	_____	_____	_____
3. Are cofferdam Working Drawings in compliance with the requirements of the construction plans general notes?	_____	_____	_____
4. Are cofferdam Working Drawings in compliance with contract plan structural details?	_____	_____	_____
5. Are cofferdam Working Drawings in compliance with the requirements of the Oregon Standard Specifications for Construction, subsection 00150.35?	_____	_____	_____
6. Are all existing, adjusted or new utilities in proximity with the proposed cofferdam shown on the cofferdam Working Drawings and is projection of these utilities addressed?	_____	_____	_____
7. Are clearance requirements satisfied and shown on the cofferdam Working Drawings?	_____	_____	_____
B. Loads	YES	NO	N/A
1. Are the magnitude and location of all loads, equipment and personnel that will be supported by the cofferdam shown noted on the cofferdam Working Drawings?	_____	_____	_____
2. Are design loads and material properties used to determine design stresses shown for each different	_____	_____	_____

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cofferdam member shown on the cofferdam Working Drawings?			
3. Is the assumed water elevation for seal design shown on the Working Drawings?	_____	_____	_____
4. Does the cofferdam design assume water pressure acts on the full height of the cofferdam (from the vent to the bottom of the excavation?)	_____	_____	_____
5. Has percolation into the excavation been addressed?	_____	_____	_____
C. Allowable Stresses	YES	NO	N/A
1. Have the design loads used for cofferdam design of all members been noted in the design calculations?	_____	_____	_____
2. Are the allowable stress and the calculated stress listed in the summary for each different cofferdam member?	_____	_____	_____
D. Timber Construction	YES	NO	N/A
1. Are timber grades consistent with material to be delivered to the construction site, noted on the cofferdam drawings, and in accompanying calculations for all timber cofferdam material?	_____	_____	_____
2. If "rough" lumber is specified for the cofferdam, are the actual lumber dimensions used in the calculations shown?	_____	_____	_____
E. Steel Construction	YES	NO	N/A
1. Are steel structural shapes and plates identified by ASTM number on the cofferdam Working Drawings and in the calculations?	_____	_____	_____
2. Have steel beams been checked for bending, shear, web crippling and buckling of the compression flange?	_____	_____	_____
F. Compression Members, Bracing Members and Connections	YES	NO	N/A
1. Has general buckling been evaluated for all compression members?	_____	_____	_____
2. Has bracing been provided at all points of assumed support for compression members?	_____	_____	_____
3. Is bracing strength and stiffness sufficient for the intended purpose?	_____	_____	_____

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4. Have all connections been designed and detailed? _____

Designer Engineer of Record Signature

Date

SHORING DESIGN CHECKLIST

Instructions - This shoring design checklist was developed to facilitate the design, review, and erection of shoring to be used for ODOT construction projects. This checklist is intended to act as a reminder to design or check for specific important aspects of this construction. It is not a substitute for plan and/or design criteria or specification requirements.

The Checklist is to be completed by the shoring design engineer. Answer every question. Attach to the Checklist an explanation of any negative responses.

Submit this Shoring Design Checklist for each stage and phase of the project, along with the shoring design summary, Working Drawings and calculations according to 00510.04.

A. General	YES	NO	N/A
1. Are the shoring Working Drawings and supporting calculations prepared, stamped, and signed by an engineer registered to practice in the state of Oregon?	_____	_____	_____
2. Are the temporary shoring installation plans, construction sequence, and removal plan compatible with the project construction staging/phasing?	_____	_____	_____
B. Design Standards	YES	NO	N/A
1. Does the shoring design comply with standards identified in ODOT GDM 16.3.26.3 and related sections?	_____	_____	_____
2. Is the design standard and edition identified in the shoring design calculations?	_____	_____	_____
C. Loading	YES	NO	N/A
1. Have the design loads, including special loading conditions (e.g. cranes, stockpiles, etc.), used for shoring design of all members been noted in the design calculations?	_____	_____	_____
2. Have the appropriate load and resistance factors or factors of safety on the shoring system been identified, for all applicable load combinations or load cases?	_____	_____	_____
3. If public traffic is near or directly above the shoring system, has a minimum traffic live load surcharge of 250 psf been applied?	_____	_____	_____
4. Have the loads from actual construction equipment and not less than 250 psf been included in the shoring system design?	_____	_____	_____

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5. Have the construction loads for different stages of construction been considered and included in the calculations?	_____	_____	_____
6. Have the effects of any construction activities adjacent to the shoring system on the stability/performance of the shoring system been addressed in the shoring design (e.g., excavation or soil disturbance in front of the wall or slope, excavation dewatering, vibrations and soil loosening due to soil modification/construction activities)?	_____	_____	_____
7. Have earth pressure diagrams been included?	_____	_____	_____
8. Does the shoring design consider the effect of water saturated soil pressure acting on the full height of the shoring?	_____	_____	_____
D. Geotechnical and Structural Analysis	YES	NO	N/A
1. Has internal stability been evaluated?	_____	_____	_____
2. Has eccentricity/overturning stability been evaluated?	_____	_____	_____
3. Has sliding been evaluated?	_____	_____	_____
4. Has overall/global stability been evaluated?	_____	_____	_____
5. Has bearing capacity been evaluated?	_____	_____	_____
6. Have displacement constraints or other performance objectives of the shoring system been identified and evaluated?	_____	_____	_____
7. Has each stage of the shoring system construction been evaluated to carry traffic and construction loads and ensure internal and external stability through the construction and loading sequence?	_____	_____	_____
8. Are the allowable stress and the calculated stress listed in the summary for each different shoring member?	_____	_____	_____
9. Have steel beams been checked for bending, shear, web crippling and buckling of the compression flange?	_____	_____	_____
10. Have connections for all phases of construction and removal been designed for all interim loading?	_____	_____	_____
11. Has buckling, bracing strength, and stiffness been evaluated for all compression members?	_____	_____	_____

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E. Materials	YES	NO	N/A
1. Are all soil, rock, and other material properties used for the design of the shoring system provided and consistent with GDM and the subsurface field and lab data?	_____	_____	_____
2. Are timber grades noted on shoring drawings and in accompanying calculations?	_____	_____	_____
3. Are the minimum lumber dimensions shown in the calculations and noted on the Working Drawings?	_____	_____	_____
4. Are steel structural shapes, bolts, connections, and plates identified by ASTM number on the shoring Working Drawings and in the calculations?	_____	_____	_____
F. Shoring Working Drawings	YES	NO	N/A
1. Is the field verified ground topography above and below the shoring wall shown?	_____	_____	_____
2. Are all existing, adjusted or new utilities, structures, and "no work zones" in proximity to the proposed shoring shown on the shoring Working Drawings and is protection of these items addressed?	_____	_____	_____
3. Are horizontal and vertical clearance requirements identified and shown on the shoring Working Drawings?	_____	_____	_____
4. Are plan view, elevation and cross sections drawn to scale, with dimensions defining location and size of the temporary shoring, components, and excavation limits?	_____	_____	_____
5. Are the magnitude and location of all loads, equipment and personnel that will be supported by the shoring shown or noted on the shoring Working Drawings?	_____	_____	_____
6. Has a dewatering plan been shown?	_____	_____	_____
7. Have all connections been detailed?	_____	_____	_____
8. Has bracing been detailed?	_____	_____	_____
G. Testing and Monitoring	YES	NO	N/A
1. If a "yes" response to No. D-6, is a monitoring plan provided to verify adequate performance of the shoring system throughout the design life of the system?	_____	_____	_____

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2. Has a load testing program been provided for soil nails, tiebacks, or other applicable elements of the shoring system?

Design Engineer of Record Signature

Date

SECTION 00512 - DRILLED SHAFTS

Comply with Section 00512 of the Standard Specifications modified as follows:

00512.01 Definitions - Add the following to the end of this subsection:

Permanent Structural Casing - Casing designed as part of the drilled shaft to provide structural resistance and intended to remain in place after concrete placement is completed.

00512.02 Subsurface Investigation - Replace the subsection with the following:

The Soils and Geological Exploration logs are available for review through the Engineer's office. The data shown for each exploration applies only to that particular exploration. Subsurface conditions vary between exploration locations. Soil samples and rock from explorations are available for review by contacting the Engineer.

The Foundation Data shown in the Plans is a compilation of pertinent information including, but not limited to, the Soils and Geological Exploration Logs.

Add the following subsection:

00512.13(a) Structural Steel Casing – Furnish permanent structural casing meeting the requirements of ASTM 572 Grade 50.

00512.14(a) Mineral Slurry - Replace the paragraph that begins "Use mineral slurry ..." with the following paragraph:

Use mineral slurry meeting the following requirements:

00512.14(b) Synthetic Slurries - Replace the paragraph that begins "Select synthetic slurries from ..." with the following paragraph:

Select synthetic slurries from the QPL. Use synthetic slurries according to the manufacturer's recommendations and the Contractor's quality control plan. The allowed Sand content of synthetic slurry is less than 1.0 percent prior to final cleaning and immediately prior to concrete placement.

00512.14(c) Water Slurry - Replace the paragraph that begins "Water may be used as ..." with the following paragraph:

Water may be used as slurry when casing is used for the entire length of the drilled shaft. Use of water slurry without full-length casing will only be allowed with the Engineer's approval. Use water slurry meeting the following requirements:

00512.15 Crosshole Sonic Log Access Tubes - Replace the bullet that begins "Steel access tubes shall ..." with the following bullet:

- Use steel access tubes at least 1 1/2 inch inside diameter Schedule 40 pipe meeting ASTM A53, Grade A or B, Type E, F, or S.

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Replace the bullet that begins "Access tube acceptance ..." with the following bullet:

- Access tube acceptance is based on manufacturer's certification that the furnished Material meets the requirements of this Specification.

Add the following subsection:

00512.16 Structural Steel Shear Connectors – Furnish structural steel shear connectors meeting the requirements of ASTM A108 headed concrete anchor studs.

Add the following subsection:

00512.17 Thermal Wire - Furnish thermal wire for thermal integrity profile testing. At a minimum, furnished one thermal wire for each foot of shaft diameter, rounded up to the nearest whole number.

00512.18 Crosshole Sonic Log Cement Grout - Replace this subsection, except for the subsection number and title, with the following:

Furnish non-epoxy grout or tendon grout from the QPL or furnish a pumpable CSL cement grout consisting of neat cement and water that has a water-cement ratio between 0.38 and 0.45. Furnish portland cement for the pumpable CSL cement grout meeting the requirements of Section 02010.

00512.30 Personnel Qualifications - Replace this subsection, except for the subsection number and title, with the following:

Perform the drilled shaft construction Work using a company and personnel experienced in drilled shaft construction Work. Submit a list to the Engineer for approval identifying the on-site supervisors and drill rig operators assigned to the Project and the company's experience relevant to the Project. Submit experience relevant to the anticipated subsurface materials, groundwater conditions, shaft size, depth and any special construction techniques required. Also provide the experience qualifications of the company performing the quality assurance testing. Before the preconstruction conference, provide the following information to verify the firm's experience and the qualifications of personnel scheduled to perform the drilled shaft construction and quality assurance testing:

- Submit a project reference list of at least three separate foundation projects, successfully completed in the last 5 years, with Drilled Shafts of diameters and depths equal to or larger than those shown in the Plans and in ground conditions similar to those indicated. Include a brief description of each project and the owner's contact person's name and current phone number for each project listed.
- Submit a resume for on-site supervisors with at least 2 years' experience in supervising construction of drilled shaft foundations of similar size (diameter and depth) and scope to those shown in the Plans and in similar geotechnical conditions to those described in the geotechnical report. Submit experience that includes the direct supervisory responsibility for the on-site construction operations.
- Submit a resume for drill operators with at least 1 year of experience in the construction of drilled shaft foundations.

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Provide an independent testing organization(s) approved by the Agency to perform nondestructive shaft quality assurance (QA) testing consisting of thermal integrity profiling (TIP), and Crosshole Sonic Log (CSL) testing. Provide personnel experienced in operating the TIP and CSL testing Equipment. Submit the QA testing firm(s) qualifications according to 00512.40(a). The QA testing firm(s) must have successfully performed TIP and CSL testing on a minimum of five projects (each) during the last 3 years. Provide QA testing personnel trained in the operation of the TIP, and CSL Equipment, have at least 2 years of experience in operating CSL and TIP testing Equipment on a minimum of 10 shafts.

The Engineer will respond within 21 Calendar Days after receipt of the submittal. Do not begin Work on any drilled shafts until the qualifications have been approved. The Engineer may suspend the drilled shaft construction if the Contractor substitutes unapproved personnel during construction. Submit requests for substitution of either on-site supervisors, drill operators, or CSL testing personnel to the Engineer, who will have 7 Calendar Days to respond to each request. Additional costs resulting from the suspension of Work due to the changing of personnel is the Contractor's responsibility, and no adjustment in Contract Time resulting from the suspension of Work is allowed.

00512.40(a) Drilled Shaft Installation Plan - Replace this subsection, except for the subsection number, with the following:

Drilled Shaft Installation and Testing Plan - At least 21 Calendar Days before beginning shaft construction, submit the following:

- The sequence of drilled shaft construction as it relates to the overall construction plan.
- A review of Equipment suitability based on the Contractor's understanding of the site subsurface conditions. Include a project history of the excavation Equipment that demonstrates the successful use of the Equipment from temporary work platforms for installation of drilled shafts of equal or greater size in similar subsurface conditions.
- Details of shaft excavation methods, including proposed excavation methods and a disposal plan for excavated material. Include details for casing advancement and excavation through layers with riprap, Cobbles, and Boulders. Include details of methods used to perform final cleaning of the excavation, including Equipment and use of additives (i.e. flocculent). Include a disposal plan for any water or contaminated concrete expelled from the top of the shaft (if applicable).
- Detailed procedures for permanent casing handling and installation, permanent structural casing installation, and temporary casing handling and installation and removal. Include casing diameters, dimensions, and depths and the methods and Equipment for casing installation and removal.
- Details of the proposed methods for ensuring drilled shaft stability during excavation and concrete placement, including details of temporary casing, permanent casing, and permanent structural casing.
- Contingency methods of removing unexpected obstructions encountered.

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- Details for the use of drilling slurry including mix design, slurry head requirements, mixing methods, maintaining, and disposing of the slurry (if applicable). Include a discussion of the suitability of the proposed drilling slurry in relation to the anticipated subsurface conditions and potential use for casing lubrication.
- A plan for quality control of all drilling slurries, if their use is proposed. In the quality control plan, include property requirements, required tests and test methods to ensure the slurry performs as intended. Submit to the Engineer the name and current phone number of synthetic slurry manufacturer's representatives who will provide technical assistance during construction. Provide the names of the Contractor's personnel assigned to the Project and trained by the synthetic slurry manufacturer in the proper use of synthetics slurries.
- Description of means and methods to prevent and overcome casing freeze during shaft excavation, casing welding, temporary casing removal, concreting, and all drilling operations.
- Detailed contingency procedure in the event of failure to advance casing to depths shown using the expected Equipment for casing installation and removal.
- Methods and Equipment to be used for cleanout of the internal surfaces of the permanent structural casing prior to placement of concrete.
- Field Welding Plan for performing permanent structural casing splices and installing shear studs at the top of the shaft.
- Unstamped reinforcing steel shop drawings and details of reinforcement placement, including bracing, splicing, centering, and lifting methods and the method for supporting the reinforcement according to 00150.35. Include details on the type, number, and placement of spacers and other devices for ensuring the reinforcing cage position is maintained during construction. Include details for attaching the thermal wires and CSL test access tubes to the reinforcing cage.
- Evidence that the proposed materials and concrete mix design conform to all applicable Specifications.
- If the concrete mix design allows the addition of water at the Project Site, documentation that specifies the amount of water that may be added and allowable methods for adding the water.
- Documentation that the workability and slump retention properties of Section 02001 are met.
- Details of concrete placement, including proposed operational procedures for pumping and tremie methods. Include details for grout placement in the crosshole sonic logging test access tubes after testing is completed (if applicable).
- Qualifications for Quality Assurance testing company or companies performing the TIP and CSL testing Work, including documentation demonstrating that the company, and company personnel, meets the required qualifications specified in

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00512.30. Describe the sequencing and timeline of TIP and CSL testing as part of shaft installation.

- Confinement methods required to contain drilling fluids, spoils, waste concrete and other products from contacting sensitive environmental areas according to Section 00290 and all applicable regulatory permits.
- Methods for protecting existing bridges and other existing Structures according to 00170.82.

The Engineer will approve or reject the drilled shaft installation plan within 21 Calendar Days after receipt of all submissions. Provide any additional information and submit a revised plan, if requested, for review and approval. All procedural approvals given by the Engineer are subject to trial in the field and will not relieve the Contractor of the responsibility to satisfactorily complete the Work. Submit requests for modification of adopted procedures to the Engineer. Allow 21 Calendar Days for approval of modifications. Do not begin drilled shaft construction Work until all drilled shaft submittals have been approved.

00512.41 Drilled Shaft Coordination Meeting - Replace the paragraph that begins "Hold a drilled shaft coordination ..." with the following paragraph:

Hold a drilled shaft coordination meeting at least 7 Calendar Days before beginning any shaft construction Work at the site to discuss construction procedures, schedules, staging, personnel, Equipment to be used, and other elements of the approved shaft installation plan as specified in 00512.40. If synthetic slurry is used to construct the shafts, discuss the frequency of scheduled site visits to the Project Site by the synthetic slurry manufacturer's representative. Those attending the meeting include:

Replace the bullet that begins "**Representing the Contractor** ..." with the following bullet:

- **Representing the Contractor** - The superintendent, on-site supervisors, and all supervisors in charge of excavating the shaft, placing the casing, mixing and installing slurry (as applicable), placing the steel reinforcing bars, and placing the concrete. If synthetic slurry is used to construct the shafts, the slurry manufacturer's representative and a Contractor's employee trained in the use of the synthetic slurry are required to also attend.

Add the following sentence at the end of the bullet that begins "Representing the Contractor – The superintendent...":

A representative of the TIP testing firm must also attend.

00512.43(a) Drilled Shaft Excavation, General - Replace the paragraph that begins "Excavate Drilled Shafts to the ..." with the following paragraph:

Excavate Drilled Shafts to the dimensions and elevations shown or as directed. Provide and maintain stabilized drilled shaft sidewalls and bottoms for the full depth of the excavation, using approved Materials, Equipment and methods. If caving or other unstable conditions occur during any construction procedure, stop further construction, notify the Engineer, and stabilize the shaft excavation by approved methods and submit a revised installation plan that addresses the problem and prevents further instability. Do not continue with shaft

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construction until any damage that occurred has been repaired according to the Specifications and until receiving the Engineer's approval of the revised shaft installation plan.

Add the following paragraph after the paragraph that begins with "Excavate drilled shafts...":

Use non-vibratory equipment to install temporary and permanent casing to the dimensions specified. Casing installation by impact hammer is not allowed. After each 5 feet of casing advancement or when requested by the Engineer, report the drilling equipment downdrag pressure and rotation torque to the Engineer. Do not advance shaft excavation ahead of the casing tip.

Add the following paragraph to the end of this subsection:

Variations in the bearing layer elevation from that shown are anticipated. Provide Equipment on-site capable of excavating an additional 10 feet of depth below that shown.

00512.43(c) Temporary Casing - Replace the bullet that begins "The minimum diameter ..." with the following bullet:

- The minimum diameter of the shaft is as shown.

Replace the bullet that begins "Use temporary telescoping ..." with the following bullet:

- Use temporary telescoping casing material according to 00512.13.

00512.43(d) Unexpected Drilled Shaft Obstructions - Replace this subsection, except for the subsection number and title, with the following:

Remove any natural or manmade object encountered that was not revealed by the Agency's site investigation, and that would cause a significant decrease in the rate of advancement if removed using the techniques and Equipment used successfully to excavate the shaft. The Engineer is the sole judge of the significance of any reduced rate of shaft advancement and the classification of any unexpected obstructions. Removal of unexpected obstructions from the shaft excavation will be paid according to 00195.20.

00512.43(e) Lost Tools - Replace this subsection, except for the subsection number and title, with the following:

Promptly remove drilling tools lost in the excavation. Lost tools will not be considered unexpected obstructions. Remove lost tools without additional compensation. Drilling tools lost during the course of removing unexpected drilled shaft obstructions will be paid according to 00195.20.

00512.43(f) Drilling Slurry Installation - Replace the paragraph that begins "If synthetic drilling slurry is ..." with the following paragraph:

If synthetic drilling slurry is selected, provide a manufacturer's representative to provide technical assistance at the site prior to use of the slurry, who must remain at the site during construction and completion of the first drilled shaft, at a minimum, to adjust the slurry mix for the specific site subsurface conditions. After the manufacturer's representative is no longer

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at the site, provide the approved personnel trained in the use of the synthetic slurry for the remainder of the shaft slurry operations to supervise the proper slurry mix design and quality control procedures.

Replace the paragraph that begins "All in hole drilling ..." with the following paragraph:

Meet the required slurry specifications during excavation and prior to concrete placement. Clean, recirculate, de-sand or replace the slurry to maintain the required slurry properties.

00512.43(g) Drilling Slurry Inspection and Testing - Replace the paragraph that begins "Mix and thoroughly ..." with the following paragraph:

Mix and thoroughly hydrate all drilling slurries in an appropriate storage facility. Collect sample sets from the storage facility and perform tests to ensure the slurry conforms to the specified Material properties before introduction into the drilled shaft excavation. A sample set consists of samples taken at mid-depth and within 24 inches of the bottom of the storage facility.

Replace the paragraph that begins "Sample and test all slurry ..." with the following paragraph:

Sample and test all slurry in the presence of the Engineer, unless otherwise directed. Provide the sample sets of slurry within the excavation consisting of samples taken at mid-depth of the excavation and within 24 inches of the bottom of the excavation. Collect and test sample sets during the drilling operation as necessary to ensure the specified properties of the slurry are maintained. Clean, recirculate, de-sand, or replace the slurry as necessary to maintain the specified slurry properties. Final cleaning of the excavation and placement of concrete is not allowed until the test results indicate the slurry properties are as specified.

00512.43(h) Clean Out - Replace the paragraph that begins "Use appropriate means, such ..." with the following paragraph:

Use appropriate means, such as a cleanout bucket, pump or air lift, to clean the bottom of the drilled shaft excavations. No more than 2 inches of loose or disturbed material is allowed at the bottom of the excavation for end-bearing Drilled Shafts. No more than 6 inches of loose or disturbed material is allowed at the bottom of the excavation for side friction Drilled Shafts. Assume end-bearing shafts unless otherwise shown or specified. Shaft cleanliness is determined by the Engineer.

Add the following subsection:

00512.43(i) Cleaning of Casing - Clean the internal surfaces of permanent structural casing and permanent casing after completion of excavation and prior to installation of reinforcement and concrete. Remove all the native soils, debris, and material from inside the wall surfaces of the permanent structural casing and permanent casing that prohibits concrete bonding.

Add the following subsection:

00512.44 Permanent Casing - Furnish and install permanent casing as follows:

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Bridge No.	Bent No.	Structural Casing Size	Elevation (Feet)		
			Top of Structural Casing	Bottom of Structural Casing	Bottom of Permanent Casing
00123K	15 Lt	106" OD x 1.25" thick	126.0	40.0	12.8
00123K	15 Rt	106" OD x 1.25" thick	121.0	35.0	12.8

Install permanent casing with a minimum 1 inch wall thickness and matching outside diameter of permanent structural casing. Install casing with cutting teeth or cutting shoes.

Perform welding of all permanent structural casing according to AWS D1.1. Test all full penetration welds using nondestructive methods by either radiograph or ultrasonic methods. Base nondestructive testing acceptance criteria on cyclic tension loading.

Install structural steel shear connectors according to AWS D1.1 prior to concrete placement as shown.

After concrete placement, fill all void space between the casing and the shaft excavation with a material that approximates the geotechnical properties of the in-situ materials.

00512.45(b) Bracing - Add the following to the end of this subsection:

Do not secure temporary bracing to CSL testing access tubes.

Add the following subsection:

00512.45(e) Rock Socket - At locations requiring minimum shaft penetrations into specific bearing layers, furnish steel reinforcing bar cages, including CSL access tubes, and thermal integrity wires, 10 feet longer than the lengths shown. Add the increased length to the bottom of the cage. Trim the shaft steel reinforcing bar cage to the proper length prior to placing it in the excavation. Shift or trim CSL access tubes and thermal integrity wires to the revised cage length. If CSL tubes are cut, adapt the ends of the tubes to receive the watertight caps as specified.

00512.46 Crosshole Sonic Log Test Access Tubes - Replace this subsection with the following subsection:

00512.46 Quality Assurance Equipment:

(a) Thermal Wire and Thermal Access Points (TAPs)

Furnish and securely attach the thermal wire to the interior of the reinforcement cage of the shaft in conformance with the supplier's instructions. Install thermal wires around the shaft, inside the spiral or hoop reinforcement, and tied to the vertical reinforcement with plastic "zip" ties at a maximum spacing of 2 feet. Do not use steel tie wires.

Install the thermal wire in straight alignment and taut, but with enough slack to not be damaged during reinforcing cage lifting and placement. Install wires as near to parallel to the vertical axis of the reinforcement cage as possible. Provide thermal wire which extends

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from the base of shaft to the top of the shaft, with a minimum of 5 feet of slack wire provided above the top of shaft. Provide thermal wires of equal lengths per shaft. Take care to prevent damaging the thermal wires during reinforcement cage installation and concrete placement operations in the shaft excavation.

After completing shaft reinforcement cage fabrication at the site and prior to installation of the cage into the shaft excavation, install and connect thermal access points (TAPs) to the thermal wires. Record and store data every 15 minutes immediately after the cage is placed in the excavation to measure the slurry temperature and enable the steel and slurry temperatures to equilibrate prior to placing concrete in the shaft. Continue to record and store data through concrete placement and curing.

Prior to beginning concrete placement check the TAPs to ensure they are recording data and that the wires have not been damaged. If a TAP unit is not functioning due to a damaged wire, repair or replace the wire. If a TAP unit fails or a wire breaks after concrete placement has started, do not stop the concrete placement operation to repair the wire.

(b) Crosshole Sonic Log Test Access Tubes - Furnish and install access tubes for CSL testing as shown. Attach CSL access tubes securely to the interior of the reinforcement cage as near to parallel as possible in each drilled shaft and in the pattern shown. Extend the access tubes from the bottom of the shaft to at least 24 inches above the top of the shaft. Furnish and install joints required to achieve full-length access tubes that are watertight. Do not damage the access tubes during reinforcement cage installation and concrete placement. Fill the tubes with potable water, according to 02020.10(b), as soon as possible, but no more than 1 hour after concrete placement and reinstall the top watertight caps. Check water level and top off as needed.

Replace all access tubes that the test probe cannot pass through to the full depth of the shaft at no additional cost to the Agency. Replace all damaged access tubes with 1.5 inch to 2.0 inch diameter holes cored through the concrete for the entire length of the shaft. Unless otherwise directed, locate replacement core holes approximately 6 inches inside the reinforcement. Do not damage the shaft reinforcement during coring operations.

Fill the access tubes with grout only after all CSL testing has been completed and the shaft has been accepted.

00512.47(a) Concrete Placement - Replace the paragraph that begins "Allow a maximum of 60 minutes ..." with the following paragraph:

Allow a maximum of 60 minutes between concrete placements and use no concrete older than 90 minutes from batch time. Use procedures for concrete placement ensuring that the concrete within the shaft becomes a monolithic, homogeneous unit.

00512.47(b) Casing Removal - Replace the paragraph that begins "Under free-fall placement ..." with the following paragraph:

Under free-fall placement, deposit concrete through the center of the reinforcement cage by a method that prevents segregation of Aggregates and splashing of concrete on the reinforcement cage. Place concrete so that the free-fall is vertical down the center of the shaft without hitting the sides, the steel reinforcing bars or steel cage bracing.

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00512.47(e) Dry Shaft Concrete Placement - Replace the paragraph that begins "Remove all Temporary Casing during ..." with the following paragraph:

Remove all Temporary Casing during or after completion of concrete placement. Do not start Temporary Casing removal until the level of fresh concrete within the casing has reached a depth of at least 10 feet or the level necessary to adequately counteract the external hydrostatic pressure head. As the Temporary Casing is withdrawn, maintain a minimum 5 feet head of concrete above the bottom of the casing. A slight downward movement of the casing while exerting downward pressure, or hammering or vibrating the casing is allowed to facilitate extraction. Extract the casing so that concrete is cast directly against the surrounding in-situ material. Check the elevation of the top of the reinforcing cage before and after Temporary Casing extraction for conformance with the construction tolerance criteria of 00512.42. Casing that cannot be extracted during, or immediately after, the concrete placement operation may be cause for rejection of the shaft.

00512.48 Drilled Shaft Testing and Acceptance - Replace the paragraph that begins "Acceptance of Drilled Shafts ..." with the following paragraph:

Acceptance of Drilled Shafts will be based on the Engineer's review of the results of TIP and CSL quality assurance testing, field inspection reports and visual observations during drilled shaft construction. The Engineer has final authority on the approval of Drilled Shafts. For shafts that are integrity tested, the Engineer will determine final acceptance of each tested shaft, based on the quality assurance test results and inspection reports and will provide a response to the Contractor within 5 Calendar Days after receiving all quality assurance test reports.

Replace the sentence that begins "Provide electronic file copies of the raw CSL data..." with the following sentence:

Provide electronic file copies of the CSL data measurements.

00512.48(a) Crosshole Sonic Log Testing - Replace the paragraph that begins "Provide crosshole sonic log ..." with the following paragraph:

Provide crosshole sonic log testing Equipment and perform crosshole sonic log testing and analysis on all drilled shafts.. Provide CSL testing Equipment according to the requirements of ASTM D6760 and approved by the Engineer. Provide all necessary access and other support to the CSL testing firm necessary to do the CSL testing Work.

Replace the sentence that begins "Perform one CSL test on each shaft..." with the following sentence:

Perform one CSL test on all drilled shafts.

00512.48(b) Contractor's Crosshole Sonic Log Test Reports – Replace the paragraph that begins "Provide a brief summary report of the data..." with the following paragraph

Provide a preliminary summary report of the data, with interpretation of the test results, to the Engineer at the completion of each test. Provide electronic copies of the raw test data as requested. Mark the test data files to identify, as a minimum, the Structure, bent and shaft number, the date of CSL testing, depths of testing and any other pertinent information.

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Replace the paragraph that begins "Submit a stamped final CSL ..." with the following paragraph:

Submit a stamped final CSL Test Report for each shaft tested according to 00150.35 and ASTM D6760. Provide electronic file copies of the raw CSL data measurements, if requested. Include a summary of the CSL testing performed, data analysis, and interpretation of CSL data with special attention made to the identification and location of any anomalies or possible defects. Provide interpretation of the CSL test data in terms of overall shaft integrity and acceptance. Submit all reports to the Engineer within 5 Calendar Days of the performance of the tests.

Add the following subsection:

00512.48(e) Thermal Integrity Profiling - Provide Thermal Integrity Profile Equipment and perform TIP testing and analysis on all drilled shafts. Provide TIP testing Equipment conforming to the requirements of ASTM D7949 and approved by the Engineer. Provide all necessary access and other support to the TIP testing firm necessary to do the TIP testing Work.

Provide TIP testing with thermal wires and TAPs on all shafts. Commence TIP testing prior to the beginning of the concrete placement operation, recording temperature readings at 15-minute intervals until the peak temperature is captured in the data. Additional curing time may be required if the shaft concrete contains admixtures, such as set retarding admixture or water-reducing admixture. The additional curing time required under these circumstances will not be grounds for additional compensation or time extensions.

Add the following subsection:

00512.48(f) Thermal Integrity Profiling Report - Provide a preliminary summary report of the data, with interpretation of the test results, to the Engineer at the completion of each test. Provide electronic copies of the raw test data as requested. Mark the test data files to identify, as a minimum, the Structure, bent and shaft number, the date of the TIP testing, depths of testing and other pertinent information.

Provide graphical displays of temperature measurements versus depth of each wire for the analysis time selected, overall average temperature with depth, shaft radius or diameter with depth, concrete cover versus cage position with depth, and effective radius. Provide specific construction information (e.g. elevations of the top of shaft, bottom of permanent structural casing, bottom of permanent casing, bottom of shaft, etc.) noted on all pertinent graphical displays. Identify unusual temperatures, particularly significantly cooler local deviations from the overall average. Identify temperatures that exceed 150 °F. Report the location and extent of questionable concrete and cage alignment issues.

Submit three copies of a final TIP Test Report for each shaft tested according to ASTM D7949. The report is to summarize the TIP testing performed, data analysis, and interpretation of TIP data with special attention made to the identification and location of any anomalies or possible defects. Provide interpretation of the TIP test data in terms of overall shaft integrity and acceptance. Provide electronic file copies of the TIP measurements, if requested. Submit all reports to the Engineer within 5 Calendar Days of the performance of the tests.

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00512.48(c) Additional Testing and Investigation - Replace the paragraph that begins "If requested by the Engineer ..." with the following paragraph:

If requested by the Engineer, drill a core hole in any questionable quality shaft to explore the shaft condition. The Engineer will determine the number, location and depths of the core holes. Submit the method and Equipment used to drill and remove cores from the shaft to the Engineer for review and approval prior to drilling. Use a coring method that provides complete core recovery and minimizes abrasion and erosion of the core. If a defect is confirmed, as determined by the Engineer, all investigation costs associated with identifying the defect will be at no additional cost to the Agency and no extension of the Project completion date will be granted, regardless of whether the identified defect is repaired or not.

00512.80(a) Furnish Drilling Equipment - Replace the title of this subsection with "**Provide Drilling Equipment**"

00512.80(d) Drilled Shaft Concrete - Add the following to the end of this subsection:

The estimated quantity of drilled shaft concrete is:

Structure	Quantity (Cubic Yard)
BR00123K	561

The estimated quantity of drilled shaft concrete includes the concrete required to extend the shafts according to 00512.43(a).

00512.80(e) Drilled Shaft Reinforcement - Add the following at the end of the paragraph:

The estimated quantity of drilled shaft reinforcement is:

Structure Number	Uncoated Reinforcement Quantity (Pound)	
	Grade 60	Grade 80
BR00123K	18,750	53,000

The estimated quantity of drilled shaft reinforcement includes the reinforcement required to extend the shafts according to 00512.45.

Add the following subsection:

00512.80(h) Permanent Structural Casing - Permanent structural casing will be measured on the length basis.

Add the following subsection:

00512.80(i) Thermal Integrity Wires - Thermal integrity wires will be measured on the length basis of the number of wires installed in the shaft.

Add the following subsection:

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00512.80(j) Thermal Integrity Profile Tests - TIP test will be measured on the unit basis for each TIP test completed, reported, and accepted. No measurement will be made for TAP Equipment and operating personnel or for TIP tests performed at the Contractor's option.

00512.90 Payment - Replace the Pay Item Furnish Drilling Equipment with the following Pay Item:

Pay Item	Unit of Measurement
(a) Provide Drilling Equipment.....	Foot

Add the following Pay Items:

Pay Item	Unit of Measurement
(h) Permanent Structural Casing, __ Inch Diameter	Foot
(i) Thermal Integrity Wires.....	Foot
(j) Thermal Integrity Profile Tests	Each

Replace the paragraph that begins "Item (a) includes ..." with the following paragraph:

Item (a) includes providing and moving the drilling Equipment to the Project, setting up the Equipment at the various locations on the Project and removing the Equipment from the Project.

Replace the paragraph that begins "In item (b) ..." with the following paragraph:

In item (b) and (h), the diameter of the shaft casing is inserted in the blank.

Replace the paragraph that begins "In item (c) ..." with the following paragraph:

In item (c), the diameter of the shaft is inserted in the blank. Item (c) includes excavating the shafts and disposing of the excavated material and for providing, placing, splicing, and removing temporary shaft casing, temporary isolation casing, and forms.

Replace the paragraph that begins "In item (e) ..." with the following paragraph:

In item (e), the grade of reinforcement is inserted in the blank.

Add the following after the paragraph beginning with "Item (g) includes...":

Item (h) includes the following:

- Welded field splice
- Cleaning of permanent structural casing and permanent casing
- Furnishing and installing structural steel shear connectors

Item (j) includes mobilization of all TIP testing Equipment and personnel to and from the site, all TIP testing, interpretation, analysis, electronic data, and final accepted report for each tested and accepted shaft.

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Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

The paragraph that begins with the words "If the Contractor chooses..." is replaced with the following:

If the Contractor chooses to use a larger shaft diameter casing than the minimum shaft diameter specified, no additional payment will be made for the larger casing, or for the additional excavation, concrete, and reinforcement.

SECTION 00515 – MICROPILES AND VERTICAL GROUND ANCHORS

Section 00515 is not a Standard Specification and is included in this Project by Special Provision.

Description

00515.00 Scope - This Work consists of designing, furnishing, constructing and testing Micropiles and Vertical Ground Anchors at the locations shown and specified.

00515.01 Definitions:

Alignment Load (AL) - A minimum initial load applied to the Micropile or Vertical Ground Anchor during testing to keep the testing Equipment correctly positioned.

Anchor Head: The Anchor Head includes anchor nut for prestressing steel. The Anchor Head transfers the prestressing force from the prestressing steel to the Bearing Plate.

Anchorage: The combined system of Anchor Head, Bearing Plate, Trumpet, and corrosion protection that transfers prestressing force from the prestressing steel to the surrounding ground or the supported Structure.

Bearing Plate: A steel plate under the Anchor Head that distributes the prestressing force to the anchored Structure.

Bond Length - For Micropiles, the length of the Micropile that is bonded to the ground and used to transfer the applied axial loads to the surrounding Soil or Rock. For Vertical Ground Anchors, the grouted length of the Vertical Ground Anchor that is bonded to surrounding Soil or Rock and transfers applied tensile load to the surrounding Soil or Rock.

Casing - Steel pipe Casing, generally installed during the drilling process to stabilize the borehole for Micropile and Vertical Ground Anchor construction. The Casing may be either temporary during installation, or permanently left in place.

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Centralizer - A device to support and position the steel reinforcement or prestressing steel in the center of the drillhole or Casing.

Coupler - A mechanical Coupler or other approved device that transfers load from one partial length of steel reinforcement and prestressing steel to another.

Creep - The movement that occurs during the Creep test of a Micropile or Vertical Ground Anchor under a constant load.

Double Corrosion Protection - A system composed of two levels of corrosion protection, usually consisting of either grout filled Encapsulation or epoxy coating and grout.

Encapsulation - A corrugated or deformed tube protecting the steel reinforcement against corrosion.

Factored Design Load (FDL) - The maximum load expected to be applied to the Micropile or Vertical Ground Anchor during its design life.

Free Stressing Length – For Vertical Ground Anchors, the designed length of the prestressing steel that is not bonded to the surrounding ground or grout during stressing. Free Stressing Length is also referred to as unbonded length.

Vertical Ground Anchor - A structural system consisting of prestressing steel installed in a drilled and grouted hole in the ground (Soil or Rock) that is used to provide tensile resistance to the footing. Anchorage, Free Stressing Length, and Bond Length are the basic components of a Vertical Ground Anchor.

Lock-Off Load - The load transferred to the Anchorage after the load testing is complete and the pile or anchor has been accepted.

Micropile - A small-diameter, bored, cast-in-place composite pile, with the applied load resisted by steel reinforcement, cement grout and frictional grout-ground bond.

Post-Grouting - The injection of additional grout into the load transfer length of a Micropile or Vertical Ground Anchor after the primary grout has set.

Proof Load Test - Incremental loading of a production Micropile or Vertical Ground Anchor, recording the total movement at each loading increment.

Transition Tube - A common sheath that is inserted into the top of the fluid grout and extended into the Trumpet.

Trumpet - Device to provide corrosion protection in the transition length from the Bearing Plate to the Free Stressing Length.

Spacer - A device to separate individual elements of multiple-element reinforcement.

Verification Load Test - Load test of a sacrificial Micropile or Vertical Ground Anchor performed to verify the design of the Micropile and Vertical Ground Anchor system and the construction methods proposed, prior to installation of production Micropiles and Vertical Ground Anchor.

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00515.02 General - Furnish Materials and provide all design, Equipment, tools, services, labor and supervision required for installing and testing Micropiles, Vertical Ground Anchors, and Anchorage assemblies for this Project.

Select the Micropile or Vertical Ground Anchor type, dimensions, Bond Length, Anchorage attachment(s), and installation method to meet the requirements of the Specifications. Conduct verification and Proof Load Testing that demonstrates the test piles or anchors meet or exceed the specified test acceptance criteria.

00515.03 Subsurface Investigation - The Soils and Geological Exploration Logs are available for review through the Engineer's office. The data shown for each test boring or test pit applies only to that particular boring or test pit. Subsurface conditions may vary between borings or test pits. Core samples and laboratory test results, if obtained and performed for the Project, are available for review by contacting the Engineer.

The Foundation Data shown in the Plans is a compilation of pertinent information including, but not limited to, the Soils and Geological Exploration Logs.

00515.04 Design Requirements - Design Micropiles and Vertical Ground Anchors to meet the loading conditions provided in Table 00515-1. Design Micropiles, Vertical Ground Anchors, Anchorage assemblies, and footing connections using the procedures described in the most current edition of the following, as applicable:

- *AASHTO LRFD Bridge Design Specifications* at the time of Advertisement.
- *Micropile Design and Construction (FHWA NHI-05-039)*
- *Geotechnical Engineering Circular No. 4 Ground Anchors and Anchor Systems (FHWA-IF-99-015)*

TABLE 00515-1

Factored Design Load (FDL)

Location	Type	FDL (kip)
Bridge 00123K – Bent 16	Vertical Ground Anchor	120 Tension
Bridge 00123K – Bent 17	Vertical Ground Anchor	75 Tension
Bridge 00123K – Bent 18	Vertical Ground Anchor	75 Tension
Bridge 00123K – Bent 19	Vertical Ground Anchor	90 Tension
Bridge 00123K – Bent 20	Vertical Ground Anchor	135 Tension
Bridge 00123K – Bent 21	Vertical Ground Anchor	120 Tension
Bridge 00123K – Bent 24	Vertical Ground Anchor	110 Tension
Bridge 00123K – Bent 25	Vertical Ground Anchor	105 Tension
Bridge 00123K – Bent 28	Vertical Ground Anchor	25 Tension
Bridge 00123G – Bent 3 Pier Protection	Micropile	200 Tension
Bridge 00123G – Bent 4 Pier Protection	Micropile	200 Tension
Bridge 00123G – Bent 5	Vertical Ground Anchors	155 Tension

Micropile verification tests may require additional structural capacity above that required for production piles. Size the structural steel and grouted sections of the Micropiles to ensure

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that the maximum verification and proof test loads applied to the pile do not exceed 80 percent of the structural capacity of the Micropile structural elements, to include steel yield in tension, steel yield or buckling in compression, or grout crushing in compression as applicable.

Perform Vertical Ground Anchor verification tests using the same components as the production anchors.

Provide corrosion protection of the internal steel reinforcement according to 00515.10. Where permanent Casing is used for a portion of the Micropile or Vertical Ground Anchor, extend the double corrosion system at least 5 feet into the Casing. If the Micropile or Vertical Ground Anchor design relies on the Casing for axial or moment capacity, incorporate an additional 0.0625 inch thickness of sacrificial steel for corrosion protection of all permanent steel Casing used in Micropile or Vertical Ground Anchor construction.

Provide Double Corrosion Protection of all steel reinforcement that is not contained within permanent Casing.

(a) Vertical Ground Anchors - Determine the Bond Length and prestressing steel size necessary to develop the given Factored Design Load and minimum anchor system stiffness, k , parameter as shown. The minimum Bond Length is 10 feet for bars 1.75 inch diameter and smaller, and 15 feet for bars larger than 1.75 inch diameter.

The minimum Free Stressing Length (unbonded length) is 10 feet, unless a greater minimum length is shown or specified.

00515.05 Submittals - Before beginning construction of Micropiles or Vertical Ground Anchors, submit the following to the Engineer:

(a) Qualifications - Submit contractor and personnel qualifications according to 00515.30.

(b) Stamped Working Drawings - Submit stamped Working Drawings according to 00150.35 that include all stamped design calculations, details, dimensions, quantities, ground profiles, and Cross Sections necessary to construct the Micropiles and Vertical Ground Anchors. Verify the limits of the Micropiles and Vertical Ground Anchors and ground survey data before preparing the detailed Working Drawings. Provide stamped Working Drawings that include, but are not limited to, the following information:

(1) Stamped Design Calculations and Documentation - Provide design calculations and documentation that includes:

- A written summary report that describes the overall Micropile and Vertical Ground Anchors design, including the type and diameter of Micropiles and Vertical Ground Anchors selected, and if applicable, a discussion of the use of any temporary Casing.
- Applicable code requirements and design references.
- Dimensions of all Micropile and Vertical Ground Anchors structural components, structural design properties, and critical design Cross Sections.

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- Geotechnical design parameters and criteria, including Soil and Rock shear strengths (friction angle and cohesion), material unit weights, ground-grout bond values, and group effects if applicable.
- Factored Design Loads, including maximum verification test loads, and nominal and factored resistances used in the design of the ground grout bond values, surcharges, steel, grout, and concrete Materials.
- Minimum grout unconfined compressive strength at 28 Days and at the time of verification and Proof Load Testing.
- Micropile to pile cap/footing connection design calculations and construction details.
- Vertical Ground Anchor to pile cap/footing connection design calculations and construction details.
- Design calculations for design of the Micropiles and Vertical Ground Anchors, including but not limited to analysis performed to determine drillhole diameters, estimated Bond Lengths, total Micropile and Vertical Ground Anchors lengths, design of corrosion protection, type and size of steel reinforcement, type and size of prestressing reinforcement and if applicable, permanent Casing.
- Testing and stressing frame assembly.
- Verification and proof test reaction pads.
- Structure (Bridge) number, Micropile and Vertical Ground Anchor location (Bent No. and footing), date of preparation, initials of designer and checker, and page number at the top of each page. Provide an index page with the design calculations.
- Design notes including an explanation of any symbols and computer programs used in the design.

(2) Plan View Drawing - Provide a plan view drawing that shows:

- Reference baseline and elevation datum.
- Overall plan layout of Micropiles showing numbering sequence, pile diameters, position, and horizontal spacing.
- Overall plan layout of Vertical Ground Anchors showing numbering sequence,
- Station and offset from the construction centerline or baseline to the center of all Micropiles and Vertical Ground Anchors.
- Right-of-Way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent Structures or other potential interferences.
- The centerline and dimensions of any Utility, drainage Structure, or drainage pipe behind, passing through, or passing under the Micropiles and Vertical Ground Anchors.
- Locations of all subsurface explorations with appropriate reference base lines to fix the locations of the explorations relative to Micropile and Vertical Ground Anchors.

(3) Elevation View Drawing - Provide an elevation view drawing that shows:

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- Micropile and Vertical Ground Anchors locations and elevations
- Micropile and Vertical Ground Anchors lengths
- Minimum hole diameters, batter and alignment
- Casing dimensions and lengths
- Reinforcement type, sizes and details
- Prestressing steel type and size
- Casing splice types and locations
- Bar coupler type and locations
- Centralizers and Spacers
- Minimum grout bond zone
- Casing plunge lengths, if used
- Corrosion protection details
- Micropile and Vertical Ground Anchor connection details to Substructure footing
- Grout tubes
- Micropile and Vertical Ground Anchor Design Loads
- Summary of estimated quantities for each Substructure unit
- If applicable, location of drainage elements

(4) Steel Shop Drawings - Provide steel shop drawings for all structural steel including the details, dimensions, and schedules for all temporary and permanent Casing, Anchorage assemblies, prestressing steel and steel reinforcement, including steel reinforcement bending details and steel for Substructure and footing connection.

(5) Load Testing and Reporting - Provide detailed plans for the proposed Micropile and Vertical Ground Anchor load testing method and procedures. Include all drawings, details, and structural design calculations necessary to clearly describe the proposed test method, reaction load system capacity, Equipment setup, and types and accuracy of apparatus to be used for applying and measuring the test loads and pile top movements according to 00515.47. Submit Load Test Data Reports according to 00515.48.

Revise the drawings when Plan dimensions are changed due to field conditions or for other reasons. Within 30 Calendar Days after completion of the work, submit corrected stamped Working Drawings and calculations to the Engineer according to 00150.35. Provide corrected Working Drawings that represent all design changes made during the construction of the Micropiles and Vertical Ground Anchors.

(c) Installation Plan - At least 21 Calendar Days before beginning Micropile and Vertical Ground Anchor Work, submit a Micropile Installation Plan and Vertical Ground Anchor Installation Plan to the Engineer for review and approval. Provide Installations Plan that includes, but is not limited to, the following information:

(1) Detailed step by step description of the proposed Micropile and Vertical Ground Anchor construction procedure, construction sequencing (including but not limited to drilling, grouting and testing procedures), anticipated ground conditions, and any special construction requirements to assure quality control. Include sufficient detail to

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allow the Engineer to monitor the construction and quality of the Micropiles and Vertical Ground Anchors.

(2) A list of the Equipment to be used for installing Micropiles and Vertical Ground Anchors, including the model, size and type of Equipment, with appropriate manufacturer's literature for review. Provide information on the drilling methods and tools to be used and the proposed method for flushing and removal of spoils. Include information on headroom and space requirements, if appropriate, for installation Equipment that show the proposed Equipment is appropriate for the site conditions and constraints. Provide a detailed schematic and description of the planned Equipment setup for both upland and overwater drilling scenarios.

(3) Proposed start date(s) and Micropile and Vertical Ground Anchor installation schedule.

(4) Plan describing how surface water, drill flush, and excess waste grout are contained, controlled and disposed of in accordance with all applicable permits and regulations.

(5) Details for constructing Micropile and Vertical Ground Anchor around drainage or other facilities, if applicable.

(6) Permanent Casing threading connection details. If welding of Casing is proposed, submit a proposed Welding Procedure Specification (WPS) for approval.

(7) Certified mill test reports for the steel reinforcement, prestressing steel, and permanent Casing, if used. Check sample results for permanent Casing without mill certification may be submitted in lieu of mill certification. Supply two check sample tests per truckload delivered to the fabricator, but not less than two check sample tests per project. Include the ultimate strength, yield strength, elongation, material properties and chemical composition.

(8) Grouting Plan, including complete descriptions, details, and supporting calculations for the following:

- Grout mix design and type of Materials to be used in the grout including certified test data and trial batch reports. Include in the mix designs, certified test results verifying that the mix designs provide the required grout strength, as specified in the submitted design calculations, for the 28-Day strength and the strength required at the time of verification and Proof Load Testing. Provide grout consistency and density requirements.
- Equipment and procedures used to mix and place the grout, including the grout pressures to be used and descriptions of any post grouting methods, if applicable.
- Estimated grout quantities.
- Methods and Equipment for accurately monitoring and recording the grout depth, grout volume, and grout pressure as the grout is being placed.
- Grouting rate calculations, when requested by the Engineer. Base calculations on the initial pump pressures or static head on the grout and losses throughout

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the placing system, including anticipated head of drilling fluid to be displaced, if applicable.

- Estimated curing time for grout to achieve specified strength. Previous test results for the proposed grout mix completed within one year of the start of grouting may be submitted for initial verification and acceptance and start of production work. During production, test grout according to 00515.44(e).
- Procedure and Equipment for Contractor monitoring of grout quality.

(9) Calibration reports and data for each test jack, pressure gauge and master pressure gauge and load cell to be used. Provide calibration tests performed by an independent testing laboratory within 60 Calendar Days of the date submitted. Do not begin testing until the Engineer has reviewed and accepted the jack, pressure gauge, master pressure gauge and electronic load cell calibration data.

The Engineer will approve or reject the Micropile Installation Plan and Vertical Ground Anchor Installation Plan within 21 Calendar Days after receipt of the plan. Do not begin Work until all submittals have been received, reviewed, and accepted in writing by the Engineer.

Make revisions or corrections to the Working Drawing submittals as requested by the Engineer and resubmit revised drawings or submittals. Resubmit changes or deviations on the Working Drawings for review and approval.

Materials

00515.10 Materials - Furnish Materials meeting the following requirements:

(a) Admixtures - Furnish admixtures according to Section 02040. Admixtures that control bleed, improve flowability, reduce water content, and retard set may be used in the grout, if approved by the Engineer. Only add expansive admixtures to grout used for filling sealed Encapsulations and anchorage covers. Accelerators will not be permitted. Use admixtures compatible with the grout and mixed in accordance with the manufacturer's recommendations.

(b) Cement - Furnish Portland cement (Type I, 1-L, II or III) according to Section 02010.

(c) Grout and Grout Tubes - Use Type I, II, or III Portland cement according to AASHTO M 85 (ASTM C150) for grout. Use grout that is a pumpable neat mixture of cement and water that is stable (bleed less than 2 percent), fluid, and provides a compressive strength as identified in the Contractor's design submittal. Provide water for mixing grout according to Section 02020.

Admixtures which control bleed, improve flowability, reduce water content and retard set may be used in the grout subject to the approval of the Engineer. Furnish admixtures, if used, compatible with reinforcement and mixed according to the manufacturer's recommendations. Expansive admixtures may only be used for filling sealed encapsulations, Trumpet, and Anchorage covers. Do not use accelerators.

Submit a detailed written mix design of the exact brand and batch quantities of pre-packaged grout and water including dosages proposed.

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Provide grout tubes with an adequate inside diameter to enable the grout to be pumped to the bottom of the drill hole and capable of withstanding a minimum grouting pressure of 150 psi or the Contractor's maximum anticipated grout pressure.

(d) Water - Use water in the grout mix according to Section 02020.

(e) Steel Reinforcement:

(1) Furnish deformed bar reinforcement according to Sections 00530 and 02510. When a bearing plate and nut are required to be threaded onto the top end of reinforcing bars for the Anchorage assembly, furnish threading that is either continuous spiral deformed ribbing provided by the bar deformations or threading cut into the bar. If threads are cut into a reinforcing bar, furnish a bar that is one bar size number larger than the bar size designation shown, at no additional cost to the Agency.

(2) If required, furnish mechanical splices according to 2510.20.

(f) Prestressing Steel Reinforcement:

(1) Furnish continuously Threaded High Strength Bars according to 02515.30 or epoxy coated steel bars according to ASTM A775.

(2) If required, furnish prestressing steel bar couplers capable of developing 100 percent of the minimum ultimate tensile strength of the prestressing steel bar.

(g) Permanent Casing:

(1) Micropile Casing - Furnish permanent steel Casing with:

- A diameter and minimum wall thickness as shown on the approved Working Drawings.
- Tensile strength meeting the tensile requirements of API 5L Grade X52, API 5 CT Grade N80 or better, using the minimum yield strength in the design submittal.

(2) Vertical Ground Anchor Casing - Provide permanent steel Casing with:

- A diameter and minimum wall thickness as shown on the approved Working Drawings.
- Tensile strength meeting the minimum yield strength in the design submittal.

(h) Anchorage Assemblies - Provide a combination of a steel Bearing Plate with a threaded anchor nut. Ensure Anchorage devices are capable of developing 95 percent of the minimum ultimate tensile strength of the prestressing steel. Ensure Anchorage devices conform to the static strength requirements of Section 3.1.6(1) and 3.1.8(1) and (2) of the *PTI Post-Tensioning Manual*.

(1) Bearing Plate - Furnish structural steel plates and shapes for Anchorage assemblies conforming to ASTM A36 or ASTM A572 Grade 50 and Section 02530 and as required to meet the design loads specified in 00515.04 and 00515.05(b).

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- (2) **Anchor Nuts** - Size anchor nuts and other threaded hardware for epoxy coated bars to thread over the epoxy-coated bar and still comply with the requirements for carrying capacity.
- (4) **Trumpet** – If required, furnish Trumpets fabricated from steel pipe or tube conforming to ASTM A53 for pipe or ASTM A500 for tubing. Furnish steel Trumpets having a minimum wall thickness of 1/8 inch for diameters up to 4 inches and 3/16 inch for larger diameters.
- (5) **Anchorage Cover** - Furnish Anchorage covers fabricated from steel or plastic with a minimum thickness of 1/8 inch. Ensure the joint between the cover and the Bearing Plate is watertight.
- (i) **Centralizers** - Fabricate centralizers from plastic, steel or material which is non-detrimental to the prestressing steel. Do not use wood. Use centralizers capable of supporting the prestressing steel in the drill hole and position the prestressing steel so a minimum of 1/2 inch of grout cover is provided and permits grout to freely flow around the prestressing steel and up the drill hole.
- (j) **Bondbreaker** - Fabricate the bondbreaker sleeve for the anchor Free Stressing Length from a smooth plastic tube or pipe having the following properties:
- Resistant to chemical attack from aggressive environments, grout, or corrosion inhibiting compound,
 - Resistant to aging by ultraviolet light,
 - Fabricated from material non-detrimental to the prestressing steel,
 - Capable of withstanding abrasion, impact, and bending during handling and installation,
 - Enables the prestressing steel to elongate during testing and stressing,
 - Allows the prestressing steel to remain unbonded after lock-off.

Permanent Casing may be used as a bondbreaker.

(k) **Corrosion Protection** - Provide corrosion protection of the steel bar reinforcement and prestressing steel by using one or more of the following methods:

- **Encapsulation:** Shop fabricate the Encapsulation from high-density, corrugated polyethylene tubing meeting the requirements of AASHTO M 252 (ASTM D3350) or corrugated polyvinyl chloride pipe meeting the requirements of ASTM D1784 (Class 13464-B) with a minimum wall thickness of 0.03 inches. Provide an annulus opening between the reinforcing bars and the encapsulating tube of at least 0.25 inches and use a grout according to 00515.10(c).

Labor

00515.30 Personnel Qualifications - Use personnel experienced in Micropile and Vertical Ground Anchor construction to perform the work. Relevant experience includes that with

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similar anticipated subsurface Materials, groundwater conditions, Micropile and Vertical Ground Anchor types, sizes, loads and any special construction techniques required.

Provide the following information to verify the contractor's experience and the qualifications of personnel scheduled to perform the Micropile and Vertical Ground Anchor construction:

(a) Contractor Qualifications - Evidence of the firm's experience in the construction and load testing of Micropiles and Vertical Ground Anchors and the successful construction of at least 5 projects in the last 5 years involving construction totaling at least 100 Micropiles and Vertical Ground Anchors of similar size and capacity to those required in these plans and specifications. Evidence of contractor experience in Micropile and Vertical Ground Anchor drilling and grouting in Soil or Rock Materials and conditions similar to project conditions. Provide a project reference list for each of the 5 projects that includes:

- Brief project description with the owner's name and current phone number.
- Date of project.
- Number, size, and capacity of Micropiles and Vertical Ground Anchors successfully installed and tested.
- Types of Soil/Rock Materials and groundwater conditions encountered in the project.

(b) On-Site Supervisor - Names and detailed experience of on-site supervisors for the Project. Provide on-site supervisors that have experience on at least 3 projects over the past 5 years installing Micropiles and Vertical Ground Anchors of similar types, sizes and scope to those shown in the Working Drawings and in similar geotechnical conditions to those described in the project geotechnical report for this project. List experience that includes the direct supervisory responsibility for the on-site Micropile and Vertical Ground Anchor construction operations and load testing.

(c) Drill Rig Operator - Names and detailed experience of drill operators for the Project. Provide drill rig operators that have experience on at least 3 projects over the past 5 years installing the type(s) of Micropiles and Vertical Ground Anchors required for this project and to capacities equal to, or greater than, those required in the Specifications.

(d) Registered Professional Engineer of Record - Name(s) and detailed experience of the Micropile and Vertical Ground Anchor engineer. Provide Micropile and Vertical Ground Anchor engineers that are a Professional Engineer registered in the State of Oregon, with experience in the design of at least 5 Micropile and Vertical Ground Anchor projects of similar scope to this project, successfully completed over the past 5 years, and experience designing Micropiles and Vertical Ground Anchors of similar or greater capacity to those required in the Plans and Specifications.

(e) Welder Qualifications - Submit qualification documents for each welder. Use welders qualified according to AWS D1.1 for the position, process and Casing diameter used on the Project.

Include in the personnel list a summary of each individual's experience with sufficient detail for the Engineer to determine whether each individual satisfies the required qualifications.

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Submit qualifications of the contractor's Micropile and Vertical Ground Anchor engineer at least 21 Calendar Days before submittal of the stamped Working Drawings. The Engineer will approve or reject the contractor's qualifications within 7 Calendar Days after receipt of a complete submittal.

Do not begin Work or order Materials before the Engineer provides written approval of the Contractor's experience qualifications.

The Engineer may suspend the Micropile construction Work if the Contractor substitutes unapproved personnel during construction. Submit requests for substitution of field personnel to the Engineer, who will have an additional 7 Calendar Days to respond to each request.

Construction

00515.40 General - Contain and dispose of all construction related waste according to 00290.20.

00515.43 Allowable Tolerances - Install Micropile and Vertical Ground Anchors to within the following tolerances:

- Centerline of piling not more than 3 inches from indicated plan location.
- Plumb within 2 percent of total-length plan alignment (vertical piles).
- Top elevation of Micropile and Vertical Ground Anchor no more than 1.0 inch above or 2.0 inches below the vertical plan elevation.
- Centerline of core reinforcement not more than 0.75 inches from centerline of final location.

00515.44 Micropile and Vertical Ground Anchor Installation - Select the drilling method, grouting procedure, and grouting pressure used for the installation of the Micropiles and Vertical Ground Anchors. For foundation elements that use driven pile and Micropiles or Vertical Ground Anchors. Install Micropiles and Vertical Ground Anchors after driven pile have been installed.. Schedule all Micropile and Vertical Ground Anchor installations such that there is no interconnection with or damage to previously installed piles.

(a) Drilling - Provide drilling Equipment and methods suitable for drilling through the conditions to be encountered without causing damage to any overlying or adjacent Structures or services. Open the drillhole to the required nominal diameter along its full length prior to placing grout and reinforcement.

Do not use vibratory pile-driving hammers to advance Micropile Casings.

Use full-depth temporary Casing to permit the shaft to be formed to the minimum design drillhole diameter. Do not use drilling fluid containing bentonite. Stabilize and repair detrimental ground movements caused by caving or other unstable drillhole conditions, as determined by the Engineer.

After drilling, flush the hole with water or air to remove drill cuttings and other loose debris.

(b) Ground Heave or Settlement - Observe the conditions in the vicinity of the Micropile and Vertical Ground Anchor construction site on a daily basis for signs of ground heave,

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settlement or other signs of ground displacement during construction. Immediately notify the Engineer if signs of movements are observed. Immediately suspend or modify drilling or grouting operations if ground heave or settlement is observed, if the Micropiles and Vertical Ground Anchors are adversely affected, or if adjacent Structures are damaged from the drilling or grouting. If the Engineer determines that the movements require corrective action, take corrective actions necessary to stop the movement or perform repairs.

(c) Reinforcement Placement - Place reinforcement according to the approved installation plan. Ensure that reinforcement surfaces are free of deleterious substances such as Soil, mud, grease or oil that might contaminate the grout or coat the reinforcement and impair the bond. If applicable, provide pile cages and reinforcement groups with sufficient strength to withstand the installation and grouting process and the withdrawal of the drill Casings without damage or disturbance.

Provide Centralizers and Spacers equally spaced along the length of the Micropile and Vertical Ground Anchor with a maximum center-to-center spacing of 10 feet. Locate the top and bottom Centralizers a maximum of 5.0 feet from the top and bottom of the Micropile and Vertical Ground Anchor. Provide at least two Centralizers per Micropile and Vertical Ground Anchor. For Micropiles and Vertical Ground Anchors less than or equal to 20 feet in length, place Centralizers at the top and bottom quarter points of the Micropile and Vertical Ground Anchor. Ensure that Centralizers and Spacers permit the free flow of grout without misalignment of the reinforcing bars and permanent Casing. Lower the central reinforcing bars with Centralizers into the stabilized drillhole and set to the design elevation and alignment tolerances. Do not force or drive partially inserted reinforcing bars into the hole. Redrill and reinsert steel reinforcement when necessary to facilitate insertion.

(d) Grouting - After the reinforcement is inserted, grout the drill hole in one continuous grouting operation. Inject grout from the lowest point of the drill hole.

Measure the grout quantity and pumping pressure during the grouting operations. Provide the Engineer with records showing the quantities, test data, and grout pressures.

Use a stable neat cement grout with a minimum 28-Day unconfined compressive strength as required in the Contractor's submitted design. Mix admixtures, if used, in accordance with manufacturer's recommendations. Use grouting Equipment that produces a grout free of lumps and undispersed cement. Equip the pump with a pressure gauge to monitor grout pressures. Place a second pressure gauge at the point of injection. Ensure that the pressure gauges are capable of measuring pressures of at least 150 psi or twice the actual grout pressures used by the contractor, whichever is greater. Size the grouting Equipment to enable the grout to be pumped in one continuous operation. Constantly agitate the grout prior to pumping. Place grout within one hour after mixing the grout or, if admixtures are used, within the time recommended by the manufacturer. Discard grout not placed within the allowed time limit.

Inject the grout from the lowest point of the drillhole pumping through grout tubes. Control the grout pressures and grout takes to prevent excess grout take, excessive ground heave, and fracturing of Rock formations. Fill the entire Micropile and Vertical Ground Anchor length with grout containing no voids or inclusions. The use of compressed air to directly pressurize the fluid grout is not permissible. If required, apply Post-Grouting of Micropiles and Vertical Ground Anchors according to the approved Working Drawings and

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record grout pressures, quantities, mix design, and other relevant Post-Grouting information. Upon completion of grouting, the grout tube may remain in the hole. Fill grout tube with grout if left in place.

(e) Grout Testing - Ensure that grout within the verification and proof test Micropiles and Vertical Ground Anchors attains the minimum required compressive strength, as identified in the Contractor's design submittal, prior to load testing. Previous test results for the proposed grout mix, completed within one year of the start of work, may be submitted for initial verification of the required compressive strengths for installation of pre-production verification tests and initial production proof tests.

During production, test the grout for compressive strength according to AASHTO T 106 (ASTM C109) for grout cubes or AASHTO T 22 (ASTM C39) for cylinders at a frequency of no less than three samples from each grout plant each Day of operation or three samples from each grout plant per every 10 Micropiles or Vertical Ground Anchors, whichever occurs more frequently. Calculate the average of the three samples tested to determine the compressive strength.

Determine grout consistency, as measured by grout density according to AASHTO T 121 (ASTM C138) or API RP-13B-1, at a frequency of at least one test per verification or proof test, conducted just prior to start of grouting. For production Micropiles and Vertical Ground Anchors, perform grout density testing at a frequency of at least once per each period of continuous grouting operation or once per Day, whichever is more frequent. Ensure that the measured grout density is consistent with the approved Installation Plan.

Take grout samples directly from the grout plant. Provide grout cube compressive strength and grout density test results to the Engineer within 24 hours of testing.

00515.45 Splices –

(a) Micropile Splices - Furnish steel rebar and permanent Casing splices that develop at least the required compressive, tensile, and bending strengths used in the design of the Micropile. Provide mechanical bar splices according to 00515.10(e)(2). Secure lengths of Casing and reinforcing bars to be spliced in proper alignment and in a manner to avoid eccentricity or angle between the axes of the two lengths to be spliced. Locate Casing joints at least two Casing outside diameters away from any bar splice, as measured along the vertical axis of the Micropile. When multiple reinforcing bars are used, stagger bar splices at least 3.0 feet.

Micropile casing splices will not be permitted at any location above 5 feet below the bottom of the pile cap, nor within the zone extending from 7 to 15 feet below the bottom of the pile cap. Micropile casing splices will provide a minimum of 50% of the tensile and bending capacity of the casing. If welding of permanent high strength steel Casing is required, submit a Welding Procedure Specification (WPS) meeting the requirements of AWS D1.1 for review and written approval by the Engineer, prior to any welding operation. Weld all permanent Casing seams and splices using complete penetration welds.

(b) Vertical Ground Anchor Splices – Mechanically splice prestressing steel bars according to 00515.10(f)(2). Provide threaded permanent Casing splices that develop at least the required compressive, tensile, and bending strengths used in the design of the Vertical Ground Anchor. If welding of permanent high strength steel Casing is required,

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submit a Welding Procedure Specification (WPS) conforming to AWS D1.1 for review and written approval by the Engineer, prior to any welding operation. Weld all permanent Casing seams and splices using complete penetration welds.

00515.46 Anchorage Installation - Furnish and install all Materials required to connect Micropiles and Vertical Ground Anchors to pile caps/footings in accordance with the accepted stamped Working Drawings.

00515.47 Load Tests - Perform verification and proof testing of Micropiles and Vertical Ground Anchors at the locations shown, specified, or as directed. Confirm the grout has achieved the minimum required grout compressive strength prior to Verification and Proof Load Testing.

Perform Micropile compression load testing in accordance with ASTM D1143, except as modified by this subsection. It is acceptable to test compression loads in tension in accordance with ASTM D3689 in lieu of completing a compression load test.

Perform Micropile compression load testing meeting the requirements of ASTM D1143, except as modified by this subsection. It is acceptable to test compression loads in tension in accordance with ASTM D3689 in lieu of completing a compression load test.

(a) Verification Load Tests - Perform pre-production verification pile and anchor load testing on sacrificial Micropiles and Vertical Ground Anchors to verify the design of the system and the construction methods proposed prior to beginning Work on any aspect of production Micropiles and Vertical Ground Anchors. Construct 12 sacrificial verification test piles and anchors according to the approved Working Drawings. Install verification test Micropiles and Vertical Ground Anchors at the following locations:

Verification Test Pile	Station	Offset	
VT - 1	"CE" STA 43+70.85	38.2 Feet Left	Tension
VT - 2	"CE" STA 46+05.85	38.2 Feet Left	Tension
VT - 3	"CE" STA 48+40.85	38.2 Feet Left	Tension
VT - 4	"CE" STA 50+39.68	39.0 Feet Left	Tension
VT - 5	"CE" STA 51+45.66	48.4 Feet Left	Tension
VT - 6	"CE" STA 53+55.44	46.6 Feet Left	Tension
VT - 7	"CES" STA 21+82.00	14.0 Feet Right	Tension
VT - 8	"CES" STA 22+56.00	8.0 Feet Left	Tension
VT - 9	"CES" STA 23+21.62	12.1 Feet Left	Tension

Verification test pile and anchor locations may be adjusted by the Engineer depending on actual site conditions and other factors. If additional verification test piles and anchors are needed, the location will be determined by the Engineer.

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Perform Verification Load Tests to verify that the Contractor-installed Micropiles and Vertical Ground Anchors will meet the loading requirements and the load test acceptance criteria, and to verify that the length of the Micropile and Vertical Ground Anchor bond zone is adequate. Demonstrate to the Engineer that the Micropile Verification Load Test and Vertical Ground Anchor Verification Load Test results verify the Contractor's design and installation methods. The Engineer reviews and accepts the Contractor's design and installation methods prior to beginning production installation. For each verification test provide the Load Test Data Report to the Engineer within 5 Calendar Days of completing the testing.

For verification test piles and anchors, use the drilling and grouting methods, Casing and reinforcement details, depth of embedment (bond zone), and all other installation Materials and methods specified for the production piles, unless otherwise approved by the Engineer. At the completion of verification testing, remove test piles and anchors down to the bottom of the foundation or as directed.

(1) Testing Equipment and Data Recording - Provide dial gauges, dial gauge support, jack and pressure gauges, load cells and a reaction frame for use in testing the Micropiles and Vertical Ground Anchors. The load cell is required only for the Creep test portion of the verification test.

Provide a description of test setup and jack, pressure gauge, and load cell calibration curves according to 00515.05. Design the testing reaction frame to be sufficiently rigid and of adequate dimensions to prevent excessive deformation of the testing Equipment. Align the jack, bearing plates, and stressing anchorage such that unloading and repositioning of the Equipment will not be required during the test.

Apply and measure the test load with a hydraulic jack and pressure gauge. Provide a pressure gauge graduated in 100 psi increments or less. Provide a jack and pressure gauge with a pressure range not exceeding twice the anticipated maximum test pressure. Provide a jack ram travel sufficient to allow the test to be completed without resetting the Equipment. Position the jack at the beginning of the test such that unloading and repositioning during the test will not be required. Monitor the Creep test load hold during verification tests with both the pressure gauge and the load cell. Use the load cell to accurately maintain a constant load hold during the Creep test load hold increment of the verification test.

Measure the pile and anchor top movement with a dial gauge capable of measuring to 0.001 inch. Provide a dial gauge having a sufficient travel to allow the test to be completed without having to reset the gauge. Visually align the gauge to be parallel with the axis of the pile and anchor and support the gauge independently from the jack, pile, anchor, or reaction frame. Use a minimum of two dial gauges when the test setup requires reaction against the ground or single reaction piles on each side of the test pile and anchor. Record the required load test data and supply the results to the Engineer.

(2) Verification Test Loading Schedule - Test verification piles and anchors designated for compression or tension load testing to a maximum test load of 1.5 times the Factored Design Loads provided in 00515.04 or as shown. Measure the pile top

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movement at each load increment. Start the load-hold period as soon as each test load increment is applied. Reset dial gauges to zero after the initial AL is applied.

Incrementally load the Micropile or Vertical Ground Anchor in accordance with the following cyclic load schedule for both compression and tension loading as indicated in Table 00515-2:

AL = Alignment Load ($\leq 0.04\text{FDL}$)

FDL = Factored Design Load

TABLE 00515-2

Loading Cycle	Increment	Load	Hold Time (min.)
AL	1	AL	2.5
Cycle 1	2	0.075 FDL	4
	3	0.15 FDL	4
	4	0.225 FDL	4
	5	0.30 FDL	4
	6	0.375 FDL	4
Cycle 2	7	AL	1
	8	0.15 FDL	1
	9	0.30 FDL	1
	10	0.375 FDL	1
	11	0.45 FDL	4
	12	0.525 FDL	4
	13	0.60 FDL	4
	14	0.675 FDL	4
	15	0.75 FDL	4
Cycle 3	16	AL	1
	17	0.30 FDL	1
	18	0.60 FDL	1
	19	0.675 FDL	1
	20	0.75 FDL	1
	21	0.825 FDL	4
	22	0.90 FDL	4
	23	0.975 FDL	60* (Creep Test)
Cycle 4	24	AL	1
	25	0.30 FDL	1
	26	0.60 FDL	1
	27	0.90 FDL	1
	28	0.975 FDL	1
	29	1.05 FDL	4
	30	1.125 FDL	4
	31	1.20 FDL	4
	32	1.275 FDL	4
	33	1.35 FDL	4
	34	1.425 FDL	4

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Loading Cycle	Increment	Load	Hold Time (min.)
	35	1.50 FDL	4
	36	1.20 FDL	4
	37	0.90 FDL	4
	38	0.60 FDL	4
	39	0.30 FDL	4
	40	AL	15

* Measure and record pile or anchor movement during the Creep test at intervals of 1, 2, 3, 4, 5, 6, 10, 20, 30, 50, and 60 minutes as soon as the test load is applied.

(3) Micropile Verification Load Test Acceptance Criteria - The acceptance criteria for Micropile Verification Load Tests VT-7, and VT-8 are:

- The pile sustains the first compression or tension 0.375 FDL test load with no more than 3/16 inch total vertical movement at the top of the pile, relative to the top of the pile prior to the start of testing.
- At the end of the 1.00 FDL Creep test load increment, test pile Creep rate does not exceed 0.04 inch/log cycle time (1 to 10 minutes) or 0.08 inch/log cycle time (6 to 60 minutes or the last log cycle if held longer) and the Creep rate is linear or decreasing throughout the Creep load hold period.
- Failure does not occur at the 1.50 FDL maximum test load. Failure is defined as the load where the slope of the load versus head deflection curve (at the end of increment) first exceeds 0.025 inch/kip.

Submit a Load Test Data Report, according to 00515.48. The Engineer will respond within 5 Calendar Days after receipt of the report with either acceptance or rejection of the tested Micropile.

(4) Vertical Ground Anchor Verification Load Test Acceptance Criteria - The acceptance criteria for Vertical Ground Anchor Verification Load Tests VT-1 through VT-6 and VT-9 are:

- The anchor maintains the specified minimum anchor system stiffness, k , as shown, at the following loading:

Verification Test	Cycle	Load
VT-1	4	1.20 FDL
VT-2	4	1.20 FDL
VT-3	4	1.20 FDL
VT-4	4	1.20 FDL
VT-5	4	1.20 FDL
VT-6	4	1.20 FDL
VT-9	4	1.20 FDL

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- At the end of the 1.0 FDL Creep test load increment, test pile Creep rate does not exceed 0.04 inch/log cycle time (1 to 10 minutes) or 0.08 inch/log cycle time (6 to 60 minutes or the last log cycle if held longer) and the Creep rate is linear or decreasing throughout the Creep load hold period.
- Failure does not occur at the 1.50 FDL maximum test load. Failure is defined as the load where the slope of the load versus head deflection curve (at the end of increment) first exceeds 0.025 inch/kip.

Submit a Load Test Data Report, according to 00515.48. The Engineer will respond within 5 Calendar Days after receipt of the report with either acceptance or rejection of the tested Vertical Ground Anchor.

(5) Verification Test Pile Rejection - If a verification-tested Micropile or Vertical Ground Anchor fails to meet the acceptance criteria, modify the design, the construction procedure, or both. These modifications may include modifying the installation methods, increasing the Bond Length, or changing the Micropile or Vertical Ground Anchor type. Submit to the Engineer any modifications that necessitate changes to the Structure. Do not proceed with further Micropile and Vertical Ground Anchor testing or construction without approval from the Engineer.

(b) Proof Load Tests - Perform Proof Load Tests on production Micropile or Vertical Ground Anchor at each designated Substructure unit (footing) unless otherwise directed. The Engineer will determine the pile to be tested in each Substructure unit. Proof test Micropiles are required at the following Substructure unit locations:

Proof Test	Location	Number of Tests per Footing
Bridge No. 00123K,	Bent 16	1
Bridge No. 00123K,	Bent 17	1
Bridge No. 00123K,	Bent 18	1
Bridge No. 00123K,	Bent 19	1
Bridge No. 00123K,	Bent 20	3
Bridge No. 00123K,	Bent 21	2
Bridge No. 00123K,	Bent 24	2
Bridge No. 00123K,	Bent 25	1
Bridge No. 00123K,	Bent 28	1
Bridge No. 00123G,	Bent 3 Pier Protection	1
Bridge No. 00123G,	Bent 4 Pier Protection	1
Bridge No. 00123G,	Bent 5	2

Proof Load Test locations may be adjusted by the Engineer. The Engineer will designate the location of additional proof test piles and anchors.

Perform Proof Load Tests to verify the production Micropiles and Vertical Ground Anchor will meet the loading requirements and the load test acceptance criteria. For each proof test, provide the Load Test Data Report to the Engineer within 5 Calendar Days of completing the testing.

(1) Proof Test Loading Schedule - Test piles and anchors designated for compression or tension Proof Load Testing to a maximum test load of 1.0 times the

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Factored Design Load(s) provided in 00515.04 or as shown. Provide testing Equipment and data recording devices in accordance with 00515.47(a)(1). Incrementally load the proof test Micropiles and Vertical Ground Anchors according to Table 00515-3, to be used for both compression and tension loading:

AL = Alignment Load ($\leq 0.04\text{FDL}$)

FDL = Factored Design Load

TABLE 00515-3

Loading Cycle	Increment	Applied Load	Hold Time (min.)
Apply AL	1	AL	2.5
Load Cycle	2	0.10 FDL	4
	3	0.20 FDL	4
	4	0.30 FDL	4
	5	0.40 FDL	4
	6	0.50 FDL	4
	7	0.60 FDL	4
	8	0.70 FDL	4
	9	0.80 FDL	4
	10	0.90 FDL	4
	11	1.00 FDL	10 or 60 minutes*
Unload Cycle	12	0.90 FDL	4
	13	0.75 FDL	4
	14	0.60 FDL	4
	15	0.45 FDL	4

* Where the pile or anchor top movement between 1 and 10 minutes exceeds 0.04 inch, maintain the 1.0 FDL increment an additional 50 minutes and measure and record pile movements at 1, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes.

Reset dial gauges to zero after the initial AL is applied.

(2) Micropile Proof Test Pile Acceptance Criteria - The acceptance criteria for Micropile Proof Load Tests are:

- The pile sustains the compression or tension 1.00 FDL with no more than 1/2 inch total vertical movement at the top of the pile, relative to the top of the pile prior to the start of testing.
- At the end of the 1.00 FDL Creep test load increment, test piles have a Creep rate not exceeding 0.04 inch/log cycle time (1 to 10 minutes) or 0.08 inch/log cycle time (6 to 60 minutes) and the Creep rate is linear or decreasing throughout the Creep load hold period.
- Failure does not occur at the 1.00 FDL maximum test load. Failure is defined as the load where the slope of the load versus head deflection curve first exceeds 0.025 inch/kip.

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Submit a Load Test Data Report, according to 00515.48. The Engineer will respond within 5 Calendar Days after receipt of the report with either acceptance or rejection of the tested Micropile.

(3) Vertical Ground Anchor Proof Test Pile Acceptance Criteria - The acceptance criteria for Vertical Ground Anchor Proof Load Tests are:

- The anchor maintains the specified minimum anchor system stiffness, k , as shown, at the following loading:

Bridge No.	Location	Load (kip)
00123K	Bent 16	1.00 FDL
00123K	Bent 17	1.00 FDL
00123K	Bent 18	1.00 FDL
00123K	Bent 19	1.00 FDL
00123K	Bent 20	1.00 FDL
00123K	Bent 21	1.00 FDL
00123K	Bent 24	1.00 FDL
00123K	Bent 25	1.00 FDL
00123K	Bent 28	1.00 FDL
00123G	Bent 5	1.00 FDL

- At the end of the 1.00 FDL Creep test load increment, test piles have a Creep rate not exceeding 0.04 inch/log cycle time (1 to 10 minutes) or 0.08 inch/log cycle time (6 to 60 minutes) and the Creep rate is linear or decreasing throughout the Creep load hold period.
- Failure does not occur at the 1.00 FDL maximum test load. Failure is defined as the load where the slope of the load versus head deflection curve first exceeds 0.025 inch/kip.

Submit a Load Test Data Report, according to 00515.48. The Engineer will respond within 5 Calendar Days after receipt of the report with either acceptance or rejection of the tested Vertical Ground Anchor.

(4) Proof Test Pile Rejection - If a proof-tested Micropile or Vertical Ground Anchor fails to meet the acceptance criteria, proof test additional Micropiles or Vertical Ground Anchors within that footing or Substructure unit as directed by the Engineer. For failed piles or anchors and construction of replacement piles or anchors, modify the design, the construction procedure, or both. Modifications may include installing replacement Micropiles or Vertical Ground Anchors, incorporating remaining untested piles or anchors at reduced load capacities, post grouting, modifying installation methods, increasing the Bond Length, or changing the Micropile or Vertical Ground Anchor type. Submit to the Engineer any modifications that necessitate changes to the Structure design. Do not proceed with further Micropile or Vertical Ground Anchor testing or construction without the Engineer's approval.

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00515.48 Load Test Data Reports - Report the Micropile or Vertical Ground Anchor verification and Proof Load Test data to the Engineer in the form of a summary report that includes, at a minimum, the following information:

- Project description.
- Description of site and subsurface conditions including information on the subsurface conditions encountered at the load test location.
- A listing of key personnel involved with the testing and production of the Micropile or Vertical Ground Anchor including the grout plant operator, drill rig operator, on-site supervisor and Micropile or Vertical Ground Anchor engineer.
- Results of the load test, including completed testing field data records for load increments and time periods in 00515.47(a)(2) and 00515.47(b)(1), and appropriate presentation figures, charts and graphs. Record the required load test data and submit to the Engineer for verification.
- Statement of load testing requirements and acceptance criteria according to 00515.47(a)(3), 00515.47(a)(4), 00515.47(b)(2), and 00515.47(b)(3).
- Comparison of load testing results and acceptance criteria.
- Summary statement of load test results, including whether the load test met or failed to meet the criteria.
- Hydraulic jack pressure gauge and load cell calibration report.
- Material certifications or check sample results for permanent Casing (if used), reinforcement, and grout compressive strength testing.

Submit the Load Test Data Report as a Stamped Working Drawing according to 00515.05(b)(5).

00515.49 Installation Log - Prepare and submit a Micropile Installation Log to the Engineer for each Micropile and Vertical Ground Anchor installed, within 24 hours of Micropile or Vertical Ground Anchor installation. A copy of the Micropile Installation Log is available from the ODOT Construction Forms website at:

<https://www.oregon.gov/ODOT/Construction/Pages/Forms.aspx>

At a minimum, include the following information:

- Micropile or Vertical Ground Anchor drilling duration
- Description of Soil and Rock encountered
- Final tip elevation
- Cutoff elevations for the top and bottom of the Casing
- Nominal Resistance
- Description of unusual installation behavior or conditions
- Grout pressures attained during grouting
- Grout quantities pumped into Micropiles or Vertical Ground Anchors
- Micropile or Vertical Ground Anchor Materials and dimensions

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- Number and length of casings installed and removed

Measurement

00515.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Provide Micropile Equipment - No measurement of quantities will be made for providing Micropile Equipment.

(b) Micropiles - Micropiles will be measured on the unit basis for each production Micropile installed and accepted.

(c) Micropile Verification Load Test - Micropile Verification Load Tests will be measured on the unit basis for each for Verification Load Test pile constructed, tested, and accepted. Micropile Verification Load Tests performed at the option of the Contractor will not be measured.

(d) Micropile Proof Load Test - Micropile Proof Load Tests will be measured on the unit basis for each Proof Load Test completed, reported, and accepted. Micropile Proof Load Tests performed at the option of the Contractor will not be measured.

(e) Furnish Vertical Ground Anchor Equipment - No measurement of quantities will be made for furnishing Vertical Ground Anchor Equipment.

(f) Vertical Ground Anchors - Vertical Ground Anchor will be measured on the unit basis for each production Vertical Ground Anchor installed and accepted.

(g) Vertical Ground Anchor Verification Load Test - Vertical Ground Anchor Verification Load Tests will be measured on the unit basis for each Verification Load Test anchor constructed, tested, and accepted. Vertical Ground Anchor Verification Load Tests performed at the option of the Contractor will not be measured.

(h) Vertical Ground Anchor Proof Load Test - Vertical Ground Anchor Proof Load Tests will be measured on the unit basis for each Proof Load Test completed, reported, and accepted. Vertical Ground Anchor Proof Load Tests performed at the option of the Contractor will not be measured.

Payment

00515.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following item(s):

Pay Item

Unit of Measurement

- | | |
|---|----------|
| (a) Provide Micropile Equipment | Lump Sum |
| (b) Micropiles | Each |
| (c) Micropile Verification Load Test..... | Each |
| (d) Micropile Proof Load Test..... | Each |
| (e) Furnish Vertical Ground Anchor Equipment..... | Lump Sum |
| (f) Vertical Ground Anchors, _____ | Each |

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- (g) Vertical Ground Anchor Verification Load Test Each
- (h) Vertical Ground Anchor Proof Load Test Each

Partial payments for Item (a) and (e) will be made as follows:

- When drilling Equipment is on the job, assembled and Verification Load Test drilling is underway 75%
- When the installation of the Micropiles and Vertical Ground Anchors are complete, accepted and the drilling Equipment has been removed from the site 25%

In Items (b) and (f) the bent number is inserted in the blank.

Item (b) includes designing, drilling, furnishing, and placing all steel reinforcement and Casing, grouting, Anchorage assembly and Micropile footing connections. No payment will be made for Micropiles that fail Micropile Proof Load Tests.

Item (c) includes payment for furnishing all Materials, providing all Equipment, and labor required to construct sacrificial Verification Load Test piles, conduct the load test, and report the results as specified. No payment will be made for failed Micropile Verification Load Tests.

Item (d) includes payment for furnishing all Materials, providing all Equipment, and labor required to conduct Proof Load Tests, and report the results as specified. No payment will be made for failed Micropile Proof Load Tests.

Item (f) includes designing, drilling, furnishing, and placing prestressing steel reinforcement, grouting, Anchorage assembly and Vertical Ground Anchor footing connections. No payment will be made for Vertical Ground Anchors that fail Vertical Ground Anchor Proof Load Tests.

Item (g) includes payment for furnishing all Materials and providing all Equipment and labor required to construct sacrificial Verification Load Test ground anchors, conduct the load test, and report the results as specified. No payment will be made for failed Vertical Ground Anchor Verification Load Tests.

Item (h) includes payment for furnishing all Materials and providing all Equipment, and labor required to conduct Proof Load Tests, and report the results as specified. No payment will be made for failed Vertical Ground Anchor Proof Load Tests.

Payment will be payment in full for furnishing and placing all Materials, providing, erecting, maintaining, and replacing all Equipment, and for all labor and Incidentals necessary to complete the Work as specified.

SECTION 00520 - DRIVEN PILES

Comply with Section 00520 of the Standard Specifications modified as follows:

00520.10 Materials - Add the following to the Materials list:

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Concrete Backfill 00540

Add the following at the end of this subsection:

(a) Pea Gravel Backfill - Furnish clean, round Gravels with a maximum 3/8" Aggregate size.

00520.11 Engineer's Estimated Length List - Add the following to the end of this subsection:

The Engineer's estimated lengths of steel piling are:

Location	Number	Length (feet)	Type and Size	Coating Top Elevation ¹	Coating Bottom Elevation ¹
BR00123K Bent 16	28	76.5	PP 24 x 0.75	n/a	n/a
BR00123K Bent 17	28	73.5	PP 24 x 0.75	n/a	n/a
BR00123K Bent 18	28	73.5	PP 24 x 0.75	n/a	n/a

¹ Protective coating system and color requirements according to 00594.10.

00520.14 Unused Piles - Replace the paragraph that begins " Acceptable full-length piles ..." with the following paragraph:

Acceptable full-length piles furnished according to the estimated length list, order list, or revised pile order list, but not incorporated in the Work, is handled according to one of the following:

00520.20(a)(2) Open-End Diesel Hammers - Replace this subsection, except for the subsection number and title, with the following:

Provide open-end (single-acting) diesel hammers equipped with a device that allows the Engineer to visually determine hammer stroke at all times during pile driving operations. Provide the Engineer with the hammer manufacturer's chart equating stroke and blows per minute.

00520.20(a)(4) Gravity Hammers - Replace this subsection, except for the subsection number and title, with the following:

Provide gravity hammers that have a ram weighing between 2,000 pounds and 5,000 pounds, weigh not less than the combined weight of helmet and pile and a drop height of not more than 10 feet.

00520.20(b) Vibratory Hammers - Replace this subsection, except for the subsection number and title, with the following:

Control installation of production piles with vibratory hammers according to the power consumption, rate of penetration, specified tip elevation, or other acceptable means that assure the pile resistance equals or exceeds the required nominal pile bearing resistance.

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After driving piles with a vibratory hammer, verify pile resistance (see 00520.42) by driving them with an impact hammer of suitable energy. Do not use vibratory hammers to drive test piles or when preboring or jetting.

00520.20(c)(1) Helmet - Replace the paragraph that begins "Equip piles driven with ..." with the following paragraph:

Equip piles driven with impact hammers with an adequate metal helmet. Provide helmets that:

00520.20(d)(1) General - Replace the paragraph that begins "During pile-driving operations, no ..." with the following paragraph:

During pile-driving operations, no changes to the approved Equipment are allowed without the Engineer's written permission. Submit a request for change on a "Pile and Driving Equipment Data" form. The Engineer will give notification of approval or rejection within 7 Calendar Days of receiving the form. Time required for resubmission and review of a Contractor's Equipment change request is not a basis for a Contract Time extension request unless the Engineer does not respond in 7 Calendar Days.

00520.20(d)(2) Standard Evaluation Method - Replace the paragraph that begins "¹ Requirements are based ..." with the following paragraph:

¹ Requirements are based on the FHWA Gates equation (see 00520.42(b)), except all driving criteria for double acting and differential hammers both air/steam and diesel are by the wave equation analysis.

Replace the paragraph that begins "The required number of ..." with the following paragraph:

The required number of hammer blows indicated by the FHWA Gates equation at the nominal pile bearing resistance is at a rate between 2 and 10 blows per inch.

00520.20(d)(3) Wave Equation Method - Replace the bullet that begins "The energy of the submitted ..." with the following bullet:

- The energy of the submitted hammer produces a wave equation predicted blow count between 2 and 10 blows per inch for the nominal resistances, pile lengths and other conditions specified.

Replace the bullet that begins "The pile stresses indicated by ..." with the following bullet:

- The pile stresses indicated by the wave equation at the nominal resistance are not greater than the stress at the point of impending damage to the pile as follows:

Replace the paragraph that begins "Hammers not meeting these ..." with the following paragraph:

Hammers not meeting these requirements are rejected. Replace rejected hammers with suitable hammers.

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Replace the bullet that begins "Electronic and paper copies ..." with the following bullet:

- Electronic and paper copies of the wave equation input and output files. Provide output files in the standard WEAP output format.

Replace the paragraph that begins "For Agency reviewing and approving ..." with the following paragraph:

The Agency will consider the following when reviewing and approving the wave equation analysis submittals:

Replace the paragraph that begins "Failure of a previously approved ..." with the following paragraph:

Failure of a previously approved hammer to operate properly during construction is cause for rejection.

Add the following paragraph and table(s) to the end of this subsection:

The input values for the wave equation analyses are:

Bent	Pile Type	Pile Length * (Feet)	Quake (Inches) Skin	Quake (Inches) Toe	Damping (sec./ft.) Skin	Damping (sec./ft.) Toe	% skin (ITYS)	R _n (kips)
16	PP 24 x 0.75	76.5	0.1	0.15	0.15	0.15	80	650
17	PP 24 x 0.75	73.5	0.1	0.15	0.15	0.15	80	530
18	PP 24 x 0.75	73.5	0.1	0.15	0.15	0.15	80	550

- * These pile lengths are based on the top of the pile being at the finished cutoff elevation. Add all additional pile length above the cutoff elevation, that may be required to accommodate the Contractor's pile installation method or site conditions to the lengths listed above and appropriate changes made to the skin friction distribution input listed below.

Use triangular skin friction distribution.

00520.41(d) Preboring - Replace the paragraph that begins "Use augering, wet-rotary ..." with the following paragraph:

Use augering, wet-rotary drilling or other methods of preboring only when specified or with written approval. When allowed, prebore holes at pile locations and to the depths shown or directed. Make prebored holes smaller than the diameter or diagonal of the pile Cross Section, but sufficient to allow penetration of the pile to the specified depth. If subsurface obstructions, such as Cobbles, Boulders or Rock layers are encountered, the hole diameter may be increased to the least dimension that is adequate for pile installation. The use of a reinforced section (spud) to loosen the subsurface material at pile locations is not allowed unless otherwise approved.

Replace the paragraph that begins "Perform preboring in a manner ..." with the following paragraph:

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Perform preboring in a manner that will not impair the bearing or lateral capacity of the piles already in place or the safety of existing adjacent Structures. When it is determined that preboring has disturbed the load bearing resistances of previously installed piles, restore those piles that have been disturbed to conditions meeting the requirements of this Specification by redriving or by other acceptable methods. The Contractor is responsible for the costs of any necessary remedial measures unless the preboring method was specifically included in the Contract Documents and properly executed by the Contractor.

Add the following sentence to the end of this subsection:

Use augering, wet-rotary drilling or other approved methods of preboring as directed.

00520.41(f) Location and Alignment Tolerance - Replace the paragraph that begins "Place the tops of piles at ..." with the following paragraph:

Place the tops of piles at plan cutoff elevation and horizontally within 6 inches of plan locations and no closer than 4 inches from any edge of the cap. Any increase in cap size to meet this edge distance requirement is at no additional cost to the Agency.

00520.41(h) Test Piles - Replace the paragraph that begins "When specified, furnish and ..." with the following paragraph:

When specified, furnish and drive test piles at the locations and to the lengths directed. Furnish all test piles of the kind and size specified for the permanent foundation piles unless otherwise directed. Drive all test piles with approved pile driving Equipment. The specified length of test piles is greater than the estimated length of production piles to provide for variation in Soil conditions. Drive test piles using driving Equipment identical to what the Contractor proposes to use on the production piling. Excavate to the elevation of the bottom of the footing before driving test piles. (See Section 00510.)

Replace the paragraph that begins "Drive test piles to or below ..." with the following paragraph:

Drive test piles to or below the required minimum tip elevation and to a hammer blow count established by the Engineer. Allow test piles that do not attain the hammer blow count specified at the minimum tip elevation shown to "set up" for 24 hours, or less if directed, before being redriven. (See 00520.42(d).) If the tops of test piles reach plan grade without attaining the required pile bearing resistance, splice them and drive until the required bearing resistance is attained.

00540.42(a) General - Replace the paragraph that begins "Drive piles with approved pile ..." with the following paragraph:

Drive piles with approved pile driving Equipment to the lengths necessary to attain the required penetration and nominal pile bearing resistance. Adequate pile penetration is considered reached when the piles are driven to or below the minimum penetration depth and the specified bearing resistance is achieved. If piles do not achieve the specified resistance when driven to order length or estimated length, splice and drive them to penetrations established by the Engineer. Provide a pile blow count at a rate of between 2 and 10 blows per inch at the required nominal pile bearing resistance. Maintain the required

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number of hammer blows per inch at final penetration for 3 consecutive inches unless "refusal" driving is first obtained. "Refusal" driving is defined as 20 blows per 1 inch or as determined by the Engineer.

Replace the paragraph that begins "If water jets are used ..." with the following paragraph:

If water jets are used with the driving, determine the bearing value by the specified equation from the results of driving after the jetting has been completed according to 00520.42(e).

00520.42(d) Set Period and Redriving - Replace the paragraph that begins "If piles do not attain the ..." with the following paragraph:

If piles do not attain the required nominal bearing resistance when driven to the specified length, and if allowed or required, allow the piles to stand for a "set period" without driving. The "set period" is a minimum of 24 hours. After the set period, perform check driving on either two piles in each bent or on one pile in every 10 piles, whichever is more. The Engineer will designate the piles that check driving is to be performed. Do not use a cold hammer for redriving. Warm up the hammer before redriving begins by applying at least 20 blows to another pile. Redriving consists of driving the pile to the required bearing resistance with a maximum of 15 blows. If the specified hammer blow count is not attained on redriving, the Engineer may direct the Contractor to drive all of the remaining pile length and repeat the set period and redriving procedure. Splice those piles driven to plan grade that do not attain the hammer blow count required, and drive until the required bearing resistance is attained. If the required bearing resistance is attained for each pile that is redriven, then the remaining piles in that bent are considered satisfactory when driven to at least the same penetration and resistance as the redriven piles.

Replace the sentence that begins "The "set period" shall be..." with the following sentence:

The "set period" is a minimum of 72 hours unless otherwise approved by the Engineer.

Add the following sentence to the end of this subsection:

Piles are required to set before redriving.

00520.42(e) Jetted Piles - Replace this subsection, except for the subsection number and title, with the following:

The nominal pile bearing resistance of jetted piles is based on impact driving blow count after jetting has been completed. Jet pipes may be removed when the pile tip is at the required minimum pile tip elevation and before the pile is driven to the required bearing resistance. For piles that are jetted at the Contractor's request and do not attain the required nominal bearing resistance at the ordered length, splice, as required, and drive with a specified impact pile hammer until the required nominal bearing resistance is achieved according to appropriate criteria in 00520.42. If jetting is requested by the Contractor, perform all splicing and driving piles beyond the order length at no additional cost to the Agency.

00520.42(g) Vibratory Hammers - Replace this subsection, except for the subsection number and title, with the following:

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The nominal bearing resistance of piles driven with vibratory hammers is based on impact driving blow count after the vibratory Equipment has been removed. When vibratory installation of the piles is approved by the Engineer and the vibrated piles do not attain the required nominal bearing resistance at the specified length, splice them as required, at no additional cost to the Agency, and drive with a specified impact pile hammer until the required nominal bearing resistance is achieved, according to 00520.42.

00520.42(h)(2) Dynamic Load Tests - Replace this subsection, except for subsection number and title, with the following:

Perform dynamic monitoring of selected production piles using a pile driving analyzer (PDA) and perform signal-matching analysis on two piles at Bent 16, Bent 17, and Bent 18 for a total of 6 pile tests. Instrument and monitor the first two piles driven at each Bent 16, Bent 17, and Bent 18 as approved by the Engineer. The Engineer may revise the number of piles tested.

Unless otherwise directed by the Engineer, drive all test piles to the Engineers estimated tip elevation before testing. Perform dynamic load testing in accordance with the most current version of ASTM D4945, Standard Test for High-Strain Dynamic Testing of Piles, except as modified in these Specifications. Perform all testing in the presence of the Engineer. Use a warm hammer that has been operating for at least 25 hammer blows immediately preceding the dynamic load test.

The results of the dynamic monitoring and signal-matching analysis will be used by the Engineer to confirm pile length and nominal pile bearing resistance and to determine driving criteria for piles that are not dynamically monitored.

a. Dynamic Monitoring Equipment - Furnish all monitoring equipment, leads, gauges, power source and personnel experienced in connecting and operating the dynamic monitoring equipment. Provide dynamic monitoring equipment consisting of a Pile Driving Analyzer (PDA) as manufactured by Pile Dynamics, Inc., Cleveland, Ohio, or approved equivalent. Furnish all software required for PDA monitoring and CAPWAP field evaluation.

b. Test Pile Preparation - Prepare the pile for the necessary gauge attachments.

c. Dynamic Pile Testing Personnel - Retain a qualified technician experienced in PDA monitoring and signal-matching analysis to perform the work. The technician selected by the Contractor must have successfully performed PDA monitoring and signal-matching analysis on at least three projects in the last 3 years and be approved by the Engineer. Submit the proposed PDA testing company and field technician qualifications for the Engineer's approval at least 28 Calendar days prior to beginning pile driving operations. The Engineer will review and respond within 21 Calendar Days after receipt of the submittal.

d. PDA Monitoring and Signal-Matching Analysis - Drive the dynamic test piles to the estimated tip elevation shown in the plans. After the minimum set period, restrike the test piles with a warm hammer. A hammer is considered warm after having struck 25 blows within a 10 minute period. Monitor test piles during restrike for a minimum of 45 blows or until refusal driving conditions are reached, unless otherwise determined by the Engineer. Refusal driving is defined as 20 blows per inch.

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During PDA monitoring record the following information for each hammer blow and make the information available to the Engineer.

- Transferred hammer energy at the pile top
- Peak impact force and stress
- Impact velocity
- Case method estimates of pile bearing capacity

The pile stresses indicated by PDA monitoring during driving are not to be greater than the stress at the point of impending damage to the pile as follows:

- tensile and compressive stresses in the steel pile equal to 90% of the pile material's yield strength for the grade of steel specified.

Provide preliminary results of the above data along with interpretation to the Engineer while the pile is being driven and at the completion of each test. Monitor the piles tested with the PDA for damage and the occurrence of non-axial driving. Inform the Engineer immediately if non-axial driving or pile damage occurs.

Perform two signal-matching analyses for each pile tested; one from a hammer blow at the end of initial driving and one from the restrike blows. Use the Case Pile Wave Analysis Program (CAPWAP) or approved equal to perform the signal matching analysis.

e. Pile Dynamic Monitoring Reporting - Submit a final report summarizing the dynamic monitoring and signal-matching results for each test pile. Test reports for more than one bent may be combined into a single report. The report is to contain a detailed summary of the PDA monitoring and signal-matching analysis results. Forward all reports to the Project Manager for use in determining the final pile lengths and driving criteria. Each report is to contain, at a minimum, the following information:

- Background information on dynamic monitoring including a list of symbols and definitions applicable to the test results.
- The following data for each test pile:
 - Measured and computed pile force and velocity histories
 - Case method nominal pile resistance (ultimate capacity)
 - CAPWAP (or equivalent) nominal pile resistance for a selected hammer blow from the end of initial driving and from a blow during restrike (two blows analyzed per test pile)
 - Total skin and tip static resistance
 - Skin resistance distribution with depth
 - Measured pile stresses and distribution of stresses with pile depth
 - Measured hammer transfer energy
 - Soil damping and quake values used in the analysis

f. Issuance of Final Driving Criteria - Final pile driving criteria for production piles will be provided by the Engineer within 5 Calendar Days of the receipt of the Contractor's final Pile Dynamic Monitoring report.

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00520.43(b) Storage and Handling - Replace this subsection, except for the subsection number and title, with the following:

Store and handle steel piles in ways that protect them from damage. Bent or kinked piles are rejected.

00520.43(c) End Treatment - Add the following sentence to the end of this subsection:

Drive steel pipe piles open-ended with tip treatment as shown.

00520.43(d) Reinforced Pile Tips - Add the following sentence to the end of this subsection:

For steel pipe piling, provide outside fit, open end cutting shoes meeting the requirements of 02520.10(e).

00520.43(g)(1) Splices - Replace this subsection, except for the subsection number and title, with the following:

Construct splice joints for pipe piles according to Joint B-U4a or B-U4a-GF (Single-Bevel Groove Weld) in D1.1. Weld back-up rings with a full penetration groove weld. Construct pipe pile splices that include a steel plate for Soil plug formation according to Joint TC-U4a or TC-U4a-GF.

Construct splice joints for H-piles according to Joint B-U3b or B-U3-GF (Double V-Groove Weld) in D1.1 for both the web and flange sections. Joint B-U4a or B-U4a-GF may be substituted on the flange weld. Provide access holes at the ends of the web according to D1.1.

00520.43(g)(2) Submittals - Replace the bullet that begins "A Welding Procedure Specification ..." with the following bullet:

- A Welding Procedure Specification (WPS) for all pile welds, according to the limitations of D1.1. Both ASTM A36 and ASTM A252 Grade 1 and 2 may be treated as prequalified base metals under Group 1. ASTM A252 Grade 3 will not be considered a prequalified base metal unless the steel has a Carbon Equivalent (CE) of 0.30 percent or less. Develop a Procedure Qualification Record (PQR) for all welding using Grade 3 steel or present proof that the chemistry of the steel meets the CE requirements.

Replace the bullet that begins "An inspection report stating ..." with the following bullet:

- An inspection report stating that the welding under the Contract was performed according to D1.1. Include a review of the WPS, a review of welder qualifications and a report on visual inspection of the welds on the Project Site in the report. Submit inspection reports signed by a Certified Welding Inspector (CWI) holding QC1 certification as defined in D1.1.

00520.43(g)(3) Additional Testing - Replace this subsection, except for the subsection number and title, with the following:

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The Engineer may request additional nondestructive testing (NDT), such as radiography or ultrasonic testing of any or all welds. If the additional testing identifies defects warranting rejection, perform repair and additional inspection at no additional cost to the Agency. If the additional NDT does not identify defects warranting rejection, the Agency will pay the cost of the additional testing. Radiographic and ultrasonic defect indications are evaluated according to the statically loaded criteria of D1.1.

00520.43(h) Cutoff Lengths - Replace this subsection, except for the subsection number and title, with the following:

Cut off the tops of all permanent piles square and smooth at the elevation shown or as directed. All cut-off pile becomes the property of the Contractor. Dispose of according to 00290.20. With approval, undamaged cutoffs may be used as pile extensions or welded together to form full length piles. Do not vary steel pile cutoffs welded together from a straight line more than 1/4 inch in 20 feet measured along any edge of the pile, whether pile extensions or full length piles.

Mark all acceptable cutoffs and unused pile lengths remaining at completion of pile driving for identification by the Engineer as acceptable for use on other or future Agency projects if requested by the Contractor.

Add the following subsection:

00520.43(k) Pipe Pile Excavation and Cleaning Backfill - Excavate the inside of the pipe pile to the limits shown. Clean the interior surfaces of the pipe pile after completion of excavation and prior to concrete backfilling. Remove all the native soils, debris, and material from inside the wall surfaces of the pipe pile that prohibits concrete bonding.

Add the following subsection:

00520.43(l) Pipe Pile Backfill - Backfill pipe pile with backfill materials and to the limits shown.

00520.46 Damaged or Defective Piles - Replace this subsection, except for the subsection number and title, with the following:

In addition to other specified requirements:

- Approval of a pile hammer does not relieve the Contractor of responsibility for piles damaged from misalignment of the leads, failure of cap block or cushion materials, failure of splices, malfunctioning of the pile hammer or other improper construction methods.
- Piles damaged during installation are considered unsatisfactory unless the nominal bearing resistance is proved by load tests performed by the Contractor. If such tests indicate inadequate resistance, take corrective measures, such as the use of damaged piles at reduced resistance, installation of additional piles, strengthening of damaged piles, or replacement of damaged piles.
- A concrete pile is considered defective if a visible crack appears around the entire periphery of the pile, or any other crack or defect is observed that is determined to affect the strength or performance of the pile.

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- Do not place footing concrete until all piles within a footing are inspected by the Engineer.

00520.80(a) Furnish Pile Driving Equipment - Replace this subsection with the following subsection:

00520.80(a) Provide Pile Driving Equipment - No measurement of quantities will be made for providing Equipment for driving piles.

00520.90 Payment - Replace the Pay Item Furnish Pile Driving Equipment with the following Pay Item:

Pay Item	Unit of Measurement
(a) Provide Pile Driving Equipment.....	Lump Sum

Replace the bullet that begins "When Equipment for driving ..." with the following bullet:

- When Equipment for driving piles is provided and is satisfactorily driving piles 75%

Replace the paragraph that begins "The cost of all Materials ..." with the following paragraph:

The cost of all Materials and labor, including the manipulation of the pile driving Equipment in connection with driving piles will be included in the unit price each for driven piles. Providing Equipment for driving sheet piling is not included in this Work.

Replace the paragraph that begins "In items (b), (c), (d) ..." with the following paragraph:

In items (b), (c), (d) and (k) the type and size of pile is inserted in the blank.

Replace the paragraph that begins "Item (d) includes ..." with the following paragraph:

Item (d) includes cutting off piles, excavating inside of pipe piles, backfilling inside of pipe piles, treating and capping pile heads, attaching anchor brackets, lugs or other attachments, and finishing concrete piles.

Replace the paragraph that begins "Items (d) and (e) ..." with the following paragraph:

Items (d) and (e) include all expenses involved in driving piles that have not attained the required bearing resistance and are required to stand for a "set period".

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00530 - STEEL REINFORCEMENT FOR CONCRETE

Comply with Section 00530 of the Standard Specifications modified as follows:

00530.10 Materials - Replace this subsection, except for the subsection number and title, with the following:

Concrete Inserts	02513.35
Deformed Bar Reinforcement	02510.10
Deformed Bar Reinforcement (Stainless Steel)	02513.10
Dowels	02510.50
Dowels (Stainless Steel).....	02513.50
Epoxy Coated Reinforcement.....	02510.11
Galvanized Coating	02510.30
Headed Bar Reinforcement	02510.25
Mechanical Splices.....	02510.20
Mechanical Splices (Stainless Steel)	02513.20
Ties and Supports	02510.60
Ties and Supports (Stainless Steel).....	02513.60
Welded Wire Reinforcement.....	02510.40

00530.13 Miscellaneous Metal - Replace this subsection, except for the subsection number and title, with the following:

Minor metal parts such as drains, bolts, concrete anchors, spacer blocks, expansion and bearing devices, access hole covers and frames, anchor bolts, inserts and similar miscellaneous metal, unless otherwise provided, are classified as reinforcement.

Pipe attached to or used in conjunction with bridge deck drains or catch basins are classified as reinforcement.

00530.14 Concrete Inserts - Replace the paragraph that begins "Furnish hot-dip galvanized ..." with the following paragraph:

Furnish hot-dip galvanized expanded coil concrete inserts with closed back ferrule threaded to receive UNC threaded bolts or rods of the size shown. Furnish concrete inserts with the following minimum lengths and capacities:

00530.30 Mechanical Splice Installers - Replace the bullet that begins "Make splice samples ..." with the following bullet:

- Make splice samples in the presence of the Engineer using the same Materials, Equipment, and procedures that are used on the Project.

00530.35 Headed Bar Reinforcement Installers - Replace the bullet that begins "Make samples in the ..." with the following bullet:

- Make samples in the presence of the Engineer using the same Materials, Equipment, and procedures that are used on the Project.

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00530.40 Protection of Material - Replace the paragraph that begins "In addition to the requirements ..." with the following paragraph:

In addition to the requirements above, store epoxy coated bars with supports close enough to prevent sagging in the bundles. Provide protective padding when bundles are stacked or when supported on metal. Store bars as close as practicable to where they are placed in the Structure. Cover bars with an opaque material during storage to protect them from exposure to sunlight and saline mist. Move bars to or from storage according to 02510.11(b) to minimize damage to the coating. Do not allow the total exposure time from bar delivery to concrete placement, while in storage or in place, to exceed 2 months.

00530.41(a) Fabric - Replace this subsection with the following subsection:

00530.41(a) Welded Wire Reinforcement - If welded wire reinforcement is shipped in rolls, straighten it into flat sheets before placing.

00530.41(b) Ties and Supports - Replace the bullet that begins "When precast concrete bar ..." with the following bullet:

- When precast concrete bar supports are used, furnish Wired Blocks. Furnish tie wires meeting the requirements of 02510.60. Combination Blocks may be used in horizontal applications. Furnish tie wires meeting the requirements of 02513.60 for blocks supporting stainless steel reinforcement.

Replace the bullet that begins "Where at least one of the ..." with the following bullet:

- Where at least one of the bars to be tied or supported is epoxy coated, furnish tie wires that are either plastic or epoxy coated.

Replace the bullet that begins "When stainless steel rebar is specified..." with the following bullet:

- When stainless steel reinforcing is specified, use stainless steel ties and supports meeting the requirements of 02513.60.

Replace the bullet that begins "Use plastic tipped feet or ..." with the following bullet:

- Use plastic tipped feet or Class 2, Type A stainless steel tips if the feet of the support are on an exposed surface.

Delete the bullet that begins "Tie stainless steel reinforcement ...".

Delete the bullet that begins "Support stainless steel reinforcement...".

Replace the bullet that begins "Do not allow direct contact between stainless ..." with the following bullet:

- Do not allow stainless steel reinforcement to directly contact ASTM A1035 CS reinforcement. Do not allow stainless steel reinforcement or ASTM A1035 CS reinforcement in direct contact with other reinforcement with a different type of metal.

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When stainless steel or ASTM A1035 CS reinforcing or dowels are located near other reinforcing with a different type of metal, use nylon or polyethylene spacers to maintain a minimum 1 inch clearance between the two metals and bind them with nylon cable ties. Where insufficient space exists to maintain this minimum, either bar may be sleeved with a continuous polyethylene or nylon tube extending at least 1 inch in each direction past the point of closest contact between the two dissimilar bars.

Add the following bullets to the end of the bullet list:

- When ASTM A1035 CS reinforcing is specified, use epoxy coated ties and supports meeting the requirements of 02510.60(a).

00530.42(c)(2)(a) General - Replace this subsection with the following subsection:

Provide labor, Material and Equipment for fabricating sample mechanical splices at no additional cost to the Agency. All sample splices are tested by the Agency at the Agency's expense.

00530.42(c)(2)(d) Project Site Quality Control - Replace the bullet that begins "Submit one quality control ..." with the following bullet:

- Submit one quality control sample for each 100 splices performed up to 500 splices and then submit one sample for each 500 splices. Successful installer qualification according to 00530.30 satisfies quality control for the first 100 splices being installed. This sequence of testing is required for each heat treatment lot used.

Replace the bullet that begins "Quality control samples ..." with the following bullet:

- Quality control samples are tested according to this Section. If any sample fails to meet the test criteria, the lot that it represents is rejected until the cause of failure has been determined. Materials from a rejected lot may be accepted if they are shown to be free of the condition that caused the failure.

00530.42(c)(3) Installation - Replace the paragraph that begins "Install splices in the ..." with the following paragraph:

Install splices in the presence of the Engineer. Splices made without the Engineer present are rejected.

00530.43 Splicing Welded Wire Fabric - Replace this subsection with the following subsection:

00530.43 Splicing Welded Wire Reinforcement - Overlap sheets of welded wire reinforcement as shown or provide edge and end laps not less than one mesh in width. Securely fasten sheets at the ends and edges according to 00530.41.

00530.47(b)(1) General - Replace this subsection with the following subsection:

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Provide labor, Material and Equipment for fabricating sample headed bar reinforcement at no additional cost to the Agency. All sample headed bar reinforcement are tested by the Agency at the Agency's expense.

00530.47(b)(4) Project Site Quality Control - Replace this subsection with the following subsection:

During the installation of headed bar reinforcement:

- Submit one quality control sample for each 100 headed bars installed up to 500 headed bars and then submit one sample for each 500 headed bars. Successful installer qualification according to 00530.35 satisfies quality control for the first 100 headed bars being installed. This sequence of testing is required for each heat treatment lot used.
- Complete the headed bar reinforcement according to the manufacturer's recommendations.
- Quality control samples are tested according to this Section. If any sample fails to meet the test criteria, the lot that it represents is rejected until the cause of failure has been determined.

00530.47(c) Installation - Replace the paragraph that begins "Install headed bar reinforcement ..." with the following paragraph:

Install headed bar reinforcement in the presence of the Engineer. Headed bar reinforcement installed without the Engineer present is rejected.

Add the following subsection:

00530.48 Coring and Grouting Reinforcement - Where shown core existing concrete according to Section 00568 and install reinforcement. Grout reinforcement in place as shown and according to Section 00568.

00530.80(a) Lump Sum - Add the following to the end of this subsection:

The estimated quantity for uncoated reinforcement in pounds is:

Structure Number	Grade 60	Grade 80	Grade 100 ASTM A1035 (CM)
00123K	621,050	681,595	86,743
00123G	38,120	13,700	9,133
22524	4,622	-	

The estimated quantity for stainless steel in pounds is:

Structure Number	Grade 60
22519	276

00530.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

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The accepted quantities of reinforcement will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Reinforcement, Grade _____	Lump Sum or Pound
(b) Reinforcement, ASTM A1035 _____	Lump Sum or Pound
(c) Coated Reinforcement, Grade _____	Lump Sum or Pound
(d) Coated Reinforcement, ASTM A1035 _____	Lump Sum or Pound
(e) Stainless Steel Reinforcement, Grade _____,	Lump Sum or Pound

In items (a), (c), and (e) the grade of reinforcement is inserted in the blank.

In items (b) and (d) the ASTM chromium content, "CS", "CM", or "CL" is inserted in the blank.

Item (a) and (b) include fabricating and placing uncoated reinforcement and welded wire reinforcement as specified.

Items (c) and (d) include placing epoxy coated reinforcement as specified.

Item (e) includes fabricating and placing stainless steel reinforcement as specified.

Payment for reinforcement will be made when the reinforcement is incorporated into the concrete.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for clips, wire, separators, wire chairs, or other Material used in fastening the reinforcement in place.

No separate or additional payment will be made for coring and grouting reinforcement.

SECTION 00531 – NEAR SURFACE MOUNTED STEEL REINFORCEMENT

Section 00531 is not a Standard Specification and is included in this Project by Special Provision.

Description

00531.00 Scope - This Work consists of furnishing and installing a complete, near surface mounted (NSM), steel reinforcement system as shown or specified. The system is comprised of steel reinforcement ("bars") embedded in sawcut grooves and anchor holes with epoxy.

00531.01 Submittals - Submit the following to the Agency at least 21 Calendar Days before starting Work. Do not begin Work before receiving written approval of submittals from the Engineer.

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(a) Materials Certifications - Submit the manufacturer's Material certifications and mill test certificates for the steel reinforcement system according to 00150.37. Include the supplier's name, ranges of the properties listed below, and test methods used for epoxy resin.

Material	Properties to be Furnished
Epoxy Resin	Tensile Strength Elongation Tensile Modulus Coefficient of Thermal Expansion Mix Ratio Pot Life Shelf Life UV Resistance

(b) Steel Reinforcement Installation Plan - Before beginning girder and deck preparation submit the following according to 00150.37:

- The sequence of anchor hole and groove preparation as it relates to the overall construction Plan.
- Methods for locating and protecting existing steel reinforcement. Details regarding the Equipment and structural attachments required for installation of the steel reinforcement. Include rail mount locations and dimensions required for accurate groove placement in bridge elements.
- Details of the proposed method, if different than specified, for ensuring the steel reinforcement will be installed as shown.
- Details regarding construction tolerances for preparation, including groove depth, width and anchor hole dimensions.

(c) Order Lists and Bending Diagrams - Before ordering Material, submit all order lists according to 00150.37 and unstamped bending diagrams according to 00150.35 for approval. Do not order Material until such lists and bending diagrams are approved.

The review of order lists and bending diagrams by the Engineer will in no way relieve the Contractor of responsibility for the correctness of such lists and diagrams. Revise lists and diagrams as required to make them comply with the Plans at no additional cost to the Agency.

Material

00531.10 Steel Reinforcement - Furnish steel reinforcement according to 00530.10.

00531.11 Fabrication – Fabricate steel reinforcement according to 00530.12.

00531.12 Epoxy Resin - Furnish epoxy resin from one of the following list of pre-approved epoxy resins.

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Manufacturer

Hilti, Inc.
7250 Dallas Parkway, Suite 1000
Plano, Texas, 75024
Contact: Pete Anderson
Phone: (972) 403-5948

Material

HIT-RE 500 V3

Adhesive Technology Corp
450 East Copans Road
Pompano Beach, Florida, 33064
Contact: Mike Gaffigan
Phone: (954) 541-7091

Ultrabond HS-1CC

Construction

00531.40 Protection of Material - Protect reinforcement at all times from damage. Ensure reinforcement is free of dirt, detrimental scale, paint, oil and other foreign substances when placed in the Work.

00531.41 Existing Reinforcement Location and Concrete Cover - Use rebar detectors or other approved devices, capable of locating existing reinforcement within 0.1 inch, to locate existing reinforcement and to determine the thickness of concrete cover. Before constructing anchor holes and grooves, provide the Engineer with a summary of cover thickness and clear distance measurements between existing reinforcement and the steel reinforcement system.

00531.42 Drilling Anchor Holes and Sawcutting Grooves - Drill holes for hook embedment depth and size as shown using a rotary hammer drill with a carbide tipped drill bit. If existing reinforcement is encountered, stop drilling and adjust the hole location. Adjust the location of the holes for the end anchorage up to 3 inches longitudinally and laterally to avoid conflicts. Maintain the bar lengths.

Cut grooves as shown to the designed width and depth $\pm 1/8$ inch. Make grooves deep enough to allow the bar to be installed at least $1/8$ inch below the surface in all locations along the length of bars. Do not cut into existing rebar during construction of sawcut grooves. Visually inspect all existing rebar locations after sawcutting grooves. When existing reinforcement is cut, notify the Engineer before installation of steel reinforcement.

Groove spacing may be adjusted in the field as necessary to avoid existing reinforcement or other unforeseen conflicts; however, the average spacing of all grooves over any 2 foot long section may not be more than the spacing as shown. Maintain a minimum clear spacing greater than three times the diameter of the bar and a minimum clear edge distance of six times the diameter of the bar.

00531.43 Anchor Hole and Groove Preparation - Prepare sawcut grooves and anchor holes for steel reinforcement installation as follows:

(a) **Surface Cleaning** - Clean the groove and anchor holes thoroughly with high-pressure water and a nonmetallic brush. Before the groove and anchor holes dry out, blow it free of water and debris with compressed air. Ensure that all dust, sand, laitance, grease, curing compounds, and any other bond-inhibiting matter is removed from the groove and anchor

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holes. The concrete surface of groove and anchor holes shall be clean and structurally sound prior to installing bars.

(b) Moisture on Groove and Hole Surfaces - Before installation of bars, dry groove and anchor hole surfaces using a drying method approved by the Engineer and according to the epoxy manufacturer's recommendations. Do not directly apply a flame to the groove and anchor holes surfaces.

00531.44 Compressed Air - When using high-pressure air for cleaning, use adequate separators and traps to ensure that the air is free of water, oil, or any other Material detrimental to the steel reinforcement system. Compressed air cleanliness may be tested by the Engineer according to ASTM D4285.

00531.45 Bar Installation - Begin installation only after groove and anchor hole preparation Work is complete.

Install the bars to the embedment depths and in the anchor holes as shown.

Do not install the bars and epoxy resin when the concrete temperature is below 50 °F, unless otherwise advised by the resin manufacturer's recommendations.

Mask the concrete adjacent to the groove to prevent excess epoxy from adhering to the concrete outside the groove.

Fill two-thirds of the anchor hole and one-half of the groove with epoxy resin. Press the bar in the anchor holes and in the center of groove using approved centering devices at one-third points along the bar. Provide centering devices with no less than 1/8 inch resin cover when installed.

Ensure epoxy resin is well consolidated around the bars without air pockets. Level epoxy resin flush with the surface of the adjacent concrete.

00531.46 Surface Cleanup - Remove excess epoxy resin outside the groove.

Measurement

00531.80 Measurement - No measurement of quantities will be made for Work performed under this Section. The estimated quantity of steel reinforcement system is shown below.

Structure	Quantity (Feet)
Bridge No. 00123K, #4 Grade 80 Bar	3,386
Bridge No. 00123K, #5 Grade 80 Bar	2,590
Bridge No. 00123K, #6 Grade 80 Bar	12,262

Payment

00531.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "NSM Steel Reinforcement System, _____."

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The bar size and grade of steel is inserted in the blank.

Payment will be payment in full for furnishing, fabricating and placing all Materials and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00535 - POST-INSTALLED ANCHOR SYSTEMS

Comply with Section 00535 of the Standard Specifications modified as follows:

00535.01 Required Submittals - Replace the title of this subsection with “**Submittals**”

Add the following to the end of the subsection:

Submit the anchor system manufacturer's installation instructions at least 21 Calendar Days before installation.

00535.10(a) Resin Bonded Anchor System - Replace the paragraph that begins “Furnish a polyester ...” with the following paragraph:

Furnish a polyester, vinyl ester, or epoxy resin bonding system from the QPL that sustains the minimum pullout force shown. Furnish resin used for installation of the anchor system as shown from the same lot used for testing according to 00535.45(a)(1).

Replace the paragraph that begins “Unless shown otherwise, galvanize all ...” with the following paragraph:

Unless shown otherwise, galvanize all anchors that have any portion of the anchor exposed. Galvanize according to AASHTO M 232 (ASTM A153) or AASHTO M 298 (ASTM B695), Class 50. When within 25 aerial miles of the Pacific Ocean, galvanize according to AASHTO M 232 (ASTM A153) only. Anchors that become completely encased in concrete will not require galvanizing.

00535.10(b) Mechanical Anchor System - Replace this subsection, except for the subsection number and title, with the following:

Furnish mechanical anchor systems that sustain the minimum pullout force shown and according to the following:

Furnish Type A undercut anchors shown to be suitable for seismic applications by an ICC Evaluation Service Report. Where shown or specified, Anchor Grade HDA-T refers to Hilti HDA-T zinc plated undercut anchors.

Furnish Type B expansion anchors from the QPL.

Furnish Type C screw anchors from the QPL unless otherwise shown or specified. Furnish Heavy-Duty Tapcon+ screw anchors with blue Climaseal coating for installation into existing bridge decks for anchoring structural concrete overlays.

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Furnish anchors for installation from the same lot used for testing according to 00535.45(a)(2). Unless otherwise shown or specified, provide galvanized mechanical anchors according to AASHT M232 (ASTM A153).

00535.40 Construction - Replace the paragraph that begins “Install the anchor system according ...” with the following paragraph:

Install the anchor system according to the manufacturer's installation instructions and to the embedment depths shown.

00535.40(a) General – Replace the paragraph that begins “Locate existing reinforcing...” with the following:

Locate existing reinforcing bars. If existing reinforcement is encountered, stop drilling and adjust the hole location. Adjust the location of the holes up to 3 inches longitudinally and laterally to avoid conflicts. Patch abandoned holes with a PCC repair material meeting the requirements of Section 02015 and according to the manufacturer's recommendations.

Replace the paragraph that begins “Clean holes with a nonmetallic...” with the following paragraph:

Drill and clean holes according to the manufacturer's installation instructions. Protect drilled and cleaned holes from contamination. If a drilled hole becomes contaminated, as determined by the Engineer, re-clean the hole.

Replace the paragraph that begins “Provide components connected ...” with the following paragraph:

Furnish components connected to the installed anchors with the same metal type or provide electrical isolation when metal type of the components is dissimilar or unknown.

Add the following subsection:

00535.45(c) Anchor Test Summary - Test the installed anchors according to Table 00535-2 and Section 00165.

Table 00535-2

Str. #	Sheet #	Anchor System (Mech/Resin)	Anchor Type (bolt/rebar)	Anchor Size	Anchor Grade	Anchor Sustained Tension (yes/no)	Demo. Test (yes/no)	Prod. Test (yes/no)
0012 3K	JA30	Mech	Screw	3/8"	75	No	Yes	Yes
0012 3K	JA46	Resin	Rebar	#4	60	No	No	No
0012 3K	JA48	Resin	Rebar	#4	60	No	Yes	Yes

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Str. #	Sheet #	Anchor System (Mech/ Resin)	Anchor Type (bolt/ rebar)	Anchor Size	Anchor Grade	Anchor Sustained Tension (yes/no)	Demo. Test (yes/no)	Prod. Test (yes/no)
0012 3K	JA70	Resin	Rebar	#11	80	No	No	No
0012 3K	JA73	Resin	Rebar	#4	60	No	Yes	Yes
0012 3K	JA73	Resin	Rebar	#5	60	No	Yes	Yes
0012 3K	JA76	Resin	Rebar	#5	60	No	No	Yes
0012 3K	JA77	Resin	Rebar	#4	60	No	No	Yes
0012 3K	JA78	Resin	Rebar	#5	60	No	No	Yes
0012 3K	JA82	Resin	Rebar	#4	60	No	Yes	Yes
0012 3K	JA82	Resin	Rebar	#5	60	No	Yes	Yes
0012 3K	JA88	Resin	Rebar	#4	60	No	Yes	Yes
0012 3K	JA11 4	Resin	Rebar	#5	80	No	Yes	Yes
0012 3K	JA11 8	Resin	Rebar	#6	60	No	Yes	Yes
0012 3K	JA11 9	Resin	Rebar	#4	60	No	No	Yes
0012 3K	JA12 9	Mech	Bolt	1/2"	A316	Yes	Yes	Yes
0012 3K	JA12 9	Mech	Bolt	3/4"	A316	No	Yes	Yes
0012 3G	JC06	Mech	Screw	3/8"	75	No	Yes	Yes
0012 3G	JC07	Resin	Rebar	#4	60	No	Yes	Yes
0012 3G	JC10	Resin	Bolt	7/8"	105	No	Yes	Yes
0012 3G	JC14	Resin	Rebar	#5	60	No	Yes	Yes
0012 3G	JC15	Resin	Rebar	#6	60	No	Yes	Yes
0012 3G	JC21	Resin	Rebar	#8	60	No	Yes	Yes
0012 3K	JA85	Resin	Rebar	#5	80	No	Yes	Yes
0012 3K	JA11 7	Resin	Rebar	#4	60	No	Yes	Yes
Vari ous	JZ10	Resin	Bolt	5/8"	36	No	Yes	Yes

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Str. #	Sheet #	Anchor System (Mech/Resin)	Anchor Type (bolt/rebar)	Anchor Size	Anchor Grade	Anchor Sustained Tension (yes/no)	Demo. Test (yes/no)	Prod. Test (yes/no)
0012 3K	RB09	Mech	Bolt	M10	HDA-T	Yes	Yes	Yes
0012 3K	RB16	Resin	Bolt	3/4"	55	No	Yes	No
0012 3K	RB17	Mech	Bolt	M16	HDA-T	Yes	Yes	Yes
0012 3K	RB18	Resin	Rebar	#4	60	No	Yes	No
0012 3K	RB23	Mech	Bolt	1/2"	36	No	Yes	No

Replace anchors that fail at no additional cost to the Agency.

00535.45 Testing - Replace the paragraph that begins "Do not incorporate demonstration ..." with the following paragraph:

Do not incorporate demonstration test anchors into the Work. Do not begin installing the anchor system until the installation process is approved. Test results with the average load meeting or exceeding the minimum pullout force are acceptable. If any test anchor has a capacity less than 95 percent of the minimum pullout force, the anchor lot is rejected.

00535.45(a) Demonstration Tests - Replace the paragraph that begins "Install three test anchors ..." with the following paragraph:

Install three test anchors using the same Materials and methods that is used for installing the anchor system. One demonstration test includes 3 test anchors.

00535.45(b) Production Tests - Replace the paragraph that begins "Use anchors from the same ..." with the following paragraph:

Use anchors from the same lot used for the demonstration tests. Perform production tests during installation of the anchor system, after the installation is finished, and for the resin bonded anchor system the resin has cured according to the manufacturer's recommendations. One production test includes 1 test anchor. Maintain the test load at the required load level for a minimum of 10 seconds. Measurable displacement is a failure. If the Engineer suspects improper installations, more testing may be required.

00535.90 Payment – Add the following to the end of this subsection:

In addition, no additional payment will be made for costs incurred by the Contractor to replace drill bits damaged by existing reinforcement, including when drilling through existing reinforcement is shown.

SECTION 00538 - CRACK INJECTING EXISTING BRIDGES

Comply with Section 00538 of the Standard Specifications modified as follows:

00538.01 Submittals - Replace the bullet that begins "Describe the Materials ..." with the following bullet:

- Describe the Materials to be used including the properties of each Material and the Specifications that the Materials comply with. Published manufacturer data is acceptable.

00538.30 Personnel Qualifications - Replace the paragraph that begins "Provide personnel skilled in ..." with the following paragraph:

Provide personnel skilled in the application of epoxy crack injection. Show experience relevant to anticipated conditions, Materials, and construction techniques for epoxy crack injection. Provide an on-site epoxy crack injection supervisor that has successfully completed at least three projects within the past 5 years.

00538.42 Acceptance - Replace the paragraph that begins "Crack injection Work ..." with the following paragraph:

Crack injection Work is accepted visually by determining that the epoxy resin has set and cured and that all cracks are sealed. If visual inspection reveals suspected failures, the Engineer will require cores samples. When required, provide 2-inch minimum diameter by 6-inch minimum depth core samples. The Engineer will determine the number of core samples and the locations to take the core samples. Take core samples at least 24 hours after the crack injection Work. When the crack injection Work is performed on only one side of the girder, take the core sample from the opposite side of the girder. When obtaining core samples, do not cut or damage existing steel reinforcement. Fill core holes with a PCC repair material.

Replace the paragraph that begins "If core samples show fully ..." with the following paragraph:

If core samples show fully hardened epoxy resin and at least 90 percent of the crack is filled, the crack injection Work for that crack is accepted. If core samples show inadequately hardened or inadequately filled cracks, stop all crack injection Work. Submit a revised crack injection procedure to the Engineer. Do not resume crack injection Work until the revised crack injection procedure has been approved by the Engineer.

00538.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00539 - CONCRETE AND CRACK SEALING

Section 00539 is not a Standard Specification and is included in this Project by Special Provision.

Description

00539.00 Scope - This Work consists of furnishing and placing concrete and crack sealer on concrete Bridge decks, concrete overlays, and other concrete sections as shown.

Materials

00539.10 Materials - Furnish a concrete and crack sealer meeting the requirements of Section 02060.

Furnish a PCC repair material meeting the requirements of Section 02015 that is compatible with the sealer.

Construction

00539.40 General - Begin sealing work when all materials and equipment necessary to perform the work are at the job site and all required repairs are made.

(a) Placement Conditions - Apply the sealer when:

- The ambient temperature, surface temperature, and relative humidity (RH) meet the requirements on the manufacturer's written data sheet.
- The concrete substrate is dry, and has been dry for at least 24 hrs.
- During the hours of darkness, work areas are illuminated. Submit an illumination plan for approval at the pre-placement conference.

(b) Handling Materials - Store sealer at temperatures recommended by the manufacturer.

(c) Pre-Placement Meeting - Hold a pre-placement meeting with the Engineer at least 10 Calendar Days before applying the sealer. Submit for the Engineer's approval a manufacturer approved procedure for preparing the concrete surface, applying the sealer, and broadcasting the Sand. Include in the procedure the number of persons required, Equipment, installation sequence, sealer application rate, sealer dwell time, sealer gel time, broadcast Sand application rate, traffic control, and the estimated time schedule for installing the sealer and opening the Bridge to traffic. Do not proceed with the Work until the proposed procedure has been approved by the Engineer.

- Area of Application - Apply the sealer full width of the deck and roadway or as directed.
- Protect adjacent surfaces not to be covered with the sealer from spatter or coating.
- Applicator Qualifications - Provide a manufacturer authorized applicator. Re-certify the manufacturer authorized applicators yearly.

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00539.42 Preparing Bridge Decks:

(a) Surface Removal - Remove the existing asphalt concrete wearing surface from the bridge decks, according to Section 00503.

(b) Surface Preparation - Prepare all surfaces that are to receive a deck seal according to Section 00504.

00539.45 Installation - Install sealer according to the following:

- Roll, squeegee, or broom the sealer at application rates and procedures recommended by the manufacturer.
- Allow sealer to dwell on the surface for the time recommended by the manufacturer.
- Remove all excess sealer from the surface with a squeegee, broom, or by other methods and within the time limitations recommended by the manufacturer before broadcasting the Sand.
- Before the sealer gels, broadcast the Sand at the rate recommended by the manufacturer or as required to reach refusal.
- Sweep the entire deck surface after the sealer has cured and remove all loose Material.

Measurement

00539.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00539.90 Payment - No separate or additional payment will be made for Work performed under this Section. Payment will be included in payment made for the appropriate items under which this Work is required.

SECTION 00540 - STRUCTURAL CONCRETE

Comply with Section 00540 of the Standard Specifications modified as follows:

00540.01 Abbreviations and Definitions - Add the following to the end of this subsection:

Mass Concrete - See 00546.01 for definition.

TCC - Thermally Controlled Concrete, see 00546.01 for definition.

TMC - Traditional Mass Concrete, see 00546.01 for definition.

00540.03 Required Submittals for Deck Sidewalk and Curb Ramps - Replace the title of this subsection with **"Submittals for Deck Sidewalk and Curb Ramps"**

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Replace the paragraph that begins "Material ordered or Work ..." with the following paragraph:

Material ordered or Work done before the Engineer reviews and returns the documents are at the Contractor's risk.

Add the following subsection:

00540.10(a) Pigmented Sealer - Furnish a semi-opaque, or opaque, 100% acrylic or acrylic co-polymer resin concrete sealer meeting the following requirements:

Property	Test Method	Requirement
UV Resistance	ASTM D5894	5000 hour exposure
Wind Driven Rain Resistance	ASTM D6904 reference FED TT-P-555B	No visible leaks
Permeance	ASTM E96/E96M or ASTM D1653	Minimum 10 perms
Fungal Growth	FED STD 141	No fungal growth after 21 Days

Provide colors and color samples as shown or directed. Furnish a sealer designated for vertical application when applied to walls. When applied to structures with soffits or overhangs, furnish a sealer that is designated for vertical and overhead application.

Furnish pigmented sealer color that conforms to the following colors:

00540.11 Mass Concrete – Add the following to the end of this subsection:

Furnish TCC and TMC class Mass Concrete according to this Section and Section 00546.

00540.15 Form Materials - Replace this subsection, except for the subsection number and title, with the following:

Furnish wood, minimum nominal 5/8-inch-thick APA exterior grade plywood, minimum nominal 5/8-inch-thick APA plyform, metal, or other suitable form material. For round concrete columns, furnish either metal or other approved form material that produces a smooth and true surface free from fins, joints and other irregularities. Use APA plyform for all decks and slabs.

00540.17 Acceptance of Concrete - Replace the paragraph that begins "Acceptance of concrete ..." with the following paragraph:

Acceptance of concrete is according to Section 00165 and the following:

00540.17(a) Aggregate - Replace the paragraph that begins "Acceptance of Aggregate ..." with the following paragraph:

Acceptance of Aggregate is according to 02690.12.

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00540.17(b) Plastic Concrete - Replace the paragraph that begins "Acceptance of plastic concrete ..." with the following paragraph:

Acceptance of plastic concrete is based on tests performed by the Contractor's QCT, according to the Tolerances and limits of 02001.20.

00540.17(c) Hardened Concrete - Replace the paragraph that begins "Cast and cure..." with the following paragraph:

Cast and cure test specimens according to AASHTO R 100 in 6-inch x 12-inch or 4-inch x 8-inch, single-use plastic molds and test at 28 Days according to AASHTO T 22.

00540.17(c)(1) General - Replace the paragraph that begins "For all classes of concrete ..." with the following paragraph:

For all classes of concrete, acceptance of hardened concrete is based on an analysis of compressive strength tests of cylinders cast by the QCT. Test cylinders at an ODOT certified laboratory.

00540.17(c)(2) Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Hardened concrete with an ASTV meeting or exceeding the specified design strength, f'_c is accepted for strength. If the ASTV is less than f'_c but at least 85 percent of f'_c , the Engineer may review the results to determine if the concrete represented by the cylinders is suitable for the intended purpose. Remove concrete that has an ASTV less than 85 percent of f'_c unless otherwise authorized, in writing, by the Engineer. If the concrete is removed, the cost of removal, replacement and all related Work is the Contractor's responsibility. If the Engineer determines that the concrete is suitable for the intended purpose, the concrete may be allowed to remain in place, subject to a price adjustment according to 00150.25.

If an ASTV falls below f'_c , the Contractor may submit a written plan outlining a proposed alternate method of evaluating compressive strength. Submit the plan for review by the Engineer within 3 Days of the test. Provide evidence that a reasonable f'_c (over-design) was maintained and that there is credible evidence (besides low strength) that warrants consideration of this option. The Engineer may allow an alternate method of acceptance if the compressive strength test results are determined to be suspect from definable external factors.

00540.24(a) Deck Finishing Machine Support System - Replace this subsection, except for the subsection number and title, with the following:

Provide calculations and detailed drawings of the proposed deck finishing machine support system according to 00540.41.

00540.25 Straightedge - Replace this subsection, except for the subsection number and title, with the following:

Provide a 12-foot metal straightedge for checking bridge deck roadway and sidewalk surface Tolerances.

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00540.40(b)(3)(c) - Replace this subsection, except for the subsection number and title, with the following:

On ramps, sidewalks and intersections the gap below a 12-foot unlevelled straightedge resting on high spots does not exceed 1/4 inch in any direction.

00540.40(b)(3)(d) - Replace this subsection, except for the subsection number and title, with the following:

On bridge decks, the gap below a 12-foot unlevelled straightedge does not vary from the testing edge by more than 1/8 inch in any direction.

00540.41(b) General Design Loads - Replace the paragraph that begins "Ensure design loads ..." with the following paragraph:

Ensure design loads used are the maximum loadings. Ensure deflections used on manufactured devices and assemblies do not exceed the manufacturer's recommendations. Provide catalog data that lists the manufacturer's recommendations.

00540.41(c)(2) On Piles - Replace the paragraph that begins "For Falsework supported ..." with the following paragraph:

For Falsework supported on piles, show on the Working Drawings the pile type, size and spacing. Accompany these drawings with calculations that show the assumptions and methods used to design the piles and the bearing values that the piles need to be driven to support the calculated loads.

00540.41(d) Requirements at Highway and Railroad Traffic Openings - Replace the bullet that begins "Increase the vertical post ..." with the following bullet:

- Increase the vertical post load 150 percent. If the load on the Falsework is increased by load transfer due to prestressing, increase the vertical post load by the additional load due to prestressing or by 150 percent, whichever is greater.

00540.41(f) Concrete Forms on Steel Structures - Replace the paragraph that begins "Provide sufficient temporary bracing ..." with the following paragraph:

Provide sufficient temporary bracing or temporary struts and ties to minimize lateral deflection and rotation of the exterior steel girder. Calculate exterior girder rotation according to the *ODOT Bridge Design Manual* section 1.16.3. Limit deck deflection at the edge of deck due to girder rotation to no more than 1/4 inch.

Add the following to the end of the subsection:

Field drill bolt holes in the exterior girder web to support form brackets. Fill the holes with fully torqued ASTM F3125 Grade A325 or button-head twist-off bolts ASTM F1852 or F2280 bolts according to Section 02560. Place each bolt head on the exterior side of the web. No holes are to be made in the flanges.

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00540.42 Falsework Construction - Replace the paragraph that begins "Construct Falsework according ..." with the following paragraph:

Construct Falsework according to the current edition of AASHTO *Construction Handbook for Bridge Temporary Works*, except where in conflict with the Specifications. Assure that Falsework is constructed according to the Falsework design and on Soils equal to or exceeding design assumptions. Within 2 Days of notice of the falsework design engineer's pending inspection, the Engineer will provide a list of construction concerns. Do not place concrete until the falsework design engineer of record, accompanied by the Engineer, field inspects that portion of the Falsework proposed for use. Do not place concrete until all construction concerns have been addressed, the falsework design engineer provides the Engineer a written statement that the Falsework conforms to the design and will serve the intended use, and the Engineer agrees in writing that the Falsework will serve the intended use.

00540.43(a) Construction Joints - Replace the paragraph that begins "Apply a concrete surface ..." with the following paragraph:

Apply a concrete surface retarder according to the manufacturer's recommendations. Remove surface mortar within the time period recommended by the manufacturer and clean the joint surface and reinforcing steel by removing loosened particles of Aggregate, damaged concrete, unconsolidated concrete and surface laitance with a high pressure washer according to 00540.28 to the extent that clean Aggregate (free of surface mortar) is exposed on 50 percent of the surface. Clean the joint surface again immediately prior to the concrete placement to remove any subsequent deposits of dirt, debris or other foreign materials. Saturate the joint surface with potable water immediately before resuming concrete placement. Remove standing water in depressions or hollows of the joint surface.

00540.43(e) Construction Joints Between Existing and New Concrete - Replace the paragraph that begins "Sand-blast or water-blast existing ..." with the following paragraph:

Sand-blast or water-blast existing concrete surfaces where shown or directed. Roughen surface to a uniformly distributed 1/4-inch minimum amplitude surface profile. If approved, bush hammers or scabbler may be used for roughening existing concrete surfaces. Use pneumatic hammers, chipping guns, manual picks and chisels for area with limited access. Do not use pneumatic hammers heavier than a nominal 15-pound class. Remove loosened particles of Aggregate and damaged concrete with a high-pressure washer according to 00540.28.

00540.45 Construction of Forms - Replace the bullet that begins "Are retightened before ..." with the following bullet:

- Are retightened before depositing new concrete on or against concrete that has hardened.

00540.48(a) General - Replace the bullet that begins "Through pumps, chutes ..." with the following bullet:

- Through pumps, chutes or trunks according to 00540.22, when placement requires dropping concrete more than 5 feet. Place the bottom of pump hose, chutes, pipes or trunks as close to final placement position as practicable.

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Replace the bullet that begins "In layers not more ..." with the following bullet:

- In layers not more than 18 inches thick, except for seal concrete placement, unless shown otherwise. Place and consolidate each layer before the preceding layer has taken initial set to avoid surfaces of separation between the layers.

00540.48(b) Pumping Concrete - Replace this subsection, except for the subsection number and title, with the following:

Pump concrete with pumping Equipment according to 00540.22. Pump a cement-water slurry through the lines before starting the mix through the pump. Operate the pump in a manner that produces a continuous stream of concrete without air pockets or segregation. When a placement nears completion, if concrete remaining in the pipeline is to be used, remove it in a manner that will not cause contamination of the concrete already in place.

There is no extra payment for additional cement or additives required to ensure a mix is pumpable.

00540.48(c) Vibrating Concrete - Replace the paragraph that begins "Apply vibration at the point ..." with the following paragraph:

Apply vibration at the point of freshly deposited concrete. Apply vertically at points uniformly spaced not farther apart than 1 1/2 the radius over where the vibration is visibly effective. Penetrate into previously placed plastic layers.

Replace the paragraph that begins "Do not use vibrators to ..." with the following paragraph:

Do not use vibrators to make concrete flow or to move concrete from one point to another in the Forms. Do not apply directly on or through the reinforcement to sections or layers of concrete that have hardened to the degree that the concrete ceases to be plastic under vibration.

00540.48(g) Bridge Decks - Replace the paragraph that begins "Use deck finishing machines ..." with the following paragraph:

Use deck finishing machines according to 00540.24 and set to run parallel to the skew of the bent lines. Place screed rails outside the finishing area. Extend screed rails beyond both ends of the scheduled placement length for a distance that allows the finishing machine to reach all of the concrete.

Replace the paragraph that begins "Before placing concrete, operate ..." with the following paragraph:

Before placing concrete, operate the finishing machine the length of the proposed placement, and check the deck thickness and clearance from the screed to the reinforcing steel in the presence of the Engineer, by an approved method. The permissible variation from the clearance indicated is plus or minus 1/4 inch. Make necessary corrections before beginning the placement.

Replace the bullet that begins "Provides wind breaks, fog ..." with the following bullet:

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- Provides wind breaks, fog spray, or other approved methods when the concrete surface is exposed to conditions that may cause premature drying during placement operations.

00540.49(a)(2)(a) General - Replace the paragraph that begins "To place concrete when the ..." with the following paragraph:

To place concrete when the temperature is below 40 °F, submit a Cold Weather Plan that identifies the methods that are used to prevent the concrete temperature from falling below 50 °F. Methods include heated enclosures and insulated Forms. Also include in the plan measures that are taken if the concrete temperature falls below 50 °F. Provide a 24-hour continuous recording thermometer to verify the concrete temperature.

00540.49(a)(2)(b) Enclosures - Replace the bullet that begins "Furnish and use, within ..." with the following bullet:

- Provide and use, within the enclosure, a 24-hour continuous temperature/humidity recorder to record the air temperature and relative humidity every hour during the cure period.

00540.50(b) Deck Roadway Finish - Replace the paragraph that begins "After the deck roadway concrete ..." with the following paragraph:

After the deck roadway concrete has been screeded with a finishing machine according to 00540.24, float, if necessary, to produce a uniform surface, according to 00540.55. If the Work does not conform to the prescribed limits, stop the operation until revised methods, changes in Equipment, or correction of procedures are approved for trial. Also stop the revised operation if it does not produce a specified surface.

00540.50(d) Deck Sidewalk and Curb Ramp Finish - Replace this subsection, except for the subsection number and title, with the following:

Finish concrete surfaces on pedestrian facilities including but not limited to sidewalks, curb ramps and pedestrian structures that contain a Pedestrian Accessible Route according to 00759.50.

00540.51(a) General Requirements - Replace the paragraph that begins "If the ambient temperature falls ..." with the following paragraph:

If the ambient temperature falls below 50 °F, or is forecasted to be below 50 °F, provide a 24-hour continuous recording thermometer and place it directly on the surface of the concrete. Once placed, leave the thermometer in place for the duration of the cure period. Use methods approved by the Engineer to maintain a concrete temperature of at least 50 °F during the cure period.

00540.51(b) Curing Concrete Bridge Decks - Replace the bullet that begins "Provide wind breaks or ..." with the following bullet:

- Provide wind breaks or other approved methods when exposed to conditions that may cause premature drying during placement operations. Premature drying is defined as

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an evaporation rate equal to or greater than 0.10 pounds per square foot per hour, as determined from Figure 00540-1, or as the loss of surface sheen when the evaporation rate at the surface exceeds the bleed rate.

Replace the bullet that begins “Maintain a continuous water...” with the following bullet:

- Except for HPC(IC), maintain a continuous water cure of the concrete surface for 14 Days. For HPC(IC), maintain a continuous water cure of the concrete surface for 7 Days.

00540.52 Removal of Forms and Falsework, and Subsequent Loading – Replace the paragraph that begins “In determining when to remove ...” with the following paragraph:

In determining when to remove Forms and Falsework, and when to place subsequent loads, the Engineer will consider the Contractor's proposed schedule, the location and character of the Structure, the weather, and other conditions influencing the setting of the concrete. If appropriate, these operations are controlled by compressive strength tests of cylinders cast by the Contractor and witnessed by the Engineer. Test the cylinders at a recognized testing laboratory at no additional cost to the Agency. Cast and cure cylinders according to AASHTO R 100 (field cured) that is equivalent to the most unfavorable field conditions for the portions of the concrete that the cylinders represent.

Replace the paragraph that begins “² Where continuous spans ...” with the following paragraph:

- ² Where continuous spans are involved, the time for all spans is determined by the last concrete placed affecting any span.

00540.53(b) Class 1 Surface Finish (Ground, Sacked, and Coated) - Replace the paragraph that begins “After completion of the general ...” with the following paragraph:

After completion of the general surface finish, grind the surface with a power grinder or an equivalent method to remove laitance and surface film. Sack the surface to fill all holes using a paste of fine mortar sand, cement, water, and bonding agent. The ratio of bonding agent to water is one part bonding agent to two parts water, or as recommended by the manufacturer. Apply coating according to 00540.53(d).

00540.53(d) Concrete Coating - Replace the paragraph that begins “Apply either a concrete paint...” with the following paragraph:

Apply either a concrete paint or a pigmented sealer as shown or specified. Where a Class 1 or Class 2 surface finish is shown, apply a concrete paint unless specified or shown otherwise.

00540.53(d)(1) Concrete Paint - Replace the paragraph that begins “Thoroughly saturate the surface ...” with the following paragraph:

Thoroughly saturate the surface with water and coat it, while damp, with a coating Material according to 02210.30. Apply a minimum of two coats of coating Material. Apply coating according to the manufacturer's instructions. The second coat may be applied any time after

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the previous coat, when touched lightly, does not adhere to the finger. Additional coats may be required to provide uniformity in coverage and color. Mortar sand may be added to the coating Material to help achieve a uniform surface.

00540.53(d)(2) Penetrating Concrete Stain or Sealer - Replace this subsection with the following subsection:

00540.53(d)(2) Pigmented Sealer - Prepare concrete surfaces and apply 2 coats of the pigmented sealer according to the manufacturer's recommendations. Follow all recommended curing schedules for newly placed concrete prior to application and for recoat or repair. Monitor and follow all environmental limitations as published by the manufacturer during application, and curing.

00540.54 Crack Inspection and Deck Sealing - Replace the paragraph that begins "Perform crack sealing Work ..." with the following paragraph:

Perform crack sealing Work at no additional cost to the Agency. Complete all crack sealing Work before opening to traffic. If the Bridge is opened to traffic at the Contractor's request before completing crack sealing, all additional traffic control to complete crack sealing is at no additional cost to the Agency.

00540.55 Final Acceptance of Bridge Deck Surface - Replace the paragraph that begins "Ensure the finished ..." with the following paragraph:

Ensure the finished bridge deck roadway surface meets the Tolerance specified in 00540.40(b)(3)(d) at every point. Provide a 12-foot straightedge and use it under the Engineer's direction.

00540.80(a)(1) Lump Sum - Add the following to the end of this subsection:

The estimated quantity of concrete is:

Bridge No. 00123K

Type and Class	Quantity (Cu. Yd.)
Foundation Concrete, Class 4000	123.1
Foundation Concrete, Class TMC 4000	4,433
Deck Concrete, Class HPC 4500	76.5
General Structural Concrete, Class 4000	125.2
General Structural Concrete, Class TMC 4000	1892.2
General Structural Concrete, Class 5000	99
General Structural Concrete, Class TMC 5000	382

Bridge No. 00123G

Type and Class	Quantity (Cu. Yd.)
Foundation Concrete, Class 4000	209.9
General Structural Concrete, Class 4000	19
General Structural Concrete, Class TMC 4000	72.3

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Bridge No. 22524

Type and Class	Quantity (Cu. Yd.)
Foundation Concrete, Class 4000	15
General Structural Concrete, Class 4000	6

00540.80(b) Sawcut Texturing - Replace this subsection with the following subsection:

00540.80(b) Surface Texturing - The quantities of surface texturing will be measured on the area basis and is the area of each bridge deck or approach slab as shown, less 16 inches along each curb and 6 inches from joint blockouts and bridge ends. Field measurement of surface texturing will not be made.

00540.90 Payment – Replace the Pay Item Sawcut Texturing with the following Pay Item:

Pay Item	Unit of Measurement
(d) Surface Texturing	Square Yard

Replace the paragraph that begins “In items (a), (b) ...” with the following paragraph:

In items (a), (b), and (c), the class of concrete is inserted in the blank.

Replace the paragraph that begins “Payment will be payment ...” with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Add the following bullet to the end of the bulleted list beginning with “No separate or additional...”:

- column joint stay-in-place forms
- furnishing and placing drilled shaft concrete in column joint closure pours

FALSEWORK DESIGN CHECKLIST

Instructions - This checklist was developed to facilitate the design, review, and erection of falsework to be used for Oregon Department of Transportation bridge construction projects. This checklist is intended to act as a reminder to design or check for specific important aspects of this construction. It is not a substitute for plan and/or design criteria or specification requirements.

The Checklist is to be completed and signed by the Falsework Design Engineer. Answer every question. Attach to the Checklist an explanation of any negative responses.

Submit the Checklist according to 00540.41(a).

A. Contract Plans, Specifications, Permits, Etc.	YES	NO	N/A
1. Are the falsework plans prepared, stamped and signed by an engineer registered to practice in Oregon?	_____	_____	_____
2. Have three complete sets (five if railroad approval is required) of the design calculations been included with the falsework drawings submittal?	_____	_____	_____
3. Are falsework plans in compliance with the requirements of the construction plans general notes?	_____	_____	_____
4. Are falsework plans in compliance with contract plan structural details?	_____	_____	_____
5. Are falsework plans in compliance with the requirements of the Oregon Standard Specifications for Construction, subsection 00150.35?	_____	_____	_____
6. Are all existing, adjusted or new utilities in proximity with the proposed falsework shown on the falsework plans and is protection of these utilities addressed?	_____	_____	_____
7. Are clearance requirements satisfied and shown on the falsework plans?	_____	_____	_____
8. For construction in or over navigable waters have all requirements for construction of falsework that are called for in the Coast Guard Permit been incorporated in the falsework design?	_____	_____	_____
9. Has possible damage from traffic been considered in the falsework design?	_____	_____	_____
10. Has damage from stream drift been considered in the falsework design?	_____	_____	_____

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11. Is the concrete placing sequence shown and is it consistent with the contract plans?

B. Foundation Requirements

YES

NO

N/A

1. Are driven falsework piling provided as called for on the contract plans?

- a. Is a minimum pile tip elevation or penetration indicated on the drawings?

- b. If timber falsework piles are specified, are the recommended order lengths sufficient to virtually eliminate the possibility of pile splices?

- c. Is a detailed static pile capacity analysis included in the calculations?

- d. If lateral loads are applied to the piling by equipment, dead loads, flowing water, or drift, is a detailed lateral load analysis included in the calculations?

- e. When piling are in an active waterway, have the potential effects of scour on axial and lateral pile support been addressed in the calculations?

- f. Does the proposed falsework pile hammer meet the minimum field energy requirements as listed in 00520.20(d)(2)?

- g. Will a driving criteria graph [FHWA Gates Equation, in 00520.42(b)] plotting blow count versus stroke for an acceptable pile hammer be provided for the project inspector?

2. Is falsework supported on spread footings or mud sills?

- a. Are the spread footing elevations shown on the drawings?

- b. Has a rational method for determining the ultimate bearing capacity of the foundation materials been presented and described in the calculations?

- c. Have the soil parameters used in calculating the ultimate bearing capacity been listed and confirmed by the designer?

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d. Has an appropriate Factor of Safety been used for calculating the allowable bearing capacity of the foundation materials?	_____	_____	_____
e. Are spread footing settlement estimates included in the calculations?	_____	_____	_____
f. Have effective stresses been used in the calculations, when applicable?	_____	_____	_____
g. When spread footings are founded near the top of a slope or in a slope, have the ultimate bearing capacity calculations been modified accordingly?	_____	_____	_____
h. When spread footings may be subjected to flowing water, have the potential effects of scour on ultimate bearing capacity been addressed in the calculations?	_____	_____	_____
C. Loads	YES	NO	N/A
1. Are the magnitude and location of all loads, equipment and personnel that will be supported by the falsework shown and noted on the falsework plans?	_____	_____	_____
2. Has the mass of specific equipment units to be supported by the falsework been included in the calculations or on the falsework plans?	_____	_____	_____
3. Is the deck finishing machine supported in a manner that will not impose load on concrete forms except deck overhang brackets?	_____	_____	_____
4. Are design loads and material properties used to determine design stresses for each different falsework member shown on the falsework plans?	_____	_____	_____
5. Is the worst loading and member property condition, rather than the average condition, used to obtain design loads?	_____	_____	_____
6. Are deck forms for concrete box girders supported from the girder stem and not from the bottom slab?	_____	_____	_____
7. Are diaphragm loads or other concentrated loads included in the analysis of supporting beams?	_____	_____	_____
8. If sloping structural members exert horizontal forces on the falsework, is bracing or ties used to resist these loads?	_____	_____	_____
D. Allowable Stresses	YES	NO	N/A

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1. Has the method used for falsework design of all members except for manufactured assemblies been noted in the design calculations?

2. Are manufactured assemblies identified as to manufacturer, model, rated working capacity and ultimate capacity?

3. Is the allowable stress and the calculated stress listed in the summary for each different falsework member, except for manufactured assemblies?

E. Timber Falsework Construction

YES

NO

N/A

1. Are timber grades consistent with material to be delivered to the construction site, and noted on falsework drawings, and in accompanying calculations for all timber falsework material?

2. If "rough" lumber is specified for falsework by the falsework designer are the actual lumber dimensions used in calculations shown?

3. If plywood spans are governed by the strength of the plywood, are the allowable stress and the calculated stress shown on the submitted calculations?

4. If plywood spans are governed by the allowable spacing of supporting joists, are the allowable and the proposed spacing shown on the falsework plans?

5. Have timber stringers been checked for bending, shear, bearing stresses, and 1/240 of the span length deflection?

6. Are joists identified as being continuous over 3 or more spans when they are not analyzed as simple spans?

7. Have stringers and cap beams been checked for bearing stresses perpendicular to the grain as well as for bending and shear stresses?

8. Have posts been checked as columns as well as for compression parallel to the grain?

F. Steel Falsework Construction

YES

NO

N/A

1. Are steel structural shapes and plates identified by ASTM number on the falsework plans and in the calculations?

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2. Have steel beams been checked for bending, shear, web crippling and buckling of the compression flange? _____

3. Has horizontal plane bracing been shown where required to limit compression flange buckling? _____

G. Deflections and Settlement **YES** **NO** **N/A**

1. Is falsework deflection for concrete dead load shown on the plans for all falsework spans? _____

2. Is falsework deflection from concrete dead load limited to 1/240 of the span length for all falsework spans? _____

3. Do stringers supporting cast-in-place concrete compensate for estimated camber? _____

4. For beam spans with cantilevers, has the upward deflection of the cantilevers due to load placed on the main spans been investigated? _____

5. Are provisions shown for taking up falsework settlement? _____

H. Compression Members, Connections and Bracing **YES** **NO** **N/A**

1. Has general buckling been evaluated for all compression members? _____

2. Has bracing been provided at all points of assumed support for compression members? _____

3. Was bracing in each direction considered in establishing the effective length used to check post capacity? _____

4. Is bracing strength and stiffness sufficient for the intended purpose? _____

5. If temporary bracing is required during intermediate stages of falsework erection, is it shown on the falsework plans? _____

6. Have all connections been designed and detailed? _____

7. Are web stiffeners required on steel cap beams to resist eccentric loads? _____

8. Are wedges required between longitudinal beams and cap beams to accommodate longitudinal slope or to reduce eccentric loading? _____

9. Has the width to height ratio of wedge packs been verified to fall within the limits given in the special provisions? _____

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10. If overhang brackets are attached to girder webs, has the need for temporary bracing to prevent longitudinal girder distortion been investigated?	_____	_____	_____
11. Have beams and stringers with height/width ratios greater than 2.5:1 been checked for stability?	_____	_____	_____
12. Have sloping falsework members that exert horizontal forces on the falsework been braced or tied to resist these loads?	_____	_____	_____
13. If beams supporting cast-in-place concrete have cantilever spans, have the falsework plans been noted to require the main spans be loaded before loading the cantilever spans?	_____	_____	_____
14. Have timber headers set on shoring towers been checked for eccentric loads, and for shear and bending stresses produced by the eccentricity?	_____	_____	_____
I. Highway and Railroad Traffic Openings (For falsework over or adjacent to highway or railroad traffic openings.)	YES	NO	N/A
1. Do falsework plans satisfy construction clearances shown on the contract plans?	_____	_____	_____
2. Are posts designed for 150% of the calculated vertical loading and increased or readjusted for loads caused by prestressing forces?	_____	_____	_____
3. Are mechanical connections 2,000 pounds minimum capacity shown at the bottom of posts to footing connections?	_____	_____	_____
4. Are mechanical connections 1,000 pounds minimum capacity shown at the top of the post to cap connections?	_____	_____	_____
5. Are beam tie downs 500 pounds minimum capacity shown for all beams?	_____	_____	_____
6. Are 5/8 inch or larger diameter bolts used at connections for timber bracing?	_____	_____	_____
7. Are temporary erection and removal bracing shown?	_____	_____	_____
J. Additional Requirements for Railroad Traffic Openings	YES	NO	N/A
1. Do falsework plans show collision posts as shown on the contract plans?	_____	_____	_____

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2. Do posts adjacent to the openings have a minimum section modulus of?

a. steel - 9.5 cubic inches

b. timber - 250 cubic inches

3. Are soffit and deck overhang forming details shown?

4. Are falsework bents within 20 feet of centerline of the track sheathed solid between 3 feet and 17 feet above top of rail with 5/8 inch thick minimum plywood and properly blocked at the edges?

5. Is bracing on the bents within 20 feet of the centerline of the track adequate to resist the required assumed horizontal load or minimum 5,000 pounds, whichever is greater?

Designer's Signature

Date

SECTION 00542 – CONCRETE REPAIR

Section 00542 is not in the Standard Specifications and is included in this Project by Special Provision.

Description

00542.00 Scope - This Work consists of locating and repairing damaged concrete and reinforcement in Structures, and providing mortar or resin buildup over shallow reinforcement.

00542.01 Definitions:

Damaged Concrete - Concrete that is spalled or delaminated due to corroded reinforcement or metal appurtenances such as bearing devices, drains, and conduits; concrete that is debonded from corroded reinforcing bars; concrete with near-surface rock pockets; unsound or delaminated existing patches; and concrete that has been drilled, excavated, or removed during prior maintenance work or during the Work of this Contract.

Hand Patch - Installing hand-troweled repair mortar in concrete cavities up to 0.50 square foot surface area.

Metal Detector - A device to measure any type of metal, whether on the surface or buried in concrete.

Pumped Repair - Installing Pumped Repair mortar in concrete cavities greater than 0.50 square foot surface area.

Reinforcing Bar Locator - A device specifically designed to find reinforcing in concrete.

Saturated Surface Dry Condition - Surface condition where hardened concrete is thoroughly saturated with water, but any free water has been removed from the surface.

Shallow Reinforcing Bar - Steel reinforcement with 1/2 inch or less of concrete cover.

00542.02 Submittals - Submit the following at least 21 Calendar Days before beginning concrete repair Work according to 00150.37. Within 21 Calendar Days after receipt of submittals, the Engineer will review the submittals and designate them in writing as "approved", "approved as noted", or "returned for correction".

(a) Concrete Repair Mortar - Submit the following:

- A description of all relevant constituents and properties of the Material. Data published by manufacturer is acceptable unless certifications of the Material characteristics are required by the Specifications.
- For prepackaged products, the manufacturer's certification that the contents include cement and Aggregate and do not include silica fume, fly ash, or any other porosity-reducing admixture. Furnish the proportion (by weight) of portland cement to Sand according to the provisions of 00165.35.

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- The Specifications subsection that each repair mortar complies.
- If proposing alternative repair mortar to those specified in 00542.10, test data demonstrating compliance with 00542.10.

For alternate repair mortar submit three 4 by 8-inch cylinders of repair mortar cast in the presence of the Engineer using the proposed mix proportions, admixtures, and mixing and application Equipment, at least 10 Calendar Days before starting concrete repair Work. Cast and cure the cylinders according to AASHTO R 100 or R 39.

Submit records of mix proportions and indicate the mix design that was used in each repair location. Maintain and provide records that are complete enough to be able to match repaired areas with the mix records.

(b) Concrete Repair Procedure - Submit a concrete repair procedure that includes the following:

- Manufacturer's specifications and operating instructions for all Equipment.
- Details of each step to accomplish the Work.
- Steps to regularly maintain quality control of all newly applied mortar.
- Plan to maintain records of verification of proportion (by weight) of Sand to portland cement and quantity of any additives for all mortar mixed on-site.
- Plan to maintain records identifying the mix design for each repaired area.

(c) Repair Damaged Reinforcing Bars - Submit a plan for accomplishing reinforcing bar repair that includes the following:

- Welder certifications according to AWS D1.4
- Pre-approved welding procedure specification (WPS) or procedure qualification record / welding procedure specification (PQR/WPS)
- Detailed procedure for electrode control measures
- Detailed procedure for achieving, maintaining, and monitoring pre-heat and inter-pass temperatures.

00542.03 Pre-welding Conference - Before beginning concrete repair Work, meet with the Contractor's supervisory personnel, concrete repair Subcontractor's supervisory personnel, the Contractor's certified welding inspector (CWI), and the Engineer at a mutually agreed upon time. The pre-welding conference includes discussion of the Contractor's quality control responsibilities, documentation requirements, welding procedures and Equipment, and demonstration of welder skills.

Materials

00542.10 Patch Material:

(a) Pumped Repair Mortar - Furnish one of the following micro-concrete (MC) or mortars with the required admixture as specified in 00542.15 for pump application.

- Pumped SikaEmaco 440MC (formerly BASF MasterEmaco S 440MC).

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Alternative repair mortar meeting the following requirements:

- Non-polymer flowable micro-concrete
- Suitable for pumping
- At least 4,000 psi 28-Day compressive strength
- “Low” potential for cracking and no cracking in 28 Calendar Days when tested according to ASTM C1581, including Appendix
- Electrical resistivity in the range of 2,000 to 20,000 ohm-cm

Submit proposed alternative Materials for approval according to 00542.02.

(b) Hand Patch Material - Furnish Hand Patching Materials according to 02015.20 or 02015.30. Observe QPL remarks and follow the manufacturer’s recommendation for application.

00542.11 Non-conductive Resin - Non-conductive resin is acceptable for filling cavities of 0.05 square feet or less and for resin buildup over Shallow Reinforcing Bar in sound concrete. Furnish a non-conductive resin from the category “Resin Bonded Anchor System” of the QPL, mixed at a 1:1 ratio with clean abrasive blasting Material.

00542.12 Abrasive Material - Furnish clean, dry, non-metallic grit abrasive Material with no mineral constituents that break down and remain on the surface in visible quantity. Furnish hard angular shaped abrasives from 16 - 30 mesh.

00542.13 Water - Furnish water according to Section 02020.

00542.14 Reinforcement and Added Steel - Furnish ASTM A706 Grade 60 uncoated reinforcing bars meeting the requirements of 02510.10. Furnish uncoated, ungalvanized welded wire reinforcement meeting the requirements of 02510.40. Furnish uncoated and ungalvanized metal embedded in the repair material to facilitate concrete replacement.

00542.15 Admixtures - Use only admixtures approved by the Engineer.

If using admixtures to reduce the water-cement ratio, or to retard or accelerate the development of strength, use only admixtures compatible with the mortar and at the rate specified by the manufacturer.

00542.17 Mechanical Anchors - Furnish the following mechanical screw anchors:

- Dewalt Ultracon + (Hex washer head)
- Hilti Kwik Con II + (Hex washer head)
- ITW Red Head Tapcon (Hex washer head)

Labor

00542.30 Welders - Provide certified welders and welding inspectors according to AWS D1.4.

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00542.40 Work Access, Containment, and Disposal - Provide Work access and debris containment according to Section 00253.

Dispose of waste according to 00290.20.

00542.41 Locating and Marking - Locate and mark the following:

- Concrete having visible spalling or delamination due to corrosion of reinforcement or metal appurtenances such as bearing devices, drains, and conduits. Include within the repair boundaries all Damaged Concrete at the edges of spalls.
- Visible unsound patches of Material.
- Concrete that is visibly loose, or that becomes dislodged or loosened when struck with a 16-ounce masonry hammer or by other approved technique.

Verify the presence of steel with a metal detector.

The Contractor is advised that concrete containing Aggregate larger than 2 inches can cause false readings. If no steel is present, readings in such areas should be disregarded.

Investigate all spots of rust visually and with a metal detector to determine if a metallic object is present. If a metal object is present mark the location.

In areas where spalling or delamination is not visually detectable, but is indicated by sounding, use a Reinforcing Bar Locator and mark reinforcing bars and their minimum concrete cover. If rust scale or pitting is found on the exposed reinforcing bar, or if the remaining concrete is separated from the bar, mark the Damaged Concrete area for removal.

Do not use internal angles less than 45 degrees in defining the repair boundaries. Make all repairs at least 2 inches wide in each direction. Within these restrictions, mark boundaries such that repair areas can be efficiently sawed and excavated.

Determine and mark the location and extent of each repair excavation. Do not begin concrete removal until location and extent have been verified by the Engineer.

The Engineer will perform verification surveys of selected sections of the Work and determine the final quantity of repairs. Do not begin excavation until the Engineer has completed the verification surveys.

00542.42 Concrete Removal - Sawcut the boundaries of concrete to be removed, to a depth just missing the reinforcing bars with less than 1/2-inch concrete cover or to a minimum of 1/2 inch, whichever is less. Do not overrun sawcuts at the corners of the marked boundaries. Sawcutting is not required if the Contractor can consistently provide, by another technique, a minimum 1/2-inch-deep excavation surface that is uniformly perpendicular to the original concrete surface along the marked boundary.

Remove concrete within the marked boundaries with high-pressure waterjet blasting Equipment, pneumatic hammers, chipping guns, manual picks and chisels, or other Equipment approved by the Engineer. Do not use pneumatic hammers heavier than a

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nominal 15-pound class. Remove concrete in such a way that removal of sound concrete beyond established boundaries is kept to a minimum. When working around reinforcing bars, avoid loosening the reinforcement or fracturing the concrete around it within or beyond the repair area.

Remove all Damaged Concrete within the marked boundaries to the depth of sound concrete. In areas where the reinforcing bar lacks bond with the existing concrete, continue to excavate to 1/2 inch beyond the depth of the reinforcing bar. Do not excavate beyond the depth of the reinforcing bar if area shows the reinforcing bar to be free of rust scale or pitting and the reinforcing bar is not separated from the remaining concrete.

The depth of concrete damage, due to corrosion, in any member is not expected to be substantially greater than 1/2 inch beyond the depth of the reinforcing bar.

Do not remove sound concrete over Shallow Reinforcing Bar.

00542.43 Damaged Reinforcing Bar Repair - Repair reinforcing bar showing 50 percent or greater section loss according to the following:

- Remove all Damaged Concrete
- Remove sound concrete as necessary so that there is a minimum of 3/4 inch clearance between the concrete and splice bars over entire length of repair
- Blast-clean all exposed reinforcing steel and concrete
- If feasible, place splice bars so as to allow 1/2 inch of concrete cover without raising the concrete surface
- Perform all weld splicing according to ANSI/AWS D1.4, "Structural Welding Code - Reinforcing Steel". Since the carbon content of existing reinforcement is unknown, assume that preheating is required under ANSI/AWS D1.4. Limit the temperature of reinforcing bar at concrete interface to 500 °F or less, verified using an infrared thermometer.
- Remove any additional concrete that cracks or spalls during welding
- Keep the existing spliced bars in place and avoid gouging and loosening reinforcing bar or damaging sound concrete outside of splice areas
- Keep the splice bar in the proper position during placement of concrete cover

Repair round bars with new splice bars the same size as the original bars. Repair square bars with new round splice bars with a diameter equal to the thickness of the square bars.

00542.44 Shallow Reinforcing Bar in Sound Concrete - If Shallow Reinforcing Bar exists in sound concrete and passes the sounding test, no concrete repair is necessary.

00542.45 Shallow Reinforcing Bar in Damaged Concrete - Where directed, treat prefabricated mesh and other closely spaced shallow metals in the same manner as Shallow Reinforcing Bar in Damaged Concrete. Place additional cover Material over Shallow Reinforcing Bar in Damaged Concrete according to the following:

- (a) Mortar Buildup over Shallow Rebar** - Place additional mortar as needed to achieve at least 1/2 inch of cover over Shallow Reinforcing Bar repairs.

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(b) Resin Buildup over Shallow Reinforcing Bar - In areas where additional buildup is not feasible, or where buildup would detract from the aesthetic appearance of the Structure, furnish additional cover using non-conductive resin according to 00542.11. Apply the resin in 2-inch-wide strips over the Shallow Reinforcing Bar.

00542.46 Surface Preparation - Abrasive-blast or water-blast all concrete surfaces that are to receive additional mortar cover or patches, to remove all debris, loose concrete, concrete pulverized during removal, scale, and loose rust. Blast exposed reinforcing bars according to SSPC Standard SP6 "Commercial Blast Cleaning" or equivalent procedure. Do not allow prepared surfaces to remain exposed more than 36 hours before placing repair mortar.

Prepare surfaces that are to receive additional mortar or resin cover with a surface profile according to International Concrete Repair Institute (ICRI) Guideline 310.2R-2013 surface profile CSP 6 (1/8-inch surface profile).

Furnish mechanical anchors for concrete surfaces that are to receive more than 1 inch of repair mortar and have reinforcing bar spacing greater than 9 inches. Install anchors by drilling hole diameter per manufacturer's specification with 1-inch-deep embedment on a 9-inch maximum grid in the concrete substrate.

00542.48 Patch Installation:

(a) Forms - Furnish smooth-surfaced form Materials. Provide adequate support and bracing of forms to prevent deflection under the weight and pressure of new mortar, and to prevent vibration damage to mortar during setting and curing. Leave forms in place for a minimum of 3 Days after mortar placement.

Furnish watertight form Materials and a watertight form system to prevent loss of water during presoaking and repair mortar placement. Incorporate enough pumping ports to ensure consistent placement and enough vent holes or vent tubes to allow air to escape extreme surface irregularities and remote cavities. Limit port spacing to prevent mortar segregation.

Furnish forms that can readily be removed and reinstalled for presoaking, flushing, blowdown, and for verification of Surface Saturated Dry Condition.

(b) Pre-soak - Saturate the substrate concrete for at least 24 hours before application of repair mortar. Use either a watertight form kept full of water; saturated burlap or foam Material packed inside the forms, in contact with the entire existing concrete surface, and soaked frequently; or any other method demonstrated to produce Saturated Surface Dry Condition.

After the substrate has been saturated, temporarily remove the form and, immediately before placing mortar, remove all dust, dirt, and other debris by flushing the surface with water pressurized to at least 60 psi, followed by blasting with clean compressed air to remove excess water. Provide a damp surface free of standing water and free of contaminants when applying repair mortar. Light surface rust that appears during the pre-soak stage does not need to be removed. When the concrete surface is in Saturated Surface Dry Condition and free of contaminants, and reinforcement is clean or has only light surface rust, immediately reinstall the forms and place mortar.

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(c) Mixing - When a package of prepackaged repair mortar is opened, mix the entire contents of the package.

Mix repair mortar according to the manufacturer's instructions including.

(d) Placing Repair Mortar - Pump repair mortar and achieve thorough and uniform hydration without the use of excess water.

Do not place mortar before acceptance of Saturated Surface Dry Condition by the Engineer.

Do not place mortar during freezing weather or if temperatures are likely to drop below freezing during the cure period for the mortar. Do not apply mortar to frosted surfaces. Follow the manufacturer's recommendations regarding temperature and weather conditions during mortar placement.

Provide adequate pumping pressure into each port to ensure mortar completely fills the cavity and mortar is observed at all vents. Vibrate only if approved by the Engineer in advance.

(e) Adjacent Surface Protection - Protect surfaces outside the repair area from mortar overshoot and drip. Remove the excess Material from these areas after the application has been completed.

(f) Mix Records - Record proportion (by weight) of Sand to portland cement and the quantity of any additives for all mortar mixed on-site at the start of each mortar placement operation and every time proportions or additives are changed. Keep a record of the mix used for each repair area.

00542.49 Curing - Take care to avoid cracks in the new mortar due to excessive surface evaporation. Continuously cure all newly applied mortar according to the manufacturer's recommended curing schedule.

00542.50 Finish - Finish all exposed surfaces and surface defects to straight and true lines as shown. Provide a Class 2 surface finish according to 00540.53 on all exposed surfaces and a general surface finish according to 00540.53 on all other surfaces, with no coating on any surface unless otherwise directed.

00542.51 Delamination Survey - After mortar repair Work has cured, conduct a delamination survey of all repaired areas with the Engineer according to the following:

- Sound all repaired areas with a 1-pound masonry hammer or by other approved technique.
- Mark boundaries of all delaminations in the repaired areas.
- Identify the marked delamination that needs Patching.

Make repairs when delamination repair areas do not meet the acceptance criteria of 00542.52.

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Upon completion of the survey, prepare and sign a survey report that identifies all areas to be patched. Submit the survey report for review and acceptance by the Engineer. Repair the identified areas in a manner satisfactory to the Engineer.

After Patching the identified areas, repeat the delamination survey. Repeat the delamination survey and repair procedure until all areas of unsound concrete have been repaired and accepted.

Following the bond strength test of cores according to 00542.52(b), the Engineer will visually inspect the cores for sand pockets and voids. If sand pockets or voids are found, the area from where the core was taken will be marked by the Engineer to aid in the Contractor's delamination survey.

00542.52 Production Quality Control Testing - Acceptance of Work performed under this Section is according to the following tests:

(a) Compressive Test - For each 100 square feet of mortar placed on the Bridge, but not less than once per production Work shift, cast at the same time and under the same conditions three 4 by 8 inch cylinders for testing. Cast the cylinders in single-use plastic molds. Cast and cure strength specimens according to AASHTO R 100 or AASHTO R 39. Test the cylinders for compressive strength according to AASHTO T 22 following a 28-Day cure.

The minimum acceptable 28-Day compressive strength of cylinders is 4000 psi.

(b) Pull-off Test - Following a 7-Day cure of the mortar patch, core one test specimen from each 100 square feet of newly applied mortar placed on the Bridge surface, at locations designated by the Engineer. Locate cores to avoid damaging reinforcing bar. Core approximately 1/2 inch into the original concrete. Do not break cores free before testing. Perform pull-off tests of the cores in the presence of the Engineer.

Measure the core bond strength according to ASTM C1583. Use pull-test dollies with the same diameter as the cores. Conduct the test until failure.

The minimum acceptable bond strength between the new and original concrete is 175 psi.

If the test shows failure at less than 100 psi, retest after checking Equipment and verifying core angle is perpendicular to the surface. If the patch area is too small for another test, use alternate patch location. If the retest shows failure at less than 100 psi, then a pull-off test may be performed on in situ concrete substrate in the vicinity of the patch area to determine the existing concrete substrate tensile strength. If in situ concrete substrate fails at 100 psi or less, the Engineer will re-evaluate the original concrete substrate.

Individually seal the cores taken from the Bridge in plastic bags and tag them for identification.

If any quality control test fails to meet the minimum requirements, any or all repair mortar represented by that test may be rejected by the Engineer.

00542.53 Deficient Repair Mortar - Repair, at no additional cost to the Agency, all mortar patches that show an alligator cracking in the surface or uncontrolled cracks visible without

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magnification. Perform additional testing as directed to determine the extent of deficient mortar in the production test area represented. If additional patches are found to be deficient, repair the production test area represented according to the Specifications at no additional cost to the Agency. Repairs include removal and replacement of patches found to be substandard.

Repair small crevices a maximum of 0.4 inch deep and 0.1 inch wide at the edge of a patch with non-conductive resin mixed with abrasive blasting Material or other approved patch Material, at no additional cost to the Agency. Cut out pockets or other defects and replace with new repair mortar according to this Section.

Measurement

00542.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

- (a) Locate Concrete Repair** - No measurement of quantities will be made for locating concrete repairs. The estimated quantity of locating concrete repairs is 10,707.9 square feet.

- (c) Concrete Repair** - Concrete repair will be measured on the area basis. Measurement will be the outside measurement of the area of Work marked for concrete repair, not including areas marked for mortar buildup over Shallow Rebar, after locating concrete repair and before concrete removal Work. The area of Work marked for concrete repair does not include initially sound concrete that is damaged or micro-fractured by the Contractor's operations.

Payment

00542.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price per unit of measurement for the following item(s):

Pay Item	Unit of Measurement
(a) Locate Concrete Repair	Lump Sum
(b) Concrete Repair	Square Foot

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for providing mix proportion or mix design records.

No payment will be made for repair of initially sound concrete that is micro-fractured or otherwise damaged by the Contractor's operations.

SECTION 00546 – MASS CONCRETE

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Section 00546 is not a Standard Specification and is included in this Project by Special Provision.

Description

00546.00 Scope - This Work consists of requirements specific to Mass Concrete as defined herein.

00546.01 Abbreviations and Definitions:

(a) Abbreviations:

- ECC** - Equivalent Cement Content
- MCCP** - Mass Concrete Control Plan
- SCM** - Supplementary Cementitious Material
- TCC** - Thermally Controlled Concrete
- TMC** - Traditional Mass Concrete

(b) Definitions:

Mass Concrete - Concrete that has a potential for high heat generation and subsequent adverse effects, categorized as either Thermally Controlled Concrete or Traditional Mass Concrete.

Thermally Controlled Concrete - Concrete that uses multiple measures to control heat generation, incorporated on a Mass Concrete Control Plan (MCCP).

Traditional Mass Concrete – Concrete that has controlled and measured heat generation. Heat generation is primarily controlled using pre-cooled placed concrete and aggregates, supplementary cementitious materials (SCM's), and insulation of placed concrete.

00546.02 Submittals – For TCC placements and TMC placements implementing a MCCP, submit a Mass Concrete Control Plan a minimum of 90 Days prior to Mass Concrete placement, according to 00150.35. Submit ECC of Mass Concrete mix designs at the time of mix design submittal.

For all Mass Concrete placements, submit temperature monitoring data collected according to 00546.44. For Mass Concrete placements with a MCCP, submit the following analysis of the temperature monitoring data within 7 Calendar Days of the concrete placement:

- Plot the temperature monitoring data as a function of time showing maximum core temperature and maximum temperature gradient.
- Evaluate the core temperature and thermal gradient data with respect to the requirements of 00546.41 and the accepted MCCP.
- Plot heat generation as a function of time and identify the peak heat generation.

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00546.03 Mass Concrete Control Plan – Provide a unique Mass Concrete Control Plan for each concrete placement using thermal modeling and methods according to ACI PRC-207.1. Address the adiabatic temperature rise of the concrete, initial concrete temperature at placement, construction methodology including pour dimensions and time between consecutive pours, formwork insulation, surrounding environmental conditions, curing methods, and cooling systems (if used) in the MCCP. State all input parameters for the analysis in the MCCP. Submit supporting computations to demonstrate compliance with the temperature requirements for concrete sections that are evaluated for thermal control, as described in 00541.41, and for those sections that do not require a thermal control plan.

Identify the methods and procedures necessary to maintain the temperature gradient, T_{diff} , within the Mass Concrete element to less than the limit specified in 00546.41(b), and the peak temperature of the Mass Concrete element to less than 160°F. Include measures for pre-cooling of aggregates and concrete, concrete temperature at the time of placement, formwork insulation requirements, curing requirements and related temperature control measures and post-cooling requirements. State when and under what conditions thermal control measures can be terminated.

Include drawings and operating instructions of post-cooling systems, if utilized, including:

- Cooling pipe material, size and location in plan, elevation and section views.
- Cooling pipe support and tie details necessary to prevent damage or displacement of the cooling pipes during concrete placement.
- A description of the source of water, including any necessary storage and treatment.

Include drawings and details of formwork insulation, if utilized. State when and under what conditions insulation measures can be removed.

Include drawings and details of temperature monitoring, including location of sensors, redundant sensors in case of sensor failure, computer data acquisition system, details of protection of sensors during pouring and consolidation.

The actual temperature records from initial pours may be used to validate and revise the MCCP as necessary for similar subsequent pours, as approved by the Engineer.

Materials

00546.10 Mix Designs – For Mass Concrete, furnish concrete conforming to the specified class of concrete in Section 02001, as modified by the following:

The ASTV may be calculated at either 28 Days or 56 Days. The ASTV is the average compressive strength of the three cylinders tested. At submittal, designate the mix designs as 28-Day or 56-Day mix designs for the purpose of acceptance.

- For compressive strength test results according to 02001.15(b)(2), Test at either 28 Days or 56 Days, as designated by the mix design designation.
- SCM limits as established by 02001.30(b) do not apply to Mass Concrete
- Submit the ECC of mix designs for TMC applications

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- For all Mass Concrete mix designs, make at least three specimens from the trial batch for length change testing. Fabricated sample prisms with a cross section of 4 inch by 4. Wet cure the samples until they have reached an age of 28 Days, including the period in the molds. Following the wet cure, air store and measure samples according to AASHTO T 160, Section 11.1.2 for 28 Days. Report length change results at total specimen age of 56 Days. Maximum length change for Mass Concrete mix designs is -0.045%.
- To establish a maximum placement temperature greater than what is specified, submit a mix design specific analysis, based on the Schmidt method as described in ACI PRC-207. Establish a maximum placement temperature, based on the Schmidt method analysis. Identify the means to control placement temperature including batch ice quantities or pre-cooling of aggregates.

00546.11 Equivalent Cement Content – For TMC, furnish concrete with an ECC equal to or lower than the ECC as specified in Table 00546-01 and with supplementary cementitious materials meeting the minimum levels listed in 00546.41(a).

Use the following equation to calculate ECC:

$$\text{ECC} = \text{Cement} + 0.5 \cdot \text{FAsh} + 0.8 \cdot \text{CAsh} + 1.2 \cdot \text{SFMK} + \text{Factor} \cdot \text{Slag}$$

FAsh = Class F Fly Ash or Natural Pozzolan

CAsh = Class C Fly Ash

SFMK = Silica Fume or Metakaolin

Slag = Ground Granulated Blast Furnace Slag (GGBFS)

Slag Factor = see below

- 1.0 to 1.1 for 0 to 20% replacement;
- 1.0 for 20 to 45% replacement;
- 0.9 for 45 to 65% replacement; and
- 0.8 for 65 to 80% replacement

The maximum ECC for TMC placements may be exceeded if the placements are then treated as TCC.

00546.12 Thermal Cooling Pipes – Furnish thermal cooling pipes according to the following:

(a) **Pipe** – Furnish polyethylene cooling pipes according to 02415.20.

(b) **Grout** – Furnish grout meeting the requirements of 02080.50.

00546.13 Temperature and Maturity Sensors – Furnish sensors to evaluate concrete temperature and maturity according to Section 02005.

Construction

00546.40 Mass Concrete – Place concrete according to Section 00540 and this Section.

The following placements are classified as Mass Concrete:

OR22: Center St Bridge (Phase 1) Project**Table 00546-01 Traditional Mass Concrete Placements**

Placement Location/Desc.	Approx. Placement Size (cuyd)	Concrete Class	ECC (lb/cuyd)	Max. Placement Temp. (°F)
BR00123K – Bent 15 Crossbeam	382	5000	600	75
BR00123K – Bent 16 Footing	935	4000	550	75
BR00123K – Bent 17 Footing	935	4000	550	75
BR00123K – Bent 18 Footing	935	4000	550	75
BR00123K – Bent 20 Footing	279	4000	600	75
BR00123K – Bent 21 Footing	280	4000	600	75
BR00123K – Bent 22 Footing	228	4000	600	75
BR00123K – Bent 25 Footing	224	4000	600	75
BR00123K – Bent 26 Footing	213	4000	600	75
BR00123K – Bent 27 Footing	293	4000	600	75
BR00123K – Bent 28 Footing	112	4000	600	75
BR00123K – Bent 20 Pier Wall	198	4000	600	75
BR00123K – Bent 21 Pier Wall	264	4000	600	75
BR00123K – Bent 22 Pier Wall	235	4000	600	75
BR00123K – Bent 23 Pier Wall	235	4000	600	75
BR00123K – Bent 24 Pier Wall	227	4000	600	75
BR00123K – Bent 25 Pier Wall	182	4000	600	75
BR00123K – Bent 26 Pier Wall	223	4000	600	75
BR00123K – Bent 27 Pier Wall	216	4000	600	75
BR00123K – Bent 28 Pier Wall	113	4000	600	75
BR00123G – Bent 5 Pier Wall	81	4000	600	75

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00546.41 Temperature Limits – For TMC placements where a MCCP is prepared, control maximum temperature and temperature differential between the interior and exterior of the placement to meet the following requirements.

(a) Maximum Temperature – The maximum temperature, $T_{\max}$, during Mass Concrete placements is 160°F.

$T_{\max}$ is equal to 185°F when using the minimum amount of supplementary cementitious materials listed below:

- 25% Class F fly ash
- 35% Class C fly ash
- 35% Ground Granulated Blast Furnace Slag (GGBFS), or
- 25% Natural pozzolan

(b) Temperature Gradient – The maximum temperature gradient, $T_{\text{diff}} = T_{\text{int}} - T_{\text{ext}}$, measured between the interior and exterior of the placement is 35°F.

For TCC placements, the temperature gradient limit may be increased provided the following is met, and approved by the Engineer:

Perform a two-dimensional finite-difference analysis according to ACI PRC-207.1 or finite element analysis for temperature modeling of Mass Concrete placements. Perform analysis for estimating crack widths according to the requirements in ACI 207.2R-07 or demonstrate a plan to preclude thermally induced cracking. Calculated thermally induced crack widths not to exceed .008 inches for column elements and .010 inches for crossbeam elements. Perform analysis based on the actual mix designs and materials planned for use in the structure. Test the coefficient of thermal expansion of the concrete with the aggregate to be used in the proposed mixes according to the US Army Corps of Engineers Method CRD-C39-81. Test the heat of hydration of the cementitious materials including mineral admixtures to be used in the mixes at 1, 3, 7, and 28 days according to ASTM C186-98, ; or equivalent testing as approved by the Engineer. Present all assumptions for the modeling including use of cooling and insulation.

00546.42 Temperature Monitoring – Measure temperature using concrete sensors meeting the requirements of 02005.20(a). Measure maximum temperature, $T_{\max}$, and interior temperature, T_{int} , at the approximate center of mass of placement. Measure exterior temperature, T_{ext} , within 2 inches of the surface of the placement and at the furthest distance from the center of the concrete mass. Provide a minimum of 2 sensors for each reading, with $T_{\max}$ and T_{int} being equivalent and measured using the same sensors. When a MCCP is prepared, locate the sensors indicated in the accepted MCCP.

00546.43 Demonstration Placement – For all TCC placements and TMC placements where a MCCP is prepared, perform a demonstration placement. Submit details of demonstration Mass Concrete placement. Include details for concrete pour geometry, temperature sensor location, formwork insulation and thermal cooling pipes (if used).

Perform a demonstration Mass Concrete placement to verify accuracy of the predicted temperature and methods of controlling temperature, and to test the automatic and

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manual thermal sensing and recording equipment. Provide formwork, formwork insulation and cooling pipes used for the demonstration placement, similar to the formwork used for the proposed Mass Concrete placement.

Provide demonstration placement temperature monitoring results to the Engineer.

If predictions of temperature gradient and maximum temperature vary by more than 10 degrees from those measured in the demonstration placement, provide an evaluation and reanalysis of the thermal projection methods to correlate with the demonstration placement. Submit an updated MCCP for review and acceptance.

00546.44 Mass Concrete Placement – Place and monitor Mass Concrete according to the following:

- Monitor and record temperature gradients and peak temperatures of each Mass Concrete element.
- Provide approved temperature monitoring and data storage equipment capable of automatically and continuously recording a minimum of one reading per hour for the duration of the Mass Concrete temperature monitoring period. Provide sensors and recorder that are accurate to within +/- 2°F (1.1°C) in the temperature range of 32°F (0°C) to 212°F (100°C).
- Repair or replace the system components which have failed before beginning the next Mass Concrete placement.
- When a MCCP is prepared, provide a backup temperature sensor system, including redundant sensors and backup temperature readout device. Install a redundant set of sensors according to the MCCP.
- Place and consolidate concrete using methods which prevent damage to the temperature monitoring and recording system. Protect wiring from temperature sensors cast into the concrete to prevent movement.
- When any Equipment used in the temperature control and monitoring and recording system fails during the Mass Concrete construction operation, take immediate remedial measures to correct the situation as specified in the MCCP
- Begin temperature readings when Mass Concrete placement is complete. Continue reading temperature until the hottest portion of the concrete cools to within the temperature difference limit of the temperature of surrounding exterior environment. Provide a copy of all temperature readings to the Engineer daily.
- Repair or replace concrete for any cracking or damage due to exceeding maximum temperature or maximum temperature gradient, as determined by the Engineer at no additional cost. Submit a detail repair plan and narrative, describing the intended repair actions to the Engineer for review and approval prior to beginning any remedial actions or repairs. Make the necessary revisions to accepted MCCP to satisfy the temperature control requirements on future placements. Submit the revised MCCP to the Engineer for review and acceptance. Do not make additional Mass Concrete placements using a MCCP until the revised MCCP is accepted.

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00546.45 Thermal Cooling Pipes - If cooling pipes are used, furnish cooling pipes with surface connections that are removable to a depth of four inches beneath the concrete surface. Space cooling pipes a minimum of 6 inch where exiting the face of the concrete surface. Do not disrupt cooling or temperature monitoring when removing forms. Secure cooling pipes to prevent damage or movement during concrete placement. Pressure test the cooling pipe system for leaks prior to beginning concrete placement at 30 psi for 30 minutes.

Fully grout cooling pipes under pressure after cooling is completed. For post-tensioned crossbeams, do not stress strands or bars until the grout for the cooling pipes meets the minimum specified compressive strength of the concrete. Fill the void resulting from surface connection removal with an approved mortar mixed at a 1:2 cement/aggregate ratio and using the same cement as used for the Mass Concrete. Mix mortar with only enough water to permit placement and packing.

00546.46 Construction Joints – Construction joints not shown on the plans are not allowed, unless approved by the Engineer.

00546.47 Subsequent Loading – Unless shown otherwise, forms and falsework may be removed and subsequent loads may be applied after 100% f'c is achieved. Measure early age strength according to Section 02005.

Maintenance

00546.60 Crack Repair – For all TCC placements and TMC placements where a MCCP is prepared, perform a crack survey measuring crack lengths and width. If cracks exceed the limits set by the MCCP, perform crack sealing as directed by the Engineer and according to Section 00538. For TMC applications, perform crack surveys as directed by the Engineer if dense map cracking is present or if crack widths exceed 0.016”.

00546.61 Exceeding Temperature Limits – When maximum temperatures are exceeded, or if no temperature measurements were obtained, perform an investigation for negative impacts to the concrete including petrography for delayed ettringite formation (DEF). Obtain a minimum of 3 cores from each impacted placement. Perform a crack survey measuring crack lengths and width.

Measurement

00546.80 Measurement - No measurement of quantities will be made for Work performed under this section. Concrete used in Mass Concrete applications will be measured according to 00540.80. Approximate volumes of concrete used in Mass Concrete applications are specified in 00546.40.

Payment

00546.90 Payment - For TMC, no additional payment will be made for compliance with the additional requirements for Mass Concrete. Work performed under this section will be paid for according to 00540.90. If the Contractor uses alternative mix designs that generate a TCC application in place of a TMC application, that work is performed at no cost to the Agency.

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No separate or additional payment will be made for MCCP as required for TCC or TMC placement. Payment will be included in payment made for the appropriate items within 00540.90 for which this Work is required.

SECTION 00554 – SINGLE LAYER POLYMER CONCRETE OVERLAY

Section 00554 is not a Standard Specification and is included in this Project by Special Provision.

Description

00554.00 Scope - This Work consists of preparing, sealing, and resurfacing bridge sidewalk with a primer, a single-layer polymer overlay, and an aggregate top course wearing surface.

00554.04 Submittals - Submit the following at least 21 Calendar Days before the pre-placement conference:

- The manufacturer's product data sheet.
- The manufacturer's written installation instructions.
- A Material Safety Data Sheet for each primer and epoxy polymer component.
- Manufacture dates and shelf-life expiration dates for each production lot of primer and epoxy polymer components.
- Tabulated data indicating the estimated cure time, in minutes, for the allowable ambient temperature range, in increments of 10 °F, for both the primer and polymer overlay
- A detailed work plan for the overlay preparation, application, cleanup, including the Manufacturer's recommended application rate, square feet per gallon, to achieve a minimum overlay thickness of 1/8 inch.
- A plan for illuminating the work area during hours of darkness.
- Names of manufacturer's approved installers meeting the requirements of 00554.30.

00554.05 Pre-placement Conferences:

(a) Supervisory Personnel - Hold a pre-placement conference with the Engineer and all supervisory personnel, Subcontractors, Suppliers, and all other personnel who will be involved in the overlay work. Meet at a mutually agreed time at least 14 Calendar Days before beginning the overlay work. Present and discuss all phases of the overlay work.

(b) Placement Crew - Before beginning overlay work, hold a second pre-placement conference with the Engineer and the entire overlay work crew at the Project Site, 30 minutes before overlay work begins, to discuss placement duties and procedures.

Materials

00554.10 Materials:

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(a) Concrete Repair Material – Furnish a PCC repair material meeting the requirements of Section 02015.20 of the QPL and is compatible with the overlay.

(b) Primer - Furnish a low modulus epoxy concrete and crack sealer from section 02060.10 of the QPL.

(c) Polymer Overlay - Furnish epoxy polymer from section 00556.10(a) of the QPL. Furnish epoxy polymer and primer from the same manufacturer.

(d) Broadcast Aggregate - Furnish the following Aggregate:

Armorstone #8 x #14 Crack Seal Sand from Washington Rock Quarries

Sample the furnished Aggregate and test according to the following:

Property	Test Method	Requirements
Moisture Content *	AASHTO T 255	0.20% max.

* Test at time of packaging and shipment and at the time of mixing the polymer resin.

Package and store all Aggregate material so that it remains clean and meets moisture content requirements.

Equipment

00554.20 Miscellaneous Equipment:

(a) Tools - Provide squeegees, heavy-nap rollers, and other approved tools to apply the primer and the polymer resin.

Furnish a mechanical broadcaster to uniformly apply the Aggregate.

(b) Coring Equipment - Provide core cutting equipment that can produce a core 2 inches in diameter.

(c) Bond Testing Equipment - Provide bond testing equipment that:

- Is compatible with the core tested.
- Can exert a tensile load to the core sufficient to exceed 300 psi.
- Is equipped with a measuring device capable of reading tensile force exerted within 1 percent accuracy.

(d) Shot-blasting - Provide mono-directional or bi-directional shot blast machines with single or multiple blast wheels that conform to EPA air pollution requirements by containing dust and steel abrasive media and that can prepare concrete surfaces according to *ICRI Technical Guideline No. 310.2R*, to the project specific Concrete Surface Profiles (CSP) profile.

Labor

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00554.30 Personnel Qualifications - Provide a superintendent or foreman who is approved by the polymer material manufacturer, in writing, as qualified to oversee the placement.

Construction

00554.40 Construction:

(a) General - Do not begin overlay installation until all Materials and Equipment necessary to perform the installation and required repairs are at the Project Site.

Prepare the entire walkway surface to receive the primer and overlay. Remove all grease, oil, paint, dirt, laitance, rust, and other contaminants that would affect adhesion of the primer to the concrete substrate.

(b) Weather and Other Restrictions - Place concrete repair material, primer, overlay when:

- The ambient temperature, surface temperature, and relative humidity (RH) meet the requirements on the manufacturer's written data sheet.
- Allow at least 24 hours after a precipitation event or pressure wash prep before placing overlay.

Illuminate work areas during the hours of darkness.

(c) Daily Report Requirements - Submit a daily written report to the Engineer by the end of each Day that Work is being performed under this Section. The daily written report shall include the following:

- Broadcast Aggregate moisture content AASHTO T 255(00554.10(d))
- Surface preparation process and results of ASTM E965 (0554.41(c))
- Total gallons of primer and associated application rate.
- Bond test results ASTM D4541(00554.50)
- Size and location of repair areas with digital photographs taken both before and after placement of the overlay. Provide the digital photographs in a format acceptable to the Engineer.

00554.41 Preparing Bridge sidewalk:

(a) Bridge Deck Drains - Temporarily block all deck drains and catch basins while preparing the surface and placing the overlay. Do not allow material resulting from scarifying, chipping, sawing, sandblasting, sweeping, water blasting, or flushing to enter deck drains.

(b) Expansion Joints - Before constructing the overlay, block out expansion joints with rigid polyethylene foam or other approved material compatible with the primer/sealer and polymer resin.

Prepare deck area within 12 inches of all joints with bush-hammers, scabblers, or by other methods approved by the Engineer. Do not damage the joints.

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(c) Surface Preparation - Remove all spalled and loose surface concrete to sound concrete and repair with concrete repair material. Allow concrete repair material to cure as recommended by the concrete repair material manufacturer before applying the primer.

Prepare the sidewalk surface so that it is free of voids, sharp projections, form release agents, concrete curing agents, and contaminants.

Prepare Concrete Surface Profile (CSP) to CSP 4-6 according to ICRI Guideline 310.2R-2013 for surface preparation of concrete. Roughen the existing horizontal concrete surface to an exposed aggregate surface texture depth profile of at least 1/16 inch, determined according to ASTM E965 (standard volumetric test). Perform at least two tests for each placement, or two tests for every 350 square yards of surface area, whichever results in the greater number of tests.

Clean the entire surface by shot-blasting within 24 hours of placing the overlay. Sweep the area magnetically to remove metal residue. Blow clean the surfaces with compressed air.

Immediately after surface preparation is complete cover the prepared deck with clear plastic, overlapping it to prevent contaminants from construction vehicles or other sources from contacting the deck. Maintain the covering until SPCO installation.

If the prepared surface becomes contaminated by spills, rain, or other contaminant before placing the membrane or overlay, prepare the surface again according to this Subsection.

Dispose of all removed materials according to 00290.20.

00554.42 Installation - Install 1/8 minimum thickness overlay according to the following:

- Condition and mix the primer and overlay resin according to the manufacturer's product data sheet and written installation instructions.
- Do not dilute, thin, or add foreign material to either the individual polymer resin components or the mixed polymer resin.
- After the Engineer has approved the surface preparation, completely flood the sidewalk surface with primer at the rate recommended by the primer manufacturer, or as directed. Use heavy-nap rollers to work the primer into the concrete surface and all visible cracks. Fill all visible cracks to refusal. Apply the primer only when the placement conditions as described above have been met and no rain is forecast within 12 hours. Allow the prime coat to pond and penetrate into the sidewalk surface a minimum of 15 minutes. Before the resin becomes tack free, remove excess primer using a broom or heavy-nap roller to prevent ponding.
- Flood the sidewalk with overlay resin to cover a maximum area of 50 square feet per gallon. Before gelling of the membrane resin occurs, broadcast a single layer of Aggregate to refusal (100 percent coverage) so no wet spots are visible.
- Extend the overlay to the expansion joint edges, curb, and rail faces. Protect curb and rail faces from primer and epoxy polymer.
- Allow the overlay enough time to cure to initial set according to the manufacturer's product data sheet before subjecting it to loads or traffic.

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00554.50 Overlay Bond Test - Test the full depth overlay according to ASTM D4541, Method "E", using Type "V" tester prior to allowing traffic on the overlay. Test using 2 inch diameter test dollies.

Randomly select bond test locations. For Bridges with a surface area equal to or less than 4000 square feet, perform a minimum of four bond tests. For Bridges with a surface area of more than 4000 square feet, perform four bond tests for the first 4000 square feet and one test for every additional 2000 square feet of surface area.

Take 2 inch diameter cores through the aggregate surface and 1/2 inch into the concrete substrate.

Minimum allowable bond strength is 175 psi or substrate failure.

Repair core holes with matching overlay system materials.

00554.53 Delamination Survey and Repair - The completed overlay surface may be inspected by the Engineer for delamination, bond failure, and other damage by use of a chain drag, coring, and other devices. If directed by the Engineer, perform additional bond tests as set forth in 00554.50, at locations directed.

Repair all surface defects, prior to paving by removing the defective material and reapplying the overlay according to these Specifications, at no additional cost to the Agency.

Measurement

00554.80 Measurement - The quantities of single layer polymer concrete overlay will be measured on the area basis. The area will be determined by measuring the actual surface area of the resurfaced bridge sidewalk.

Payment

00554.90 Payment - The accepted quantities of polymer overlay will be paid for at the Contract unit price, per square yard, for the item "Single Layer Polymer Concrete Overlay".

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and Incidentals required to complete the Work as specified.

No separate or additional payment will be made for repairing or preparing existing concrete surfaces receiving single layer polymer concrete overlays.

SECTION 00555 - POST-TENSIONING

Comply with Section 00555 of the Standard Specifications modified as follows:

00555.00 Scope - Replace the paragraph that begins "This Work consists of ..." with the following paragraph:

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This Work consists of post-tensioning cast-in-place and precast concrete by furnishing, placing and tensioning stressing steel according to details shown and specified. This Work also includes furnishing and installing any items necessary for the stressing system used including, but not limited to, anchorage assemblies, ducts and grout for pressure grouting. Concrete that is to be stressed by the post-tensioning method is referred to as a member.

00555.03 Anchorage Devices - Replace the paragraph that begins "Secure all post-tensioned stressing ..." with the following paragraph:

Secure all post-tensioned stressing steel at the ends by means of approved permanent type anchorage devices. Design anchorage devices according to the current AASHTO *LRFD Bridge Design Specifications*. Identify post-tensioning anchorage systems as either "Normal Anchorage Devices" or "Special Anchorage Devices" as defined in the AASHTO *LRFD Bridge Design Specifications*. Provide anchorage devices that meet all testing and construction requirements of the AASHTO LRFD Bridge Design Specifications and the AASHTO *LRFD Bridge Construction Specifications*. Equip all anchorages with a permanent fiber reinforced plastic grout cap that encloses the whole wedge plate. Provide a grout cap that is vented, bolted to the anchorage and rated for a minimum pressure of 145 psi. Seal the grout cap to the anchor plate using either a neoprene gasket or epoxy bonding agent.

00555.12 Tendon Grout - Replace the paragraph that begins "For grouting post-tensioning ducts ..." with the following paragraph:

For grouting post-tensioning ducts, furnish a commercial, prepackaged, thixotropic tendon grout meeting the requirements of 02080.50. Label each grout bag with application, mixing and pumping instructions, lot number, date of manufacture and shelf life. A grout expiration date may be used in lieu of the date of manufacture and shelf life. Tendon grout is rejected if the shelf life or expiration date has been exceeded.

00555.13(a) Flow Cone - Replace the bullet that begins "When thoroughly mixed, the ..." with the following bullet:

- When thoroughly mixed, the efflux time of grout is the time to fill a 1 Liter container that is placed directly under the flow cone. Ensure the efflux time of the grout immediately after mixing is between 5 and 30 seconds.

00555.13(b) Bleed – Replace the paragraph that begins "Determine bleed resistance according ..." with the following paragraph:

Determine bleed resistance according to ASTM C940 or ASTM C1741 and the PTI *Specification for Grouting of Post-Tensioned Structures M55.1*, modified as follows:

00555.20 Certified Calibrated Jacking Equipment - Replace the bullet that begins "A pressure gauge with an ..." with the following bullet:

- A pressure gauge with an accurate reading dial at least 6 inches in diameter and of such capacity that the final pressure reading is in the upper half of its range. Calibrate each jack and its gauge as a unit with the cylinder extension in the approximate position used at final jacking force, and provide a calibration chart certified by an independent testing agency; or

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Replace the bullet that begins "A certified, calibrated load ..." with the following bullet:

- A certified, calibrated load cell with an indicator where the stressing force in the tendon may be determined, and with a range such that the lower 10 percent of the manufacturer's rated capacity will not be used in determining the jacking stress.

Replace the paragraph that begins "Adjustment or repair of jacks, gauges ..." with the following paragraph:

Adjustment or repair of jacks, gauges, or load cell after certification is cause for rejection.

00555.21 Grouting Equipment - Replace the bullet that begins "Equipment which will ..." with the following bullet:

- Equipment that will accurately measure solids and liquids to be batched.

Replace the paragraph that begins "Provide standby water ..." with the following paragraph:

Provide standby water flushing Equipment that:

00555.40 Required Submittals - Replace the title of this subsection with "**Submittals**".

Replace the paragraph that begins "Furnish reinforcement Working Drawings ..." with the following paragraph:

Provide reinforcement Working Drawings that are compatible with the approved Post-Tensioning System Working Drawings.

00555.41(a) General - Replace this subsection, except for the subsection number and title, with the following:

Make ducts mortar-tight and place them accurately at the locations shown or as directed. Provide positive, metallic, mortar-tight connection joints between sections of rigid duct that do not permit angle changes at the joints. Use waterproof tape at connections.

00555.41(c) Repair - Replace this subsection, except for the subsection number and title, with the following:

Before placing concrete, repair all holes or openings in the ducts. Holes less than 1/4 inch may be repaired by several wraps of waterproof tape. Repair holes larger than 1/4 inch with a split metal sleeve that overlaps itself by 3 inches, extends at least 3 inches on either side of the hole, is sealed with waterproof tape, and is secured to the duct. Cut out indentations that cannot be repaired and repair as above for holes larger than 1/4 inch.

00555.42(a) General - Replace the paragraph that begins "Protect stressing steel ..." with the following paragraph:

Protect stressing steel against physical damage and rust or other corrosion at all times until grouted. A corrosion inhibitor may be used. Stressing steel that has sustained physical damage, detrimental rust, pitting or other results of corrosion at any time is rejected. Stressing

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steel with only light rust is acceptable if rust spots can be removed by rubbing or scraping with the fingernail and only light streaks of rust remain.

00555.42(e) Measuring Prestressing Force - Replace the paragraph that begins "Conduct tensioning so the ..." with the following paragraph:

Conduct tensioning so the tension being applied and the elongation of the stressing steel may be measured at any time. Keep a record of gauge pressures, load cell reading and elongations. Provide a copy of the record to the Engineer when requested.

00555.43(c) Grouting Procedure - Replace the bullet that begins "Inject grout at any other ..." with the following bullet:

- Inject grout at any other vent that has been, or is ready to be, closed as long as a one-way flow of grout is maintained. If this procedure is used, fit the vent used for injection with a mechanical shutoff valve.

Add the following subsection:

00555.44 Coring – Where shown, core existing concrete according to Section 00568 and install post-tensioning steel. Grout post-tensioning steel in place according to this Section.

00555.80 Measurement - Add the following sentence to the end of this subsection:

The estimated quantities of prestressing steel are:

Structure Number	Location	Type of Prestressing Steel	Quantity (lbs)
00123K	Bent 15 Crossbeam	0.6 inch 7-wire prestressing strands	17,700
00123K	Bent 16 Footing	2.5 inch diameter prestressing bars	27,360
00123K	Bent 17 Footing	2.5 inch diameter prestressing bars	27,360
00123K	Bent 18 Footing	2.5 inch diameter prestressing bars	27,360

00555.90 Payment – Replace the paragraph that begins "The accepted quantities ..." with the following paragraph:

The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Post-Tensioning, _____".

The bent locations and post-tensioned element are inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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Add the following to the end of the subsection:

No separate or additional payment will be made for coring existing concrete and grouting core holes.

SECTION 00559 - STRUCTURAL CONCRETE OVERLAYS

Comply with Section 00559 of the Standard Specifications modified as follows:

Add the following subsection:

00559.01 Grade Control - Prior to beginning surface preparation, survey the existing wearing surface according to 00505.41(a). Prepare a 3D Construction Model of the proposed deck surface extending along the roadways at least 20 feet beyond the limits of resurfacing.

Submit the 3D Construction Model of the deck surface for review and approval according to 00150.35.

00559.04(a) Supervisory Personnel - Replace this subsection, except for the subsection number and title, with the following:

Hold a pre-placement conference with all supervisory personnel, Subcontractors, Suppliers, the quality control technician, the concrete control technician, and all other personnel who are involved in the resurfacing Work. Meet at a mutually agreed time approximately 2 weeks in advance of the Work. Present and discuss all phases of the resurfacing Work.

00559.11 Class of Concrete - Replace this subsection, except for the subsection number and title, with the following:

Furnish class HPC(IC)4500 - 3/4 inch according to Section 02001 unless otherwise shown.

00559.13 Acceptance of Concrete - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of concrete is according to Section 00165.

00559.21 Finishing Equipment - Replace the paragraph that begins "Furnish a concrete ..." with the following paragraph:

Provide a concrete finishing machine for all new surfaces that is:

00559.22 Miscellaneous Equipment - Replace this subsection, except for the subsection number and title, with the following:

(a) **Hand Tools** - Provide hand tools for placing and finishing concrete. Use manual type screeds with approved vibrators attached to consolidate and finish smaller areas where it is impracticable to use a finishing machine. Use spud vibrators when depths exceed

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2 1/2 inches. Use supplemental vibration along the meet lines where adjacent pours come together at bulkheads, and along curb lines, unless it can be shown that vibration reaches the meet lines.

(b) Straightedge - Provide a 12-foot metal straightedge.

(c) Recording Thermometer - Provide a 24-hour recording thermometer accurate to ± 1 °F.

(d) Coring Equipment - Provide core cutting Equipment that can produce a core at least 3 inches in diameter.

(e) Bond Testing Equipment - Provide bond testing Equipment that:

- Is compatible with the core tested.
- Can exert a tensile load to the core sufficient to exceed 300 psi.
- Is equipped with a measuring device capable of reading tensile force exerted within 1 percent accuracy.

(f) Wet-dry Vacuum Equipment - Provide vacuum Equipment that can remove puddled water ahead of the concrete placement.

00559.41 Surface Preparation - Replace this subsection, except for the subsection number and title, with the following:

Perform surface preparation according to Section 00505.

00559.43(c)(1) Preceding Placement - Replace this subsection, except for the subsection number and title, with the following:

Each Day before placing concrete operate the finishing Equipment over the deck to check compliance with the approved grades and clearance from the screed to the reinforcing steel in the presence of the Engineer by an approved method. The permissible variation from the clearance indicated is plus or minus 1/4 inch. Make necessary corrections before beginning the placement.

Place concrete working up-grade, unless otherwise approved.

00559.43(c)(3) Placing - Replace the paragraph that begins "After the deck surface has ..." with the following paragraph:

After the deck surface has been cleaned and immediately before resurfacing, broom a thin coat of grout onto the prepared deck. Ensure that all parts of the prepared deck receive a vigorous brooming that scrubs the grout into the deck surface and results in an even coat with no excess grout collecting in pockets. Do not extend grout placement more than 15 feet ahead of the overlay being placed. Furnish a grout mixture of water and cement with a w/c ratio of between 0.45 and 0.50. Broom the grout at a rate to prevent drying before being covered by the overlay. If the grout does dry, stop the overlay, remove the dried grout, clean

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and prepare the affected area of the deck, and reapply grout according to this Subsection. A grout coat is not required on decks prepared with hydrodemolition.

00559.43(d) Roadway Finish - Replace this subsection, except for the subsection number and title, with the following:

After the deck has been struck off with a finishing machine, fog the surface horizontally with water according to 00540.28 and float it, only if necessary, to produce a smooth, uniform, sealed surface. Do not spray water directly on the freshly placed concrete and do not allow water to puddle or pond. Hand finishing may be required along edges of concrete placement. Use a 12-foot straightedge during placement to verify deck grades and to correct defects in hand finished areas. Ensure the finished surface, when tested with a 12-foot straightedge, does not vary by more than 1/8 inch. If the concrete surface does not meet the surface tolerance, stop the operation until revised methods, changes in Equipment, or correction of procedures are proposed and approved.

00559.44 Curing Concrete - Replace this subsection, except for the subsection number and title, with the following:

Wet cure structural concrete overlays according to 00540.51 for a minimum of 5 Calendar Days.

00559.47(a) Surface Tolerance - Replace this subsection, except for the subsection number and title, with the following:

Correct all non-specification surface tolerance according to 00559.43(d) after curing and before texturing with a self-propelled diamond grinder. Profile to a maximum depth of 1/4". Correct the surface tolerances before opening the Roadway to traffic at no additional cost to the Agency.

00559.47(b) Sawcut Texturing - Replace this subsection, except for the subsection number and title, with the following:

Texture the concrete according to 00540.50(c) after wet curing for 5 Calendar Days and correcting non-specification surface tolerances.

00559.48 Crack Sealing - Replace the paragraph that begins "The surface will be ..." with the following paragraph:

The surface is inspected by the Engineer for cracks.

Replace the paragraph that begins "Perform all repair and sealing ..." with the following paragraph:

Perform all repair and sealing Work at no additional cost to the Agency. Complete all repair and sealing Work before opening to traffic. If the Bridge is opened to traffic at the Contractor's request before completing repair Work, all additional traffic control to complete the repair Work is at no additional cost to the Agency.

00559.60 Protection of Concrete - Replace the bullet that begins "The concrete attains a compressive strength..." with the following bullet:

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- The concrete attains a compressive strength of at least 3000 psi as determined by testing at least three cylinders cured according to AASHTO R 100 (field cure) and tested according to AASHTO T 22. The maturity method, AASHTO T 325, may be used to estimate concrete strength for opening Pavement to construction traffic. Install at least two maturity thermocouples for each Day's placement in areas where the maturity method is used for early opening. Install the thermocouples near the Day's final placement for areas being evaluated for early opening. When the maturity method is used, the Engineer may verify the maturity method with strength specimens. Establish a new strength-maturity relationship if strength specimens deviate more than 10 percent from the maturity-estimated strengths. Suspend use of the maturity method for opening Pavements to traffic when the strength-maturity relationship deviates by more than 10 percent until a new strength maturity relationship is established.

00559.80(c) Sawcut Texturing - Replace this subsection with the following subsection:

00559.80(c) Surface Texturing - Surface texturing will be measured according to 00540.80.

00559.90 Payment - Delete the Pay Item Sawcut Texturing.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Add the following sentence to the end of this subsection:

Surface texturing will be paid for according to 00540.90.

SECTION 00560 - STRUCTURAL STEEL BRIDGES

Comply with Section 00560 of the Standard Specifications modified as follows:

Add the following subsection:

00560.01 Submittals:

Prepare a coping and removal plan according to 00150.37 and industry standards, incorporating best practice as outlined in the AASHTO/NSBA Maintenance Guidelines for Steel Bridges (AASHTO Publication No: NSBAMGFC-1). Submit the following:

- The sequence of construction as it relates to the overall construction plan.
- Describe equipment for cleaning, drilling, cutting, grinding, and other equipment as required to mechanically guide drilling and cutting operations.
- Describe how cut locations will be marked and the proposed measures to protect adjacent steel that will remain in place.

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- Evidence that all coping, bearing stiffener, connection plates, and similar removal locations have been identified and are necessary to install temporary and permanent joint assemblies.

00560.03 Working Drawings - Replace the paragraph that begins "Submit unstamped Working Drawings ..." with the following paragraph:

Submit unstamped Working Drawings according to 00150.35. Any Work performed before review of these drawings is at the Contractor's risk. When Material is ordered in advance, obtain approval before placing the order.

00560.03(b) Revisions - Replace this subsection, except for the subsection number and title, with the following:

Submit copies of any revisions to the detailed Working Drawings for review. Work performed before review of these revisions is at the Contractor's risk.

00560.04 Erection Plan - Replace the bullet that begins "Load test and certify the lifting ..." with the following bullet:

- Load test and certify the lifting bracket for a load at least twice the working load and at all angles it is used at (angle of load or rigging). Certification documentation from a previous project may be submitted.

00560.22(a) Test Results Certificate and Initial Identification - Replace the paragraph that begins "Furnish test results certificates ..." with the following paragraph:

Provide test results certificates, showing chemical analysis and physical tests for each heat or plate of steel, for all members according to 00165.35 and Section 02530. Identify each piece of steel to be fabricated.

Replace the paragraph that begins "Material that can be identified ..." with the following paragraph:

Material that can be identified by heat number and mill test report may be provided from stock.

00560.22(b) Steel Identification during Fabrication - Replace the paragraph that begins "During fabrication, and until ..." with the following paragraph:

During fabrication, and until member assembly, mark each piece of steel, other than AASHTO M 270 (ASTM A709), Grade 36 steel, clearly and legibly with its specification identification color code shown in AASHTO M 160 (ASTM A6).

Replace the paragraph that begins "Mark individual pieces of ..." with the following paragraph:

Mark individual pieces of steel, other than AASHTO M 270 (ASTM A709), Grade 36 steel, that are furnished in tagged lifts or bundles with the AASHTO M 160 (ASTM A6) specification identification color code immediately on being removed from the bundle or lift.

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Replace the paragraph that begins "Pieces of steel, other ..." with the following paragraph:

Mark pieces of steel, other than AASHTO M 270 (ASTM A709), Grade 36, for grade by steel die stamping or by a substantial tag firmly attached before assembling into members and subject to fabricating operations such as heating, blast cleaning, galvanizing or other coating that might obliterate paint color code marking. Use only rounded characters when primary stress components are identified by steel die stamping. Ensure impressions have a maximum allowable depth of 0.010 inch and are placed a minimum distance of 2 inches from edges of tension-stressed plate members. Use characters that are 1/4 inch to 3/8 inch high and have a minimum face radius of 0.015 inch.

00560.22(c) Check Samples - Replace this subsection, except for the subsection number and title, with the following:

To verify the accuracy of test reports, obtain check samples from material furnished for fabrication. The plates, shapes or bars from where check samples are required are as designated on the Plans. Order plates, shapes or bars from the mill with the extra size required for samples. The Engineer may take additional samples from drop-offs or scrap material as deemed necessary. No more than two samples are required from any one plate according to AASHTO M 270 (ASTM A709) Grade 36, 50, HPS 50W and HPS 70 W with QT processing, or from any one shape or bar. Remove material for check samples in the presence of the Engineer. The Engineer will select the locations where samples are to be taken. Check samples may be ordered cut from either end of the designated steel plate, according to AASHTO M 270 (ASTM A709) Grade 36, 50, HPS 50W and HPS 70 W with QT processing, or shape or bar. To verify accuracy of test reports for HPS 50W and HPS 70W with thermo-mechanical control process, check samples of both ends of each plate is required.

Provide rectangular plate check samples, not less than 24 inches long in the required direction, depending on plate width, for the longitudinal axis of tensile specimens, and 5 inches wide. Provide bend specimens, where required, not less than 24 inches long in the direction of rolling of the plate. Provide check samples in bars or shapes that are the full section and at least 24 inches long. In removing the sample, take care not to damage it by overheating. The Agency is responsible for the necessary machining of check test specimens and their testing. To expedite obtaining test results, the Contractor may, if approved, perform machining and testing of specimens, in the presence of the Engineer.

The normal basis of acceptance of Material is the mill report or other test report, and fabrication need not be held up pending results of check tests. If the check tests indicate Material with properties failing to meet the minimum requirements of the material specification, the Material may be rejected and the Contractor required to order new Material at no additional cost to the Agency.

For purposes of determining compliance with the Specifications, if the results on an original tensile specimen are within 2,000 psi of the required tensile strength, within 1,000 psi of the required yield point, or within 2 percent of the required elongation, a retest is allowed on two random specimens from the heat or lot. If the results from both of these retest specimens meet Specifications, the heat or lot is accepted. Orient the specimens with the final direction of rolling in the same manner as the original specimen, and may come from any location

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within the plate. The extra material from plates, shapes or bars that is not used for check testing becomes the property of the Contractor.

00560.22(d) Certification of Identification - Replace this subsection, except for the subsection number and title, with the following:

Upon request, provide an affidavit certifying that throughout the fabrication operation the identification of steel has been maintained according to this Specification.

00560.23(a) Facilities - Replace this subsection, except for the subsection number and title, with the following:

Provide facilities for the inspection of Material and Work in the mill and shop. Allow the Engineer free access to the Material and Work for inspection.

00560.23(b) Testing - Replace this subsection, except for the subsection number and title, with the following:

Provide samples for testing as specified according to Section 00165.

00560.25(d) Bent Plates - Replace the paragraph that begins "Unwelded, cold-bent ..." with the following paragraph:

Fabricate unwelded, cold-bent, load-carrying, rolled-steel plates that are:

Replace the bullet that begins " Rounded at the corners ..." with the following bullet:

- Rounded at the corners of the plate before bending, to a radius of 1/16 inch throughout the portion of the plate that the bending is to occur.

00560.26(a) Bridge Welding - Replace this subsection, except for the subsection number and title, with the following:

All welding, welder qualifications, prequalification of weld details, and inspection of welds for Bridge Structures is according to AWS D1.5.

00560.26(b) Non-Bridge Structures - Replace this subsection, except for the subsection number and title, with the following:

All welding, welder qualifications, prequalification of weld details and inspection of welds for non-Bridge Structures is according to AWS D1.1. Non-Bridge Structures include bridge railing posts, railing splices, deck expansion joints, earthquake restraints and similar Structures. Submit all welding procedure specifications to the Engineer for approval.

Test earthquake restraint welds radiographically or ultrasonically. Testing will be witnessed by the Engineer. Include the following additional inspection for earthquake restraint welds:

- Ultrasonic inspection of 100 percent of the complete penetration welds using a straight beam transducer. A weld is acceptable if it has no indications of cracks and no indications of lack of fusion between adjacent layers of weld metal and between weld metal and base metal.

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- Magnetic particle inspection of 10 percent of the fillet welds.

00560.27(a) Punched Holes - Replace this subsection, except for the subsection number and title, with the following:

Use a die with a diameter not exceeding the diameter of the punch by more than 1/16 inch. Ream any holes that are required to be enlarged to admit the bolts. Make clean cut holes without torn or ragged edges. Poor matching of holes is cause for rejection.

00560.27(b) Drilled or Reamed Holes - Replace the paragraph that begins "Poor matching of holes ..." with the following paragraph:

Poor matching of holes is cause for rejection.

00560.27(c) Accuracy of Punched and Drilled Holes - Replace this subsection, except for the subsection number and title, with the following:

Locate all holes punched full size, subpunched, or subdrilled so accurately that after assembling (before any reaming is done) a cylindrical pin 1/8 inch smaller in diameter than the nominal size of the punched hole may be entered perpendicular to the face of the member, without drifting, in at least 75 percent of the connecting holes in the same plane. Non-conforming pieces are rejected. If any hole will not pass a pin 3/16 inch smaller than the nominal size of the hole, the non-conforming pieces are rejected.

00560.27(d) Accuracy of Drilled and Reamed Holes - Replace the paragraph that begins "When holes are drilled ..." with the following paragraph:

When holes are drilled or reamed, do not allow an offset greater than 1/32 inch between adjacent thicknesses of metal in 85 percent of the holes in any connecting group, after drilling or reaming.

00560.27(h)(2) Numerically Controlled Punched or Drilled Field Connections - Replace the paragraph that begins "If numerically controlled punching..." with the following paragraph:

If numerically controlled punching or drilling Equipment is used, the Engineer may require the Contractor, by means of check assemblies, to demonstrate that this punching or drilling procedure consistently produces holes and connections according to 00560.27(g) and 00560.43.

00560.28 Carbon Steel Bolt Connections - Replace the paragraph that begins "Unless otherwise shown or specified..." with the following paragraph:

Unless otherwise shown or specified, make connections with unfinished carbon steel bolts nuts and washers according to Section 02560. Use holes according to 00560.27.

00560.28(a) Turned Bolts - Replace this subsection, except for the subsection number and title, with the following:

Furnish and install turned bolts as follows:

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- The body surface with a surface roughness of 125 microinches, or less, according to ANSI B46.1.
- The unthreaded body equals the total thickness of connected parts.
- The outer thread diameter equals the nominal diameter of the bolt specified.
- Hexagonal heads and nuts with standard dimensions for bolts of the nominal size specified or the next larger nominal size.
- Install bolts in carefully reamed holes with a tight driving fit.

00560.28(b) Ribbed Bolts - Replace this subsection, except for the subsection number and title, with the following:

Furnish and install ribbed bolts as follows:

- The body has an approved form with continuous longitudinal ribs.
- The diameter of the body, measured on a circle through the points of the ribs, is 5/64 inch greater than the nominal bolt diameter specified.
- Round heads meeting ASME B 18.5 unless otherwise specified.
- Ribbed bolts making a driving fit with the holes.
- The hardness of the ribs are such that the ribs do not permit the bolts to turn in the holes during tightening.
- If for any reason the bolt twists before drawing tight, ream the hole and use an oversized bolt as a replacement.
- Nuts that are hexagonal, with standard dimensions for bolts of nominal size specified or the next larger nominal size.

00560.28(d) Nuts - Replace this subsection, except for the subsection number and title, with the following:

Use single self-locking nuts or double nuts unless otherwise shown or specified. Ensure the finished side is against the washer or plate.

00560.29(a) General - Replace the paragraph that begins "When shown or specified..." with the following paragraph:

When shown or specified, assemble structural joint connections with high-strength bolts according to ASTM F3125, Grade A325 or Grade F1852 or equivalent fastener using bolts, nuts, and washers according to Section 02560 and in holes according to 00560.27.

Replace the bullet that begins "Provide all steel ..." with the following bullet:

- Furnish all steel Material within the grip of high-strength bolts (no compressible material such as gaskets or insulation).

00560.29(b) Washer Requirements - Replace the bullet that begins "Where ASTM F3125, Grade A325 or Grade F1852 bolts of any diameter are to be installed in standard ..." with the following bullet:

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- Where ASTM F3125, Grade A325 or Grade F1852 bolts of any diameter are to be installed in standard, oversize, or short slotted hole in an outer ply, furnish a hardened washer under the element of the fastener (nut or bolt head) turned in tightening.

Replace the bullet that begins "Where ASTM F3125, Grade A325 or Grade F1852 bolts of any diameter are to be installed in a long ..." with the following bullet:

- Where ASTM F3125, Grade A325 or Grade F1852 bolts of any diameter are to be installed in a long-slotted hole in an outer ply, use plate washers or continuous bars of at least 5/16-inch thickness with standard holes. Furnish washers or bars with sufficient size to completely cover the slot after installation. Make the plate washer from structural grade steel. In addition to a plate washer, furnish a hardened washer under element of the fastener (nut or bolt head) turned in tightening.

00560.29(c)(2) Non-Coated Weathering Steel Members - Replace the paragraph that begins "Prior to final bolting ..." with the following paragraph:

Prior to final bolting, ensure all steel-to-steel contact surfaces have maintained the minimum requirements of SSPC-SP 6 *Commercial Blast Cleaning*. Provide the minimum appearance of the surface that approximates Pictorial Standard Sa 2 of SSPC-VIS 1, Pictorial Surface Preparation Standards for Painting Steel Surfaces. Hand tool or re-blast surfaces that do not meet the requirements of SSPC-SP 6 until the appearance of the blast-cleaned surface closely resembles Pictorial Standard Sa 2-1/2 of SSPC-VIS 1 as determined by the Engineer.

00560.29(d)(1)(a)(2) Verification Testing - Replace the paragraph that begins "First, demonstrate the method..." with the following paragraph:

First, use a calibrated torque wrench to estimate the snug-tight condition to be used on the final product. Record the snug-tight tension and the torque used to achieve tension. Calibrate the torque wrench annually.

00560.29(d)(1)(c) Inspection - Replace the paragraph that begins "Select at random 10 percent ..." with the following paragraph:

Select at random 10 percent or at least two, whichever is greater, of the tensioned bolts and nuts on the Structure for each separate connection. Apply the Inspection Torque to each nut in the tensioning direction. If the Inspection Torque does not turn the bolt or nut, the connection is considered properly tensioned. If the Inspection Torque turns the bolt or nut, apply the Inspection Torque to all the bolts and nut in the connection. Re-tension and re-inspect all bolts and nuts that turned at this inspection. The Contractor may re-tension all the bolts in the connection and resubmit it for inspection, provided fasteners assemblies are not damaged.

00560.29(d)(2)(a)(2) Verification Testing - Replace the paragraph that begins "First, demonstrate the method..." with the following paragraph:

First, use a calibrated torque wrench to estimate the snug-tight condition to be used on the final product. Record the snug-tight tension and the torque used to achieve tension. Calibrate the torque wrench annually. Match mark the bolt, nut, and plate.

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00560.29(d)(2)(c) Inspection – Replace the paragraph that begins “Select at random 10 percent ...” with the following paragraph:

Select at random 10 percent or at least two, whichever is greater, of the tensioned bolts and nuts on the Structure for each separate connection. Apply the Inspection Torque to each nut the tensioning direction. If the Inspection Torque does not turn the bolt or nut, the connection is considered properly tensioned. If the Inspection Torque turns the bolt or nut, apply the Inspection Torque to all bolts in the connection. Re-tension and re-inspect all bolts and nuts that turned at this inspection. The Contractor may re-tension all the bolts in the connection and resubmit it for inspection, provided fastener assemblies are not damaged.

Replace Table 00560-3 with the following table:

Table 00560-3

Nut Rotation from Snug-Tight Condition^{1,2}
Disposition of Outer Faces of Bolted Parts

Bolt Length³ (underside of head to end of bolt)	Both faces normal to bolt axis	One face normal to bolt axis and other sloped not more than 1:20 (beveled washer not used)	Both Faces sloped not more than 1:20 from normal to bolt axis (beveled washer not used)
Up to and including 4 diameters	1/3 turn	1/2 turn	2/3 turn
Over 4 diameters but not exceeding 8 diameters	1/2 turn	2/3 turn	5/6 turn
Over 8 diameters but not exceeding 12 diameters	2/3 turn	5/6 turn	1 turn

¹ Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For all required nut rotations, the tolerance is plus 60 degrees (1/6 turn) and minus 0 degrees.

² Applicable only to joints where all material within the grip is steel.

³ No research has been performed by the Research Council on Structural Connections to establish the turn-of-nut procedure for bolt lengths exceeding 12 diameters. Therefore, the required rotation is determined by actual test in a suitable tension measuring device according to 00560.29(d)(2).

00560.30 Fabricators - Replace this subsection, except for the subsection number and title, with the following:

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Provide structural steel Bridge fabricators having an American Institute of Steel Construction (AISC) Certified Bridge Fabricator - Intermediate (IBR) certification. For fracture critical Structures, provide a fabricator with an AISC Fracture Critical Endorsement (FC). For earthquake restraints provide fabricators that have either a current AISC IBR certification or a Certified Bridge Fabricator - Simple (SBR) certification.

00560.40(c) Stiffeners - Replace this subsection, except for the subsection number and title, with the following:

Fabricate end stiffeners of girders and stiffeners intended as supports for concentrated loads to have full bearing (either milled, ground, or on weldable steel in compression areas of flanges, welded as specified) on the flanges where they transmit load or from where they receive load. Fabricate stiffeners not intended to support concentrated loads, according to AWS D1.5, unless specified otherwise.

00560.40(d) Abutting Members - Replace this subsection, except for the subsection number and title, with the following:

Mill, sawcut or flame cut abutting members carrying compression at joints in trusses, columns and girder flanges, to give a square joint and uniform bearing. Do not exceed 1/4 inch at joints not required to be faced.

00560.40(e) Annealing and Stress Relieving - Replace the paragraph that begins "Perform finished machining, boring ..." with the following paragraph:

Perform finished machining, boring and straightening on structural members that are specified to be annealed or normalized subsequent to heat treatment. Normalize and anneal (full annealing) according to ASTM A941. Maintain the temperatures uniformly throughout the furnace during the heating and cooling so the temperature at no two points on the member will differ by more than 100 °F at any one time.

00560.40(f) Facing of Bearing Surfaces - Replace the paragraph that begins "The surface finish of bearing ..." with the following paragraph:

Conform the surface finish of bearing and base plates and other bearing surfaces that are to come in contact with each other or with concrete to ANSI surface roughness requirements of ANSI B46.1, Surface Roughness, Waviness and Lay, Part I, and the following table:

00560.40(g) Pins and Rollers - Replace the paragraph that begins "Turn pins and rollers ..." with the following paragraph:

Turn pins and rollers to the dimensions shown. Make them straight, smooth and free from flaws. Furnish pins and rollers more than 9 inches in diameter that are forged and annealed carbon-steel shafting. Pins and rollers 9 inches or less in diameter may be cold-finished or forged and annealed carbon-steel shafting.

00560.40(h) Pin Holes - Replace the paragraph that begins "The diameter of the pin ..." with the following paragraph:

Do not allow the diameter of the pin hole to be larger than the pins by more than 0.02 inch for pins 5 inches or less in diameter, or by 0.03 inch for larger pins.

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Replace the paragraph that begins "The distance outside ..." with the following paragraph:

Do not vary more than 1/32 inch the distance outside-to-outside of end holes in tension members and inside-to-inside of end holes in compression members from that specified. Bore holes in built-up members after the fabrication is completed.

Add the following subsection:

00560.40(j) Surface Finish (Non-Coated Weathering Steel Only) -

(1) Sandblast and Mill Scale Removal - Sandblast all exposed surfaces of AASHTO M 270 (ASTM A709), non-coated weathering steel, according to SSPC-SP6, *Commercial Blast Cleaning, SSPC's Steel Structures Painting Manual*. Visually verify the appearance of the blast-cleaned surface using Pictorial Standard Sa 2 of SSPC-VIS 1, *Pictorial Surface Preparation Standards for Painting Steel Surfaces*.

(2) Exterior Face of Fascia Girders - Brush-off blast clean, according to SSPC-SP7, *Brush-Off Blast Cleaning, SSPC's Steel Structures Painting Manual* to achieve a uniform surface finish and patina immediately after fabrication and prior to environmental exposure. After brush-off blast, and prior to environmental exposure or shipping, pressure wash exterior faces of fascia girders with a stream of potable water to ensure uniform weathering and patina.

(3) All Non-Coated Weathering Steel - Prior to environmental exposure, clean all exposed surfaces that do not receive a brush-off blast clean according to SSPC-SP 1, *Solvent Cleaning, SSPC's Steel Structures Painting Manual* to remove all visible oil, grease, dust, dirt, drawing and cutting compounds, and other visible contaminants.

(4) Post-Fabrication Sandblast - If, as determined by the Engineer, the uniform weathering properties of the steel have been compromised and solvent cleaning is unable to adequately clean the surface, sandblast all exposed surfaces after fabrication and prior to shipment according to SSPC-SP 6. Pressure wash sandblasted surfaces with a stream of potable water to ensure uniform weathering and patina.

00560.42 Cambering - Replace the paragraph that begins "Camber roll beams in ..." with the following paragraph:

Camber roll beams in the fabricating shop by use of heat or hydraulic jacks. Do not exceed 1,200 °F temperature for the heated area, as controlled by pyrometric stick (temperature crayon) or thermometers. Do not quench to accelerate cooling.

00560.43(a) General - Replace the paragraph that begins "Furnish a Camber diagram ..." with the following paragraph:

Provide a Camber diagram, prepared by the fabricator, showing the Camber at each panel point in the cases of trusses or arch ribs, and at the location of field splices and fractions of span length (quarter points minimum, tenth points maximum) in the cases of continuous beam and girders or rigid frames. When the shop assembly is Full Truss or Girder Assembly or Complete Structure Assembly, show the Camber measured in assembly. When any of the other methods of shop assembly is used, show calculated Camber.

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00560.43(g) Check Assemblies with Numerically Controlled Punched and Drilled Field Connections - Replace the paragraph that begins "A check assembly consists ..." with the following paragraph:

A check assembly consists of at least three connecting shop sections, or in a truss, all members in at least three connecting panels, but not less than the number of panels in three connecting chord lengths; that is, the length between field splices. Base check assemblies on the proposed order of erection, joints in bearings, special complex points such as the portals of skewed trusses, and similar considerations, as directed. Fabricate check assemblies first for each major structural type to be fabricated.

00560.43(h) Match-Marking - Replace this subsection with the following subsection:

Match-mark connecting parts assembled in the shop for the purpose of reaming holes in field connections, and provide a diagram showing such marks to the Engineer.

00560.45 Marking and Transporting to Site - Replace the bullet that begins "Mark each member with ..." with the following bullet:

- Mark each member with an erection mark for identification and provide an erection diagram showing the erection marks.

Replace the bullet that begins "Furnish as many copies of material ..." with the following bullet:

- Provide as many copies of material orders, shipping statements and erection diagrams as directed and show the weights of the individual members on the statements.

Replace the bullet that begins "Furnish the Engineer stamped detail ..." with the following bullet:

- Provide the Engineer stamped detail Plans of loading, unloading, supporting and bracing of the steel plate girders on trucks or cars for shipment to the Project Site, according to 00150.35. The review will not relieve the Contractor of responsibility for safe transportation of steel members.

00560.46(e) Bearings and Anchorages - Replace the bullet that begins "Locate anchors and set rockers ..." with the following bullet:

- Locate anchors and set rockers or rollers considering variation from mean temperature at the time of setting, and anticipated lengthening of bottom chord or bottom flange due to dead load after setting. As nearly as practicable, at mean temperature and under dead load, ensure the rockers and rollers stand vertically and anchor bolts at expansion bearings center their slots.

00560.46(f) Assembling Steel - Replace the paragraph that begins "Handle the Material carefully ..." with the following paragraph:

Handle the Material carefully so no parts are bent, broken or otherwise damaged.

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Replace the paragraph that begins "Do not perform hammering ..." with the following paragraph:

Do not perform hammering that will injure or distort the members.

00560.46(h) Misfits - Replace this subsection with the following subsection:

The correction of minor misfits involving small amounts of reaming, cutting, and chipping is considered a legitimate part of the erection. However, immediately report to the Engineer any error in the shop fabrication or deformation resulting from handling, storage and transportation that prevents the proper assembling and fitting up of parts by the moderate use of drift pins, or by a moderate amount of reaming and slight chipping or cutting. Make the necessary corrections and replacements in the presence of the Engineer as approved or directed. The Contractor shall be responsible for all misfits, errors and injuries.

Add the following subsection:

00560.50 Coping Existing Steel:

Perform coping of existing steel in accordance with the approved coping and removal plan and the following requirements:

Clean and prepare surfaces around the area to be coped prior to cutting operations.

Use a mag-based drilled with a minimum 1-inch radius coring bit to produce a smooth, rounded re-entrant corner. Core hole normal to the girder web. Complete coring prior to cutting.

Use a thermal cutting process, such as plasma arc or oxygen cutting, to produce straight horizontal and vertical cuts. Ensure precise alignment of cuts so they intersect tangentially with previously cored holes, avoiding abrupt transitions or sharp angles. For thermally cut edges on steel up to 4 inches thick, ensure the surface roughness does not exceed 1,000 microinches (μin), as defined by AWS D1.5 Section 5.2.5.

Grind the entire length of any thermally cut or cored edge. Remove approximately 1/16" of material to provide a smooth, uniform surface profile free of slag, gouges, burrs, notches, or other defects. Perform fine grit grinding to produce a smooth and polished finish.

Conduct a visual inspection of all coped elements in the presence of the Engineer. Correct any visible notches, burrs, or gouges as directed by the Engineer. If requested by the Engineer, perform magnetic particle inspection (MT) or dye penetrant testing (PT) on critical coping areas to verify that no surface cracks or subsurface defects exist.

Prepare and coat exposed steel as specified in Section 00594.

Add the following subsection:

00560.51 Remove Existing Steel:

Perform removal of existing steel other than the coping in accordance with the approved coping and removal plan and the following requirements:

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Clean and prepare surfaces around the area to be removed prior to cutting operations.

Cut the connections such that the existing steel remaining is not damaged.

Grind the entire length of all removal areas. Provide a smooth, uniform surface profile free of slag, gouges, burrs, notches, or other defects. Perform fine grit grinding to produce a smooth and polished finish.

Conduct a visual inspection of all areas of element removal in the presence of the Engineer. Correct any visible notches, burs, or gouges as directed by the Engineer. If requested by the Engineer, perform magnetic particle inspection (MT) or dye penetrant testing (PT) on critical removal areas to verify that no surface cracks or subsurface defects exist.

Prepare and coat exposed steel as specified in Section 00594.

00560.70 Finish (Non-Coated Weathering Steel Only) - Replace this subsection with the following subsection:

00560.70 Surface Finish Cleanup (Non-Coated Weathering Steel Only) - At all times during fabrication, shipping, and installation, promptly clean exposed surfaces of steel contaminated with stains, oil or foreign material to preserve conditions for uniform weathering of steel. The use of acids to remove scale and stains in the field is not allowed.

00560.80 Measurement - Add the following to the end of this subsection:

The estimated quantity of structural steel is:

Structure	Steel Type	Quantity (Pound)
Bridge No. 00123K	Temporary Cross-Frames	14,200
Bridge No. 00123K	Cross-Frames	62,800
Bridge No. 00123K	Seismic Longitudinal Restrainers	17,100
Bridge No. 00123K	Isolation Bearing Cover Plates	13,974
Bridge No. 00123G	Isolation Bearing Cover Plates	6,056

00560.90 Payment – Add the following Pay Items to the Pay Item list:

Pay Item	Unit of Measurement
(i) Temporary Cross-Frames.....	Lump Sum
(j) Cross-Frames.....	Lump Sum
(k) Seismic Longitudinal Restrainers.....	Lump Sum
(l) Isolation Bearing Cover Plates.....	Lump Sum

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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In the paragraph that begins “No separate or additional payment...”, replace the bullet that begins “preparing and...”, with the following bullet:

- preparing and coating new and existing steel elements as shown

Add the following bullet to the bulleted list:

- fire insulating material in fire-proof doors

Add the following paragraph to the end of this subsection:

The coping and removal plan, coping, and steel removal Work will be paid for according to Section 00501.

SECTION 00568 – STRUCTURAL RODS

Section 00568 is not a Standard Specification and is included in this Project by Special Provision.

Description

00568.00 Scope - This Work consists of furnishing and installing structural rods as shown or specified. This Work also includes forming holes in concrete with ducts, drilling holes in steel or concrete, and furnishing and installing items necessary for structural rod installations including but not limited to anchorage plates, washers, nuts, ducts, grout for bedding of anchor plates, and grout for filling annular voids around structural rods.

00568.01 Plans - Plans of existing Structures are available from the Engineer upon request.

00568.03 Structural Rod Installation Plan - Submit unstamped structural rod installation plans according to 00150.35 21 Calendar Days before beginning Work.

Include the following information in the submittal for each installation location:

- Construction procedure, installation plan and equipment list,
- Structural rod size and material certifications,
- Structural rod anchor plates, washers and nuts sizes and material certifications,
- Rod coupler sizes, material certifications, and locations, if used,
- Rod centralizer sizes, material certifications, and locations, if used,
- Core drilling methods including drill hole diameter, core drilling layout and alignment control, Equipment, and access space requirements, if used,
- Grout tubes, if used,
- Grout mix design, placement Equipment and procedure, and minimum cure time, if used,
- Duct size and material certification, if used

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Do not begin work until the structural rod installation plan for each installation has been approved.

Materials

00568.10 Materials - Furnish Materials meeting the following requirements:

Polypropylene Pipe.....	02415.40
Polyvinyl Chloride Pipe	02415.50
Steel Pipe.....	02810.30
Structural Steel for Non-Bridge Structures.....	02530.20
Structural Grout.....	02080.60
Tie Rods, Anchor Bolts, and Anchor Rods.....	02560.30
All Thread High Strength Steel Rods	02515.30
All Thread High Strength Steel Rod Couplers.....	02515.60
Tendon Duct.....	02515.50
Tendon Grout	02080.50

00568.11 Ducts:

(a) UngROUTED Ducts - Furnish ungrouted ducts for structural rod installations as steel pipe, Polyvinyl Chloride (PVC) pipe, High Density Polyethylene (HDPE) pipe, or tendon duct suitable for forming a straight annular hole in concrete during concrete placement and until the concrete has hardened.

(b) Grouted Ducts - When grouting ducts to fill annular voids around structural rods is shown or specified, furnish tendon ducts according to 02515.50. Furnish suitable injection ports, grout tubes, venting, anchor plates with keyways or ports, as necessary to pump or gravity feed the grout into the void. Furnish liquid tight pipes, tubes, and connections. Furnish valves or other means to retain all grout placed in the hole.

00568.12 Centralizers - Furnish centralizers made from non-metallic materials.

00568.13 Structural Rod Splices and Couplers:

(a) General - Structural rods may be furnished and installed in segments using mechanical couplers when required for access or handling, provided that:

- Mechanical couplers for tie rods, anchor bolts, and anchor rods develop at least 100 percent of the specified ultimate tensile strength of the rod.
- Mechanical couplers for all thread high strength steel rods develop 95 percent of the specified ultimate tensile strength of the rod according to 02515.60.
- The outside diameter of the coupler allows for a minimum 1/2 inch of grout cover between ducts and core holes and the coupler.
- Couples are compatible with the rod material, coating, and galvanizing system.

(b) Materials - Furnish material couplers according to 00568.10. Submit manufacturer's certifications and test data demonstrating compliance with strength requires of this Section.

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(c) **Configuration** - Furnish no more than two mechanical couplers per rod unless otherwise shown or approved by the Engineer. Do not locate couplers within 2 bar diameter of an anchor plate or nut.

Equipment

00568.21 Concrete Core Drilling Equipment – Provide core drill bits capable of drilling through concrete with steel reinforcement and embedded steel piles. Provide coring equipment capable of maintaining the tolerances specified in 00568.41 and the following:

- (a) **Cores Less Than 10 Feet Long** - Unless shown or specified, provide concrete core drills having a drill motor mounted on and guided by a rigid rail or track system, adjustable in alignment to match the detailed orientation of the hole, and able to maintain that alignment throughout drilling. Provide a rigid base for the rail or track system that can be secured to the concrete surface. Provide core drill bits having an embedded diamond leading edge.
- (b) **Cores Greater Than 10 Feet Long** - Provide concrete coring system consisting of a rigid mast mounted to a rail, frame, or guide that can be secured to the concrete surface. Excavator-mounted masts are permitted only when supplemented by a fixed guided frame anchored to the footing that controls the entry location and drill alignment.

Labor

00568.30 Rod Coupler Splice Installers - Provide qualified rod coupler splice installers to construct rod coupler splices. To qualify an installer, provide the Engineer with three completed rod coupler splice samples of each type and size to be installed on the Project for each rod coupler splice installer, at no additional cost to the Agency. Prepare the splice samples as follows:

- Make splice samples in the presence of the Engineer using the same Materials, Equipment, and procedures that will be used on the Project.
- Construct each splice sample according to the manufacturer's recommendations.
- Construct each splice sample with two equal lengths of straight rod so the total length of the assembled splice sample is at least 96 inches.
- Mark each splice sample with the heat treatment lot number.

Do not begin rod coupler splice installation until the Engineer confirms, in writing, the qualification of each rod coupler splice installer. The Engineer may suspend rod couple splice installation if the Contractor substitutes unapproved personnel during construction.

Construction

00568.41 Drilled Holes - Mark entrance and exit locations of drilled holes on the bridge member entirely before drilling holes. Locate reinforcement by using an electronic rebar mapping device. Mark locations of reinforcing bars on the concrete surface at each end of the drilled hole. Obtain the Engineer's approval of hole locations before drilling holes. If conflicts with existing reinforcement or steel piles are encountered during drilling, adjust the

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hole location by no more than 2 inches to avoid conflicts, unless shown otherwise. When hole location adjustments exceed 2 inches, adjust hole locations as directed. Fill abandoned holes with a PCC repair material meeting the requirements of Section 02015 and according to the manufacturer's recommendations.

Drill holes for rod installations using core drilling equipment.

Drill holes for rod installations so that any deviation from the specified alignment in any direction is as follows:

- Is less than 1/2 inch per 10 feet of hole length for holes less than or equal to 20 feet long.
- For holes greater than 20 feet long, the exit point of the hole is within 2 inches of the plan location in any direction.

When core-drilled holes to be grouted are shown as having a roughened inside surface, core drill holes to a diameter 1/4 to 1/2 inch smaller than the required diameter. Roughen the inside surface of the core-drilled hole by reaming to the required diameter using a 4-point carbide star tipped rotary drill bit. Reaming may be done using guided or non-guided drills.

00568.42 Formed Holes - Install ducts to be embedded in concrete as shown. For ducts to be grouted, install ducts according to 00555.41. Install metallic anchor plates, and ducts, without contact with metallic reinforcing to prevent electrical continuity.

00568.43 Loose Anchor Plate - Bed loose anchor plates or steel bracket plates bearing against existing or previously hardened concrete using a layer of trowelable consistency structural grout. Make the bedding a minimum of 1/4 inch thickness above the highest protrusions or the location of closest clearance under the anchor plate footprint. Squeeze out excess bedding grout using minimal tightening of nuts while maintaining alignment of anchor plates and brackets. Install steel shims as necessary to align the anchor plate perpendicular to the axis of the rod. Do not tighten the nuts further until bedding grout has attained a minimum compressive strength of 3,000 psi.

00568.44 Embedded Anchor Plate - Locate and secure anchor plates to be fully encased in concrete. Do not tighten the nuts on rods until concrete has attained the minimum specified compressive strength.

00568.45 Structural Rod - Install structural rod as shown and the following:

- Galvanize rods, plates, nuts, and washers according to 02530.70 or 02560.40, unless otherwise shown.
- Clean and lubricate rods and nuts before installation.
- Lubricate rods and nuts with a lubricant from the QPL containing dye that visibly contrasts with the color of galvanizing or coating.
- Unless otherwise shown, tighten the nuts to a snug tight condition then mark the position of one nut with a felt tip pen or similar marker. Tighten the nut, while preventing the rod from rotating, by 1/6 turn.

For rods installed in segments, assemble mechanical couplers in accordance with 00568.13, the manufacturer's written instructions and by certified installers according to 00568.30. Pre-mark bar insertion lengths so that full thread engagement can be verified visually before the

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bar enters the duct. Tighten couplers to the specified torque using calibrated torque-indicating wrenches.

00568.46 Grouted Hole - Unless shown or specified otherwise, fill annular voids of holes with grout according to the following:

(a) **Holes Less Than or Equal to 5 Feet Long** - Dry pack holes with structural grout.

(b) **Holes Greater Than 5 Feet Long** - Grout holes according to Section 00555.

For horizontal holes greater than 20 feet, grout from the low end using tremie tubes or grout hoses inserted to the back of the duct and withdrawn as grout placement progresses. Provide vents at the high end and at intermediate locations as required to ensure elimination of air voids and full encapsulation of the rod. Demonstrate full grout continuity by continuous flow of grout at the remote vent while maintaining specified grout properties. Where continuity is in doubt, perform additional investigation or corrective grouting as directed.

Measurement

00568.80 Measurement - No measurement will be made for the quantities of Work to be performed under this Section. The estimated quantity is based on a density of 490 pounds/cubic foot for the structural rods. The estimated quantity does not include the weight of anchorage plates, washers, nuts, and ducts.

The estimated quantity of structural rods are:

Bridge No. 00123K, Bent 15

Type	Quantity (Pounds)
Grouted Structural Rods	4,430

Bridge No. 00123K, Bent 16

Type	Quantity (Pounds)
Ungrouted Structural Rods	600

Bridge No. 00123K, Bent 17

Type	Quantity (Pounds)
Ungrouted Structural Rods	600

Bridge No. 00123K, Bent 18

Type	Quantity (Pounds)
Ungrouted Structural Rods	600

Bridge No. 00123K, Bent 19

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Type	Quantity (Pounds)
Grouted Structural Rods	7,950

Payment

00568.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) UngROUTED Structural Rods, _____	Lump Sum
(b) Grouted Structural Rods, _____	Lump Sum

In items (a) and (b), the bent location is inserted in the blank.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for locating and marking of reinforcement and holes and for preparation and testing of grout.

No separate or additional payment will be made for:

- Replacing drill bits damaged by existing reinforcement, including when drilling through existing reinforcement is shown.

SECTION 00575 - BIRD DETERRENT DEVICES

Section 00575, which is not in the Standard Specifications, is included in this Project by Special Provision.

Description

00575.00 Scope - This Work consists of furnishing, installing, and removing bird deterrent screening as shown, to deter birds from roosting or nesting on indicated portion of Bridge No. 00123K. See also 00290.36(a).

00575.03 Submittals - Submit proposed screening layout and attachment details for approval according to 00150.37. The Engineer will respond within 21 Calendar Days after receipt of the submittal. Do not begin installation of bird deterrent devices until the layout and attachment details have been approved.

Materials

00575.11 Screening - Furnish expanded metal mesh with the least dimension of the opening not more than 3/4 inch wide and a minimum thickness of 13 gauge.

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00575.12 Hardware – Furnish ASTM 36 steel rectangular plate washers with two slotted holes. Furnish ASTM A307 or ASTM F1554 Grade 36 steel bolts with nominal diameter between 3/8 Inch and 1/2 Inch.

00575.13 Post Installed Anchors – Furnish post installed anchors according to 00535.

Construction

00575.40 Installation – Attach screening to structures using bolts and slotted plate washers according to the following:

- Install screening flush with bridge surfaces.
- Install concrete inserts for all bolted connections to concrete structures.
- Attach screening to concrete surfaces where practical.
- Install temporary clamps where necessary to connect to steel structures.
- Furnish plate washers of adequate size and spacing to secure screening snugly against the structure without wrinkles or gaps.
- Install attachments near and on each side of any direction change of the screening at inside or outside corners.
- Install attachments in a manner that allows for convenient removal for future access or maintenance.

Measurement

00575.80 Measurement - No measurement of quantities will be made for Work performed under this Section.

Payment

00575.90 Payment - The accepted quantities of bird deterrent devices will be paid for at the Contract Lump Sum amount for the item "Temporary Bird Deterrent Devices".

Payment will be payment in full for furnishing, placing, maintaining, and removing all Materials, and for providing all Equipment, labor, and incidentals necessary to complete the Work as specified.

SECTION 00581 - BRIDGE DRAINAGE SYSTEMS

Comply with Section 00581 of the Standard Specifications modified as follows:

00581.00 Scope - Add the following to the end of this subsection:

The Work consists of modifying existing bridge drainage systems to accommodate seismic retrofit Work as shown.

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00581.10 Materials - Add the following to the end of this subsection:

Furnish post-installed mechanical anchor systems according to Section 00535.

00581.42 Appurtenances - Replace this subsection, except for the subsection number and title, with the following:

Provide watertight joints and pipe connections as shown or directed.

00581.80 Measurement – Replace this subsection, except for the subsection number and title, with the following:

The quantities of Work performed under this Section will be measured according to the following:

(a) Lump Sum Basis - Under this method, no measurement will be made. The estimated quantities of drain pipe to modify existing bridge drainage systems are:

Location	Pipe (Foot)
Bridge No. 00123K	
Bent 20 – 6-Inch Diameter	50
Bent 21 – 6-Inch Diameter	50
Bent 22 – 6-Inch Diameter	50
Bent 23 – 6-Inch Diameter	20
Bent 24 – 6-Inch Diameter	30
Bent 25 – 10-Inch Diameter	50
Bent 25 – 6-Inch Diameter	60
Bent 27 – 6-Inch Diameter	60
Spans 20 to 21 – 10-Inch Diameter	110
Span 25 – 10-Inch Diameter	20

(b) Unit Basis – Measurement will be the actual count of each bridge drain, existing bridge drain, or drain pipe expansion joint constructed or modified.

00581.90 Payment - Delete this subsection, except for subsection number and title, with the following:

The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Bridge Drains.....	Each
(b) Modifying Existing Bridge Drains	Each
(c) Remove and Reinstall Storm Drain Pipe Expansion Joints	Each
(d) Modify Existing Bridge Drainage Systems	Lump Sum

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Item (b) includes modifying existing drainage manholes and inlets, and removing and reinstalling existing drain pipe and sumps on Bridges.

Item (d) includes drain pipe systems, drainage nozzles, pipe caps, and hanger systems to modify existing bridge drainage systems as shown.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Removal and disposal of existing bridge drains systems, as shown, will be paid under Section 00501.

No separate or additional payment will be made for:

- drain pipe connections to new and existing bridge drains
- drain pipe connections to new and existing underground stormwater systems
- post-installed mechanical anchor systems
- water for testing the drainage systems
- field measurements
- removing and reinstalling existing bridge drain pipes, sumps, and inlets as shown

SECTION 00582 - BRIDGE BEARINGS

Comply with Section 00582 of the Standard Specifications modified as follows:

00582.00 Scope - Replace this subsection, except for subsection number and title, with the following:

This Work consists of designing, furnishing, testing, and installing composite bridge bearings, bearing assemblies, elastomeric bridge bearings, sliding bearings, and rockers and hangers for bridges as shown, specified or directed.

00582.02 Definitions - Add the following to the end of this subsection:

Bearing - A structural device that transmits loads while facilitating translation or rotation.

Bearing Assembly - A system of components used to transmit loads while facilitating translation or rotation. Components may include, but are not limited to a Sole Plate, Bearing, masonry plate, base plates, keeper bars, anchor rods, impact plates, shear studs, and associated hardware as shown.

Lead-Rubber Isolation Bearing - A Composite Bearing consisting of several layers of elastomer alternated with steel plates which contains a lead core between an upper and lower unit.

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Polytetrafluoroethylene (PTFE) Sliding Bearing - A Bearing that carries vertical load through contact stresses between a PTFE sheet or woven fabric and its mating surface and that permits movements by sliding of the PTFE over the mating surface.

Sole Plate – A plate attached to the bottom of a beam that distributes the reaction of the Bearing to the beam. Sole plates may be of uniform thickness or tapered as required to provide a sufficient level bearing surface.

00582.03 Design Standards - Add the following to the end of this subsection:

Design and fabricate lead-rubber isolation bearings according to the 2014 4th Edition of the *AASHTO Guide Specifications for Seismic Isolation Design* and as shown.

Add the following subsection:

00582.11 Steel-Reinforced Elastomeric Bearing (SREB) Assemblies and PTFE Sliding Bearing Assemblies - Furnish Materials meeting the following requirements:

Plain and Laminated Elastomeric Bearings	02571
Sole Plates.....	02530.10
Backing Plates	02530.10
Base Plates.....	02530.10
Keeper Bars.....	02530.10
Anchor Rods	02560.30
Shear Connectors	00560
Stainless Steel Sliding Surfaces.....	02570.10
Unfilled Sheet PTFE	02570 and section 18 of the
.....	current AASHTO LRFD Bridge
.....	Construction Specifications
Galvanizing and Coating	00594, 02530.70 and 02560.40

Add the following subsection:

00582.12 Pre-Approved Manufacturers of Lead-Rubber Isolation Bearings - Furnish lead-rubber isolation bearings from the following manufacturer:

Dynamic Isolation Systems, telephone: 775-359-3333

00582.20 Composite Bearings - Replace the paragraph that begins "Provide only one type..." with the following paragraph:

Furnish only one type of Composite Bearing from the QPL for each Bridge, subject to the following requirements:

Replace the bullet that begins "Provide rotational elements between ..." with the following bullet:

- Furnish rotational elements between upper and lower units to meet the following:

Replace the bullet that begins "**Upper Unit** - The upper unit ..." with the following bullet:

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- **Upper Unit** - The upper unit consists of a distribution plate that is permanently attached to the Superstructure and a sole plate attached to the distribution plate with cap screws. For a Guided or Nonguided bearing, weld a stainless steel sheet to the bottom surface of the sole plate.

Replace the bullet that begins "**Lower Unit** - The lower unit ..." with the following bullet:

- **Lower Unit** - The lower unit consists of a masonry plate permanently anchored to the structural support and a base plate attached to the masonry plate with cap screws. A separate masonry plate and base plate are not necessary for Fabric Pad Bearings fabricated as outlined in 00582.27, third paragraph.

Replace the bullet that begins "The base pot of a Pot ..." with the following bullet:

- Weld the base pot of a Pot Bearing, the lower bearing plate of a Disc Bearing, or the convex plate of a Spherical Bearing to the base plate.

Replace the bullet that begins "For Guided or Nonguided ..." with the following bullet:

- For Guided or Nonguided bearings, furnish a polytetrafluoroethylene (PTFE) sheet recessed into and bonded to the top surface of the piston of a Pot Bearing, the upper bearing plate of a Disc Bearing, the top surface of the concave plate of a Spherical Bearing, or a steel backing plate bonded to the top surface of a fabric pad forming a sliding surface with the stainless steel surface of the sole plate.

Replace the bullet that begins "For Fixed bearings ..." with the following bullet:

- For Fixed bearings, weld the piston of a Pot Bearing, the upper bearing plate of a Disc Bearing, or the concave plate of a Spherical Bearing to the sole plate.

Replace the paragraph that begins "Provide bearings that accommodate ..." with the following paragraph:

Furnish bearings that accommodate the loads, movements, and rotations as shown.

0582.21 Disc Bearings - Replace this subsection, except for the subsection number and title, with the following:

Design Disc Bearings according to the following:

- Furnish the shear restriction mechanism that allows free rotation but prevents any shear being applied to the rotational element.
- Furnish guided bearings that resist the total horizontal load at the bent or hinge where it is located.

00582.25(b) Polytetrafluoroethylene Rotational Surface for Spherical Bearings - Replace this subsection, except for the subsection number and title, with the following:

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Use only woven PTFE having a minimum thickness of 1/8 inch. Recess the PTFE 1/16 inch into the spherical element.

Furnish PTFE fabric having a minimum thickness of 1/16 inch when measured according to ASTM D1777.

00582.25(c) Stainless Steel Sliding Surfaces - Replace the paragraph that begins "Provide a flat stainless ..." with the following paragraph:

Provide a flat stainless steel sliding surface that completely covers the PTFE surface in all operating positions, plus at least 2 inches more in every direction of possible movement.

00582.26 Guide Bars for Composite Bearings - Replace the paragraph that begins "Provide a sliding surface ..." with the following paragraph:

Provide a sliding surface between the Guide Bars and the guide element made of polished stainless steel against virgin PTFE. Bond and mechanically fasten the virgin PTFE to the Guide Bars. Provide Guide Bars that:

00582.27 Sole, Base, Distribution, and Masonry Plates for Composite Bearings - Replace the paragraph that begins "For Fabric Pad Bearings ..." with the following paragraph:

For Fabric Pad Bearings, fasten keeper bars at least 1/4 inch thick to the top surface of the base plate, around the perimeter of the fabric pad, with high-strength cap screws. Provide a gap at all bar ends to allow drainage.

Replace the paragraph that begins "Provide studded anchors ..." with the following paragraph:

Furnish studded anchors or threaded bolts, as shown or specified, to anchor the masonry plates to the supported and supporting members. Locate anchoring devices to avoid conflict with metal reinforcement and prestressing systems.

00582.30(a) Working Drawings - Replace this subsection, except for the subsection number and title, with the following:

Submit unstamped Working Drawings according to 00150.35 for Composite Bearings, Elastomeric Bearings, SREB assemblies, and PTFE Sliding Bearing assemblies.

Submit stamped Working Drawings according to 00150.35 for lead-rubber isolation bearings.

Add the following subsection:

00582.30(a)(3) SREB and PTFE Sliding Bearing Assemblies - For SREB and PTFE Sliding Bearing assemblies include:

- Plan and elevation of the Bearing Assembly showing all dimensions and tolerances
- Complete details of all components with sections showing all Materials incorporated into the bearing
- All Material designations and friction coefficients

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- Instructions for installation of the Bearing Assembly
- The overall dimension of the Bearings
- The durometer hardness of the elastomer and the ASTM designation of reinforcing materials, if any
- The thickness of the components of reinforced Bearings and the cover over edges of reinforcements

Add the following subsection:

00582.30(a)(4) Lead-Rubber Isolation Bearings - For Lead-Rubber Isolation Bearings, include:

- Complete details of the attachment to the Superstructure and the attachment to the Substructure
- Plan and elevation of the bearing showing dimensions and tolerances
- Method of adjusting bearing for Superstructure movements and temperature variations
- Complete details of all components with sections showing all materials incorporated into the bearing
- All ASTM or other material designations within the bearing
- Steel finishes and coatings
- Vertical load capacity
- Displacement capacity
- Maximum lateral force produced by the bearing
- Instructions for installation of the bearing

Add the following subsection:

00582.30(d) Special Requirements for SREB and PTFE Sliding Bearings - At least 21 Calendar Days before starting Work, conduct testing according to 02570.20(c). Submit test results. Ensure that the samples have the same physical and mechanical properties as the manufacturer's provided Bearings that will be installed in permanent Work.

Add the following subsection:

00582.30(e) Special Requirements for Lead-Rubber Isolation Bearings - Submit stamped calculations, Material certifications for all Materials utilized in the Bearings, and test reports according to 00150.35. Test Isolation Bearings according to the requirements of the *AASHTO Guide Specifications for Seismic Isolation Design*, Section 02570, and the manufacturer's recommendations.

Include the following information in the stamped calculations supporting the design documenting the following isolator qualities:

- Vertical load capacity
- Horizontal displacement capacity
- Characteristic strength
- Elastic stiffness

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- Post-elastic stiffness
- Yield force
- Maximum force produced by the isolator

Test reports that include the following:

- Testing facility name and address
- Contact person and phone number
- Details of the bearing
- Dates of testing
- Certification of calibration for the load measuring devices in the testing Equipment
- Data for each test including complete record of load, displacement, rotation, hysteretic behavior, and period of load application for each cycle of test.

00582.32(a) Steel Backing Plate - Replace the paragraph that begins "Minimum thickness of ..." with the following paragraph:

The minimum thickness of the steel backing plate is 3/8 inch.

00582.35(a) Polytetrafluoroethylene Sliding Surfaces - Replace the paragraph that begins "After completion of the ..." with the following paragraph:

After completion of the bonding operation, ensure the PTFE surface is smooth and free of bubbles.

00582.36 Guide Bars for Composite Bearings - Replace the paragraph that begins "Construct Guide Bars parallel ..." with the following paragraph:

Construct Guide Bars parallel to the surface where they bear and to other Guide Bars to within a tolerance of plus or minus 1/32 inch for the full length of the bar.

Add the following subsection:

00582.37 SREB Assemblies:

(a) Sole Plates - Make the bottom surface of Sole Plates flat and level. Make the top surface flat or tapered as shown and as required to mate to the bottom of the girder.

Prepare and coat Sole Plates according to Section 00594.

(b) PTFE Sliding Bearing - When SREB assemblies with PTFE Sliding Bearings are shown and specified:

- Attach stainless steel mating surface to the Sole Plate substrate by a seal weld around the entire perimeter of the stainless steel sheet. Clamp stainless steel sheet down to have full contact with the steel substrate during welding. Fabricate so welds do not protrude beyond the sliding surface of the stainless steel.
- Use only virgin unfilled sheet PTFE a minimum 1/2 inch thick. Recessed sheet into a steel backing plate as shown, but no less than half the sheet thickness.

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- Bond sheet PTFE to the steel backing plate sufficiently to develop a horizontal force not less than 40 percent of the service vertical deadload demand.
- After completion of the welding and bonding operations, furnish a smooth and bubble free stainless steel sheet and PTFE surface.

(c) Steel-Reinforced Elastomeric Bearing - Fabricate elastomeric bearings in Bearing Assemblies according to 00582.39.

(d) Base Plates - Fabricate and install base plates as shown.

Prepare and coat Sole Plates according to Section 00594.

(e) Anchors - Install anchor as shown. Use a template to accurately locate anchors during concrete pour. Adjust nuts in the total dead load condition. Install all lower nuts in contact with base plate. Install upper nuts snug tight.

Hot dip galvanize all anchor rods, washers, and nuts after fabrication.

00582.39(a) Pads - Replace this subsection, except for the subsection number and title, with the following:

Pads 1/2 inch and less in thickness are to be made entirely of elastomer. Pads over 1/2 inch in thickness consist of alternate laminations of elastomer and metal.

00582.39(b) Pad Sizing - Replace this subsection, except for the subsection number and title, with the following:

Mold pads individually to the sizes required. No shearing to size or drilling of holes is allowed except pads 1/2 inch and less in thickness may be sheared.

00582.39(c) Tolerances and Finishes - Replace this subsection, except for the subsection number and title, with the following:

Provide tolerances and finishes according to 02571.20(d).

00582.40 Shipping and Handling - Add the following to the bulleted list:

- Mark tapered Sole Plates with an "Ahead On Station" and a directional arrow.

00582.50(a) Composite Bearings - Add the following bullet to the end of this subsection:

- Adjust lead-rubber isolation bearings for construction movements and temperature variations so that the bearings are in the neutral position under full structure dead load at a temperature of 52°F.

00582.50(b) Elastomeric Bearings - Replace the paragraph that begins "Construct bearing seats ..." with the following paragraph:

Construct bearing seats for Elastomeric Bearings parallel to the bottom surfaces of the members that will bear on them. Install as follows:

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Add the following subsection:

00582.50(d) SREB Assemblies - Install SREB Assemblies as follows:

- Install bottom base plate low and level, using leveling nuts as shown.
- Install SREB pads directly on the bottom base plate, as shown with full and even bearing.
- When SREB assemblies with PTFE Sliding Bearings are shown and specified:
 - Protect the sliding surface of the PTFE bearings from contact with concrete or other foreign matter.
 - To prevent gouging and contamination, install bearings with the stainless steel surface on top of the PTFE interface as shown.
- Raise and level bearing assembly into final position, using leveling nuts as shown.
- Fill void between bottom base plate and concrete bearing seat after bearings have been installed and accepted with non shrink grout from the QPL.

00582.90 Payment - Replace the paragraph that begins "In item (a) ..." with the following paragraph:

In item (a), the type "disc", "fabric pad", "pot", "spherical" of Composite Bearing device is inserted in the blank.

Replace the paragraph that begins "In item (b) ..." with the following paragraph:

In item (b), for steel-reinforced elastomeric bearing pads, the width of bearing pad is inserted in the first blank, the length of the bearing pad is inserted in the second blank, and the thickness of the bearing pad is inserted in the third blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

00582.90(a) Composite Bearings and Steel-Reinforced Elastomeric Bearing Pads - Add the following Pay Item to the Pay Item list:

- (c) PTFE Sliding Bearing Assembly, _____ Each
- (d) Lead-Rubber Isolation Bearings, _____ Each

Add the following to the end of this subsection:

In items (c) and (d) the location is inserted in the blank.

Item (c) includes steel-reinforced elastomeric bearing pads.

Delete the sentence beginning with "No separate or additional..." and replace with the following:

No separate or additional payment will be made for designing, fabricating, and testing composite bearings, SREB assemblies, or PTFE sliding bearing assemblies.

SECTION 00583 - ELECTRICAL CONDUIT ON STRUCTURES

Comply with Section 00583 of the Standard Specifications modified as follows:

00583.00 Scope - Add the following to the end of this subsection:

This Work includes modifying and replacing existing conduit runs with the same Material type and meeting the requirements of this Section.

00583.03 Submittals - Replace the paragraph that begins "Submit detailed descriptions ..." with the following paragraph:

Submit detailed descriptions of all Materials to the Agency according to 00150.37 at least 21 Calendar Days before the scheduled start of the Work. Identify all relevant constituents and properties of each Material and the Specifications that it complies with. Data published by the manufacturer is acceptable.

00583.10(a) Extruded PVC - Replace this subsection, except for the subsection number and title, with the following:

Extruded PVC electrical conduit and factory bent elbows according to UL 651. Furnish gray conduit and elbows. Furnish solvent cement according to ASTM D2564 or as recommended by the conduit manufacturer.

00583.10(b) Hot-dip GRC - Replace this subsection, except for the subsection number and title, with the following:

Hot-dip GRC and elbows according to UL 6 and ANSI C80.1 with each end threaded per ANSI B1.20.1. Factory threads are to be hot-dip galvanized after cutting. Conform coating thickness to ASTM A153.

00583.10(c) 316 SS RMC - Replace this subsection, except for the subsection number and title, with the following:

316 SS RMC and elbows according to UL 6A and ANSI C80.1 with each end threaded per ANSI B1.20.1.

00583.10(d) RTRC - Replace this subsection, except for the subsection number and title, with the following:

RTRC and elbows according to UL 2515 for above ground applications. Furnish conduit with UV stabilized gray pigmented resin. Furnish a joint adhesive recommended by the manufacturer.

00583.10(e) LFNC - Replace this subsection, except for the subsection number and title, with the following:

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LFNC according to UL1660.

00583.11 Fittings and Conduit Bodies - Replace the paragraph that begins "Furnish fittings and conduit ..." with the following paragraph:

Furnish fittings and conduit bodies according to UL 514B. Furnish conduit bodies with a weather tight gasket and expansion fittings with a weather tight seal. Set screw type fittings and conduit bodies are not allowed. Furnish fittings and conduit bodies meeting one of the following requirements:

00583.12(a) PVC or Thermoplastic - Replace this subsection, except for the subsection number and title, with the following:

PVC or thermoplastic according to NEMA 250 Type 4X. Furnish gray junction boxes.

00583.12(b) Galvanized Steel - Replace this subsection, except for the subsection number and title, with the following:

Galvanized steel according to NEMA 250 Type 4. Coating thickness according to ASTM A153.

00583.12(c) 316 SS - Replace this subsection, except for the subsection number and title, with the following:

316 SS according to NEMA 250 Type 4X

00583.12(d) GFRP - Replace this subsection, except for the subsection number and title, with the following:

GFRP according to NEMA 250 Type 4X.

00583.13(b) 316 SS - Replace the paragraph that begins "316 SS wedge type anchors ..." with the following paragraph:

316 SS wedge type anchors, bolts, threaded rod and nuts according to ASTM A193/194, Grade B8M, B8MA, B8M2, or B8M3, Class 1, 1A, 1D, or 2 or ASTM F593/594 Group 2 Condition CW. Furnish 316 SS channel strut, hangers, clamps, support straps, and coil inserts, and washers.

00583.16 Pull Line - Replace the bullet that begins "Furnish nylon, ..." with the following bullet:

- Furnish nylon, polypropylene, or polyester pull line or rope with a minimum tensile strength of 1,000 pounds.

00583.40 General - Replace the bullet that begins "Any other local rules ..." with the following bullet:

- Any other local rules, regulations and ordinances that may apply

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Replace the paragraph that begins "Metallic raceways, fittings ..." with the following paragraph:

Furnish metallic raceways, fittings, boxes, and cabinets free from contact with reinforcing steel.

00583.44 Joints and Terminations - Replace the paragraph that begins "Join RTRC conduit using ..." with the following paragraph:

Join RTRC conduit using adhesive and fittings according to all manufacturer's recommendations.

00583.90 Payment - Replace the paragraph that begins "In items (a), (b), (c) ..." with the following paragraph:

In items (a), (b), (c), and (d) the nominal size of the pipe is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00584 - ELASTOMERIC CONCRETE NOSING

Comply with Section 00584 of the Standard Specifications modified as follows:

00584.00 Scope - Add the following paragraph to the end of this subsection:

This Work also includes the replacement of existing elastomeric concrete nosing as shown and specified.

00584.10 Materials - Replace the paragraph that begins "Provide Materials delivered ..." with the following paragraph:

Furnish Materials delivered in their original, undamaged containers bearing the manufacturer's label with the following information:

Replace the paragraph that begins "Provide sufficient Materials in storage ..." with the following paragraph:

Furnish sufficient Materials in storage at the site prior to beginning construction to complete the entire elastomeric concrete nosing as detailed on the Plans or as directed. Store the Materials to prevent damage by the elements and to ensure the Materials maintain their original quality.

00584.30 Manufacturer's Representative - Replace the paragraph that begins "Provide a manufacturer's representative on-site ..." with the following paragraph:

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Provide a manufacturer's representative on-site during the installation of the elastomeric concrete nosing. The manufacturer's representative is either someone independent of the Contractor's work force or a member of the Contractor's work force that possesses certification from the manufacture that the Contractor's representative has the knowledge, skills, and training to install the elastomeric concrete nosing. Discuss the Work to be done with the manufacturer's representative to review the methods of installation and the Equipment needed before beginning the Work.

Replace the paragraph that begins "The representative shall..." with the following paragraph:

The representative makes recommendations to both the Engineer and the Contractor on proper installation procedures to assure correct installation of the elastomeric concrete nosing.

00584.80 Measurement - Replace this subsection, except for the subsection number and title, with the following:

The quantities of Work performed under this Section will be measured according to the following:

(a) Elastomeric Concrete Nosing Material - Elastomeric concrete nosing Material will be measured on the volume basis for Material placed in the nosing. When using a mobile mixer, the quantities will be determined by converting the weight identified on the mixer's automatic metering device to volume, using the manufacturer's published unit weight and yield factor. When hand batching, the quantities will be determined based on volumes calculated by batch weights and published unit weights of the Material. If placed monolithically with a premixed polymer concrete overlay, the volume will be calculated by multiplying the average depth of the nosing by the measured area.

(b) Constructing Elastomeric Concrete Nosing - Constructing elastomeric concrete nosing will be measured on the area basis. The length will be determined by measuring from face of curb to face of curb along the centerline of the joint. The width will be determined by measuring to the outer limits of the installed Material perpendicular to the joint. Subtract the area of the joint opening from the area calculation.

Joint seal Material will be measured according to 00585.80.

00584.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Elastomeric Concrete Nosing Material	Cubic Foot
(b) Constructing Elastomeric Concrete Nosing	Square Foot

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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Joint seal Material will be paid for according to 00585.90.

No separate or additional payment will be made for providing the manufacturer's representative.

SECTION 00585 - EXPANSION JOINTS

Comply with Section 00585 of the Standard Specifications modified as follows:

00585.00 Scope - Add the following paragraphs to the end of this subsection:

This Work also includes concrete removal and reconstruction of joint surfaces and edges as shown.

00585.01 Definitions - Replace the paragraph that begins “**Filled Joint...**” with the following paragraph:

Filled Joint - A joint using a preformed joint filler placed prior to concrete pour. Hot applied joint sealant or poured joint seal may be placed on top of the joint filler.

Add the following paragraph after the paragraph that begins “**Filled Joint...**”

Hot Applied Joint Seal - A joint filled with hot applied, single component sealant.

Replace the paragraph that begins “**Poured Joint Seal ...**” with the following paragraph:

Poured Joint Seal - A seal made of Materials that remain flexible that is poured into the gap of a joint and adheres to the sides of the gap.

00585.02(b) Personnel Qualifications - Replace this subsection, except for the subsection number and title, with the following:

At the pre-construction conference, submit the following:

- Joint installer personnel certifications(s) from the manufacturer affirming that the installers have been trained in application methods of Materials and health and safety to install Closed Joints as detailed.
- A letter from the manufacturer affirming that the technical representative is qualified to provide technical assistance regarding expansion joint installation.

00585.10 Materials - Add the following Material to the Material list:

Portland Cement Concrete Repair Material..... 02015

00585.11 Concrete for Blockout Opening - Replace this subsection with the following subsection:

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00585.11 Material for Blockout Opening - Fill blockout openings with the same class and type of concrete used in the deck, unless otherwise shown.

For joint surface reconstruction, fill openings with Material as shown or specified. If not shown, fill openings with one of the following Materials:

- Structural polymer concrete with a minimum compressive strength of 10 ksi, a minimum tensile strength of 1 ksi, and a minimum modulus of elasticity of 2,500 ksi.
- High early strength concrete (HESC), Class HESC4000 – 3/4 inch, designed according to Section 02001. Incorporate the following:
 - Rapid hardening hydraulic cement meeting the requirements of Section 02011.
 - Aggregate meeting the requirements of Section 02690.
 - Macro fibers meeting the requirements of 02045.20.
- Portland cement concrete repair materials meeting the requirements of Section 02015.

00585.30(b) Expansion Joint Seal Manufacturer's Representative - Replace this subsection with the following subsection:

00585.30(b) Expansion Joint Seal Manufacturer's Technical Representative - Provide a manufacturer's technical representative during the Work. Prior to beginning the Work, discuss with the representative regarding the Work to be done, methods of installation, installation procedures, and required Equipment to assure correct expansion joint installation. Ensure the manufacturer's technical representative remains available for consultation until the completion and acceptance of the Work. For strip seals, the manufacturer's technical representative is required to be on-site during the Work.

00585.42(c) Joint Preparation - Replace the paragraph that begins "For joint replacement, remove..." with the following paragraph:

For joint replacement, remove joint material from existing joints and clean the existing joints full depth and full width as directed by the Engineer. If existing joint surfaces have spalled, cracked, or deteriorated concrete, repair as shown or directed to provide a uniform and smooth surface. Unless otherwise shown or directed, epoxy inject cracks according to Section 00538 and repair surfaces using an approved PCC repair material.

Add the following paragraphs to the end of this subsection:

For joint surface reconstruction, remove existing joint surface as shown or specified. Prepare the concrete surface according to the manufacturer's recommendations and ICRI *Guideline No. 310.2R*. Shotblast or sandblast the final surface to a CSP 5-7.

00585.43 Armored Corners – Replace the title of this subsection with “**Armored Corners and Edgebeam**”

Replace the paragraph that begins "Provide joint corner armoring ..." with the following paragraph:

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Furnish joint corner armoring or Edgebeam with anchors as shown or specified, and according to the following:

00585.43(a) Tolerance - Replace the paragraph that begins "Install armored corners that are straight..." with the following paragraph:

Install Armored Corners or Edgebeams that are straight and do not deviate from a true line by more than 1/4 inch horizontal and 1/8 inch vertical over the length of the joint, nor more than 1/16 inch in either direction from a 12-foot straightedge.

00585.43(b) Installation - Replace the paragraph that begins "Furnish armored corners in the longest ..." with the following paragraph:

Furnish Armored Corners or Edgebeams in the longest practical length as controlled by transportation and installation.

Replace the paragraph that begins "For new construction, install armored ..." with the following paragraph:

For new construction, install Armored Corners or Edgebeams with anchors in preformed blockouts at least 14 Days after the deck is cast with the joint opening as shown. Support the Armored Corners or Edgebeams securely in position before placing concrete in the joint blockout. Install the preformed seal at least 7 Days after the concrete blockouts have been cast and after the deck concrete reaches 3,000 psi.

00585.44 Asphaltic Plug Joint Seal - Replace the bullet that begins "Provide a clean, intact ..." with the following bullet:

- Provide a clean, intact, and plane surface to place the steel bridging plate on.

00585.47 Strip Seal - Replace the bullet that begins "Use steel retainers acting ..." with the following bullet:

- Use steel retainers acting as the Edgebeams according to 00585.43.

00585.49 Hot-Dip Galvanizing - Replace the paragraph that begins "The contact surfaces at all ..." with the following paragraph:

Furnish contact surfaces at all galvanized slip critical structural bolted connections meeting Class C (slip coefficient 0.33) surface preparation requirements.

00585.50 Control Joint - Replace this subsection, except for the subsection number and title, with the following:

Construct Control Joints as shown. If details of the Control Joint are not shown, sawcut the surface 1 1/2 inches deep and 1/2 inch wide. Flush the sawcut thoroughly with a high-pressure water stream after the cut has been made. Before the cut dries out, blow it free of water and debris with compressed air. Fill the sawcut joint with a hot applied joint sealant from the QPL.

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Add the following subsection:

00585.51 Hot Applied Joint Seal Replacement - Remove existing hot applied joint sealant from joint. Clean and repair joint surfaces and edges. Install hot applied joint sealant from the QPL and according to the manufacturer's recommendations.

Add the following subsection:

00585.52 Joint for Sidewalk, Multi-Use Path, or Other Facility Intended for Pedestrian Travel - Furnish an expansion joint seal having a firm, stable, and slip resistant top surface, not more than 3/8 inch below finished surface.

For joint seals installed greater than 1/4 inch below finished surface, bevel the joint surface corners with a Slope not steeper than 1V:2H.

For Precompressed Foam Silicone Joint Seals, furnish a joint seal having at least double width of the seal designed for the joint size. Install the joint seal according to the manufacturer's recommendations.

For joint openings 3 inches or wider, design and detail a steel cover plate for facilities with a Pedestrian Accessible Route, Temporary Pedestrian Accessible Route, Multi -Use Path, or other structures intended for pedestrian travel. Hot-dip galvanize the steel plate and provide a slip-resistant surface or coating. Limit the elevation change between the steel plate and deck surface with a vertical face to 1/4 inch not to exceed 1/2 inch. When the elevation change is greater than 1/4 inch, bevel the steel plate corners to a Slope not steeper than 1V:2H.

00585.80 Measurement - Replace the paragraph that begins "No measurement of ... with the following paragraph:

No measurement of quantities will be made for joints, gland replacement for strip seals, or joint surface reconstruction. Estimated quantities of joints, gland replacement, and joint surface reconstruction are listed below. The listed quantities are based on the theoretical horizontal length from gutter line to gutter line.

Add the following to the end of the subsection:

The estimated quantities of joints are:

Structure	Joint Type	Quantity (Foot)
Bridge No. 00123K	Poured Joint Seal	7.4
Bridge No. 00123K	Precompressed Foam Silicone Joint Seal	205
Bridge No. 00123K	Hot Applied Joint Seal Replacement	56
Bridge No. 00123G	Asphaltic Plug Joint Seals	26
Bridge No. 22519	Asphaltic Plug Joint Seals	26

The estimated quantities of joint surface reconstruction are:

Structure	Material Type	Quantity (Cubic Yard)
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Bridge No. 00123K

Elastomeric Nosing

0.03

00585.90 Payment - Replace Pay Item (h) with the following Pay Item:

(h) Hot Applied Joint Seal Replacement..... Lump Sum

Replace the paragraph that begins "In item (d) ..." with the following paragraph:

In item (d), the type of compression joint seal is inserted in the blank.

Add the following paragraphs after the paragraph that begins "In item (d), the....":

Item (h) includes removing existing seal material, cleaning joint, repairing joint surfaces and edges, and installing hot applied joint sealant.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Add the following four paragraphs after the paragraph that begins "Payment will be payment....":

Elastomeric concrete nosing incorporated in the Work will be paid for according to 00584.90.

Payment for steel reinforcing will be paid for according to 00530.90.

Payment for concrete will be paid for according to 00540.90.

Modification to existing gland retainer Edgebeam or expansion joint type change will be paid for according to 00195.20.

In the paragraph that begins "No separate or additional payment...", replace the bullet beginning with "elastomeric concrete ..." with the following bullet:

- structural patching material used to provide a smooth contact surface with joint seals, to provide a plane surface on which to place the steel bridging plate, or to make level surfaces between joint.

In the paragraph that begins "No separate or additional payment...", add the following bullet to the end of the bullet list:

- Furnishing and installing hot-dip galvanized steel cover plate with slip-resistant surface or coating for facilities with a Pedestrian Access Route.

SECTION 00586 - EXPANSION JOINTS, MODULAR

Section 00586 is not a Standard Specification and is included in this Project by Special Provision.

Description

00586.00 Scope - This Work consists of designing, fabricating, testing, and installing modular bridge joint systems (MBJS) according to the geometry and movements shown and specified.

00586.01 Acceptable Manufacturers - Select one of the following pre-approved manufacturers of MBJS:

Mageba North America Corp, telephone: 1-917-522-2044

00586.02 Design Requirements - Design MBJS according to the AASHTO *LRFD Bridge Design Specifications* and interim revisions and the following:

- Design and detail MBJS to provide inspection and maintenance access to all internal components.
- Detail MBJS to provide at least 3 inches of concrete, with reinforcement over the top of support boxes. Provide sufficient top plate thickness to prevent concrete cracking over the support boxes.
- Detail MBJS and bridge deck steel reinforcement to assure concrete consolidation can be achieved underneath all support boxes.
- Detail expansion joint seals so that they do not protrude above the top of the expansion joint system under any service condition. Detail expansion joint seals to be self-cleaning with glands which include a top surface that is convex and ejects dirt and debris as the joint closes. Split extrusions may be used at curb upturns.
- Design elastomeric or urethane springs and bearings to be removable and replaceable using bolted connections. Furnish extruded elastomeric seals that can be removed and reinstalled from above the joint with at least a 1 1/4-inch gap width. Install seals in one continuous strip, extending across the full roadway width and into the curbs without splices.
- Design and detail each center beam to be one continuous element, and to be removable and replaceable using bolted connections.
- Design and detail stirrup to support beam connections using bolted connections.
- Field welding to install center beams and stirrups is not allowed.
- Design MBJS to be watertight.
- Design and detail MBJS to accommodate all movements shown.
- Design and detail a steel cover plate for facilities with a pedestrian access route (as defined in 00759.00), Temporary Pedestrian Accessible Route, or Multi-Use Path intended for pedestrian travel. Hot-dip galvanize the steel plate and furnish a slip-resistant surface or coating. Limit the elevation change between the steel plate and deck surface with a vertical face to 1/4 inch not to exceed 1/2 inch. When the elevation

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change is greater than 1/4 inch, bevel the steel plate corners to a slope not steeper than 1V:2H.

- Design and detail MBS to be compatible with staged construction sequence shown and Traffic Lane restrictions according to 00220.40(e)(1), 00220.40(f)(2), and 00220.40(f)(3).
- Design and detail a temporary center beam and expansion joint seal assembly that is compatible with the permanent MBS and staged construction sequence shown.

00586.03 Submittals - Submit stamped Working Drawings, design calculations, and the following for the MBS:

- Plan, elevation, and section of the MBS for each movement rating and bridge deck width. Specify all dimensions and tolerances.
- Sections showing all materials composing the MBS with complete details of all individual components including all bolted and welded shop splices and connections.
- Sections showing the joint seal gland geometry throughout the service movement range for the joint seals which demonstrate the self-cleaning behavior and document that the top surface of the joint seal gland remains below the top of the expansion joint system.
- All ASTM, AASHTO, or other material designations.
- Installation plan including sequence, lifting mechanisms and locations, details of temporary anchorage during setting, temperature adjustment devices, opening dimensions relative to temperature, installation details at curbs, and seal installation details.
- Design and details to accommodate staged construction sequence shown and Traffic Lane restrictions according to 00220.40(e)(1), 00220.40(f)(2), and 00220.40(f)(3).
- Plan for achieving and testing water tightness.
- Details and material designations pertinent to the corrosion protection system.
- Requirements and details related to temporary support of the MBS for shipping, handling, and job site storage.
- Design calculations for all structural elements including all springs and bearings. Include calculations for fatigue design for all structural elements, connections, and splices.
- Welding procedures comply with AWS D1.5.
- A written maintenance and part replacement plan, including drawings, to facilitate replacement of parts subject to wear. Include a list of parts, instructions for maintenance inspection, acceptable wear tolerances, methods for determining wear, procedures for replacing worn parts, and procedures for replacing seals.
- Any required modifications to blockout reinforcing steel to accommodate the MBS.
- Design and details for MBS temperature adjustments. Specify each MBS gap width set to correspond with the ambient temperature at the time of setting.
- Design and details for positioning the MBS in the block-outs to provide a minimum of 3 inches clearance between the block-out surface and the bottom of support boxes for concrete placement.
- Design and details for pedestrian facility cover plates

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- Design and details for temporary center beam and expansion joint seal assembly.
- Documentation that the manufacturer is certified through the AISC Quality Certification Program under the category Highway Component Manufacturer.
- Documentation that welding inspection personnel are qualified and certified as welding inspectors according to AWS QC1.
- Documentation that personnel performing nondestructive testing (NDT) are qualified and certified as NDT Level II under the American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1a.
- Manufacturer's certificate of compliance for all polytetrafluoroethylene (PTFE) sheeting, PTFE fabric, and elastomer.
- Certified mill test reports for all steel and stainless steel in the MBS assemblies.
- Certified test reports confirming that the springs and bearings meet the design load requirements.
- A Quality Assurance Inspection program performed by an independent inspection agency provided by the MBS manufacturer. Include the name of the independent inspection agency, details of the proposed inspection program including inspection frequency, and all applicable reporting forms.
- A temporary bridging method for each MBS where traffic is anticipated to cross before joint concrete has fully cured.

Materials

00586.10 Materials - Furnish MBS Materials meeting the following requirements:

Elastomeric Strip Seal.....	02440.20
Lubricant and Adhesive.....	ASTM D4070
Polytetrafluoroethylene (PTFE)	02570.10
Stainless Steel Sliding Surfaces.....	02570.10
Structural Steel	02530.20

00586.20 Tests - Test MBS according to AASHTO *LRFD Bridge Construction Specifications*, Appendix A19. Perform the following tests:

- Open Movement and Vibration (OMV) Test
- Seal Push-Out (SPO) Test
- Fatigue test

Labor

00586.30 Manufacturer's Representative - Provide a manufacturer's representative on-site during installation of each MBS.

The representative duties include:

- Discussing the Work to be done, the methods of installation, and the required Equipment to use.

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- Advise the Engineer and the Contractor on proper installation procedures to assure correct installation of each MBJS.

Construction

00586.40 Installation - Install MBJS according to the manufacturer's approved Working Drawings and the recommendations of the manufacturer's representative and the following:

- Install each MBJS to match the finished bridge deck profile and grades.
- Install each MBJS according to the construction sequence shown and Traffic Lane restrictions according to 00220.40(e)(1), 00220.40(f)(2), and 00220.40(f)(3).
- Protect each MBJS from damage and protect concrete blockouts and supporting systems from damage and construction traffic prior to installation. Do not apply any construction loads on the MBJS until installation is complete.
- Set each MBJS gap width to correspond with the ambient temperature at the time of setting.
- Remove all forms and debris that may impede movement of the MBJS.

00586.47 Watertightness Test - Test each MBJS for watertightness after installation. Flood each completed MBJS with water to at least 3 inches deep for 1 hour. If leakage is observed, repair the joint at no additional cost to the Agency according to the manufacturer's recommendations. Repeat the watertightness test after repairs are complete.

00586.48 Manufacturer's Representative Certification - When the MBJS installation is complete and accepted, provide written certification from the manufacturer's representative stating that each MBJS was installed according to the manufacturer's recommendations and the approved Working Drawings.

Measurement

00586.80 Measurement - No measurement of quantities will be made for modular bridge joints.

The estimated quantities of modular bridge joints are:

Structure	Quantity (Feet)
Bridge No. 00123K, 4 gland system	68.4
Bridge No. 00123K, 5 gland system	67.7
Bridge No. 00123K, temporary 4 gland system	27.6
Bridge No. 00123K, temporary 5 gland system	27.6

Payment

00586.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
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- (a) Modular Bridge Joint Systems, _____ Lump Sum
- (b) Temporary Modular Bridge Joint Systems, _____ Lump Sum

In items (a) and (b) the number of glands is inserted in the blank.

Item (b) includes payment for installing and removing temporary Modular Bridge Joint Systems to accommodate staged construction.

Payment for permanent MBJS will not be made before joints have passed the watertightness test. No payment will be made for any Material installed as replacement Material for that removed, unless the Engineer determines that the reason for the removal was beyond the Contractor's control, or that the Plans specifically required the removal.

Payment will be payment in full for designing, furnishing, and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for providing the manufacturer's representative.

SECTION 00587 - BRIDGE RAILS

Comply with Section 00587 of the Standard Specifications modified as follows:

00587.00 Scope - Replace the paragraph that begins "Bridge rails will be ..." with the following paragraph:

Bridge rails are classified as concrete or steel according to the predominant Material used in the rail.

Replace the paragraph beginning "This Work consists of..." with the following:

This Work consists of constructing bridge rails and protective fence of the Material or combination of Materials shown or specified.

Add the following subsection:

00587.01 Definitions -

Panel - A Panel is a portion of screening between adjacent posts.

Run - A Run is the length of fence between end posts, intermediate posts and corner posts.

00587.10 Materials - Add the following to the end of this subsection:

Fasteners.....	02560
Fencing Materials.....	03010
Resin Bonded Anchor System	00535.10

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Structural Steel 02530

00587.42(a) General - Replace the bullet that begins "Construct expansion joints ..." with the following bullet:

- Construct expansion joints that permit freedom of movement. After all other Work is completed, use a sharp chisel to remove all loose or thin shells of concrete likely to spall under movement at expansion joints.

00587.42(b) Fixed Forms - Replace this subsection, except for the subsection number and title, with the following:

Provide forms that are smooth and tight fitting, rigidly held in line and grade, and removed without damage to the concrete. Make form joints in vertical planes. Construct all moldings, panel Work, and bevel strips as shown. Make corners in the finished Work true, sharp and free from cracks, spalls or other defects.

00587.42(c) Slipformed - Replace the paragraph that begins "Concrete rails may be ..." with the following paragraph:

Concrete rails may be slipformed if the Plans contain details for slipforming. Before slipforming any permanent rail, meet one or both of the following requirements (1) and (2) as directed:

00587.42(c)(2) Replace the bullet that begins "Provide concrete with ..." with the following bullet:

- Furnish concrete with a slump of 1 inch $\pm$ 1/2 inch.

00587.43(a) Construction - Replace this subsection, except for the subsection number and title, with the following:

Furnish structural steel tubing, tube or metal thrie beam rail as shown or specified. Fabricate and erect metal rails according to Section 00560. Adjust metal rails before fixing in place to ensure proper matching at abutting joints and correct alignment and Camber throughout their length.

Add the following subsection:

00587.44 Protective Fence:

(a) Posts and Braces - Set all metal end posts, intermediate end posts, and chain link fence posts as shown.

(b) Chain Link Fence Fabric and Wire - Assemble and install chain link Fence fabric and wire according to 01050.45(c).

(c) Welding - Weld according to AWS D1.1 Structural Welding Code.

(d) Resin Bonded Anchor System - Place posts and fully cure all resin bonded anchors before installation of the screening panels. Install anchors according to Section 00535.

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(e) Grouted Through Bolts – Install grouted through-bolts according to Section 00568.

00587.80 Measurement - Replace the paragraph that begins "No measurement of quantities ..." with the following paragraph:

No measurement of quantities will be made for bridge rails performed under this Section.

Add the following to the end of this subsection:

The estimated quantity of bridge rail is:

Structure	Rail Type	Quantity (Foot)
Bridge No. 00123K	Type "G" Concrete Rail	45.50
Bridge No. 00123K	Pedestrian Rail	46.35
Bridge No. 00123K	10 Foot Type "B" Protective Fence	38.00
Bridge No. 00123K	8 Foot Type "C" Protective Fence	50.00
Bridge No. 00123G	8 Foot Type "C" Protective Fence	132.6

Bridge protective fence or ornamental protective screening will be measured on the length basis. Measurement will be between beginning and ending locations as shown.

00587.90 Payment - Add the following paragraphs after the paragraph beginning "The accepted quantities..."

Bridge protective fence will be paid for at the Contract unit price, per foot, for the item "____ Foot Type ____ Protective Fence".

The height of the fence is inserted in the first blank. The type of fence is inserted in the second blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00592 - ROLLED WATERPROOFING MEMBRANE

Comply with Section 00592 of the Standard Specifications modified as follows:

00592.03 Submittals - Replace the bullet that begins " Submit a primer application ..." with the following bullet:

- Submit a primer application plan according to 00592.42(c) that includes a manufacturer's letter indicating primer is compatible with the rolled membrane.

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00592.04(a) Supervisory Personnel - Replace the paragraph that begins "Hold a pre-placement conference ..." with the following paragraph:

Hold a pre-placement conference with the Engineer and all supervisory personnel, Subcontractors, Suppliers, and all other personnel involved in the membrane Work. Meet at a mutually agreed time at least 14 Calendar Days before beginning the membrane Work. Present and discuss all phases of the membrane Work, including ACP placement.

00592.10 Rolled Waterproofing Membrane System - Replace the paragraph that begins "Furnish a rolled waterproofing ..." with the following paragraph:

Furnish a rolled waterproofing membrane system that is a sheet membrane according to ASTM D6153 Type III and meeting the following criteria:

Replace the paragraph that begins "Furnish test result ..." with the following paragraph:

Provide test result certificates showing physical tests for the rolled waterproofing membrane system according to 00165.35.

Replace the paragraph that begins "Provide a membrane ..." with the following paragraph:

Furnish a membrane that can be used for the maximum profile grades and super elevations shown. Profile grade and super elevation limitations are available from the manufacturer.

00592.42(a) Tack Coat - Replace this subsection, except for the subsection number and title, with the following:

Place Emulsified Asphalt tack coat as follows:

(1) Concrete Substrate - Place Emulsified Asphalt tack coat as shown or directed and according to Section 00730. Extend the tack coat 2 inches up the face of the curb.

(3) Rolled Waterproof Membrane - Place Emulsified Asphalt tack coat as shown or directed and according to Section 00730.

00592.42(b) ACP Base Course - Delete this subsection.

00592.42(c) Primer - Replace the sentence beginning with "Primer may be substituted..." with the following sentence:

Primer may be substituted for Emulsified Asphalt tack coat only for application on the Concrete Substrate below the rolled waterproofing membrane, with a primer application plan, according to the following:

Replace the sentence beginning with "A primer to cover a maximum..." with the following sentence:

Apply primer to cover a maximum area of 180 square feet per gallon on the Concrete Substrate by brush, roller or as approved, to result in a completely uniform wetted surface, without puddling.

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00592.43 Daily Report Requirements - Replace the paragraph that begins "Submit a written report ..." with the following paragraph:

Submit a written report to the Engineer by the end of each Day that Work is being performed under this Section. Include the following in the daily written report:

00592.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals required to complete the Work as specified.

SECTION 00594 - PREPARING AND COATING METAL STRUCTURES

Comply with Section 00594 of the Standard Specifications modified as follows:

00594.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

This Work consists of preparing and coating new and existing steel on Bridge No. 00123K as shown.

Lead-based coatings will be affected by the preparation and coating Work.

Coatings that contain chromates will be affected by the preparation and coating work.

00594.01(b) Definitions - Replace the paragraph that begins "**Hold Point** ..." with the following paragraph:

Hold Point - A time when the Contractor is required to stop a particular activity until a phase of Work is inspected or tested. If the Engineer finds this phase conforms to the Specifications, the subsequent phase of Work may proceed.

Replace the paragraph that begins "**Paint** ..." with the following paragraph:

Paint - A pigmented liquid, applied as a thin layer, that is converted to a solid colored film after curing. This film provides a decorative and protective Coating to the Substrate. The binder is a resin that may or may not be modified with natural vegetable oils, fish oils, or other ingredients.

Replace the paragraph that begins "**Skimming** ..." with the following paragraph:

Skimming - The process where a film forms over a liquid Coating, either during storage or after application.

Replace the paragraph that begins "**Substrate** ..." with the following paragraph:

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Substrate - A surface where a Coating is to be applied. This may be the prepared surface of the metal Structure or a previous Coating.

00594.01(c) References - Replace the paragraph that begins "In these Specifications, references ..." with the following paragraph:

In these Specifications, references are made to FTMS 141, *Paint, Varnish, Lacquers, and Related Materials: Methods of Inspection, Sampling and Testing*, that is distributed by the U.S. General Services Administration.

00594.05 Waste Handling and Disposal - Add the following paragraph to the end of this subsection:

When lead is contained in the waste, dispose of waste material according to 00290.20, Section 00296, and the applicable requirements of SSPC-Guide 7.

00594.10 Materials - Add the following to the end of the subsection:

For new permanent bearing stiffeners, temporary bearing stiffeners left in place, cross-frames, bridge bearing assemblies, longitudinal seismic restrainer bottom flange brackets, and top flanges on Bridge No. 00123K. Furnish a shop Coating, 3 coat system with organic zinc primer from the QPL. Provide top-coat color that matches existing coating.

For repairing existing coating on Bridge No. 00123K furnish a Maintenance Coating, 3 coat system with organic zinc primer from the QPL. Provide top-coat color that matches existing coating.

00594.10(b) Color - Replace the paragraph that begins "Unless otherwise specified ..." with the following paragraph:

Unless otherwise specified, furnish top-coat color according to the following colors:

00594.11(b) Packaging - Replace the bullet that begins "If necessary, constructed ..." with the following bullet:

- If necessary, constructed with an interior lining to prevent attack by the Coating Material. Furnish container wall lining that does not delaminate and contaminate the Coating.

00594.11(d) Slip-Critical Connections - Replace this subsection, except for the subsection number and title, with the following:

Furnish a primer Coat on steel-to-steel contact surfaces at all slip-critical structural bolted connections using high strength bolts according to Class B (slip coefficient of 0.5) Coating requirements in *Test Method to Determine the Slip Coefficient for Coatings Used in Bolted Joints*, as adopted by the Research Council on Structural Connections.

00594.12 Caulking - Replace the paragraph that begins "Furnish structural steel ..." with the following paragraph:

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Furnish structural steel caulking from the QPL and approved for use by the Coating manufacturer. Furnish a caulking color that is clear, approximate the color of the top Coating, or be over coated.

00594.30 Quality Control Personnel - Replace this subsection, except for the subsection number and title, with the following:

Provide an on-site quality control manager who is responsible for managing quality control related to all Preparation and Coating quality control activities. Provide a quality control manager that is not employed in a supervisory role for any Preparation or Coating Work.

00594.40(b) Existing Steel Structures - Add the following paragraphs and bullets to the end of this subsection:

Prepare and coat the existing steel as shown or directed.

00594.42(a) New Steel Structures - Replace this subsection, except for the subsection number and title, with the following:

Clean new steel Structure surfaces to be coated according to SSPC-SP 10 / NACE No. 2 *Near White Metal Blast Cleaning*, except as modified by this Section. Closely approximate the appearance of the final blast-cleaned surface to Pictorial Standard SP 10 of SSPC-Vis 1.

00594.42(c) Rehabilitation of Existing Steel Structures - Replace this subsection, except for the subsection number and title, with the following:

When performing Rehabilitation on a Structure that is not receiving a Maintenance Coating outside the immediate area of the Rehabilitation details, prepare all existing steel surfaces to be coated according to SSPC-SP 15, *Commercial Grade Power Tool Cleaning*. Provide a cleaned surface with a minimum Surface Profile of 1 mil.

Prepare all existing coated surfaces exposed by the removal of the existing components involved in the Rehabilitation, all areas that rivets, bolts, or plates are to be removed, and areas damaged by erection or other Contractor operations. Completely clean all existing lead-based Coatings exposed by the removal of any structural or miscellaneous member to SSPC-SP 15 *Commercial Grade Power Tool Cleaning* requirements. Extend all prepared areas at least 2 inches into tightly adhering, intact paint. Overlap the subsequent Coating and the still intact Coating by a minimum of 2 inches. Lightly sand the overlap area of the intact Coating to provide a profile for the subsequent repair Coating to adhere to.

00594.42(e)(1) Cleaning Methods - Replace the paragraph that begins "Surfaces shall be ..." with the following paragraph:

Dry surfaces before Cleaning unless a wet blast Cleaning method is used. Use methods specified in SSPC-SP 1, *Solvent Cleaning*, SSPC-SP 2, *Hand Tool Cleaning*, SSPC-SP 3, *Power Tool Cleaning*, and SSPC-SP 15 *Commercial Grade Power Tool Clean*, as necessary to augment blast-cleaning.

00594.42(e)(2) Abrasives - Replace the paragraph that begins "Perform blast-cleaning using ..." with the following paragraph:

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Perform blast-cleaning using an abrasive of a size that will continually produce an angular Surface Profile of at least 1 mil, but not more than 4 mils, as measured according to ASTM D4417 using replica tape on the prepared surface. Perform blast-cleaning that results in a roughened steel surface comparable to a Keane-Tator Surface Profile Comparator for sand or grit using ASTM D4417.

Replace the paragraph that begins "Provide abrasives that have ..." with the following paragraph:

Provide abrasives that have no corrosion products, water, oil, or any other material detrimental to the application and adherence of the Coatings. Provide abrasives according to SSPC-AB 1. When directed, test cleanliness according to ASTM D7393 and ASTM D4940. Do not exceed 100 microsiemens per centimeter for the conductivity results from ASTM D4940. Wet abrasives are allowed if wet sandblasting methods are used.

00594.43(b)(3) Thinning - Replace this subsection, except for the subsection number and title, with the following:

Do not add additional Thinner at the application site unless approved by the Engineer. If allowed, furnish the amount and type of Thinner according to the Manufacturer's Recommendations.

00594.43(c)(2) Application Methods - Replace the paragraph that begins "Apply Coating Materials ..." with the following paragraph:

Apply Coating Materials by air or airless spray, brush, roller, any combination of these methods, or as recommended by the Coating Material manufacturer, unless otherwise specified. If air is used for application, ensure that it is free of water, oil, or any other material detrimental to the Coating System. Provide adequate separators and traps and test air cleanliness daily according to ASTM D4285, or as directed. Regardless of the application method used to apply the Coating, use brushes to push the Coating into complex details, crevices, gaps, areas difficult to access, and where spraying does not adequately cover or penetrate. Conform all application techniques to Section 7 in SSPC-PA 1 and the applicable sections of SSPC Paint Application Guide No. 11.

00594.43(d)(1) Number of Coats and Film Thickness - Replace the paragraph that begins "The dry film ..." with the following paragraph:

Ensure the dry film thickness of the primer on steel-to-steel contact surfaces is not less than 3 mils nor more than the manufacturer's class "B" certification allows.

00594.43(d)(2) Stripe Coats - Replace the paragraph that begins "Apply a prime stripe Coat ..." with the following paragraph:

Apply a prime stripe Coat by brush after applying the full brush augmented prime Coat and apply an intermediate stripe Coat by brush before applying the full intermediate Coat. For two Coat Paint systems, except non-ferrous Coating Systems from the QPL, apply a top Coat stripe Coat prior to full top Coat application. Apply the stripe Coat by brush only. Use brushes to push the Coating around and into complex details and irregular surfaces identified as usually stripe coated by SSPC Paint Application Guide No. 11. Make each stripe Coat a different color than the preceding and subsequent full Coat, extending a minimum of 1 inch

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from the irregular surface, and completely hiding the Substrate. Furnish a different color for the stripe Coat. Coat the stripe coat approximately 3 mils thick. Each stripe Coat has its own Hold Point and is not be used to correct deficiencies in the preceding or subsequent Coats. Apply stripe Coats according to the applicable sections of SSPC Paint Application Guide No. 11 that do not conflict with this Section or the Special Provisions.

00594.43(d)(3) Coating Thickness and Coverage Requirements - Replace this subsection, except for the subsection number and title, with the following:

The Engineer will take dry Coating thickness measurements after the application of each Coat and before application of the succeeding Coat. In addition to Coating thickness measurements, a visual inspection for complete coverage is made by the Engineer after each Coat. Apply each Coat in sufficient thickness to achieve uniform and complete coverage and appearance. If all thickness measurements are not within the specified minimum dry film thickness, or if the visual inspection does not satisfy the Engineer, make additional applications, as necessary, to meet the thickness and coverage required. Film thickness is measured above the peaks of the profile of the anchor pattern in the metal Substrate.

The Engineer will take dry film thickness measurements with a type 2 gauge according to SSPC-PA 2. Furnish minimum dry film thickness measurements and frequency of measurements according to SSPC-PA 2, modified as follows:

- Take a single gauge reading for each 10 square feet of surface area.
- A spot measurement is only taken at locations where a gauge reading is less than 100 percent of the Project's specified minimum DFT.
- Meet 100 percent of the Project's specified minimum DFT for all spot measurements.
- Additional readings may be required to identify the limits of the non-compliant areas.

If a question arises about an individual Coat thickness or coverage, it will be verified using a Tooke gauge, according to ASTM D4138. If the Tooke gauge shows a prime Coat to be less than the specified minimum thickness, or reveals a missing intermediate Coat, the total Coating System is rejected even if the thickness of the total system equals or exceeds total specified thickness.

In areas where dry film thickness measurements are impracticable, Wet Film Thickness measurements are made according to ASTM D4414.

00594.43(h) Environmental Conditions - Replace the paragraph that begins "If a Coating System allows ..." with the following paragraph:

If a Coating System allows application in environmental conditions different from those specified, submit a letter from the manufacturer stating the conditions that the Coatings can be applied. Application under conditions other than specified is not allowed without the Engineer's written approval.

00594.43(i) Stenciling - Replace this subsection, except for the subsection number and title, with the following:

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Stencil the month and year of application and the type of Coating used in block letters 2 inches high at a location on each end of each span on the Structure being coated. The exact location of stenciling is determined by the Engineer. Use flat black color stenciling unless otherwise directed.

00594.45(c) Handling, Shipping, or Surface Damage - Replace the paragraph that begins "Repair marred or damaged ..." with the following paragraph:

Repair marred or damaged coated surfaces according to 00594.60 at no additional cost to the Agency.

00594.45(d) Other Damage - Replace the bullet that begins "Abrasive material or ..." with the following bullet:

- Abrasive material or debris falling into an area that would create a traffic hazard.

00594.75(a) Coating System Warranty - Replace the paragraph that begins "Unconditionally warrant to ..." with the following paragraph:

Unconditionally warrant to the Agency that all Coating Work and the Coating Systems, above deck and below deck, performed and applied on this Project are and shall be free of all defects for a period of 36 months. Provide a written 36-month warranty using the Agency-supplied Coating System warranty form that is included near the front of the Special Provisions booklet. Provide the written warranty 30 Calendar Days before the precoating conference. "Unconditionally warrant" means that the warranty covers all defects, regardless of the source or cause of the defect, including, without limitation, whether the source or cause is or may be related to workmanship, inspection, or choice of materials.

Replace the paragraph that begins "The 36-month Coating System ..." with the following paragraph:

The 36-month Coating System warranty will begin on the date of Second Notification. During this warranty period, the Agency will inspect the Coating System for defects three times; at approximately 12, 24, and 36 months after issuance of the Second Notification. The Contractor will be notified in advance of each inspection and is permitted to accompany the Agency Inspector. Make repairs and correct all defects to the Coating System. Make all corrections and repairs according to the Contract requirements.

00594.75(b) Supplemental Warranty Performance Bond - Replace the paragraph that begins "Provide a supplemental ..." with the following paragraph:

Provide a supplemental warranty Performance Bond, in addition to the regular Performance Bond for the Contract, executed by a Surety authorized to do business in the State of Oregon. Provide the supplemental warranty Performance Bond 30 Calendar Days before the precoating conference. The supplemental warranty Performance Bond dollar amount is listed above.

00594.90(a) New Metal Structures - Replace this subsection, except for the subsection number and title, with the following:

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No separate payment will be made for preparing and coating new metal Work. Payment for this Work, including correction of damages, will be included in payment made for appropriate items under which this Work is required.

00594.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

00594.90(b) Existing Metal Structures - Delete this subsection, except for the subsection number and title and replace with the following:

No separate payment will be made for preparing and coating existing metal Structures. Payment for this Work, including correction of damages, will be included in payment made for appropriate items under which this Work is required.

SECTION 00620 - COLD PLANE PAVEMENT REMOVAL

Comply with Section 00620 of the Standard Specifications modified as follows:

00620.40(b) Depth 1 inch to 2 inches - Replace this subsection, except for the subsection number and title, with the following:

If the depth of the existing Pavement to be removed is 2 inches or less, but more than 1 inch and the section is under traffic, schedule the Work so the full width and length of travel lanes Pavement can be removed during the same shift. Remove the Shoulder area within 24 hours.

00620.40(c) Depth over 2 inches - Replace this subsection, except for the subsection number and title, with the following:

If the depth of the existing Pavement to be removed is over 2 inches and the section is under traffic, schedule the Work so the full width and length of the travel lanes and Shoulders can be removed, leaving no longitudinal or transverse drop-offs, during the same shift.

00620.41 Surface Tolerance - Replace this subsection, except for the subsection number and title, with the following:

Test with a 12-foot straightedge furnished and operated by the Contractor, as directed. The maximum variation of the top of the ridges from the testing edge of the straightedge, between any two ridge contact points, is 1/4 inch.

00620.43 Maintenance Under Traffic - Replace this subsection, except for the subsection number and title, with the following:

If the cold planed Pavement surface is exposed to traffic, sweep and clean prior to allowing traffic to use the Roadway.

Traffic is not allowed on the cold planed surface. Before opening the area to traffic, pave the surface according to 00744.51.

SECTION 00641 - AGGREGATE SUBBASE, BASE, AND SHOULDERS

Comply with Section 00641 of the Standard Specifications modified as follows:

00641.10(a) Base and Shoulder Aggregate - Replace the paragraph that begins "Aggregate for Bases ..." with the following paragraph:

Furnish Aggregate for Bases and Shoulders meeting sizes as specified. Furnish dense-graded Base Aggregate unless otherwise specified. For Shoulder Aggregates use either 1" - 0 or 3/4" - 0 size as the Contractor elects.

In the paragraph that begins "Aggregate for bases...", add the following sentence after the first sentence:

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Furnish Base Aggregate sized either $\frac{1}{2}$ inch - 0 or $\frac{3}{4}$ inch - 0.

00641.10(b) Subbase Aggregate - Replace this subsection, except for the subsection number and title, with the following:

Furnish crushed or uncrushed Aggregate, including Sands, reasonably well graded from coarse to fine for Subbases.

The maximum size Aggregate is not to exceed 75 percent of the compacted thickness of the layer that it is incorporated in. Furnish Aggregates passing the 1/4-inch sieve not less than 10 percent nor more than 50 percent of the whole, by weight. Furnish Aggregate with not more than 10 percent of the Aggregate passing the No. 100 sieve. Within these limits, furnish Subbase Aggregate with a gradation adequate to produce a dense, firm Base when placed and compacted.

(1) **Grading** - All of the grading requirements are given as percentages by weight. The gradation is determined by sieve analysis according to AASHTO T 27.

(2) **Abrasion** - Do not exceed 45 percent wear when tested according to AASHTO T 96 for the source materials for Aggregate Subbase unless otherwise approved.

(3) **Sand Equivalent** - Aggregate Subbase is tested according to AASHTO T 176, with a Sand equivalent of not less than 25.

00641.12 Limits of Mixture - Replace the paragraph that begins "Furnish a mixture ..." with the following paragraph:

Furnish a mixture of Aggregate and water having a uniform moisture content sufficient to obtain the required compaction. Proportions are in percentages by weight and is known as the Mix Design. Determine the proportion of Aggregate and water according to Section 00165. The amount of water for the Mix Design is based on the dry weight of the Aggregate.

00641.15(b) Preproduced Aggregate - Replace the paragraph that begins "Compliance of Aggregates ..." with the following paragraph:

Compliance of Aggregates produced and stockpiled before issuance of Notice to Proceed is determined according to (1) or (2) below.

00641.16 Acceptance of Aggregates - Replace the paragraph that begins "Acceptance will be ..." with the following paragraph:

Acceptance is according to Section 00165.

00641.16(a) Stockpiled Aggregate for Aggregate Base and Shoulders - Replace the paragraph that begins "Acceptance will be ..." with the following paragraph:

Acceptance is based on the Contractor's quality control testing, if verified, as required in Section 00165.

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00641.16(a)(2) Non-specification Aggregate Gradation - Replace this subsection, except for the subsection number and title, with the following:

Stockpiled Aggregates having non-specification Aggregate gradation are rejected unless the non-specification material is removed from the stockpile. Do not add additional material to the stockpile until enough non-specification material has been removed so that the QL for each sieve size is equal to or greater than the QL in Table 00165-2 for a 1.00 PF.

No payment is made for non-specification materials.

00641.16(b) Aggregate Base and Shoulder Mixture - Replace this subsection, except for the subsection number and title, with the following:

Acceptance testing is performed on random samples obtained immediately following mixing with water according to Section 00165. For non-specification mixture the Engineer will determine the appropriate price reduction or order its removal from the Work according to 00150.25.

00641.16(c) Aggregate Subbase - Replace this subsection, except for the subsection number and title, with the following:

Aggregate Subbase is accepted based on the Engineer's visual inspection. Samples are obtained and tested for compliance with 00641.10 by the Engineer if it is suspected that the material does not meet Specifications.

00641.20(a) Mixing Plant - Replace the bullet that begins "Discharges water into ..." with the following bullet:

- Discharges water into the mixer by weighing or metering. Provide an adjustable device and assure uniform water content in the mixture.

00641.24 Compacting Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide self-propelled rollers and compactors capable of reversing without backlash. Use rollers and compactors with a gross static weight of at least 8 Tons, and capable of compacting to specified density while the mix is still moist.

00641.40 Preparation of Foundation - Replace this subsection, except for the subsection number and title, with the following:

Provide a firm surface or material, where Aggregates are to be placed, according to Sections 00320, 00330, or 00610 as applicable.

00641.41 Mixing, Hauling, and Placing - Replace the sentence that begins "Add water to the Aggregate..." with the following sentence:

Add water to the Aggregate while mixing to provide a moisture content meeting the requirements of 00641.12.

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00641.43(a) Aggregate Base Courses - Replace the paragraph that begins "If the required ..." with the following paragraph:

If the required compacted depth of the Base Course exceeds 6 inches, construct it in two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer is 6 inches unless approved.

00641.43(b) Aggregate Subbase Courses - Replace this subsection, except for the subsection number and title, with the following:

The maximum compacted thickness of any one layer is 9 inches unless approved.

00641.43(c) Shoulder Courses - Replace this subsection, except for the subsection number and title, with the following:

Place Aggregates in Shoulder areas, other than as part of the Base Course, in one layer, or in two or more layers of nearly equal thickness. The maximum compacted thickness of any one layer is 9 inches.

00641.44(a)(2) Open-graded Aggregates - Replace the paragraph that begins "Compact the surface ..." with the following paragraph:

Compact the surface of each layer of open-graded Aggregates using rollers according to 00641.24. Roll until there is no appreciable reaction or yielding under the compactor.

00641.45 Surface Tolerance - Replace this subsection, except for the subsection number and title, with the following:

Parallel the finished surface of the Aggregate and the surface of each underlying layer with the established grade and Cross Section for the finished surface within 0.04 foot.

Do not vary the finished surface of the compacted Aggregate, when tested with a 12-foot straightedge, from the testing edge by more than 1/2 inch at any point. Provide and operate the straightedge as directed.

Add the following subsection:

00641.46 Small, Irregular Areas – Haul, place, shape and compact small irregular areas according to 00640.41 through 00640.43. A small or irregular area is outside of the Traveled Way and requires no more than 5 Tons of Aggregate Base or as otherwise approved by the Engineer.

In areas not accessible to the Equipment specified in 00641.24, use a weighted roller, vibratory plate compactor, tamping rammer compactor, or other approved Equipment suitable for the area as approved by the Engineer.

00641.90 Payment - Replace the paragraph that begins "In items (c) and (e) ..." with the following paragraph:

In items (c) and (e), the designated size of Aggregate to be used is inserted in the blank.

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Replace the paragraph that begins "In item (g) ..." with the following paragraph:

In item (g), the depth of Aggregate Base is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00730 - EMULSIFIED ASPHALT TACK COAT

Comply with Section 00730 of the Standard Specifications modified as follows:

00730.11 Emulsified Asphalt - Replace the paragraph that begins “Excessive delay in the ...” with the following paragraph:

Excessive delay in the use of the Emulsified Asphalt or excessive pumping of the Emulsified Asphalt may significantly reduce the viscosity and may make the material unsuitable for tack coat use. For this reason limit pumping between the bulk storage tank, hauling transportation, field storage tanks and distributor to an absolute minimum to maintain proper viscosity. Final acceptance of Emulsified Asphalt is at the point of application.

Replace the paragraph that begins “Obtain samples according ...” with the following paragraph:

Obtain samples according to AASHTO R 66 prior to dilution with water, if allowed, according to Section 00165. Samples are tested at the ODOT Materials Laboratory, or other laboratory as designated by the Agency. Emulsified Asphalt is tested within 30 Calendar Days from the date it is sampled.

Replace the sentence that begins “Furnish CSS-1, CSS-1h...” with the following sentence:

Furnish CSS-1, CSS-1h, CMS-2, CMS-2S, CMS-2h, CRS-1, CRS-2, HFRS-2, HFMS-2 or HPTC as selected by the Contractor.

Replace the paragraph that begins “Dilution of the tack coat ...” with the following paragraph:

Except for HPTC, dilution of the tack coat material may be allowed to a maximum 1:1 ratio. Determine the proportion of water to be added to the Emulsified Asphalt. Do not dilute the Emulsified Asphalt until the Engineer approves the dilution ratio. Add the water to the Emulsified Asphalt and mix according to the asphalt Supplier. For HPTC, dilution of the tack coat material is allowed only by the asphalt Supplier at a ratio meeting the requirements of ODOT's publication *Standard Specifications for Asphalt Materials*.

00730.22 Asphalt Distributor - Replace this subsection, except for the subsection number and title, with the following:

Provide an asphalt distributor designed, equipped, maintained and operated so the Emulsified Asphalt Material may be applied uniformly at even heat. Provide a distributor capable of applying the asphalt on variable surface widths up to 16 feet, at readily determined and controlled rates from 0.05 to 2.0 gallons per square yard, and with uniform pressure. Do not vary any specified rate by more than 0.02 gallons per square yard. Provide distributor Equipment that includes a tachometer, pressure gauges, accurate volume measuring devices and a thermometer for measuring temperature of tank contents. Provide distributors equipped with a positive power unit for the asphalt pump, and full circulation spray bars adjustable both laterally and vertically. Set the bar height for triple lap coverage.

00730.41 Traffic Control - Replace this subsection, except for the subsection number and title, with the following:

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Do not apply the tack to more than one-half the width of the travel way at one time. Allow the remaining width to remain open to traffic. Do not close the open lane until traffic controlled by pilot car is operating on the new surface.

00730.42 Preparation of Underlying Surfaces - Replace this subsection, except for the subsection number and title, with the following:

Immediately before applying the tack coat, provide a clean and dry surface to be tacked. Clean all loose material by brooming, flushing with water or other approved methods.

00730.44 Applying Tack Coat - Replace the paragraph that begins "Apply the Emulsified Asphalt ..." with the following paragraph:

Apply the Emulsified Asphalt with a pressure distributor according to 00730.22, unless otherwise allowed. Apply the Emulsified Asphalt to the prepared surface at a rate between 0.05 and 0.20 gallons per square yard as directed and with the Emulsified Asphalt temperature between 140 °F and 185 °F as recommended by the manufacturer. Application rates for tack coat diluted according to 00730.11 are increased as necessary to provide the same amount of residual asphalt as the application rates specified above.

00730.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing, mixing with water, and placing the Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace this subsection, except for the subsection number and title, with the following:

No separate or additional payment will be made for Emulsified Asphalt tack coat. Approximately 2.1 Tons of Emulsified Asphalt in tack coat is required on this Project.

SECTION 00744 - ASPHALT CONCRETE PAVEMENT

Comply with Section 00744 of the Standard Specifications modified as follows:

00744.10(a) New Coarse and Fine Aggregates - Replace the paragraph that begins "Testing of Aggregates ..." with the following paragraph:

Testing of Aggregates for soundness, durability, and harmful substances is at the discretion and expense of the Agency.

00744.10(a)(1) Soundness - Replace the paragraph that begins "Provide Coarse ..." with the following paragraph:

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Furnish Coarse and Fine Aggregate with a weighted loss not exceeding 12 percent when subjected to five cycles of the soundness test using sodium sulfate solution according to AASHTO T 104.

00744.10(a)(2) Durability - Replace the paragraph that begins "Provide Aggregate ..." with the following paragraph:

Furnish Aggregate not exceeding the following maximum values:

00744.10(a)(3) Fractured Faces - Replace the paragraph that begins "Provide crushed Aggregate ..." with the following paragraph:

Furnish crushed Aggregate with not less than the minimum number of fractured faces as determined by AASHTO T 335 as follows:

00744.10(b) Reclaimed Asphalt Pavement - Replace this subsection, except for the subsection number and title, with the following:

RAP Material used in the production of new ACP is optional. No more than 30 percent RAP Material is allowed in the new ACP Pavement. Use RAP Aggregates in the ACP that are no larger than the specified maximum allowable Aggregate size before entering the cold feed. Blend the RAP Material with new Aggregate to provide a mixture according to the JMF within the tolerances specified.

00744.10(c)(5) Establishing Mix Design Inputs - Replace the paragraph that begins "Blend the RAS ..." with the following paragraph:

Blend the RAS or RAM with new Aggregate to provide a mixture according to the JMF within the tolerances specified.

00744.11(a) Asphalt Cement - Replace this subsection, except for the subsection number and title, with the following:

Furnish asphalt cement according to ODOT's publication *Standard Specifications for Asphalt Materials*. The applicable Specifications are those contained in the current publication on the date the Project is advertised. Use the grade of asphalt that is specified in the Special Provisions.

Provide PG 64-22 grade asphalt cement for this Project.

00744.13 Job Mix Formula Requirements - Replace the paragraph that begins "Develop the JMF ..." with the following paragraph:

Develop the JMF according to the ODOT *Contractor Mix Design Guidelines for Asphalt Concrete*; or verify according to the ODOT mix design verification process. Submit the proposed JMF and supporting data to the Engineer for review and approval at least 10 Calendar Days before anticipated use. Perform a new TSR if the source of the asphalt cement changes.

00744.14 Tolerances and Limits - Replace the paragraph that begins "Develop the JMF ..." with the following paragraph:

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When a JMF tolerance applies to a constituent, full tolerance is given even if it exceeds the control points established in 00744.12(b). Full tolerance is given for RAP, RAS, or RAM content even if it exceeds the limits established in 00744.10.

00744.16 Sampling and Testing - Replace this subsection, except for the subsection number and title, with the following:

For each 1,000 Tons of placement, have a CAT I perform a minimum of one of each of the following test methods as modified in the MFTP:

- Asphalt Content - AASHTO T 308 with ODOT TM 323 determined Calibration Factor
- Gradation - AASHTO T 30
- Mix Moisture - AASHTO T 329
- Maximum Specific Gravity - AASHTO T 209
- Field Compacted Gyratory Specimens - ODOT TM 326

When less than 1,000 Tons of mix is placed in a Day, perform a minimum of one series of tests per Day. Provide test results to the Engineer by the middle of the following work shift. The Engineer may waive the requirement for any of AASHTO T 308, AASHTO T 30, AASHTO T 329, and ODOT TM 326 on a daily basis. The Engineer may waive the requirement for AASHTO T 209 when less than 500 Tons of ACP is placed in a single work shift.

Provide samples or split samples to the Engineer when requested.

00744.17 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

If the test result for each mix gradation constituent, asphalt content, and density measurement is within the Specification limits, the Material is accepted. If the asphalt content, one or more gradation constituents, or the density measurement are not within the specification limits, the Material that is not within the Specification limits is accepted according to 00150.25.

00744.41 Mixing Temperature - Replace the table with the following:

Type	Temperature, °F	
	Maximum at Mixer	Minimum Behind Paver
HMAC	350	240
WMAC	350	215

00744.23 Pavers - Replace the bullet that begins "Self-contained, self-propelled ..." with the following bullet:

- Self-contained, self-propelled, supported on tracks or wheels, that does not contact the mixture being placed.

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Replace the bullet that begins "Equipped with augers ..." with the following bullet:

- Equipped with augers and a screed or strike-off assembly, heated if necessary, that:

Replace the bullet that begins "Equipped with a paver ..." with the following bullet:

- Equipped with a paver control system that:

00744.41 Mixing Temperatures- Replace the paragraph that begins "Establish the allowable ..." with the following paragraph:

Establish the allowable mixing and placement temperature ranges by the JMF. Measure the mixture temperature at the discharge of the mixer. Measure the placement temperature behind the paver. The allowable production temperatures may be adjusted based on the asphalt cement Supplier's recommendation if approved by the Engineer. The maximum mixture temperature and the minimum placement temperature is as follows:

00744.42 Tack Coat - Replace the paragraph that begins "Treat all paved surfaces ..." with the following paragraph:

Treat all paved surfaces on and against where ACP is to be placed with an asphalt tack coat according to Section 00730. Before applying the tack coat, clean and dry the surface to be tacked.

Replace the paragraph that begins "Treat all waterproofing membranes ..." with the following paragraph:

Treat all waterproofing membranes on and against where ACP is to be placed with an asphalt tack coat meeting the requirements of 00744.11(a) or as recommended by the membrane manufacturer.

00744.43(a) Hauling - Replace the paragraph that begins "ACP will be ..." with the following paragraph:

ACP is rejected before placing if one or more of the following occurs:

00744.44 Longitudinal Joints - Replace the paragraph that begins "At longitudinal joints ..." with the following paragraph:

At longitudinal joints, bond, compact and finish the new ACP equal to the ACP against where it is placed.

00744.44(a) Location - Replace the paragraph that begins "Place the ACP ..." with the following paragraph:

Place the ACP in Panel widths that hold the number of longitudinal joints to a minimum. Offset the longitudinal joints in one Panel by at least 6 inches from the longitudinal joints in the Panel immediately below.

00744.44(b) Drop-Offs - Replace the bullet that begins "Construct, maintain, remove ..." with the following bullet:

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- Construct, maintain, remove, and dispose of the temporary wedge at no additional cost to the Agency. ACP for the temporary wedge is paid for at the Contract unit price.

00744.45(a)(1) Temporary End Panel - Replace the bullet that begins "For wedges that will be under traffic for less ..." with the following bullet:

- For wedges that are under traffic for less than 24 hours, construct an 8-foot-long wedge (1V:50H taper rate).

Replace the bullet that begins "For wedges that will be under traffic for 24 ..." with the following bullet:

- For wedges that are under traffic for 24 hours or longer, construct a 25-foot-long wedge (1V:160H taper rate).

Replace the bullet that begins "Construct, maintain, remove ..." with the following bullet:

- Construct, maintain, remove, and dispose of the temporary wedge at no additional cost to the Agency. ACP for the temporary wedge is paid for at the Contract unit price.

00744.45(a)(3) Excess Asphalt Concrete Pavement - Replace this subsection, except for the subsection number and title, with the following:

After completing a temporary end Panel as specified, dispose of unused, remaining ACP as directed. Payment is made for the entire load of ACP, but is limited to only one load for each joint of each Panel.

00744.45(a)(5) Joint Requirements - Replace this subsection, except for the subsection number and title, with the following:

Compact both sides of the joint to the specified density. Test the joint surface according to 00744.70 with a straightedge placed across the joint.

00744.49 Compaction - Replace the paragraph that begins "Determine compliance with..." with the following paragraph:

Determine compliance with density Specifications by random testing of the compacted surface with calibrated nuclear gauges. Determine the density by averaging QC tests performed by a CDT with the nuclear gauge operated in the backscatter mode according to AASHTO T 335 at one random location for each 100 Tons of asphalt concrete placed, but take no less than three tests each shift. Do not locate the center of a density test less than 1 foot from the Panel edge. Calculate MAMD according to ODOT TM 305. The Engineer may waive compaction testing requirements when less than 500 Tons of ACP is placed in a single work shift.

Replace the bullet that begins "**Thin Pavements** - Leveling ..." with the following bullet:

- **Thin Pavements** - Leveling, patches, or where the nominal compacted thickness of a Course of ACP is less than 2 inches.

Add the following subsection:

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00744.51 Opening Sections to Traffic - Schedule work so that, during the same shift, the surfaces being paved are paved full width and length through the wearing Course before opening to traffic.

00744.70 Pavement Smoothness - Replace this subsection, except for the subsection number and title, with the following:

Provide a 12-foot straightedge. Test with a 12-foot straightedge parallel to and perpendicular to the centerline, as directed. Do not vary the Pavement surface by more than 1/4 inch. Mark areas not meeting the surface tolerance.

00744.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

The accepted quantities of ACP incorporated into the Project, whether or not recycled Materials are used, will be paid for at the Contract unit price, per Ton, for the item "Level ____, ____ ACP Mixture ____".

The following is inserted in the blanks:

- The level of ACP "1", "2", "3" is inserted in the first blank.
- The type of ACP "3/4 inch", "1/2 inch", "3/8 inch", is inserted in the second blank.
- The words "in Leveling", "in Temporary", or "in Leveling and Temporary" is inserted in the third blank when applicable.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for:

- Asphalt cement, mineral filler, lime, and anti-stripping or other additives
- Sawing, cleaning, and filling joints on bridge deck overlays

SECTION 00759 - MISCELLANEOUS PORTLAND CEMENT CONCRETE STRUCTURES

Comply with Section 00759 of the Standard Specifications modified as follows:

00759.02 Definitions – Delete this subsection.

00759.03 Required Submittals - Replace the title of this subsection with "**Submittals**"

Replace the paragraph that begins "Material ordered or Work ..." with the following paragraph:

Material ordered or Work performed before the Engineer reviews and returns the documents is at the Contractor's risk.

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00759.03(d) Corrective Action Plan - Replace the paragraph that begins "At least 21 Calendar Days ..." with the following paragraph:

At least 21 Calendar Days before concrete Structures Work is scheduled to begin, submit a corrective action plan. Address procedures to correct deficient Structures through minor corrective action or replacement according to 00759.55(a) in the corrective action plan, and include:

Replace the bullet that begins "List of minor ..." with the following bullet:

- List of minor corrective actions that are used to correct deficiencies, according to 00759.50 and 00759.55.

00759.11 Aggregate Base - Replace this subsection, except for the subsection number and title, with the following:

Furnish Aggregate Base Materials for Base, foundation courses, Leveling courses, or bedding meeting the requirements of 00640.10 or dense graded Base Aggregate in 00641.10 as appropriate and included in the Special Provisions.

00759.12 Curb Ramp Treatment - Delete this subsection.

00759.21 Concrete Extruding Machine - Replace this subsection, except for the subsection number and title, with the following:

Provide concrete extruding machines that operate under sufficient restraint to forward motion to produce a well consolidated mass of concrete.

00759.22(a) Qualified Smart Levels - Replace this subsection, except for the subsection number and title, with the following:

Measure Slopes with the use of a 24-inch SmartTool level model 92379 or model 92500, and a 6-inch SmartTool level model 92346 or 92510.

00759.23 Concrete Resurfacing Equipment - Replace this subsection, except for the subsection number and title, with the following:

Provide power-operated scarifying Equipment capable of uniformly removing and preparing the existing surface to depths required. For concrete grinding operations, provide 12 segment grinders, fine-toothed scarifying Equipment, or other approved grinding Equipment.

00759.42 Foundations - Replace this subsection with the following subsection:

00759.42 Aggregate Base - Before placing concrete, prepare underlying Aggregate Base surfaces according to Section 00641.

00759.43 Foundation Preparation - Replace the paragraph that begins "Bring areas ..." with the following paragraph:

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Bring areas where Structures are to be constructed to established line, and make firm, dry and free of all Unsuitable Material before placing concrete. Provide clean and moist existing concrete surfaces at the time of placing new concrete.

00759.45 Reinforcement, Dowels, and Tie Bars - Replace the paragraph that begins "Provide dowels ..." with the following paragraph:

Furnish dowels with "slip sleeves" and place as load transfer devices where shown. Place dowels without "slip sleeves" as fastenings or ties between new and existing underlying concrete when shown.

00759.48 Expansion Joints - Replace the bullet that begins "Not less than ..." with the following bullet:

- Not less than 1/2 inch wide, except where abutting or underlying concrete joints are larger, then match those joints' width.

Replace the bullet that begins "Which completely ..." with the following bullet:

- That completely separate the concrete segments.

00759.48(a) Curbs, Islands, and Traffic Separators - Replace the paragraph that begins "Provide expansion ..." with the following paragraph:

Construct expansion joints:

00759.48(b) Driveways, Walks, Monolithic Curbs and Sidewalks, and Surfacing - Replace this subsection, except for the subsection number and title, with the following:

Do not construct expansion joints within the curb ramp, and between separate concrete pours on the same Project.

Construct expansion joints:

- Between driveways and concrete Pavement.
- Transversely in walks opposite expansion joints in adjoining curbs and elsewhere so the distance between joints does not exceed 45 feet.
- Transversely in walks at a distance of 16 feet to 8 feet from ends of walks that abut curbs.
- Around poles, posts, boxes, and other fixtures that protrude through or against the Structures.

00759.48(c) Stairs - Replace this subsection, except for the subsection number and title, with the following:

Construct expansion joints for stairs at the top and bottom landings as shown.

00759.49(c) Requirements - Replace this subsection, except for the subsection number and title, with the following:

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Construct contraction joints that:

- Are not less than 1/8 inch or more than 1/4 inch wide.
- Have a depth of one-third the thickness of the concrete.
- Have clean, unfilled grooves (if preformed expansion joint filler is not used).

00759.50(a) General - Replace the paragraph that begins “The top and face...” with the following paragraph:

Construct the top and face of Structures true and straight, free from humps, sags, or other irregularities. Do not vary the surface by more than 1/4 inch from the edge of 12-foot-long straightedge laid on the top or face of the Structure, except in curves. Provide and operate the straightedge as directed. Unless otherwise shown or directed, tool edges to 1/4-inch radius.

Replace the paragraph that begins “Install truncated domes...” with the following paragraph:

Construct tactile surface indicators according to Section 00765 to the slopes, lines, grades, and dimensions as shown or established.

00759.50(c) Driveways, Walks, and Surfacing - Replace the paragraph that begins “The 24-inch smart ...” with the following paragraph:

The 24-inch smart level is used to measure driveway and sidewalk cross slopes on the pedestrian access route.

00759.50(d) Curb Ramps - Replace the paragraph that begins “The 6-inch smart ...” with the following paragraph:

Use the 6-inch smart level to measure the curb running Slope. Use the 6-inch smart level to measure Slopes on portions of the curb ramp, gutter pan, or adjacent surfaces that cannot accommodate a 24-inch smart level. All other curb ramp locations will use a 24-inch smart level to measure Slopes.

00759.51 Curing - Add the following paragraph to the end of this subsection:

Concrete Structures may be opened to Public Traffic before 7 Calendar Days if the concrete has reached a minimum compressive strength of 2,000 psi as verified by the rebound number determined according to ASTM C805. Test at locations as directed.

00759.53 Welding - Replace this subsection, except for the subsection number and title, with the following:

Conform welding, welder qualifications, prequalification of weld details and inspection of welds to AWS D1.1. Submit all welding procedure specifications to the Engineer for approval.

00759.54(b) Accuracy of Punched Holes - Replace this subsection, except for the subsection number and title, with the following:

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Locate all holes punched full size so accurately that when multiple anchor plates are stacked with the edges even, a cylindrical pin 1/8 inch smaller in diameter than the nominal size of the punched hole may be entered perpendicular to the face of the plate without drifting in each of the connecting holes in the same plane. Non-conforming pieces are rejected.

00759.55(a)(2)a. Keyway - Replace this subsection, except for the subsection number and title, with the following:

Sawcut a keyway at the boundaries of repair areas that are not already defined by panel control joints. Sawcut the keyway 1/8 inch wide and 1/4 inch deeper than the edge of the repair area. Bevel inside edge of keyway at a 45-degree angle.

00759.55(a)(2)d. Resurface - Replace this subsection, except for the subsection number and title, with the following:

Furnish concrete resurfacer from the QPL according to 02015.60; refer to QPL remarks to select an appropriate material based on allowable installation depths. Furnish resurfacer in a color that closely matches the color of surrounding concrete surfaces. Mask boundaries of the repair area. Use hand tools to work resurfacer into keyways and match existing grade at boundaries. Apply a light broom-finish to achieve non-slip surface.

00759.55(b) Acceptance of Structures - Replace this subsection, except for the subsection number and title, with the following:

Once the corrective work or replacement has been completed, acceptance is based on the Engineer's inspection and approval of the Structure.

00759.80 Measurement - Replace the bullet that begins "**Each Basis...**" with the following bullet:

- **Each Basis** - Measurement will be by actual count.

00759.90 Payment - Delete Pay Items (k), (l) and (m) from the Pay Item list.

Replace the paragraph that begins "In item (a) the type ..." with the following paragraph:

In item (a) the type of curb is inserted in the blank, if appropriate. Item (a) includes the curb runs constructed adjacent to the curb ramps.

Replace the paragraph that begins "In item (g)..." with the following paragraph:

In item (g), the specified thickness, or type, of concrete Surfacing is inserted in the blank, if appropriate.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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Delete the paragraph that begins "Item (k) includes...".

Delete the paragraph that begins "Item (l) includes...".

Delete the paragraph that begins "Item (m) includes...".

Add the following paragraph before the paragraph that begins "No separate or additional payment...":

Tactile surface indicators will be paid for according to Section 00765.

In the paragraph that begins "No separate or additional payment...", add the following bullet to the end of the bullet list:

- The additional Work required to construct a curb ramp or replace an existing curb ramp, including any corrective action.

SECTION 00760 - UNIT PAVERS

Section 00760 is not a Standard Specification and is included in this Project by Special Provision.

Description

00760.00 Scope - This Work consists of furnishing and installing pervious masonry unit pavers and crushed stone Aggregates to the lines, grades, thicknesses and Cross Sections shown or established.

Materials

00760.10 Unit Pavers - Furnish Eco-Priora permeable pavers meeting the following requirements:

- **Paver Unit Type** - Permeable interlocking concrete pavers, 13% net void space
- **Unit Color** - Gray. Provide sample color for approval
- **Unit Size** - 4" x 8" x 3 1/8"
- **Unit Strength** - 8,000 psi with maximum 5 percent water absorption (ASTM C 936)

00760.11 Crushed Stone Fill, Bedding, Base and Subbase – Furnish Aggregates meeting the following requirements:

- Crushed stone with 90% fractured faces, LA Abrasion < 40 per ASTM C 131, minimum DBR of 80% per ASTM D 1883.

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- Do not use rounded river Gravel.
- All stone Materials must be washed with less than 1% passing the No. 200 sieve.
- Joint fill, bedding, Base and Subbase conforming to ASTM D448 gradation as shown in Tables 00760-1, 00760-2 and 00760-3.
- Smaller Aggregates (Nos. 89, 9 or 10, per ASTM D448) are allowed for filling narrower joints or openings in cases where ASTM No. 8 aggregate is too large to provide adequate fill and compaction.

Table 00760-1

ASTM No. 8 Grading Requirements

Joint Fill and Bedding Course

Sieve Size	Percent Passing
1/2"	100
3/8"	85 to 100
No.4	10 to 30
No. 8	0 to 10
No. 16	0 to 5

Table 00760-2

ASTM No. 57 Grading Requirements

Aggregate Base Course

Sieve Size	Percent Passing
1 1/2"	100
1"	95 to 100
1/2"	25 to 60
No. 4	0 to 10
No. 8	0 to 5

Table 00760-3

ASTM No. 2 Grading Requirements

Aggregate Subbase Course

Sieve Size	Percent Passing
3"	100
2 1/2"	90 to 100
2"	35 to 70
1 1/2"	0 to 15
3/4"	0 to 5

Construction

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00760.40 General - Install pavers according to the manufacturer's instructions.

00760.41 Subbase - Moisten, spread and compact the No. 2 Subbase. Use a vibratory roller and compact first in vibratory mode and then static mode to meet requirements of ODOT TM 158. Do not crush Aggregate with roller.

00760.42 Base – Moisten, spread and compact the No. 57 Base. Use a vibratory roller and compact in the vibratory mode to meet requirements of ODOT TM 158. Do not crush Aggregate with roller.

00760.43 Bedding – Moisten, spread and compact the No. 8 bedding Material. Compact with a static roller to meet requirements of ODOT TM 158. Do not crush Aggregate with the roller.

00760.44 Unit Pavers - Install pavers in a 4' x 8' herringbone pattern. Lay out rows so they are straight and parallel to the surrounding lines. Cut pavers with a masonry saw where necessary to fit pattern to edges. Pavers that are cut and subject to tire traffic must be no smaller than 1/3 of a whole unit. Compact and seat the pavers into the bedding Material using a low-amplitude plate compactor capable of at least 5,000 pounds centrifugal compaction force. This will require at least 2 passes with the plate compactor.

00760.45 Joint Fill and Compaction - Fill paver joints with No. 8 stone or smaller stone as required and specified in 00760.11. Remove excess Aggregate by sweeping pavers clean. Compact the pavers, vibrating the Aggregate into the openings. Apply additional Aggregate to the openings and joints, to fill them completely. Remove excess Aggregate by sweeping and compacting the pavers. Continue the process of applying Aggregate, vibrating and sweeping clean until joints are filled completely.

00760.46 Surface Tolerance - Do not deviate the longitudinal and transverse surface grades by more than 3/8 inch over 10 feet.

00760.47 Clean Up - Remove excess Aggregate and broken paving Material from the site when complete.

Measurement

00760.80 Measurement - The quantities of unit pavers will be measured on the area basis.

Payment

00760.90 Payment - The accepted quantities of unit pavers will be paid for at the Contract unit price, per square foot for the item "Unit Pavers".

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for joint fill, bedding, Base and Subbase.

SECTION 00765 - TACTILE SURFACE INDICATORS

Section 00765 is not a Standard Specification and is included in this Project by Special Provision.

Description

00765.00 Scope - This Work consists of furnishing, placing, and installation of tactile surface indicators, systems, or devices on pedestrian facilities according to the slopes, lines, grades, and dimensions shown or established in Section 00749 or Section 00759 as applicable.

Material

00765.10 Tactile Surface Treatment - Furnish truncated dome detectable warning surfaces for curb ramps, shared use paths, transit stops, rail crossings and accessible route islands as shown from the QPL.

Unless otherwise shown, furnish truncated dome detectable warning surfaces that are safety yellow in color on or along State Highways. Where shown, furnish truncated dome detectable warning surfaces that are colonial red and conform to the following color:

- Fed Std 595C #20109

For temporary installations furnish approved securement mechanisms or surface adhesives to withstand the duration of the temporary installation.

00765.11 Detectable Guide Strips - Furnish surface applied or liquid applied detectable guide strips. Use only adhesives recommended or supplied by the manufacturer. Furnish slip-resistant detectable guide strips from the following list of pre-approved products:

Manufacturer	Material
Vanguard ADA Systems 18122 SR9 Suite F Snohomish, WA 98296 Phone: (360) 668-5700	Liquid Applied GuideStrip / TWSI Color: Blue

00765.12 Tactile Warning Devices - Furnish tactile warning devices as shown or specified.

Labor

00765.30 Personnel Qualifications - Use supervisory personnel who have an active ODOT ADA Certification for Contractors to directly supervise the curb ramp treatment Work. Provide onsite supervisory personnel that are ODOT ADA Certified during the construction and installation of the curb ramp treatment.

Construction

00765.40 Substrate Preparation - Bring areas where the tactile surface indicators are to be installed to the established slopes, lines, grades and dimensions, and make free of all

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Unsuitable Material or voids before installing, applying adhesives, or securing to the underlying substrate. Clean existing surfaces of debris and voids prior to installation.

00765.41 General - During installation do not allow the top and face of the tactile surface indicators to have lips, humps, sags or other irregularities.

Install manufacturer securement mechanism, or adhesives recommended or supplied by the manufacturer for permanent installations.

(a) Truncated Dome Warning Surface - Install detectable truncated dome warning surfaces as shown. Place according to the manufacturer's recommendations. Install abutting truncated dome panels with no more than 1/4-inch spacing. Install anchors along cut edges of truncated dome panels according to manufacturer's recommendations. Seal all cut tiles according to the manufacture instructions or as directed with a flush edge free from vertical discontinuities.

Install surface applied detectable truncated dome warning surfaces on clean and dry concrete surfaces.

After placement of wet set detectable truncated dome warning surface panel, remove uncured concrete from the surface of the panel.

(b) Detectable Guide Strip - Install detectable guide strips as shown. Place according to the manufacturer's recommendation. Place abutting panels within 1/4-inch of each other and install anchors, as specified by manufacturers, along cut edge. Miter adjacent panels at locations where detectable guide strips change direction. Install detectable guide strips on clean and dry concrete surfaces.

(c) Tactile Warning Device - Install tactile warning devices as shown. Place according to the manufacturer's recommendation.

00765.42 Liquid-Applied - Protect liquid applied detectable truncated dome warning surfaces and detectable guide strips after placing and finishing according to manufacturer's instructions.

Measurement

00765.80 Measurement - The quantities of Work performed under this Section will be measured according to the following:

(a) Area Basis - Measurement will be the finished surface, limited to the Neat Lines shown or directed.

(b) Length Basis - Measurement will be along the centerline of the device from end to end as shown or directed.

Payment

00765.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

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- (a) Truncated Domes on New Surfaces, _____ Square Foot
- (b) Truncated Domes on Existing Surfaces, _____ Square Foot
- (c) Detectable Guide Strip, Blue..... Square Foot
- (d) Tactile Warning Device..... Foot

In items (a) and (b), the type of installation “curb ramp”, “rail crossing” or “transit stop” is inserted in the blank.

Item (a) includes installation of truncated domes on a new concrete or asphalt surface. Installation of truncated domes is not considered complete until Work that they are a part of is also complete and accepted according to Section 00749 or Section 00759, as applicable.

Item (b) includes installation of truncated domes on an existing concrete or asphalt surface.

Item (c) includes installation of blue detectable guide strips on concrete or asphalt surface. Installation of detectable guide strips is not considered complete until Work that they are a part of is also complete and accepted according to Section 00749 or Section 00759, as applicable.

Item (d) includes installation of tactile warning device on concrete or asphalt surface.

Payment will be payment in full for furnishing and installation of all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

No separate or additional payment will be made for any repair or replacement of tactile surface indicators associated with repair or replacement Work in other Sections.

SECTION 00815 - BOLLARDS

Comply with Section 00815 of the Standard Specifications modified as follows

00815.11 Posts and Sleeves - Replace this subsection, except for the subsection number and title, with the following:

Use Schedule 40 steel pipe for the posts and either Schedule 40 or Schedule 80 steel pipe for the sleeves, as shown. Use steel pipe according to ASTM A53, Type E, Grade A.

00815.12 Plates, Shapes, Fasteners, and Hardware - Replace this subsection, except for the subsection number and title, with the following:

Use plates and shapes according to ASTM A36. Use fasteners and hardware according to ASTM A449.

00815.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00820 - CONCRETE BARRIER

Comply with Section 00820 of the Standard Specifications modified as follows:

00820.00 Scope - Add the following to the end of this subsection:

This Work also consists of constructing cast-in-place portland cement concrete barrier with moment slab as shown and specified.

00820.10 Materials - Add the following Materials to the Materials list:

Steel Reinforcement for Concrete00530

Structural Concrete.....00540

00820.11(a) Concrete - Replace this subsection, except for the subsection number and title, with the following:

Furnish concrete meeting the requirements of Section 00440, except modify Aggregates as follows:

(1) Fine Aggregate - Furnish Fine Aggregate meeting the test requirements of 02690.30(c) and 02690.30(d) with test results less than 1 year old.

(2) Coarse Aggregate - Furnish Coarse Aggregate meeting the test requirements of 02690.20(b) and 02690.20(c) with test results less than 1 year old.

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00820.11(b) Hardware - Replace this subsection, except for the subsection number and title, with the following:

Furnish pins, bolts, and dowels according to ASTM A449 and hot-dip galvanized according to AASHTO M 232 (ASTM A153).

00820.12(b) Barrier Used on Previous Projects - Replace this subsection, except for the subsection number and title, with the following:

Precast concrete barriers used on previous projects may be reused in permanent installations, provided they meet all the requirements of this Section. Prior to delivery to the Project Site provide documentation required by 00165.10(b) and barriers:

- Are restored to like-new condition, without visible cracks, chips, spalls or corroded loops.
- Present a surface of uniform texture and appearance.
- Are free of markings, except as required by 00820.11(e).

Apply two coats of a water-based coating Material meeting the requirements of 02210.30 after installation in final position.

00820.41 Line and Grade - Replace this subsection, except for the subsection number and title, with the following:

Place precast barrier sections on the Pavement surface. Ensure new Pavement surfaces placed as a part of this Project meet the appropriate smoothness requirement prior to placing the barrier. If corrective work is required for existing surfaces to receive concrete barrier, it is paid according to 00195.20.

Place the barrier sections so that the joints offset no more than 1/4 inch transversely and no more than 1/2 inch vertically.

Construct the top and face of finished barriers true and straight. Construct the top surface of the barriers to uniform width and free from humps, sags, or other irregularities. When a 12-foot straightedge is laid on the top or face of the barrier, do not vary the surface more than 1/4 inch from the edge of the straightedge, except at grade breaks or curves. To compensate for variations in the Roadway grade and cross Slope, adjust the height of the barrier at no additional cost to the Agency.

00820.42 Concrete Construction - Add the following to the end of this subsection:

Construct concrete barrier with moment slab according to Section 00540.

00820.43(a)(2) Latex Paint Cure - Replace the paragraph that begins "Barriers cured in this ..." with the following paragraph:

Barriers cured in this manner are considered to have met the surface finishing requirements of 00820.45 except that additional coats may be necessary to provide uniform coverage and appearance to correct construction damage.

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00820.43(b)(2) Steam Cure - Replace the paragraph that begins "Steam curing can be ..." with the following paragraph:

Steam curing can be substituted for water curing if done under a suitable enclosure constructed to contain live steam and to minimize moisture and heat loss. Steam cure at 100 percent relative humidity to prevent loss of moisture and to provide excess moisture for proper hydration of cement. Do not apply the steam directly to the concrete.

00820.45 Surface Finishing - Replace the paragraph that begins "After stripping forms ..." with the following paragraph:

After stripping forms and while the concrete is still green, remove all fins and form marks, and repair all rock pockets and holes having a surface opening over 3/8 inch in diameter with portland cement grout meeting the requirements of 02080.40. Prevent grout from drying prematurely. Additional finishing after precast concrete barrier is set in its permanent position may be required to present a surface of uniform texture and appearance.

00820.49(a) Test Section - Replace this subsection, except for the subsection number and title, with the following:

Cast a test section at least 25 foot long that:

- Is placed off the final barrier location site
- Has the same section and reinforcement as detailed
- Includes one typical contraction or expansion joint.
- Is removed and disposed of at no additional cost to the Agency

00820.49(b) Prior Performance - Replace the paragraph that begins "Identify at least two ..." with the following paragraph:

Identify at least two recent projects where the Contractor installed slipformed single-slope concrete barrier. For each project, provide the name and phone number of a person the Engineer may contact to determine the success of the installation. The Engineer will determine whether to allow slipforming on the current project.

00820.80 Measurement - Add the following to the end of this subsection:

The quantities of Type "F" concrete barrier with moment slab will be measured on the length basis, from end to end of barrier.

00820.90 Payment – Add the following Pay Item to the Pay Item list:

(g) 42 Inch Type "F" Concrete Barrier With Moment Slab.....Foot

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

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Replace the paragraph and bullets that begins "Payment will be payment ..." with the following paragraph and bullets:

No separate or additional payment will be made for:

- Excavating and backfilling buried ends of concrete barrier
- Securing concrete barrier to the Roadway by means of grout or keyways
- Moving, stockpiling, handling, and pinning removed and reinstalled concrete barrier.

SECTION 00830 - IMPACT ATTENUATORS

Comply with Section 00830 of the Standard Specifications modified as follows:

00830.02 Required Submittals – Replace the title of this subsection with “**Submittals**”

00830.10 Materials – Add the following sentence to the end of the “Type D” list item:

Furnish Quadguard II Wide by Valtir LLC

00830.90 Payment - Replace the paragraph that begins "The type of impact ..." with the following paragraph:

The type of impact attenuator is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor and Incidentals necessary to complete the Work as specified.

SECTION 00850 - COMMON PROVISIONS FOR PAVEMENT MARKINGS

Comply with Section 00850 of the Standard Specifications modified as follows:

00850.11 Flexible Bituminous Adhesive - Replace this subsection, except for the subsection number and title, with the following:

At least 2 weeks before using, submit for Agency testing and approval a 15-pound brick sample of flexible bituminous adhesive for each manufacturer lot number, including previously tested and approved lot numbers that are over 1 year old, that are used on the Project. All previously rejected lot number samples will not be retested. Agency testing and approval is only for acceptance of use of the adhesive.

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00850.44 Alignment Layout – Replace the paragraph that begins "Place control points for lines every ..." with the following paragraph:

Place control points for lines every 40 feet on tangent and every 25 feet on a curve. Place layout transition details at the start of pavement markings, where pavement markings transition into a different pavement marking, and at the end of pavement markings. Using these control points and layout transition details, layout a continuous narrow guideline for each line, along one edge of, or uniformly offset from the intended permanent line location. Do not proceed with installation until the guidelines are approved by the Engineer.

00850.45 Installation - Replace the sentence that begins "Apply pavement marking ..." with the following sentence:

Apply pavement marking Materials to clean dry Pavement surfaces and according to the following:

Replace the bullet that begins "The Pavement surface ..." with the following bullet:

- Ensure the Pavement surface is not visible through the pavement marking.

Replace the bullet that begins "The top of pavement ..." with the following bullet:

- Provide a smooth and uniform top of pavement marking.

Replace the bullet that begins "Skip line ends ..." with the following bullet:

- Provide square and clean skip line ends.

00850.46 Placement Tolerance - Replace the bullet that begins "**Skip Cycle** ..." with the following bullet:

- **Skip Cycle:** A tolerance of 1/10 of the skip line length on the first skip line of a run, but on cycle within one skip

00850.47(c) Retroreflectivity - Replace the paragraph that begins "Except for paint applications ..." with the following paragraph:

Except for paint applications, evaluate longitudinal and transverse marking retroreflectivity according to ODOT TM 777. Acceptance is according to the following:

In the bullet that begins "**Longitudinal Markings**", replace the paragraph that begins "Each longitudinal marking ..." with the following paragraph:

- Each longitudinal marking subplot is accepted if the average of the measurements and at least 90 percent of the individual measurements within the subplot meet or exceed the required minimum initial retroreflectivity.

In the bullet that begins "**Transverse Markings**", replace the paragraph that begins "Each transverse marking ..." with the following paragraph:

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- Each transverse marking subplot is accepted if the average of the measurements and at least 90 percent of the individual measurements within the subplot meet or exceed the required minimum initial retroreflectivity.

SECTION 00860 - LONGITUDINAL PAVEMENT MARKINGS - PAINT

Comply with Section 00860 of the Standard Specifications modified as follows:

00860.45 Installation - Replace the paragraph that begins "Minimum initial retroreflectivity ..." with the following paragraph:

Meet the following minimum initial retroreflectivity:

00860.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00865 - LONGITUDINAL PAVEMENT MARKINGS - DURABLE

Comply with Section 00865 of the Standard Specifications modified as follows:

00865.45 Installation - Replace the bullet that begins "For grooved markings, grind ..." with the following bullet:

- For grooved markings, grind the slot depth as shown. Apply the specified marking Material centered in the slot as shown. Ensure the top of the marking is flat or slightly convex.

00865.75 Manufacturer Warranty - Replace the paragraph that begins "Furnish a manufacturer ..." with the following paragraph:

Provide a manufacturer warranty that unconditionally warrants to the Agency the product(s) and installation under this Section against failure, according to this Subsection and 00170.85(c)(1). Use Agency-supplied warranty forms, available from the Engineer.

00865.90 Payment - Replace the paragraph that begins "In items (a) and (b), ..." with the following paragraph:

In items (a) and (b), the word "Surface" or "Grooved" is inserted in the first blank and the word "Profiled" or "Non-Profiled" is inserted in the second blank.

Replace the paragraph that begins "In items (e) and (f), ..." with the following paragraph:

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In items (e) and (f), "Rolled-In" or "Grooved" is inserted in the first blank and "Patterned" or "Non-Patterned" is inserted in the second blank.

Replace the paragraph that begins "In items (g) and (h), ..." with the following paragraph:

In items (g) and (h), the word "Surface" or "Grooved" is inserted in the first blank and the word "Profiled" or "Non-Profiled" is inserted in the second blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00867 - TRANSVERSE PAVEMENT MARKINGS - LEGENDS AND BARS

Comply with Section 00867 of the Standard Specifications modified as follows.

00867.45 Installation - Replace the paragraph that begins "Transverse joints ..." with the following paragraph:

Transverse joints are allowed with no overlap or gap allowed at the joint.

Replace the paragraph that begins "Minimum initial retroreflectivity ..." with the following paragraph:

Meet the following minimum initial retroreflectivity:

Replace the bullet that begins "**Type A: Liquid, Hot-Laid Thermoplastic Material** ..." with the following bullet:

- **Type A: Liquid, Hot-Laid Thermoplastic Material** - For pavement bars, apply the thermoplastic material to the Pavement by a spray or extrusion method, to the full width shown, in a single application. For pavement legends, apply the thermoplastic material to the Pavement by a spray method, to the full width shown, in a single application. Apply Pavement markings 90 mils to 120 mils in thickness, exclusive of projecting surface-applied reflective elements, with a continuous and uniform cross sectional configuration, and with the upper surface slightly arched.

Separately apply reflective elements to the material as it is placed at a sufficient rate to obtain an initial reflectivity reading of 250 mcd/m²/lx. Locate the dispenser behind the pavement marking extrusion die and uniformly distribute the reflective elements over the entire width of the thermoplastic material.

Replace the bullet that begins "**Type D: Methyl Methacrylate** ..." with the following bullet:

- **Type D: Methyl Methacrylate** - Apply the methyl methacrylate material to the Pavement by a gravity and extrusion method, to the full width shown, in a single

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application. Apply Pavement markings 90 mils to 120 mils in thickness, exclusive of projecting surface-applied reflective elements, with a continuous and uniform cross-sectional configuration, and with the upper surface slightly arched. Provide intermixed reflective elements.

Add the following bullet to the end of this subsection:

- **Type Paint** - Apply paint according to Section 00860.

00867.75 Manufacturer Warranty - Replace the paragraph that begins "Furnish a manufacturer ..." with the following paragraph:

Provide a manufacturer warranty that unconditionally warrants to the Agency the product(s) and installation under this Section against failure, according to this Subsection and 00170.85(c)(1). Use Agency-supplied warranty forms, available from the Engineer.

00867.90 Payment - Replace the paragraph that begins "In items (a) through (s), ..." with the following paragraph:

In items (a) through (s), the type of pavement marking materials is inserted in the first blank.

Add the following paragraph after the paragraph that begins "Item (p) includes one...":

Item (q) includes one "Compact" parking legend as shown. .

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00869 - CURB AND NON-TRAVERSABLE MEDIAN MARKINGS

Section 00869 is not a Standard Specification and is included in this Project by Special Provision.

Description

00869.00 Scope - In addition to the requirements of Section 00850, 00860, and 00865, install curb markings and non-traversable median markings according to the following Specifications.

Labor

00869.31 Manufacturer-Certified Installers - Provide certified installers according to 00850.31 for thermoplastic applications.

Construction

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00869.45 Installation - Apply curb markings and non-traversable Median markings only when the following conditions are met:

- The ambient temperature is at least 50 °F and rising
- The Pavement has been dry for at least 48 hours
- 30 Calendar Days of cure time for new concrete curb or Median.

Apply the Material to the Pavement according to the manufacturer’s installation instructions to the full height and width of curb or Median as shown in the Plans.

Apply one or more of the following marking material types:

- **Paint** - Apply according to 00860.45 along full height of curb face and along full width of top of curb or non-traversable Median.

Measurement

00869.80 Measurement - The quantities of non-traversable Median markings will be measured on the area basis. The quantities of curb markings will be measured on the length basis.

Payment

00869.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(b) Curb Marking, Paint	Foot

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00905 - REMOVAL AND REINSTALLATION OF EXISTING SIGNS

Comply with Section 00905 of the Standard Specifications modified as follows:

00905.40 General - Replace the paragraph that begins "Do not remove signs ..." with the following paragraph:

Do not remove signs from existing supports until new supports are in place, ready to receive the signs. Install the signs on the new supports immediately after removing from existing supports. Furnish temporary supports as required. Furnish permanent supports according to Sections 00910, 00920, and 00930 as required.

Replace the paragraph that begins "Protect specific service signs ..." with the following paragraph:

Protect specific service signs (business logos) and TODS from damage, whether the signs are to remain in place or are placed on temporary supports, until reinstalled on permanent supports. Repair or replace damaged signs at no additional cost to the Agency. Liquidated damages are assessed against the Contractor in the amount of \$200 per Day for each sign out of service for more than 5 Calendar Days.

00905.90 Payment - Replace the paragraph that begins "Payment will be ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00910 - WOOD SIGN POSTS

Comply with Section 00910 of the Standard Specifications modified as follows:

00910.90 Payment - Replace the paragraph that begins "Secure temporary concrete barrier to bridge ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00920 - SIGN SUPPORT FOOTINGS

Comply with Section 00920 of the Standard Specifications modified as follows:

00920.10 Materials - Replace this subsection, except subsection number and title, with the following:

Furnish Materials for constructing sign support footings meeting the following requirements:

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Anchor Bolts	02560.30
Backfill, unless otherwise directed....	00510.10 or 00510.11
Commercial Grade Concrete.....	00440
Reinforcement.....	02510
Structural Concrete	00540

Furnish Commercial Grade Concrete for minor sign support foundations. Furnish structural concrete for major sign support foundations.

00920.41 Concrete - Replace the paragraph beginning "Construct concrete sign foundations..." with the following:

Construct concrete minor sign support foundations according to Section 00440 and the applicable portions of 00540.48(a). Construct major sign support footings according to Section 00540.

00920.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of concrete for minor sign supports are:

Support Type	Quantity
Perforated Steel Square Tube Slip Base Sign Supports	0.09 cu. yd.
Perforated Steel Square Tube Anchor Sign Supports	0.18 cu. yd.

00920.90 Payment - Replace the paragraph that begins "Secure temporary concrete barrier to bridge ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00930 - METAL SIGN SUPPORTS

Comply with Section 00930 of the Standard Specifications modified as follows:

00930.01 Definitions - Add the following definition at the end of this subsection:

Street Name Sign Mount - This group includes plates, brackets, and fasteners necessary to install a street name sign on a sign support.

00930.02 Working Drawings - Replace the paragraph that begins "Submit six copies..." with the following paragraph:

Submit six copies of unstamped Working Drawings according to 00150.35 for all structural metal Work. Submit six copies of stamped designs, details, Plans, and calculations according to 00150.35 for all engineered details and drawings that are not prepared by the Agency but are required by the Contract Documents and Specifications for the Project prior to fabrication.

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Include the Field Verification of Post Lengths form, available from the Engineer. Material ordered or Work performed before the Engineer finishes and returns the documents is at the Contractor's risk.

Replace the paragraph that begins "Working Drawings for these supports..." with the following paragraph:

Working Drawings for these supports are provided by the Engineer. Use the Field Verification of Post Lengths form, available from the Engineer, to provide the necessary site data for the engineer of record to use in producing Working Drawings. Work performed, or Materials ordered, before receiving Working Drawings from the Engineer is at the Contractor's risk.

Replace the paragraph that begins "Include the completed Field Verification..." with the following paragraph:

Include the completed Field Verification of Post Lengths forms that are available from the Engineer for these intelligent transportation systems supports. Material ordered or work performed before receiving approved Working Drawings from the Engineer is at the Contractor's risk.

00930.09 Identifying Tags - Replace this subsection, except for the subsection number and title, with the following:

Furnish stainless steel or brass identifying tags for overhead and butterfly sign support Structures, except structure mounts. Attach tags to all posts, arms, and truss sections. Furnish tags that are at least 1/16 inch thick with lettering at least 1/4 inch in height, and stamped into the tag. Attach the tags with stainless steel pop rivets of at least 3/16-inch nominal body diameter. Do not locate pop rivet holes within 6 inches of welds. Locate post tags approximately 5 feet above the baseplate. Drill holes for pop rivets prior to hot-dip galvanizing. Remove excess hot-dip galvanizing from holes and repair according to ASTM A780.

Include the following information on the tags:

- Structure number
- Manufacturer
- Month and year of manufacture
- Highway number and mile point

00930.10 Materials - Replace the paragraph that begins "Except for Perforated Steel Square ..." with the following paragraph:

Except for Perforated Steel Square Tube Slip Base Sign Supports and for Perforated Steel Square Tube Anchor Sign Supports, galvanize according to the requirements of Section 02530. Galvanize Perforated Steel Square Tube Slip Base Sign Supports and Perforated Steel Square Tube Anchor Sign Supports according to ASTM A653 G90, zinc coat corner seam weld after scarfing, apply a conversion coating, and apply a final clear polymer coating.

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00930.30 Fabricators - Replace this subsection, except for the subsection number and title, with the following:

Fabricators of metal sign supports are required to have either a current AISC Simple Steel Bridge Structures (Sbr) certification or a current AISC Major Steel Bridges (Cbr) certification.

00930.40(a) General - Replace the paragraph that begins "Except for Perforated Steel Square ..." with the following paragraph:

Where two or more posts are required to support a sign, orient and position both posts so that no twist or warp is imparted to the sign panels.

00930.40(b) Assembly of Metal - Replace this subsection, except for the subsection number and title, with the following:

Accurately assemble the parts as shown and follow any match marks. Handle the material carefully so that no parts are bent, broken or otherwise damaged. Clean bearing surfaces and surfaces to be in permanent contact before the members are assembled. Roughen faying surfaces of slip-critical structural connections utilizing high strength bolts by means of hand wire brushing after galvanizing. Power wire brushing is not allowed.

Furnish faying surfaces of plates flat to within a tolerance of 1/32 inch in 12 inches and a tolerance of 1/16 inch overall. Furnish base plates with leveling nuts that are flat to within a tolerance of 1/8 inch in 12 inches and a tolerance of 3/16 inch overall.

00930.40(c) Welding - Replace the paragraph that begins "The fabricator shall ..." with the following paragraph:

Complete the welding inspection by the fabricator according to the details and requirements called out on the Contract Documents. This requirement overrides all appropriate weld inspection requirements called out in Section 5.15 WELDED CONNECTIONS in AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Submit all Procedure Qualification Records, Welding Procedure Specifications, and testing procedures for Engineer's review prior to starting manufacturing. Submit certified copies of inspection reports to the Engineer for review.

Replace the paragraph that begins "If requested by the Engineer ..." with the following paragraph:

If requested by the Engineer, additional weld inspection may be required upon arrival of the material at the Project Site. If defects are found by this additional inspection, the Contractor is responsible for the additional testing and repair costs. If no defects are found, the Engineer is responsible for the additional inspection costs.

00930.40(d) Bolt Installation - Replace the paragraph that begins "Provide all high ..." with the following paragraph:

Furnish all high strength bolts with hardened washers under the element (nut or bolt head) turned in tightening. If a high strength bolt is installed in an oversized or short slotted hole in an outer ply, use a hardened washer. If a high strength bolt is installed in a long slotted hole in an outer ply, use a plate washer or a continuous bar made of structural grade steel at least

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5/16 inch thick with standard holes. Make the washer or bar sufficiently large to completely cover the slot after installation.

00930.40(d)(1) Bolt Installation for Slip Bases (Breakaway) - Replace the paragraph that begins "Furnish, at no additional ..." with the following paragraph:

Provide, at no additional cost to the Agency, a calibrated torque wrench of a capacity appropriate to the size of the high-strength bolts installed and tightened. Confirm the accuracy of the calibrated torque wrench through calibration by an approved testing agency at least once a year.

00930.40(e)(1) General - Replace this subsection, except for the subsection number and title, with the following:

Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening of bolts to determine that the selected tightening procedure is properly used and that all bolts are tightened, and in the case of direct tension indicators that the correct indication of tension has been achieved. Bolts may reach tensions substantially above the value given in Table 00560-1, but this will not be cause for rejection. The installation is rejected if the geometry does not satisfy the requirements of 02560.05.

00930.40(e)(2) Direct Tension Indicator Method - Replace this subsection, except for the subsection number and title, with the following:

Upon completion of a bolted joint, the Engineer will determine that all bolts have been tightened. A minimum of 10 percent, but not less than two bolts in each joint, are inspected. The joint is accepted as properly tightened when one open space allows entry of a 0.005-inch feeler gauge. If there is more than one space between the direct tension indicator protrusions that allow entry of a 0.005-inch feeler gauge, re-inspect all bolts, retighten bolts in the joint as required, and resubmit the joint for inspection. If no spaces exist between the direct tension indicator protrusions that allow entry of a 0.005-inch feeler gauge, replace bolt assembly, tighten bolts in the joint as required, and resubmit the joint for inspection. For connections with all bolts fully tightened, one bolt at a time may be replaced without providing crane support of the mast arm.

00930.40(e)(3) Turn-of-Nut Method - Replace the bullet that begins "In the presence ..." with the following bullet:

- In the presence of the Engineer, use an inspection wrench, that may be a calibrated torque wrench.

Replace the bullet that begins "Tighten each bolt specified ..." with the following bullet:

- Tighten each bolt specified in the paragraph above in the calibration device by any convenient means to an initial condition equal to 20 percent of the required tension, and then to a tension not less than 5 percent greater than specified for its size in Table 00560-1 in Section 00560. Do not produce greater nut rotation than 1.5 times that allowed in Table 00560-3 in Section 00560 when tightening beyond the initial condition. Then apply the inspecting wrench to the tightened bolt and determine the torque necessary to turn the nut or head 5 degrees, approximately 1 inch at 12 inches radius, in the tightening direction. Take the average torque measured in the tests of

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three bolts as the job inspecting torque to be used in the manner specified in the next paragraph.

Replace the bullet that begins "Test bolts that have been ..." with the following bullet:

Test bolts that have been tightened in the Structure and are represented by the sample prescribed above with the inspecting wrench. Apply the job inspecting torque to 10 percent of the bolts, but not less than two bolts selected at random. If no nut or bolt head is turned by this application of the job inspecting torque, the connection is accepted as properly tightened. If any nut or bolt head is turned by the application of the job inspecting torque, test all bolts in the connections. Retighten all bolts whose nut or head is turned by the job inspecting torque, and re-inspect. Retighten all of the bolts in the connection and then resubmit the connection for the specified inspection.

00930.40(f) Tube Bending - Replace this subsection, except for the subsection number and title, with the following:

For Major sign supports, bend tube using induction heating methods according to TPA-IBS-98 *Recommended Standards for Induction Bending of Pipe and Tube*. Provide written bend qualifications that include bending procedures, essential variables, material group, and destructive testing results. Destructive testing results includes yield strength, tensile strength, and elongation at locations indicated in Table 2-1 of the TPA-IBS-98.

00930.41 Adjustable Sign Mounts - Replace this subsection, except for the subsection number and title, with the following:

Furnish adjustable sign mounts that allow vertical adjustment for positioning the sign and allow rotation to plumb the sign. Use galvanized or stainless steel nuts, bolts and washers for fasteners.

00930.80 Measurement - Add the following to the end of this subsection:

The estimated quantities of structural steel are as follows:

Item	Quantity (Pound)
Minor Sign Supports	
Pipe Breakaway Sign Supports	628
Perforated Steel Square Tube Slip Base Sign Supports	78
Perforated Steel Square Tube Anchor Sign Supports	77

00930.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph that begins "No separate or additional payment will..." with the following paragraph:

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No separate or additional payment will be made for:

- Coating steel sign supports
- Route marker frames
- Wind bracing
- Pole clamps
- Stainless steel clamps
- Mast Arm Street Name Sign Mounts
- Street Name Sign Mounts
- Special sign brackets.

SECTION 00940 - SIGNS

Comply with Section 00940 of the Standard Specifications modified as follows:

00940.03 Drawings - Replace this subsection, except for the subsection number and title, with the following:

Copies of Working Drawings for non-standard signs are made available to the Contractor by the Engineer. Construct standard signs called for in the Contract Documents using drawings available in FHWA's *Standard Highway Signs* (FHWA English Version) or ODOT's *Sign Policy and Guidelines for the State Highway System*. The ODOT sign policy is available on the ODOT Traffic Roadway Section website.

00940.10 Materials - Replace the paragraph that begins "Use sign sheeting colors..." with the following paragraph:

Use sign sheeting colors according to the Federal Highway Administration *Color Specifications for Retroreflective Sign and Pavement Marking Materials*. The Engineer will visually determine if all panels in any one sign match the specified color(s).

00940.40 General - Replace the paragraph that begins "Finished signs shall..." with the following paragraph:

Construct finished signs to the designs shown or specified.

00940.41(a) General - Replace this subsection, except for the subsection number and title, with the following:

Fabricate aluminum panel signs as shown or specified. Do not round corners of panels outside the border. Reinforced sheet aluminum signs are not allowed. Furnish new Material for all aluminum used for sign panels.

00940.41(b) Extruded Aluminum - Replace this subsection, except for the subsection number and title, with the following:

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Furnish a continuous section for each panel of extruded aluminum panel signs. Apply the sign sheeting to the extrusion a sufficient distance around the edge to ensure that no aluminum surface is visible on the face of the sign.

00940.41(c) Sheeting - Replace this subsection, except for the subsection number and title, with the following:

Apply the sign sheeting background color of the sign to the extrusions.

00940.42(a) General - Replace the paragraph that begins "Cut the sheet..." with the following paragraph:

Cut the sheet aluminum sign to size and shape as shown or specified. Furnish signs free of buckles, warps, dents, cockles, burrs and defects resulting from fabrication.

00940.42(b)(1) On Posts - Replace this subsection, except for the subsection number and title, with the following:

Signs having a vertical dimension of less than 48 inches and mounted on wood or metal posts are required to have at least two mounting holes. Signs having a vertical dimension of 48 inches or greater are required to have three mounting holes. Place the third mounting hole near the center of the sign. Locate mounting holes so the mounting hardware will not cover any portion of the legend unless otherwise shown.

00940.44 Retroreflective, Reflective, or Nonreflective Sheeting Application - Replace this subsection, except for the subsection number and title, with the following:

Apply the sheeting according to the sheeting manufacturer's recommendations on extruded aluminum panel signs. Up to 25 percent of the extruded aluminum panel signs required in the Plans are allowed one manufacturer's splice for each sign. One patch is allowed for each 50 square feet of sign to a maximum of three patches for each sign. Furnish patches that are between 3/4 inches and 3 3/8 inches in diameter. Contractor splices are not allowed.

On all other signs, manufacturer's splices are not allowed except as noted on approved shop drawings, or when sign dimensions exceed the sheeting manufacturer's capabilities. Make these splices horizontal with the upper section of sheeting overlapping the lower by a minimum of 3/8 inch on encapsulated lens sheeting, and butt splice prismatic lens sheeting with no appreciable substrate visible. The use of overlaid transparent paste or electronic cuttable film is not allowed on overlapped splices. Contractor splices are not allowed.

00940.45(a) General - Replace the paragraph that begins "Spacing between letters or ..." with the following paragraph:

Ensure spacing between letters or numbers meet the requirements of the FHWA *Standard Alphabets for Highway Signs manual*.

Replace the paragraph that begins "Spacing between words for Series..." with the following paragraph:

Spacing between words for Series "E" (modified) legend are 1.5 times the upper case letter height. Spacing between words for other fonts is as tabulated below unless otherwise shown:

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Replace the paragraph that begins "Spacing between symbols ..." with the following paragraph:

Follow the FHWA *Standard Highway Signs* for spacing between symbols, unless otherwise shown.

00940.45(b) Attachment - Replace this subsection, except for the subsection number and title, with the following:

Attach removable legend to aluminum panels using aluminum, domed head, 1/8-inch diameter, self-plugging blind rivets. Remove aluminum shavings from the sign face before attaching the legend. The entire sign is rejected if any shavings are left beneath the legend. Drill 0.128-inch diameter holes in the removable legend and sign panel as shown on the *Mounting Details for Removable Legend* Standard Drawings.

Apply screened legend according to the sheeting manufacturer's recommendations. Apply cut-out legend according to 00940.44.

Attach 1-inch retroreflective removable border sections by placing two rivets 1/2 inch from the end of each border section with additional rivets spaced at a maximum of 6 inches apart, centered in the section. Attach corner border sections with a minimum of five rivets, two rivets 1/2 inch from each end, and the remaining rivet centered in the middle of the section.

Attach 2-inch retroreflective removable border sections by placing two rivets 1/2 inch from the end of each border section with additional rivets spaced at a maximum of 6 inch apart, along the top and bottom edge of the section. Attach corner border sections with a minimum of five rivets, two rivets 1/2 inch from each end, and the remaining rivet centered in the section.

00940.46 Inspection - Replace this subsection, except for the subsection number and title, with the following:

The Engineer will inspect signs at the fabrication shop or at the Project Site or both. Inspection is for conformance to the Plans and Specifications, for conformance to nighttime visibility, and for rejectable defects. Rejectable defects include scratches, scuffs, tears, or any defect that impacts reflectiveness, readability, or performance. Signs not meeting inspection criteria are to be replaced at no additional cost to the Agency. The Contractor's expense for sign inspection is according to 00165.91.

00940.47 Sign Erecting - Replace the paragraph that begins "The closest edge of any..." with the following paragraph:

The closest edge of any column or overhead sign Structures is as shown.

Add the following paragraph to the end of this subsection:

Trim and remove branches, vegetation, or other materials obstructing the visibility of signs by Public Traffic, as directed.

00940.90 Payment - Add the following paragraph(s) to the end of this subsection:

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Trimming and removal of branches, vegetation, or other materials will be paid for according to 00320.90.

Replace the paragraph that begins "Payment will be payment in full..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00950 - REMOVAL OF ELECTRICAL SYSTEMS

Comply with Section 00950 of the Standard Specifications modified as follows:

00950.40 General - Replace the paragraph that begins "Secure temporary concrete barrier to bridge ..." with the following paragraph:

Remove existing materials, as specified or approved, that interfere with or are incompatible with new construction before completion of the new construction. Notify the Engineer at least 4 Calendar Days in advance of removal.

00950.42 Salvaging and Stockpiling Materials - Add the following to the end of this subsection:

The following Materials will remain the property of the Agency. Salvage the Materials and stockpile them on the Project Site as directed. Contact the City of Salem Electrical Crew, 7 Days prior to stockpiling, at (503) 930-0524 to coordinate pickup.

Materials

Riverfront Park Ornamental Street Light (Qty 1)

00950.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 00960 - COMMON PROVISIONS FOR ELECTRICAL SYSTEMS

Comply with Section 00960 of the Standard Specifications modified as follows:

00960.01 Regulations, Standards, and Codes - Replace the paragraph that begins "All electrical Materials ..." with the following paragraph:

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Furnish all electrical Materials and perform all Work according to the following standards where applicable:

00960.02 Equipment List and Drawing Submittals - Replace the paragraph that begins "Within 30 Calendar Days ..." with the following paragraph:

Within 30 Calendar Days after execution of the Contract, submit the Blue Sheets (see 00160.00 and 00160.07) and the Green Sheets (see 00160.00 and 00160.07) according to 00150.37 for all Materials the Contractor proposes to install. Blue Sheets and Green Sheets contain submittal instructions and are made available to the Contractor by the Engineer.

00960.10 Materials - Replace the paragraph that begins "Anchor rods shall ..." with the following paragraph:

Use anchor rods meeting the requirements of 02560.30 and to the types and sizes shown.

00960.30 Licensed Electricians - Replace this subsection, except for the subsection number and title, with the following:

Only individuals that are properly registered or licensed are allowed to perform electrical work, according to Oregon Administrative Rule 918-282-0120(1). Provide a copy of the electrical license or apprentice registration to the Engineer prior to performing any electrical Work. Every person who installs electrical systems on the Project must be licensed as an S or a J under Oregon Administrative Rule 918-282-0140 or 918-282-0170.

00960.41 Horizontal Directional Drilling - Replace the paragraph that begins "Drilling shall ..." with the following paragraph:

Do not "hump" or deform the Pavement during horizontal directional drilling. Use guided horizontal directional drilling. Keep drilling pits at least 2 feet from the edge of Pavement. Do not use water to the extent that the Pavement might be undermined or Subgrade softened. Sand bedding and marking tape are not required with this method.

Add the following subsection:

00960.42(d) Connecting Non-Metallic Conduit to Metallic Conduit - Use a nonmetallic female threaded connector to connect nonmetallic conduit to metallic conduit.

Add the following subsection:

00960.42(g) Conduit on Wood Poles - Mount conduit on wood poles with two-hole, galvanized, steel conduit straps spaced no more than 3 feet apart. Mount conduit on Utility-owned wood poles according to local Utility regulations. Use stand-off brackets if required.

Add the following subsection:

00960.44 Wood Poles - Submit stamped Working Drawings, details, and calculations for the wood pole designs to the Engineer for review according to 00150.35. Satisfy the requirements of 02120.10 and include designs for the wood poles, guy anchors, guy wires, span wires, pole setting depths, and pole bearing.

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00960.45(b) Grounding/Bonding Wire - Replace this subsection, except for the subsection number and title, with the following:

Use a THWN No. 6 AWG stranded copper grounding/bonding wire in conduit or as shown. Use an un-insulated No. 4 AWG stranded copper grounding/bonding wire outside of conduit or as shown. When splicing grounding/bonding wire, use a reversable electrical splice.

Add the following subsection:

00960.45(g) Wood Poles - Bond all metallic conduit, messenger cable, terminal cabinet, and other metallic parts within 10 feet of the ground line.

00960.46 Service Cabinet and Electrical Energy - Replace the paragraph that begins "Install service cabinet ..." with the following paragraph:

Install service cabinet and associated Equipment, then arrange for the Utility providing power to have the service cabinet inspected and make the electrical hook-up prior to field testing. Field test according to 00990.71 for traffic signals, or according to 00970.70 for illumination.

Add the following to the end of the subsection:

Table 00960-1 contains Utility contact information to arrange for the Utility to make electrical hookups:

Table 00960-1

Location	Utility	Utility Contact Person's Name, Email and Phone Number	Utility Job Number
Salem Riverfront Park Parking Lot	Salem Electric	Adam Deshon, P.E. deshon@salemelectric.com 633 7th Street NW PO Box 5588 Salem, Oregon 97304-0055 503-316-2423	WO# 25-091

Furnish and install a meter base approved by the serving Utility (with cover by the Utility), where shown.

Add the following subsection:

00960.47 Metallic Junction Boxes and Lids for Heat Trace System -Construct boxes of cast iron or 1/8 inch nominal welded sheet steel. Make covers from reinforced non-slip steel plate. Hot-dip galvanize boxes and covers after fabrication according to AASHTO M 232 (ASTM A 153). Furnish boxes with a cover gasket that will, with cover in place, form a NEMA 4X watertight fit. Provide covers with stainless steel hex-head cap screws. Recess screw heads in the cover.

Fit boxes with recessed covers so that when the cover is set in the box it's even with the top of the box, with not more than a 1/8 inch gap between any part of the top of the cover and the inside lip edge of the box.

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Furnish junction box with that have the legend "Heat Trace System", stamped or embossed on the cover as appropriate. Furnish letter size that is no smaller than 1/16 of the box width.

00960.71 As-Built Plans - Replace this subsection, except for the subsection number and title, with the following:

Upon completion of the installation, submit a red-lined copy of the original Plans noting all changes made. In the red-lined Plans, include all modifications made to accurately show the operation and materials installed. Sufficiently detail the red-lined Plans to enable maintenance forces to replace or repair any part of the Project under routine or emergency maintenance by direct reference.

SECTION 00962 - METAL ILLUMINATION AND TRAFFIC SIGNAL SUPPORTS

Comply with Section 00962 of the Standard Specifications modified as follows:

00962.01 Regulations, Standards, and Codes - Replace the paragraph that begins "All designs and workmanship ..." with the following paragraph:

Meet the following standards for all designs and workmanship, where applicable:

00962.02 Calculations and Drawings - Replace the paragraph that begins "All engineered details ..." with the following paragraph:

Submit all engineered details and drawings that are not prepared by the Agency, but are required in the Contract Documents, for review prior to fabrication. Stamp and submit designs, details, Plans, and calculations according to 00150.35. Include the Field Verification Forms for Signal and Illumination supports, available from the Engineer.

Replace the paragraph that begins "Upon completion of the installation ..." with the following paragraph:

Upon completion of the installation, submit six copies of all changes made from the original Plans. Include all modifications made and represent the Material installed and in operation. Sufficiently detail the changes to enable maintenance forces to replace or repair any part of the Project under routine or emergency maintenance by direct reference.

00962.10 Materials - Replace the bullet that begins "Provide steel sheet ..." with the following bullet:

- Furnish steel sheet for pole and arms meeting the requirements of ASTM A595, Grade A or B, ASTM A572, or approved equal.

Replace the bullet that begins "Provide all other..." with the following bullet:

- Furnish all other steel sheet and plate meeting the requirements of ASTM A36 or ASTM A572, or approved equal.

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00962.43 Foundations - Replace the paragraph that begins "Where breakaway bases ..." with the following paragraph:

Where breakaway bases are specified, do not exceed the limits shown for the post stub projection.

Replace the paragraph that begins "Where obstructions prevent ..." with the following paragraph:

Where obstructions prevent the construction of planned foundations, construct the foundations in the location directed. Any extra cost due to the site change is paid according to 00195.20.

Replace the paragraph that begins "If it is determined ..." with the following paragraph:

If it is determined that foundations will extend deeper than shown, the extra foundation depth is paid according to 00195.20.

00962.46(b) Pole Height - Replace this subsection, except for the subsection number and title, with the following:

Before poles are ordered, the Engineer will check the pole heights in the field and verify that the specified luminaire mounting heights above Pavement are provided. Furnish upsweep bracket arms of lengths as shown or specified. Furnish traffic signal poles of heights as shown or specified. Height of poles requiring slip plate bases is the length of shaft above the slip plate.

00962.46(c) Mast Arm - Replace this subsection, except for the subsection number and title, with the following:

Install mast arms for traffic signals and signs according to details provided by the manufacturer. Use proper type and size of mounting appurtenances that correctly fit the pole furnished, or as shown. Furnish self-supporting mast arms without tie rods or braces. Furnish tapered mast arms that are either round, 8 sided, 12 sided, or 16 sided.

Ensure all mast arms allow wiring entrances directly into the pole from inside the mast arm.

00962.46(d) Luminaire Arm - Replace this subsection, except for the subsection number and title, with the following:

Ensure the luminaire end of the arm is level when loaded to design weight. Use a bolted, flange type connection to join the upsweep arm to the pole. Furnish connections that are raintight and develop the strength of the arm. Furnish the mast arm rise according to the Metal Light Pole Table, or as shown or specified.

Provide self-supporting arms without tie rods, or braces. Measure upsweep rise from the point of attachment to the pole to the end tangent portion of the arm. Furnish tapered arms that are either round, 8 sided, 12 sided, or 16 sided.

Ensure all arms allow for wiring entrances directly into the pole from inside the arm.

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Furnish pole bracket attachments for mounting upsweep arms with reamed, smooth ends.

The nominal mounting height (MH) shown in the Metal Light Pole Table or on the Plans is the distance between the Roadway at the edge of the Pavement and the luminaire. This height may vary plus or minus 1 foot.

00962.46(e) Deflection - Replace this subsection, except for the subsection number and title, with the following:

Ensure horizontal dead load deflection at the top of the poles does not exceed 1 percent of the pole length (2 percent for strain poles).

00962.46(f) Deviation from Straightness - Replace this subsection, except for the subsection number and title, with the following:

After the poles are delivered to the Project Site, and before they are erected on the foundations, the Contractor may be required to check any or all poles for deviation from straightness according to the following:

(1) Deviation in One Plane and One Direction Only - Ensure a straight line joining the surface of the pole at the base and the same surface of the pole at the top is not more than 1/2 inch from the surface of the pole for each 10 feet of length from the closest of these points. Provide an opposite surface that meets the same requirement.

(2) Deviation in Any Plane - Ensure a straight line connecting the midpoint of the pole at the base, with the midpoint at the top, does not pass through the surface of the pole at any intermediate point.

Any pole not meeting these requirements is rejected. If more than 25 percent of the poles fail to meet these requirements, sufficient cause exists to reject the entire shipment of poles for the Project.

00962.46(g) Welding - Replace this subsection, except for the subsection number and title, with the following:

Weld steel illumination and signal poles according to AWS D1.1. Complete the welding inspection by the fabricator according to details and requirements called out on the Contract Documents. This requirement will override all appropriate weld inspection requirements called out in Section 5.15 WELDING CONNECTIONS in AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. Submit all testing procedures for Engineer's review prior to starting inspection. Submit certified copies of inspection reports to the Engineer for review.

If requested by the Engineer, additional weld inspection may be required upon arrival of the Material at the Project Site. If defects are found by this additional inspection, the Contractor is responsible for the additional testing and repair costs. If no defects are found, the Engineer is responsible for the additional inspection costs.

00962.46(h) Welding Steel After Galvanizing - Replace the paragraph that begins "No field welding ..." with the following paragraph:

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No field welding of galvanized steel is allowed. Remove the existing galvanizing from the heat effected area before welding the effected piece. Perform the weld, remove the galvanizing totally from the entire piece, and hot-dip galvanize it. Submit the following data, stamped according to 00150.35, for review:

Replace the bullet that begins "Description of the..." with the following bullet:

- Description of the Work that is performed

00962.46(i) Identifying Tags - Replace the paragraph that begins "Attach a stainless steel ..." with the following paragraph:

Attach a stainless steel identifying tag to all poles. Furnish tags that are at least 1/16 inch thick with lettering at least 1/4 inch in height, stamped into the tag. Attach tags with stainless steel pop rivets of at least 3/16-inch nominal body diameter. Do not locate pop rivet holes within 6 inches of welds. Locate the pole tag approximately 24 inches below the top of the mast arm or messenger cable attachment point. Locate the tag on the side of the pole furthest from the intersection. Drill holes for pop rivets prior to hot-dip galvanizing. Remove excess hot-dip galvanizing from holes and repair according to ASTM A780.

00962(j) Erecting Metal Poles - Replace the paragraph that begins "Bolt protrusion on slip ..." with the following paragraph:

Do not allow bolt protrusion on slip base poles to interfere with the breakaway action of pole. File sharp edges smooth and repair according to ASTM A780.

00962(j)(2)a.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962(j)(2)b.1. Installation - Replace the paragraph that begins "Furnish, at no ..." with the following paragraph:

Provide, at no additional cost to the Agency, a calibrated torque wrench of a capacity appropriate to the size and type of the bolts being tightened. Confirm the accuracy of the calibrated torque wrench through calibration by an approved independent testing agency at least once a year.

00962(j)(2)b.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present for at least 7 Days after installation showing the rotation past snug tight.

00962(j)(2)c.1. Installation - Replace the paragraph that begins "Provide all high ..." with the following paragraph:

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Furnish all high strength bolts according to the details shown. Use bolt, nut, and washer combinations from the same rotational capacity lot with new and unused direct tension indicators with protrusions in contact with the hardened washer.

00962(j)(2)c.2. Inspection - Replace the paragraph that begins "Notify the Engineer ..." with the following paragraph:

Notify the Engineer in writing at least 24 hours before starting installation. The Engineer will observe the installation and tightening of bolts to determine that the tightening procedures are properly used. Inspect all bolts in each joint. The joint is accepted as properly tightened when one open space allows entry of a 0.005 inch feeler gauge. If there is more than one space between the direct tension indicator protrusions that allow entry of a 0.005 inch feeler gauge, re-inspect all bolts, retighten bolts in the joint as required, and resubmit the joint for inspection. If no spaces exist between the direct tension indicator protrusions that allow entry of a 0.005-inch feeler gauge, replace bolt assembly, tighten bolts in the joint as required, and resubmit the joint for inspection. Connections that have all bolts fully tightened can replace one bolt at a time without providing crane support of the mast arm.

Replace the paragraph that begins "The installation will..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05.

00962(j)(2)d.1. Installation - Replace the paragraph that begins "Protect fasteners from ..." with the following paragraph:

Protect fasteners from dirt and moisture. Lubricate bolt threads and bearing surfaces that turn during installation according to 02560.70. Furnish all high-strength bolts with hardened flat washers under the element turned during tightening.

00962(j)(2)d.2. Inspection - Replace the paragraph that begins "The installation will ..." with the following paragraph:

The installation is rejected if the geometry does not satisfy the requirements of 02560.05 or no permanent felt tip pen marks are present showing the rotation past snug tight.

00962.46(j)(3) Bolt Inspection . Delete this subsection.

00962.46(k) Plate Flatness - Replace the paragraph that begins "Faying surfaces of plates ..." with the following paragraph:

Ensure faying surfaces of plates are flat to within a tolerance of 1/32 inch in 12 inches and a tolerance of 1/16 inch overall. Ensure base plates with leveling nuts are flat to within a tolerance of 1/8 inch in 12 inches and a tolerance of 3/16 inch overall.

00962.48 Coating - Replace the paragraph that begins "Prepare and powder coat ..." with the following paragraph:

Prepare and powder coat supports according to the applicable portions of Section 00593 or prepare and coat supports according to the applicable portions of Section 00594. Furnish

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coating materials for field application, repairing damaged coatings, and coating hardware after installation, according to Section 00593 or 00594. Do not coat:

00962.50 Grounding and Bonding - Replace the paragraph that begins "For fixed base ..." with the following paragraph:

For fixed base poles, furnish a 1/2-inch, Type 308, 309, or 310 stainless steel stud on the inside of the shaft. Locate the stud directly opposite and level with the handhole in the pole. Attach grounding electrode conductors and bonding conductors to the stud with a grounding wire clamp, "acorn style".

SECTION 00970 - HIGHWAY ILLUMINATION

Comply with Section 00970 of the Standard Specifications modified as follows:

00970.03 Luminaire Submittal - Replace this subsection, except for the subsection number and title, with the following:

Furnish a sample luminaire for inspection and photometric testing if required. Sample luminaires may be considered as part of the shipment furnished for installation.

Add the following subsection:

00970.10 In-Line Fuse Holders and Fuses - Furnish in-line fuse holders that meet the following criteria:

- Breakaway two-pole
- Voltage rating of 600V AC and 600V DC
- Ampere rating up to 30 amps
- Interrupting rating 200 kA rms symmetrical or higher
- Flammability Rating UL94 V-2 or higher
- Designed to meet IP67 touch-safe standards
- Includes watertight O-ring seal
- Has insulating boots

Furnish fuses for in-line fuse holders that meet the following criteria:

- Type II Coordination (No Damage Protection)
- Time delay protection
- Current limiting
- Interrupting rating 200 kA rms symmetrical or higher
- Voltage rating of 600V AC and 300 V DC
- Rated 30 amps or higher

00970.42 Cable and Wire - Replace the paragraph that begins "Support the conductors ..." with the following paragraph:

Support the conductors at the top of the pole using a flexible metal cable support grip to prevent insulation damage at the upsweep arm opening. When splicing cable into a new or

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existing circuit at a pole base (minimum wire length: 18 inches outside handhole), install a watertight, in-line fuse holder in the pole base for each current-carrying wire going up the pole. Construct the fuse holder so the wire to the ballast can be disconnected without cutting or disconnecting wiring at the ballast. Insulate terminal ends of the in-line fuse holder using either heat shrink tubing or electrical insulating rubber tape over-wrapped with electrical vinyl plastic tape as specified.

Replace the paragraph that begins "For double arm illumination ..." with the following paragraph:

For double arm illumination pole, install two sets of wires separately from the pole base to each luminaire end. Do not splice wires inside the illumination pole except at the pole base.

Replace the paragraph that begins "Wires from the ballast ..." with the following paragraph:

Furnish wires from the ballast to the lamp holders according to the manufacturer's recommendations.

00970.43 Photocontrol Electronic Relay - Replace the paragraph that begins "Use 1 1/4-inch welded ..." with the following paragraph:

Use 1 1/4-inch welded hub in top of cabinet to install photocontrol electronic relay with minimum 24-inch-long galvanized metal conduit and twistlock plug. When photocontrol relay is attached on the side of the cabinet, use LB type conduit outlet body, 1 1/4-inch galvanized metal conduit riser, and galvanized channel support for the riser. Ensure riser conduit is a minimum of 2 feet above the top of the control cabinet. Secure field installed relay and conduit extensions against vandalism and ensure they are rain tight.

00970.44(c)(2) Lamp Size and Identification Decal Code - Replace the paragraph that begins "Use the lamp size ..." with the following paragraph:

Use the lamp size and color codes according to the following:

Replace the paragraph that begins "¹ In addition, metal ..." with the following paragraph:

¹ In addition, metal halide lamp targets include a 1/2 inch wide by 3-inch-long strip of pressure sensitive, flat top, wide angle reflective tape to show lamp burning position requirements. Apply tape 1/2 inch from the lamp size target as follows:

00970.45 LED Luminaires - Replace this subsection, except for the subsection number and title, with the following:

Install LED luminaires as shown or as specified. See 02926.54.

00970.46 Pole Identification - Replace the paragraph that begins "Identify luminaire poles ..." with the following paragraph:

Identify luminaire poles with a numbered label corresponding to the pole numbers on the highway illumination Plans. Provide labels that:

Replace the bullet that begins "Be made of ..." with the following bullet:

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- Are made of noncorrosive, pressure-sensitive Material suitable for outdoor use and resistant to fading and abrasion.

00970.47 HDPE Conduit and Connectors - Replace the paragraph that begins "High Density Polyethylene (HDPE) conduit may be used..." with the following paragraph:

High Density Polyethylene (HDPE) conduit may be used for horizontal directional drilling (HDD) applications. Provide HDPE conduit that is gray in color. Join HDPE conduit sections by mechanical fittings that have barbed threads on both ends or by a swedge coupler with two-part conduit adhesive.

00970.60 Maintaining Existing and Temporary Illumination Systems - Replace the paragraph that begins "Protect existing illumination ..." with the following paragraph:

Protect existing illumination systems and approved temporary replacements. Shutdown of a system may be allowed for alterations or final removal, as approved. Ensure lighting system shutdowns do not interfere with the regular lighting schedule. Notify the Engineer before performing any Work on existing systems.

00970.70 Field Test - Replace the bullet that begins "A Megger test on each ..." with the following bullet:

- A Megger test on each circuit between the conductor and ground with all switchboards, panelboards, fuse holders, switches, receptacles and overcurrent devices in place. Record all readings. Provide the Engineer with one copy of the test results identifying observed readings with their respective circuits.

Replace the bullet that begins "Test the insulation ..." with the following bullet:

- Test the insulation resistance between conductor and ground. Ensure resistance is as follows on circuits with total single conduction length of:

00970.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph that begins "Item (e) includes..." with the following paragraph:

Item (e) includes all refurbishing, reinstalling, and other Work as specified or shown.

SECTION 00990 - TRAFFIC SIGNALS

This Section title is replaced with the following:

**SECTION 00990 - TRAFFIC SIGNALS, RAMP METERS, FLASHING BEACONS,
INTERCONNECT SYSTEMS & AUTOMATIC TRAFFIC RECORDERS**

Comply with Section 00990 of the Standard Specifications modified as follows:

00990.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

In addition to requirements of Section 00960 and Section 00962, install traffic signals, ramp meters, flashing beacons, interconnect systems, and automatic traffic recorders according to the following Specifications.

00990.12 Traffic Signal Control Devices - Replace the paragraph that begins "The traffic signal controller ..." with the following paragraph:

Furnish the traffic signal controller cabinet and related green sheet Equipment according to requirements of the current edition of the ODOT *Standard Specification for Microcomputer Signal Controller* and errata.

00990.30 Video/Radar Detector Manufacturer's Representative - Replace this subsection, except for the subsection number and title, with the following:

When video/radar detection is shown, provide the services of a manufacturer's representative on-site within 1 week in advance of the anticipated electrical installation completion date to set-up devices with Agency electrical crew present.

Add the following subsection:

00990.40 Work in Existing Controller Cabinets - Install new field wiring as shown into the existing controller cabinet without terminating.

New control equipment installed as shown in an existing controller cabinet is tested prior to installation according to 00990.70.

At existing controller cabinets the Agency is responsible for:

- Storage, delivery, installation, and activation of new control equipment
- Any required modifications to existing control equipment or existing field wiring terminations
- Terminating new field wiring

Prior to the anticipated installation of new control equipment, modification of existing control equipment, or modification of existing field wiring terminations, schedule field testing according to 00990.71. Field testing and activation of the new control equipment or modifications will occur within the same work shift. Be present at the Project Site during field testing.

00990.43 Traffic Control Signs - Replace this subsection, except for the subsection number and title, with the following:

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Furnish and install the type of sign and mount as shown, according to the applicable portions of Section 00940.

Add the following subsection:

00990.45 Repair Open Holes in Metal Poles, Pedestals, and Mast Arms - Repair holes in metal poles, pedestals, and mast arms caused by removal of equipment using pipe plugs. For holes larger than 1 inch in diameter or of irregular shape, submit method and materials to be used.

00990.50 Signal Covers - Add the following paragraph to the end of this subsection:

Signal covers may be omitted for flashing beacon bid items.

00990.70 Testing and Turn-On - Replace this subsection with the following subsection:

00990.70 Chamber Testing - This Work includes testing Equipment that requires chamber testing.

(a) Delivery of Equipment - Provide all Equipment requiring chamber testing for the Project according to the cabinet print(s), including all associated manuals, diagrams, and other documents. The cabinet print(s) are available from the Engineer. Deliver all Equipment, including wiring diagrams and operation manuals, in one shipment. Partial shipments will not be accepted and returned to the Contractor at no additional cost to the Agency. Include the following information with the Equipment shipments:

- Contractor
- Location of Equipment on Project (i.e. street names of Intersection or street alignment/name plus station)
- For controller cabinets, TSSU ID number
- Contract number
- Completed Green Sheets

Deliver the Equipment and information for testing to:

Oregon Department of Transportation
Traffic Systems Services Unit
2445 Liberty St. NE
Salem, Oregon 97303-6738

(b) Equipment Requiring Chamber Testing - The following Equipment is tested by the Agency before being installed:

- Controller unit
- Controller cabinet
- Power supplies
- Input devices
- Output devices

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- Conflict monitors
- Flasher units
- Relays
- Preemption devices
- Auxiliary Equipment in the controller cabinet
- Other Equipment required for the operation of the installation
- Video/radar/hybrid detection systems
- Equipment listed as “chamber tested” on the green sheets

Equipment is tested at no cost to the Contractor.

The Equipment is tested in three categories: physical, functional, and environmental as specified in the *Standard Specification for Microcomputer Signal Controller*. ODOT will require at least 8 weeks for completion and evaluation of the testing.

(c) Equipment Failure - An Equipment failure is any occurrence that results in non-specified operation of the Equipment.

The Engineer will provide notification of any Equipment failures. Make on-site repairs within 5 Days of receiving the notification.

Following repair of the Equipment, the testing is resumed at the beginning of the test category where the failure occurred.

(d) Equipment Rejection - The Equipment is rejected under either of the following conditions:

(1) Twice Fail - The Equipment fails twice in the same testing category.

(2) Failure to Repair - The Contractor fails to repair the Equipment within 5 Days of receiving notification of the failure.

Pick up rejected Equipment within 10 Days of receiving the rejection notice, or it is returned, at Contractor's cost, to the Contractor.

Replace rejected Equipment with Equipment having a different serial number.

Rejected Equipment will not be accepted for testing or installation on any subsequent project within the State of Oregon.

(e) Equipment Acceptance - Equipment that successfully passes the chamber testing procedure is certified by the Agency as acceptable for installation. Acceptability for installation does not guarantee final acceptance of the completed installation.

The successful completion of the testing does not relieve the Contractor of the responsibility to furnish a complete working electrical installation at the time the Equipment is placed in operation.

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The Contractor will be notified when the testing has been completed. Pick up the controller cabinet and video/radar/hybrid detection systems at the test facility.

(f) Controller Cabinet Control Equipment Installation - Be responsible for pick-up, delivery and installation of the controller cabinet and video/radar/hybrid detection systems.

The Agency is responsible for delivery and installation of the other control Equipment, such as controller units, input devices, switch packs, monitor units, miscellaneous plug-in devices and auxiliary devices not physically wired to the controller cabinet.

Equipment that the Agency installs is stored at the test facility until the electrical installation is ready to be turned on.

Add the following subsection:

00990.71 Field Testing - Field testing of electrical installations is performed by Agency electrical crews. Notify the Engineer one week in advance of the anticipated electrical installation completion date.

Field testing is performed within one week following the date of completion. The Engineer will notify the Contractor of the test results.

Information on Agency field testing procedures is available from the Engineer.

Add the following subsection:

00990.72 Turn-on - This Work includes turning on completed electrical installations.

(a) General - The Engineer establish the date and time the electrical installation is to be turned on. The Agency will turn on the electrical installation within one week after completion of corrections identified during field testing.

Be present at the Project Site the date of the turn-on, for the duration of the turn-on process.

After electrical installations are turned on and operating as designed, the agency responsible for maintenance assumes operation and maintenance of the electrical installation. Turn-on does not constitute final approval. The Contractor is still obligated to finish any incomplete portion of the electrical installation and correct problems with workmanship or replace material that does not meet Specifications. After turn-on, damage to the electrical installation caused by conditions beyond the Contractor's control is the responsibility of the maintaining agency.

(b) For Traffic Signals, Ramp Meters, and Automatic Traffic Recorders - The Agency is responsible for providing operating software and timing parameters for traffic signals, ramp meters and automatic traffic recorders. Do not turn on electrical installations without the Agency provided timing parameters.

(c) For Flashing Beacons and Other Electrical Installations - The Agency is responsible for providing the timing and setting parameters for the following flashing beacons and other electric installations as listed in the Green Sheets:

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- 24/7 flashing beacon assembly, yellow + speed feedback
- Actuated flashing beacon assembly (all subcategories)
- Rectangular rapid flashing beacon (RRFB) assembly
- Unintegrated speed feedback assembly

Do not turn on electrical installations without the Agency provided parameters.

00990.90 Payment - Replace the paragraph that begins "In items (a), (b), (c) ..." with the following paragraph:

In items (a), (b), (c), (e), and (f), the intersection location is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

In the paragraph that begins "No separate or additional payment will be...", add the following bullet to the bullet list:

- Conduit installed according to 00960.42(f)

**SECTION 01012 - STORMWATER CONTROL, WATER QUALITY BIOFILTRATION
SWALE**

Section 01012 is not a Standard Specification and is included for this Project by Special Provision.

Description

01012.00 Scope - This Work consists of furnishing and installing a water quality biofiltration swale as shown.

Materials

01012.10 Materials - Furnish Material meeting the following requirements:

Drainage Geotextile, Type 1..... 02320
Granular Drain Backfill Material..... 00430.11
Slope and Channel Liner Matting00280.14(e)

01012.12 Water Quality Mixture - Furnish medium compost meeting the requirements of Section 03020. Furnish soil meeting the following gradation requirements:

Sieve Size	Percent Passing (by Weight)
No. 4	100
No 10	95 - 100
No. 40	40 - 60
No. 100	10 - 25
No. 200	5 - 10

Sample soil according to AASHTO R 90. Determine sieve analysis according to AASHTO T 27 and AASHTO T 11.

Blend the medium compost and soil so that the mixture:

- Is composed of between 20 percent and 25 percent medium compost material and between 75 percent and 80 percent soil material.
- Has a pH between 5.5 and 8.0.
- Does not have clumps greater than 3 inches in any direction.

01012.15 Slope and Channel Liner Matting - Furnish channel liner matting meeting the requirements of 00280.14(e) for resistance to shear stresses calculated for a 10-year storm event.

01012.16 Concrete Inlet Sump - Furnish pavers and related Material meeting the following requirements:

- **Paving Unit Type** - Concrete

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- **Unit Color** - Grey
- **Unit Size** - 4" x 8" and 2" x 16" x 16"
- **Unit Strength** - 8,000 psi minimum with a maximum of 5 percent absorption (ASTM C 936)
- **Adhesive** - Furnish SEK Surebond SB-10 paver bond adhesive or approved equal

01012.17 Rock Mulch – Round 1" – 3/4" Rock. Provide Material that is free of fines and other non-gravel material. Rock colors may vary.

01012.18 Separation Layer Rock – Granular Drainage Backfill Material. Gradation of crushed or uncrushed Rock or Gravel meeting the following grading requirements:

Sieve Size	Percent Passing (by Weight)
	$\frac{3}{4}" - \frac{1}{2}"$
1"	100
$\frac{3}{4}"$	90 - 100
$\frac{1}{2}"$	0-15
$\frac{1}{4}"$	0 - 3

01012.19 Drain Rock – Washed Granular Drainage Backfill Material. Gradation of crushed or uncrushed Rock or Gravel meeting the following grading requirements:

Sieve Size	Percent Passing (by Weight)
	$1 \frac{1}{2}" - \frac{3}{4}"$
2"	100
$1 \frac{1}{2}"$	95 - 100
$\frac{3}{4}"$	0 - 15
$\frac{1}{2}"$	0 – 2

Construction

01012.40 General - Construct water quality biofiltration swale facility as shown. Perform excavation, fine grading, and placement work only when the facility area is dry and only from the top of the swale area. Do not stockpile excavated material in the facility area. Perform work in sequence as follows:

- (a) **Scarify** - Scarify the subsoil area a minimum 12 inches deep.
- (b) **Placement of Water Quality Mixture** - Place the water quality mixture in maximum 12-inch Lifts. Compact each Lift with a water filled landscape roller.
- (d) **Seeding** - Seed according to 01030.13.
- (e) **Slope and Channel Liner Matting** - After seeding install slope and channel liner matting as shown or directed.

01012.50 Concrete Inlet Sump – Construct as shown. Lay out unit pavers so they are straight and parallel. Hand place paver adhesive between unit pavers.

Maintenance

01012.70 Cleaning - If a stormwater control facility is used for erosion and sediment control, remove all accumulated sediment and debris before completing the facility.

01012.71 Removal - Remove temporary erosion and sediment control features according to 00280.70 only after water quality vegetation has met the establishment requirements of 01030.60.

Measurement

01012.80 Measurement - No measurement of quantities will be made for Work performed under this Section. The estimated quantities of Materials are:

Water Quality Swale A Quantities:

Item	Quantity
Excavation	472 Cu. Yd.
Drainage Geotextile, Type 1	124 Sq. Yd.
Water Quality Mixture	46 Cu. Yd.
Matting, Type E.....	74 Sq. Yd.
Rock Mulch.....	6 Cu. Yd.
Separation Layer Rock	3 Cu. Yd.
Drain Rock.....	24 Cu. Yd.
Concrete Inlet Sump	1 Each

Payment

01012.90 Payment - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Water Quality Swale, _____".

The drainage facility identifier is inserted in the blank.

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 01030 - SEEDING

Comply with Section 01030 of the Standard Specifications modified as follows:

01030.02 Definitions - Replace the paragraph that begins "**Noxious Weed** - All Weed ..." with the following paragraph:

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Noxious Weed - All Weed designated by the Oregon State Weed Board as injurious to public health, agriculture, recreation, wildlife, or all public or private property. The Oregon Department of Agriculture (ODA) is the authority in determination of Noxious Weed species.

01030.13(d) Inspection - Replace this subsection, except for the subsection number and title, with the following:

Each lot of seed is subject to inspection upon delivery to the Project. Seed that is not labeled or that does not conform to the Specifications is rejected. Replace rejected seed at no additional cost to the Agency.

01030.13(f) Types of Seed Mixes - Replace the paragraph that begins "Seed mixes, quantities ..." with the following paragraph:

Seed mixes, quantities, standards, seeding rates, and other information is included in the Special Provisions for each type of seed mix.

Replace the bullet that begins "**Plant Seeding** ..." with the following bullet:

- **Plant Seeding** - Seeding that typically includes more than just grass species, such as seeds of woody or herbaceous plants.

Add the following to the end of this subsection:

Provide the following seed mix formulas:

- **Permanent Seeding:**

Botanical Name (Common Name)	PLS Specified Rate (lb/acre)
<i>Achillea millefolium</i> * (White Yarrow)	1.0
<i>Clarkia amoena</i> * (Farewell to Spring)	1.0
<i>Danthonia californica</i> * (California Oatgrass)	2.0
<i>Eriophyllum lanatum</i> * (Oregon Sunshine)	1.0
<i>Festuca roemerii</i> * (Roemer's Fescue)	2.0
<i>Festuca rubra</i> * (Creeping Red Fescue)	2.0
<i>Lolium perenne</i> * (Perennial Ryegrass)	2.0

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<i>Lupinus perennis</i> * (Perennial Lupine)	2.0
<i>Sidalcea campestris</i> * (Meadow Checkerbloom)	2.0
<i>Trifolium repens</i> * (White Clover)	2.0

* Oregon Certified Seed

01030.13(g) Availability - Replace this subsection, except for the subsection number and title, with the following:

Provide a list of seed sources for all specified seeds within 60 Calendar Days after execution of the Contract. Verify that all specified seed has been located and is available for use on the Project. Submit the seed and seed mixes to be used on the project according to 00150.37.

01030.14(b) Type of Fertilizer - Replace the paragraph that begins "Provide the following ..." with the following paragraph:

Furnish the following fertilizer:

01030.14(b)(3) Statewide, Near Water - Replace this subsection, except for the subsection number and title, with the following:

For application within 50 feet of open water, furnish 22-2-11 low-phosphorus fertilizer analyzing 22 percent nitrogen, 2 percent phosphorus, and 11 percent potassium that releases slowly over an eight-to-nine-month period. Furnish fertilizer containing a minimum of 60 percent available water-insoluble, controlled-release nitrogen derived from one of the three sources stated for west of the Cascades above. Furnish phosphorus and potassium that is coated to allow a minimum of 95 percent controlled-release.

01030.15 Mulch - Replace the paragraph that begins "Furnish mulch Materials ..." with the following paragraph:

Furnish mulch Materials free of all Weed or plant seeds and containing no substances detrimental to plant life. The kind of mulch materials acceptable for use is shown, listed in the Special Provisions, or as approved. Furnish mulch meeting the following requirements:

Add the following paragraphs and bullets to the end of this subsection:

Furnish straw mulch for all temporary roadside erosion control seeding, except hydromulch may be used under the following conditions:

- Spring planting west of the Cascades between March 1 and May 15.
- Slopes are steeper than 1V to 1.5H and longer than 16 feet.
- Residential or commercial sites with low erosion potential such as sidewalk, Median, or parking lot planter strips.

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Projects that have variable slopes may include straw mulch and hydromulch when approved.

01030.15(b) Straw - Replace the paragraph that begins "Straw mulch for ..." with the following paragraph:

Straw mulch for non-hydroseeding applications from bentgrass, bluegrass, fescue or ryegrass singly or in combination. Cereal grain straw from barley, oat or wheat may be allowed upon approval of the Agency. Furnish straw that is not moldy, caked, decayed or of otherwise low quality. Submit certification from the Supplier that the straw is free of Noxious Weed seeds or plant parts. Acceptable documentation is any one of the following:

01030.16(a) Liquid Stabilizer Emulsion - Replace this subsection, except for the subsection number and title, with the following:

Tackifier with a base material of liquid, polyvinyl acetate polymers, using emulsion resins and containing not less than 55 percent total solids by weight. Furnish tackifier containing no polyacrylates or polyvinyl acrylics. Furnish an emulsion that, when diluted with water and upon drying, allow exchange of air and moisture to the seeds and have an effective life of 1 year or more.

01030.16(b) Dry Powder Tackifier - Replace the paragraph that begins "Tackifier base consisting ..." with the following paragraph:

Tackifier base consisting of one or more active hydrocolloids from natural plant sources, that hydrates in water and blends with other slurry materials, and upon application and drying tacks the slurry particles to the Soil surface, and exhibits no growth or germination inhibiting factors. Furnish stabilizing emulsion in a dry powder form that may be re-emulsifiable, and consisting of a processed organic adhesive derivative of one of the following:

01030.40 General - Replace the paragraph that begins "Remove all non-approved ..." with the following paragraph:

Remove all non-approved plants resulting from the seed mixes furnished for the Project at no additional cost to the Agency, including erosion protection required during reseeding.

01030.42(b) Weed Control Inspections - Replace the paragraph that begins "Inspect the Project for new growth..." with the following paragraph:

Inspect the Project for new growth of specified weeds at least monthly and apply weed control measures as appropriate. This requirement may be waived by the Engineer during the period that weeds are fully dormant. To ensure satisfactory Weed removal, the last WMA inspection will occur at least 30 Days after growing has begun or as directed.

01030.42(c)(2) Sensitive Areas - Replace the bullet that begins "Inside Sensitive Areas ..." with the following bullet:

- Inside Sensitive Areas, obtain approval before using wheeled or tracked construction Equipment. Requests are approved only when all vegetation in the area is cleared, such as under new Roadways or slopes.

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Replace the bullet that begins "The Engineer..." with the following bullet:

- The Engineer is the authority in the determination of Sensitive Areas.

01030.43(a) Temporary Seeding - Replace this subsection, except for the subsection number and title, with the following:

Temporarily seed disturbed Soils and slopes that are not at finished grade and are exposed for 2 months or longer before being disturbed again. Provide fertilizer, mulch, water, and other amendments necessary to ensure establishment. Ensure that temporary seeding Work achieves the coverage of live plants required by 01030.60 by the end of the next permanent seeding date stated in 01030.43(b). If this coverage is not achieved, or if the Agency determines that it is not effective in stabilizing the Soil from erosion, stabilize the area with other temporary stabilization methods as described in 00280.42 at no additional cost to the Agency.

Add the following subsection:

01030.44(c) Organic Fertilizer - Apply organic fertilizer to planting and seeding area above top of bank where shown or where directed at the rate recommended by soil testing laboratory reports according to 01040.13.

01030.45 Soil Testing - Replace this subsection, except for the subsection number and title, with the following:

When the Contract Schedule of Items include items for "soil testing", test soil according to 01040.13.

01030.48(a)(1)b.2. Step 2 - Replace this subsection, except for the subsection number and title, with the following:

Apply mulch and tackifier. Hydromulch, if used as a tracer in Step 1, is included as part of the specified hydromulch rate specified in 01030.48(a)(3).

01030.48(b)(2)a Straw Mulch - Replace the paragraph that begins "Place straw mulch approximately ..." with the following paragraph:

Place straw mulch approximately 2 inches deep, in loose condition, that requires approximately 2 1/2 Tons per acre of dry mulch, depending on moisture content. Do not use straw mulch on Slopes of 1V:1.5H or steeper.

01030.61(b) All Other Seeding - Replace the bullet that begins "The seeding Establishment Period..." with the following bullet:

- The seeding Establishment Period will end 45 Days after the beginning of the Establishment Period, if the area was seeded within the seeding dates according to 01030.43, and all establishment responsibilities have been met.

Replace the bullet that begins "If the original seeding construction..." with the following bullet:

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- If the original seeding construction is completed and accepted outside the permanent seeding dates, the Establishment Period will end 45 Calendar Days after all necessary reseeding is completed and accepted during the following seeding dates according to 01030.43.

01030.62(b)(3) Weed Control - Replace this subsection, except for the subsection number and title, with the following:

Kill and remove Specified Weeds as directed, prior to the Weeds going to seed. Keep WMAs and seeded areas, Weed Free throughout the Establishment Period.

01030.62(b)(4) Mowing - Replace this subsection, except for the subsection number and title, with the following:

Mowing is required for lawn seeding, water quality seeding and permanent seeding. Do the first mowing of grass when Soil is firm enough to prevent rutting and grass is about 3 inches tall. After mowing, leave grass that is approximately 2 inches tall. At each subsequent mowing, leave about 1 1/2 inches of growth. After the second mowing, grass clippings may be left in place upon written approval. The approval may be granted if mowing is done with a mulching blade.

01030.90 Payment – Delete Pay Items (l) and (m) from the Pay Item list.

Replace the paragraph that begins "In items (c) through (i), ..." with the following paragraph:

In items (c) through (i), the type of seed mix, such as Mix No. 1, if applicable, is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph and bullets that begins "No separate or additional ..." with the following paragraph and bullets:

No separate or additional payment will be made for:

- Mobilization for application by blowers, mechanical spreaders, or hand spreading
- Inspections or maintenance
- Seeding mobilization if it is not included in the Contract Schedule of Items

Replace the paragraph that begins "Soil testing will be..." with the following paragraph:

Soil testing, topsoil, wetland soil, soil amendments, and bio-amendments will be paid for according to 01040.90.

SECTION 01040 - PLANTING

Comply with Section 01040 of the Standard Specifications modified as follows:

01040.02 Definitions: Add the following definitions to the end of this subsection:

Fall - The period beginning on the equinox in September through solstice in December.

Summer - The period beginning on the solstice in June through the equinox in September.

Soil Cells - Soil cells are underground, modular structures that provide a system of uncompacted Soil for urban trees while supporting heavy loads from hardscapes like sidewalks and roads above.

Replace the paragraph that begins "**Permanent Wilting Point** ..." with the following paragraph:

Permanent Wilting Point - The level of Soil wetness at the point a plant wilts and can no longer recover its sustainable turgidity when placed in a saturated atmosphere for 12 hours.

Replace the paragraph that begins "**Root Protection Zone** ..." with the following paragraph:

Root Protection Zone - A generally circular area around an existing plant to be protected from disturbance or compaction by the use of temporary fencing or other means. The zone as actually staked may exceed the current root area to allow for future growth of the plant. Root Protection Zones are shown or staked before construction activities begin.

01040.03(b) Pesticide Applicators License and Chemical Registration - Replace this subsection, except for the subsection number and title, with the following:

Provide evidence to the Agency that each applicator is licensed for the specific class of chemical being applied. Also, provide evidence that any chemical is registered for the proposed use by the Oregon Department of Agriculture according to ORS Chapters 452, 561, 570, and 634.

01040.04(a) Planting Work Plan – Replace the bullet that begins "Plant installation and..." with the following bullet:

- Plant installation

Add the following bullet to the end of the bullet list:

- Plant establishment plan according to 01040.70

Add the following subsection:

01040.05 Submittals – Submit the following for review and approval:

- Contract Growing Plan according to 01040.19(g).

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- Planting work plan according to 01040.04(a).
- Plant establishment plan according to 01040.70.
- Weed Control Work Plan according to 01030.42(a).
- Photo log 10 Days after each plant establishment visit and periodic inspection. Provide date stamped photographs in photo log of each plant establishment site visit with photos of multiple individual plants, seeded areas and weed control areas that are sufficiently close to display plant condition and that are representative of the health, vigor and growth of the site plantings.
- Submit stamped Working Drawings, a minimum of 60 Calendar Days in advance of Soil Cell Work, according to 00150.35. Include the following information in the submittal:
 - Soil cell product compressive data strength and installation guidelines.
 - Layout drawings including typical sections, details, elevations of Materials and Soil Cell units, minimum cover requirements, Soil Cell configurations, passive aeration and irrigation systems.
 - All other Material data required for Soil Cell Work not mentioned above.

Do not order Materials or begin Soil Cell Work before the Working Drawings have been reviewed and accepted according to 00150.35.

01040.10 General - Replace this subsection, except for the subsection number and title, with the following:

Submit a list of Project Materials for approval according to 01040.04(a) before arranging for procurement of any Materials. For materials not approved, submit a list of alternate Materials for approval. Materials installed without approval are subject to removal and replacement with acceptable Material at no additional cost to the Agency.

Substitute Materials may be allowed if proof of equivalent quality, suitable product specifications, manufacturer's literature and other detailed information is provided to the Agency according to 00140.70.

01040.13(a) Soil Fertility Test and Soil Amendment Report - Replace the paragraph that begins "Prior to planting ..." with the following paragraph:

Prior to planting, provide a Soil fertility analysis of existing Soils performed by a certified testing lab. Prior to planting, adjust Soil amendment and fertilizer applications as recommended by the Soil amendment report and as approved by the Agency.

01040.13(a)(1) Sampling - Replace this subsection, except for the subsection number and title, with the following:

Take five samples per acre of each Soil type. Mix the five samples into one test sample for each Soil type. Provide Soil fertility test results that provide information on available nutrient content and fertility status of the Soil. Conduct sampling procedures according to the Oregon State University Extension Service handout EC 628, *How to Take a Soil Sample... and Why*.

01040.13(a)(3) Soil Amendment Report - Replace this subsection, except for the subsection number and title, with the following:

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Provide a report from the testing laboratory summarizing sampling locations and procedures with printed results, and that makes recommendations for fertilizers and Soil amendments to effectively develop productive Soil.

01040.14 Topsoil - Replace the bullet that begins "Provide one 20..." with the following bullet:

- Furnish one 20-pound representative Soil sample of each Topsoil type for testing of particle size range and organic matter by the Agency, unless otherwise specified.

01040.14(a) Selected Topsoil - Replace the paragraph that begins "Furnish native Topsoil ..." with the following paragraph:

Furnish native Topsoil from the required excavations meeting the requirements of 00330.10 or from other Agency-Controlled Lands. The general limits of Topsoil Materials are indicated on the Plans. The Agency will make the final determination of the areas where the most suitable materials exist. Furnish Topsoil that is the fertile part of a Soil profile commonly referred to as the "A" horizon, typically ranging in depth from 3 inches to 12 inches. Do not take material for Topsoil from a depth greater than 12 inches below existing ground, unless approved.

01040.14(c) Wetland Topsoil - Replace the paragraph that begins "Furnish a native..." with the following paragraph:

Furnish a native, naturally hydric Wetland Topsoil consisting of Silts, Clays, and organic matter in combination that is free from substances detrimental to plant growth, such as Noxious Weeds, undesirable plant roots, refuse, sticks, or lumps. Furnish Wetland Topsoil that is from a Wetland with an existing, well established, healthy growth of the desired Wetland plants. Obtain approval of the source before excavation of Wetland Topsoil begins.

01040.15 Soil Conditioners - Replace the paragraph that begins "Soil conditioners..." with the following paragraph:

Soil conditioners are for modifying Soil structure and improving Soil aeration characteristics, as distinguished from plant foods, mulch, and Soil organism amendments. Furnish Soil conditioners free of Noxious Weeds, living plants and rhizomes, and substances detrimental to plant life. For mushroom compost and Peat moss only, submit a 15-pound sample for approval by the Agency prior to construction. Furnish Soil conditioners that are free of weed seeds, excessive salts, chemicals detrimental to plant growth, and pest organisms. Soil conditioners proposed for use are subject to testing at any time or place the Agency deems appropriate.

01040.16 Soil Amendments - Replace the paragraph that begins "Soil amendments..." with the following paragraph:

Soil amendments are intended to improve Soil nutrition. Furnish Soil amendments that are free of materials detrimental to plant life. Provide manufacturer or Supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material. Obtain approval for use before beginning Work. Soil amendments may include the following:

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01040.17 Soil Bio-Amendments - Replace the paragraph that begins "Soil bio-amendments..." with the following paragraph:

Soil bio-amendments are intended to increase beneficial Soil organism numbers or Soil organic nutrient content. Furnish bio-amendment products or materials that are free of substances or life forms detrimental to plant life and receive approval prior to use on the Project. Provide manufacturer or Supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material. The following are typical Soil bio-amendments that may be identified in the Soil bio-amendment report:

01040.18(b) Plant Bags and Tablets - Replace the paragraph that begins "Furnish plant bags..." with the following paragraph:

Furnish plant bags or tablets that are controlled-release with a minimum one-year release period. Chemical formulation, rates and are approved by the Agency.

01040.19(a) Nomenclature - Replace this subsection, except for the subsection number and title, with the following:

Use the most current edition of *Hortus Third*, by Bailey for botanical identification and nomenclature of plant materials. The Agency may authorize use of other references such as the *Sunset Western Garden Book*, the *Flora of the Pacific Northwest*, by Hitchcock, or the *Manual of California Plants*, by Jepson.

Furnish plants according to the applicable requirements of the current issue of the *American Standard for Nursery Stock*, published by the American Association of Nurserymen. When a conflict exists between this publication and the Specifications, the Specifications will prevail.

01040.19(b) Quality - Replace the paragraph that begins "Provide plants that are healthy..." with the following paragraph:

Furnish plants that are healthy, first-class representatives of their species or variety, free from disease and insect pests, with top growth that is well developed and free of disfiguring knots, sun scalds, bark abrasions, wind or frost injury or any other objectionable features.

Replace the paragraph that begins "Furnish plants that are acclimated..." with the following paragraph:

Furnish plants that are acclimated to the specific Project environmental site conditions prior to planting. Store all container-grown and balled and burlapped plant materials acquired for planting a minimum of 3 months before planting, as specified in 01040.41 or 01040.42, at a location north of the Oregon - California border.

Replace the paragraph that begins "Furnish plants that possess..." with the following paragraph:

Furnish plants that possess top growth and root systems typical to their variety. Furnish trees with central leaders that have a symmetrical, well-branched, straight trunk. Trees with a damaged or missing leader, multiple leaders or Y-crotches, or sheared conifer trees are rejected.

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01040.19(c) Certification - Replace the paragraph that begins "Furnish a State..." with the following paragraph:

Provide a State inspection certificate and shipping certificate for each load or lot of plant material that includes the following information:

01040.19(d) Inspection - Replace this subsection, except for the subsection number and title, with the following:

Plants are subject to inspection by the Agency, at any time and place. The Agency will make no plant material inspection at the source, except as it may elect. Notify the Agency of each delivery of plants to the Project site no less than 24 hours ahead of delivery. Do no planting until the plants have been inspected and approved for use. Any planting done without prior approval of the plants is considered in violation of the Specifications.

The presence of Noxious Weeds in the Soil accompanying plants or at the nursery source is cause for rejection of any or all plants from that source.

01040.19(e) Availability - Replace this subsection, except for the subsection number and title, with the following:

Provide a list of nursery sources for all specified plants within 90 Calendar Days after execution of the Contract. Verify, by this list, that all specified plant material has been located and is available for use on the Project. If applicable, see 01040.19(g) for alternate requirements.

01040.19(f) Plant Substitution - Replace this subsection, except for the subsection number and title, with the following:

No substitution of plant materials is allowed unless written evidence is submitted that a specified plant or material cannot be obtained and has been unobtainable since the execution of the Contract. If substitution is allowed, it is by written approval from the Agency for the nearest acceptable variety, size and grade. Make any request for substitution in writing to the Agency with ample time for approval without delaying the Work.

01040.19(h)(2) Deciduous Trees - Replace the paragraph that begins "Trees with leaves that are..." with the following paragraph:

Trees which shed their leaves annually.

01040.19(h)(3) Transplanted Specimen Plants - Replace this subsection, except for the subsection number and title, with the following:

Unique or large plants typically used in low numbers on projects. See the Plans for specimen type, size, and location. Deliver trees to the site that are dormant and with buds that have not yet swelled. Furnish plants that have an unbroken root ball sufficient to sustain continued growth. Ensure that the root ball size conforms to the current edition of the American Standard for Nursery Stock. Furnish plants with no broken limbs or bark abrasions, and cleanly cut off any frayed roots or damaged limbs. Deliver trees that are balled and burlapped, boxed or moved by commercial tree spade.

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01040.19(h)(4) Balled and Burlapped (B&B) Plants - Replace the paragraph that begins "Furnish plants with ..." with the following paragraph:

Furnish plants with root balls securely wrapped in burlap or similar mesh fabrics not harmful to plants, and bound with removable twine or wire. Furnish root balls that are firm, intact and held solidly together by a fibrous root system consisting of only the earth where the plant was growing. "Made" balls are rejected.

01040.19(h)(6) Container Grown Plants - Replace this subsection, except for the subsection number and title, with the following:

Plants that are grown and delivered in containers that possess well-formed top growth and whose root growth is typical to the variety.

Furnish plants that are resident in their delivery containers long enough to have established new fibrous roots, have a root mass that will retain its shape, and hold 90 percent (visual estimate) of the root ball material when removed from their containers. Some root growth should be visible along the outer edges of the container. Root-bound container grown plants and "made" container plants are rejected.

01040.19(h)(7) Seedling Trees - Replace the paragraph that begins "Plants that are grown from seed..." with the following paragraph:

Plants that are grown from seed in a nursery and brought to the site in a bare root condition. Furnish seedlings labeled with age and certification (class number) that shows the length of time grown in a nursery seedbed, followed by the length of time grown in a transplant bed. Furnish seedling trees that are a minimum of 2 years old.

01040.19(h)(9) Plant Cuttings - Replace this subsection, except for the subsection number and title, with the following:

Living, freshly cut branches from certain woody shrub or tree species that readily propagate when embedded in damp Soil. Furnish plant cuttings of regionally native species and dimensions as shown. Obtain written approval of the cutting stock sources before taking any cuttings and provide a brief, written description of the cutting sites and the date and time the cuttings were taken to the Agency. Take cuttings in such a manner so as to leave no long-term damage to the source population. If willow species are called for, select the local native shrub variety.

01040.19(h)(15) Wetland Plants - Replace this subsection, except for the subsection number and title, with the following:

Plants that meet the definition of hydrophyte, that is any macrophyte that grows in water, or on a substrate, that is at least periodically deficient in oxygen as a result of excessive water content.

01040.19(h)(16) Bulbs - Replace this subsection, except for the subsection number and title, with the following:

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For the purposes of this section, these will typically include the forms known as bulbs, corms, culms, plantlets, rhizomes, runners, small offsets, stolons and tubers. These plants are collectively referred to as "Bulbs". The appropriate propagule (plant part that can be separated and used to grow another plant) will vary depending on the plant species.

01040.19(h)(17) Sod Lawn - Replace this subsection, except for the subsection number and title, with the following:

Grass sod grown on agricultural land that is commercially cultivated specifically for turf sod. Furnish sod that is free of Weeds, diseases, harmful nematodes and insects. Furnish sod that is mature, not less than 10 months old, and machine cut to a uniform thickness of 5/8 inch or more, excluding top growth and thatch. Broken pieces and torn or uneven ends will not be accepted. Plant sod within 36 hours of harvest.

01040.20 Mulch - Replace this subsection, except for the subsection number and title, with the following:

Furnish plant bed mulch Materials free of Noxious Weed seeds or plants and that contain no substance detrimental to plant life. Mulches are subject to inspection at any time and place at the discretion of the Agency. The following are some types of Materials that fall under the category of "mulch", and may be used on projects:

(a) **Bark Mulch** - Ground, shredded or broken particles from the bark of fir, pine or hemlock trees that are free of non-bark debris, harmful bacteria, disease spores, pests and substances toxic to plant growth. Furnish mulch that is the standard trade size known as "medium fine mulch".

(b) **Cinder Mulch** - Crushed lava cinders, screened to an approximate size between 3/16 inch to 5/8 inch. Furnish cinders free of fines and other non-cinder material.

(c) **Straw Mulch** - Furnish straw mulch according to 01030.15.

(d) **Rock Mulch** - Round 3/8" - No. 4 pea gravel or round 2" - 3/8" Rock. Furnish Material that is free of fines and other non-gravel material. Rock colors may vary.

(e) **Wood Chip Mulch** - Mulch that is chipped from cleared site vegetation. Ensure that chipped material is free of any Noxious Weeds or invasive vegetation.

(f) **Compost Mulch** - Commercially manufactured medium compost material meeting the requirements of Section 03020, unless otherwise approved.

01040.21 Herbicides - Replace the paragraph that begins "The use of herbicide ..." with the following paragraph:

The use of herbicide chemicals is allowed only upon approval of the Agency. Select and apply chemical herbicides according to all applicable Federal, State and local laws, as well as the WCWP requirements of the PWP. The following are standard herbicide functional categories:

01040.22(b) Moisture Retention Chemicals - Replace this subsection, except for the subsection number and title, with the following:

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Granular chemical that are typically cross-linked potassium based polyacrylate or polyacrylamide copolymers. Furnish commercial quality product from the QPL.

01040.23 Miscellaneous Items - Replace the paragraph that begins "Furnish miscellaneous items ..." with the following paragraph:

Furnish miscellaneous items meeting the following requirements or furnish commercial-quality products from the QPL. Obtain approval from the Agency prior to use.

01040.23(g) Tree Stakes and Ties - Replace this subsection, except for the subsection number and title, with the following:

Rough sawn tree stakes of 1 1/2 inches x 1 1/2 inches Douglas fir or pine, construction grade or better. Use stakes 6 feet long for trees less than 8 feet tall, and stakes 8 feet long for trees 8 feet or taller. Stain all tree stakes with an approved, dark green penetrating oil stain. Furnish tree trunk protection of guying material of either a commercially available tree tie or a section of garden hose. Furnish tree guying material of a commercial product manufactured for this use, such as plastic chain, or stainless steel woven-wire with clamp fasteners. Size the guying material appropriate to the size of the tree and the wind factors of the area.

Add the following subsection:

01040.24 Soil Cell System Materials – Furnish Soil Cell Materials that meet the following requirements:

Soil Cells - Furnish the following Soil Cells:

- R-Tank UrbanForest modular Soil Cell by Ferguson Waterworks
Injection molded plastic units assembled to form a modular structure of predesigned height with 95% water storage void area, 90% surface void area, 55 psi vertical compressive strength, 23 psi lateral compressive strength, and 12" cover to support HS-25 loads.

Soil Cell Planting Medium – Furnish a loamy Soil Cell planting medium that is a blend of 30 to 60 percent sand, 20 to 50 percent silt and 10 to 30 percent clay; falls within the USDA loam textural class; and meets the following requirements:

- A homogeneous mixture of mineral soil and organic matter suitable for supporting plant growth.
- The medium shall be free of weeds, toxic substances, debris, and stones larger than 2 inches.
- Organic Matter Content (Loss on Ignition): 2–7.5%
- Chemical Properties:
 - pH: 5.5–7.0
 - EC: ≤ 2.0 dS/m
 - SAR: ≤ 6
- Physical Properties
 - Bulk Density: 0.9–1.4 g/cm³
 - Infiltration Rate: 0.5–5 in/hr

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- Free of clumps greater than 1/2 inch

Furnish laboratory testing compliance accordance with ODOT-approved, AASHTO, or ASTM methods.

Geogrid - Provide subgrade reinforcement geogrid according to 02320.10.

Aggregate Subbase – Furnish Aggregate Subbase per 00641.10(b).

Geotextile – Provide ACF M200 woven geotextile meeting the following requirements:

- Manufactured using high tenacity monofilament polypropylene yards woven to form a dimensionally stable network. Stabilized to resist ultraviolet exposure degradation and resistant to mildew, insects, Soil chemicals and is non-biodegradable. High flow rate of 145 gpm/ ft² suitable for filtration applications.

Add the following subsection:

01040.30 Personnel Qualifications – Provide Soil Cell installers who are experienced with a minimum of three equivalent projects completed within two years, and a minimum of 25,000 cubic feet of Soil or stormwater storage volume completed within two years. Contractor experience requirements may be waived if the following occurs:

- The manufacturer's representative provides on-site training.
- The manufacturer's representative is on-site during construction for the first five Days of Soil Cell Work.

Provide a Soil Cell manufacturer's technical representative with at least three years' experience with urban Soil Cell installation. Ensure the manufacturer's representative is on-site during the initial installation. Provide the telephone number of a manufacturer's representative who is available on a 24-hour basis throughout the Project duration.

Meet with the Engineer at least 10 Calendar Days prior to beginning Soil Cell Work to discuss methods of accomplishing all phases of Soil Cell Work. Required attendees include:

- The Contractor's supervisory personnel.
- Subcontractors and their supervisory personnel who will be involved in Soil Cell work.
- Soil cell manufacturer technical representative

01040.41 Planting Season (West of the Cascades) - Replace the title of this subsection with "Planting (West of the Cascades)".

01040.42 Planting Season (East of the Cascades) - Replace the title of this subsection with "Planting (East of the Cascades)".

01040.44(c) Hauling and Spreading - Replace this subsection, except for the subsection number and title, with the following:

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Transport select Wetland Topsoil to the site by any means that meets all applicable regulations related to hauling potentially wet or moist materials. Spread the Topsoil to a depth of 6 inches minimum to 24 inches maximum, or to meet the finished elevations as specified on the Plans. Make as smooth as practicable without excessive Soil compaction. After spreading, have the area inspected and approved by the Agency prior to planting.

01040.45 Soil Amendments - Replace this subsection, except for the subsection number and title, with the following:

Incorporate Soil amendments into the Topsoil when required by the Soil fertility test and Soil amendment report. The application rate is verified by checking settings on the spreading or application Equipment.

01040.46 Bio-Amendments - Replace the bullet that begins "Mycorrhizal Inoculation (Injection) ..." with the following bullet:

- Mycorrhizal Inoculation (Injection) - Furnish pre-measured packets containing live endomycorrhizal and ectomycorrhizal fungi.

Replace the paragraph that begins "The application rate ..." with the following paragraph:

The application rate is verified by visual inspection of application rates. A one-time application should be adequate, as long as pesticides, fertilizers or other toxic materials are not used at the same time. If it becomes necessary to apply pesticides that have non-target organism effects, or to apply fertilizer at rates greater than 13 pounds per acre, re-inoculate the organisms about 1 month after the pesticide or fertilizer was applied.

01040.47 Fertilizers - Replace the paragraph that begins "The application rate ..." with the following paragraph:

The application rate is verified by visual inspection. Provide manufacturer or Supplier quality compliance certification according to 00165.35. Ensure that material testing methods meet the requirements of the Oregon Department of Agriculture appropriate to that material.

01040.48 Planting Area Preparation - Replace the paragraph that begins "All planting areas ..." with the following paragraph:

Provide Weed Free planting areas before planting or seeding operations begin. Identify, kill, and remove Weeds according to 01030.62(b)(3).

01040.48(b) Method "B" (Non-Cultivated Planting Areas) - Replace the paragraph that begins "Finish Wetland mitigation planting ..." with the following paragraph:

Finish Wetland mitigation planting areas to specified finish elevations, blending to existing ground smoothly, as required and directed. Except for projects that are less than 1 year in duration and unless otherwise approved, review the hydrology of the area to be planted for the period November 15 to February 28 prior to planting any Wetland plants. Adjust plant types and planting locations as required or directed, based on the review of site hydrology.

01040.48(c) Method "C" (Sod Lawn and Seeded Lawn Areas) - Replace the paragraph that begins "Furnish the Agency ..." with the following paragraph:

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Provide the Agency with sod mixture information and a quality compliance certificate from the sod grower, certifying sod compliance with mixture requirements, according to 01040.10.

01040.49 General Planting - Replace the bullet that begins "Apply bark or wood chip ..." with the following bullet:

- Apply bark or wood chip mulch of the type and depth as shown. Correct contamination of new mulch due to the Contractor's operations at no additional cost to the Agency. Feather mulch into plant material trunks, stems, canes or root collars, and leave 1 inch below the top of junction and valve boxes, curbs and Pavement edges. Any mulch placed to a thickness greater than specified is at no additional cost to the Agency.

01040.50(a)(1) Mechanical Digging - Replace this subsection, except for the subsection number and title, with the following:

Use a tree spade unless otherwise directed. Move only while the tree is dormant. Treat deciduous plants with anti-transpirant prior to excavation. Confirm with the Agency that the size of the spade is appropriate to the size and type of tree prior to beginning Work. Dig the receiving hole prior to digging the tree to be transplanted. Take care not to damage the tree bark. Refill the original hole after transplanting. Do not move Oregon White Oak (*Quercus garryana*) by this method.

01040.50(c) Seedling Trees - Replace the paragraph that begins "No pre-staking of planting ..." with the following paragraph:

No pre-staking of planting locations is required. The Agency will be present as planting begins and will approve the spacing, planting method, and areas to be planted before Work can begin. Vary plant spacing in order to allow seedlings to be planted in suitable Soil. During the planting process, remove one tree at a time from the planting bag or other container to prevent drying of roots.

01040.50(g) Plant Cuttings - Replace this subsection, except for the subsection number and title, with the following:

Collect and plant the cuttings while the plant is dormant, generally between October and March. Notify the Agency if conflicts exist with permit requirements. Store all cut material in ventilated plastic containers that allow free flow of water. Protect root systems from excessive drying at all times. Do not store plants in airtight containers.

Plant stock within 4 hours of harvest. If plants are a willow species, plant in the riparian zone on that portion of the slope where the plant stem ends are in contact with year-round moist Soil as determined by the Agency. Make planting holes by forcing a steel bar or similar tool into the ground about 12 inches deep. Place the cuttings into the holes and tamp Soil firmly around the stems, leaving a minimum of 6 inches showing. Vary these dimensions as required for larger plant cuttings.

01040.53(a) Ornamental Plant Bed Areas - Replace the paragraph that begins "Submit a 15-pound ..." with the following paragraph:

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Submit a 15-pound sample of bark mulch to the Agency for visual inspection and approval. The approved sample is the standard of acceptability for all mulch used on the Project.

01040.53(b)(3) Compost Blanket - Replace this subsection with the following subsection:

01040.53(b)(3) Compost Mulch - Spread compost on top of the Soil to a nominal depth of 3 inches. Where a compost erosion blanket is in place according to 00280.44(f) apply and spread additional compost to achieve a depth of 3 inches.

01040.54(a) Pressure Moisture Stress Sensor - Replace the paragraph that begins "When a pressure moisture ..." with the following paragraph:

When a pressure moisture stress sensor is specified, the Agency will test a 1 to 5 percent representative sample to ensure that the moisture stress level is below 20 bars of pressure and inform the Contractor if any material exceeds this limit. Any plant material found to have greater than 25 bars of pressure is considered to be under extreme moisture stress. Provide sufficient water within 24 hours to bring the plant into normal range. The Agency will retest to determine the new representative pressure. Plant material that have 30 bars or greater is considered to have reached its Permanent Wilting Point. Replace all such material during the next planting period. Testing will occur mid-day at the following times until the end of the Establishment Periods:

Replace the bullet that begins "At 1-month intervals..." with the following bullet:

- At 1-month intervals throughout the Summer, up to the first Fall rain or snow.

Add the following subsection:

01040.57 Soil Cell System Installation – Install geogrid and 3" minimum depth crushed stone subbase, compact to a minimum bearing capacity of 2,000 PSF prior to Soil Cell placement. Place Subbase layer within ½" (+/- ¼") of level.

Install Soil Cells as shown and according to manufacturer recommendations. Do not stockpile Material in the Soil Cell Work Area.

Install Geogrid as shown. Overlap with adjacent panels a minimum of 18 inches and extend 3 feet beyond edge of Soil Cell footprint adjacent to ACP drive aisles.

Provide erosion and sediment control measures to prevent sediment intrusion into the Soil Cells.

Place backfill Material around the outside of the Soil Cells that is clean and free of debris, with a particle size distribution that is appropriate for increasing soil volume in a tree planting application.

Backfill sides of Soil Cells as shown and according to manufacturer recommendations.

Install pervious unit paver system according to Section 00760.

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01040.70 Plant Establishment - Replace this subsection, except for the subsection number and title, with the following:

The Contractor is responsible for the survival of all plant material until the end of a Plant Establishment Period of 1 calendar year. The Plant Establishment Period begins when all the original planting is complete. The original planting is considered complete when all the plant material has been planted to the satisfaction of the Agency.

At a minimum of 15 Days prior to landscape Work, submit the plant establishment plan as part of the planting work plan according to 01040.05. Should the plan become unworkable at any time during Plant Establishment Period, submit a revised plan prior to proceeding with further Work. Include the following in the plant establishment plan:

- Activity descriptions necessary to ensure continued health and vigor of planted and seeded areas according to 01030.60 and 01040.71.
- Proposed scheduling of joint inspection meetings, weeding, and watering/irrigation schedule.
- Materials including herbicides and fertilizers, and Equipment to be utilized for the plant establishment.
- Proposed adaptive management activities for successful establishment of seeded, sodded, and planted areas, during changing environmental conditions or unanticipated weather.

Establishment Period Work includes removing all plants that have reached their Permanent Wilting Point, are dead, dying, or do not meet Specifications, and replacing them with healthy plants. All plants in place after this replacement are recognized as the original planting and are subject to the establishment Specifications. Repair, restore, and replace all plantings that have been damaged by vehicles, vandalized, and stolen according to 00170.80.

01040.71 Plant Care and Success Criteria - Replace the paragraph that begins "The determination of a successful ..." with the following paragraph:

The determination of a successful Plant Establishment Period is made at periodic plant establishment inspections. A successful planting establishment for each inspection is defined as follows:

Replace the paragraph that begins "At the discretion of the Agency, ..." with the following paragraph:

At the discretion of the Agency, certain types of regularly spaced plantings such as groundcovers may be measured using an area sampling method. To determine the rate of survival, set out (delineate) representative plots measuring 100 square feet at the completion of the original planting at random locations in each general planting area. The representative plots are mutually agreed upon between the Contractor and the Agency. Mark the plot corners with permanent markers such as re-bar, including date and identification. Delineate a minimum of three plots per acre of new planting area.

Add the following to the end of this subsection:

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For areas not irrigated by an automatic irrigation system, the following watering frequencies are required:

- Water deciduous trees 1-inch or larger and conifer trees over 4 feet in height as follows:

Time	Frequency	Gallons/Tree (Minimum)
May - June	weekly	15
July - August	weekly	20
September - October	weekly	15

- Water shrubs as follows:

Time	Frequency	Gallons/Shrub
May - June	weekly	5 - 10
July - August	weekly	15 - 20
September - October	weekly	10 - 15

01040.72 Periodic Inspections - Replace the bullet that begins "Spring..." with the following bullet:

- Early May

Replace the bullet that begins "Summer..." with the following bullet:

- Mid-July

Replace the bullet that begins "Fall..." with the following bullet:

- Late September

Replace the paragraph that begins "Depending on when the Establishment ..." with the following paragraph:

Depending on when the Establishment Period begins, one of the above inspections is the final inspection.

01040.73 Corrective Work - Replace the paragraph that begins "The Contractor will be allowed..." with the following paragraph:

The Contractor is allowed to replace plants outside the planting times described in 01040.41 or 01040.42 as applicable to perform corrective work after each periodic inspection.

Replace the paragraph that begins "Furnish plant replacements ..." with the following paragraph:

Furnish plant replacements of the same variety, size, and quality as specified for the original plants, unless otherwise approved.

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01040.75 Weed Control - Replace this subsection, except for the subsection number and title, with the following:

Perform weed control throughout the Plant Establishment Period. Kill and remove Specified Weeds as directed, prior to the Weeds going to seed. Keep the plant areas Weed Free throughout the Plant Establishment Period.

01040.77(b) Trimming and Pruning - Replace the paragraph that begins "Prune during the dormant..." with the following paragraph:

Prune during dormancy unless otherwise specified. Remove and dispose of all dead and critically damaged plant material to maintain the overall appearance of the Project.

01040.77(d) Sod Lawn - Replace the paragraph that begins "Mow, cut and fertilize ..." with the following paragraph:

Mow, cut and fertilize sod lawns as required to maintain a healthy and vigorous condition. A schedule of feeding, mowing, and general treatment, including thatching and aeration is listed in the Special Provisions. Final acceptance of sod lawn areas will depend on its health and condition. Keep sod lawns mowed to a height between 1 1/2 inches to 2 inches.

01040.80(c) Soil Conditioners - Replace this subsection with the following subsection:

01040.80(c) Soil Conditioners and Hydraulically Applied Soil Conditioner - Soil conditioners and hydraulically applied Soil conditioners will be measured according to one of the following:

- **Area Basis** - Hydraulically applied Soil conditioners and other surface applied soil conditioners will be measured on the area basis, along the ground surface.
- **Volume Basis** - Soil conditioners will be measured on the volume basis in the hauling vehicle or in containers delivered to the Project Site.

Add the following subsection:

01040.80(h) Soil Cells – No measurement of quantities will be made for Soil Cell Work. The estimated quantities of Materials are:

Soil Cell Quantities:

Item	Quantity
Crushed Aggregate Subbase	695 Cu. Yd.
Soil Cells with Planting Medium	863 Cu. Yd.
Geogrid	3,268 Sq. Yd.
Geotextile fabric	3,120 Sq. Yd.

Excavation will be paid according to 00330.90.

01040.90 Payment – Add the following subsection:

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001040.90(h) Soil Cells - The accepted quantities of Work performed under this Section will be paid for at the Contract lump sum amount for the item "Soil Cells".

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph and bullets that begin "No separate ..." with the following paragraph and bullets:

No separate or additional payment will be made for:

- Soil amendments
- Lime, gypsum, or trace minerals
- Soil bio-amendments
- Fertilizer
- Herbicides
- Anti-transpirants
- Game repellant
- Browsing protectors
- Pesticides
- Trunk wraps
- Tree stakes and ties
- Water
- Pressure moisture stress sensors
- Mulch materials required as part of replacement planting
- Corrective work during the Plant Establishment Period

01040.90(c) Soil Conditioners - Replace this subsection with the following subsection:

01040.90(c) Soil Conditioners and Hydraulically Applied Soil Conditioner - Soil conditioners will be paid for at the Contract unit price, per cubic yard, for the item "Soil Conditioner".

Hydraulically applied soil conditioners will be paid for at the Contract unit price, per acre or square yard, for the item "Hydraulically Applied Soil Conditioner".

SECTION 01050 - FENCES

Comply with Section 01050 of the Standard Specifications modified as follows:

01050.00 Scope - Delete the bullet that begins "Protective Fences, on and...".

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01050.01(e) Run - Delete the bullet that begins "Bridge protective Fence...".

01050.10 Materials - Delete "Protective Fence Materials, On and Off Structures."

01050.41 Lines, Grades, and Preparation Work - Replace the paragraph that begins "Clear, grub and prepare ..." with the following paragraph:

Clear, grub and prepare the Fence line area. Remove all shrubs, brush, snags, downed timber, float Rock, and other obstacles, including trees up to 6 inches in diameter that interfere with Fence construction. If directed, preserve trees and geographic features on Fence lines by varying the Fence alignment to miss them.

Replace the paragraph that begins "Fill or excavate ground ..." with the following paragraph:

Fill or excavate ground surface irregularities that interfere with maintaining specified clearance above ground surface of the bottom wire of the Fence. Limit the width as necessary to provide a clear way for the Fence.

01050.43(a) General - Replace the paragraph that begins "Set posts to the depths ..." with the following paragraph:

Set posts to the depths shown. Reasonable variation in depths are allowed and posts may be appropriately shortened or left slightly high, as approved by the Engineer, to:

Delete the paragraph that begins "For bridge protective Fence...".

01050.43(a)(1) Driven Posts - Replace this subsection, except for the subsection number and title, with the following:

Ensure posts set by driving are free of damage after installation. Remove and replace any driven posts that are split, twisted or bent, or have a badly misshapen tops.

01050.43(a)(3) Concrete Footings - Replace this subsection, except for the subsection number and title, with the following:

Construct footing to dimensions no less than shown. Place the concrete to fill the excavated areas with contact against firm Soil at the sides and bottom and tamp around the posts and brace ends after the posts and braces have been brought to and firmly held in proper position. Strike off, slope or crown and smooth the surface of the concrete at the ground level to shed water. Allow to cure for at least 5 Calendar Days before subjecting the posts and braces to strain.

01050.43(d)(1) Barbed and Woven Wire Fences - Replace this subsection, except for the subsection number and title, with the following:

At angle of deflection exceeding 5 degrees for Fences with steel line posts or 15 degrees for Fences with wood line posts. Changes in line where the angle of deflection does not exceed the above limitations are considered alignment angles. Make the adjacent line posts at alignment angles fast to the angle post by means of diagonal tension wires.

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01050.43(g)(1) Metal Braces - Replace the paragraph that begins "Provide corner posts ..." with the following paragraph:

Furnish corner posts and intermediate end posts with two braces, one each direction from the post in the main Fence lines. Furnish end posts and Gate posts with one brace in the line of the Fence as shown.

01050.44(a) Placing Fabric and Wire - Replace the paragraph that begins "Place fabric and wire ..." with the following paragraph:

Place fabric and wire on the face of the post that is away from the Highway or as shown. On curved alignment, place the fabric and wire on the face of the post where the normal pull of the fabric and wire is exerted.

Attach Fence fabric and barbed wire to each post according to recognized standard practice for Fence construction and as shown or directed.

01050.44(b) Splicing Fabric and Wire - Replace this subsection, except for the subsection number and title, with the following:

Splices of fabric and splices of separate lines of wire between posts are allowed provided that not more than two fabric or separate wire splices, spaced at least 50 feet apart, occur in any one Run of Fence. Use wrap or telephone type splices for the longitudinal woven wire and barbed wire with each end wrapped around the other wire for not less than six complete turns.

01050.44(e) Swinging Panels at Waterway Crossings - Replace this subsection, except for the subsection number and title, with the following:

At waterway crossings subject to floating debris, if directed, construct wood framed swinging Panels of Fence fabric, barbed wire or combinations. Attach the Panels to the lower wires of the Fence to provide fenced closure of the waterway so there is no unfenced side or bottom openings exceeding 6 inches when the waterway is at its lightest flow or is dry.

01050.44(f) Additional Panels at Depressions - Replace this subsection, except for the subsection number and title, with the following:

If depressions in the ground surface leave unfenced openings greater than 12 inches in height beneath the bottom line of the Fence, provide additional Panels of Fence fabric, barbed wire, or combinations between line posts, as approved, across the opening so no side or bottom openings exceeds 6 inches. If the bottom line of the Fence leaves an unfenced opening beneath it of 12 inches or less, pull the fabric and wires down between posts and anchor with pins or posts driven at least 18 inches into the ground so there is no bottom opening at any point along the Fence greater than 6 inches in height.

01050.44(g) Stay Wires and Final Adjustments - Replace this subsection, except for the subsection number and title, with the following:

Free the fabric and barbed wire in final position from warp and sag with stay wires placed approximately vertical to the grade of the Fence. Retighten brace guys and leave the lever restrained against the Fence fabric or Fence wires.

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01050.45(b)(1) Rails - Replace this subsection, except for the subsection number and title, with the following:

Attach rails to end, Gate and corner posts by clamps and sockets, and thread through loop caps on the end of line posts. Furnish expansion sleeves or couplings at spacings not exceeding 200 feet in longitudinal top and bottom rails.

01050.45(b)(2) Tension Wire - Replace this subsection, except for the subsection number and title, with the following:

Attach tension wire to end, Gate and corner posts by bands and clamps. Either thread the top tension wire through line post loop caps or hold in open slots in a manner to limit vertical movement. Tie or attach the bottom tension wire to the bottom of line posts by ties or clamps in a manner that prevents vertical movement. Furnish tension wires with one turnbuckle or one ratchet take-up in each Run of Fence.

01050.45(c) Chain Link Fence Fabric and Wire - Delete the paragraph that begins "For bridge protective Fence only..."

01050.46 Protective Fences for Bridges – Delete this subsection.

01050.47(a) General - Replace the paragraph that begins "Except for bridge protective Fence..." with the following paragraph:

Provide at least one "ground" for each Run of Fence and place at any post within the Run according to 00960.45(b).

01050.48(a) Metal Gates - Replace this subsection, except for the subsection number and title, with the following:

Install metal Gates and fittings between Gate posts previously set as specified. Firmly attach the fittings to the posts and Gates. Hinge each Single Gate in a manner that prevents removal of the Gate without tools. Set the Gate in an approximately horizontal plane to swing freely inward and outward, and so it can be fastened securely in its latch holder, or in the case of Double Gates, in its latch holder and gate stops. Set Double Gates on their respective hinge pintles to provide a common horizontal plane where each Single Gate swings.

Install Gates to swing open at least of 90 degrees in each direction.

01050.49 Removing and Rebuilding Fence - Replace this subsection, except for the subsection number and title, with the following:

Remove and rebuild existing Fences as shown or directed. Construct Fences to approximately the same condition as the original Fence. Salvage the materials in existing Fences to be removed and rebuilt and incorporate in the rebuilt Fences. Replace Fence materials damaged beyond reuse at no additional cost to the Agency. Firmly reset posts to the staked alignment. Provide the same post spacing and number of wires to be strung and stapled to the posts as the original Fence. Furnish and use new staples or clips to fasten the wires to the posts.

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01050.50(b) Line Posts, Braces, End Posts, Corner Posts, and Gate Post - Replace this subsection, except for the subsection number and title, with the following:

Furnish metal post and brace components. Do not use wood posts and braces.

01050.50(e) Jumpouts - Replace this subsection, except for the subsection number and title, with the following:

Construct jumpouts as shown or directed with Borrow Material according to 00330.12 that contains no particles with any dimension greater than 3 inches. Make jumpouts of uniform grade and compact until there is no reaction or yielding under the compactor. Jumpouts are visually accepted by the Engineer.

01050.80(a) Barbed and Woven Wire Fence and Gateways - Replace this subsection, except for the subsection number and title, with the following:

Barbed wire Fence, woven wire Fence, and barbed and woven wire Fence will be measured on the length basis. Measurement will be from center to center of posts, measured along the line and grade of each separate continuous Run of Fence as constructed, exclusive of Gates. Where existing Fences are extended to intersect the new Fence, the length of extension, from point of joining to the center of the new end post, will be measured and included for payment, if similar in design or type to a Pay Item, otherwise this Work will be paid for according to 00195.20.

01050.80(e) Protective Fence for Bridges - Delete this subsection.

01050.90(a) Barbed and Woven Wire Fence - Replace the paragraph that begins "In item (a) ..." with the following paragraph:

In item (a) the type of Fence is inserted in the blank.

Replace the paragraph that begins "In items (b) and (c) ..." with the following paragraph:

In items (b) and (c) the width of the Gate opening is inserted in the blank.

01050.90(b) Chain Link Fence - Replace the paragraph that begins "In item (a) ..." with the following paragraph:

In item (a) the type of Fence is inserted in the blank.

Replace the paragraph that begins "In item (b) ..." with the following paragraph:

In item (b) the type of Fence is inserted in the first blank and the type of Material or pickets used for screening is inserted in the second blank.

Replace the paragraph that begins "In item (c) ..." with the following paragraph:

In items (c) and (d) the width of the Gate opening is inserted in the first blank and the height of Gate is inserted in the second blank.

01050.90(c) Protective Fence for Bridges - Delete this subsection.

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01050.90(e) Wildlife Fence - Replace the paragraph that begins "In item (c) ..." with the following paragraph:

In items (c) and (d) the width of the Gate is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 01095 - SITE FURNISHINGS

Section 01095 is not a Standard Specification and is included in this Project by Special Provision.

Description

01095.00 Scope - This Work consists of installing precast concrete wheel stops as shown or directed.

Materials

01095.10 General - Furnish all Equipment required to perform the Work as shown or directed.

01095.11 Wheel Stops – Furnish wet cast concrete wheel stops with the following properties:

- **Concrete** – Commercial Grade Concrete meeting the requirements of Section 00440.
- **Color** – Consistent natural color of wet cast concrete.
- **Finish** – Smooth-face wheel stops that, when viewed from a distance of 10 feet under diffused light, chips, cracks, and other imperfections are not detectable.

01095.12 Rebar - Minimum reinforcement for each wheel stop should include 2 No. 4 bars placed longitudinally. Anchor wheel stops to PCC surfacing using No. 4 bars.

Construction

01095.40 General - Install precast concrete wheel stops as shown and specified.

Resin bond rebar anchors into PCC surfacing according to Section 00535.

Measurement

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01095.80 Measurement - The quantities of precast concrete wheel stops will be measured on the unit basis.

Payment

01095.90 Payment - The accepted quantities of precast concrete wheel stops will be paid for at the Contract unit price, per unit of measurement, for the following item:

Pay Item	Unit of Measurement
(a)Precast Concrete Wheel Stop	Each

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 01120 - IRRIGATION SYSTEMS

Comply with Section 01120 of the Standard Specifications modified as follows:

01120.01 Qualifications – Add the following to the end of this subsection:

Provide the following to the Engineer 14 Calendar Days prior to the start of irrigation Work:

- Proof of professional irrigation certification
- Proof of the Rain Bird factory training program completion by personnel performing irrigation Work. One employee who completed the training must be on-site at all times during irrigation Work.

01120.10 General - Replace this subsection, except for the subsection number and title, with the following:

Furnish only commercial quality Materials and Equipment. All items proposed for use are subject to testing to ensure compliance with the Specifications. Furnish Materials of the same function that are of the same type and the same manufacturer.

Submit a list of proposed materials for approval as soon as practicable after Award and before arranging for procurement of any materials, especially those materials or products not shown or specified. If any initially proposed materials are not approved, submit substitutes for approval. Any materials installed without approval are subject to removal and replacement with acceptable material at no additional cost to the Agency.

Materials may be designated by trade name or by manufacturer's catalogue information as shown or specified. The use of a substitute material may be allowed if a written request for substitution and proof of equivalent quality and suitability are provided. Make any request for substitution with ample time for approval without delaying the Work.

When alternate Equipment, such as sprinkler heads, is proposed for use with hydraulic characteristics differing from that originally shown, provide the following:

- A redrafted, legible plan that shows the redesigned layout, location, or sizes of every affected system element as required for proper operation as originally designed. Provide a plan showing every relevant system element, site feature, and plan element that was shown on the original plan. A plan made by marking up the original plan will not be accepted.
- A hydraulic calculation table for the alternate Equipment. At a minimum, show a complete calculation for one average sprinkler zone (section) and a complete calculation for the "worst case" sprinkler zone (i.e., the section that is farthest from the point of connection (P.O.C.), is the largest, or otherwise presents the most challenging hydraulics). Starting from the P.O.C., show the calculation with a step-down method with flow and loss at each piece of Equipment and length of pipe run between Equipment. Show the new total water required for each zone and the total for all zones to ensure that maximums for meter size, pipe sizes, and watering times will not be exceeded.

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- Where any controller run-time change is required, submit a separate page showing the total timing per controller required for each section, to show that timing changes will still allow all zones to be run within a reasonable time period.
- A cost page showing the Contractor's actual discount cost from the Suppliers, comparing the original plan costs versus the proposed Equipment costs for each type of item, such as pipe by size, where there is a change required. Show the line total of each type of item and the grand total for the proposed change.

01120.11 Pipe, Tubing, and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Furnish galvanized iron or steel, PVC, or polyethylene pipe as shown or specified that meets the following requirements:

(a) Galvanized Pipe and Fittings - Furnish pipe of standard weight, hot-dip galvanized iron or steel, standard threaded, coupled, and that meets the requirements of ASTM A53. Non-standard threaded fittings are rejected.

(b) Polyvinyl Chloride Pipe and Fittings - Furnish PVC pipe and fittings of PVC compound Type 1, Grade 1, according to ASTM D2241 and certified approved by the National Sanitation Foundation. Furnish pipe and fittings free from defects caused by poor materials, low quality of Work, or rough handling. Dimensional and quick burst tests of pipe and fittings may be required after arrival at the Project Site before materials are accepted.

Furnish pipe and fittings as follows:

Used for	Class or Schedule
Main and lateral lines	Class 200 or Schedule 40 PVC
Irrigation sleeves	Schedule 40 PVC
Caps	Schedule 80 PVC
Direct bury pipe, not in sleeves, placed under road beds or other paved areas	Schedule 40 PVC

Unless otherwise specified or shown, furnish entire Project with one pipe class or schedule type.

Furnish PVC threaded pipe of PVC 1120, schedule 80 material according to ASTM D1785.

Furnish PVC solvent-weld pipe of PVC 1120 materials having a 200-psi minimum pressure rating with SDR 21 walls according to ASTM D2241.

Furnish PVC pipe fittings according to ASTM D2466, Type I, Grades 1 or 2.

Pipe may be belled on one end with the dimensions of the tapered bell according to ASTM D2672.

Install PVC pipe with walls heavier than SDR 21 when shown or specified.

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(c) Non-Potable Colored Coded Pipe - Wherever non-potable, reclaimed or reuse water is used, furnish PVC pipe that is tinted purple and imprinted with the warning "Caution: Reclaimed Water - Do Not Drink". Furnish pipe meeting the same AWWA and ASTM specifications as the potable water pipe sizes that they are based on.

(d) Polyethylene Pipe - Furnish polyethylene pipe of Class 80, SDR 15, medium density, meeting the requirements of ASTM D2239, conforming to U.S. Commercial Standard CS-255, and approved by the National Sanitation Foundation (NSF).

(1) Micro Tubing and Fittings - Where drip emitters are not required, furnish a blank type and furnish any connections necessary. Furnish tubing consisting of nominal-sized linear, low-density, minimum 1/4 inch outside diameter (OD) polyethylene.

(2) Low Volume (Drip) Tubing - Furnish drip tubing manufactured from specially formulated, chemical-resistant, low to medium density, virgin polyethylene or polybutylene that is selected for excellent weatherability and stress cracking resistance, and is designed specifically for use in drip irrigation systems. Furnish drip tubing having a minimum wall thickness of 0.044 inch.

01120.12 Automatic Controllers - Replace the paragraph that begins "Provide Underwriter's Laboratories ..." with the following paragraph:

Furnish Underwriter's Laboratories (UL) approved controllers as shown or specified. Furnish each outdoor controller with either a pedestal or wall mount brackets when appropriate. Furnish and install the controller in a weatherproof and vandal-proof cabinet of corrosion-resistant metal. Furnish the controller housing or cabinet with hasp and lock or locking device. Furnish locks or locking devices that are master-keyed and include three sets of keys for the locks. If the irrigation system serves both lawns and planting beds, furnish a controller that has a dual programming capability. Furnish controllers that are compatible with and capable of operating the irrigation system as constructed.

Add the following paragraphs after the paragraph that begins "Weather Station - A field station...":

Freeze Clicks – A smart sensor device that automatically acts as a switch to break the circuit to the solenoid valves of the irrigation system when temperatures approach freezing. This allows the timer to advance as scheduled, but stops the valves from activating. Once temperature periods are above 37°F, the switch closes, allowing normal operation.

Add the following subsection:

01120.12(a) Automatic Irrigation Controllers:

If existing controller is deemed inappropriate, furnish a new weather-based Evapotranspiration (ET) controller, with a built-in scheduling engine that combines electro-mechanical and microprocessor-based circuitry capable of both fully automatic and manual operation. Furnish a controller with an internal non-volatile memory that will retain the irrigation schedule for a minimum of 10 years without power. Include a 9 VDC rechargeable battery and recharging circuit for counting down the program-in-progress during a power outage, and allow programming of the controller when it is disconnected from the main power supply.

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In addition, furnish the ET controller with the following minimum specifications:

(1) Weather Data

Controller to provide weather data for local area at a resolution of 1 square kilometer or better meeting the following requirements:

- Uses data from at least five weather stations to determine weather conditions for each controller.
- Delivers weather data daily and wirelessly to each controller with no weather sensor required on site to calculate accurate ET. Communication system capable of detecting if weather data is received by the controller and engage a backup process to re-send weather data as needed.
- Controller is compatible with any controller-associated weather data sensors and equipment such as "Freeze Clicks," soil moisture sensors, flow sensors and other weather or water conservation- related data collectors and sensors.

(2) Controller Programming – Furnish controller with the following programming capabilities:

- Station-/zone-specific scheduling.
- A scheduling engine that uses plant, soil, slope, sprinkler precipitation rate and sun exposure settings to automatically calculate a daily irrigation schedule.
- Uses a maximum allowable depletion (MAD) model for each zone to determine watering days and 'skip' (non-watering) option days.
- Provides 'water rationing' that assures each zone gets a rationed minimal amount of water, if a defined 'water window' is insufficient to allow watering to be completed to all zones. Automatically create cycle and soak sequences for user, based on soil and slope settings.
- Has the ability to be % (percent) adjusted plus (+) or minus (–) per each station. have the ability to run multiple programs at the same time (overlap).
- Calculates and allow for run times at a resolution of 10-second intervals or smaller.
- Allows for two programs using set day pattern assignments, including day of week and odd and even day interval. Allow ET mode to be ON or OFF by station.
- Have a 'Rain Pause' feature that allows a pause for up to 100 days.
- Capable of being operated manually at any time.

(3) History – Furnish controller approved by The Irrigation Association's SWAT, (Smart Watering Advanced Technology) Testing Protocol of 100% efficiency and 0% runoff meeting the following additional requirements:

- SWAT protocol test results including actual method of sending/receiving ET to the controller, in the manner being deployed in the field, as part of test results.
- Provide a minimum of five public agency studies proving quantified water savings and dry weather runoff reduction.

Add the following subsection:

01120.12(a) Flow Sensor – Furnish Rain Bird Model PT #1502 in a wall mount NEMA cabinet.

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Add the following subsection:

01120.12(b) Pulse Decoder – Furnish a Rain Bird Model DEC-PUL.

01120.13 Quick-Coupling Equipment - Replace this subsection, except for the subsection number and title, with the following:

Furnish quick coupling Equipment with a body of cast leaded semi-red brass alloy No. C84400 according to ASTM B584, and a service rating not less than 125 psi for non-shock cold water. Furnish couplers having standard male pipe threads at the top and standard female pipe threads at the base. Ensure that the valve is designed to open only upon inserting a coupler key and close completely after removing the key, with absolutely no leakage of water between the coupler and valve body. Furnish valve bodies to receive couplers that are designed with double worm slots to allow smooth opening and closing action with a minimum of effort. Ensure that slots notched at the base hold the coupler firmly in the open position. Furnish couplers of one piece construction with steel reinforced side handles attached, a locking top of the same material as the valve body, and stainless steel double guide lugs to fit the worm slots. Furnish two couplers and two hose swivels for operation of the valves, and two keys for the locking caps if quick-coupling valves are required. For non-potable water systems, furnish a color-coded, purple tinted cap that bears the printed warning "Caution: Reclaimed Water - Do Not Drink".

01120.15 Cross-Connection Control Devices - Replace this subsection, except for the subsection number and title, with the following:

Cross-connection control devices are shown. Furnish and install cross-connection control devices meeting the requirements of the Oregon Health Division and the local water authority.

01120.16 Water Meter - Replace this subsection, except for the subsection number and title, with the following:

Water meter procurement, installation, and associated costs are the responsibility of the Agency. Be responsible for coordinating water meter needs in a timely fashion with the Agency.

01120.17 Valves: Replace this subsection, except for the subsection number and title, with the following:

(a) Gate Valves - Furnish gate valves of heavy-duty bronze according to the requirements of ASTM B62. Furnish valves of the same size as the connecting pipes and install with union or flange connections. The service rating for non-shock cold water is 150 psi. Furnish valves of the double disk, taper seat type, with rising stem, union bonnet and hand wheel or suitable cross wheel for standard key operation, with the manufacturer's name, type of valve, and size clearly cast on them.

(b) Drain Valves - Furnish bronze or brass drain valves, 1 inch or 3/4 inch in size, manual angle globe type, with rising stem, hex brass union, removable bonnet and stem, and adjustable packing gland. Ensure that valves are designed for underground installation with a suitable cross wheel operable with a standard key and the minimum service rating is 150 psi non-shock cold water. Furnish three standard operating keys.

(c) Check Valves - Furnish heavy duty bronze or steel check valves that function by means of a hinged disc suspended from the body, and is able to close of its own weight. Furnish valves that are of the same size as the connecting pipes, unless otherwise specified, and with union or flanged connections. Furnish valves that are rated for non-shock cold water service of not less than 150 psi and have the manufacturer's name, valve type, and size cast on them.

(d) Pressure-Reducing Valves - Furnish pressure-reducing valves with a minimum of 150 psi working pressure and an adjustable outlet range of 20 psi to 70 psi, rated for non-shock cold water service up to 175 psi. Furnish factory set valves as shown or specified.

(e) Isolation Valve - Furnish isolation valves as shown or as specified. If no isolation valves are shown, furnish ball valves as indicated below.

(f) Ball Valves - Furnish bronzed-bodied ball valves according to ASTM B62 and with a hard, chrome plated ball according to ASTM B124. The minimum non-shock cold water service-rating is 400 psi. Plastic valves will not be accepted.

(g) Air Relief Valve - The air relief valve automatically relieves air pressure to break an air vacuum in the pipe section where it is located. Install air relief valves at the exact high point of each pipe section where relief is needed. (Note: air relief valves are not associated with backflow prevention).

(h) Control Valves:

(1) Manual Control Valves - Furnish manual valves of bronze or brass, angle type, with hex brass union, and with a service rating not less than 150 psi non-shock cold water. Furnish valves for underground installation designed with a cross wheel suitable for operation with a standard key. Furnish three suitable operating keys per irrigation system. Furnish valves that have removable bonnet and stem assembly, with adjustable packing gland housing for the long acme-threaded stem to ensure full opening and closing. Furnish valves with discs that are full floating with replaceable seat washers.

(2) Automatic Control Valves - Furnish automatic control valves of a normally closed design, operated by an electric solenoid of the required rating, but not more than 6.5 W and operating on 24 V AC power. Ensure that solenoids directly attached to the valve bonnets or bodies have completely internal control parts. Furnish bodies that are not less than 150 psi if brass or bronze and not less than 125 psi if plastic, with a manual control bleed cock to operate the valve without electric current. Ensure that the closing speed is not less than 5 seconds and the opening speed is not less than 3 seconds. A constant rate of opening and closing is required so the water flow is completely stopped when the valve is either manually or electrically closed. Furnish valves having manual shutoff stems with cross handles that will adjust the valve from fully closed to wide open with the valve automatically operable in the adjusted position.

(3) Automatic Control Valves with Pressure Regulator - Furnish valves of the same manufacture as the automatic control valves, capable of reducing the inlet pressure to a constant lower pressure regardless of supply fluctuations, and are fully adjustable.

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01120.18 Valve Boxes and Protective Sleeves - Replace this subsection, except for the subsection number and title, with the following:

Furnish automatic control valves, flow control valves, pressure reducing valves, backflow preventers, filters and other serviceable fixtures with valve boxes that are extendable to obtain the depth required. Furnish boxes constructed of thermoplastic, with locking lids, green in color, and of the type shown or specified. Include a protective sleeve and cap with all manual drain valves and manual control valves.

Furnish Carson Box Model 1730 valve boxes Bermad, Kennedy or for check valves.

Furnish 11 inch by 17 inch AMTEK 12STD PLS valve boxes, marked "IRRIGATION", for remote control valves or manual valves.

01120.19 Electrical Wire and Splices - Replace the paragraph that begins "Provide and Install..." with the following paragraph:

Furnish and install an extra wire with all wiring runs that is the same gauge, but of a different color than the hot wire and common wire. The extra wire is reserved for future use or modifications to the system.

01120.21 Detectable Wire and Marking Tape - Replace this subsection, except for the subsection number and title, with the following:

Furnish a detectable wire using continuous No. 14 gauge, single strand locator wire that is blue in color. Furnish marking tape consisting of inert polyethylene plastic that is impervious to all known alkalis, acids, chemical reagents, and solvents likely to be encountered in the Soil. Furnish color-coded tape with the type of line buried below and the word "Caution" imprinted continuously over its entire length in permanent black ink. Furnish tape of the width recommended by the manufacturer for the depth of installation used.

Add the following subsection:

01120.22 Conduit under Surfacing – Furnish Schedule 40 PVC sleeve for control wires under surfacings.

01120.23 Double Check Backflow Prevention Assemblies:

Furnish Wilkins 950XLT for irrigation pipe sizes up to 2 inch and Wilkins 350 series for irrigation pipe 2.5" and up.

01120.40 General - Replace the paragraph that begins "The irrigation Plans are ..." with the following paragraph:

The irrigation Plans are a schematic design and may require adjustment. Do not install the sprinkler system as shown if it is evident that obstructions, grade differences, or differences in area dimensions create conditions different than anticipated in the design. Bring all such obstructions or differences to the attention of the Engineer. In the event this notification is not performed before construction begins on a part of the system where discrepancies exist, any revisions necessary to make the system operate as designed is the Contractor's responsibility.

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01120.40(a)(1) Double Check Valve Assembly - Replace this subsection, except for the subsection number and title, with the following:

Install, inspect, and test the double check valve assembly (DCVA) according to applicable regulations of the Oregon Health Division and the local water authority. Provide test records on forms approved by the Oregon Health Division. Provide forms filled out by a State-licensed Backflow Device Tester documenting that the DCVA is in good operating condition before any flushing and testing of downstream water lines. During the life of the Contract, test the DCVA annually, or more often if successive inspections indicate repeated failure. Repair or replace the DCVA whenever it is found to be defective.

Add the following subsection:

01120.40(a)(3) Blowouts – Provide a blowout connection point to facilitate winterization by the use of compressed air on all electric solenoid controlled underground irrigation systems. Furnish and install blow out fittings after the double check valve assembly. Furnish and install at the end point of each underground irrigation mainline 4 inches or larger , a 4-inch x 2-inch mechanical tap cap, 2-inch x 36-inch galvanized nipple, 90 degree fitting, and a brass ball valve with valve inside a valve box as shown.

01120.40(b) Electrical Service - Replace this subsection, except for the subsection number and title, with the following:

Install electrical service according to the *National Electrical Code* and all State and local laws. Power sources will be as shown or as directed. Be responsible for coordination and installation of electrical service. Furnish and install meter bases at the power source according to the requirements of the power supplier. Give the power supplier's representative notice before making any installation. Furnish a separate, dedicated circuit for the controller.

01120.43 Piping - Replace the paragraph that begins "Place all live mains ..." with the following paragraph:

Place all live mains to be constructed under existing Pavement in sleeves jacked under the Pavement, unless otherwise shown. Place all PVC pipe installed under Pavement in pipe sleeves of Schedule 40 PVC, unless steel sleeving is shown or specified. Furnish pipe caps of Schedule 80 PVC. Install sleeves 2 feet below Subgrade when passing under Roadways. Extend sleeves 2 feet beyond the edge of Gravel, edge of sidewalk or back of curbs. Mark sleeves with a 2 feet piece of No. 4 rebar driven flush with the ground or other adjacent surface. Place PVC caps over both ends of sleeves but do not glue. Solvent-weld sleeve sections. Use pipe bedding and backfill according to Section 00405. Extend the sleeve a minimum of 12 inches beyond the edge of Pavement. Perform all jacking operations according to an approved jacking plan. If obstacles are encountered during required jacking, notify the Engineer, who may authorize corrective measures according to 00140.60. Provide for complete drainage of all pipelines with manual drain valves installed at section low points. Drain valves may not be shown.

Add the following after paragraph that begins "Place all live mains...":

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Install concrete thrust blocks at changes in direction of mainline piping and at the end of mainline piping with the bearing surface against undisturbed soil normal to the direction of the thrust on pipes 3 inches or greater in diameter.

Install all pipes under Railroads as shown.

Add the following subsection:

01120.45(h) Drain Pockets – Excavate a minimum of 10 cubic feet and backfill with drain Gravel to 12 inches below grade as directed. Cover with geotextile and 6 inches of Topsoil.

01120.46 Low Voltage Electrical Installation - Replace this subsection, except for the subsection number and title, with the following:

Use direct burial wiring between the automatic controller and automatic valves. Install waterproof splices according to the manufacturer's recommendations. The wiring may share a common neutral. When more than one automatic controller is required, provide a separate common neutral for each controller and the automatic valves it controls. Run separate control conductors from the automatic controller to each valve. Furnish and install an extra wire according to 01120.40.

Install wire adjacent to or beneath the irrigation pipe. Use plastic tape or nylon tie-wraps to bundle wires together at 10-foot intervals. Snake the wire from side to side in the trench to provide slack in the wire run. When it is necessary to run wire separate from the irrigation pipe, bundle and place the wire under detectable marking tape. Splices are allowed only at junction boxes, valve boxes, pole bases, or control Equipment. Leave a minimum of 2 feet of excess conductor at all splices, terminals and control valves to facilitate inspection and future splicing.

01120.47(e) Main Line Testing - Replace this subsection, except for the subsection number and title, with the following:

Purge all main supply lines of air and test with static water pressure of at least 150 psi for 60 minutes without introduction of additional service or pumping pressure. Test with one pressure gauge installed on the line where directed. Install an additional pressure gauge at the pump when directed. Lines showing loss of pressure exceeding 5 psi at the end of the specified test period are rejected. Correct rejected installations and retest for leaks.

01120.47(g) Lateral Line Testing - Replace this subsection, except for the subsection number and title, with the following:

Purge all lateral lines of air and test under operating line pressures with risers capped and drain valves closed. Maintain operating line pressures for 30 minutes through open valves and pressure regulating devices. Lines showing leaks when visually inspected at the end of the specified test periods are rejected. Correct and retest lateral line installations that have been rejected.

01120.47(h) Lateral Line Alternate Test Method - Replace this subsection, except for the subsection number and title, with the following:

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When conditions prevent effective visual inspection of lateral lines, the Engineer may require that the lines be tested by use of pressure gauges. In that event, maintain the static water pressure equal to the operating line pressure in the lines for 30 minutes, with valves closed and without introduction of additional service pressure. Lateral lines showing loss of pressure exceeding 5 psi at the end of the specified test period are rejected. Correct and retest lateral line installations that have been rejected.

01120.47(i) Testing of Micro Tubing - Replace this subsection, except for the subsection number and title, with the following:

Micro tubing is tested by visual inspection while operating and before burial. Tubing that has obvious leaks or that doesn't operate as designed is rejected. To fully test micro tubing, a water collection procedure recommended by the manufacturer may be required. Correct all faults before retesting.

01120.49 Backfill - Replace the paragraph that begins "Pipe bedding Material ..." with the following paragraph:

Pipe bedding Material according to 00405.12 may be authorized in quantities determined by the Engineer. When authorized to proceed, fill the bottom 2 inches of the trench with approved bedding before laying pipe. After the pipe is in position, add enough bedding Material to bring the backfill height to 2 inches above the pipe. Continue backfilling as usual.

Replace the paragraph that begins "If sufficient suitable backfill Material..." with the following paragraph:

If sufficient suitable backfill Material is not available from trench excavation or other sources on the Project, notify the Engineer. Provide an estimate of imported backfill required, if possible. Unless otherwise shown or specified, imported pipe bedding Material is authorized according to 00140.30.

01120.60 System Operation - Replace the paragraph that begins "This responsibility includes, but is not..." with the following paragraph:

This responsibility includes, but is not limited to, draining the system before the first freeze and reactivating the system in early May and at other times as directed.

Replace the paragraph that begins "In the spring, when the..." with the following paragraph:

In early May, when the drip irrigation system is in full operation, make a full inspection of all emitters. This involves visual inspection of each emitter under operating conditions. Make all adjustments, flushing or replacements to the system at this time to ensure the proper operation of all emitters.

01120.70 As-Built Plans and System Orientation - Replace the paragraph that begins "Notify the Engineer ..." with the following paragraph:

Notify the Engineer in writing not less than 2 weeks before the proposed date of the training and orientation session and obtain mutual agreement.

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01120.90 Payment - Replace the paragraph that begins "Payment will be..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Add the following after paragraph that begins "No separate or additional payment...":

No separate or additional payment will be made for the installation of mainline and control wire within waterline bore casing under the Railroad as it is Incidental to the Work.

SECTION 01140 - POTABLE WATER PIPE AND FITTINGS

Comply with Section 01140 of the Standard Specifications modified as follows:

01140.00 Scope – Replace this subsection, expect for subsection number and title, with the following

This Work consists of constructing potable water pipe and fittings 36 inches and smaller in diameter within a public Right-of-Way or easement.

Add the following section:

01140.03 Suspended/Supported Pipe Installation Plan - Submit a stamped pipe installation plan according to 00150.35 at least 21 Calendar Days before the start of pipe installation, consisting of the installation plan and procedure describing the Contractor's methods. Include plans and calculations documenting adequacy of all elements supporting the pipe during installation.

Design temporary works for installing pipes according to the current edition of the AASHTO Guide Design Specifications for Bridge Temporary Works except where in conflict with the Specifications.

Design according to the following:

- Consider water pipe and fittings to be fixed material loads.
- Consider rigging and temporary hardware used to install the pipe and fittings as equipment loads.
- Consider all load configurations which may occur prior to completion of the pipe.
- Include horizontal and vertical impact loads which may occur during installation and movement of the pipe and fittings.
- Where existing or new pipe supports are a component of the pipe removal or installation plan, evaluate the pipe supports for the proposed loading.

Do not perform Work until approval has been obtained. This review does not relieve the Contractor of the responsibility of the safety of the method or Equipment or from carrying out the Work in full according to the Plans and Specifications.

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01140.10 Materials - Delete the paragraph that begins "High Density Polyethylene (HDPE) pipe shall..."

01140.11 Handling Pipe and Fittings - Replace the paragraph that begins "Handle pipe and fittings ..." with the following paragraph:

Handle pipe and fittings to prevent damage to or contamination of the pipe, fitting, lining, or coating. Load and unload pipe and fittings using hoists and slings so as to avoid shock or damage, and under no circumstances allow them to be dropped, skidded, or rolled against other pipe or fittings. If any part of the coating or lining is damaged, repair in a manner satisfactory to the Engineer. Damaged or contaminated pipe and fittings are rejected. Immediately separate all damaged or contaminated pipe and fittings and remove from the Project Site.

01140.41(b)(1) Curves - Replace this subsection, except for the subsection number and title, with the following:

Lay horizontal and vertical long radius curves with standard pipe by deflecting the joints. Use standard fittings and standard pipe lengths, unless otherwise shown. If shorter pipe lengths are required, the maximum allowable pipe lengths are shown. Do not exceed 80 percent of the manufacturer's recommendations for the amount of deflection at each pipe joint when pipe is laid on a horizontal or vertical curve. Where field conditions require deflection or curves not shown, the Engineer will determine the methods to be used.

01140.41(d) Polyvinyl Chloride (PVC) Pipe - Replace the paragraph that begins "Lay horizontal and vertical ..." with the following paragraph:

Lay horizontal and vertical curves in pipe, as shown, with standard pipe by deflecting the joints. Use standard fittings and standard pipe lengths unless otherwise shown. If shorter lengths of pipe are required, the maximum allowable pipe lengths are shown. Do not exceed 80 percent of the manufacturer's recommendations for the amount of deflection at each pipe joint when pipe is laid on a horizontal or vertical curve. Where field conditions require deflection or curves not shown, the Engineer will determine the methods to be used. Do not bend PVC pipe segments.

01140.41(e) Water and Sanitary Sewer Separation - Replace this subsection, except for the subsection number and title, with the following:

Comply with OAR 333-061 0050 governing horizontal and vertical separation between water and sanitary sewer facilities for installation of new water lines and appurtenances. Submit all proposals for variance in writing. Include in the proposal the reason for the variance, type of material and condition of the sewer line, and location of the water and sewer facilities, including horizontal and vertical skin-to-skin clearances. Proposals are reviewed by the Engineer and approved, approved as noted, or returned for correction. Each variance is addressed on a case-by-case basis.

01140.42(b)(1) Joints and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Join pipes and fittings using the thermal butt fusion method according to ASTM D3261. Use HDPE fittings of the same class as the HDPE piping.

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Add the following subsection:

01140.42(c) Ductile Iron Pipe:

(1) Pipe With Interior Restraining Gaskets - Install pipe with restraining gaskets in accordance with the manufacturer's installation instructions.

(2) Pipe With Interior Mechanical Restraint Devices - Install pipe with interior mechanical joint restraint ring devices in accordance with the manufacturer's instructions. Extend joints to fully expanded positions after joint assembly.

01140.43 Polyethylene Encasement – Replace this subsection, except for subsection number and title, with the following:

- (a)** Install polyethylene encasement per ANSI/AWWA C105/A21.5 Method A, Modified DIPRA Method for Wet Trench Conditions. Cut polyethylene tube 2-feet longer than the length of pipe to receive the encasement. Provide a 1-foot minimum overlap for each adjacent pipe joint. Prior to placing the pipe into the trench, raise the pipe section with a fabric type sling or padded cable, and remove all soil and other debris from the pipe exterior. Slip the polyethylene tube over the spigot end of the pipe. Bunch up the tube in accordion fashion between the spigot end and the supporting sling holding the pipe.
- (b)** Place the pipe on blocks with slackened sling in place so the polyethylene encasement can be spread over the entire barrel of the pipe.
- (c)** Pull the loose polyethylene tube on the pipe snugly around the pipe barrel. Fold excess material over at the top of the pipe and secure the fold with circumferentially or spiral wrapped polyethylene tape at intervals not to exceed 2 feet along the length of the pipe.
- (d)** After lowering the pipe section into the trench, ensure that the polyethylene encasement is not stabbed into the previously installed pipe when seating the spigot end into the bell of the previously installed pipe. Provide a shallow hole in the pipe bedding at the bell to facilitate the joint overlap. Ensure soil or bedding material does not become trapped on the exterior of the pipe between the pipe and the polyethylene encasement. In addition, ensure that soil or bedding material is not allowed to enter the pipe interior.
- (e)** Leave 1-foot of bunched up polyethylene tube at each end of the pipe for joint overlap after removing the sling from the pipe.
- (f)** To make joint overlap, pull the polyethylene tube from the bell end of the previously laid pipe over the spigot end of the current pipe and fold the tube around the pipe and secure with three circumferential wraps of 2-inch wide plastic adhesive tape or a plastic tie strap. Then pull the bunched up polyethylene tube on the spigot end over the wrapped pipe joint to the bell end. Fold polyethylene tube and secure with tape as previously described.

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- (g) Wrap all copper air and vacuum valve lines, copper service lines, copper sampling station lines with PVC adhesive tape half lapped, for a minimum of three feet from the main. Wrap all corporation stops.
- (h) Repair minor rips and tears with and "X" of PVC tape. Repair larger holes with a patch of polywrap and tape it completely over the hole.
- (i) Applying Polyethylene Encasement to Buried Valves and Fittings:

Wrap valves and fittings by pulling the bunched up polyethylene tube from the adjacent pipe over the bells or flanges of the valve or fittings. Secure the tube to the valve or fitting body with 2-inch wide adhesive tape wrapped around the body of the valve or fitting. Then wrap the valve or fitting with three layers of 8-mil flat sheet of polyethylene. Place the sheets under the valve or fitting and fold in half. For valves, extend the sheet to the valve stem and secure the sheet in place with 2-inch adhesive tape. Secure the sheets with tape around the valve stem below the operating nut and around the barrel of the connecting pipe to prevent the entrance of soil. Make sure the wrap does not impede movement of operating nut. For fittings, wrap and overlap the adjoining pipe a minimum of 1-foot and secure in place with 2-inch wide adhesive tape. Pour concrete anchor and thrust blocks, if any, after the wrap is in place.

01140.45(a) Installation - Replace this subsection, except for the subsection number and title, with the following:

Install marking tape and wire over all nonmetallic water lines, including service connections. Place a continuous solid copper wire along the top of all water pipe, including service lines. Use cable ties to secure the copper wire to the top of the pipe at a maximum spacing of 10 feet. Tie all splices and make them electrically continuous and waterproof. Provide access to terminal ends of the wire at all valve boxes, meter boxes, hydrants, and vaults. Ensure a continuous wire circuit electrically isolated from ground. Place the marking tape approximately 1 foot above the top of the pipe for its full length.

01140.45(c) Testing - Replace this subsection, except for the subsection number and title, with the following:

Test for continuity and isolation from ground in the wire after all Work has been completed on the test section. Perform intermediate testing after backfilling operations and prior to surface restoration Work. Test continuity between access locations by use of a temporary wire connecting test points in-line with an ohmmeter. Measure resistance with an approved ohmmeter that has been properly calibrated. The continuity of a test section is accepted if the resistance of the test section does not exceed 5 ohms for each 500 feet of location wire being tested. Measure isolation from ground with an approved 1000-volt Megger, applied for 1 minute. The isolation of a test section is accepted if the isolation resistance of the test section is at least 10 megohms. Locate and repair all breaks or defects in the wire and re-test until specified results are obtained.

Add the following subsection:

01140.45(d) Labeling on Bridges – Clearly label all water lines on bridges blue according to the APWA Uniform Color code and as shown.

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01140.48 Maintaining Service - Replace this subsection, except for the subsection number and title, with the following:

(a) Service Transfer - Where existing services are to be transferred from old to new mains, plan and coordinate the Work with that of the Utility so that service is resumed with the least possible inconvenience to the public.

(b) Connections by Utility - Allow the Utility to make connections into the new pipe at such locations as the Utility may elect to supply customers with water, after the affected section of pipe has passed hydrostatic and bacteriological tests. Do not construe the installation of any such connections by the Utility as an acceptance by the Agency of any part of the Work required under the Contract.

01140.50(a) Flush and Disinfect - Replace this subsection with the following:

Filling and Flushing - Flush sections of pipe to be tested to remove any solids or contaminated material that may have become lodged in the pipe. Provide a minimum flushing velocity of 2.5 feet per second. Provide a tap large enough to develop a velocity of at least 2.5 fps in the main. Perform flushing according to AWWA C651. One 2 1/2 inch opening will, under normal pressure, provide this velocity in pipe sizes up to and including 12 inch. See Table 1.

Flush until turbidity reads no higher than 1.0 Nephelometric Turbidity Units (NTU).

Required Openings to Flush Pipelines (40-psi Pressure)				
Pipe Size in.	2.5 fps Flushing Velocity			
	Flow gpm	Orifice Size in.	Openings	
			No.	Size in.
10	610	2 5/16	1	2½
12	880	2 13/16	1	2½
14	1,200	3¼	2	2½
16	1,565	3⅝	2	2½
18	1,980	4 3/16	2	2½
24	3,500	6 1/2	2	4.5
36	8,000	12	NA	NA

Submit waterline flushing plan a minimum of five Days before planned flushing. Plan to detail the schedule, expected duration of blow off, location of proposed blow off point(s), expected pipe velocity and discharge flows. Blow off will not be allowed without an approved waterline flushing plan. Do not use fire hydrants for flushing.

01140.51(a) General - Replace the paragraph that begins "Test all water mains and ..." with the following paragraph:

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Test all water mains and appurtenances in sections of convenient length under a hydrostatic pressure equal to one and one-half times the working pressure, but at least 150 psi, measured at the highest point of the test section. Provide and operate all pumps, gauges, plugs, saddles, corporation stops, miscellaneous hose and piping, and measuring Equipment necessary for performing the test. Provide certifications of accuracy for gauges used in the test from an approved laboratory.

01140.51(a)(5) Loss Formula - Replace the paragraph that begins "The quantity of water ..." with the following paragraph:

Do not exceed the number of gallons per hour determined by the formula for the allowable quantity of water lost from the main:

01140.51(a)(6) Pressure Loss - Replace this subsection, except for the subsection number and title, with the following:

No appreciable or abrupt loss in pressure during the test period is allowable.

01140.51(a)(8) Use of Hydrant Valves - Replace this subsection, except for the subsection number and title, with the following:

Make all tests with the hydrant auxiliary gate valves open and pressure against the hydrant valve. After the pipe test has been completed, test each gate valve in turn by closing it and relieving the pressure beyond. This test of the gate valve is acceptable if there is no immediate loss of pressure on the gauge when the pressure beyond the valve is relieved. Verify that the pressure differential across the valve does not exceed the rated working pressure of the valve.

01140.51(b)(1) Exceptions - Replace this subsection, except for the subsection number and title, with the following:

When an existing water main is extended with new pipe to a new valve, and the distance from the existing pipe to the new valve is 18 feet or less, no hydrostatic test is required if the section of new pipe between the new valve and the end of the existing main is installed with pretested, prechlorinated pipe. When the required hydrostatic tests are conducted in the new main section beyond the installed new valve in the closed position, the normal pressure of the existing main may be present against the other side of the new valve.

01140.51(c) Testing Sections with Hydrants Installed - Replace the paragraph that begins "¹ Test each hydrant ..." with the following paragraph:

- ¹ Test each hydrant to the required test pressure. When testing a hydrant singly, pressure in the supply main beyond the hydrant auxiliary gate valve is 25 psi.

01140.52 Disinfecting – Replace this subsection, except for subsection number and title, with the following:

- (a) Provide chlorination taps and tap removal, as indicated in the construction drawings and Specifications herein.

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- (b) **Procedure when Repairing or Cutting into Existing Mains** - Whenever an old line is opened by accident and the main has been partially or totally dewatered that section of main must be chlorinated and flushed the same as a new main. In the event that water service cannot be disrupted to provide the full 24 hour retention period an application of 100 ppm of chlorine may be used with a retention period of one hour followed by flushing.
- (c) Construct main line chlorination assemblies as shown on the applicable details. Provide temporary asphalt pavement restoration when chlorination tap is in paved area accessible by the traveling public.

01140.90 Payment – Add the following Pay Items to the Pay Item list:

- (o) ____ Inch Ductile Iron Pipe with Restrained Joints, in Casing..... Foot
- (p) ____ Inch Ductile Iron Pipe with Restrained Joints, on Bridge Foot
- (q) Ductile Iron Pipe Blind Flange, ____ Inch.....Each
- (r) Ductile Iron Pipe Flanged Coupling Adapter, ____ Inch.....Each
- (s) Ball and Socket Expansion Joint, ____Inch.....Each

Replace the paragraph that begins "In items (a) and (b) ..." with the following paragraph:

In items (a) and (b), the nominal diameter of pipe, fittings and couplings is inserted in the first blank. The class of backfill is inserted in the second blank. The quantities include the pipe plus the allowance for the fittings and couplings.

Replace the paragraph that begins "In item (c) ..." with the following paragraph:

In item (c), the class of backfill is inserted in the blank.

Replace the paragraph that begins "In item (d) ..." with the following paragraph:

In item (d), the nominal diameter of assembly is inserted in the blank.

Replace the paragraph that begins "In item (e)..." with the following paragraph:

In item (e) the nominal diameter of pipe is inserted in the first blank and the nominal diameter of the main line is inserted in the second blank.

Replace the paragraph that begins "In item(s) (f) and (g) ..." with the following paragraph:

In item(s) (f) and (g), the nominal diameter of pipe is inserted in the first blank. The class of backfill is inserted in the second blank.

Replace the paragraph that begins "In item(s) (h), (i), (j), (k), (l), ..." with the following paragraph:

In item(s) (h), (i), (j), (k), (l), (m), and (n), the nominal diameter of the fittings or couplings is inserted in the blank.

Add the following to the end of this subsection:

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In items (o) and (p), the nominal diameter of pipe is inserted in the blank.

In items (q), (r) and (s), the nominal diameter of fittings or couplings is inserted in the blank.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph and bullets that begins "No separate ..." with the following paragraph and bullets:

No separate or additional payment will be made for:

- Trench excavation
- Bedding
- Pipe zone material
- Backfill Work
- Polyethylene encasement
- Concrete thrust blocks
- Detectable marking tape and wire
- Flushing, hydrostatic testing and disinfection, and water for testing
- Exposing and cleaning existing mains, cutting and removing existing pipe, draining existing mains, disinfecting existing mains, and refilling existing mains
- PVC fittings under 4 inch
- HDPE fittings
- Pipe reconnections

SECTION 01150 - POTABLE WATER VALVES

Comply with Section 01150 of the Standard Specifications modified as follows:

01150.00 Scope - Add the following to the end of this subsection:

In addition to requirements of Section 00960, install heat trace system according to the following Specifications and as shown.

01150.10 Materials - Add the following to the end of this subsection:

Electrical Materials – Furnish Materials for heat trace systems as shown. Submit all electrical Materials the Contractor proposes to install according to 00960.02.

01150.11 Handling - Replace this subsection, except for the subsection number and title, with the following:

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Handle valves so as to prevent damage to the valve, lining or coating. Load and unload valves using hoists and slings so as to avoid shock or damage, and under no circumstances allow them to be dropped or skidded. Damaged valves are rejected. If damage is confined to the coating or lining, it may be repaired in a manner satisfactory to the Engineer. Immediately place all damaged valves apart from the undamaged and remove the damaged valves from the site as soon as possible

01150.41 Combination Air Release/Air Vacuum Valves - Replace this subsection with the following subsection:

01150.41 Air Release and Vacuum Valves - Install air release and vacuum release valves as shown.

Add the following subsection:

01150.43 Heat Trace System - Install heat trace system as shown and according to applicable portions of Section 00960 and manufacturer recommendations.

01150.50 Field Testing – Add the following to the end of this subsection:

Perform field testing of electrical installations to show heat trace system in full operating condition as observed and approved by the Engineer. Notify the Engineer one week in advance of the anticipated electrical installation completion date.

Perform field testing within one week following the date of completion.

Add the following subsection:

01150.71 Turn-on - This Work includes turning on completed electrical installations.

The Engineer will establish the date and time the electrical installation is to be turned on. The Contractor will turn on the electrical installation within one week after completion of corrections identified during field testing.

01150.80 Measurement - Add the following to the end of this subsection:

No measurement of quantities will be made for the Heat Trace System.

01150.90 Payment – Add the following Pay Items to the Pay Item list:

- (h) Heat Trace System, Complete Lump Sum
- (i) ____ Inch Air Release Assembly.....Each
- (j) ____ Inch Air Vacuum Valve Assembly.....Each

Replace the paragraph that begins "In items (a) through (f) ..." with the following paragraph:

In items (a) through (f), the size of the valve or assembly is inserted in the first blank.

Replace the paragraph that begins "In items (a) through (d) ..." with the following paragraph:

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In items (a) through (d), the type of valve, check valve, or assembly is inserted in the second blank.

Replace the paragraph that begins "In item (b) ..." with the following paragraph:

In item (b), the type of actuator is inserted in the third blank.

Replace the paragraph that begins "In item (g)..." with the following paragraph:

In item (g), the size of tapping sleeve is inserted in the first blank. The size of valve assembly is inserted in the second blank.

Add the following paragraphs after the paragraph that begins "In item (g)...":

In items (i) and (j), the size of the valve or assembly is inserted in the first blank.

Item (h) includes furnishing and installing all items of the heat trace system.

Items (i) and (j) includes furnishing and installing insulation jackets.

Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

Replace the paragraph and bullets that begins "No separate..." with the following paragraph and bullets:

No separate or additional payment will be made for:

- Earthwork not covered under other Pay Items
- Jointing
- Blocking of valves
- Protective coatings
- Valve boxes
- Valve box extensions
- Valve operator extensions
- Valve reconnections
- Hydrostatic testing

SECTION 01160 - HYDRANTS AND APPURTENANCES

Comply with Section 01160 of the Standard Specifications modified as follows:

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01160.11 Handling of Hydrants - Replace this subsection, except for the subsection number and title, with the following:

(a) **Loading and Unloading** - Handle hydrants to prevent damage to the hydrant, lining or coating. Load and unload hydrants using hoists and slings so as to avoid shock or damage, and under no circumstances allow them to be dropped, skidded, or rolled against other hydrants. Damaged hydrants are rejected. If damage is confined to the coating or lining, it may be repaired in a manner satisfactory to the Engineer. Immediately place all damaged hydrants apart from the undamaged hydrants and remove the damaged hydrants from the Project Site.

(b) **End Caps** - Furnish factory applied end caps on pipe connection ends. Maintain end caps through shipping, storage, and handling to prevent damage and prevent dirt and moisture from entering the hydrants.

01160.43 Gate Valves and Valve Boxes - Replace this subsection, except for the subsection number and title, with the following:

Install gate valves and valve boxes according to Section 01150, except furnish end connections with lugs for tie rods, or furnish bells with sufficient clearance between the body of the valve and the hub to permit the installation of tie rods.

01160.46 Moving Existing Hydrants - Replace this subsection, except for the subsection number and title, with the following:

Move existing hydrants where shown. As shown, remove the existing hydrant lateral tee from the main if the main is to remain active, and insert a new section of pipe into the water main in place of the existing hydrant lateral tee. Where the existing main to the existing hydrant lateral tee is connected is to be abandoned or temporarily activated after the existing hydrant is moved, plug the open end of the hydrant lateral pipeline. Provide temporary thrust restraint if temporarily reactivated.

01160.90 Payment - Replace the paragraph that begins "Payment will be payment ..." with the following paragraph:

Payment will be payment in full for furnishing and placing all Materials, and for providing all Equipment, labor, and Incidentals necessary to complete the Work as specified.

SECTION 01180 - STRUCTURAL SUPPORTS FOR WATER LINES

Section 01180 is not a Standard Specification and is included in this Project by Special Provision.

Description

01180.00 Scope - This Work consists of fabrication and installation of structural supports, maintenance walkways, and access structures for potable water lines on bridges as shown

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or specified. This Work also consists of modification and removal of existing structural supports, walkways and existing water line on bridges as shown or specified.

01180.01 Working Drawings - Submit unstamped Working Drawings for water line supports and pipe rollers according to 00150.35 and 00560.03. Include the proposed pipe support layout and proposed pipe and fitting lengths.

01180.02 Pipe Removal Plan - Submit a stamped pipe removal plan according to 00150.35 at least 21 Calendar Days before the start of pipe removal, consisting of the removal plan and procedure describing the Contractor's methods. Include plans and calculations documenting adequacy of all elements supporting the pipe during removal.

Design temporary works for removing pipes according to the current edition of the AAHSTO *Guide Design Specifications for Bridge Temporary Works* except where in conflict with the Specifications.

Design according to the following:

- Consider water pipe and fittings variable material loads.
- Consider rigging and temporary hardware used to remove the pipe and fittings as equipment loads
- Consider all load configurations which may occur during removal of the pipe.
- Include horizontal and vertical impact loads which may occur during movement and removal of the pipe and fittings.
- Where existing or new pipe supports are a component of the pipe removal plan, evaluate the pipe supports for the proposed loading.

Do not perform Work until approval has been obtained. This review does not relieve the Contractor of the responsibility of the safety of the method or Equipment or from carrying out the Work in full according to the Plans and Specifications.

Materials

01180.10 General - Furnish Utility attachment systems using Materials from the QPL and meeting the following requirements:

Structural Concrete	02001
PCC Repair Material	02015.20
Reinforcement	02510
Structural Steel	02530
Forgings, Shafting, Castings, and Nonferrous Materials	02540
Fasteners	02560

Furnish coating materials to repair existing coatings according to 00594.10.

Furnish galvanized fasteners according to 02560.40.

Furnish rollers and pipe shields galvanized according to 02530.70.

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01180.12 Post-Installed Anchors – Where shown furnish zinc plated Hilti HDA-P or HDA-T undercut anchors. Otherwise furnish post-installed anchors according to 00535.10 and as shown.

01180.13 Pipe Rollers - Furnish Anvil figure 76SD pipe rollers suitable for supporting the specified pipe, including an allowance for pipe shields shown or specified.

01180.14 Walkway Grating - Furnish galvanized standard trim banded welded steel grating for access panels with $\frac{3}{4}$ " deep by $\frac{3}{16}$ " wide bearing bars with a maximum bearing bar spacing of $1\frac{3}{16}$ " and $\frac{1}{4}$ " by $\frac{1}{4}$ " cross bars with a maximum spacing of 2 inches.

Furnish gray pultruded I-4010 fiberglass grating for walkways with a coarse grit slip-resistant surface. Furnish grating with a maximum deflection of $\frac{3}{16}$ " under a concentrated load of 500 pounds and an ultimate capacity of 5,000 pounds when the clear span of the grating is 36 inches.

Furnish threaded fasteners and clips to attach grating to the supporting structure.

Construction

01180.40 Structural Steel – Fabricate and install structural steel elements according to Section 00560 and the following.

Perform welding according to 00560.26(b). All welds in pipe hangers are earthquake resistant welds.

Galvanize all structural steel elements after fabrication according to 02530.70.

Assemble connections of structural steel according to 00560.28, 00560.29, and as shown.

Erect structural steel according to 00560.46.

01180.41 Reinforced Concrete - Furnish and place reinforcement according to Section 00530. Furnish, form, and place concrete according to Section 00540. Provide a General Surface Finish on all surfaces.

01180.42 Post-Installed Anchors - Install post-installed anchor systems according to Section 00535 and as shown.

01180.43 Removal and Concrete Repair – Remove existing pipe, pipe hangers, concrete pipe supports, maintenance access walkways and access platforms according to Sections 00290 and 00310 and the following.

Remove existing pipe according to the accepted removal plan.

Remove concrete pipe supports flush with the face of the supporting concrete elements. Do not damage reinforcement in the supporting concrete elements.

After removing steel pipe supports and access platforms, repair the coating on steel to remain in place according to Section 00594.

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After removing steel and concrete pipe supports and access platforms, remove exposed abandoned metal to a depth of 1 inch. Fill the resulting holes with an approved PCC repair Material from the QPL. Observe QPL remarks and follow the manufacturer's recommendation for application.

Measurement

01180.80 General - The quantities of Work performed under this Section will be measured according to the following:

(a) **Removal** - No measurement of quantities will be made for removal of existing water pipe or removal of existing pipe supports or maintenance access walkways.

(b) **Steel Pipe Hangers** - No measurement of quantities will be made for steel pipe hangers. The estimated quantity of steel pipe hangers is:

Type	Quantity (Pounds)
Bent 15 Hangers	1,500
Span 15 through 18 Hangers	60,200

(c) **Pipe Saddles and Pipe Rollers** - Pipe saddles will be measured on the unit basis for each saddle installed and accepted. Pipe rollers will be measured on the unit basis for each pipe support location where rollers are installed and accepted, regardless of the number of physical rollers installed at each pipe support location.

(d) **Concrete Pipe Supports** - No measurement will be made for concrete pipe supports.

(e) **Maintenance Walkways** - Maintenance walkways will be measured on the length basis by the horizontal installed length from beginning to ending of each segment of walkway installed.

Payment

01180.90 General - The accepted quantities of Work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Pipe Removal	Lump Sum
(b) Pipe Support, Hanger, and Walkway Removal	Lump Sum
(c) Steel Pipe Hangers.....	Lump Sum
(d) Pipe Saddles _____	Each
(e) Pipe Rollers	Each
(f) Concrete Pipe Supports.....	Lump Sum
(g) Maintenance Walkways	Foot
(h) Steel Access Panels	Lump Sum

Item (a) includes preparing and submitting the Pipe Removal Plan and removal of existing pipe, expansion joints, and attachments from the base of Bent 15 to the base of Bent 20.

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Item (b) includes removal of existing pipe hangers, maintenance walkways, pipe rollers, pipe saddles, concrete pipe supports, and steel Bent 20 access structure. Item (b) also includes concrete repairs.

Item (c) includes fabrication and installation of steel pipe hangers on the face of Bent 15 and within Spans 15 through 18. Payment includes payment for required fasteners and post-installed anchors to secure the hangers to the structure.

In item (d), the pipe saddle designation is inserted in the blank.

Item (d) includes fabrication and installation pipe saddles, including required fasteners and post-installed anchors.

Item (e) includes furnishing and installing pipe rollers, including pipe shields and required fasteners.

Item (f) includes furnishing and installing concrete and reinforcement for concrete pipe supports. Payment includes payment for post-installed anchors to attach pipe supports to existing concrete.

Item (g) includes furnishing and installing structural steel walkway supports, fiberglass grating, and required fasteners. Steel walkway supports include stringers, diaphragms, and toe board angles.

Item (h) includes furnishing and installing steel access panels including structural steel and steel grating. Payment includes payment for furnishing and installing required fasteners and post-installed anchors to secure the access panels to the structure.

Payment will be payment in full for furnishing and placing all Materials, and for furnishing all Equipment, labor, and incidentals necessary to complete the Work as specified.

SECTION 02001 - CONCRETE

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.15 Concrete Mix Design - Replace the paragraph that begins "Submit current or new mix ..." with the following paragraph:

Submit current or new mix designs, prepared by a CCT, with the information listed in 02001.15(c), for each required class of concrete to the Engineer for review. Allow 21 Calendar Days for the review. Design mixes by the volumetric method in ACI 211.1 to achieve the properties of 02001.20 and 02001.30 when tested according to 02001.15(b). Provide a design that is workable, placeable and finishable given the specific conditions for the Project and Structure. Do not proceed with concrete placement until the Engineer has determined that the mix design complies with the Specifications. Review of concrete mix designs does not relieve the Contractor of the responsibility to provide concrete meeting the Specification and Project Site requirements.

02001.15(a) Current Mix Design - Replace this subsection, except for the subsection number and title, with the following:

Mix designs that meet the requirements for the specified class of concrete and are currently being used or have been used within the past 24 months on any project, public or private may be submitted for review. Provide individual tests results that comprise the average if more than one data point exists. Provide flexural strength testing for paving designs from within the last two years. Provide length change and permeability tests for HPC designs from within the last two years.

02001.15(b) New Mix Designs - Replace this subsection, except for the subsection number and title, with the following:

Make at least one trial batch for each concrete mix design. Notify the Engineer at least 48 hours before making each trial batch. The Engineer may witness preparation and testing. Prepare and test trial batches using the same Materials, at the same proportions, and having the same plastic properties of concrete that are used in the Project. Simulate haul time, batching sequence and mixing conditions to ensure the trial batch is representative of the mixture that is delivered to the Project. Furnish all Materials, Equipment, testing and Work required for designing the mixes at no additional cost to the Agency.

02001.15(b)(1) Trial Batch Plastic Properties - Replace the test method that begins "AASHTO T 23..." with the following test method:

AASHTO R 100 or R 39 ³

02001.15(b)(2)(a) Compressive Strength Tests - Replace this subsection, except for the subsection number and title, with the following:

For each trial batch, cast and cure at least three test cylinders according to AASHTO R 100 or AASHTO R 39, in 6-inch by 12-inch or 4-inch by 8-inch single use plastic molds. The use of unbonded caps according to ASTM C1231 is permitted. Test at 28 Days according to AASHTO T 22.

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02001.15(b)(2)(b) Flexural Strength Tests - Replace this subsection, except for the subsection number and title, with the following:

For each paving concrete trial batch, cast and cure at least three flexural beams according to AASHTO R 100 or AASHTO R 39. Test flexural beams at 28 Days according to AASHTO T 97.

02001.15(b)(2)(c) Length Change Tests - Replace this subsection, except for the subsection number and title, with the following:

For all HPC mix designs, except for precast or prestressed elements, make at least three specimens from the trial batch for length change testing. Provide sample prisms having a square, 4-inch by 4-inch Cross Section. Wet cure the samples until they have reached an age of 28 Days, including the period in the molds. Following the wet cure, air store and measure samples according to AASHTO T 160, Section 11.1.2 for 28 Days. Report length change results at total specimen age of 56 Days.

02001.15(b)(2)(d) Permeability Tests - Replace this subsection, except for the subsection number and title, with the following:

For alternate HPC mix designs, select from the following options:

- Make at least three specimens from the trial batch for permeability testing. Prepare, cure, dry and test according to AASHTO T 277. Report permeability in coulombs at 90 Days.
- Make at least two specimens from the trial batch for resistivity testing. Prepare, cure and test according to AASHTO T358 using the sealed conditioning method. Report resistivity in $k\Omega \cdot cm$ at 56 Days.

02001.15(c) Required Submittals for Mix Designs - Replace the title of this subsection with "**Submittals for Mix Designs**"

02001.20 Concrete properties, Tolerances, and Limits - Replace the paragraph that begins "Provide concrete that is..." with the following paragraph:

Furnish concrete that is workable, placeable, uniform in composition and consistency, and having the following properties:

02001.20(a) Strength - Replace the paragraph that begins "Provide concrete meeting ..." with the following paragraph:

Furnish concrete meeting the required classes shown in the Contract Documents. The class of concrete designates the minimum required compressive strength, f'_c at 28 Days.

02001.20(b) Air Entrainment - Replace the paragraph that begins "Provide all concrete..." with the following paragraph:

Furnish all concrete, except PPCM with cast-in-place decks, seal concrete, and drilled shaft concrete with entrained air in the amounts shown in Table 02001-2. Provide field measured entrained air content within ± 1.5 percent of target air entrainment values.

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02001.20(c) Slump - Replace the paragraph that begins "Provide concrete..." with the following paragraph:

Furnish concrete at the appropriate slump shown in Table 02001-3. Take corrective action to maintain a consistent slump at the point of discharge from the delivery vehicle.

02001.20(d) Temperature - Replace the paragraph that begins "Provide concrete..." with the following paragraph:

Provide concrete, at time of placement, at a temperature between a minimum of 50 °F and a maximum of 90 °F, except the maximum bridge deck concrete temperature is 80 °F.

02001.20(e) Durability - Replace this subsection, except for the subsection number and title, with the following:

For HPC designs the following additional requirements apply:

Test	Test Method	Acceptance Value
Length Change	AASHTO T 160	-0.045% ¹
Permeability	AASHTO T 277	1,000 Coulombs (max.) at 90 Days ²

¹ Not required for precast or prestressed elements.

² Only required for alternate HPC designs. See 02001.30(b)(2). A minimum resistivity of 37.0 kΩ·cm at 56 Days for 4x8 inch cylinders and 29 kΩ·cm at 56 Days for 6x12 inch cylinders are accepted as equal when tested according to AASHTO T 358 using the sealed conditioning method.

Add the following subsection:

02001.20(f) Internal Curing - For HPC(IC) concrete, internally cure the mixture according to the following:

- Substitute 350 lbs (SSD) LWFA for standard Fine Aggregate.

02001.30(a) Portland Cement - Replace this subsection, except for the subsection number and title, with the following:

For structural or paving concrete applications use cement according to 02010.10 or 02010.20, excluding Type III. Use Type III cement for precast prestressed concrete.

02001.30(b)(1) General Limits - Replace the paragraph that begins "*Fly ash + other..." with the following paragraph:

*Furnish fly ash + other Pozzolans at a rate no more than 25% and silica fume at a rate no more than 5% of the total weight of Cementitious Materials.

02001.30(b)(2) HPC Cementitious Composition - Replace this subsection, except for the subsection number and title, with the following:

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Cement with SCM proportioned according to 02001.30(b)(1) and with trial batches performed to demonstrate that the proposed alternate mix design provides a maximum of 1,000 coulombs at 90 Days when tested according to AASHTO T 277 or a minimum resistivity of 37.0 kΩ·cm at 56 Days for 4x8 inch cylinders and 29 kΩ·cm at 56 Days for 6x12 inch cylinders are accepted as equal when tested according to AASHTO T358 using the sealed conditioning method.

02001.30(f) Synthetic Fiber Reinforcing for Concrete - Replace this subsection, except for the subsection number and title, with the following:

Except for precast or prestressed elements, use synthetic fiber reinforcing from the QPL and according to Section 02045 in all HPC. Use synthetic fiber reinforcing according to the manufacturer's recommendations at the rate designated on the QPL. Fiber packaging is not allowed in the mixed concrete.

02001.40 Concrete Production - Replace the paragraph that begins "¹ When haul time or ..." with the following paragraph:

¹ When haul time or placement conditions warrant exceeding the time of discharge, submit a detailed breakdown of the estimated time needed from batching to discharge of a load along with the measures that are taken to ensure slump, temperature and uniformity is maintained. Submit this request in advance and may establish a new time limit at the Engineer's discretion.

02001.40(a) Delivery Tickets - Replace the paragraph that begins "Send a concrete delivery ..." with the following paragraph:

Send a concrete delivery ticket with each load of concrete supplied to the Project. Include the following information on each delivery ticket:

02001.40(b) Adjusting Concrete Proportions - Replace the bullet that begins "Large admixture dosage changes..." with the following bullet:

- Large admixture dosage changes, excluding adjustments for air entraining agents and Type A or D water reducers (± 25 oz/cubic yard).

02001.50 Quality Control - Replace the bullet that begins "The Contractor shall..." with the following bullet:

- Designate a person responsible for accepting and rejecting concrete on-site.

02001.50(c) Concrete Control Technician (CCT) - Replace the bullet that begins "Make adjustments to loads ..." with the following bullet:

- Make adjustments to loads that fail to meet the air content or slump criteria of the Specifications prior to the 90-minute time limit. Make adjustments complying with the provisions of ASTM C94.

02001.60 Acceptance of Concrete - Replace this subsection, except for the subsection number and title, with the following:

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Acceptance of concrete is according to Section 00165 and the following:

- (a) **Aggregate** - Acceptance of Aggregate is according to 02690.12.
- (b) **Plastic Concrete** - Acceptance of plastic concrete is based on tests performed by the Contractor's QCT, according to the tolerances and limits of 02001.20, when discharged within the time allotted in 02001.40.
- (c) **Hardened Concrete** - Cast and cure test specimens according to AASHTO R 100 in 6-inch x 12-inch or 4-inch x 8-inch, single-use plastic molds and test at 28 Days according to AASHTO T 22.
 - (1) **General** - For all classes of concrete, acceptance of hardened concrete is based on an analysis of compressive strength tests of cylinders cast by the QCT. Test cylinders at an Agency certified laboratory.
 - (2) **Acceptance** - Hardened concrete with an ASTV meeting or exceeding the specified design strength, f'_c is accepted for strength. If the ASTV is less than f'_c but at least 85 percent of f'_c , the Engineer may review the results to determine if the concrete represented by the cylinders is suitable for the intended purpose. Remove concrete that has an ASTV less than 85 percent of f'_c unless otherwise authorized, in writing, by the Engineer. If the concrete is removed, the cost of removal, replacement and all related Work is the Contractor's responsibility. If the Engineer determines that the concrete is suitable for the intended purpose, the concrete may be allowed to remain in place, subject to a price adjustment according to 00150.25. If an ASTV falls below f'_c , the Contractor may submit a written plan outlining a proposed alternate method of evaluating compressive strength. Submit the plan for review by the Engineer within 3 Days of the test. Provide evidence that a reasonable f'_{cr} (over-design) was maintained and that there is credible evidence (besides low strength) that warrants consideration of this option. The Engineer may allow an alternate method of acceptance if the compressive strength test results are determined to be suspect from definable external factors.

SECTION 02005 - EVALUATION OF EARLY-AGE CONCRETE

Section 02005 is not a Standard Specification and is included in this Project by Special Provision.

Description

02005.00 General - This Section includes the requirements of using sensors and other alternative means to take temperature and strength measurements of placed portland cement concrete or high-early strength concrete throughout this Specification referred to as structural concrete, Commercial Grade Concrete, or concrete.

02005.01 Definitions:

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Early-Age - A length of time shorter than the timeframe specified in the specific specification for $f'c$ acceptance.

02005.02 Submittals - Submit reports from AASHTO T 325 when using maturity meters. Include the Equipment used to establish the maturity index and the Equipment to be used during field measurements.

Equipment

02005.20 In-Place Concrete Sensors - Provide maturity meters meeting the requirements of ASTM C1074 (AASHTO T325) and from the QPL.

Construction

02005.40 General - Early-Age readings of concrete strength, $f'c$, can be used for subsequent loading and return-to-traffic strength measurement. The Early-Age readings are not part of acceptance according to Section 00165. Early-Age readings can be completed by one of the following methods:

(a) **Early-Age Concrete Cylinders** - Cast and cure at least 2 test cylinders according to AASHTO R 100 in 6-inch by 12-inch or 4-inch by 8-inch single use plastic molds. Test at an Early-Age according to AASHTO T 22. Test at the same frequency and from the same sample as acceptance tests.

(b) **Strength-Maturity Relationship** - Establish a strength-maturity relationship for concrete mix designs according to AASHTO T 276 and AASHTO T 325 during the mix design phase. Test at ages of 24 hours and 3, 7, 14, and 28 Days. For high-early strength concrete, test at ages of 1, 3, 5, 8, and 24 hours. Alternative testing ages may be submitted with a minimum of 5 test ages, with intervals at approximately equal strength increments. Each reading requires averaging the two maturity cylinders and breaking two compressive strength specimens.

02005.41 In-Place Concrete Strength Measurements - Use sensors meeting the requirements of 02005.20 to measure in-place strength of concrete.

(a) **Field Measurements** - Prior to concrete placement, securely attach sensors to the reinforcement at equivalent spacing throughout the placement area. Install a minimum of two sensors per placement, maintaining a minimum density of two sensors for every 100 cubic yards of concrete. If the strength measurements are used to authorize subsequent loading or return-to-traffic, place the sensors in the latest portion of the pour. For standard concrete, calculate Early-Age strength after 72 hours. For high-early strength concrete, Early-Age strength may be calculated at any time after the final set. The time of final set is determined by field observation when the concrete has stiffened sufficiently to resist the penetration of a weighted test device.

(b) **Regression Analysis** - When estimating strength for a future date, perform a regression analysis according to AASHTO T 276.

(c) **Early-Age Strength** - For subsequent loading or return-to-traffic strength, calculate the strength of concrete based on the maturity index readings according to AASHTO T 325.

02005.45 Temperature Monitoring - Use sensors meeting the requirements of 02005.20 to monitor the temperature of concrete, as required. Monitor temperature on all mass concrete placements.

SECTION 02010 – PORTLAND CEMENT

Comply with Section 02010 of the Standard Specifications modified as follows:

02010.10(b) Specifications - Replace this subsection except for the subsection number and title with the following:

Furnish portland cement according to AASHTO M 85 or ASTM C150 for low alkali cement except as follows:

- Cement having a total alkali content (sodium and potassium oxide calculated as $\text{Na}_2\text{O} + 0.658 \text{ K}_2\text{O}$) not exceeding 0.60 percent.
- All cement types contain a maximum of 8 percent tricalcium aluminate (C_3A).
- The time-of-setting tests are by either the Gillmore test or the Vicat test.
- Types I and II maximum fineness (specific surface) as determined by AASHTO T 153 air permeability test is 430 m^2/kg . If $\text{C}_3\text{S} + 4.75 \text{ C}_3\text{A}$ is less than or equal to 90, the fineness criteria does not apply.

02010.10(c) Acceptance - Replace this subsection except for the subsection number and title with the following:

Furnish portland cement from the QPL.

02010.20 Blended Hydraulic Cement - Replace this subsection except for the subsection number and title with the following:

Furnish blended hydraulic cement that is either Type IS-portland blast-furnace slag cement, Type IP-portland-pozzolan cement, Type IL-portland-limestone cement, or Type IT-ternary blended cement according to AASHTO M 240.

Furnish blended hydraulic cement from the QPL.

SECTION 02020 – WATER

Comply with Section 02020 of the Standard Specifications modified as follows:

02020.10(a) General - Replace this subsection except for the subsection number and title with the following:

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Use water in mixing or curing concrete, mortar, grout, and in mixing cement-treated Base that is reasonably clean, and free of oil, sugar, organic matter, or other substances injurious to the finished product.

02010.20(c) Non-Potable, Unknown Quality, or Suspected Quality - Replace this subsection except for the subsection number and title with the following:

Test non-potable, unknown quality, or suspected quality water at no additional cost to the Agency. Test according to ASTM C114 and ASTM C1603. Water from concrete production operations is considered unknown quality. Provide test results that comply with the limits and ranges of ASTM C1602. Make test results available for review upon request.

SECTION 02030 – SUPPLEMENTARY CEMENTITIOUS MATERIALS

Comply with Section 02030 of the Standard Specifications modified as follows:

02030.10 Fly Ash - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class C and Class F fly ash from the QPL and according to AASHTO M 295 (ASTM C618).

002030.15 Natural Pozzolans - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class N natural pozzolans from the QPL and according to AASHTO M 295 or ASTM C1945.

02030.20 Silica Fume - Replace this subsection, except for the subsection number and title, with the following:

Furnish silica fume from the QPL and according to the following:

(a) Types - Furnish the silica fume as a slurry containing silica fume, water, and a high range water reducer, or as a densified powder. Ensure the silica fume portion conforms to AASHTO M 307. Allowed total alkalis, as equivalent Sodium Oxide (Na_2O), is 1.5 percent maximum.

(b) Acceptance - Silica fume is accepted for immediate use if accompanied by a test results certificate according to 00165.35. If the silica fume is supplied as a slurry, indicate on the certificate the silica fume content of the slurry as a percent by weight. If the silica fume is supplied as a densified powder, do not allow the packaging to enter the concrete mixture.

002030.40 Ground Granulated Blast Furnace Slag (GGBFS) - Replace this subsection, except for the subsection number and title, with the following:

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Furnish GGBFS from the QPL and according to AASHTO M 302.

002030.50 High Reactivity Pozzolans - Replace this subsection, except for the subsection number and title, with the following:

Furnish high-reactivity pozzolans from the QPL and according to AASHTO M 321.

Add the following subsection:

02030.55 Ground Glass Pozzolan - Furnish ground glass pozzolans meeting the requirements of ASTM C1866 Type GS.

SECTION 02050 – CURING MATERIALS

Comply with Section 02050 of the Standard Specifications modified as follows:

02050.10 Liquid Compounds - Replace this subsection, except for the subsection number and title, with the following:

Furnish liquid membrane-forming curing compounds from the QPL and meeting the requirements of ASTM C309. Before use, submit two, one-quart samples from each lot for testing. Samples are tested according to ODOT TM 721. Samples are not required for curing compounds used on Commercial Grade Concrete.

Furnish Type 1-D, Type 2, Class A or B compounds.

Only Type 2, Class B resins are allowed for the following concrete Pavement applications:

- Plain concrete Pavement.
- Continuously reinforced concrete Pavement.
- Plain concrete Pavement repair.
- Reinforced concrete Pavement repair.

SECTION 02080 – GROUT

Comply with Section 02080 of the Standard Specifications modified as follows:

02080.40 Portland Cement Grout - Replace this subsection, except for the subsection number and title, with the following:

Furnish portland cement grout consisting of one-part portland cement and three parts Sand by weight, thoroughly mixed with a minimum amount of water to produce a thick, creamy consistency. Furnish Sand meeting the requirements of 02690.30. Furnish cement meeting the requirements of Section 02010.

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Add the following subsection:

02080.80 Rock and Ground Anchor Grout - Furnish rock and ground anchor grout from the QPL.

SECTION 02110 – POSTS, BLOCKS, AND BRACES

Comply with Section 02110 of the Standard Specifications modified as follows:

02110.10(a) General - Replace this subsection, except for the subsection number and title, with the following:

Furnish posts for guardrail and median barrier of the size shown, manufactured from Douglas fir, Hem-fir, or Southern Yellow Pine. A minimum extreme fiber bending stress (F_b) of 1,200 psi is required for wood posts. Only treated posts from approved Suppliers that are listed in the *Nonfield-Tested Materials Acceptance Guide* are allowed.

02110.10(b) Grading - Replace the paragraph that begins "Grading of posts shall..." with the following paragraph:

Furnish posts with grading meeting the following:

02110.10(c) Certificates - Replace this subsection, except for the subsection number and title, with the following:

Provide certificates of lumber inspection by a recognized inspection agency.

02110.10(f) Seasoning and Checking - Replace this subsection, except for the subsection number and title, with the following:

Furnish preservative treated post that show evidence of reasonable amount of seasoning or conditioning having occurred prior to treatment, so that further shrinkage of treated posts will not create checking that would expose untreated wood.

At the time of inspection at the plant and at the time of installation each treated post is subject to inspection for evidence of seasoning having occurred. The presence of checking on the surface of the post will not be cause for rejection unless the width of the widest check, shake, or split exceeds 1/2 inch (surface measurement).

If an otherwise acceptable treated post has a through check, shake, or end split in the same slope of grain or plane as the bolt hole and extending from the top of the post to within 3 inches of the bolt hole, the post is rejected unless it is provided with a tight fastening across the separation, centered on the post, and 2 inches below the top. Fasten with a 1/2-inch diameter galvanized bolt and nut with a galvanized washer under the bolt head and under the nut after final curing of post is achieved. Treat holes for fastenings according to 00570.40.

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02110.10(g) Inspection, Rejection and Marking at Plant - Replace this subsection, except for the subsection number and title, with the following:

Posts are subject to inspection at the treating plant at any time before, during or after treatment. Normally, inspection of treated posts is made by the Agency's Inspector not later than 10 Calendar Days after treatment, provided the Inspector is notified of the time that treating is to be done.

Inspection of treated posts for compliance with the requirements of 02110.10(e) is according to applicable AWPA standards, except as follows:

- The Inspector will choose the number of treated posts from any one charge of the treating cylinder for determining penetration of treatment.
- Each post selected for testing is representative as a basis of acceptance or rejection of a pro rata number of posts in the charge.
- If 20 percent of the posts randomly selected for testing fail to conform to requirements, all of the posts in the entire charge from where they are selected may be classed as unacceptable.

At the Inspector's discretion, each treated post or a representative random selection of treated posts may be inspected for compliance with the requirements of 02110.10(f) "Seasoning and Checking".

Posts that fail to conform to requirements of this Subsection are subject to rejection at the treating plant singly, by partial lots, or by whole lots. (A "lot" comprises the posts in any charge of the treating cylinder.)

Apply a permanent mark or metal tag to each treated post that identifies the Supplier and year of treatment, placed by the Supplier either:

- On the top of the post, or
- On the back of the post, 8 inches to 10 inches below the bolt hole.

02110.10(h) Field Inspection, Acceptance and Rejection - Replace the paragraph that begins "Posts that show a check ..." with the following paragraph:

Posts that show a check, shake, or split exceeding 1/2 inch in width (surface measurement) on any surface are rejected.

Replace the paragraph that begins "Acceptance of Material..." with the following paragraph:

Acceptance of Material is according to 00165.35, 02110.10(g), and the Specifications.

02110.20 Guardrail Blocks - Replace this subsection, except for the subsection number and title, with the following:

(a) General - Furnish wood guardrail blocks of the dimensions shown. Furnish blocks either Douglas fir or Hem-fir meeting the requirements of 02110.10, or pine or Southern Yellow Pine meeting the requirements of 02110.20(b) and 02110.10 except for 02110.10(b). The requirements of marking and branding the treated blocks, according to

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the last paragraph of 02110.10(g), is waived provided that the Supplier of the treated blocks provides certification with each shipment stating that the blocks conform to Specifications and that the preservative treating was done under the inspection and with the approval of the Engineer.

(b) Grading - Furnish pine guardrail blocks according to the requirements of paragraph 80.11 of the current WWPA Grading Rules. Furnish Southern Yellow Pine guardrail blocks according to the requirements for No. 1 timber as specified in section 402 of the current SPIB Grading Rules.

(c) Recycled Plastic - Recycled plastic guardrail blocks from the QPL may be used.

(d) Acceptance - Acceptance of Material is according to 00165.35 and this Section.

02110.30 Fence Posts and Braces - Replace this subsection, except for the subsection number and title, with the following:

Furnish fence posts and brace rails of the sizes and dimensions shown and of sound Douglas fir, western hemlock, or western pine free from decay, end splits, and multiple crooks. Seasoning checks of not more than 5/16-inch width (surface measurement) is allowed. Allowable crooks may be in one plane only. Do not allow a line drawn between the centers of the butt and tip of each post and brace rail to fall outside of the actual longitudinal centerline of the post or rail by more than 1.67 percent of its length, with an allowable maximum of 2 inches.

Posts and brace rails may be square, rough, or dressed lumber, or may be peeled round posts, as the Contractor elects. Furnish round members free from bark, protruding knots and irregularities detrimental to a pleasing appearance.

Fabricate posts and brace rails before pressure treatment. Where field boring or field cutting of a treated member is required, field-treat the exposed untreated surface of the member according to 00570.40. Do not allow the size of holes after treatment to exceed the size of the dowels or bolts to be inserted by more than 1/16 inch.

Posts intended to be driven may be machine-pointed on either the small end or the large end, before pressure treatment.

Pressure treat the posts and brace rails according to Section 02190.

Acceptance of Material is according to 00165.35 and the Specifications.

02110.40(a) Grading - Replace the paragraph that begins "Grading requirements..." with the following paragraph:

Furnish wood signposts with grading according to the applicable paragraphs of either the current WCLIB Grading Rules or the current WWPA Grading Rules, as follows:

02110.40(b)(1) Length - Replace the paragraph that begins "The length of the posts..." with the following paragraph:

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Furnish posts of the length as shown or, where not shown, a sufficient length to provide proper sign mounting, a proper mounting height and the required foundation depth.

02110.40(b)(4) Cuts and Abrasions - Replace this subsection, except for the subsection number and title, with the following:

Treat cuts, abrasions and bolt-holes, prior to shipping, with the same preservative as originally used to treat the post, except that if the post was originally treated with pentachlorophenol - volatile petroleum solvent (LPG) solution, treat cuts, abrasions and bolt-holes with pentachlorophenol - mineral spirits solvent solution according to AWPAs Standard M4.

02110.40(c) Cuts and Abrasions - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of Material is according to 00165.35 and this Section.

SECTION 02120 – POLES

Replace this Section except for the Section number and title with the following:

Description

02120.00 Scope - This Section includes the requirements for wood poles for use in illumination and signal installations, and timber piling for Structures.

Materials

02120.10 Wood Poles - Furnish all wood poles meeting the current edition of ANSI O5.1, Specifications and Dimensions (for Wood Poles), for Class 4 machine shaved Douglas fir, and treated meeting the requirements of Section 02190. Furnish poles that are round, sound, well-proportioned from butt to tip, and without short kinks or crooks.

02120.40 Acceptance - Acceptance of poles is according to 00165.35 and this Section.

SECTION 02190 – PRESERVATIVE TREATMENT OF TIMBER

Comply with Section 02190 of the Standard Specifications modified as follows:

02190.10 General - Replace the paragraph that begins "All preservative treatment..." with the following paragraph:

Provide all preservative treatment according to AASHTO M 133 and its referenced AWPAs Standards, except use the following according to the AWPAs Standard:

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02190.20 Drying After Treatment - Replace the paragraph that begins " The maximum moisture..." with the following paragraph:

The maximum moisture content is 19 percent prior to installation.

SECTION 02210 – COATING MATERIALS FOR TIMBER AND CONCRETE

Comply with Section 02210 of the Standard Specifications modified as follows:

02210.10(a) Manufacturing - Replace the bullet that begins "All coats in..." with the following bullet:

- Use the same manufacturer for all coats in the coating system.

Replace the bullet that begins "Multi-component coating Materials..." with the following bullet:

- Furnish manufacturer proportioned multi-component coating Materials with each component in its correct proportion and furnished in separate containers ready for field mixing.

SECTION 02320 - GEOSYNTHETICS

Comply with Section 02320 of the Standard Specifications modified as follows:

02320.10(a)(1) Geotextiles - Replace the bullet that begins "Fibers used in manufacture of..." with the following bullet:

- Use fibers and threads consisting of long-chain synthetic polymers, composed of at least 95 percent by weight of polyolefins or polyesters in the manufacture and joining of geotextiles. Form geotextiles into a stable network such that the filaments or yarns retain their dimensional stability to each other, including selvages.

02320.10(b) Identification - Replace the paragraph that begins "Allow the Engineer to..." with the following paragraph:

Allow the Engineer to visually verify geosynthetic products before installation. Open packaged geosynthetics before use in the presence of the Engineer to confirm the correct product. Geotextile rolls without the product name printed on the geotextile or the product label affixed to the geotextile or roll core by the Manufacturer are rejected. Any other geosynthetics that are unwrapped, missing original packaging or previously opened may not be used unless approved by the Engineer.

02320.10(c) Manufacturer's Test Certification - Replace the paragraph that begins "Furnish test result..." with the following paragraph:

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Provide test result certificates according to 00165.35 from the geosynthetic manufacturer, and the following:

02320.10(c)(1) Geotextiles - Replace the bullet that begins "Product name printed..." with the following bullet:

- Product name printed directly on the geotextile by the Manufacturer. For geotextiles that are not marked with a product name, furnish geotextile with product label attached to the geotextile or original packaging by the Manufacturer.

02320.10(d) Manufacturer's Sampling/Testing - Replace this subsection, except for the subsection number and title, with the following:

Provide manufacturer's reported property values based on the following sampling and testing requirements:

(1) Sampling - Sample all geosynthetics according to ASTM D4354. Use a roll or sheet for the production unit used for sampling.

(2) Geotextile Testing - Perform the specified tests to determine geotextile properties for the intended applications. Test the tensile strength requirements in both machine and cross-machine directions.

(3) Geogrid Testing - For mechanically stabilized earth retaining wall geogrid, provide laboratory test results that demonstrate the average roll value for each geogrid product is greater than or equal to the geogrid ultimate wide width tensile strength reported for the initial geogrid product evaluation and approval on the QPL. Determine the ultimate wide width tensile strength (T_{ult}) according to ASTM D6637. If the average roll value for each geogrid reinforcement product is less than the geogrid ultimate wide width tensile strength identified on the QPL, the entire production run is rejected.

02320.20 Geotextile Property Values – Replace Table 02320-3 with the following table:

Table 02320-3 Geotextile Property Values for Sediment Fence ¹

Geotextile Property	ASTM Test Method	Unit	Geotextile Property Requirements Woven and Nonwoven
Grab Tensile Strength (minimum) Machine and Cross Machine Directions	D 4632	lb	120 100
Apparent Opening Size (AOS) (maximum) U.S. Standard Sieve	D 4751	—	30
Permittivity (minimum)	D 4491	sec ⁻¹	0.05
Ultraviolet Stability Retained Strength (minimum)	D 4355 (at 500 hours)	%	70

¹ All geotextile properties are Minimum Average Roll Values (MARV). The test results for any sampled roll in a lot shall meet or exceed the values shown in the table.

SECTION 02410 - CONCRETE PIPE

Comply with Section 02410 of the Standard Specifications modified as follows:

02410.10(e) Concrete Pipe Plant Air Test - Replace this subsection, except for the subsection number and title, with the following:

The Engineer may require that each length of concrete pipe 12 inches in diameter and smaller be given an individual air test at the point of manufacture. Use test Equipment approved by the Engineer and a test pressure of at least of 10 psi. Ensure each length shows no appreciable loss of air after 5 seconds.

When individual air testing is performed, no field or shop permeability tests are required.

02410.10(f) Nonreinforced Concrete Pipe - Replace this subsection, except for the subsection number and title, with the following:

Furnish nonreinforced or plain circular concrete pipe and special sections according to the requirements of AASHTO M 86 (ASTM C14) or ASTM C985 and this Section.

02410.10(g) Reinforced Concrete Pipe - Replace this subsection, except for the subsection number and title, with the following:

Furnish reinforced concrete pipe and special sections according to the requirements of AASHTO M 170 (ASTM C76) and this Section, except as follows.

(1) Special Sections - Furnish special sections such as elbows, wyes, tees, crosses, bends and reducers as shown, specified or directed. In the absence of any design or Specifications, furnish special sections of the design recommended by the manufacturer for the intended use and according to the requirements specified for the pipe where it is used.

Fabricate special sections with components from tested and approved lots. Maintain production dates of components.

(2) Load Strength - Reinforced concrete pipe having the same D-load strengths as those specified to be furnished under AASHTO M 170 (ASTM C76) may be furnished according to AASHTO M 242 (ASTM C655).

(3) Acceptance - The basis of acceptance for reinforced concrete pipe manufactured according to AASHTO M 170 (ASTM C76), and AASHTO M 242 (ASTM C655) is Paragraph 5.1.1 of AASHTO M 170.

02410.10(h) Concrete Drain Pipe - Replace this subsection, except for the subsection number and title, with the following:

Use circular, nonreinforced perforated concrete pipe and special sections for subsurface drainage according to the requirements of AASHTO M 175 (ASTM C444), Type 1, all applicable requirements of AASHTO M 86 (ASTM C14), except indent the markings required by AASHTO M 86 (ASTM C14) in the outside surface of each section of pipe.

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02410.10(i) Concrete Drain Tile - Replace this subsection, except for the subsection number and title, with the following:

Furnish concrete drain tile according to the requirements of AASHTO M 178 (ASTM C412).

02410.80 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Except as provided in 02410.10(g)(3), acceptance of nonreinforced concrete pipe, reinforced concrete pipe, concrete drain pipe, concrete drain tile, and hardware is according to 00165.35 and this Section.

SECTION 02415 - PLASTIC PIPE

Comply with Section 02415 of the Standard Specifications modified as follows:

02415.20 Solid-Wall Polyethylene Pipe – Replace the bullet that begins "Production code from which ..." with the following bullet:

- Production code where the date and place of manufacture can be determined

02415.30 Steel Reinforced Polyethylene Pipe – Replace the paragraph that begins "For Steel Reinforced Polyethylene..." with the following paragraph:

For Steel Reinforced Polyethylene Pipe, furnish either factory installed gaskets on the couplings or manufacturer installed gaskets on the pipes. Furnish at least silt tight joints for culvert pipe and water tight joints for storm sewer pipe. Furnish watertight joints from the QPL and meeting the requirements of ASTM D3212.

02415.40 Polypropylene Pipe - Replace this subsection, except for the subsection number and title, with the following:

Furnish polypropylene pipe and fittings as follows:

(a) Non-Pressure Storm Sewers and Culverts - Furnish polypropylene pipe and fittings for non-pressure storm sewers and culverts from the QPL and meeting the following requirements:

Dual Wall Pipe	ASTM F2764, ASTM F2881, or AASHTO M 330 Type S
Triple Wall Pipe	ASTM F2764 or AASHTO M 330 Type D
Watertight Joints	ASTM D3212

(b) Non-Pressure Sanitary Sewers - Furnish polypropylene pipe and fittings for non-pressure sanitary sewers from the QPL and meeting the following requirements:

Dual Wall Pipe	ASTM F2764
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Triple Wall Pipe	ASTM F2764
Watertight Joints	ASTM D3212

02415.50 Polyvinyl Chloride Pipe - Replace the paragraph that begins "Furnish PVC sanitary, storm..." with the following paragraph:

Furnish PVC sanitary, storm, culvert, siphon, and irrigation pipe and fittings with 2 feet or more cover that have a minimum pipe stiffness of 46 psi or a minimum SDR of 35 and meet the requirements of sewer pipe ASTM D3034 or ASTM F794.

02415.80 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of Polyethylene Pipe, polypropylene pipe, polyvinyl chloride pipe and hardware is according to 00165.35 and this Section.

SECTION 02420 - METAL PIPE

Comply with Section 02420 of the Standard Specifications modified as follows:

02420.10(a) Shapes - Replace the paragraph that begins "Provide either full-circle..." with the following paragraph:

Furnish either full-circle or elliptical pipe, as the Contractor may elect, unless otherwise shown or specified. The shapes of pipe fabricated and furnished may include any of the following:

Replace the bullet that begins "**Nestable Pipe** - Fabricate ..." with the following bullet:

- **Nestable Pipe** - Fabricate in two separate half sections designed to fit and fasten together to form a full-circle Cross Section of specified diameter. Fasten the two half sections together by approved means, providing at least 90 percent of the strength of a standard riveted longitudinal seam.

02420.10(b) Connecting Bands - Replace this subsection, except for the subsection number and title, with the following:

Use connecting bands according to the details as shown to make field joints for pipes and pipe arches not requiring watertight joints.

02420.10(c) Special Sections - Replace the paragraph that begins "Generally, special sections shall..." with the following paragraph:

Generally, furnish special sections according to the requirements specified for the pipe where they are used. Connect special sections to the pipe or to each other with connecting bands specified for use with the pipe where they are connected.

02420.10(d) Repair of Damaged Coating - Replace the paragraph that begins "In addition to the methods ..." with the following paragraph:

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In addition to the methods given in AASHTO M 36 (ASTM A760) the Contractor may repair damaged zinc or aluminum coating by removing all loose or cracked coating, removing all welding flux, wire brushing the damaged area, and applying two coats (minimum 2 mils total thickness) of a high zinc dust content paint according to the general requirements of ASTM A780.

02420.10(e) Irrigation Pipe - Replace the paragraph that begins "In irrigation pipe installations..." with the following paragraph:

In irrigation pipe installations, where Type D coating (AASHTO M 190) is not specified, the Contractor is allowed to furnish pipe with Type D coating.

02420.10(e)(2) Field Joints - Replace this subsection, except for the subsection number and title, with the following:

Use connecting bands according to the details shown and make the field joints watertight.

02420.10(f) Siphon Pipe - Replace the paragraph that begins "Field joints shall provide..." with the following paragraph:

Furnish circumferential and longitudinal strength field joints to preserve the pipe alignment, prevent separation of pipe sections and provide a watertight joint. Attach the connecting bands so they lap a nearly equal portion of each pipe section to be connected.

02420.11 Ductile Iron - Replace this subsection, except for the subsection number and title, with the following:

Furnish ductile iron pipe according to the requirements of AWWA C151. Use Pressure Class 150 - 350 or Special Thickness Class 50 - 56, as directed.

02420.20(a) Bituminous Protective Coatings - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated metal pipe and connecting bands with bituminous coatings according to the requirements of AASHTO M 190 and the following:

- Before immersion, ensure the metal is free of grease, dirt, dust, moisture or other contaminants.
- Apply the initial bituminous coating by one of the processes under 02420.20(a)(1) or 02420.20(a)(2).
- If a second dip is required to meet the coating thickness requirements of AASHTO M 190, the time and temperature requirements of 02420.20(a)(1) or 02420.20(a)(2) need not be followed for the second dip.
- Fill the corrugations for at least 40 percent of the circumference of the pipe to form the paved invert for both Type B and Type C coatings on either circular or arch type pipe.

02420.20(a)(1) Pipe Not Preheated - Replace the paragraph that begins "The temperature of the asphalt..." with the following paragraph:

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Furnish asphalt at the time of pipe immersion at a temperature of $400^{\circ}\text{F} \pm 5^{\circ}\text{F}$. Provide an immersion duration meeting the following schedule:

02420.20(2) Pipe Preheated - Replace this subsection, except for the subsection number and title, with the following:

Furnish asphalt at the time of pipe immersion at a temperature of $380^{\circ}\text{F} \pm 5^{\circ}\text{F}$ and the pipe preheated to a temperature 300°F to 350°F .

02420.20(b) Type D, Fully-Bituminous Coated, Fully-Lined - Replace this subsection, except for the subsection number and title, with the following:

Furnish a fully-bituminous coated, fully-lined interior lining that is smooth, uniform and free from sags and runs. Slight residual corrugations due to cooling and shrinkage of the lining will not be cause for rejection. At the three-sheet lap an interior nonuniformity equal to the thickness of the sheet is allowed. Maintain the thickness of the lining to the ends of the pipe.

02420.20(c) Optional Paved Invert - Replace this subsection, except for the subsection number and title, with the following:

If an asphalt coated pipe with a paved invert (Type C coating) is shown or specified, a centrifugally-applied interior lining according to Type D coating may be furnished as an alternate, providing the minimum thickness of bituminous coating over the crests of the corrugations is not less than 1/4 inch.

02420.30 Corrugated Steel Pipe for Underdrains - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated steel pipe for underdrains according to the requirements of AASHTO M 36 (ASTM A760) Type III - Underdrain Pipes, except as modified in 02420.10(c) and 02420.10(d), and as follows:

(a) **Class IV** - Semicircular pipe may be used only as an alternate with the 6-inch size of perforated full-circle drain pipe.

(b) **Connecting Bands** - Furnish connecting bands for underdrain pipe field joints meeting the designs shown.

02420.40 Corrugated Aluminum Alloy Pipe - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated aluminum alloy pipe, helical rib pipe, pipe arches and special sections according to the requirements of AASHTO M 196 (ASTM B745), Types I, II and III, except as follows:

(a) **Shapes** - The shapes of the pipes to be furnished may include any of the shapes described in 02420.10(a).

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(b) Connecting Bands - Use connecting bands according to the requirements of AASHTO M 196 (ASTM B745) and the details shown to make field joints for pipes and pipe arches not requiring watertight joints.

(c) Special Sections - Furnish special sections such as elbows, wyes, tees, crosses, bends, reducers and flared inlets as shown or as directed.

Generally, furnish special sections according to the requirements specified for the pipe where they are used. Connect special sections to the pipe or to each other with connecting bands specified for use with the pipe where they are connected.

For elbows of 30 degrees or greater total angle, use a three-piece section of approximately equal length and equal-angle segments or pieces.

(d) Irrigation Pipe - In irrigation pipe installations where Type D coating is not shown or specified, the Contractor is allowed to furnish pipe with Type D coating.

If pipes are not furnished with Type D coating, ensure all riveted seams meet the applicable provisions of 02420.10(e)(1).

Use connecting bands according to AASHTO M 196 (ASTM B745) and the details shown, and make the field joints watertight for pipe installations used in irrigation.

(e) Siphon Pipe - Fabricate corrugated aluminum alloy pipe used in siphons with watertight seams.

Provide field joints with circumferential and longitudinal strength to preserve the pipe alignment, prevent separation of pipe sections and provide a watertight joint. Fabricate the connecting bands from aluminum alloy according to AASHTO M 196 (ASTM B745). Attach the connecting bands so they lap a nearly equal portion of each pipe section to be connected.

(f) Sloped or Skewed Ends - If the ends of pipe culverts require sloped ends, skewed ends or both, fabricate the ends in a manner that provides good workmanship and a smooth finish. Repair bituminous protective coatings and linings when specified.

02420.50 Corrugated Aluminum Alloy Pipe for Underdrains - Replace this subsection, except for the subsection number and title, with the following:

Furnish corrugated aluminum alloy pipe for underdrains according to the requirements of AASHTO M 196 (ASTM B745) Type III, except as follows:

(a) Special Sections - The provisions of 02420.40(c) apply.

(b) Connecting Bands - Furnish connecting bands for field joints meeting the requirements of AASHTO M 196 (ASTM B745) and the details shown.

02420.60 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

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Acceptance of pipes, underdrains, and protective coatings is according to 00165.35 and this Section.

SECTION 02440 – JOINT MATERIALS

Comply with Section 02440 of the Standard Specifications modified as follows:

02440.10 Preformed Joint Fillers for Concrete - Replace this subsection, except for the subsection number and title, with the following:

Furnish preformed joint fillers for concrete from the QPL according to the requirements of AASHTO M 153 or AASHTO M 213.

02440.15 Lubricant/Adhesive - Replace this subsection, except for the subsection number and title, with the following:

Furnish a lubricant/adhesive according to ASTM D4070 and according to the recommendations of the seal manufacturer.

02440.20 Strip Seals - Replace this subsection, except for the subsection number and title, with the following:

Furnish strip seals from the QPL and according to ASTM D5973.

02440.22 Preformed Compression Joint Seal - Replace this subsection, except for the subsection number and title, with the following:

Furnish preformed compression joint seals from the QPL and according to the requirements of AASHTO M 297.

02440.40(a) Preformed Flexible Joint Sealant - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials for tongue and groove or key lock manhole joints according to the requirements of ASTM C990.

02440.40(b) Rubber Gaskets - Replace this subsection, except for the subsection number and title, with the following:

Furnish Materials for O-ring manhole and concrete pipe joints according to ASTM C443.

02440.50 Joint Materials for Concrete Precast Manhole Section Joints - Replace this subsection, except for the subsection number and title, with the following:

(a) Mortar - Furnish mortar according to the requirements of ASTM C387, or proportioned one part Type II portland cement to two parts clean, well-graded Sand passing a No. 6 screen. Admixtures may be used not exceeding the following percentages by weight of cement:

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Hydrated lime 10%
Diatomaceous earth or other inert materials 5%

Furnish mortar with the consistency such that it will readily adhere to the precast concrete if using the standard tongue-and-groove type joint.

(b) Non-Epoxy (Non-Shrink) Grout - Furnish a non-epoxy (non-shrink) grout according to 02080.20. Place or pack non-epoxy (non-shrink) grouts only with the use of a non-epoxy bonding agent according to 02070.20, applied to all cured concrete surfaces being grouted. Use a bonding agent compatible with the grout used.

02440.60 Plastic Compound for Precast Manhole Section Joints - Replace the bullet that begins "Is pliable at temperatures ..." with the following bullet:

- Is pliable at temperatures between 32 °F and 135 °F. Ensure a specimen at 77 °F and 1/2-inch square in Cross Section stretches at least 1 1/2 inches before rupture when tested with the apparatus described in ASTM D113.

02440.70(a) Plastic - Replace the paragraph that begins "Polyvinyl chloride water stop ..." with the following paragraph:

Manufacture polyvinyl chloride water stop from virgin polyvinyl chloride (PVC) compound. Reclaimed PVC is not allowed. Furnish the water stop having the following properties:

02440.70(b) Rubber - Replace this subsection, except for the subsection number and title, with the following:

Furnish rubber water stops to the dimension shown and according to the requirements of ASTM C923, ASTM C1478, or ASTM F2510 as appropriate for the specific Structure and pipe types.

02440.80 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of joint Materials is according to 00165.35 and this Section.

SECTION 02450 – MANHOLE AND INLET MATERIALS

Replace Section 02450 of the Standard Specifications except for the Section number and title with the following:

Descriptions

02450.00 Scope - This Section includes the requirements for precast manhole sump sections, metal frames, covers, grates, and manhole steps.

Materials

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02450.10 Precast Concrete Manhole Sections - Furnish precast risers, cones, and cover slabs for precast concrete manholes according to the requirements of AASHTO M 199 (ASTM C478).

02450.15 Precast Concrete Catch Basins and Inlets - Furnish precast concrete catch basins and inlet according to the requirements of ASTM C913.

02450.20 Precast Concrete Sump Sections - Furnish precast rings and lids for precast concrete sumps of portland cement concrete according to AASHTO M 199 (ASTM C478).

02450.30 Metal Frames, Covers, Grates, and Steps - Comply with the following:

Projects on State Highways		
Item	AASHTO (ASTM) Designation	Grade
Manhole frames and covers	M 306	Class 35 B
Inlet frames and grates	M 306	Class 35 B
	M 227 (A663)	65
	M 270 (A709) (A36)	36
	M 103 (A27)	65 - 35
All Other Projects		
Item	AASHTO (ASTM) Designation	Grade
Manhole frames and covers	M 105	Class 30 B
Inlet frames and grates	M 227 (A663)	65
	M 270 (A709) (A36)	36
	M 103 (A27)	65 - 35

Furnish steps for manholes that are steel-reinforced plastic according to AASHTO M 199 (ASTM C478) and AASHTO T 280 (ASTM C497). Use deformed reinforcing bar according to AASHTO M 31 (ASTM A615) Grade 60, No. 4 minimum. Use plastic material that is injection molded, with a textured, non-slip surface and a minimum thickness over the steel of 1/16 inch. Voids in the plastic are cause for rejection of the step.

Provide welding according to AWS D1.1. Furnish frames, covers and grates for use one with another with even and uniform bearings. Furnish miscellaneous metal items and hardware according to the appropriate requirements of Section 00560.

Galvanize inlet frames and grates that are fabricated out of steel according to the appropriate requirements of Section 02530.

02450.40 Damaged Zinc or Aluminum Coating - Repair damaged zinc or aluminum coating according to 02420.10(d).

02450.50 Acceptance - Acceptance of manholes and inlets is according to 00165.35 and this Section.

SECTION 02470 – POTABLE WATER PIPE MATERIALS

Replace Section 02470 of the Standard Specifications except for the Section number and title with the following:

Description

02470.00 Scope - This Section includes the requirements for ductile iron, steel, and polyvinyl chloride (PVC) pipe 16 inches in diameter and smaller, for potable water systems.

Materials

02470.10 General - Clearly mark all pipe with the type, class, thickness, and manufacturer's name, as applicable. Use lettering that is legible and permanent under normal conditions of handling and storage. Ensure all Materials in contact with potable water conform to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent, and ANSI/NSF Standard 372, Drinking Water System Components - Lead Content.

02470.20 Ductile Iron Pipe:

(a) **General** - Use centrifugally cast ductile iron pipe meeting the requirements of AWWA C151. Furnish ductile iron pipe having a cement-mortar lining and seal coating meeting the requirements of AWWA C104. Furnish Special Thickness Class 53 ductile iron pipe where joined using bolted flanged joints. Furnish all other ductile iron pipe as Class 52, unless otherwise shown or specified. All joints to be restrained. Provide 18 foot or 20 foot nominal laying lengths, asphaltic coating per AWWA C151, gaskets per AWWA C111 and cement mortar lining per AWWA C104. Furnish 12 inch or smaller pipe with a pressure rating of 350 psi.

(b) Restrained Joints -

(1) **12 inch and smaller** - Furnish restrained joints incorporating stainless steel locking segments vulcanized into the gasket material.

(2) **Larger than 12-inch** - Furnish restrained joint ductile iron pipe per AWWA C150, AWWA C151 with a rated working pressure of 350 psi up to 24 inch and 250 psi for 30 inch to 36 inch pipe.

Restraints to use manufactured weld bead on the spigot end of the pipe along with ductile iron locking segments or retainer ring for full restraint. Pressure rating of the joint to equal the pressure rating of the pipe when deflected to its maximum joint deflection.

Furnish HDSS restrained joint pipe as manufactured by US Pipe or Flex-ring as manufactured by American Pipe.

(c) **Restrained Joints** - Furnish restrained joints according to 02475.50.

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02470.31 High Density Polyethylene (HDPE) Pipe - Use HDPE pipe meeting the requirements of NSF/ANSI 61 and ANSI/AWWA C906, Standard Code Designation of PE4701, minimum cell classification PE 345464 C, D or E, and oxidative resistance classification CC3 according to ASTM D3350. Furnish all pipe with a minimum dimension ratio (DR) of 9 unless otherwise shown or specified. Furnish pipe that is iron pipe size (IPS) outside diameter or ductile iron pipe size (DIPS) outside diameter. Furnish pipe with color coding according to the APWA Uniform Color Code. Join pipe using thermal butt fusion method that meets the requirements of ASTM D3261.

02470.40 Polyvinyl Chloride (PVC) Pipe 4 Inches and Larger:

(a) PVC Pipe Smaller than 14-inch Diameter - Furnish PVC pipe 4 inches in diameter up to but not including 14 inches in diameter meeting the requirements of AWWA C900, have the same outside dimensions as ductile iron pipe, and having a minimum dimension ratio (DR) of 18 or as specified or indicated.

(b) Large Diameter PVC Pipe - Furnish PVC pipe 14 inches in diameter to 16 inches in diameter meeting the requirements of AWWA C905, having the same outside dimensions as ductile iron pipe, and having a minimum dimension ratio (DR) of 18 or as specified or indicated.

(c) Joints - Furnish joints meeting the requirements of ASTM D3139 using a restrained rubber gasket according to ASTM F477. Solvent-welded pipe joints are not allowed.

02470.45 Polyvinyl Chloride (PVC) Pipe Under 4 Inches - Furnish polyvinyl chloride (PVC) under 4 inches in diameter meeting the requirements of ASTM D2241. Furnish pipe Material that is PVC 1120, PVC 1220, or PVC 2120, and having a minimum wall thickness equal to or greater than a standard dimension ratio (SDR) of 21, or as specified or indicated. Furnish joints meeting the requirements of ASTM D3139 using a restrained rubber gasket meeting the requirements of ASTM F477. Solvent welded pipe joints will only be allowed when specified or indicated.

02470.50 Polyethylene Encasement - Furnish V-Bio Enhanced Polywrap encasement meeting the requirements of AWWA C105 and consisting of 8 mil, 3-layer co-extruded linear low density polyethylene (LLDPE) film that features an inside surface that is infused with a proprietary blend of an anti-microbial to mitigate microbiologically influenced corrosion ("MIC") and a volatile corrosion inhibitor ("VCI") to control galvanic corrosion.

02470.55 Pipe Tape: Furnish polyvinyl chloride (PVC) tape 2-inch wide, adhesive-backed, 10-mil, black.

02470.60 Marking Tape and Wire:

(a) Marking Tape - Furnish marking tape consisting of inert polyethylene plastic impervious to all known alkalis, acids, chemical reagents and solvents likely to be encountered in the Soil. Furnish tape width as recommended by the manufacturer for the depth of installation. Furnish blue tape that is imprinted continuously over its entire length in permanent black ink with the words "Caution - Water".

(b) Detectable Marking Wire - Furnish detectable marking wire with blue colored insulation and according to 00445.11. Furnish splice kits according to 00445.48.

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02470.70 Acceptance - Ductile iron, HDPE, and PVC pipe is accepted according to 00165.35 and this Section.

02470.80 Casing Spacers - Furnish casing spacers meeting the following requirements:

- Two-piece shell;
- T304 stainless steel of a minimum 14 gauge thickness, 12 inch wide bands (CCS12);
- Each shell section lined with a 0.090" thick, ribbed PVC extrusion with a retaining section that overlaps the edges of the shell and prevents slippage. Liner hardness of 85-90 durometer.
- Bearing surfaces (runners) of ultra-high molecular weight polyethylene (UHMW) to provide abrasion resistance and a low coefficient of friction (0.12); Width of one and one half inches. The runners to be mechanically bolted to the spacer.
- Risers MIG welded to the shell and made of T304 stainless steel of a maximum 10 gauge with bolt heads welded to the inside of the risers for strength and retention.
- Configured in the centered & restrained position.
- Size spacers such that the height of the risers and runners are to center the carrier pipe in the casing pipe with a top clearance of three-fourths inch minimum. Top clearance designed to allow for safe insertion into the casing while providing restraint against excessive flotation should infiltration of ground water occur.
- All weldments fully chemically passivated in accordance with ASTM A380.
- Furnish casing spacers Model CCS as manufactured by Cascade Waterworks Mfg. Co.

02470.81 Casing End Seals - Furnish casing end seals meeting the following requirements:

- Minimum 1/8" thick synthetic rubber
- Stainless steel banding straps with worm gear mechanism
- Furnish end seals by Advance Products and Systems.

SECTION 02475 – POTABLE WATER FITTING MATERIALS

Replace Section 02475 of the Standard Specifications except for the Section number and title with the following:

Description

02475.00 Scope - This Section includes the requirements for fittings, restrained joints, and couplings for ductile iron pipe, high density polyethylene (HDPE) pipe, and polyvinyl chloride (PVC) pipe for potable water systems.

Materials

02475.10 General - Furnish bolts, nuts and washers used for securing fittings that are of similar Materials. For steel bolts meet the requirements of ASTM A307 for carbon steel, or ASTM F593 for stainless steel. For nuts meet the requirements of ASTM A563 for carbon

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steel and ASTM F594 for stainless steel. For iron bolts and nuts meet the requirements of ASTM A536, grade 65-45-12. Galvanize carbon steel bolts, nuts and washers according to 02560.40.

For all Materials in contact with potable water, meet the requirements of ANSI/NSF Standard 61, Drinking Water System Components - Health Effects or equivalent, and ANSI/NSF Standard 372, Drinking Water System Components - Lead Content.

02475.20 Ductile Iron Pipe Fittings - Furnish ductile iron pipe fittings meeting the requirements of AWWA C110 or AWWA C153, and having a minimum working pressure rating of 250 psi. Meet the requirements of AWWA C111 for joints. Furnish cement mortar lined and seal coated fittings, meeting the requirements of AWWA C104. Furnish gaskets for ductile iron flanged joints that are composed of synthetic rubber, full faced, 1/8-inch thick, and conform to ANSI/AWWA C111/A21.11. Ring gaskets are permitted only where specified or shown. Furnish bolts and nuts with an identification mark indicating the manufacturer, type and material.

02475.31 High Density Polyethylene (HDPE) Pipe Fittings - Use HDPE pipe fittings meeting the requirements of ANSI/AWWA C906, Standard Code Designation of PE3408. Furnish all pipe fittings with a minimum dimension ratio (DR) of 17. Join pipe and fittings using a thermal butt fusion method that meets the requirements of ASTM D3261. Furnish fittings that are of the same class as the HDPE pipe.

02475.40 Fittings for Polyvinyl Chloride Pipe 4 Inches and Larger - Furnish fittings for PVC pipe 4 inches in diameter and larger that are the same as specified for ductile iron pipe.

02475.45 Fittings for Polyvinyl Chloride Pipe Under 4 Inches - Meet the requirements of ASTM D2466 for PVC pipe fittings under 4 inches in diameter.

02475.50 Restrained Joints -

- (a) Utilize "megalog" style restraints for connection of plain end pipe to fittings, valves and couplings. Restraint devices for nominal pipe sizes 3 inch through 54 inch to utilize multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ANSI/AWWA C110/A21.10. The devices to have a working pressure rating of 350 psi for 3-16 inch, 250 psi for 18-48 inch and 200 psi for the 54 inch size. Ratings are for water pressure and must include a minimum safety factor of 2 to 1 in all sizes. Provide gland body, wedges and wedge actuating components cast from grade 65-45-12 ductile iron material in accordance with ASTM A536.
- (b) Furnish restraint devices as manufactured by EBAA Iron, or approved equal.

02475.55 Flexible Ball and Socket Joints

- (a) Furnish flexible expansion joints meeting the following requirements:
 - Joints to be manufactured of ductile iron conforming to the material requirements of ASTM A536 and ANSI/AWWA C153/A21.53. Provide foundry certification of material upon request.

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- Joints to be pressure tested prior to shipment against its own restraint to a minimum of 350 PSI for 3 inch through 16 inch and 250 PSI for 18 inch and greater. A minimum 2:1 safety factor, determined from the published pressure rating applies.
- Each flexible expansion joint to consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum per ball deflection of: 15° for sizes 14-inch through 36-inch. The flexible expansion fitting cannot expand or exert an axial imparting thrust under internal water pressure. The flexible expansion fitting cannot increase or decrease the internal water volume as the unit expands or contracts. The minimum total linear travel to be 8-inches in either direction when set at the middle of the allowable expansion for a total expansion of 16 inches.
- Furnish end connections as required in the construction drawings.
- Line all internal surfaces (wetted parts) with a minimum of 15 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C213. Construct sealing gaskets of EPDM. The coating to meet ANSI/NSF-61.
- Coat exterior surfaces with a minimum of 6 mils of fusion bonded epoxy conforming to the applicable requirements of ANSI/AWWA C116/A21.16.
- Expansion joints must physically fit within the designated installation locations identified in the drawings.
- Furnish flexible expansion joints such as the Force Balanced FLEX-TEND as manufactured by EBAA Iron, Inc. Eastland, TX., U.S.A, or approved equal.

02475.60 Bolted, Sleeve-Type Couplings for Plain-End Pipe –

- (a) Furnish bolted, sleeve type couplings, reducing or transition couplings used to join plain end pipe that meet the requirements of AWWA C219. Utilize megalug style restraints on all coupling transitions.
- (b) Flanged coupling adapters to be of ductile iron conforming to ASTM A536 and AWWA C110 with restraints including activated gripping wedges and torque-limiting actuating screws to ensure proper set of gripping wedges. Adapters to allow deflection during assembly and field cut lengths to allow a 0.6-inch gap between end of pipe and mating flange without affecting integrity of the seal. Furnish with 15 mil fusion bonded epoxy coating per AWWA C213 on internal wetted surfaces and 6 mil fusion bonded epoxy on exterior surfaces of the gasket ring. Furnish EBAA Iron Series 2100 adapters, or approved equal.

02475.70 Acceptance - Acceptance of fittings, restrained joints and couplings are according to 00165.35 and this Section.

SECTION 02480 – POTABLE WATER VALVE MATERIALS

Replace Section 02480 of the Standard Specifications except for the Section number and title with the following:

Description

02480.00 Scope - This Section includes the requirements for gate valves, butterfly valves, valve boxes, valve stem extensions, tapping sleeve and valve assemblies, check valves,

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combination air release/air vacuum valves, and backflow prevention devices for potable water systems.

Materials

02480.10 General - Furnish valves with operating nuts or hand wheels as specified or shown. Furnish a standard 2-inch operating nut. Ensure all Materials in contact with potable water conform to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent. When indicated, coat all interior and exterior ferrous surfaces of valves with a protective epoxy coating meeting the requirements of AWWA C550.

02480.20 Gate Valves:

(a) Minimum Pressure - Furnish gate valves that meet the requirements of AWWA C500, AWWA C509, or AWWA C515. The minimum design working pressure is 200 psi for pipe 2 inches to 12 inches in diameter, and 150 psi for pipe 14 inches to 16 inches in diameter.

(b) Arrangement - For 16-inch diameter pipe, arrange gate valves for operation with gear case in the horizontal position. Equip valves with bypasses and gate valves of the sizes adopted in the AWWA Standards. Equip bypass gate valves with standard 2-inch operating nuts.

(c) Valves - Furnish gate valves that are resilient seat, non-rising stem type, open counterclockwise, and are equipped with an O-ring stuffing box.

02480.22 Butterfly Valves:

(a) Seats and Seals - Furnish butterfly valves that are rubber seated and meet the requirements of AWWA C504, Class 150B. Furnish shaft seals that are standard O-ring seals, designed for replacement under line pressure.

(b) Valve Operators - Furnish valve operators of the traveling nut or worm gear type and that are sealed, gasketed, and permanently lubricated for buried service. Construct valve operators to the standard of the valve manufacturer to withstand all anticipated operating torques, and design to resist submergence in groundwater.

(c) Valves - Furnish butterfly valves that are resilient seat, open counterclockwise, and are equipped with an O ring stuffing box.

02480.25 Valve Boxes - Install valve boxes on all buried valves. Furnish boxes that are cast iron, two-piece, slip type standard design, with a base corresponding to the size of the valve. Cast the word "WATER" in the cover.

02480.26 Valve Stem Extensions - Furnish a valve stem extension on valves with an operating nut more than 3 feet below grade to raise the operating nut to within 3 feet of the ground surface. Ensure valve stem extensions have a 2-inch square operating nut and self-centering rockplate support.

02480.30 Tapping Sleeve and Valve Assemblies:

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(a) Valve Assemblies - Furnish tapping valves with flanged inlet end connections with the outlet ends conforming to dimensions in the AWWA Standards for mechanical joint connections or flange connections, except that the outside of the end connection has a large flange for attaching a drilling machine. Ensure the seat opening of the valve permits a diameter cut no less than 1/2 inch smaller than the valve size. Valves specifically designed for tapping meeting the requirements of AWWA C500, and valves meeting the requirements of AWWA C509, are allowed. Furnish tapping valves of the same type as other valves on the Project.

(b) Sleeves - Furnish tapping sleeves that are cast iron, ductile iron, stainless steel, epoxy coated steel or other approved Material.

(c) Sleeves for Air Valve Connections: Furnish tapping sleeves for connection of the air valves as follows:

- ASTM A240 stainless steel body and outlet, type 304 stainless bolts and coated nuts, styrene-butadiene rubber (SBR) outlet gasket.
- 3/4" NPT test plug on flanged outlet nipple.
- AWWA C228 Class "D" plate flange for ANSI Class 150 drilling and flange gasket to be SBR, full face gasket.
- Manufacturer: Romac model STS420 SS tapping sleeve, or approved equal.

02480.40 Check Valves - Furnish check valves meeting the following:

(a) Swing Check Valve - Furnish swing check valves meeting the requirements of AWWA C508, with rubber seat materials mating with metal seating surfaces. Furnish valves with a design working pressure of 175 psi for check valves with diameters of 12 inches and smaller, and 150 psi for check valves with diameters of 14 inches and 16 inches. Furnish non-assisted check valves unless otherwise indicated.

(b) Spring-Loaded Plug or Disc Check Valves - Furnish spring-loaded plug or disc check valves that are bronze mounted with bronze, cast or ductile iron body, bronze plug or disc, stainless steel spring, and resilient seating suitable for potable water service. Furnish drop-tight sealing valves and plugs or discs that are easily replaceable. The minimum design working pressure of the valves is 150 psi.

02480.60 Air Release and Air Vacuum Release Valves -

Furnish air release and vacuum release valves as follows:

- Orifice with the same diameter as the inlet diameter, which allows large quantities of air to be vented when being filled with liquid and the reverse for vacuum conditions when the system is draining.
- Designed so that the velocity of air passing through will not blow the float shut at normal design volumes. It will close with the arrival of liquid in the valve and will not open to vent as long as the system is under pressure and in operation.
- Valves with guides which place the float into the seat when closed. The guides to be peripheral to the float and fixed to the body (or the cup) and hanger assembly. The guide system to have unobstructed closure due to the fact that there are no guide bushings to collect dirt and bind up and no shafts to bend or deform.
- Cast iron body and top flanges, stainless steel floats, Buna-n seats, and the Armstrong gasket.

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- Manufacturers: Basis of design for air valve sizing/dimensions is Flowmatic Maxiair air and vacuum release valves, or approved equal meeting the space limitations.

02480.62 Air Release Valves - Furnish air release valves as follows:

- Float operated, compound leverage type air valves capable of automatically releasing accumulated air and gases from the fluid system while the system is in operation and is under pressure.
- Fusion-bonded epoxy-coated valve body, floats and linkage in stainless steel, viton o-ring seal.
- Maximum operating pressure of 150 psi and orifice size of 5/16".
- Threaded inlet and outlets.
- Manufacturers: Basis of design for air valve sizing/dimensions is Flowmatic Miniair air release valves, or approved equal meeting the space limitations.

02480.64 Air Release Valve Insulation Jacket - Furnish insulation jackets as follows:

- Custom fabricated insulation jackets for freeze protection in 0-30 deg F environment. Inner and outer material to be EJ1650, and insulation to be 15 mm Pyrogel.
- Pyrogel jacketing to consist of a high temp blanket formed of silica aerogel and reinforced with a non-woven, glass-fiber batting (15 mm thickness; 11 lb/cf). Inner and outer jacket to be of 17 ounce Teflon/PTFE-coated, satin weave, fiberglass cloth meeting ASTM C1695-09.
- Easily removable with velcro and D-ring enclosure, heat trace ready with belt loops sewn into the inside of the jackets.
- Manufacturer: Thermaxx, or approved equal.

02480.66 Ball Valves - Furnish isolation ball valves between sleeve and air release valves as follows:

- 3-inch and smaller valves
 - Bronze, two-piece ball valve isolation valve with standard port, threaded connections, hand lever for 400 CWP.
- Larger than 3-inch valves
 - Ductile iron (ASTM 536 Grade 65-45-12) body, full port ball valves with standard ANSI B16.10 end to end dimensions.
 - UL listed to NSF/ANSI 61
 - PFA-fused solid ball or similar for corrosion resistance.
 - Raised face, 150# flanged connections.
 - Adjustable length and removable handles.
 - Epoxy coating and lining of metal surfaces.
- Manufacturer: American Valve, Series 4000.

02480.70 Backflow Prevention Devices - Furnish backflow prevention devices that are capable of withstanding a minimum design working pressure of 150 psi, and meet the following:

(a) Reduced Pressure Backflow Prevention Assembly - Furnish reduced pressure backflow prevention assemblies consisting of a mechanical, independently operating, hydraulically dependent relief valve located between two independently operating, spring loaded check valves that are located between two tightly closing resilient seated shutoff valves, with four resilient seated test cocks, all meeting the requirements of AWWA C511 and the Oregon State Health Division.

(b) Double Detector Check Valve Backflow Prevention Assembly - Furnish double detector check valve backflow prevention assemblies consisting of two spring loaded, independently operating check valves, located between two tightly closing resilient seated shutoff valves, with four resilient seated test cocks, all meeting the requirements of AWWA C510 and the Oregon State Health Division.

02480.80 Acceptance - Valves and appurtenances are accepted according to 00165.35 and this Section.

SECTION 02485 – HYDRANT AND APPURTENANCE MATERIALS

Replace Section 02485 of the Standard Specifications except for the Section number and title with the following:

Description

02485.00 Scope - This Section includes the requirements for hydrants and hydrant appurtenances for potable water systems.

Materials

02485.10 Hydrants - Furnish hydrants that are dry-barrel according to AWWA C502, of standard manufacture and of a pattern approved by the Agency. Furnish hydrants designed for a minimum working pressure of 150 psi.

Ensure all Materials in contact with potable water conform to ANSI/NSF Standard 61, Drinking Water System Components - Health Effects, or equivalent.

Furnish one of the following hydrants:

- Mueller Centurion A423
- Kennedy Guardian K81A
- M&H Reliant 929T
- Clow Medallion

02485.20 End Connections - Furnish the end connections that are mechanical joint or flanged, meeting the requirements of AWWA C110 and AWWA C111.

02485.30 Hydrant Dimensions and Nozzle Features:

(a) Hydrant Dimensions - Furnish barrels that have a 7-inch minimum inside diameter. Hydrant length, measured from the bottom of the hydrant to the sidewalk ring, to provide proper cover at each installed location. Furnish valve openings with a minimum diameter of 5 1/4 inches.

(b) Nozzle Features - Furnish hydrants having two 2 1/2-inch diameter hose nozzles and one pumper nozzle to match the Agency's connection requirements.

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Fit nozzles with cast iron threaded caps with operating nuts of the same design and proportions as the hydrant stem nuts. Thread caps to fit the corresponding nozzles and fit with suitable neoprene gaskets of positive water tightness under test pressures. Furnish a counterclockwise direction of opening that is clearly marked on the operating nut or hydrant top. Furnish hydrants that have O-ring stem seals. Ensure interior and exterior painting of the hydrant conforms to AWWA C502.

02485.40 Hydrant Extensions - Furnish hydrant extensions that are gray cast iron or ductile iron with an inside diameter of at least 6 inches, and conform to the AWWA Standards for such castings. Match the drillings of the connecting flanges on the extensions to the drillings of the flanges on the hydrant.

Include the necessary hydrant operating stem extensions with hydrant extensions.

02485.50 Traffic Flange - Furnish hydrants with a traffic flange. Equip hydrants with breaking devices at the traffic flange that allow the hydrant barrel to separate at this point with a minimum breakage of hydrant parts in case of damage. Also provide, at this point, a safety stem coupling on the operating stem that will shear upon impact.

02485.60 Tie Rods - Furnish tie rods that are 3/4-inch diameter with threaded ends, galvanized according to 02560.40 and 02560.30.

02485.80 Acceptance - Acceptance of hydrants and hydrant appurtenances is according to 00165.35 and this Section.

SECTION 02510 - REINFORCEMENT

Replace Section 02510 of the Standard Specifications except for the Section number and title with the following:

Description

02510.00 Scope - This Section includes the requirements for bars, dowels, and strand reinforcement and tendon ducts.

Materials

02510.10 Deformed Bar Reinforcement - Furnish deformed bar reinforcement from the QPL and according to the requirements of ASTM A706, AASHTO M 31 (ASTM A615), AASHTO M 334, or ASTM A1035. Unless otherwise specified or shown, furnish Grade 60 reinforcing bars.

02510.11 Epoxy Coated Reinforcement:

(a) **Plant Certification** - Apply epoxy coating in a coating plant certified by the Concrete Reinforcing Steel Institute (CRSI).

(b) **Handling** - Provide systems for handling coated bars having padded contact areas for the bars wherever feasible. Pad all bundling bands. Lift all bundles with strong-backs,

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multiple supports, or platform bridges so as to prevent bar-to-bar abrasion from sags in the bar bundle.

02510.20 Mechanical Splices - Furnish mechanical splices from the QPL. Where bars of different sizes or strengths are connected, the strength of the smaller or weaker bar governs. Measure the total slip displacement after loading in tension to 30.0 ksi and relaxing to 3.0 ksi. The maximum allowed displacement for bars up to No. 14 is 0.01 inches. and is 0.03 inches for No. 18 bar.

- **Type 1 Mechanical Splices** - Furnish Type 1 Mechanical Splices that develop at least 125 percent of the specified minimum yield strength of the reinforcing bars. Type 1 Mechanical Splices are not allowed for column bars.
- **Type 2 Mechanical Splices** - Furnish Type 2 Mechanical Splices that develop at least 125 percent of the specified minimum yield strength of the reinforcing bars and 100 percent of the specified tensile strength of the reinforcing bars.

02510.25 Headed Bar Reinforcement - Furnish Class HA headed steel bar from the QPL for concrete reinforcement. Ensure the headed steel bar develops the specified minimum tensile strength of the reinforcing bars, according to ASTM A970. Ferrous-filler coupling sleeves and welded headed steel bars are not allowed for concrete reinforcement.

02510.30 Galvanized Reinforcement:

(a) **General** - Furnish galvanized reinforcement meeting the requirements of ASTM A767, Class II, including Supplementary Requirement S3, and ASTM A143.

(b) **Fabrication** - The bars may be fabricated before or after galvanizing. If the bars are fabricated after galvanizing, Supplementary Requirements S1 and S2 of ASTM A767 apply.

(c) **Handling** - Handle galvanized bars according to 02510.11(c).

02510.40 Welded Wire Reinforcement - Furnish welded wire reinforcement and deformed welded wire reinforcement meeting the requirements of ASTM A1064.

02510.50 Dowels - Furnish dowels meeting to the requirements of AASHTO M 31 (ASTM A615), for Grades 40 and 60, or AASHTO M 227 (ASTM A663) for Grades 70, 75, and 80.

02510.60 Ties and Supports - Furnish tie wire and supports according to CRSI Manual of Standard Practice.

(a) **Coated Reinforcement Ties and Supports** - Furnish nonmetallic coated ties and supports for coated reinforcement, including ties for coated-to-uncoated reinforcement connections.

(b) **Uncoated Reinforcement Ties and Supports** - Tie all mats of galvanized steel bars with galvanized ties. Furnish precast concrete blocks with galvanized ties that support galvanized reinforcement.

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02510.70 Acceptance - Acceptance of reinforcement is according to 00165.35 and this Section.

SECTION 02513 – STAINLESS STEEL REINFORCEMENT

Replace Section 02513 of the Standard Specifications except for the Section number and title with the following:

Description

02513.00 Scope - This Section includes the requirements for stainless steel reinforcement bars, mechanical splices, chairs and supports, inserts, dowels, and tie wire.

Materials

02513.10 Deformed Bar Reinforcement - Furnish deformed bar reinforcement meeting the requirements of ASTM A955 except for Section 6, Chemical Composition and Section 15, Finish. Acceptable alloys are listed by Uniform Numbering System for Metals and Alloys (UNS) designation in Table 02513-1 and Table 02513-2. Finish the surface according to Table 02513-1 and the requirements of ASTM A380.

Table 02513-1
Allowable Stainless Steel Alloys for Reinforcing Bars and Dowels

UNS Designation	S31653	S31803	S20910	S24100	S32304
AISI Type	316LN	2205	XM-19	XM-28	2304
Common or Trade Name	Type 316 Low Carbon Nitrogen Added	Type 2205 Duplex	Nitronic 50	Nitronic 32 Enduramet 32 18-Cr-2Ni-12Mn	Type 2304 Duplex SAF 2304 Fe-23Cr-4Ni-0.1N
Required Condition	As rolled	As rolled	As rolled	As rolled	As rolled
Required Finish	Descaled and white pickled	Descaled and white pickled	Descaled and white pickled	Descaled and white pickled	Descaled and white pickled

Table 02513-1
Stainless Steel Alloys Mechanical Properties

Grade and UNS Designation	S31653 GR60	S31653 GR70	S31803 GR60	S31803 GR75	S20910 GR60	S20910 GR75	S24100 GR60	S24100 GR75	S32304 GR60	S32304 GR75
Minimum	90	95	90	95	90	95	90	95	90	95

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Tensile Strength (ksi)										
Minimum Yield Strength (ksi)	60	75	60	75	60	75	60	75	60	75
Minimum Elongation in 2 inches (%)	25	20	25	20	25	20	25	20	25	20

02513.20 Mechanical Splices - Mechanical splices for reinforcing bars are systems that connect the bars without raising their temperature above 1,300 °F.

- Furnish mechanical splices that develop at least 90 percent of the specified minimum ultimate strength of the reinforcing bars in compression and in tension. Where bars of different sizes or strengths are connected, match the strength of the smaller or weaker bar.
- Do not allow the spliced reinforcing bars to slip more than 0.040 inch, measured between gauge points clear of the splice sleeve, when the reinforcing bars are loaded in tension to 67 percent of the specified minimum yield strength of the reinforcing bar.
- Fabricate the splice sleeve and connection hardware from an alloy listed in Table 02513-1. Finish the surface according to Table 02513-1 and the requirements of ASTM A380.

02513.35 Concrete Inserts - Furnish concrete inserts fabricated from an alloy listed in Table 02513-1. Finish the surface according to Table 02513-1 and the requirements of ASTM A380. Furnish concrete inserts with closed-back ferrule threaded to receive UNC threaded bolts or rods of the size shown. Furnish concrete inserts with the following minimum lengths and safe working loads:

Bolt or Rod Diameter (Inches)	Insert Length (Inches)	Safe Working Load in Shear or Tension (Pounds)
3/4	4 1/2	4,000
1	5 1/2	6,000
1 1/4	7 1/2	10,000
1 1/2	9 1/2	16,000

02513.50 Dowels - Furnish dowels meeting the requirements of ASTM A955 except for Section 6, Chemical Composition and Section 15, Finish. Acceptable alloys are listed by Uniform Numbering System for Metals and Alloys (UNS) designation in Table 02513-1. Finish the surface according to Table 02513-1 and the requirements of ASTM A380.

02513.60 Ties and Supports - Furnish 16-gauge tie wire and supports from Type 304 or Type 316 stainless steel according to *CRSI Manual of Standard Practice*.

02513.70 Acceptance - Stainless steel reinforcement is accepted according to 00165.35 and this Section.

SECTION 02515 – PRESTRESSING REINFORCEMENT

Replace Section 02515 of the Standard Specifications except for the Section number and title with the following:

Description

02515.00 Scope - This Section includes the requirements for seven-wire strand, high tensile strength wire, high tensile strength steel alloy bars, tendon duct and couplings.

Materials

02515.10 Seven-Wire Strand - Furnish seven-wire strand (bright wire) meeting the requirements of AASHTO M 203 (ASTM A416), Grade 270, supplement 1 (low relaxation strand), minimum ultimate strength, 270,000 psi.

02515.20 Wire, High Tensile Strength - Furnish high tensile strength wire meeting the requirements of AASHTO M 204 (ASTM A421).

02515.30 Bars, High Tensile Strength - Furnish high strength steel bars having mechanical properties conforming to ASTM A722 but manufactured using different processes shall have a relaxation of less than 4% at 1000 hours when tested with an initial stress of 70% of the minimum guaranteed ultimate tensile strength of the bar.

02515.40 Seven-Wire Strand Epoxy Coated Reinforcement - Furnish epoxy coated reinforcement meeting the requirements of ASTM A882.

02515.50 Tendon Duct - Furnish rigid galvanized steel ducts meeting the requirements of ASTM A653 with a coating weight of G90 for post-tensioned Structures. Transition couplings connecting rigid ducts in anchoring devices need not be galvanized.

Rigid ducts may be fabricated with either welded or interlocking seams. Galvanizing of the welded seam is not required. Furnish ducts with sufficient strength to maintain their correct alignment during placing of concrete and resist denting during construction.

The minimum wall thickness of ducts is 26 gauge for 2 5/8-inch diameter and smaller ducts, and 24 gauge for ducts that are larger than 2 5/8-inch diameter.

02515.60 Couplings - Furnish couplings that develop at least 95 percent of the minimum specified ultimate strength of the prestressing steel without exceeding anticipated set. Ensure the coupling of tendons does not reduce the elongation at rupture below the requirements of the tendon itself.

02515.70 Shipping Protection - Package prestressing steel to protect the steel against physical damage and corrosion. Place a corrosion inhibitor that prevents rust or other results of corrosion in the package, or use a corrosion inhibitor type packaging material, or when allowed, apply directly to the steel. Provide a corrosion inhibitor that has no deleterious effect

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on the steel or concrete or bond strength of steel to concrete. Immediately replace or restore damaged packaging.

Mark the shipping package with the type of corrosion inhibitor used, and the date packaged.

02515.80 Acceptance - Acceptance of pre-stressing reinforcement is according to 00165.35 and this Section.

SECTION 02520 – STEEL PILES

Replace Section 02520 of the Standard Specifications except for the Section number and title with the following:

Description

02520.00 Scope - This Section includes the requirements for steel pipe, steel H-beams, and steel sheets used for piling.

Materials

02520.10 Steel Piles:

(a) General - Furnish all steel piles, except steel pipe piles, meeting the requirements for Camber and sweep specified in AASHTO M 160 (ASTM A6).

(b) Steel Pipe Piles - Furnish either spirally welded or longitudinally welded steel pipe piles that are constant in section. Furnish steel piles meeting the requirements of ASTM A252 or API 5L and the grade shown.

(c) Steel H-Piles - Furnish steel H-piles that are rolled steel pile sections of the size and weight shown. Furnish steel H-piles meeting the requirements of ASTM A36 or ASTM A572. The manufacturer's name, brand or trademark may be shown by die stamping in the web at intervals not exceeding 20 feet along the length of the pile.

(d) Steel Sheet Piles - Furnish steel sheet piles meeting the requirements of AASHTO M 202 (ASTM A328).

(e) Reinforced Pile Tips - Steel pile tip reinforcement includes H-pile points, pipe pile shoes or points or any other proprietary steel pile tip reinforcement. Legibly mark or tag each cast steel point or shoe delivered to the Project Site with the heat or lot number. Submit certified mill test reports showing the physical and chemical properties of each heat or lot number. If the heat or lot number cannot be read on the point or if the mark or tag is missing, the point or shoe will be rejected.

Furnish reinforced tips for steel H-piles from the QPL. In addition, furnish all cast steel points or shoes meeting the following:

ASTM A27, Grade 65 - 35

ASTM A27, Grade 70 - 36

ASTM A27, Grade 70 - 40

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ASTM A148, all grades

For steel H-piles provide no less than a 5/16-inch fillet weld full width of each flange.

(f) Sampling and Field Testing Pile Tips - The Engineer may randomly sample from each heat or lot number, at least one pile tip or up to 10 percent of the tips for larger projects, of the pile tips delivered for incorporation into the Project.

Test the selected tips as follows:

- Grind five smooth spots on each randomly selected tip. The Engineer will test each smooth spot on each tip with a portable hardness tester or in a laboratory. If three or more of the five spots tested have a reading below 74 on the "B" scale, the tested tip and the entire lot is rejected.
- For steel H-piles, determine the weight of the tips. Furnish cast steel H-pile point having a weight not less than 30 percent of the weight of a 1-foot section of the H-pile where it is attached. If any of the tested tips fail to pass the minimum weight criteria the entire lot is rejected.

Pile tips that are supplied unattached to the pile may be selected for nondestructive testing as described above. Pile tips passing the field test may be incorporated into the Project. Pile tips selected for testing that are supplied already attached to the pile are destructively tested as determined by the Engineer. Provide replacement tips for the tips that are destructively tested at no cost to the Agency. Replace rejected tips with new tips and rejected lots with new lots at no additional cost to the Agency. No time extension or other compensation is granted for Materials or Work required in testing pile tips, replacing rejected pile tips or for replacing tips that are destructively tested. New tips and new lots may also be tested.

02520.30 Acceptance - Material for piles is accepted according to 00165.35 and this Section.

SECTION 02530 – STRUCTURAL STEEL

Comply with Section 02530 of the Standard Specifications modified as follows:

02530.10 Structural Steel for Bridges - Replace the paragraph that begins "Structural steel for Bridges..." with the following:

Furnish structural steel for Bridges meeting the following, as shown or specified:

Add the following to the end of the bulleted list:

- ASTM 572 Grade 60

02530.20 Structural Steel for Non-Bridge Structures - Replace the paragraph that begins "Structural steel for metal..." with the following:

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Structural steel for metal sign Structures and other non-Bridge Structures meeting the following, or as shown or specified:

Replace the paragraph that begins "Notch toughness..." with the following:

Ensure notch toughness of all structural steel members and plates greater than 1/2 inch thick in load carrying members of sign Bridges and cantilever sign supports meets Zone 2 requirements of AASHTO M 270.

02530.50 Universal Mill Plate - Replace the paragraph that begins "Universal mill plate..." with the following:

Universal mill plate is not allowed.

02530.70 Galvanizing - Replace this subsection, except for the subsection number and title, with the following:

Hot-dip galvanize according to the following, as applicable:

- AASHTO M 111 (ASTM A123)
- AASHTO M 232 (ASTM A153)

Furnish steel that is finished by hot-dip galvanizing for use as sign bridges, illumination poles, traffic signal poles, sign supports, bridge rail and items designated on the Plans as "Galvanize - Control Silicon" having controlled silicon content of either 0 - 0.06 percent or 0.13 percent - 0.25 percent. Before galvanizing, submit mill test certificates verifying silicon content to the Engineer and the galvanizer.

02530.80 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of structural steel is according to 00165.35 and this Section.

SECTION 02540 – FORGINGS, SHAFTING, CASTINGS, and NONFERROUS MATERIALS

Replace Section 02540 of the Standard Specifications except for the Section number and title with the following:

Description

02540.00 Scope - This Section includes the requirements for forgings, shafting, castings, and nonferrous materials except those used in potable water systems. For potable water system requirements, see Sections 02470, 02475, 02480, and 02490.

Materials

02540.10 Steel Forgings - Furnish steel forgings meeting the following:

Carbon steel forgings AASHTO M 102 (ASTM A668), Class C

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Alloy steel forgingsAASHTO M 102 (ASTM A668), Class G

02540.20 Steel Shafting - Furnish cold-finished steel shafting meeting the requirements of AASHTO M 169 (ASTM A108), Grades 1016 - 1030, inclusive.

02540.30 Steel Castings - Furnish steel castings meeting the following:

Carbon steel castings AASHTO M 103 (ASTM A27), Grade 70-36

Alloy steel castingsAASHTO M 163 (ASTM A743), Grade CA-15

Furnish castings true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow holes and other defects in positions affecting their strength and value for the service intended. Allowance is made in dimensions for reasonable pattern draft.

Furnish castings boldly filleted at angles and the arises are sharp and perfect.

Sandblast castings or otherwise effectively clean of scale and sand to present a smooth, clean and uniform surface.

02540.40 Iron Castings - Furnish iron castings meeting the following:

- **Gray Iron Castings** - AASHTO M 306.
- **Ductile Iron Castings** - AASHTO M 306. In addition to the specified test coupons, for castings weighing over 1,000 pounds, test specimens from parts integral with the castings, such as risers.
- **Malleable Iron Castings** - ASTM A47, Grade 32510.

Finish iron castings according to 02540.30.

Clean iron castings according to 02540.30.

02540.50 Nonferrous Materials - Furnish nonferrous Materials meeting the following:

Bronze castingsAASHTO M 107 (ASTM B22) Copper Alloy UNS No. C91100

Copper alloy platesAASHTO M 108 (ASTM B100) Copper Alloy UNS No. C51000

02540.60 Acceptance - Acceptance of forgings, shafting, castings, and nonferrous Materials is according to 00165.35 and this Section.

SECTION 02560 - FASTENERS

Comply with Section 02560 of the Standard Specifications modified as follows:

02560.05 Geometry - Replace this subsection, except for the subsection number and title, with the following:

Use a bolt or rod length such that the end of the bolt or rod extends beyond or is at least flush with the outer face of the nut when properly installed.

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02560.10(a) Bolts - Replace this subsection, except for the subsection number and title, with the following:

Furnish carbon steel bolts meeting the requirements of ASTM A307, Grade A or B.

02560.10(b) Nuts - Replace the paragraph that begins “Nuts for carbon steel bolts...” with the following:

Furnish nuts for carbon steel bolts meeting the requirements of the following, or equivalent:

02560.20(a) Bolts - Replace the paragraph that begins “High-strength bolts used in...” with the following:

Use Type 3 high-strength bolts in noncoated weathering steel connections. Furnish high-strength bolts meeting the requirements of the following:

02560.20(b) Nuts - Replace the paragraph that begins “Nuts for high-strength bolts...” with the following:

Furnish nuts for high-strength bolts meeting the following requirements, or equivalent:

02560.20(c) Washers - Replace this subsection, except for the subsection number and title, with the following:

Furnish washers for high-strength bolts meeting the requirements of ASTM F436. Use Type 3 washers with Type 3 bolts.

02560.20(d) Direct Tension Indicators - Replace this subsection, except for the subsection number and title, with the following:

Furnish direct tension indicators that are the compressible-washer type, mechanically galvanized, according to ASTM F959. Adjust bolt lengths to accommodate both direct tension indicators and hardened washers.

02560.20(e) Markings - Replace this subsection, except for the subsection number and title, with the following:

Mark all bolts, nuts, washers and direct tension indicators according to the appropriate AASHTO/ASTM specifications and with a symbol identifying the manufacturer.

02560.30(a) Steel Tie Rods, Anchor Bolts, and Anchor Rods - Replace this subsection, except for the subsection number and title, with the following:

Furnish steel tie rods, anchor bolts, and anchor rods meeting the requirements of AASHTO M 314, Grade 36 or 55; ASTM F1554, Grade 36 or 55.

02560.30(b) High-Strength Tie Rods, Anchor Bolts, and Anchor Rods - Replace this subsection, except for the subsection number and title, with the following:

Furnish high-strength tie rods, anchor bolts, and anchor rods meeting the requirements of AASHTO M 314, Grade 105; ASTM F1554, Grade 105; or ASTM A449, Type 1.

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End stamp all ASTM F1554, Grade 105 according to ASTM F1554 Supplementary Requirements S2 and S3. If the end of the bolt is to be embedded in concrete, mark the projecting end from the concrete.

02560.30(c) Nuts - Replace the paragraph that begins “Nuts for tie rods...” with the following:

Furnish nuts for tie rods, anchor bolts, and anchor rods meeting the following requirements, or equivalent:

02560.30(d) Washers - Replace this subsection, except for the subsection number and title, with the following:

Furnish washers for anchor bolts meeting the requirements of ASTM F436, Type 1.

02560.60(a) Rotational Capacity Test - Replace the paragraph that begins “Test each combination of bolt...” with the following:

Test each combination of bolt production lot, nut lot and washer lot as an assembly. Assign a rotational capacity lot number to each combination of lots tested. The minimum frequency of testing is two assemblies per rotational capacity lot. Test according to one of the following requirements:

02560.60(a)(1) Method 1 - Replace the paragraph that begins “the above measured torque...” with the following:

Do not allow the above measured torque to exceed the torque value calculated by the following equation:

Replace the paragraph that begins “Continue to tighten the nut until...” with the following:

Continue to tighten the nut until the nut has turned twice the rotation shown in Table 00560-3 of Section 00560 from its snug-tight position mark for bolt lengths up to 8D (for greater than 8D up to 12D bolt lengths tighten to 1 1/6 turn from snug-tight).

02560.60(a)(2) Method 2 - Replace this subsection, except for the subsection number and title, with the following:

Test bolts that are too short to be tested in a direct bolt tension indicating device in a steel joint.

Place the lubricated fastener including a washer in one or more flat structural steel plates. The total thickness including the washer is such that three to five full threads of the bolt are located between the bearing surfaces of the bolt head and the nut. Provide the hole in the joint at the same nominal diameter as the hole in the washer. Using a calibrated torque wrench, tighten the nut to a snug-tight condition to produce an initial torque in the bolt equal to approximately 10 percent of the torque calculated using the equation given in Method 1 above where P is the minimum tension in the bolt according to Table 00560-1 of Section 00560. Mark the nut's position relative to the fixed bolt for this snug tight position.

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Using the calibrated torque wrench, further tighten the nut until the nut has turned the rotation shown in Table 00560-3 of Section 00560 from its snug-tight position mark. Prevent the bolt head from turning during the tightening process. Record the measured torque with the nut in motion. The measured torque is not to exceed 1.15 times the torque value calculated in the preceding step of Method 2. Reject assemblies with torque values exceeding the calculated value.

Tighten the nut further until the nut has turned twice the rotation shown in Table 00560-3 from its snug-tight position mark. Reject assemblies that fail this rotation either by stripping or fracture.

Loosen and remove the nut. Examine the threads on the nut and bolt. Reject assemblies showing evidence of thread shear failure, stripping or torsional failure of the bolt.

02560.60(b) Other Test Requirements - Replace the paragraph that begins "Provide three high-strength bolt ..." with the following:

Furnish three high-strength bolt assemblies per size per lot for check testing.

Replace the paragraph that begins "Provide one high-strength tie rod..." with the following:

Furnish one high-strength tie rod, one high-strength anchor bolt, and one high-strength anchor rod assembly per size per lot for check testing.

02560.70 Lubricating Fasteners - Replace the paragraph that begins "Furnish all galvanized and coated..." with the following:

Furnish all galvanized and coated fasteners with a factory applied commercial water-soluble wax that contains a visible dye of a color that contrasts with the color of galvanizing or coating. Furnish black fasteners that are "oily" to the touch when installed.

02560.80 Acceptance - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of fasteners are according to 00165.35 and this Section.

SECTION 02570 – COMPOSITE BEARINGS

Comply with Section 02570 of the Standard Specifications modified as follows:

02570.10 Elastomeric Compound - Replace the paragraph that begins "Provide Materials meeting..." with the following paragraph:

Furnish Materials meeting the following requirements:

Replace the paragraph that begins "**Elastomer** - Elastomer for elastomeric ..." with the following paragraph:

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Elastomer - Furnish elastomer for elastomeric discs of pot bearings that are 100 percent virgin natural polyisoprene (natural rubber) or 100 percent virgin chloroprene (neoprene) meeting the following requirements:

Replace the paragraph that begins "When test specimens are cut..." with the following paragraph:

When test specimens are cut from the finished product a 10 percent variation in physical properties is allowed.

Replace the paragraph that begins "**Polyether Urethane** - The properties of polyether..." with the following paragraph:

Polyether Urethane - Ensure the properties of polyether urethane for polyether urethane discs of disc bearings meet the values of the following tests:

Replace the paragraph and bullets that begins "**Fabric Pads**..." with the following paragraph and bullets:

Fabric Pads - Make preformed fabric pads for fabric pad bearings of multiple layers of duck, impregnated and bound with high quality oil resistant synthetic rubber compressed into resilient pads of uniform thickness according to the following:

- Cotton duck reinforcement is either a two-ply cotton yarn or a single-ply 50-50 blend cotton polyester with a minimum of 8 ounces per square yard.
- The fabric has a minimum tensile strength of 150 pounds per inch width when tested by the grab method.
- The filling count of the duck is 40 ± 2 threads per inch.
- The warp count of the duck is 50 ± 1 threads per inch.
- The number of plies produce the specified thickness after compression and vulcanizing.
- Furnish the finished pads that withstand compression loads perpendicular to the plane of the laminations of not less than 10,000 psi without any sign of distress after the load is removed. The tested pad is required to have a shape factor greater than 2.5. Furnish preformed fabric pads with a Shore A hardness of 90 ± 5 .

02570.20(a) Clearance Test - Replace this subsection, except for the subsection number and title, with the following:

Move the components of the bearing through their design displacements or rotations to verify that the required clearances exist. If the test is conducted on a rotational component that is not under simultaneous full vertical load, make allowance for the displacements that would be caused by that load.

02570.20(b) Long-Term Deterioration Test - Replace this subsection, except for the subsection number and title, with the following:

Conduct test on one full scale bearing per lot. Load the bearing in compression to a stress corresponding to 100 percent of the maximum dead plus live service load while subjected to

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plus and minus the design rotational displacement amplitude for 5,000 cycles. Test flat sliding systems by displacement through at least 1,000 cycles with an amplitude of at least ± 1.0 inch (2.0-inch peak to peak). The sliding may take place at up to 10.0 inch per minute, except when readings of the coefficient of friction are taken, when the sliding speed is 2.5 inches per minute.

Bearings are rejected when:

- There are visible cracks, splits, or excessive wear on disassembly of the bearing.
- The coefficient of friction exceeds two-thirds the value used in design.

02570.20(c) Friction Test - Replace this subsection, except for the subsection number and title, with the following:

Conduct test on one full scale bearing per lot. Ensure the coefficient of friction between the sliding surfaces is not greater than 0.06 when the maximum working stress for the polytetrafluoroethylene (PTFE) surface is 2,000 psi and is not greater than 0.045 when the maximum working stress for the PTFE surface is above 3,000 psi. Determine the coefficient of friction at 68 °F according to the requirements of section 18.3.4.3.2 of the AASHTO *LRFD Bridge Construction Specifications*.

02570.30(d)(1) Vertical Proof Load Test - Replace this subsection, except for the subsection number and title, with the following:

Apply a vertical load equal to 150 percent of the vertical design capacity of the tested bearing for 5 minutes, unload, then reapply for an additional 5 minutes. Place the bearing in a rotated position during the test. Ensure rotation is 0.015 radians or the design rotation, whichever is greater. An acceptable test bearing does not show indication of failure or other defects such as weld cracking, plate distortion, extrusion of the elastomer or bearing material, or displacement of the elastomer seal while under load or subsequently upon disassembly and inspection.

The successful test of a bearing with a vertical design capacity of 50 Tons or less is accepted as qualification for all bearings of a similar design with a lesser design capacity.

02570.30(d)(2) Horizontal Proof Load Test - Replace the paragraph that begins "A horizontal proof load test..." with the following paragraph:

A horizontal proof load test is required when the design horizontal capacity exceeds 10 percent of the design vertical capacity and no engineer's calculations are submitted. Apply a horizontal load equal to 100 percent of the horizontal design capacity while also applying a vertical load equal to 100 percent of the dead load for a period of 2 minutes. The bearing does not need to be in the rotated position. An acceptable bearing does not show indication of failure or other defects such as weld cracking, plate distortion, extrusion of the elastomer or bearing material, or displacement of the elastomer seal while under load or subsequently upon disassembly and inspection.

SECTION 02571 – ELASTOMERIC BEARING PADS

Comply with Section 02571 of the Standard Specifications modified as follows:

02571.10 Elastomeric Compound - Replace the paragraph that begins "The elastomer portion of the elastomeric..." with the following paragraph:

Ensure the elastomer portion of the elastomeric compound is 100 percent virgin polychloroprene (Neoprene) or natural rubber (polyisoprene) meeting the requirements of section 18 of the *AASHTO LRFD Bridge Construction Specifications* including the properties from the following table:

02571.10 Elastomeric Compound – In table 02571-1, replace the line beginning with "Hardness, Durometer D...", with the following:

ASTM Properties Test Method Requirements		
Shear Modulus, psi	D4014 & AASHTO M 251 Sec. 8.8.3	165 +/- 15%

02571.15 Metal Reinforcement - Replace this subsection, except for the subsection number and title, with the following:

Furnish metal reinforcement that is rolled, mild steel sheets 14 gauge thick and according to ASTM A1011, Grade 36 Type 1, or ASTM A1008, Grade 40.

02571.20(a) Pads - Replace this subsection, except for the subsection number and title, with the following:

Furnish pads 1/2 inch thick that are all elastomer. Furnish pads over 1/2-inch-thick consisting of alternate laminations of elastomer and metal.

In metal reinforced pads, the top and bottom layers are elastomer 1/4 inch thick, and interior elastomer layers are 1/2 inch thick. The nominal thickness of the bearing shown reflects the thickness of the elastomer only. It does not include the steel laminates.

02571.20(b) Laminations - Replace this subsection, except for the subsection number and title, with the following:

Furnish laminations of elastomer in uniform thickness and in no case allow the thickness of an individual lamination to exceed 5/8 inch. Do not allow variations in thickness of an individual elastomer lamination to exceed 1/8 inch and the variation in thickness of all elastomer laminations within a pad such that each metal lamination does not vary by more than 1/8 inch from a plane parallel to the top or bottom surface of the pad.

02571.20(c) Laminated Pads - Replace the paragraph that begins "Laminated pads shall be..." with the following paragraph:

Furnish laminated pads that are molded individually to the sizes required. No shearing to size or drilling of holes is allowed. Cover all edges of metal laminations with a minimum of 1/8

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inch, and a maximum of 1/4 inch, of elastomer except at laminate restraining devices and around holes that are entirely closed when the pad is in place on the Structure.

Replace the paragraph that begins "Pads 1/2 inch in thickness may ..." with the following paragraph:

Pads 1/2 inch in thickness may be sheared. Ensure the shearing does not heat the material and produces a smooth finish to 250 microinches with no tears or jagged areas.

02571.30(a) General - Replace the paragraph that begins "Independently test all completed bearings..." with the following paragraph:

Independently test all completed bearings by compressive visual inspection according to 02571.30(b). Failure of individual bearings to pass the compressive visual inspection is cause for rejection of those individual bearings.

Replace the paragraph that begins "Independently test five standard test..." with the following paragraph:

Independently test five standard test specimens of laminated pads according to 02571.30(c). Failure of any individual specimen to meet the peel strength test requirements is cause for rejection of the entire bearing production lot. A lot is defined as 50 or less bearings that are manufactured in a reasonably continuous manner from the same batch of elastomer, cured under the same conditions, and are all the same size and type.

02571.30(b) Short-Duration Compression Test - Replace this subsection, except for the subsection number and title, with the following:

Bring all bearings to a temperature of $73^{\circ}\text{F} \pm 10^{\circ}\text{F}$ and proof load for a compressive loaded to 1.5 times the maximum design load. Hold the load for 5 minutes, remove, then reapply for a second period of 5 minutes. Maintain the load constant while the bearing is inspected for visual faults. The following is cause for rejection:

- A bulging pattern or patterns implying lack of bond between the elastomer and the laminate or bulging patterns that imply improper laminate placement.
- Three separate surface cracks that are greater than 5/64 inch wide and 5/64 inch deep, or a single crack 3/16 inch deep or wider than 1/4 inch.

02571.30(c) Peel Strength Test - Replace this subsection, except for the subsection number and title, with the following:

Perform a peel strength test according to ASTM D429 Method B, with the exception that the specimens are taken randomly and cut from a production bearing submitted for the Project. Ensure the bond between the elastomer and steel laminate in each specimen is not less than 40 pounds per inch.

SECTION 02630 – BASE AGGREGATE

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Comply with Section 02630 of the Standard Specifications modified as follows:

02630.10(a) Grading - Replace the paragraph that begins "Dense-graded base Aggregate..." with the following paragraph:

Furnish dense-graded base Aggregate consisting of crushed Rock, including Sand. Uniformly grade the Aggregates from coarse to fine. Perform sieve analysis according to AASHTO T 27. Furnish Aggregates according to one of the grading requirements of Table 02630-1 as identified in the Special Provisions or indicated by the Pay Items in the Contract Schedule of Items.

Replace the paragraph that begins "² Of the fraction passing the..." with the following paragraph:

² Of the fraction passing the 1/4-inch sieve, 40 percent to 60 percent is required to pass the No. 10 sieve

02630.10(b) Fracture of Rounded Rock - Replace the paragraph that begins "Fracture of rounded Rock..." with the following paragraph:

Determine fracture of rounded Rock according to AASHTO T 335. Provide at least one fractured face based on the following percentage of particles retained on the 1/4-inch sieve for the designated size:

02630.10(c) Durability - Replace the paragraph that begins "Dense-graded Aggregate ..." with the following paragraph:

Furnish dense-graded Aggregate meeting the following durability requirements:

02630.10(d) Sand Equivalent - Replace the paragraph that begins "Dense-graded Aggregate ..." with the following paragraph:

Test dense-graded Aggregate according to AASHTO T 176 and ensure a Sand equivalent of not less than 30.

02630.11(a) Grading – Replace this subsection, except for the subsection number and title, with the following:

Furnish open-graded Aggregate meeting the following grading requirements:

Table 02630-2
Aggregate Gradation for Open-Graded Aggregate

Sieve Size	Percent Passing (by Weight)
1"	100
3/4"	80 - 98
1/2"	60 - 85
3/8"	30 - 45
No. 100	0 - 6 (Dry Sieve)

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02630.11(b) Fracture of Rounded Rock - Replace this subsection, except for the subsection number and title, with the following:

Determine fracture of rounded Rock according to AASHTO T 335. Provide Open-graded Aggregate meeting the following fracture requirements:

Percentage of Fracture (by Weight)

Material Retained on 3/4", 1/2", and 1/4" Sieves (two fractured faces) 90

SECTION 02640 – SHOULDER AGGREGATE

Replace Section 02640 of the Standard Specifications except for the Section number and title with the following:

Description

02640.00 Scope - This Section includes the requirements for shoulder Aggregate.

Materials

02640.10 Aggregate:

(a) Grading - Furnish shoulder Aggregate consisting of crushed Rock, including Sand. Determine sieve analysis according to AASHTO T 27. Uniformly grade the Aggregates from coarse to fine. Furnish Aggregates according to one of the grading requirements of Table 02640-1 as identified in the Special Provisions or indicated by the Pay Item in the Contract Schedule of Items.

Table 02640-1		
Grading Requirements - Shoulder Aggregates		
Sieve Size	Separated Sizes	
	1" - 0	3/4" - 0
	Percent Passing (by Weight)	

1 1/2"	100	
1"	90 - 100	100
3/4"	—	90 - 100
1/4"	40 - 55	40 - 60

(b) Fracture of Rounded Rock - Determine the fracture of rounded Rock according to AASHTO T 335. Provide at least one fractured face based on the following percentage of particles retained on the 1/4-inch sieve for the designated size:

Minimum Percent of Fractured Particles (by Weight of Material)

Designated Size	Retained on 1/4" Sieve
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1 1/2" - 0 and larger	50
Smaller than 1 1/2" - 0	50

(c) **Durability** - Furnish Aggregates meeting the following requirements:

Test	Test Method	Requirements
Abrasion	AASHTO T 96	35.0% maximum
Degradation (Coarse Aggregate)		
Passing No. 20 sieve	ODOT TM 208	30.0% maximum
Sediment Height	ODOT TM 208	3.0" maximum

(d) **Sand Equivalent** - Test shoulder Aggregate according to AASHTO T 176, and ensure a Sand equivalent of not less than 25.

SECTION 02690 – PCC AGGREGATES

Comply with Section 02690 of the Standard Specifications modified as follows:

02690.10 Materials - Replace this subsection, except for the subsection number and title, with the following:

Furnish PCC Aggregates consisting of natural or crushed Rock that is hard, strong, durable and free from adherent Coatings or other Detrimental Materials.

Produce, handle and store the Aggregates in a way that will maintain passing material properties and avoid introducing deleterious materials or segregation prior to its use in portland cement concrete.

02690.11 Alternate Grading - Replace this subsection, except for the subsection number and title, with the following:

The Contractor may request approval to produce Coarse and Fine Aggregates in sizes other than those stated in 02690.20 and 02690.30. Submit the request in writing and state the proposed target value and specified tolerances for each of the individual sieve sizes of the materials the Contractor proposes to produce.

02690.12 Acceptance of Aggregate - Replace this subsection, except for the subsection number and title, with the following:

Acceptance of Aggregate is according to Section 00165 and based on the Contractor's quality control testing, if verified, according to Section 00165.

(a) **Aggregate Gradation** - A stockpile contains specification Aggregate gradation when the quality level for each sieve size calculated according to 00165.40 is equal to or greater than the quality level in Table 00165-2 for a PF of 1.00. Each required sample represents

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a subplot. When the quality level in Table 00165-2 yields a PF of less than 1.00 for any constituent, the material is non-specification.

(b) Non-specification Aggregate Gradation - Stockpiled Aggregates that contain non specification Aggregate gradation is rejected by the Engineer unless non specification material is removed from the stockpile. Do not add additional material to the stockpile until enough non specification material is removed so that the quality level for each constituent is equal to or greater than the quality level in Table 00165-2 for a 1.00 PF.

Reprocessing of non-conforming material and the testing required for acceptance is at no additional cost to the Agency. Acceptance of reprocessed material is based on passing test results or accepted visually by the Engineer.

02690.20 Coarse Aggregate - Replace this subsection, except for the subsection number and title, with the following:

(a) Harmful Substances - Do not exceed the following harmful substances limits:

Test	Test Method		Percent (by Weight)
	ODOT	AASHTO	
Lightweight Pieces	—	T 113	1.0
Material passing No. 200 sieve	—	T 27 / T 11	1.0
Wood Particles	TM 225	—	0.05

(b) Soundness - Test Coarse Aggregates for concrete for soundness using sodium sulfate salt, according to AASHTO T 104. Do not exceed the weighted percentage loss of 12 percent by weight.

(c) Durability - Furnish Coarse Aggregates meeting the following durability requirements:

Test	Test Method		Requirements
	ODOT	AASHTO	
Abrasion	—	T 96	30.0% Max.
Oregon Air Aggregate Degradation:			
Passing No. 20 sieve	TM 208	—	30.0% Max.
Sediment Height	TM 208	—	3.0" Max.

(d) PCC Paving Aggregate - In addition to requirements above, comply with the following:

(1) Fracture - Furnish Aggregate with at least two fractured faces on at least 50 percent of the particles retained on the 3/8-inch, 1/2-inch, 3/4-inch, 1-inch, and 1 1/2-inch sieves, as determined by AASHTO T 335.

(2) Elongated Pieces - Furnish Aggregate with elongated pieces not exceeding 10 percent by weight of the material retained on the No. 4 sieve when tested according to ODOT TM 229 with the proportional caliper device set at a ratio of 5:1.

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(e) Grading and Separation by Sizes - Sample according to AASHTO R 90. Perform sieve analysis according to AASHTO T 27 and AASHTO T 11. Furnish Aggregates meeting the gradation requirements of Table 02690-1 for structural concrete. Provide a CAgT to perform sampling and testing when required.

Add the following subsection:

02690.40 Lightweight Coarse Aggregate - Provide lightweight coarse aggregate from the QPL.

Add the following subsection:

02690.50 Lightweight Fine Aggregate - Provide lightweight fine aggregate (LWFA) from the QPL. Maintain LWFA at or above saturated surface dry (SSD) condition by uniformly saturating and allowing drain down prior to batching and verify moisture condition by sampling and testing according to ODOT TM 249. Maintain the SSD condition during all batching operations.

SECTION 02810 – BRIDGE RAIL

Replace Section 02810 of the Standard Specifications except for the Section number and title with the following:

Description

02810.00 Scope - This Section includes the requirements for the steel in railings for Bridges.

Materials

02810.10 Shapes, Plates, and Bars - Furnish shapes, plates and bars meeting the following, or as shown or specified:

- ASTM A36
- ASTM A572 Grade 50
- ASTM F1554 Grade 105

Provide the silicon content of all exposed shapes, plates and bars that are called out on drawings as "Galvanize - Control Silicon", according to 02530.70.

02810.15 Anchor Adhesive - Use one of the following epoxy adhesives from the QPL:

- Hilti HIT-HY200-A
- Hilti HIT-RE 500v3, Red Head C6+
- Ultrabond HS-1CC

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02810.20 Structural Steel Tubing - Furnish structural steel rail members complying with ASTM A500, Grade B, or ASTM A501. Steel meeting the requirements of ASTM A513 or ASTM A618 may be substituted for ASTM A500 tubing subject to the following limitations:

- Provide chemical and tensile properties test results.
- Provide silicon content according to 02530.70.
- Strength and elongation requirements of ASTM A513 tubing meets the requirements of ASTM A500 tubing.

02810.30 Steel Pipe - Furnish metal parapet rail members that are standard steel pipe complying with ASTM A53, Grade B or ASTM A500, Grade B.

02810.40 Cast Steel Posts - Furnish cast steel posts that are carbon steel castings complying with AASHTO M 103 (ASTM A27), Grade 65-35.

02810.50 Metal Thrie Beam Rail - Galvanize steel thrie beam rail according to AASHTO M 180, Class A rail, Type II coating after fabrication and subject to the single spot test. Backup plates are accepted with ungalvanized edges and bolt holes, provided these areas are field-coated with an approved galvanizing substitute according to 02530.71. Provide metal posts and hardware meeting the requirements of 02820.20 and 02820.30.

02810.60 Incidentals - Furnish plates, caps and miscellaneous pieces necessary to complete the rail as shown or specified.

02810.70 Acceptance - Bridge rail Materials are accepted according to 00165.35 and this Section.

SECTION 02910 - SIGN MATERIALS

Comply with Section 02910 of the Standard Specifications modified as follows:

02910.10 Aluminum - Replace the paragraph that begins "The aluminum Materials shall..." with the following paragraph:

Furnish new aluminum Materials meeting the following requirements:

Replace the paragraph that begins "Aluminum to be color coated shall..." with the following paragraph:

Furnish aluminum to be color coated consisting of an alloy that is compatible with the coating and the application process. Furnish color-coated aluminum having a temper that, after coating and aging, provides an ultimate strength of 30,000 psi and a yield strength of 25,000 psi.

Replace the paragraph that begins "Fabricate sheet aluminum signs ..." with the following paragraph:

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Fabricate sheet aluminum signs from aluminum alloy 6061-T6, 5052-H38, 5154-H38, or approved equal. Give a chromate treatment according to ASTM B449, Class 2 or a titanium-based coating according to ASTM B921. Provide certified test reports for all heats of aluminum products furnished to the Agency. Furnish signs with a thickness shown in Table 02910-1 unless otherwise indicated.

02910.11 Plywood - Replace this subsection, except for the subsection number and title, with the following:

(a) General - Construct all plywood signs for permanent signing from 3/4-inch high-density overlay plywood. Construct plywood signs for temporary signs from either 3/4-inch high-density overlay plywood or 3/4-inch medium-density overlay plywood. Furnish Douglas fir plywood, Grade B-B exterior or better, according to *Product Standard PS-1 for Douglas Fir Plywood* published by the U. S. Department of Commerce.

(b) Overlay - Furnish black or buff high-density and medium-density overlay unless otherwise shown or specified. Furnish high-density and medium-density overlays that meet the *Product Standard PS-1 for Douglas Fir Plywood*.

(c) Plywood Sealer - Fill all voids in top or sides of panel with caulking compound after cutting plywood to size. Apply an approved plywood edge sealer tinted to match the color of the panel overlay material. Use a medium oil alkyd primer sealer.

02910.20 Retroreflective Sheeting - Replace this subsection, except for the subsection number and title, with the following:

(a) General - Use retroreflective sheeting from the QPL and the following:

(1) Perforation - If required for application, the sheeting may be pre-perforated with holes not greater than 0.02 inch in diameter. Perforate the holes approximately 0.4 inch apart in rows approximately 1.5 inches apart.

(2) Surface - Furnish sheeting and adhesive compatible with non-reflective permanent cut-out legend.

(b) Acceptance - Provide a quality compliance certification according to 00165.35, certifying that the reflective sheeting furnished meets the above requirements.

02910.21 Nonreflective Sheeting for Sign Background: Replace this subsection, except for the subsection number and title, with the following:

(a) General - Furnish nonreflective sheeting that is durable, weather resistant, gloss plastic film, and has a protected, precoated adhesive backing.

(b) Color - Use color for the nonreflective sheeting according to 00940.10. Submit for testing a 4-inch by 4-inch sample of the background color for each color of nonreflective sheeting shown.

(c) Adhesive - Adhere the nonreflective sheeting by a mildew and vandal resistant precoated adhesive that has no staining effect on the sheeting.

(d) Film:

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(1) General - Furnish nonreflective sheeting that is flexible and easily cut to shape. The minimum tensile strength of the sheeting is 5 pounds per inch width.

(2) Surface - Clean according to the manufacturer's recommendations. Furnish a smooth and flat sheeting surface that:

- Facilitates cleaning and wet performance.
- Is readily processed.
- Is compatible with recommended transparent and opaque process inks.
- Permits cutting and color processing at minimum temperatures of 60 °F.
- Is heat resistant and permits force curing of applied sheeting at temperatures up to 150 °F.
- Is solvent resistant.

(e) Durability - For non-reflective sheeting for a sign background, process and apply according to the manufacturer's recommendations. Furnish weather resistant Material that shows no discoloration, cracking, crazing, blistering or dimensional change following cleaning.

Furnish a sheeting surface capable of being readily refurbished when cleaned and clear over-coated according to the manufacturer's recommendations.

(f) Acceptance - Provide a quality compliance certificate according to 00165.35, certifying that the nonreflective sheeting furnished meets all the above requirements.

Add the following subsection:

02910.23 Digital Printing -

(a) Digitally Printed Ink Systems - Provide digitally printed ink systems from the QPL that meet the following requirements:

- Produce traffic signs using components, and processes that comply with the retroreflective sheeting manufacturer's recommendations.
- Meet and comply with daytime and nighttime chromaticity (color standards) as recognized in ASTM D4956 *Standard Specification for Retroreflective Sheeting for Traffic Control*.
- Meet 70% for type XI standards of the initial retroreflectivity specifications of each respective reflective film color as found in ASTM D4956.

(b) Retroreflective Sheeting - Furnish retroreflective sheeting that:

- Consists of white or colored sheeting having a smooth outer surface and that has the property of a retroreflector over its entire surface.
- Conform to all requirements of the current version of ASTM D4956. Designate the retroreflective sheeting as type XI ASTM D4956 classification.
- Has a Class 1 pressure-sensitive adhesive, as defined by ASTM D4956, protected by an easily removable liner. Fabricate finished traffic signs and traffic sign faces using retroreflective sheeting of Type XI ASTM D4956 classification.

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(c) Protective Overlay Film – Fabricate permanent traffic signs printed with digital ink systems with a full sign protective overlay film designed to provide a smooth surface needed for retroreflectivity, and to protect the sign from fading and UV degradation. Comply with the retroreflective sheeting manufacturer's recommendations for the overlamine to ensure proper adhesion and transparency. Meet the reflective film durability as identified in the warranty requirements.

02910.32 Retroreflective Removable Legend - Replace this subsection, except for the subsection number and title, with the following:

(a) General - Furnish letters and numerals for all removable legend according to the design of the FHWA *Standard Rounded Capital Letter Alphabets*. Furnish letters and numerals for removable legend for all freeway and expressway signs according to the design of Series "E" modified from the FHWA *Standard Rounded Capital Letter Alphabets*.

Provide mounting holes within the frames to permit the use of the mounting hardware specified in the Specifications. Provide a sufficient number of mounting holes to ensure a firm attachment of the frames to the sign and meet the requirements of 00940.45(b). This requires a minimum of four mounting holes at each joint in the border.

(b) Retroreflective Sheeting Legend - Fabricate removable legend with sheeting according to 02910.20 that is permanently adhered to a flat aluminum frame.

Furnish letters, numerals, symbols and borders a minimum of 0.032-inch-thick aluminum according to ASTM B209, alloy 3003-H14. Degrease and etch the aluminum, or treat with a light, tight amorphous chromate type coating.

Apply the reflective sheeting to the prepared aluminum according to the sheeting manufacturer's recommendations.

Furnish letters, numerals, symbols and borders that are clean-cut and sharp, and have a nearly plane surface.

(c) Acceptance - Acceptance of retroreflective removable legend is based on a mill test certificate from the aluminum manufacturer attesting to the correct alloy, temper, and material thickness of the metal supplied. The Engineer may reject damaged or non-specification materials regardless of the test certification provided.

02910.33 Permanent Legends - Replace this subsection, except for the subsection number and title, with the following:

(a) General – Permanent legends consist of white retroreflective screened, red retroreflective screened, black screened or cut-out white retroreflective sheeting. Meet the design of the FHWA *Standard Rounded Capital Letter Alphabets* for the letters and numerals of all permanent legends.

(b) Retroreflective White Screened Legend - Use transparent paste materials for the reverse screening of retroreflective white legends and for the screening of retroreflective red legends according to the recommendations of the manufacturer of the reflective sheeting.

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(c) Retroreflective Cut-out Legend - Use Material for retroreflective cut-out legend according to the requirements of 02910.20.

(d) Nonreflective Black Screened Legend - Furnish Material for nonreflective black screened legends that is compatible with the sign sheeting, as recommended by the sign sheeting manufacturer.

(e) Nonreflective Black Cut-out Legend - Use Material for nonreflective cut-out legend according to 02910.21.

(f) Digitally Printed Sign - Use processes and Materials for digitally printed signs according to the requirements of 02910.23.

02910.40 Hardware - Replace this subsection, except for the subsection number and title, with the following:

Furnish aluminum alloy, stainless steel, or hot-dip galvanized steel bolts, nuts, and washers to fabricate and erect signs. Furnish aluminum for bolts and nuts according to ASTM B211, alloys 2024-T4 or 6061-T6 as the Contractor elects. Furnish aluminum washers according to ASTM B209, alloy Alclad 2024-T4. Furnish stainless steel for bolts, nuts, and washers that are Type 304 or Type 316. Furnish galvanized steel bolts, nuts, and washers that are medium carbon steel. Galvanize steel hardware according to AASHTO M 232 (ASTM A153).

Use nylon washers supplied by the sheeting manufacturer as shown or directed.

Furnish mounting hardware of the design and type shown, or if not shown of such sizes and kinds as approved by the Engineer.

Furnish 1/8-inch diameter, 1/4-inch head diameter, domed head, aluminum alloy according to ASTM B316. Aluminum alloys 5052 and 5056 are acceptable alloys. Furnish anodized blind rivets that are the same color as the sign background that are used to attach sign panels to closure strips or wind beams.

02910.60(a) General - Replace this subsection, except for the subsection number and title, with the following:

Furnish electronically cuttable films consisting of durable, transparent, colored films coated with a transparent pressure sensitive adhesive protected by a removable liner. Furnish films designed to be cut on knife-over-roll (sprocket fed or friction fed) and flat bed electronic cutting machines. Furnish films available in standard traffic colors, be dimensionally stable, and be designed to optimally cut, weed, lift and transfer. Use electronically cuttable films from the QPL.

02910.75 Manufacturer Warranty - Replace the paragraph that begins "Furnish a manufacturer warranty ..." with the following paragraph:

Provide a manufacturer warranty that unconditionally warrants to the Agency the retroreflective sheeting products, sheeting with applied electronic cuttable film products, and installation under this Section against failure, according to this Subsection and 00170.85(c)(1). Use Agency-supplied warranty forms, available from the Engineer.

SECTION 02926 - HIGHWAY ILLUMINATION MATERIALS

Replace Section 02926 of the Standard Specifications except for the Section number and title with the following:

Description

02926.00 Scope - In addition to all applicable portions of *AASHTO Roadway Lighting Design Guide* (2018) and *Recommended Practice for Lighting Roadway and Parking Facilities* (ANSI/IES, RP - 8, 2025), this Section includes the requirements for Highway illumination installations.

Materials

02926.01 Materials - Furnish and install hardware with hot-dip galvanized or Type 304 or 316 stainless steel screws, bolts, nuts and washers. Furnish bolts and screws with square or hex heads. Allen head fasteners are not allowed.

Cabinets and Control Devices

02926.40 Cabinets - Construct all cabinets from 12-gauge Type 304 stainless steel, or 10-gauge sheet steel and hot-dip galvanize after fabrication according to 02530.70. Furnish weatherproof post mount cabinets, rated as NEMA type 3R, and constructed as shown.

With 3 phase electrical system or main circuit breaker of 200 amp or higher, install pad-mount cabinet as shown. Furnish a NEMA type 3R, with hinged double door, 3-point lockable vault handles and stainless steel hardware. Cabinet size is 48 inches x 63 inches x 18 inches deep, or as shown.

Complete the internal wiring of cabinets by a UL listed facility. Furnish cabinets according to one or more of the following standards where appropriate:

- UL 50, Cabinets and Boxes
- UL 67, Panelboards
- UL 869A, Service Equipment

Use a welded conduit hub to make conduit entrances into cabinets. Furnish hubs of the size required and securely weld to the cabinet before galvanizing. Malleable iron screw on hubs may be used as approved.

Furnish power service cabinets with live parts exposed having a dead-front panel installed with cutouts for operating handles. Furnish a minimum of two holding latches on each dead-front panel to maintain rigidity of the panel.

Construct the dead-front panels of stainless steel or code-gauge galvanized steel and treat all cut galvanized steel edges with zinc-rich paint. Prime galvanized steel dead-front panels

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with vinyl wash primer and finish with exterior polyurethane enamel. The finish color of galvanized steel is aluminum.

In all outdoor locations, mounting pans are required when circuit breakers, contactors, relays, switches, transformers or other types of electrical Equipment are to be mounted inside the cabinet.

Label circuit breakers and Equipment with an engraved permanent label on the dead-front panel to indicate the circuit controlled.

Furnish each cabinet with a latching device for a standard Agency padlock.

Make the meter base from 16-gauge galvanized sheet steel (G90), and powder coated inside and out after fabrication, or from 16-gauge Type 304 stainless steel sheet.

02926.41 Circuit Control Devices:

(a) General - Install circuit breakers, the copper neutral block, and contactors as shown.

(b) Circuit Breakers - Furnish circuit breakers having the voltage rating and number of poles shown or specified with an interrupting rating meeting or exceeding short circuit rating of the specified electrical system.

Furnish circuit breakers that are UL 489 conformed, thermal magnetic molded case circuit breakers and bolt on type with individually insulated and protected terminals, suitable for surface mounting in the cabinet on a false back or bracket.

Furnish 100 A frame breakers that are Class 13a for single pole breakers and Class 18a for multiple pole breakers. Furnish 225 A frame breakers that are Class 20a in Federal Specification W-C-375B, table "Classification of ratings".

Install overcurrent protection and relay Equipment, as shown or specified, with Materials and installation according to the NEC.

(c) Multiple Light Contactors - Furnish contactors that are lighting type specifically rated for high intensity discharge type lamp loads, electrically held and have a 600 V rating. Furnish multiple light contactors that are unenclosed single phase, two- or three-pole, open type lighting contactors of the rating shown or specified. Construct contactors for surface mounting on a false back or bracket within a weatherproof cabinet. Ensure the contactor coil operates on 120 V for 240 V circuits and 240 V, 208 V, and 277 V for 480 V circuits.

(d) Test Switch - Furnish and install a 277 V AC rated test switch in the control cabinets if shown. Furnish a heavy-duty single pole switch or circuit breaker rated at 15 A. Install the test switch in the control cabinet as a Roadway lighting test switch. Wire the switch to shunt the photoelectric relay power contactor and energize the lighting circuit contactors.

(e) Photoelectric Relay - Attach the photoelectric relay to a three-pole locking receptacle by a twisting motion.

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Furnish a photoelectric relay with a built-in surge protective device for protection from induced high voltage and follow through currents. Furnish a relay meeting or exceeding the requirements of ANSI C136.10. Furnish factory set turn-on lights that are 1.4 footcandle $\pm$ 0.2 footcandle at 120 V AC. When operated at 240 V AC, turn-on is not allowed to change more than plus or minus 0.3 footcandle from the 120 V value. Maximum off to on ratio is 1.5:1.

Furnish a cadmium-sulfide photocell encapsulated for humidity protection, or a silicon junction type photo-transistor for the photoelectric relay.

Normal operation is for dual voltage operation of 105 V - 285 V, 60 Hz.

The allowed power consumption of the relay is less than 1 W. At the designated voltage, ensure the photoelectric relay is capable of controlling a minimum HID or LED luminaire load of 1000 W. Minimum operating temperature range is from -40 °F to 150 °F.

Prevent false turn-offs by transient light conditions by furnishing a time-delay control circuit. Provide a fail safe circuit for the lighting load to remain on or become energized if any functional failure of the photoelectric control circuit occurs.

(f) Electrical Splice Materials - Furnish electrical splice materials meeting the following requirements:

- **Split bolt** - Made of silicon bronze to securely join the wires both mechanically and electrically.
- **Heat-shrink tubing** - Split-resistant and adhesive-lined tube made of polyolefin complying with UL 224 or UL 486D, temperature range -67 °F to 230 °F, with 600 V rated inner melting wall or liner to provide void-free encapsulated insulation.
- **Insulating rubber tape** - Electrical grade, nondrying, rubber based, elastic type complying with ASTM D4388.
- **Insulating vinyl plastic tape** - Low temperature (0 °F) resistant, vinyl chloride plastic, electrical insulating tape with pressure-sensitive adhesive. Comply with ASTM D3005.

Lamps, Ballasts, and Luminaires

02926.50 Illumination Lamps - Furnish all high-pressure sodium lamps according to ANSI standards. Furnish all lamps of the same size and type, on a single project, from the same manufacturer's lot number.

Furnish all lamp bases having a brass mogul base mounting with dating system.

Furnish lamps that have an average minimum initial lumen rating (after 100 burning hours) and an average minimum lamp life (based on 10 hours per start) as follows:

Lamp Watts	ANSI Code	Minimum Initial Vertical	Lamp Lumens Horizontal	Minimum Average Lamp Life
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High-Pressure Sodium - Clear

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70	S62ME-70	6,300	6,300	24,000
100	S54SB-100	9,500	9,500	24,000
250	S50VA-250/S	29,000	29,000	24,000
400	S51WA-400	50,000	50,000	24,000
1,000	S52XB-1000	140,000	140,000	24,000

02926.52 Ballasts - Furnish high-pressure sodium ballasts that are magnetic regulator (lag type regulator) with primary and secondary windings electrically isolated from each other.

Unless otherwise shown or specified, the ballast is an integral part of the luminaire unit. Furnish prewired, built-in type mounted in the luminaire.

Provide a manufacturer's nameplate on the ballast housing. Include the manufacturer's name, model number, serial number, hook-up diagram, power supply data, lamp type and operating wattage on the nameplate.

Furnish ballast that operate the lamp within the limits specified below throughout the rated life of the lamp:

- Does not vary the lamp wattage more than the allowable range shown in the table below over the line voltage variation shown.
- Does not vary the lamp wattage more than plus or minus 5 percent of nominal when the lamp is at its rated nominal voltage (high-pressure sodium lamps only).
- The minimum efficiency of the ballast (nominal lamp watts/line watts) is not less than shown below.
- The ballast does not allow the lamp arc to extinguish when a line voltage dip as shown below occurs for several seconds.
- The power factor does not drop below 90 percent for the line voltage variation shown below.
- The line starting current does not exceed normal line operating current.
- The ballast starts and operates the lamp in ambient temperatures down to -20 °F.
- The lamp current crest factor does not exceed 1.8 for line voltage variation shown below.
- The ballast conforms to all ANSI Standards.
- The ballast has capacity to operate dual-arc tube lamps as well as standard lamps without modification of the luminaire.

Submit for review ballast electrical data and lamp operating volt-watt traces for nominal and ± 10 percent rated line voltage for each type of high-pressure sodium lamp ballast.

Lamp Type	Lamp Wattage Range	Line Voltage Variation	Allowable Lamp Watt Variation	Minimum Efficiency	Allowable Line Voltage Dip
HPS	70 - 100	$\pm 10\%$	$\pm 10\%$	70%	40 - 50%
HPS	150 - 400	$\pm 10\%$	$\pm 10\%$	78%	40 - 50%
HPS	1,000	$\pm 10\%$	$\pm 10\%$	92%	40 - 50%

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Unless otherwise shown or specified, operate ballasts on 240 V or 480 V. When 120 V operation is specified, furnish a multi-voltage type ballast with taps to allow the ballast to be connected to 120 V, 208 V, 240 V, or 277 V.

02926.53 High-Intensity Discharge Luminaires:

(a) General - Furnish conventional Roadway luminaires for horizontal slip fitter end mounting.

Furnish luminaires with a cast-aluminum housing and attach to 2-inch pipe tenons on mast arms. Ensure the luminaire attachment fitting provides for a minimum of plus or minus 3-degree adjustment of the luminaire in the vertical direction. Furnish reflectors for all luminaires that are snap-on or easily removed design manufactured of polished aluminum or molded from prismatically formed borosilicate glass. Mount the refractor in a door frame assembly hinged to the luminaire and secured in the closed position by means of an automatic latch or a draw latch. The refractor and doorframe assembly, when closed, exert pressure against a gasket. Furnish gaskets composed of material capable of withstanding the temperatures encountered and that are securely held in place. Furnish glassware that is of the refractor type with prisms.

Stamp or label reflectors and refractors provided with the luminaire with a part number. Indicate the reflector and refractor part number used on the luminaire photometric submittal (isocandela diagrams).

Secure luminaire components to the luminaire frame with corrosion-resistant mounting hardware. Furnish a weather tight housing, complete with integral ballast.

If sand-cast, leave the aluminum housing in its natural finish. If die-cast, give the housing a coat of aluminum paint.

Form refractors from heat-resistant, high-impact, molded borosilicate glass.

Furnish lamp sockets that are adjustable to obtain the light distribution shown or specified.

Seal socket opening with a heat-resistant filter or filtering gasket to prevent the entry of dirt, insects or moisture into the optical system.

Furnish a sufficiently rigid socket mounting mechanism that upon application of a 2-pound load in any direction on the light source center, the light source center does not deflect more than 1/16 inch.

(b) Classification of Luminaire Light Distribution - Furnish the following distribution types as shown or specified. Ensure the classifications listed conform to ANSI definitions.

(1) Vertical Light Distributions - Divide vertical light distributions into three groups: short (S), medium (M), and long (L). Classification of the three groups depends on the maximum candle power point within a grid area according to the ANSI/IES RP-8 (2018) publication.

(2) Lateral Light Distributions - Lateral light distribution patterns have the following designations:

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Type I
Type II
Type III
Type IV
Type V

Ensure the type designations listed above conform to ANSI definitions.

(3) Distribution Above Maximum Candle Power - Use this classification to control the candle power in the upper portion of the beam above the maximum candle power. Use the following three classifications:

Cutoff
Semi cutoff
Noncutoff

Ensure the classifications listed above conform to ANSI definitions.

02926.54 LED Luminaires:

(a) General Performance Requirements:

(1) General - Furnish each LED luminaire as a complete lighting unit manufactured according to ANSI C136.37 2011 and utilizing high power LEDs as the light source.

Assemble and pre-wire all internal components using modular electrical connections. Install wiring, grounding, and terminal blocks according to ANSI C136.37. Furnish luminaires that accept a designated voltage range of 50 to 60 Hz and operate normally with an input voltage that is within 10 percent of the specified voltage.

(2) Finished Surface - Furnish LED luminaires with a gray or silver housing with the surface UL listed for wet locations (UL 1598). After 1000 hours of salt chamber exposure, according to ASTM B117, provide a luminaire surface that exceeds a rating of 6 for rust creepage for scribed specimens according to ASTM D1654.

(3) Thermal Management - Furnish luminaires that start and operate in the ambient temperature range specified. Furnish heat sink fins with a mechanical design that facilitate hose down cleaning and discourage debris accumulation.

Clearly indicate in submittals liquids or moving parts (such as fans), consistent with product testing, and subject to approval by the Engineer.

(4) LED Driver Requirements - Furnish LED driver meeting the following minimum requirements:

- Rated to operate in -40 °C to 40 °C ambient temperature
- Total harmonic distortion (THD) to be less than 20 percent
- Have minimum power factor of 90 percent
- Comply with requirements of UL, CSA, and FCC regulations in 47 CRF Part 15

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- Rated for outdoor operation and have an ANSI/IEC rating of IP66

Furnish a dimmable driver for each high-mast, Highway/street lighting luminaire, including ornamental lighting and intersection lighting on signal systems, with two leads to accept standard 0-10 V (DC), except on the luminaires of 100 watts or less. Furnish a dimming control compatible with IEC 60929 with a circuit that defaults to 100 percent power if the control leads are open or the analog control signal is lost. Identify all conductors and terminals.

(5) Electrical Parts and Safety Testing - For each luminaire, except ornamental, underdeck, and wall mount luminaires, furnish an ANSI C136.41-compliant, 7-pin receptacle that is fully prewired for the LED driver's control. For 0-10 V dimmable LED drivers, connect control wires to the receptacle pads as specified in ANSI C136.41.

When the photo control is required, furnish and install a specified photo control unit with the specified driver on each LED luminaire. If the photo control is not required, install a shorting cap on each luminaire, as directed by the Engineer.

Furnish luminaires according to ANSI C136.2 for electrical immunity, using the combination wave test level of 6 kV/3 kA. Furnish luminaires that comply with interference criteria for Class A digital devices according to FCC regulations in 47 CFR Part 15.

(6) Identification and Labeling - Furnish luminaires with internal and external labels according to ANSI C136.15 and ANSI C136.22.

(7) Surge Protection - Furnish a surge protection device (SPD) to protect LED drivers and LED lighting arrays from electrical transients that is recognized according to UL1449 and rated for 10 kV/5 kA combination wave surges according to ANSI/IEEE C62.41.2. Furnish a SPD that complies with FCC regulations in 47 CFR Part 15, Subpart B for the emission of electronic noise.

(8) Maximum Power Consumption - For the control of trespassing light and glare, the following maximum power consumption values are allowed on ODOT standard pole mounting for State Highways:

Mounting Height (ft.)	Maximum Wattage in LED Luminaire
25.0 to < 30.0	100
30.0 to < 35.0, or when replacing 150-watt HPS	120
35.0 to < 40.0, or when replacing 200/250-watt HPS	200
40.0 to 55.0, or when replacing 310/400-watt HPS	300
Each LED luminaire in high mast tower	500

(b) LED Luminaire Types - For each type of LED luminaire shown, furnish luminaires according to the general performance requirements in 02926.54(a) and the following:

(1) LED Luminaires on Traffic Signal Supports - When furnishing an LED luminaire model that is not specified as approved, meet the following general requirements:

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Minimum luminaire efficacy: 115 lumens/watt (LPW)
Nominal input power: 110 - 136 watts
Nominal input voltage: 240 volts
Minimum lumen output: 14,000 lumens
Minimum lumen maintenance at 50,000 hrs.: 86% of initial lumens
Nominal CCT (Correlated color temp.): 3000 or 4000 $\pm$ 250 °K
Color Rendering Index (CRI)..... $\geq$ 70
BUG rating: B3-U0-G3
Nominal type of output pattern: Type 3 Medium
Maximum luminaire weight: 30 lb.
EPA: 0.5 – 0.9 sq. ft.
Mounting method: 2 inch tenon as shown
Vibration: 3G vibration test
Thermal: -40 – 40 °C operation
Photo control receptacle: ANSI C136.41, 7-pin
LED driver: 0-10 V dimmable

(2) LED Luminaires on Freeway Interchange Lighting Systems - When furnishing an LED luminaire model that is not specified as approved, meet the following general requirements:

Minimum luminaire efficacy: 117 lumens/watt (LPW)
Nominal input power: 180 - 214 watts
Nominal input voltage: 240 volts
Minimum lumen output: 24,000 lumens
Minimum lumen maintenance at 50000 hrs.: 86% of initial lumens
Nominal CCT (Correlated color temp.): 3000 or 4000 $\pm$ 250 °K
Color Rendering Index (CRI)..... $\geq$ 70
BUG rating:..... B3-U0-G3
Nominal type of output pattern: Type 3 Medium
Maximum luminaire weight: 30 lb.
Maximum EPA:..... 1.0 sq. ft.
Mounting method:..... 2 inch tenon, as shown
Vibration: 3G vibration test certified (ANSI C136.31)
Thermal: -40 – 40 °C operation
Photo control receptacle: ANSI C136.41, 7-pin
LED driver:..... 0-10 V dimmable

(c) Submittals - Before beginning LED luminaire installation, submit the following according to 00150.37 for review by the Engineer:

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- Four copies of LED luminaire manufacturer's data sheets, including light source, drivers, surge protection device, and installation instructions.
- For the dimmable LED driver specified, diagrams illustrating light output and input power as a function of control signal.
- IES LM-79 luminaire photometric reports produced by the test laboratory, that satisfy LED Lighting Facts accreditation requirements. Include the name of the laboratory, report number, date, luminaire catalog number, luminaire description, and backlight uplight glare (BUG) ratings.
- Submit lumen maintenance calculations and supporting data according to LED lighting facts guidance. Submit computer generated photometric analysis and calculation of maintained light levels according to IES RP 8, Roadway lighting. use a light loss factor (LLF) of 0.8 or less, according to the individual luminaire test report data. Do not use the Mesopic multipliers of effective luminance factors for calculation.
- IES format electronic file containing luminous intensity data associated with submitted LM 79 reports and used for point-by-point calculations.

Within 21 Calendar Days after receipt of submittals, the Engineer will review the submittals and designate them in writing as “approved”, “approved as noted”, or “returned for correction”. Do not begin LED luminaire installation before receiving written approval of submittals from the Engineer.

SECTION 03010 - FENCING MATERIALS

Replace Section 03010 of the Standard Specifications except for the Section number and title with the following:

Description

03010.00 Scope - This Section includes the requirements for barbed wire, woven wire fabric, chain link fabric, wildlife wire fabric, metal posts, braces, hardware, and gates.

Materials

03010.10 Barbed Wire - Furnish two-strand and either 12 1/2 gauge or 15 1/2 gauge barbed wire with four-point barbs spaced at 5-inch intervals according to the requirements of AASHTOM 280 (ASTM A121) with Class 3 galvanizing.

Install new or like new barbed wire on the Project and use the same diameter unless otherwise approved.

03010.20 Woven Wire Fabric - Furnish 12 1/2-gauge galvanized steel woven wire fabric according to the requirements of AASHTO M 279 (ASTM A116), Class 3 coating or 11 gauge or 12 1/2-gauge aluminum coated steel wire according to the applicable requirements of ASTM A116. Furnish 12 1/2-gauge aluminum coated steel wire having the same coating thickness required for 11-gauge steel wire in Table 2 of ASTM A116.

03010.21 Wildlife Wire Fabric - Furnish 12 1/2-gauge galvanized steel wire for wildlife wire fabric according to the requirements of ASTM A116, Design Number 2096-6-12 1/2.

03010.30 Chain Link Fabric, Ties, and Tension Wire - Furnish chain link fabric, ties, and tension wire according to the requirements of AASHTO M 181 supplemented and modified as follows:

- Fabric may be zinc-coated steel meeting Type I, Class D coating requirement, aluminum-coated steel, or aluminum alloy. Use only one type on the Project.
- Wire fabric ties, wire ties, and hog rings may be zinc-coated steel wire, aluminum-coated steel, or aluminum alloy as elected, regardless of the type of wire fabric used.
- Use ductile, zinc-coated steel meeting the coating requirements of ASTM A641, Class 1 for wire fabric ties, wire ties, and hog rings. Coat aluminum-coated steel wire fabric ties, wire ties and hog rings with at least 0.30 ounce per square foot.
- Furnish tension wire with a Class 2 coating.
- Furnish 9-gauge wire woven in 3 1/2-inch by 5 1/2-inch diamond mesh for the fence to be installed with pickets. Knuckled finish top and bottom selvage.

03010.31 Pickets - Furnish pickets that are either standard Grade A redwood or cedar pickets, 3/8-inch x 2 1/2-inch x 6 feet, or industry standard metal, or plastic pickets as shown or approved.

03010.40 Vinyl Clad Fabric - Furnish vinyl clad chain link fabric according to AASHTO M 181, Type IV. The color of the PVC coating is either medium or dark green.

03010.50 Metal Fence Posts, Braces, and Appurtenances - Furnish metal fence posts, braces and appurtenances according to the requirements indicated on the Plans and the following:

(a) Painted Metal Posts - Furnish the same kind and color of all painted metal posts.

(b) Posts, Braces, and Appurtenances for Chain Link Fence - Furnish posts, braces, and appurtenances for chain link fence according to the requirements of AASHTO M 181.

Furnish posts, braces, and appurtenances for bridge protective fence according to the requirements of AASHTO M 181, Grade 1, ASTM F1083 and ASTM F1043, Group IA-2.

(c) Posts, Braces, and Appurtenances for Barbed Wire and Woven Wire Fence:

(1) Tubular Steel Posts - Furnish tubular steel posts, braces and appurtenances according to the requirements of AASHTO M 181. Fit tubular posts with a snug-fitting, galvanized metal cap.

(2) Other Shapes - Furnish metal posts and braces, other than tubular shape, for barbed wire and woven wire fences, according to AASHTO M 281 (ASTM A702), except that galvanizing may conform to the requirements of AASHTO M 111 (ASTM A123). The posts and braces may be either galvanized or painted, as elected. Furnish wire fasteners meeting the coating requirements of ASTM A641, Class 1.

(3) Fence Stays, Brace Guys, and Wire Loops - Furnish metal fence stays, brace guy wires, wire loops for gateways and other miscellaneous wire used in barbed and woven wire fences with Class 1 coating as required by ASTM A641. Either 9 1/2-gauge or 10-gauge wire is acceptable for fence stays.

(d) Concrete In Footings - Furnish concrete for footings according to Section 00440.

(e) Grounding Rod - 5/8 inch by 8 feet, nonrusting, copper covered steel rod with a bronze grounding wire clamp.

(f) Grounding Wire - AWG 4/0 Solid Copper or No. 6 bare aluminum wire with clamps.

(g) Posts, Braces, and Appurtenances for Wildlife Fence - Furnish posts, braces, and appurtenances for wildlife fence according to the requirements of AASHTO M 181.

03010.60 Fence Gates:

(a) General - Furnish tubular steel gate frames according to AASHTO M 181. For fabric in gates used with chain link fence, use chain link of the same gauge and according to applicable requirements of 03010.30. For fabric in gates used with woven wire fence, furnish woven wire fabric according to 03010.20 or chain link fabric according to the applicable requirements of 03010.30, except that the zinc coating may be either Class C or Class D. Use wildlife fence fabric according to 03010.21 for fabric in gates used with wildlife fence.

OR22: Center St Bridge (Phase 1) Project

(b) Hardware - Furnish all fence and gate hardware according to the requirements of AASHTO M 181, except that the thickness of galvanizing is according to AASHTO M 232 (ASTM A153).

03010.75 Protective Fence Materials, On and Off Structures - Provide certification according to 00165.35 that the anchor system selected conforms to requirements as shown.

- **Resin Bonded Anchor System** - Furnish the resin bonded anchor system used to install the fence post anchor rods in the concrete bridge rail from the QPL and install according to the manufacturer's recommendations.
- **Posts** - Modify posts to attach to the Structure as shown.
- **Steel Plates, Angles, and Bolts** - Furnish steel plates, angles, and bolts meeting the applicable requirements of Section 02530 and galvanized according to 02530.70.
- **Chain Link Fabric, Ties, and Tension Wire** - Furnish chain link fabric, ties, and tension wire according to the requirements of 03010.30.
- **Pickets** - Furnish pickets meeting the requirements of 03010.31.

03010.80 Acceptance - Acceptance of fencing Materials is according to 00165.35 and this Section.

SECTION 03020 - EROSION MATERIALS

Comply with Section 03020 of the Standard Specifications modified as follows:

03020.90 Acceptance - Replace the paragraph that begins "Acceptance of commercially manufactured..." with the following paragraph:

Acceptance of commercially manufactured compost Material is the following:

BID SCHEDULE

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**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)

SECTION: 0001 TEMPORARY FEATURES AND APPURTENANCES

0010	0205-0104000E JOB OFFICE TRAILER	1.00 EACH		
0020	0210-0100000A MOBILIZATION	ALL LUMP SUM		
0030	0221-0100000A TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	ALL LUMP SUM		
0040	0222-0102000J TEMPORARY SIGNS	2,750.00 SQFT		
0050	0222-0162000E SEQUENTIAL ARROW SIGNS	6.00 EACH		
0060	0222-0164000E PORTABLE CHANGEABLE MESSAGE SIGNS	28.00 EACH		
0070	0223-0168000T FLAGGERS	8,480.00 HOUR		
0080	0223-0168100E FLAGGER STATION LIGHTING	8.00 EACH		
0090	0223-0169000E TRAFFIC CONTROL SUPERVISOR	728.00 EACH		
0100	0224-0104000E TEMPORARY BARRICADES, TYPE II	38.00 EACH		
0110	0224-0105000E TEMPORARY BARRICADES, TYPE III	32.00 EACH		
0120	0224-0145000E TEMPORARY PLASTIC DRUMS	740.00 EACH		
0130	0225-0148000E TEMPORARY REFLECTIVE PAVEMENT MARKERS	6,500.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0140	0225-0150000F TEMPORARY REMOVABLE TAPE	80.00 FOOT		
0150	0225-0153000F TEMPORARY STRIPING	6,850.00 FOOT		
0160	0225-0153100E TEMPORARY PAVEMENT LEGENDS	6.00 EACH		
0170	0225-0153200J TEMPORARY PAVEMENT BARS	40.00 SQFT		
0180	0225-0154000F STRIPE REMOVAL	13,275.00 FOOT		
0190	0225-0155100J LEGEND REMOVAL	80.00 SQFT		
0200	0226-0126100F TEMPORARY BARRIER	1,176.00 FOOT		
0210	0226-0134000E TEMPORARY IMPACT ATTENUATOR, NARROW SITE SYSTEM	4.00 EACH		
0220	0226-0137000E MOVING TEMPORARY IMPACT ATTENUATORS, NARROW SITE SYSTEM	6.00 EACH		
0230	0226-0138000E TEMPORARY IMPACT ATTENUATOR, TRUCK MOUNTED	4.00 EACH		
0240	0226-0141100E REFLECTIVE BARRIER PANELS	560.00 EACH		
0250	0226-0141300E REPAIR TEMPORARY IMPACT ATTENUATOR, NARROW SITE SYSTEM	4.00 EACH		
0260	0226-0141400E REPAIR TEMPORARY IMPACT ATTENUATOR, TRUCK MOUNTED	8.00 EACH		
0270	0226-0147000F MINIMUM DEFLECTION BRIDGE TEMPORARY BARRIER	1,230.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0280	0227-0157000A TEMPORARY ILLUMINATION	ALL LUMP SUM		
0290	0228-0141600F PEDESTRIAN CHANNELIZING DEVICES	450.00 FOOT		
0300	0230-0200000A CONSTRUCT AND REMOVE TEMPORARY ROADBED AND SURFACING	ALL LUMP SUM		
0310	0231-0100000A CONSTRUCT AND REMOVE TEMPORARY ACCESS ROAD	ALL LUMP SUM		
0320	0240-0100000A TEMPORARY DRAINAGE FACILITIES, BENT 15	ALL LUMP SUM		
0330	0240-0100000A TEMPORARY DRAINAGE FACILITIES, BENT 26	ALL LUMP SUM		
0340	0240-0100000A TEMPORARY DRAINAGE FACILITIES, BENTS 20 AND 21	ALL LUMP SUM		
0350	0240-0100000A TEMPORARY DRAINAGE FACILITIES, BENTS 24 AND 25	ALL LUMP SUM		
0360	0240-0100000A TEMPORARY DRAINAGE FACILITIES, BENTS 27 AND 28	ALL LUMP SUM		
0370	0240-0100000A TEMPORARY DRAINAGE FACILITIES, WATERLINE	ALL LUMP SUM		
0380	0245-0100000A TEMPORARY WATER MANAGEMENT FACILITY AT STATION "CE" 41+80	ALL LUMP SUM		
0390	0252-0104000A TEMPORARY WORK BRIDGES	ALL LUMP SUM		
0400	0270-0106000F TEMPORARY TYPE CL-8R SECURITY FENCE	6,680.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0410	0280-0100000A EROSION CONTROL	ALL LUMP SUM		
0420	0280-0101000J PLASTIC SHEETING	100.00 SQYD		
0430	0280-0105030J MATTING, TYPE C	750.00 SQYD		
0440	0280-0105100J COMPOST EROSION BLANKET	14,520.00 SQYD		
0450	0280-0110010E CONSTRUCTION ENTRANCE, TYPE 1	4.00 EACH		
0460	0280-0110030E CONSTRUCTION ENTRANCE, TYPE 3	4.00 EACH		
0470	0280-0112500E CONCRETE WASHOUT FACILITY	5.00 EACH		
0480	0280-0113000F SEDIMENT FENCE	2,040.00 FOOT		
0490	0280-0114030E INLET PROTECTION, TYPE 3	31.00 EACH		
0500	0280-0114040E INLET PROTECTION, TYPE 4	5.00 EACH		
0510	0280-0114100E INLET PROTECTION, TYPE 10	8.00 EACH		
0520	0280-0114110E INLET PROTECTION, TYPE 11	2.00 EACH		
0530	0280-0115030F SEDIMENT BARRIER, TYPE 3	100.00 FOOT		
0540	0280-0115080F SEDIMENT BARRIER, TYPE 8	2,034.00 FOOT		
0550	0280-0119000E STRAW BALE	30.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0560	0290-0100000A POLLUTION CONTROL PLAN	ALL LUMP SUM		
0570	0290-0102000A WORK CONTAINMENT PLAN	ALL LUMP SUM		
0580	0290-0200000A TURBIDITY MONITORING	ALL LUMP SUM		
0590	0294-0100000A HEALTH AND SAFETY PLAN	ALL LUMP SUM		
0600	0294-0200010M CONTAMINATED SOIL DISPOSAL	20,182.00 TON		
0610	0294-0300000A CONTAMINATED GROUNDWATER MOBILIZATION	ALL LUMP SUM		
0620	0294-0400000P CONTAMINATED GROUNDWATER REMOVAL	15,000.00 GAL		
0630	0294-0600000A SEGREGATE AND STOCKPILE CONTAMINATED SOIL	ALL LUMP SUM		
0640	0294-0700000E SOIL SAMPLE COLLECTION AND ANALYTICAL TESTING	10.00 EACH		
0650	0295-0200000F REMOVE ASBESTOS MATERIAL, 10 INCH CAST IRON PIPE	20.00 FOOT		
0660	0295-0200000F REMOVE ASBESTOS MATERIAL, 12 INCH CAST IRON PIPE	20.00 FOOT		
0670	0295-0200000F REMOVE ASBESTOS MATERIAL, 24 INCH DUCTILE IRON PIPE	1,350.00 FOOT		
0680	0295-0500000A BULK ASBESTOS SAMPLING, ANALYTICAL TESTING, AND REPORTING	ALL LUMP SUM		
0690	1999-9Z90000A DROPPINGS REMOVAL	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0700	1999-9Z90000A TEMPORARY RIVER TRAFFIC CONTROL	ALL LUMP SUM		
0710	1999-9Z90000A VIBRATION MONITORING AND CONTROL	ALL LUMP SUM		

SECTION: 0002 ROADWORK

0720	0305-0100000A CONSTRUCTION SURVEY WORK	ALL LUMP SUM		
0730	0310-0100000F REMOVAL OF PIPES	888.00 FOOT		
0740	0310-0104000E REMOVAL OF INLETS	12.00 EACH		
0750	0310-0105000E REMOVAL OF MANHOLES	8.00 EACH		
0760	0310-0106000A REMOVAL OF STRUCTURES AND OBSTRUCTIONS	ALL LUMP SUM		
0770	0310-0119110F ASPHALT PAVEMENT SAWCUTTING, LESS THAN 6 INCHES DEEP	987.00 FOOT		
0780	0310-0119120F ASPHALT PAVEMENT SAWCUTTING, 6 TO 14 INCHES DEEP	2,594.00 FOOT		
0790	0310-0119220F CONCRETE SAWCUTTING, 6 TO 14 INCHES DEEP	2,362.00 FOOT		
0800	0310-0200000F REMOVAL OF CONCRETE BARRIER	202.00 FOOT		
0810	0320-0100000A CLEARING AND GRUBBING	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0820	0330-0105000K GENERAL EXCAVATION	4,300.00 CUYD		
0830	0331-0106000J 12 INCH SUBGRADE STABILIZATION	166.00 SQYD		
0840	0350-0105000J SUBGRADE GEOTEXTILE	5,281.00 SQYD		
0850	1999-9Z90000A TREE REMOVAL	ALL LUMP SUM		

SECTION: 0003 DRAINAGE AND SEWERS

0860	0415-0100000F MAINLINE VIDEO INSPECTION	1,469.00 FOOT		
0870	0445-035010AF 10 INCH STORM SEWER PIPE, 5 FT DEPTH	312.00 FOOT		
0880	0445-035012AF 12 INCH STORM SEWER PIPE, 5 FT DEPTH	795.00 FOOT		
0890	0445-035012BF 12 INCH STORM SEWER PIPE, 10 FT DEPTH	11.00 FOOT		
0900	0445-0735020E CONCRETE CLOSURE COLLARS	2.00 EACH		
0910	0470-0101000E CONCRETE STORM SEWER MANHOLES	3.00 EACH		
0920	0470-0102000E CONCRETE MANHOLES, FLOW CONTROL	1.00 EACH		
0930	0470-0103000E CONCRETE MANHOLES, WITH INLET	1.00 EACH		
0940	0470-0104000E CONCRETE MANHOLES, POLLUTION CONTROL	1.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
0950	0470-0105000E CONCRETE MANHOLES, SHALLOW	2.00 EACH		
0960	0470-0105000E CONCRETE MANHOLES, SHALLOW LARGE	1.00 EACH		
0970	0470-0309000E CONCRETE INLETS, TYPE CG-3	1.00 EACH		
0980	0470-0312000E CONCRETE INLETS, TYPE D (MODIFIED)	1.00 EACH		
0990	0470-0315000E CONCRETE INLETS, TYPE G-2	6.00 EACH		
1000	0470-0316000E CONCRETE INLETS, TYPE G-2 (MODIFIED)	5.00 EACH		
1010	0480-0100000F DRAINAGE CURBS	243.00 FOOT		
1020	0490-0100000E ADJUSTING BOXES	6.00 EACH		
1030	0490-0104000E CONNECTION TO EXISTING STRUCTURES	4.00 EACH		
1040	0490-0105000E ADJUSTING INLETS	1.00 EACH		
1050	0490-0120000E MINOR ADJUSTMENT OF MANHOLES	4.00 EACH		
1060	0490-0123000E EXTRA FOR MANHOLES OVER EXISTING SEWERS	4.00 EACH		
SECTION: 0004 BRIDGE NO. 00123K				
1070	0253-0106000A TEMPORARY WORK ACCESS AND CONTAINMENT	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1080	0255-0100000A BRIDGE JACKING AT BENT 15	ALL LUMP SUM		
1090	0255-0100000A BRIDGE JACKING AT BENT 19	ALL LUMP SUM		
1100	0255-0100000A BRIDGE JACKING AT BENT 21	ALL LUMP SUM		
1110	0255-0100000A BRIDGE JACKING AT BENT 22	ALL LUMP SUM		
1120	0255-0100000A BRIDGE JACKING AT BENT 23	ALL LUMP SUM		
1130	0255-0100000A BRIDGE JACKING AT BENT 24	ALL LUMP SUM		
1140	0255-0100000A BRIDGE JACKING AT BENT 26	ALL LUMP SUM		
1150	0255-0100000A BRIDGE JACKING AT BENT 27	ALL LUMP SUM		
1160	0255-0100000A BRIDGE JACKING AT BENT 28	ALL LUMP SUM		
1170	0501-0100000A BRIDGE REMOVAL WORK	ALL LUMP SUM		
1180	0503-0101000J BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP	4,546.00 SQYD		
1190	0504-0100000J CLASS 2 PREPARATION	24.00 SQYD		
1200	0504-0102000J BONDED MEMBRANE REMOVAL	244.00 SQYD		
1210	0505-0100000J CONCRETE DECK MICRO-MILLING, 0.25 INCH DEPTH	4,302.00 SQYD		
1220	0505-0101000J SELECTIVE HYDRODEMOLITION	4,302.00 SQYD		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1230	0510-0100000A SHORING, CRIBBING, AND COFFERDAMS	ALL LUMP SUM		
1240	0510-0101000A STRUCTURE EXCAVATION, BENTS 16 - 19	ALL LUMP SUM		
1250	0510-0101000A STRUCTURE EXCAVATION, BENTS 20 - 28	ALL LUMP SUM		
1260	0512-0100000A PROVIDE DRILLING EQUIPMENT	ALL LUMP SUM		
1270	0512-0101000A DRILLED SHAFT CONCRETE	ALL LUMP SUM		
1280	0512-0104000A DRILLED SHAFT REINFORCEMENT, GRADE 60	ALL LUMP SUM		
1290	0512-0104000A DRILLED SHAFT REINFORCEMENT, GRADE 80	ALL LUMP SUM		
1300	0512-0105000F CSL TEST ACCESS TUBES	2,155.00 FOOT		
1310	0512-0106000E CSL TESTS	2.00 EACH		
1320	0512-0114000F DRILLED SHAFT EXCAVATION, 106 INCH DIAMETER	239.40 FOOT		
1330	0512-0115500F PERMANENT STRUCTURAL CASING, 106 INCH DIAMETER	172.00 FOOT		
1340	0512-0115600F PERMANENT SHAFT CASING, 106 INCH DIAMETER	49.40 FOOT		
1350	0520-0100000A PROVIDE PILE DRIVING EQUIPMENT	ALL LUMP SUM		
1360	0520-0139000F FURNISH PP 24 X 0.750 STEEL PILES	6,258.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1370	0520-0324000E DRIVE PP 24 X 0.750 STEEL PILES	84.00 EACH		
1380	0520-0329000E PILE LOAD TEST (DYNAMIC)	6.00 EACH		
1390	0520-0330000E REINFORCED PILE TIPS	84.00 EACH		
1400	0520-0435000E PP 24 X 0.750 STEEL PILE SPLICES	42.00 EACH		
1410	0530-0104000A REINFORCEMENT, GRADE 100	ALL LUMP SUM		
1420	0530-0104000A REINFORCEMENT, GRADE 60	ALL LUMP SUM		
1430	0530-0104000A REINFORCEMENT, GRADE 80	ALL LUMP SUM		
1440	0538-0100000F INJECT AND SEAL CRACKS	5,498.00 FOOT		
1450	0540-0102000A FOUNDATION CONCRETE, CLASS 4000	ALL LUMP SUM		
1460	0540-0102000A FOUNDATION CONCRETE, CLASS TMC 4000	ALL LUMP SUM		
1470	0540-0203100A DECK CONCRETE, CLASS HPC 4500	ALL LUMP SUM		
1480	0540-0302000A GENERAL STRUCTURAL CONCRETE, CLASS 4000	ALL LUMP SUM		
1490	0540-0302000A GENERAL STRUCTURAL CONCRETE, CLASS TMC 4000	ALL LUMP SUM		
1500	0540-0303000A GENERAL STRUCTURAL CONCRETE, CLASS 5000	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1510	0540-0303000A GENERAL STRUCTURAL CONCRETE, CLASS TMC 5000	ALL LUMP SUM		
1520	0540-0401000J SURFACE TEXTURING	4,193.00 SQYD		
1530	0542-0100000A LOCATE CONCRETE REPAIR	ALL LUMP SUM		
1540	0542-0102001J CONCRETE REPAIR	2,142.80 SQFT		
1550	0555-0010100A POST-TENSIONING, BENT 15 CROSSBEAM	ALL LUMP SUM		
1560	0555-0010100A POST-TENSIONING, BENT 16 FOOTING	ALL LUMP SUM		
1570	0555-0010100A POST-TENSIONING, BENT 17 FOOTING	ALL LUMP SUM		
1580	0555-0010100A POST-TENSIONING, BENT 18 FOOTING	ALL LUMP SUM		
1590	0559-0300000K STRUCTURAL CONCRETE OVERLAY MATERIAL	444.00 CUYD		
1600	0559-0302000J CONSTRUCT STRUCTURAL CONCRETE OVERLAY	4,252.00 SQYD		
1610	0581-0110000E MODIFYING EXISTING BRIDGE DRAINS	19.00 EACH		
1620	0581-0110000E REMOVE AND REINSTALL STORM DRAIN PIPE EXPANSION JOINTS	2.00 EACH		
1630	0582-0010000E BEARING DEVICES, 12 INCH WIDE, 18 INCH LONG, 2.875 INCH THICK	5.00 EACH		
1640	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, BENT 22	3.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1650	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, BENT 23	3.00 EACH		
1660	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, SPAN 15 BENT 15	7.00 EACH		
1670	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, SPAN 18 BENT 19	7.00 EACH		
1680	0582-0010000E PTFE SLIDING BEARING ASSEMBLY, SPAN 14 BENT 15	7.00 EACH		
1690	0583-0202000F GRC CONDUIT SYSTEM, 2 INCH DIAMETER	37.70 FOOT		
1700	0584-0103000C ELASTOMERIC CONCRETE NOSING MATERIAL	5.00 CUFT		
1710	0584-0104000J CONSTRUCTING ELASTOMERIC CONCRETE NOSING	20.00 SQFT		
1720	0585-0206100A POURED JOINT SEAL	ALL LUMP SUM		
1730	0585-0215000A PRECOMPRESSED FOAM SILICONE JOINT SEAL	ALL LUMP SUM		
1740	0585-0215000A HOT APPLIED JOINT SEALANT REPLACEMENT	ALL LUMP SUM		
1750	0586-0500000A MODULAR BRIDGE JOINT SYSTEMS, 4 GLANDS	ALL LUMP SUM		
1760	0586-0500000A MODULAR BRIDGE JOINT SYSTEMS, 5 GLANDS	ALL LUMP SUM		
1770	0586-0500000A TEMPORARY MODULAR BRIDGE JOINT SYSTEMS, 4 GLANDS	ALL LUMP SUM		
1780	0586-0500000A TEMPORARY MODULAR BRIDGE JOINT SYSTEMS, 5 GLANDS	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1790	0587-0120000A TYPE "G" CONCRETE RAIL	ALL LUMP SUM		
1800	0587-0127000A PEDESTRIAN RAIL	ALL LUMP SUM		
1810	0587-0140000F 10 FOOT TYPE "B" PROTECTIVE FENCE	38.00 FOOT		
1820	0587-0140000F 8 FOOT TYPE "C" PROTECTIVE FENCE	50.00 FOOT		
1830	0592-0101000J ROLLED WATERPROOF MEMBRANE	2,196.00 SQFT		
1840	1999-9Z90000A CROSS-FRAMES	ALL LUMP SUM		
1850	1999-9Z90000A FURNISH VERTICAL GROUND ANCHOR EQUIPMENT	ALL LUMP SUM		
1860	1999-9Z90000A GROUTED STRUCTURAL RODS, BENT 15	ALL LUMP SUM		
1870	1999-9Z90000A GROUTED STRUCTURAL RODS, BENT 19	ALL LUMP SUM		
1880	1999-9Z90000A ISOLATION BEARING COVER PLATES	ALL LUMP SUM		
1890	1999-9Z90000A MODIFY EXISTING BRIDGE DRAINAGE SYSTEMS	ALL LUMP SUM		
1900	1999-9Z90000A NSM STEEL REINFORCEMENT SYSTEM, #4 GRADE 80	ALL LUMP SUM		
1910	1999-9Z90000A NSM STEEL REINFORCEMENT SYSTEM, #5 GRADE 80	ALL LUMP SUM		
1920	1999-9Z90000A NSM STEEL REINFORCEMENT SYSTEM, #6 GRADE 80	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
1930	1999-9Z90000A SEISMIC LONGITUDINAL RESTRAINERS	ALL LUMP SUM		
1940	1999-9Z90000A TEMPORARY BIRD DETERRENT DEVICES	ALL LUMP SUM		
1950	1999-9Z90000A TEMPORARY CROSS-FRAMES	ALL LUMP SUM		
1960	1999-9Z90000A UNGROUTED STRUCTURAL RODS, BENT 16	ALL LUMP SUM		
1970	1999-9Z90000A UNGROUTED STRUCTURAL RODS, BENT 17	ALL LUMP SUM		
1980	1999-9Z90000A UNGROUTED STRUCTURAL RODS, BENT 18	ALL LUMP SUM		
1990	1999-9Z90000E THERMAL INTEGRITY PROFILE TESTS	2.00 EACH		
2000	1999-9Z90000E VERTICAL GROUND ANCHOR PROOF LOAD TEST	13.00 EACH		
2010	1999-9Z90000E VERTICAL GROUND ANCHOR VERIFICATION LOAD TEST	7.00 EACH		
2020	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 16	20.00 EACH		
2030	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 17	8.00 EACH		
2040	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 18	8.00 EACH		
2050	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 19	12.00 EACH		
2060	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 20	50.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2070	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 21	30.00 EACH		
2080	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 24	28.00 EACH		
2090	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 25	14.00 EACH		
2100	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 28	8.00 EACH		
2110	1999-9Z90000F THERMAL INTEGRITY WIRES	2,155.00 FOOT		
2120	1999-9Z90000I SINGLE LAYER POLYMER CONCRETE OVERLAY	552.00 SQYD		

SECTION: 0005 BRIDGE NO. 22519

2130	0253-0106000A TEMPORARY WORK ACCESS AND CONTAINMENT	ALL LUMP SUM		
2140	0503-0101000J BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP	9.00 SQYD		
2150	0503-0103100J BRIDGE APPROACH SLAB COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCHES DEEP	9.00 SQYD		
2160	0504-0100000J CLASS 2 PREPARATION	4.00 SQYD		
2170	0504-0102000J BONDED MEMBRANE REMOVAL	18.00 SQYD		
2180	0530-0104200A STAINLESS STEEL REINFORCEMENT, GRADE 60	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2190	0585-0200100A ASPHALTIC PLUG JOINT SEALS	ALL LUMP SUM		
2200	0585-0201100K ASPHALTIC PLUG JOINT SEAL MATERIAL	1.00 CUYD		
2210	0592-0101000J ROLLED WATERPROOF MEMBRANE	162.00 SQFT		

SECTION: 0006 BRIDGE NO. 00123G

2220	0253-0106000A TEMPORARY WORK ACCESS AND CONTAINMENT	ALL LUMP SUM		
2230	0255-0100000A BRIDGE JACKING AT BENT 3	ALL LUMP SUM		
2240	0255-0100000A BRIDGE JACKING AT BENT 4	ALL LUMP SUM		
2250	0255-0100000A BRIDGE JACKING AT BENT 5	ALL LUMP SUM		
2260	0501-0100000A BRIDGE REMOVAL WORK	ALL LUMP SUM		
2270	0503-0101000J BRIDGE DECK COLD PLANE PAVEMENT REMOVAL, 3 - 4 INCH DEEP	532.00 SQYD		
2280	0505-0100000J CONCRETE DECK MICRO-MILLING, 0.25 INCH DEPTH	532.00 SQYD		
2290	0505-0101000J SELECTIVE HYDRODEMOLITION	532.00 SQYD		
2300	0510-0101000A STRUCTURE EXCAVATION, BENTS 3 - 5	ALL LUMP SUM		
2310	0515-0100001A PROVIDE MICROPILE EQUIPMENT	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2320	0515-0110000E MICROPILES, BENT 3	22.00 EACH		
2330	0515-0110000E MICROPILES, BENT 4	19.00 EACH		
2340	0515-0120000E MICROPILE VERIFICATION LOAD TEST	2.00 EACH		
2350	0515-0130000E MICROPILE PROOF LOAD TEST	2.00 EACH		
2360	0530-0104000A REINFORCEMENT, GRADE 100	ALL LUMP SUM		
2370	0530-0104000A REINFORCEMENT, GRADE 60	ALL LUMP SUM		
2380	0530-0104000A REINFORCEMENT, GRADE 80	ALL LUMP SUM		
2390	0538-0100000F INJECT AND SEAL CRACKS	144.00 FOOT		
2400	0540-0102000A FOUNDATION CONCRETE, CLASS 4000	ALL LUMP SUM		
2410	0540-0302000A GENERAL STRUCTURAL CONCRETE, CLASS 4000	ALL LUMP SUM		
2420	0540-0302000A GENERAL STRUCTURAL CONCRETE, CLASS TMC 4000	ALL LUMP SUM		
2430	0540-0401000J SURFACE TEXTURING	475.00 SQYD		
2440	0559-0300000K STRUCTURAL CONCRETE OVERLAY MATERIAL	55.00 CUYD		
2450	0559-0302000J CONSTRUCT STRUCTURAL CONCRETE OVERLAY	532.00 SQYD		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2460	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, BENT 3	2.00 EACH		
2470	0582-0010000E LEAD-RUBBER ISOLATION BEARINGS, BENT 4	2.00 EACH		
2480	0585-0200100A ASPHALTIC PLUG JOINT SEALS	ALL LUMP SUM		
2490	0585-0201100K ASPHALTIC PLUG JOINT SEAL MATERIAL	1.00 CUYD		
2500	0587-0140000F 8 FOOT TYPE "C" PROTECTIVE FENCE	132.60 FOOT		
2510	1999-9Z90000A FURNISH VERTICAL GROUND ANCHOR EQUIPMENT	ALL LUMP SUM		
2520	1999-9Z90000A ISOLATION BEARING COVER PLATES	ALL LUMP SUM		
2530	1999-9Z90000E VERTICAL GROUND ANCHOR PROOF LOAD TEST	2.00 EACH		
2540	1999-9Z90000E VERTICAL GROUND ANCHOR VERIFICATION LOAD TEST	1.00 EACH		
2550	1999-9Z90000E VERTICAL GROUND ANCHORS, BENT 5	16.00 EACH		

SECTION: 0007 BRIDGE NO. 22524

2560	0253-0106000A TEMPORARY WORK ACCESS AND CONTAINMENT	ALL LUMP SUM		
2570	0255-0100000A BRIDGE JACKING AT BENT 5	ALL LUMP SUM		
2580	0255-0100000A BRIDGE JACKING AT BENT 6	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2590	0501-0100000A BRIDGE REMOVAL WORK	ALL LUMP SUM		
2600	0510-0101000A STRUCTURE EXCAVATION, BENTS 5 & 6	ALL LUMP SUM		
2610	0530-0104000A REINFORCEMENT, GRADE 60	ALL LUMP SUM		
2620	0540-0102000A FOUNDATION CONCRETE, CLASS 4000	ALL LUMP SUM		
2630	0540-0302000A GENERAL STRUCTURAL CONCRETE, CLASS 4000	ALL LUMP SUM		
2640	0587-0140000F 10 FOOT TYPE "B" PROTECTIVE FENCE	23.00 FOOT		

SECTION: 0008 BASES

2650	0620-0120000J COLD PLANE PAVEMENT REMOVAL, 2 INCHES DEEP	2,874.00 SQYD		
2660	0620-0123000J COLD PLANE PAVEMENT REMOVAL, 4 INCHES DEEP	359.00 SQYD		
2670	0641-0102000M AGGREGATE BASE	4,118.00 TON		

SECTION: 0009 WEARING SURFACES

2680	0744-0302000M LEVEL 3, 1/2 INCH ACP MIXTURE	1,240.00 TON		
2690	0759-0103000F CONCRETE CURBS, CURB AND GUTTER	1,381.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2700	0759-0110000F CONCRETE CURBS, STANDARD CURB	1,846.00 FOOT		
2710	0759-0126000J CONCRETE DRIVEWAYS	1,843.00 SQFT		
2720	0759-0128000J CONCRETE WALKS	11,428.00 SQFT		
2730	0759-0140000J 6 INCH CONCRETE SURFACING	2,706.00 SQFT		
2740	0760-0100000J UNIT PAVERS	13,007.00 SQFT		
2750	0765-0100000J TRUNCATED DOMES ON NEW SURFACES, CURB RAMP	67.00 SQFT		
2760	0765-0300000J DETECTABLE GUIDE STRIPS, BLUE	120.00 SQFT		

SECTION: 0010 PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES

2770	0815-0101000E REMOVABLE BOLLARDS	6.00 EACH		
2780	0820-0100000F 42 INCH TYPE "F" CONCRETE BARRIER WITH MOMENT SLAB	30.00 FOOT		
2790	0820-0127000F CONCRETE BARRIER, TALL	82.50 FOOT		
2800	0830-0117000E IMPACT ATTENUATOR, TYPE D	2.00 EACH		
2810	0830-0119000E IMPACT ATTENUATOR, TYPE F	2.00 EACH		
2820	0860-0200000F LONGITUDINAL PAVEMENT MARKINGS - PAINT	1,400.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2830	0865-0116610F THERMOPLASTIC, EXTRUDED, SURFACE, NON-PROFILED	11,500.00 FOOT		
2840	0867-0103500E PAVEMENT LEGEND, TYPE AB: ARROWS	4.00 EACH		
2850	0867-0131000E PAVEMENT LEGEND, TYPE B-HS: BICYCLE LANE STENCIL	4.00 EACH		
2860	0867-0165000E PAVEMENT LEGEND, TYPE B: ON- STREET PARKING	4.00 EACH		
2870	0867-0165000E PAVEMENT LEGEND, TYPE PAINT: COMPACT PARKING	24.00 EACH		
2880	0869-0200000F CURB MARKING, PAINT	80.00 FOOT		

SECTION: 0011 PERMANENT TRAFFIC CONTROL AND ILLUMINATION SYSTEMS

2890	0905-0100000A REMOVE EXISTING SIGNS	ALL LUMP SUM		
2900	0905-0101000A REMOVE AND REINSTALL EXISTING SIGNS	ALL LUMP SUM		
2910	0910-0100000K WOOD SIGN POSTS	56.00 FBM		
2920	0920-0100000A SIGN SUPPORT FOOTINGS	ALL LUMP SUM		
2930	0930-0113000A PIPE BREAKAWAY SIGN SUPPORTS	ALL LUMP SUM		
2940	0930-0114000A PERFORATED STEEL SQUARE TUBE SLIP BASE SIGN SUPPORTS	ALL LUMP SUM		
2950	0930-0117000A PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	ALL LUMP SUM		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
2960	0940-0202000J SIGNS, STANDARD SHEETING, SHEET ALUMINUM	13.00 SQFT		
2970	0950-0101000A REMOVAL OF ELECTRICAL SYSTEMS	ALL LUMP SUM		
2980	0970-0104000A LUMINAIRES, LAMPS, AND BALLASTS	ALL LUMP SUM		
2990	0970-0105000A SWITCHING, CONDUIT, AND WIRING	ALL LUMP SUM		
3000	0970-0106000A REFURBISHING AND REINSTALLING EXISTING ILLUMINATION SYSTEMS	ALL LUMP SUM		
3010	0990-0102000A TRAFFIC SIGNAL MODIFICATION, WILLAMINA-SALEM CONN AT DIVISION ST	ALL LUMP SUM		
3020	0990-0105000A INTERCONNECT SYSTEM	ALL LUMP SUM		

SECTION: 0012 RIGHT-OF-WAY DEVELOPMENT AND CONTROL

3030	1012-0100000A WATER QUALITY SWALE, A	ALL LUMP SUM		
3040	1030-0101000R WEED CONTROL	3.00 ACRE		
3050	1030-0102000E SEEDING MOBILIZATION	1.00 EACH		
3060	1030-0108000R PERMANENT SEEDING	3.00 ACRE		
3070	1040-0100000E SOIL TESTING	3.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
3080	1040-0101000K TOPSOIL	200.00 CUYD		
3090	1040-0107000K SOIL CONDITIONER	200.00 CUYD		
3100	1040-0112000E CONIFER TREES, 4 FT HEIGHT	21.00 EACH		
3110	1040-0114000E CONIFER TREES, 6 FT HEIGHT	8.00 EACH		
3120	1040-0114000E CONIFER TREES, #1 CONTAINER	66.00 EACH		
3130	1040-0114000E CONIFER TREES, #5 CONTAINER	11.00 EACH		
3140	1040-0126000E DECIDUOUS TREES, 1.5 INCH CALIPER	96.00 EACH		
3150	1040-0147000E DECIDUOUS TREES, #1 CONTAINER	337.00 EACH		
3160	1040-0150000E DECIDUOUS TREES, #5 CONTAINER	29.00 EACH		
3170	1040-0153000E SHRUBS, #1 CONTAINER	3,142.00 EACH		
3180	1040-0155000E SHRUBS, #3 CONTAINER	62.00 EACH		
3190	1040-0156000E SHRUBS, #5 CONTAINER	324.00 EACH		
3200	1040-0190000K BARK MULCH	595.00 CUYD		
3210	1040-0206000F ROOT BARRIER	1,200.00 FOOT		
3220	1040-0208000J WEED CONTROL GEOTEXTILE	48,175.00 SQFT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
3230	1050-0240000F REMOVING AND REBUILDING FENCE	424.00 FOOT		
3240	1999-9Z90000A SOIL CELLS	ALL LUMP SUM		
3250	1999-9Z90000E PRECAST CONCRETE WHEEL STOP	24.00 EACH		

SECTION: 0013 WATER SUPPLY SYSTEMS

3260	1120-0100000A IRRIGATION SYSTEM	ALL LUMP SUM		
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SECTION: 0014 WATER SUPPLY SYSTEMS: CITY OF SALEM

3270	0445-0750000A INSTALLING 54 INCH PIPE UNDER RAILROAD	ALL LUMP SUM		
3280	1140-0195000E BLOWOFF ASSEMBLY, 12 INCH	5.00 EACH		
3290	1140-0195000E BLOWOFF ASSEMBLY, 6 INCH	1.00 EACH		
3300	1140-0500000F 10 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	71.00 FOOT		
3310	1140-0500000F 12 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	393.00 FOOT		
3320	1140-0500000F 24 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	214.00 FOOT		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
3330	1140-0500000F 36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	529.00 FOOT		
3340	1140-0500000F 36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS IN CASING	135.00 FOOT		
3350	1140-0500000F 36 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS ON BRIDGE	1,071.75 FOOT		
3360	1140-0500000F 6 INCH DUCTILE IRON PIPE WITH RESTRAINED JOINTS AND CLASS A BACKFILL	5.00 FOOT		
3370	1140-0610000E DUCTILE IRON PIPE CROSS, 36 INCH	1.00 EACH		
3380	1140-0610000E DUCTILE IRON PIPE TEES, 12 INCH	2.00 EACH		
3390	1140-0610000E DUCTILE IRON PIPE TEES, 24 INCH	1.00 EACH		
3400	1140-0610000E DUCTILE IRON PIPE TEES, 36 INCH	3.00 EACH		
3410	1140-0650000E DUCTILE IRON PIPE BEND, 12 INCH	6.00 EACH		
3420	1140-0650000E DUCTILE IRON PIPE BEND, 36 INCH	18.00 EACH		
3430	1140-0660000E BALL AND SOCKET EXPANSION JOINTS, 36 INCH	2.00 EACH		
3440	1140-0660000E DUCTILE IRON PIPE BLIND FLANGE, 12 INCH	1.00 EACH		
3450	1140-0660000E DUCTILE IRON PIPE BLIND FLANGE, 24 INCH	1.00 EACH		
3460	1140-0660000E DUCTILE IRON PIPE BLIND FLANGE, 36 INCH	1.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659

PROJECT: OR22: CENTER ST BRIDGE (PHASE 1)

PROJECT KEY: 21705

ADDENDUM NO.: 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
3470	1140-0660000E DUCTILE IRON PIPE COUPLING, 12 INCH	1.00 EACH		
3480	1140-0660000E DUCTILE IRON PIPE COUPLING, 24 INCH	1.00 EACH		
3490	1140-0660000E DUCTILE IRON PIPE COUPLING, 36 INCH	3.00 EACH		
3500	1140-0660000E DUCTILE IRON PIPE FLANGED COUPLING ADAPTER, 24 INCH	4.00 EACH		
3510	1140-0660000E DUCTILE IRON PIPE FLANGED COUPLING ADAPTER, 36 INCH	8.00 EACH		
3520	1140-0670000E DUCTILE IRON PIPE REDUCER, 16 INCH	3.00 EACH		
3530	1140-0670000E DUCTILE IRON PIPE REDUCER, 24 INCH	3.00 EACH		
3540	1140-0670000E DUCTILE IRON PIPE REDUCER, 36 INCH	5.00 EACH		
3550	1150-0100000E 10 INCH GATE VALVE	1.00 EACH		
3560	1150-0100000E 12 INCH GATE VALVE	5.00 EACH		
3570	1150-0100000E 24 INCH BUTTERFLY VALVE	1.00 EACH		
3580	1150-0100000E 36 INCH BUTTERFLY VALVE	1.00 EACH		
3590	1150-0100000E 6 INCH GATE VALVE	1.00 EACH		
3600	1150-0600000E 1 INCH AIR RELEASE ASSEMBLY	8.00 EACH		

**OREGON DEPARTMENT OF TRANSPORTATION
BID SCHEDULE**

CONTRACT NO.: 15659 **PROJECT:** OR22: CENTER ST BRIDGE (PHASE 1)
PROJECT KEY: 21705 **ADDENDUM NO.:** 0

ITEM NO	ITEM DESCRIPTION	QUANTITY AND UNITS	UNIT PRICE	BID AMOUNT
			(IN FIGURES)	(IN FIGURES)
3610	1150-0600000E 4 INCH AIR VACUUM VALVE ASSEMBLY	4.00 EACH		
3620	1160-0100000E HYDRANT ASSEMBLIES	1.00 EACH		
3630	1999-9Z90000A CONCRETE PIPE SUPPORTS	ALL LUMP SUM		
3640	1999-9Z90000A HEAT TRACE SYSTEM, COMPLETE	ALL LUMP SUM		
3650	1999-9Z90000A PIPE REMOVAL	ALL LUMP SUM		
3660	1999-9Z90000A PIPE SUPPORT, HANGER, AND WALKWAY REMOVAL	ALL LUMP SUM		
3670	1999-9Z90000A STEEL ACCESS PANELS	ALL LUMP SUM		
3680	1999-9Z90000A STEEL PIPE HANGERS	ALL LUMP SUM		
3690	1999-9Z90000E PIPE ROLLERS	45.00 EACH		
3700	1999-9Z90000E PIPE SADDLES "A"	3.00 EACH		
3710	1999-9Z90000E PIPE SADDLES "B"	2.00 EACH		
3720	1999-9Z90000E PIPE SADDLES "C"	7.00 EACH		
3730	1999-9Z90000F MAINTENANCE WALKWAYS	1,570.00 FOOT		

TOTAL BID: _____

