

INDEX OF SHEETS	
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A02	Index Of Sheets Cont.
A03	Std. Dwg. Nos.
AD01	Survey Control Data

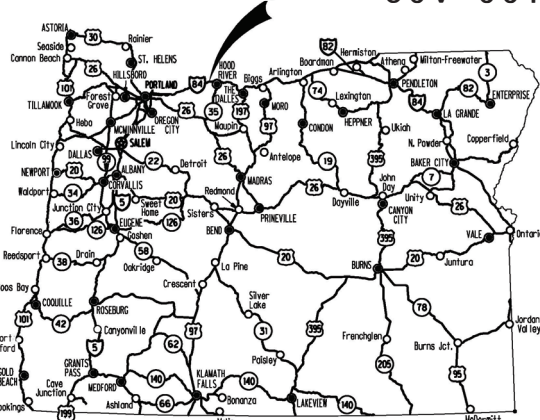
STATE OF OREGON
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING,
AND ROADSIDE DEVELOPMENT

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY

HOOD RIVER COUNTY
NOVEMBER 2026



Overall Length Of Project - 0.60 Miles

ATTENTION:
Oregon Law Requires You To Follow Rules Adopted
By The Oregon Utility Notification Center.
Those Rules Are Set Forth In OAR 952-001-0001
Through OAR 952-001-0100.
You May Obtain Copies Of The Rules By Calling
The Center (Note: The Telephone Number For
The Oregon Utility Notification Center Is
(503) 232-1987).

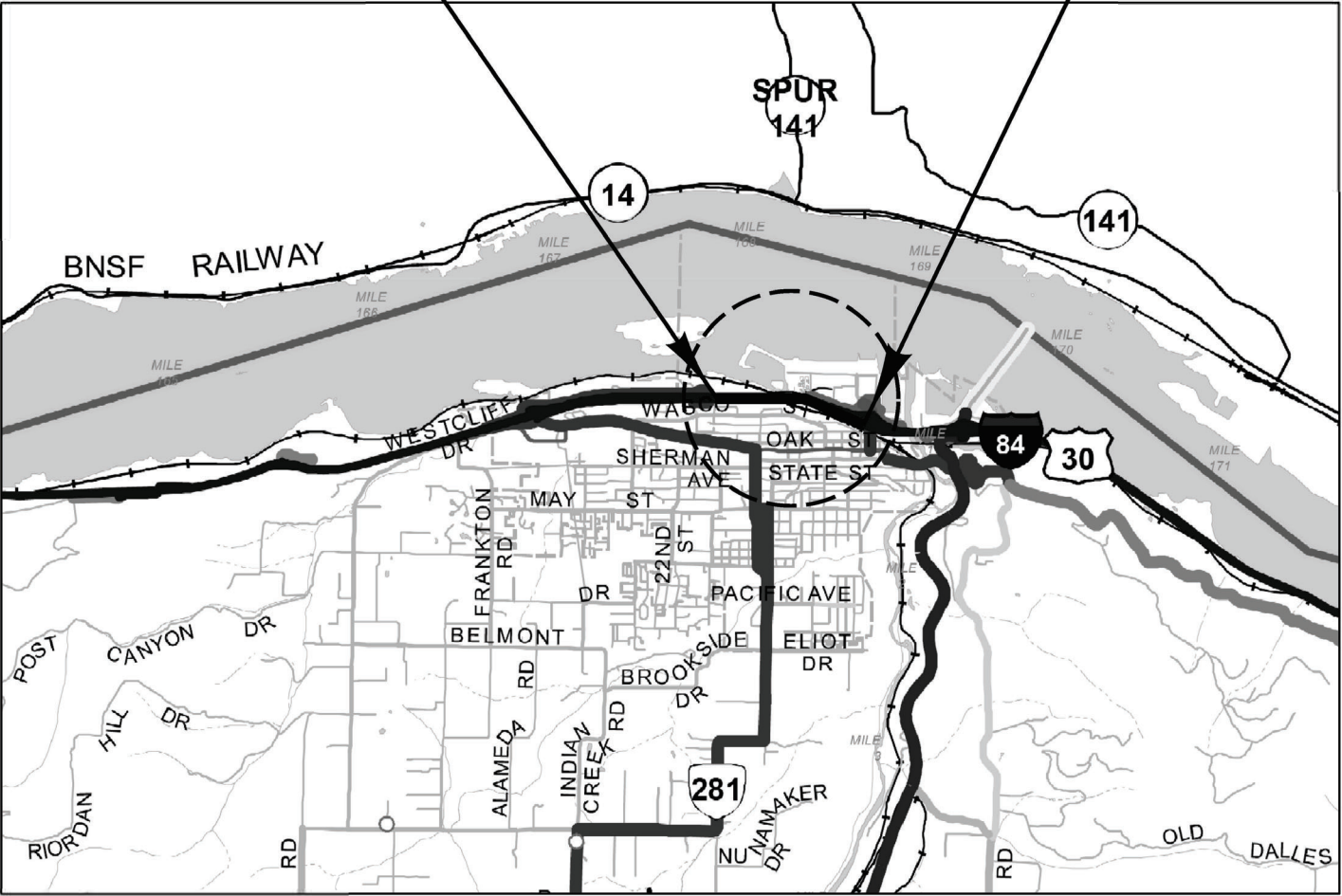


BEGINNING OF PROJECT

STA. "Lwb2 " 1146+05.29 (MP 63.08)

END OF PROJECT

STA. "Lwb2 " 1177+64.27 (MP 63.68)



T. 3 N., R. 10 E., W.M.



OREGON TRANSPORTATION COMMISSION

- Julie Brown CHAIR
- Lee Beyer VICE CHAIR
- Jeff Baker COMMISSIONER
- Phil Chang COMMISSIONER
- Don Shanklin COMMISSIONER
- Chris Warner INTERIM DIRECTOR OF TRANSPORTATION

These plans were developed using ODOT design standards.
Exceptions to these standards, if any, have been submitted
and approved by the ODOT Chief Engineer or their delegated
authority.

Approving Authority: PUCCI Christopher
Signature & date
Christppher Pucci, PLS
Tech Center Manager, Region 1
Print name and title
PELTZ Tova R
Concurrence by ODOT Chief Engineer

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	S002(245)	A01

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Standard Drawings located on the web at:
<http://www.oregon.gov/ODOT/Engineering/Pages/Standards.aspx>

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	SEE SHEET A01	A02

Standard Dwg. Nos.

- RD100 – Mailbox Support
- RD140 – Roadway Cross Slopes Superelevated Sections
- RD150 – Slope Rounding
- RD160 – Maintenance Pad Details
- RD300 – Trench Backfill, Bedding, Pipe Zone and Multiple Installations
- RD302 – Street Cut
- RD306 – Concrete Encasement, Cradle, and Cap Details
- RD308 – Bore Casing Detail
- RD312 – Subsurface Drain
- RD316 – Sloped Ends for Metal Pipe
- RD317 – Culvert Embankment Protection and Riprap Pads
- RD318 – Sloped Ends for Concrete Pipe
- RD319 – Miscellaneous Culvert Details
- RD320 – Paved End Slope for Culverts 60" Maximum Pipe Size
- RD325 – Coupling Bands for Corrugated Metal Pipe
- RD326 – Coupling Bands for Corrugated Metal Pipe
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- RD335 – Standard Storm Sewer Manhole
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- RD380 – Fill Height Tables for Aluminum & Steel Corrugated Pipe
- RD384 – Fill Height Tables for Aluminum & Steel Spiral Rib Pipe
- RD386 – Fill Height Table for Circular Concrete Pipe
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- RD399 – Stormwater Treatment and Storage Facility Field Markers
- RD400 – Guardrail and Metal Median Barrier (29" Rail Height)
- RD402 – Midwest Guardrail System Types
- RD403 – Midwest Guardrail System Wood Post and Block
- RD405 – Guardrail and Metal Median Barrier Parts (29" Rail Height)
- RD406 – Placement of Guardrail on Slopes
- RD409 – Thrie Beam Guardrail
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- RD415 – Guardrail and Metal Median Barrier Parts (29" Rail Height)
- RD417 – Midwest Guardrail System End Sections
- RD420 – Midwest Guardrail System Non-Flared Energy-Absorbing Terminal
- RD436 – Midwest Guardrail System Buried In Backslope (BIB) Terminal
- RD438 – Midwest Guardrail System Downstream Anchor Terminal (DAT)
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- RD501 – 32" Concrete Barrier Type "F" Precast Reinforcing
- RD503 – Precast Concrete Barrier Pin and Loop Assembly For Temporary Installation And Maintenance Purposes Only
- RD515 – Median Barrier Anchoring Details For Temporary Installation And Maintenance Purposes Only
- RD516 – Securing Concrete Barrier to Roadway For Temporary Installation And Maintenance Purposes Only

- RD526 – Standard Concrete Barrier Buried In Backslope
- RD530 – Guardrail Transition to Concrete Barrier For Temporary Installation And Maintenance Purposes Only
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- RD570 – Guardrail Transition to Tall Concrete Barrier For Temporary Installation And Maintenance Purposes Only
- RD580 – Midwest Guardrail System Transition to Concrete Barrier
- RD610 – Asphalt Concrete Pavement (ACP) Details
- RD615 – Surface Edge Details
- RD701 – Drainage Curbs
- RD815 – Chain Link Fence
- RD1000 – Construction Entrances
- RD1005 – Check Dams Type 1, 3 and 4
- RD1010 – Inlet Protection Type 2, 3, 7, 10 and 11
- RD1015 – Inlet Protection Type 4
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- TM201 – Miscellaneous Sign Placement Details
- TM204 – Flag Board Mounting Details
- TM212 – Signing Details Oregon Route Signs
- TM220 – Multi-Post Installations With Auxiliary Signs
- TM221 – Signing Details Milepost Markers
- TM222 – Installation Details Milepost Marker Posts
- TM225 – Exit Number And Gore Signing Details
- TM230 – Mounting Details For Removable Legend 4" Through 8" Letters & Numbers
- TM231 – Mounting Details For Removable Legend 10" Through 12" Letters & Numbers
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- TM521 – Durable & High Performance Pavement Markings Surface & Groove Installed Non-Profiled
- TM547 – Freeway Entrance Ramp Pavement Markings
- TM560 – Alignment Layout: General
- TM570 – Traffic Delineators
- TM571 – Traffic Delineators Steel Post Details
- TM575 – Traffic Delineator Installation For Freeways
- TM600 – Multi-Post Breakaway Sign Supports Notes
- TM601 – Multi-Post Breakaway Sign Supports Details
- TM602 – Triangular Base Breakaway Multi-Directional Slip Base Design
- TM635 – Breakaway Sign & Luminaire Supports – Support Location Guidelines
- TM670 – Wood Post Sign Supports
- TM671 – 3 Second Gust Wind Speed Map
- TM675 – Extruded Aluminum Panels
- TM676 – Sign Attachments

- TM677 – Sign Mounts
- TM681 – Perforated Steel Square Tube (PSST) Sign Support Installation
- TM687 – Perforated Steel Square Tube (PSST) Anchor Foundation
- TM688 – Perforated Steel Square Tube (PSST) Slip Base Foundation
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- TM820 – Temporary Barricades
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- TM822 – Temporary Sign Supports
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- TM831 – Temporary Impact Attenuators
- TM833 – Temporary Impact Attenuators
- TM840 – Closure Details
- TM861 – Freeway Sections
- TM862 – Freeway Sections
- TM880 – Freeway or Divided Highway Speed Reduction (Paving Operations)

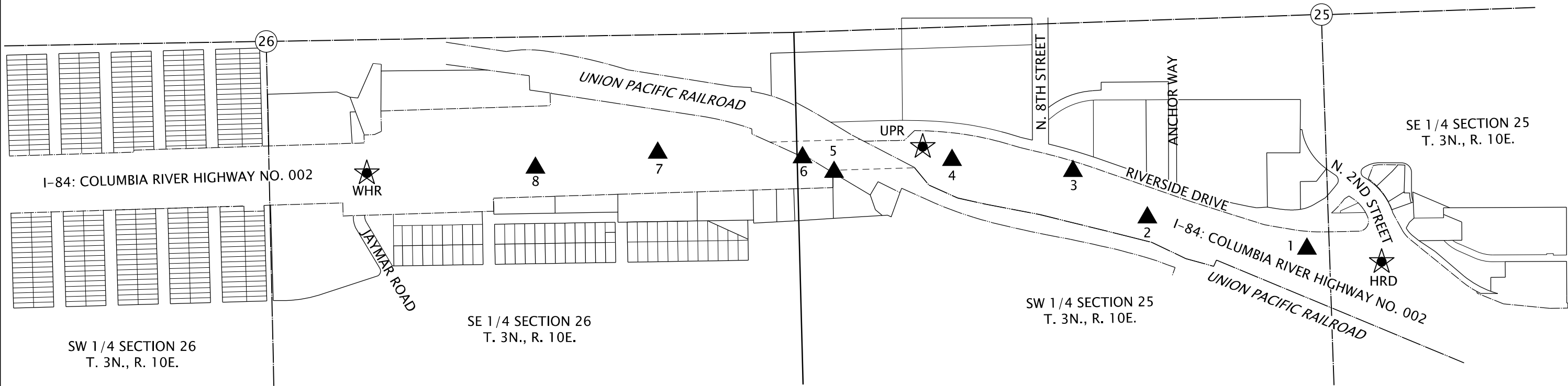
R/W Map No. RW10017M



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	SEE SHEET A01	A03

Standard Drawings located on the web at:
<http://www.oregon.gov/ODOT/Engineering/Pages/Standards.aspx>

SECTIONS 25 AND 26, T. 3N., R. 10E., W.M.



LEGEND

★

SET GPS POINT

▲

SET NETWORK POINT

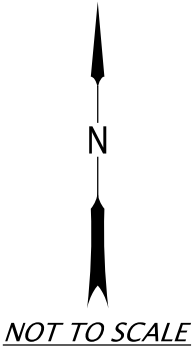
NOTES:

COORDINATE SYSTEM:
OREGON COORDINATE REFERENCE SYSTEM (OCRS)
COLUMBIA RIVER WEST ZONE

HORIZONTAL DATUM:
NAD 83 (2011) EPOCH 2010.0

VERTICAL DATUM:
NAVD 88; GPS DERIVED (GEOID 12A)

FIELD VERIFY ALL CONTROL BEFORE USE!



NETWORK CONTROL POINT TABLE

POINT NO.	OCRS NORTHING	OCRS EASTING	ELEVATION	DESCRIPTION AND REFERENCE DOCUMENTS
1	537897.897	931803.544	102.70'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 1", FLUSH
2	538053.993	931009.140	102.05'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 2", FLUSH
3	538285.319	930639.162	107.49'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 3", FLUSH
4	538340.740	930037.817	126.80'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 4", FLUSH
5	538279.979	929452.208	146.12'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 5", FLUSH
6	538353.220	929294.178	141.85'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 6", FLUSH
7	538376.911	928573.365	161.09'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 7", FLUSH
8	538302.219	927964.580	176.25'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL 8", FLUSH
WHR	538275.011	927125.566	199.20'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL WHR", FLUSH
UPR	538407.439	929891.387	126.77'	SET 5/8" IRON ROD WITH 1-1/2" BRASS CAP STAMPED "ODOT CONTROL UPR", FLUSH
HRD	537833.377	932173.550	118.57'	SET 1-3/16" COPPER ALLOY DISK STAMPED "ODOT CONTROL HRD", FLUSH IN CONCRETE

REGISTERED PROFESSIONAL LAND SURVEYOR

Digitally Signed

2026.08.03 09:33:02 -07'00'

OREGON SEPTEMBER 10, 2019 JAMES PETER WASCH 93999PLS

RENEWS: 06-30-2028

OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

Survey Manager: Chris Pucci, PLS

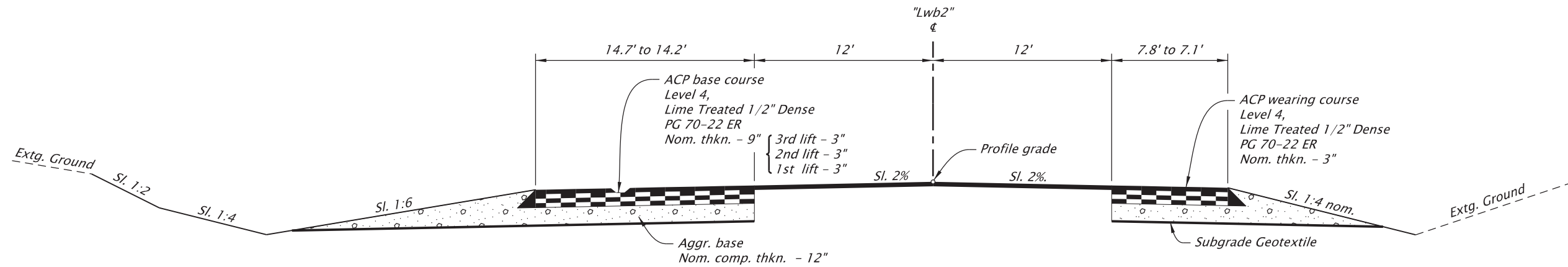
Lead Surveyor: James Wasch, PLS

Project Surveyor: James Wasch, PLS

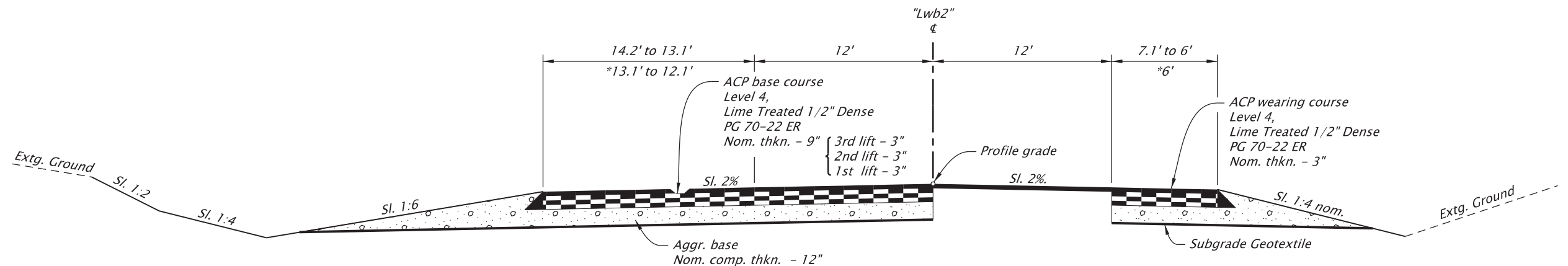
Drafter: David Hilkern

SURVEY CONTROL DATA

SHEET NO. AD01



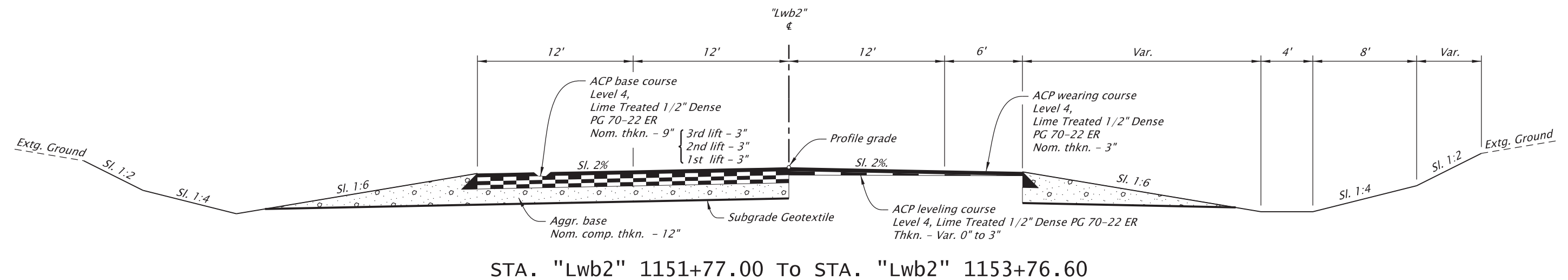
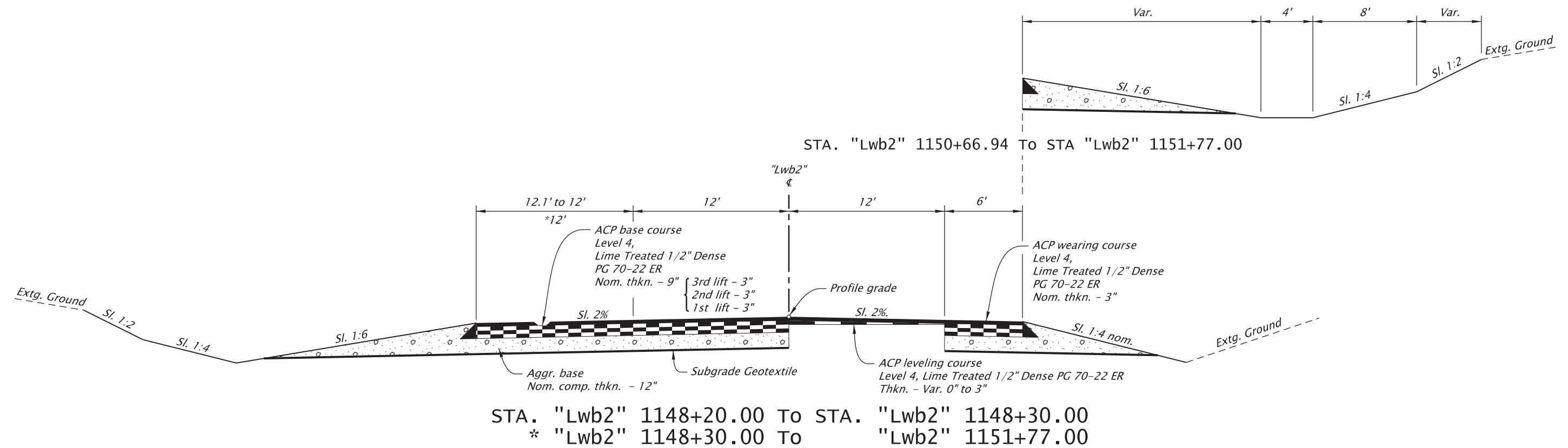
STA. "Lwb2" 1146+05.29 To STA. "Lwb2" 1146+74.27



STA. "Lwb2" 1146+74.27 To STA. "Lwb2" 1147+60.00
* "Lwb2" 1147+60.00 To "Lwb2" 1148+20.00



OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
TYPICAL SECTIONS	
SHEET NO. BA01	



RENEW: 12-31-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUESTOREGON DEPARTMENT
OF TRANSPORTATIONI-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECTCOLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

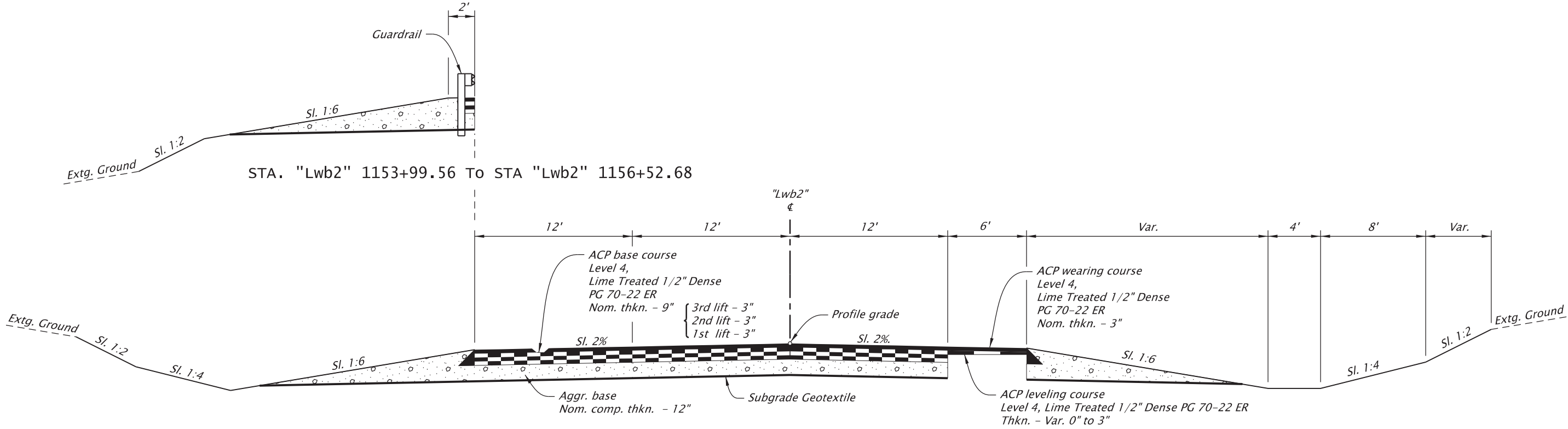
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Checker: Anitha Vazrala

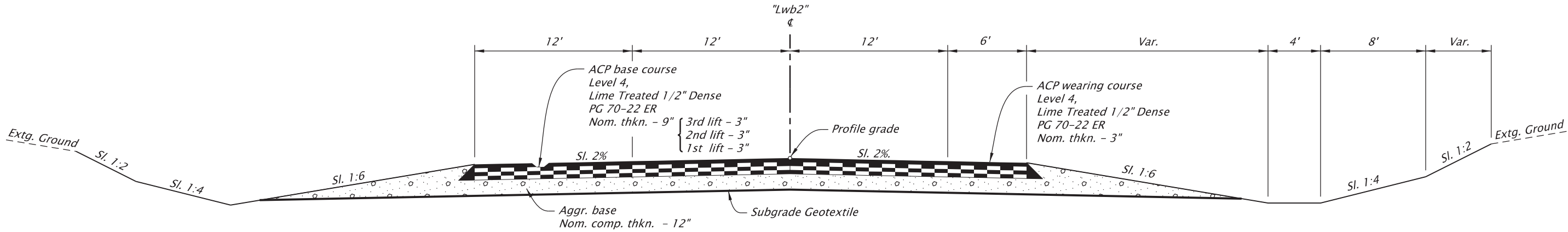
TYPICAL SECTIONS

SHEET NO.

BA02

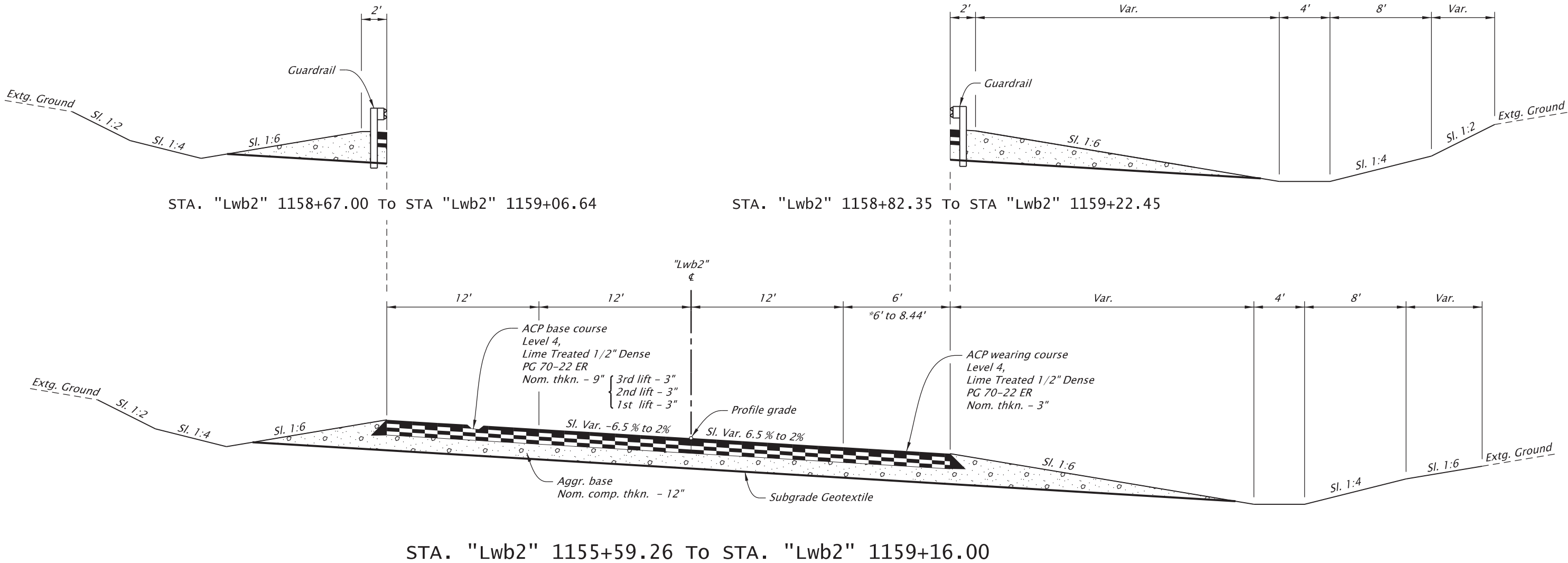


STA. "Lwb2" 1153+76.60 To STA. "Lwb2" 1155+22.18



STA. "Lwb2" 1155+22.18 To STA. "Lwb2" 1155+59.26

 RENEWS: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Chivanna Pot CADD Tech: Sue Cross	Reviewer: Bryan Dahlman Checker: Anitha Vazrala
TYPICAL SECTIONS		SHEET NO. BA03



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

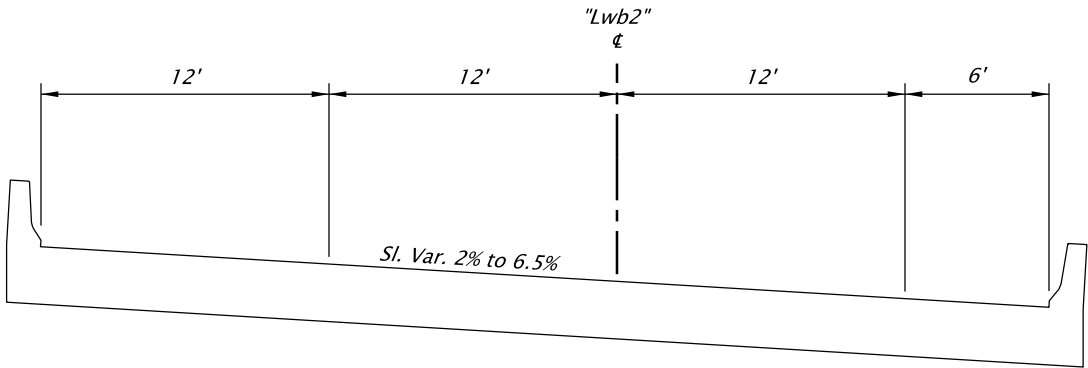
CADD Tech: Sue Cross

Checker: Anitha Vazrala

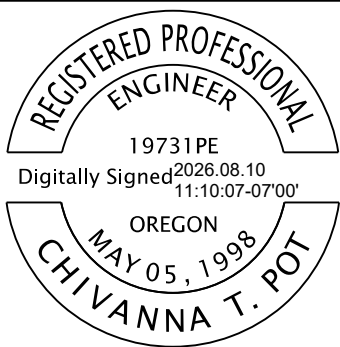
TYPICAL SECTIONS

SHEET NO.

BA04



STA. "Lwb2" 1159+16.00 To STA. "Lwb2" 1159+38.00 (End panel)
STA. "Lwb2" 1159+38.00 To STA. "Lwb2" 1166+98.00 (Structure)
STA. "Lwb2" 1166+98.00 To STA. "Lwb2" 1167+20.00 (End panel)



RENEWES: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



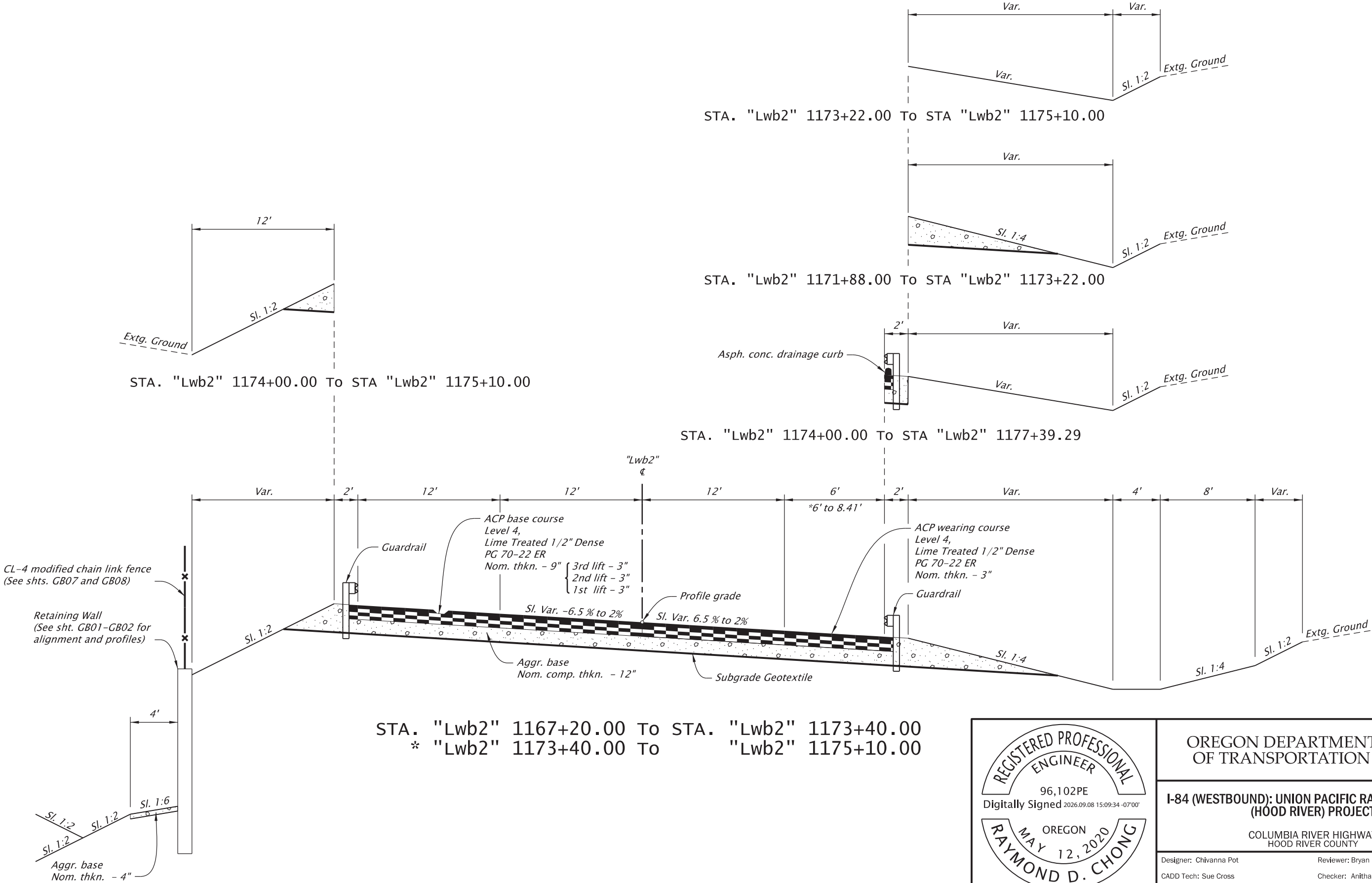
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot Reviewer: Bryan Dahlman
CADD Tech: Sue Cross Checker: Anitha Vazrala

TYPICAL SECTIONS

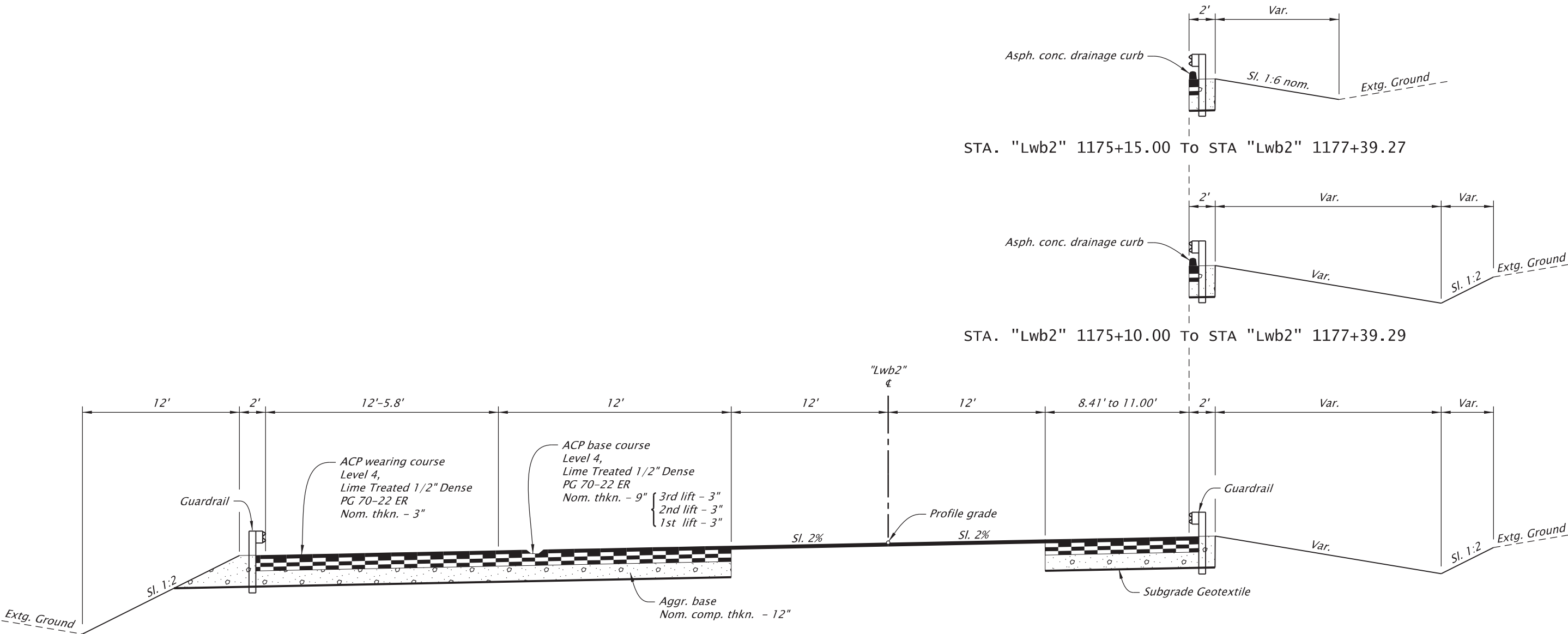
SHEET NO.
BA05



STA. "Lwb2" 1167+20.00 To STA. "Lwb2" 1173+40.00
* "Lwb2" 1173+40.00 To STA. "Lwb2" 1175+10.00



OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
TYPICAL SECTIONS	
SHEET NO. BA06	



STA. "Lwb2" 1175+15.00 To STA "Lwb2" 1177+39.27

STA. "Lwb2" 1175+10.00 To STA "Lwb2" 1177+39.29

STA. "Lwb2" 1175+10.00 To STA. "Lwb2" 1175+25.00
* "Lwb2" 1175+25.00 To "Lwb2" 1176+45.00
** "Lwb2" 1176+45.00 To "Lwb2" 1176+75.00
*** "Lwb2" 1176+75.00 To "Lwb2" 1177+64.27



RENEWS: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION



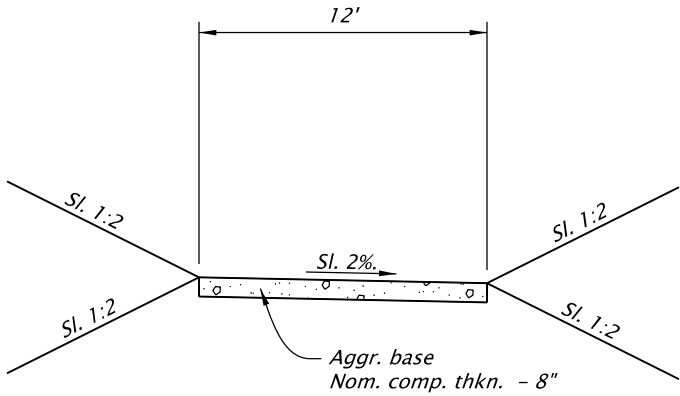
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

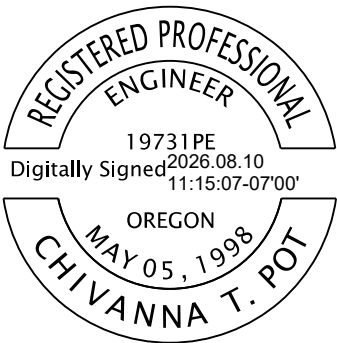
Designer: Chivanna Pot Reviewer: Bryan Dahlman
CADD Tech: Sue Cross Checker: Anitha Vazrala

TYPICAL SECTIONS

SHEET NO.
BA07



STA. "T1" 300+00.00 To STA. "T1" 301+66.87



RENEWS: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



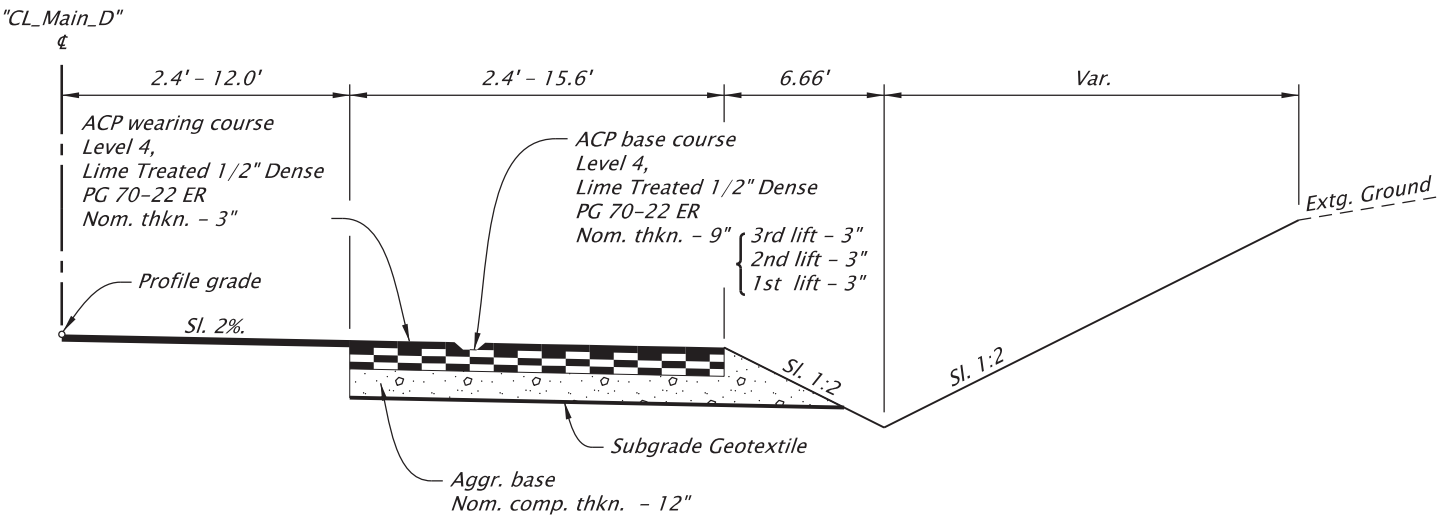
**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

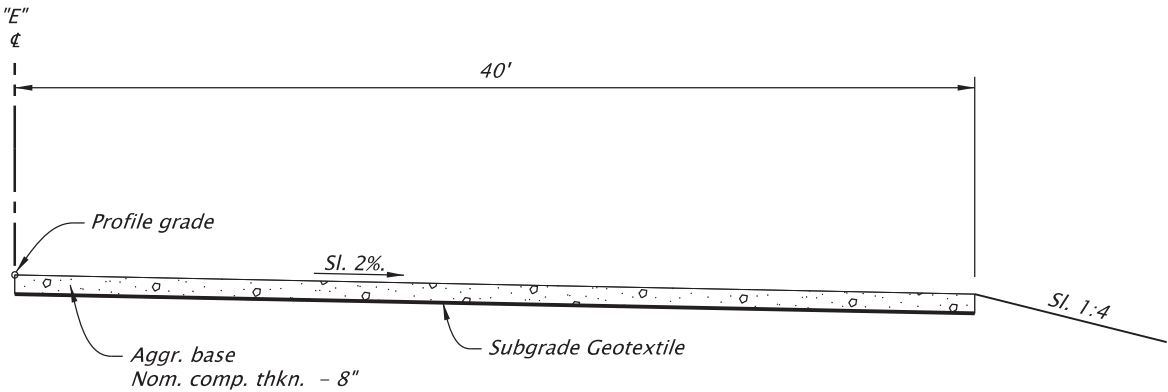
Designer: Chivanna Pot Reviewer: Bryan Dahlman
CADD Tech: Sue Cross Checker: Anitha Vazrala

TYPICAL SECTIONS

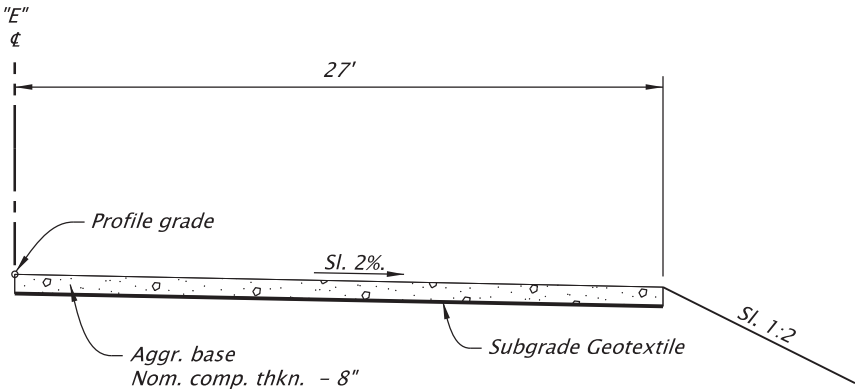
SHEET NO.
BA08



STA. "CL_Main_D" 10+00.00 To STA. "CL_Main_D" 26+31.00

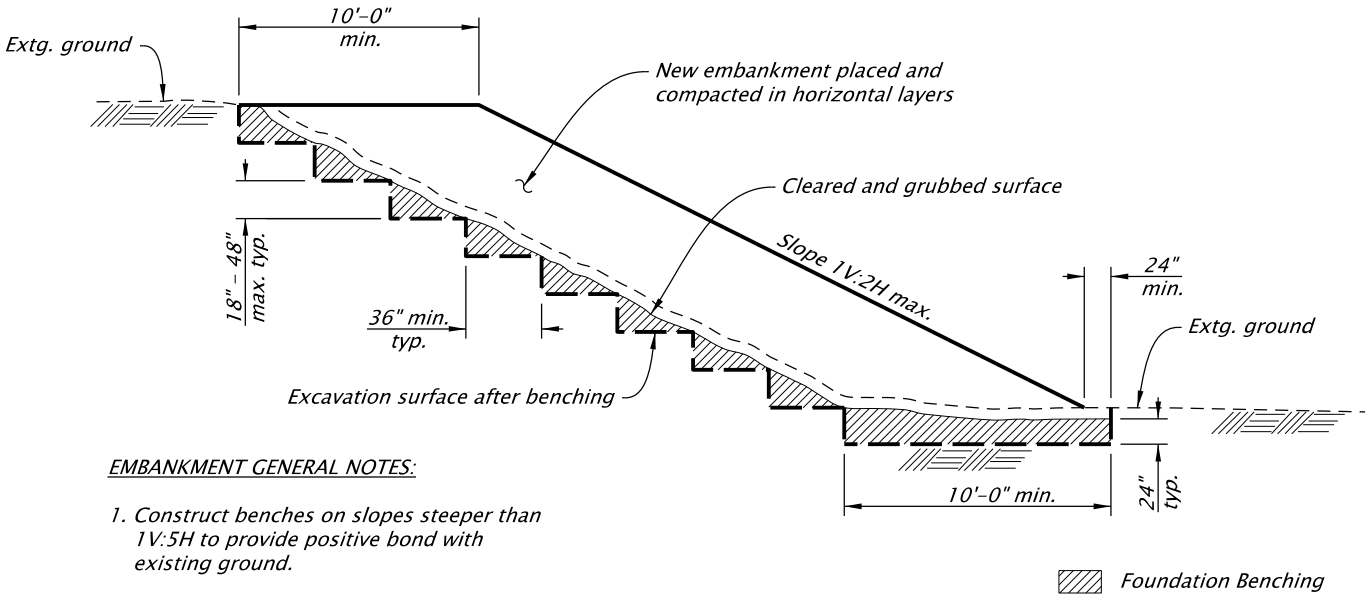


STA. "E" 10+00.00 To STA. "E" 10+60.00



STA. "E" 10+60.00 To STA. "E" 12+80.00

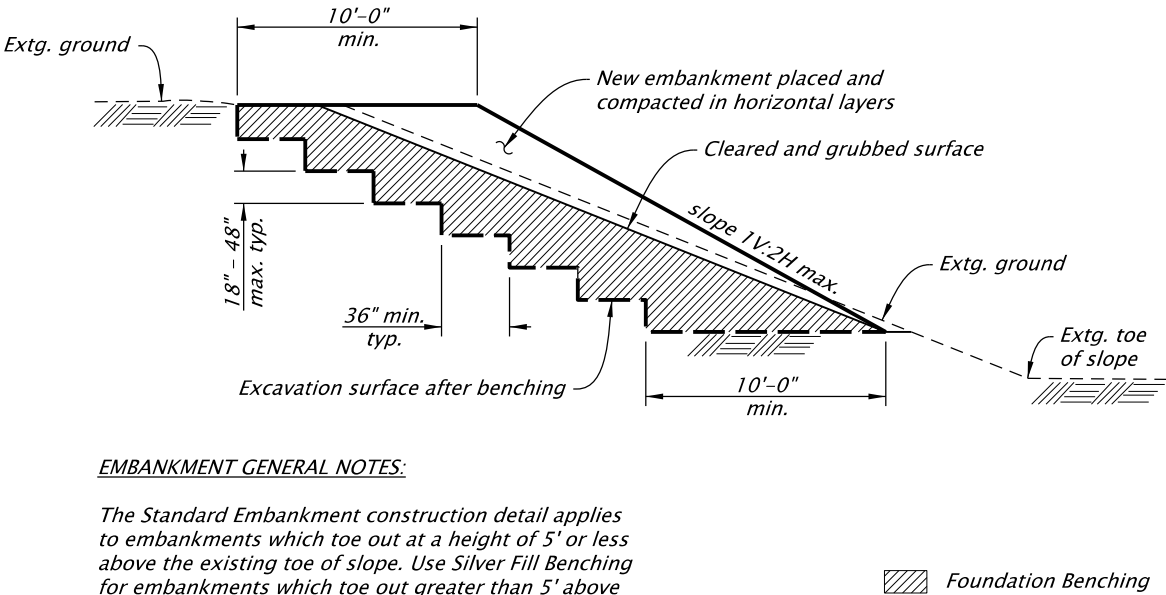
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	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala	
TYPICAL SECTIONS		
SHEET NO. BA09		



EMBANKMENT GENERAL NOTES:

- 1. Construct benches on slopes steeper than 1V:5H to provide positive bond with existing ground.
- 2. Benching work is incidental to embankment construction.

GENERAL EMBANKMENT CONSTRUCTION
(Not to scale: Diagrammatic only)



EMBANKMENT GENERAL NOTES:

The Standard Embankment construction detail applies to embankments which toe out at a height of 5' or less above the existing toe of slope. Use Silver Fill Benching for embankments which toe out greater than 5' above the existing toe of slope.

SLIVER FILL BENCHING DETAIL
(Not to scale: Diagrammatic only)

Note:
Slopes are shown as Vertical to Horizontal.

	OREGON DEPARTMENT OF TRANSPORTATION		
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
	Designer: Palo Giscombe	Reviewer: Brad L. Hayes	
CADD Tech: Antha Vazrala	Checker: N/A		
DETAILS			SHEET NO. BB01

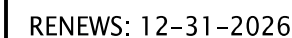
TEMPORARY EASEMENT



SHEET NO.
BB02



- ① Sta. "CL_Main_D" 11+06.66 to
Sta. "CL_Main_D" 26+69.08 Rt.
Const. temporary conc. shldr. barrier - 1562.5'
- ② Sta. "CL_Main_D" 11+41.15 to
Sta. "CL_Main_D" 26+16.15 Rt.
Const. temporary conc. shldr. barrier - 1475.0'
- ③ Remove pvmt., shown thus:

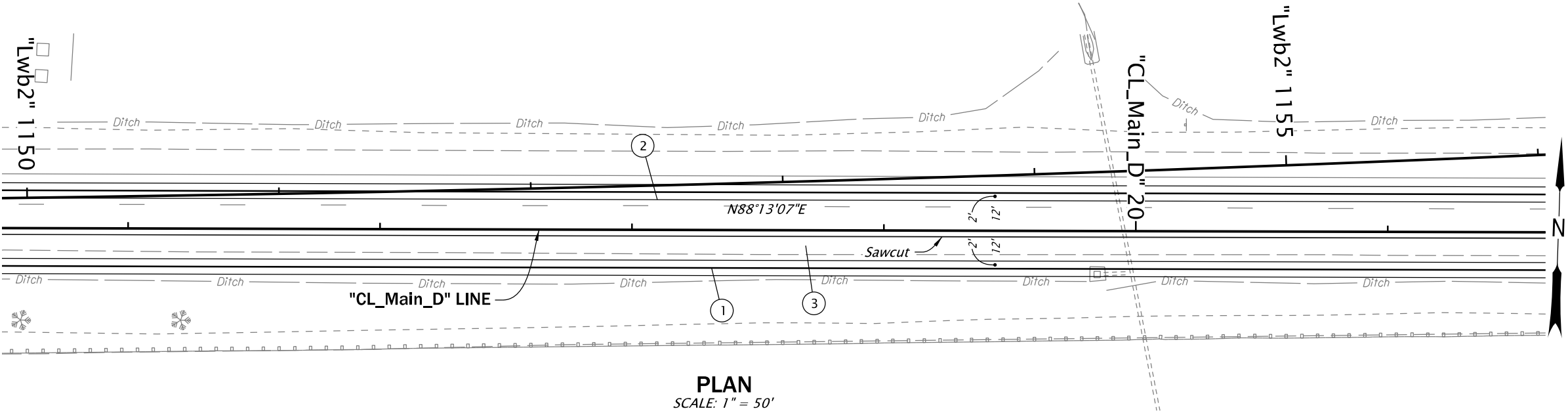


COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Reviewer: Bryan Dahlman
Checker: Anitha Vazrala

SHEET NO.
BB03

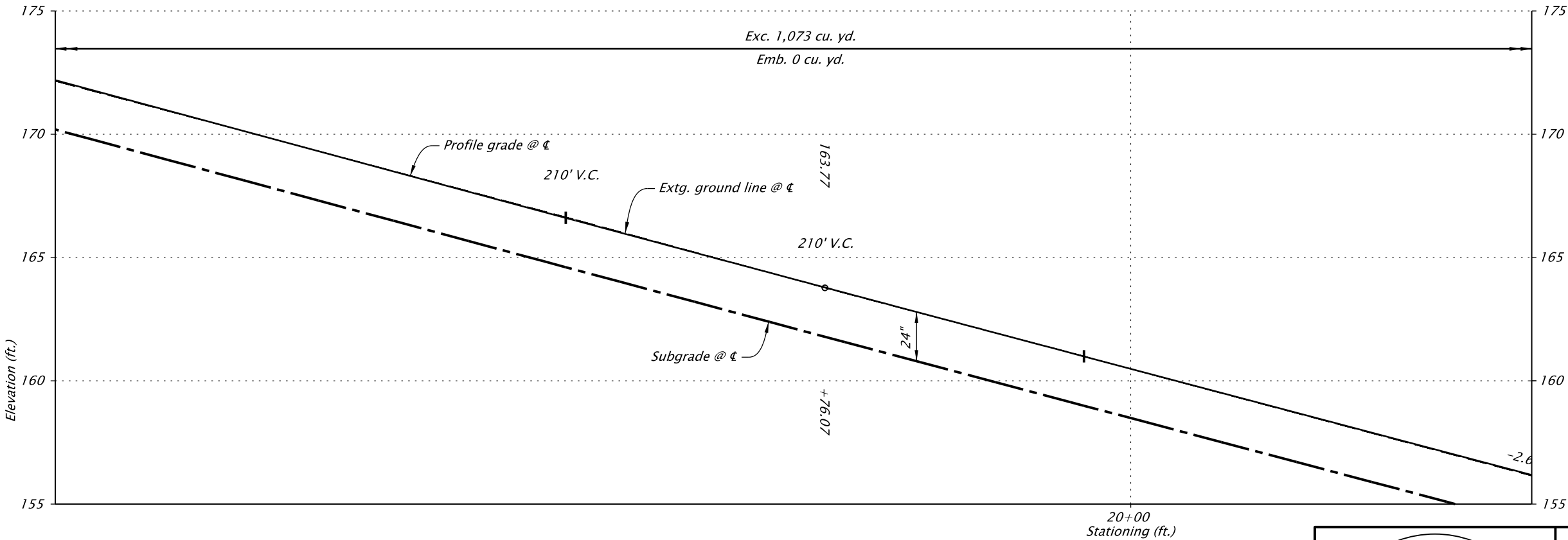
DIVERSION ALIGNMENT



CONSTRUCTION NOTES

- 1 See sht. BB03
Const. temporary conc. shldr. barrier
- 2 See sht. BB03
Const. temporary conc. shldr. barrier
- 3 Remove pvmt., shown thus:

PLAN
SCALE: 1" = 50'



PROFILE "CL_Main_D" LINE
SCALE: 1" = 50'



RENEWES: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

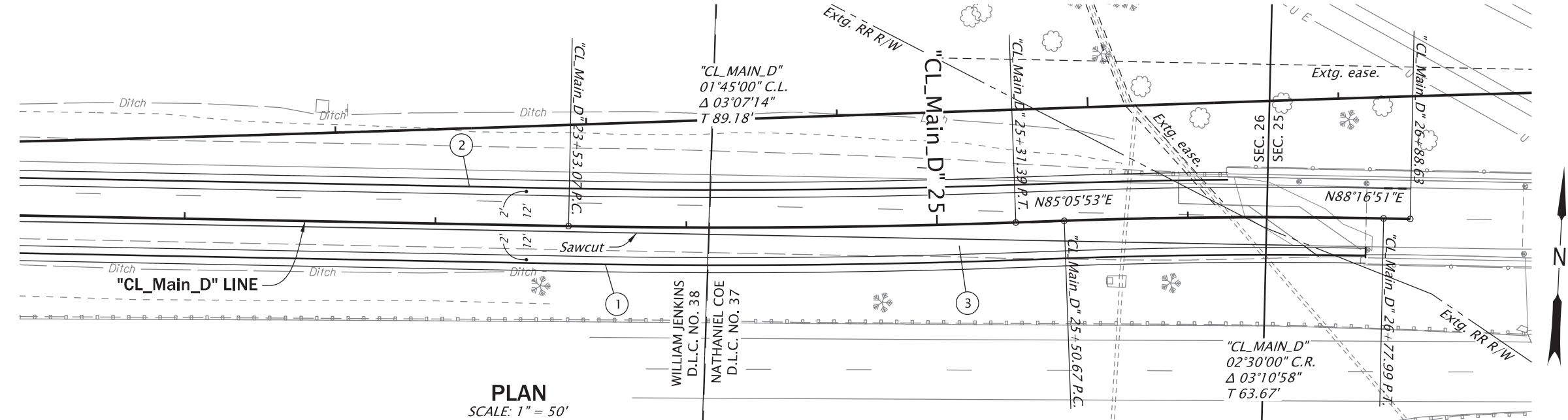
CADD Tech: Sue Cross

Checker: Anitha Vazrala

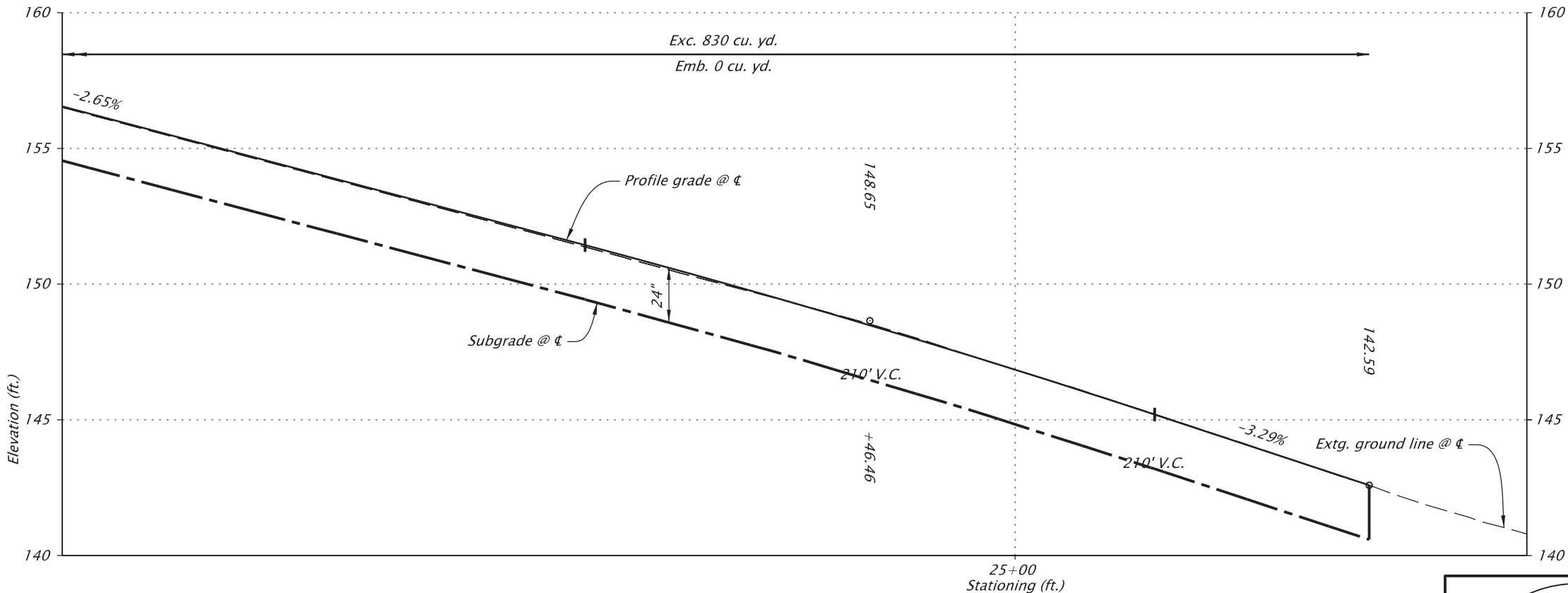
DETAILS

SHEET NO.
BB04

DIVERSION ALIGNMENT



PLAN
SCALE: 1" = 50'



PROFILE "CL_Main_D" LINE
SCALE: 1" = 50'

CONSTRUCTION NOTES

- 1 See sht. BB03
Const. temporary conc. shldr. barrier
- 2 See sht. BB03
Const. temporary conc. shldr. barrier
- 3 Remove pvmt., shown thus:



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

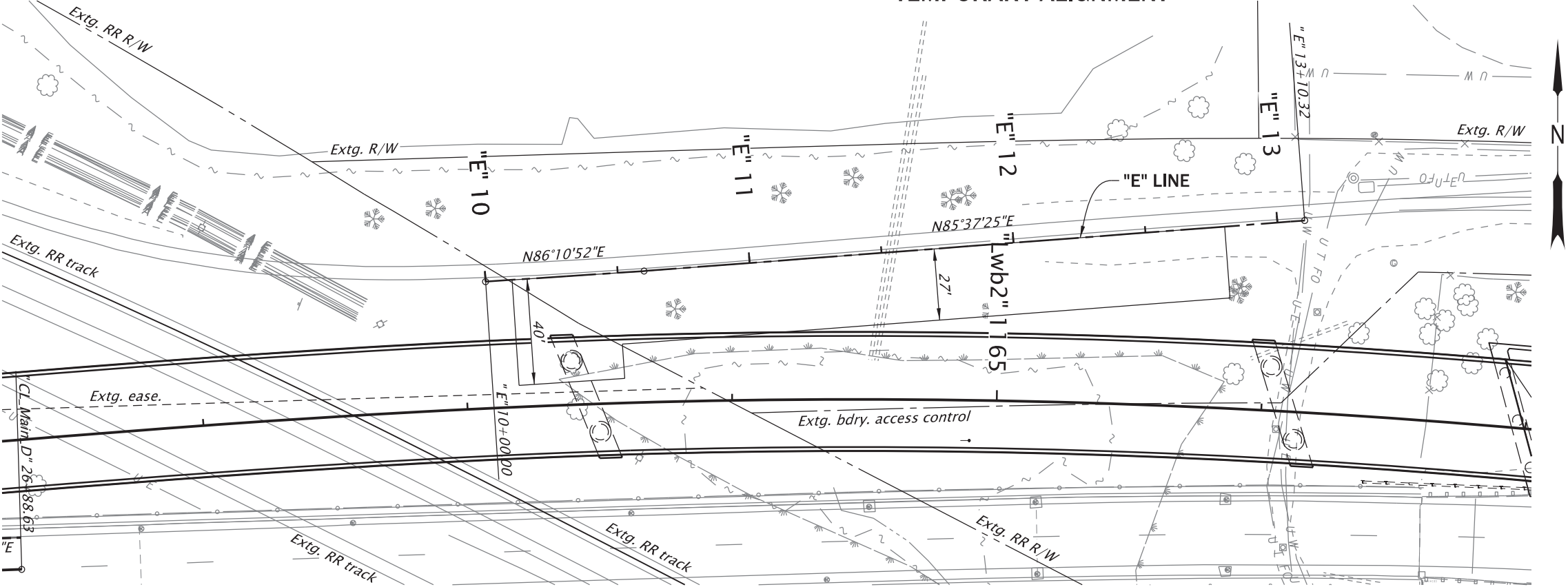
Checker: Anitha Vazrala

DETAILS

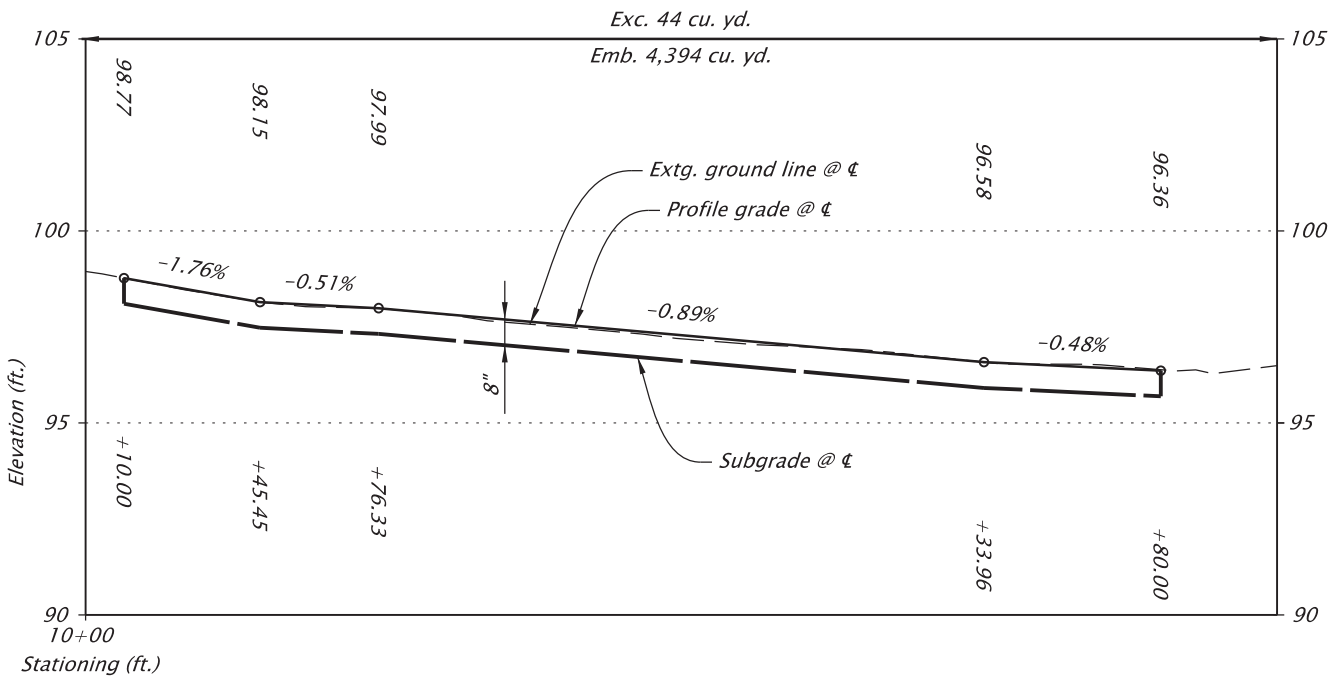
SHEET NO.

BB05

TEMPORARY ALIGNMENT



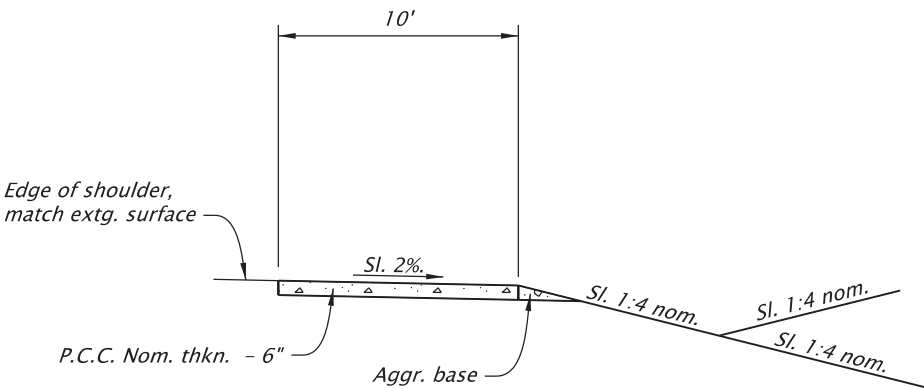
PLAN
SCALE: 1" = 50'



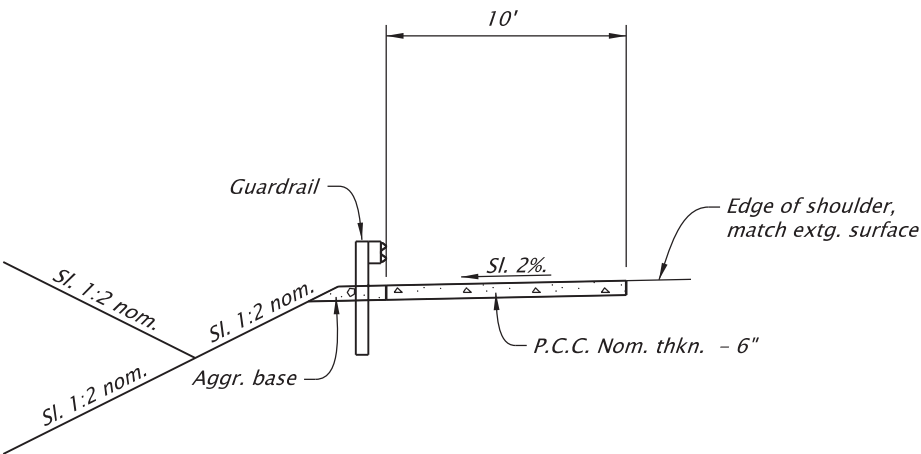
PROFILE "E" LINE
SCALE: 1" = 50'



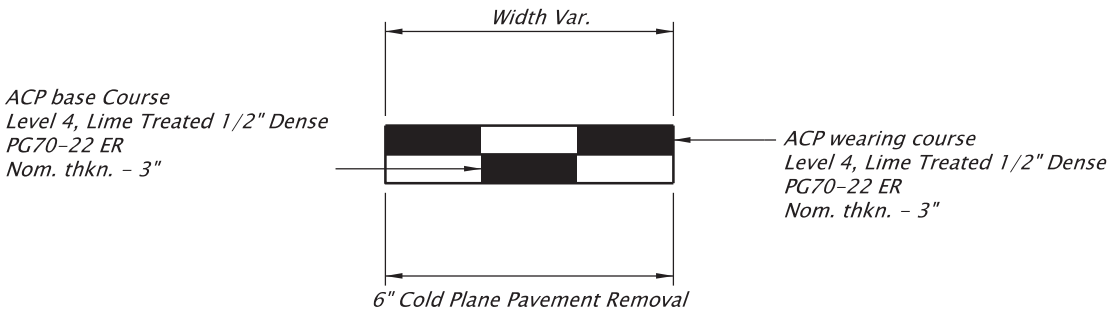
OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
DETAILS	
SHEET NO. BB06	



MAINTENANCEN PAD 1
SCALE: NTS



MAINTENANCEN PAD 2
SCALE: NTS



ACP PAVEMENT AT PROJECT ENDS
SCALE: NTS

	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Chivanna Pot CADD Tech: Sue Cross	Reviewer: Bryan Dahlman Checker: Anitha Vazrala
DETAILS		SHEET NO. BB07

Bidding Plans

[illegible]

GENERAL NOTES:

7. A check (✓) indicates column heading applies.

2. A new pipe culvert installation shall be of like material throughout.

3. Extension of existing metal culverts may be of unlike metal or corrugations. For connecting details, see Std. Dwg. No. RD326.

4. Dimensions shown are nominal.

5. All pipes shall conform to the AASHTO specification applicable for the type of material and the diameter of the pipe involved.
column heading applies.

FOOTNOTES:

- ① Design height of cover is the critical design height used to select pipe materials. The height of cover for any given run of pipe may vary. Design height of cover shall be measured to subgrade.

- ② Cross-sectional dimensions may vary with different materials. When galvanized iron or steel and aluminum are acceptable alternates use a separate line for each type of material.

- ③ Cross-sectional shape of pipe normal to longitudinal axis, prior to loading
 A = Pipe - Arch
 R = Round
 E = Elliptical (5% nominal elongation)

- ④ Abbreviations for protective coatings for metal pipe
PM = Polymeric, 10 Mil. thkn. coated both sides
PO = Polyethylene inside lining, polymeric outside
U = Uncoated
CIM = Chevron industrial membrane
Ep = Epoxy coated

- ⑤ Abbreviations for existing pipe materials

- AB = Asbestos cement
Al = Corrugated aluminum
Co = Concrete
Pl = Plastic
St = Corrugated steel
X = Other material, see remarks column

- RD300 Trench Backfill, Bedding, Pipe Zone And Multiple Installations
RD302 Street Cut
RD304 Arch Pipe Backfill/Compaction
RD306 Concrete Encasement, Cradle, and Cap Details
RD308 Bore Casing Detail
RD310 Shallow/Deep Trench Service Connection, Blocking and Markers
RD312 Subsurface Drain
RD316 Sloped Ends For Metal Pipe
RD317 Culvert Embankment Protection And Riprap Pads
RD318 Sloped Ends For Concrete Pipe
RD319 Miscellaneous Culvert Details
RD320 Paved End Slope For Culverts 60" Maximum Pipe Size
RD321 Paved End Slope With Removable Safety Bar(s)
RD322 Safety End Section For Metal Pipe
RD324 Safety End Section For Concrete, PVC, HDPE & Polypropylene Pipe
RD325 Coupling Bands For Corrugated Metal Pipe
RD326 Coupling Bands For Corrugated Metal Pipe
RD327 Coupling Bands For Corrugated Metal Pipe
RD328 Slotted CMP Drain Details
RD330 Pipe Slope Anchors – Metal
RD332 Pipe Slope Anchors – Concrete
RD334 Locator Post
RD335 Standard Storm Sewer Manhole
RD336 Standard Manhole Detail
RD338 Standard Sanitary Sewer Manhole
RD339 Pipe To Structure Connections
RD340 Storm Sewer Pollution Control Manhole
RD342 Shallow Manholes
RD343 24" Manholes
RD344 Standard Manhole Base Section
RD345 Pipe To Manhole Connections
RD346 Large Precast Manhole

- | | |
|-------|--|
| RD348 | Manhole With Inlet |
| RD350 | Sanitary Sewer Pipe Inside Drop Connection for Manholes |
| RD352 | Outside Drop Manholes |
| RD354 | Carry Through Manhole – Storm |
| RD356 | Manhole Covers And Frames |
| RD358 | Manhole Slope Protectors |
| RD360 | Manhole Frame Adjustment |
| RD362 | Sanitary Cleanout |
| RD363 | Gutter Transition At Inlet |
| RD364 | Concrete Inlets Type G-1, G-2, G-2M, and G-2MA |
| RD365 | Frames & Grates For Concrete Inlets |
| RD366 | Concrete Inlets Type CG-1, CG-2 |
| RD367 | Curb Inlet Channel |
| RD368 | Concrete Inlets Type M-E, M-O, B And B-SL |
| RD370 | Ditch Inlet Type D |
| RD371 | Concrete Inlet Base Type CG-3 |
| RD372 | Concrete Inlet Top, Option 1 Type CG-3 |
| RD373 | Concrete Inlet Top, Option 2 Type CG-3 |
| RD374 | Area Drainage Basin Or Field Inlet |
| RD376 | Miscellaneous Drainage Structures Siphon Box, Inlet Cap & Inlet Adjustment |
| RD378 | Type "3" Catch Basin, Frame and Grate |
| RD380 | Fill Height Tables For Aluminum & Steel Corrugated Pipe |
| RD382 | Fill Height Tables For Aluminum & Steel Arch Pipe |
| RD384 | Fill Height Tables For Aluminum & Steel Spiral Rib Pipe |
| RD386 | Fill Height Table For Circular Concrete Pipe |
| RD388 | Fill Height Tables For PVC Pipe |
| RD390 | Fill Height Table For Corrugated HDPE Pipe |
| RD391 | Fill Height Table For Steel Reinforced HDPE Pipe |
| RD393 | Fill Height Tables For Polypropylene Pipe |
| RD398 | Culvert ID Marker |
| RD399 | Stormwater Treatment and Storage Facility Field Markers |



RENEWS: 12-31-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

OREGON DEPARTMENT
OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

CADD Tech: Matthew Jones

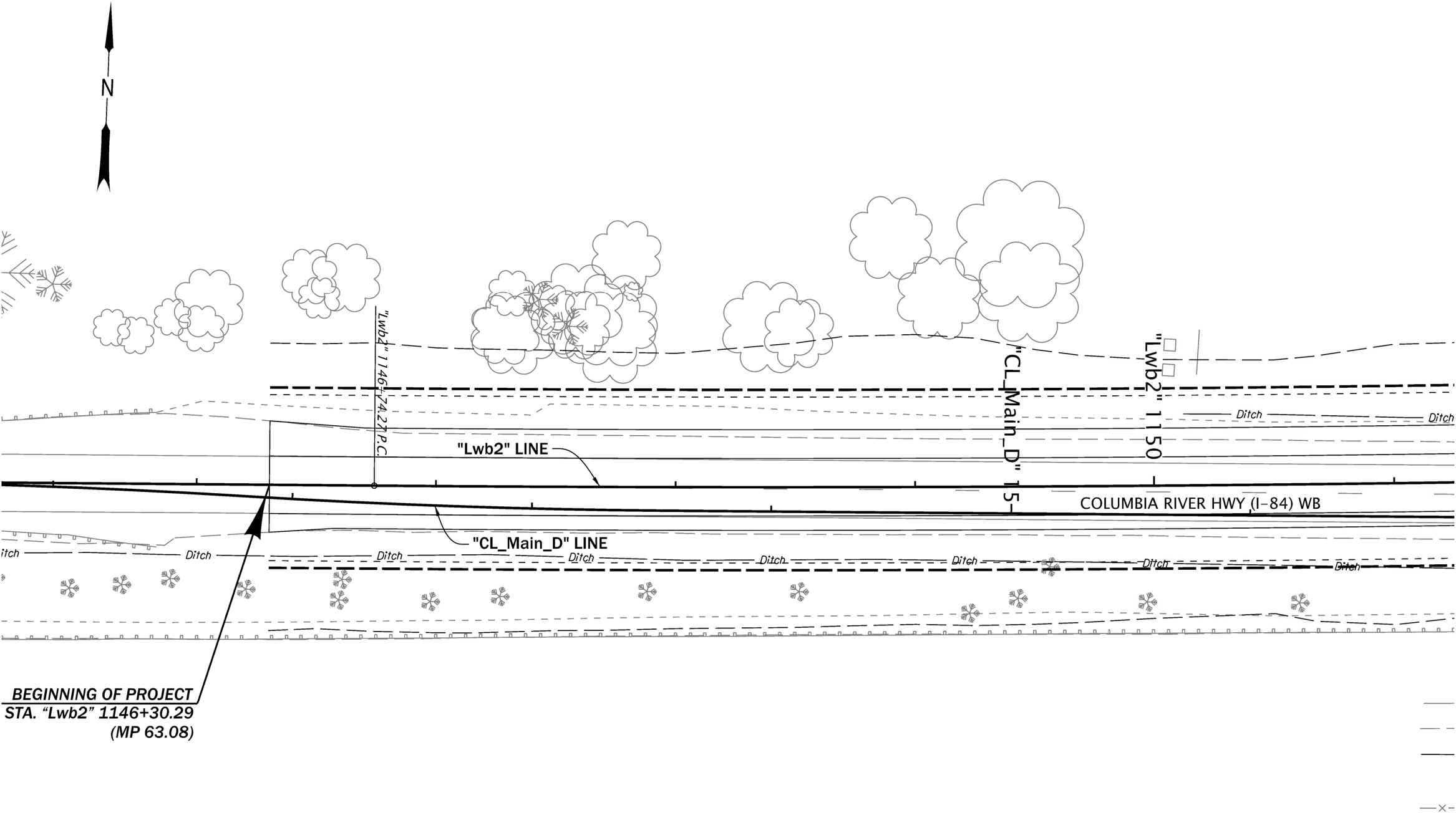
Checker: David McDonald

PIPE DATA

SHEET NO.

BD01

Sec. 26, T. 3 N., R 10 E., W.M.



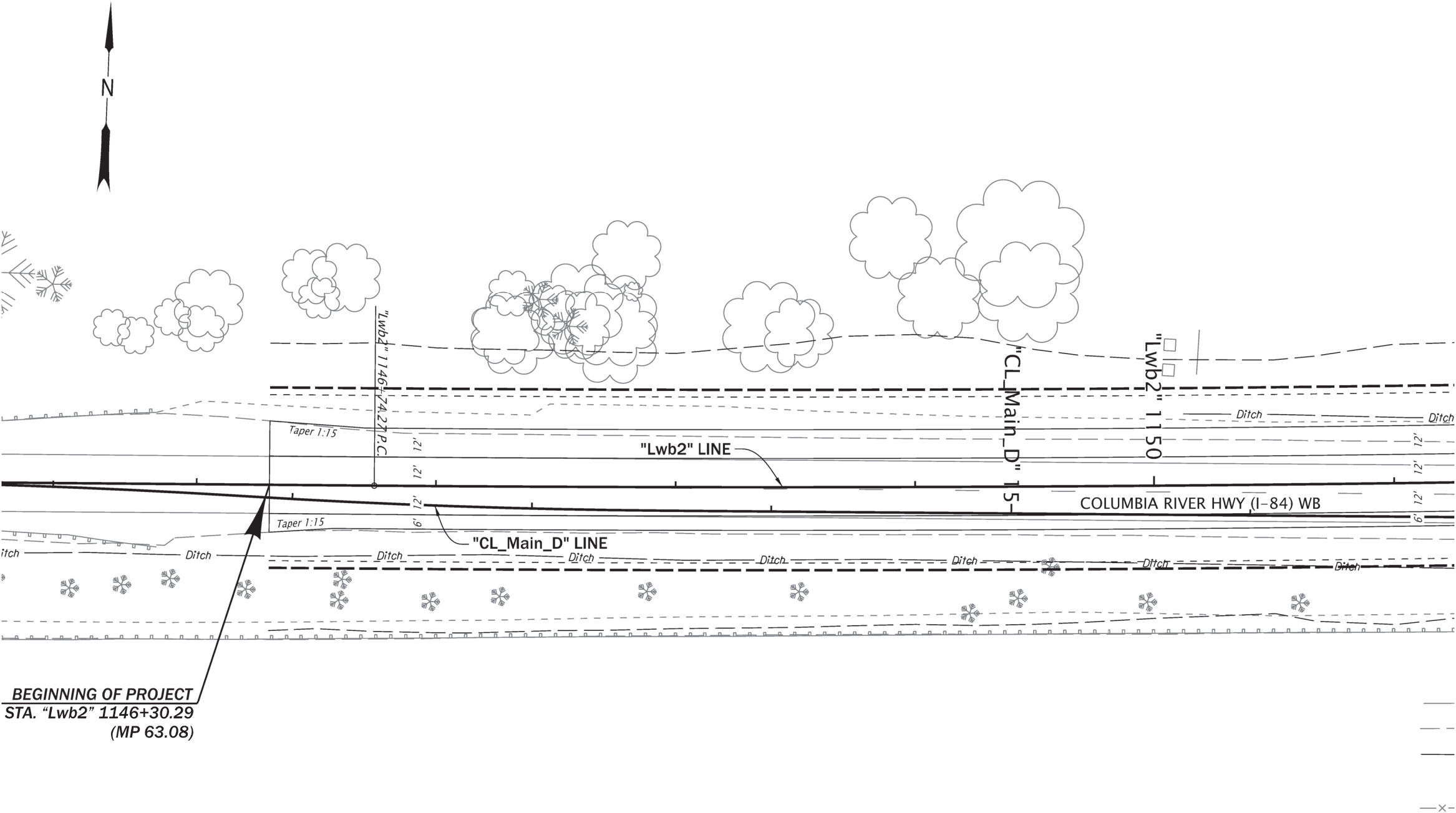
PLAN
SCALE: 1" = 50'

REGISTERED PROFESSIONAL
ENGINEER
19731PE
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OREGON
MAY 05, 1998
CHIVANNA T. POT

RENEWS: 12-31-2026

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
ALIGNMENT	SHEET NO. C01

Sec. 26, T. 3 N., R 10 E., W.M.



RENEWS: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

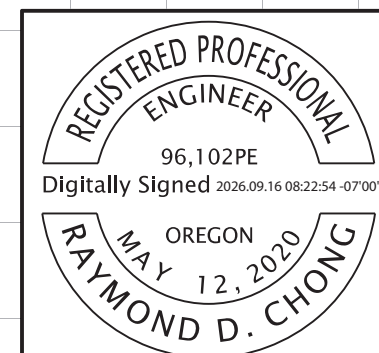
GENERAL CONSTRUCTION

SHEET NO.

C01A

This profile view illustrates the vertical alignment of a road section. The horizontal axis represents stationing, with labels at 1146, 1147, 1148, 1149, 1150, and 1151. The vertical axis represents elevation in feet, with labels at 165, 170, 175, 180, 185, and 190. The profile includes the following elements:

- Extg. ground line @ ℓ** : A dashed line representing the existing ground surface.
- Profile grade @ ℓ** : A solid line representing the proposed profile grade.
- Subgrade @ ℓ** : A dashed line representing the subgrade.
- Const. ACP pvmt. at project end.**: A note indicating the construction of a concrete asphalt pavement at the project end, with a reference to sheet BB07 and drawing No. RD610.
- Grades**: The profile grade has a constant downward grade of -2.36% and a final downward grade of -2.63%.
- Vertical Curve**: A 210' V.C. (Vertical Curve) is indicated, with a vertical clearance of 24" shown.
- Excavation and Embankment**: The profile shows an excavation of 2,867 cu. yd. and an embankment of 19 cu. yd.
- Elevation Data**: Key elevation points are marked, including 182.72, 182.13, 177.65, 179.93, and 179.29.



RENEWS: 12-31-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

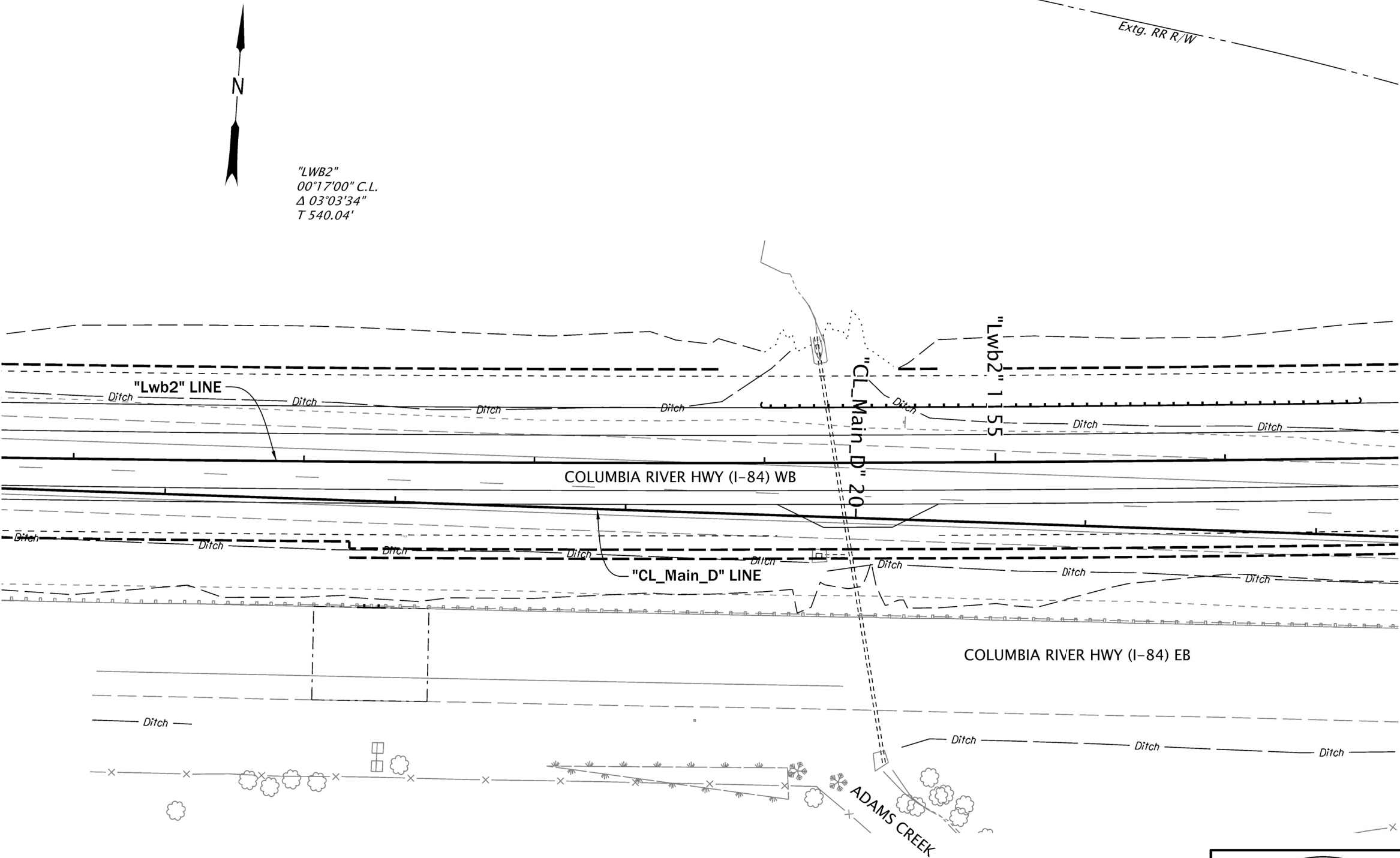


COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Checker: Anitha Vazrala

C01B

Sec. 26, T. 3 N., R 10 E., W.M.



PLAN
SCALE: 1" = 50'

REGISTERED PROFESSIONAL
ENGINEER

19731PE
Digitally Signed 2026.08.10 11:40:20-07'00'

OREGON
MAY 05, 1998
CHIVANNA T. POT

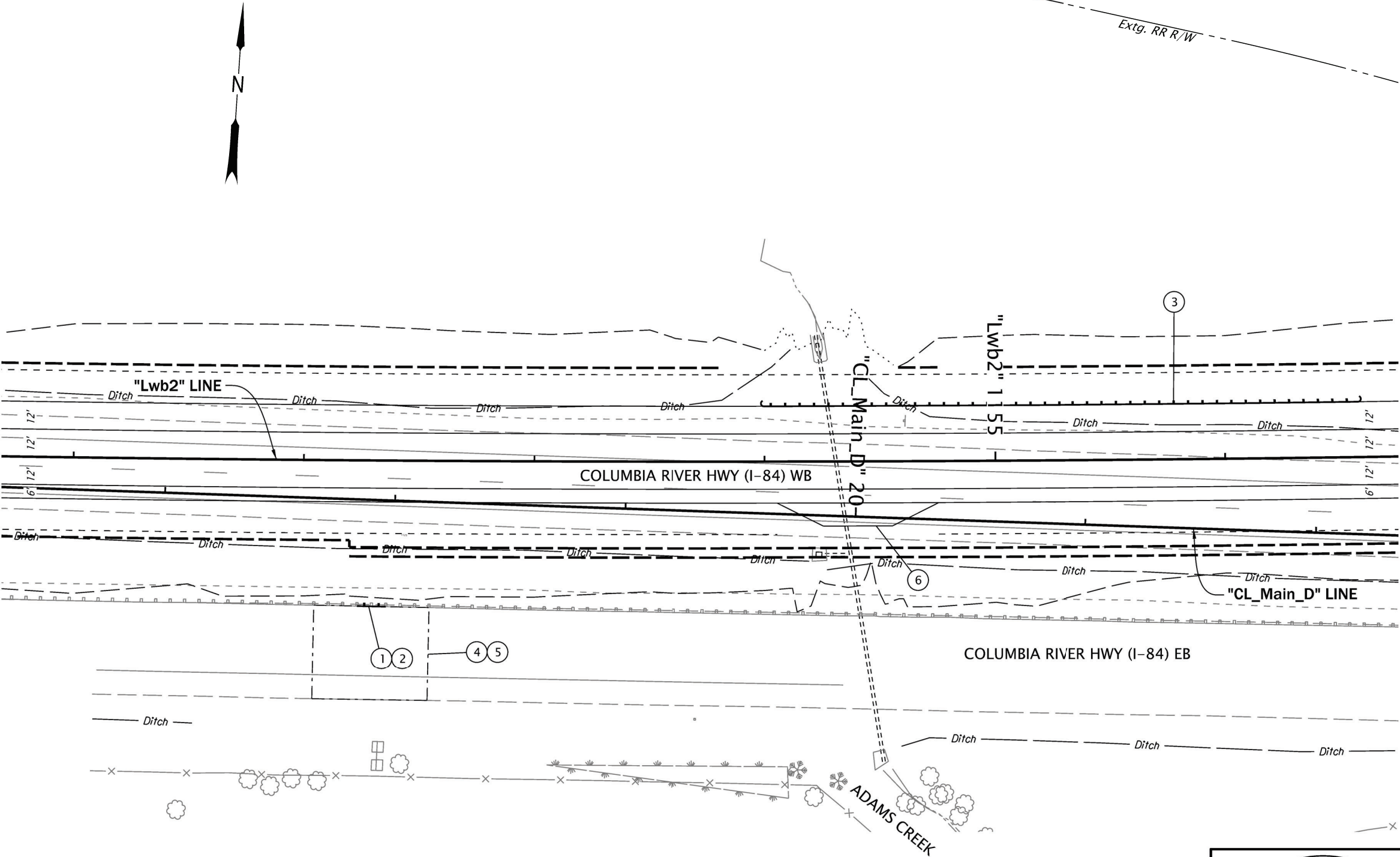
RENEWES: 12-31-2026

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
ALIGNMENT	SHEET NO. C02

Sec. 26, T. 3 N., R 10 E., W.M.

CONSTRUCTION NOTES

- 1
- Removal extg. Guardrail - 12.5'
- 2
- Sta. "Lwb2" 1152+23.48 to Sta. "Lwb2" 1152+35.98, 63.17' Rt.
Const. guardrail - 12.5' (Type 2A Weatherized)
(See dwg. Nos. RD400, RD405, RD406, RD415)
- 3
- Sta. "Lwb2" 1153+99.56 to Sta. "Lwb2" 1156+52.68, 24.00' Lt.
Const. Midwest Guardrail System downstream anchor terminal (DAT)
Const. Midwest Guardrail System - 193.75' (Type 2A Weatherized)
Const. Guardrail System non-flared energy-absorbing terminal
(See dwg. Nos. RD420, RD438)
- 4
- Cold plane pvmt. removal - 2" deep
228 sq. yd.
- 5
- Const. lv. 4, 1/2" asph. conc. pvmt. - 2" ACP wearing course
12.6 tons
- 6
- Maintenance pad 1
(For details, see sht. BB07)
(See dwg. Nos. RD160)



PLAN
SCALE: 1" = 50'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

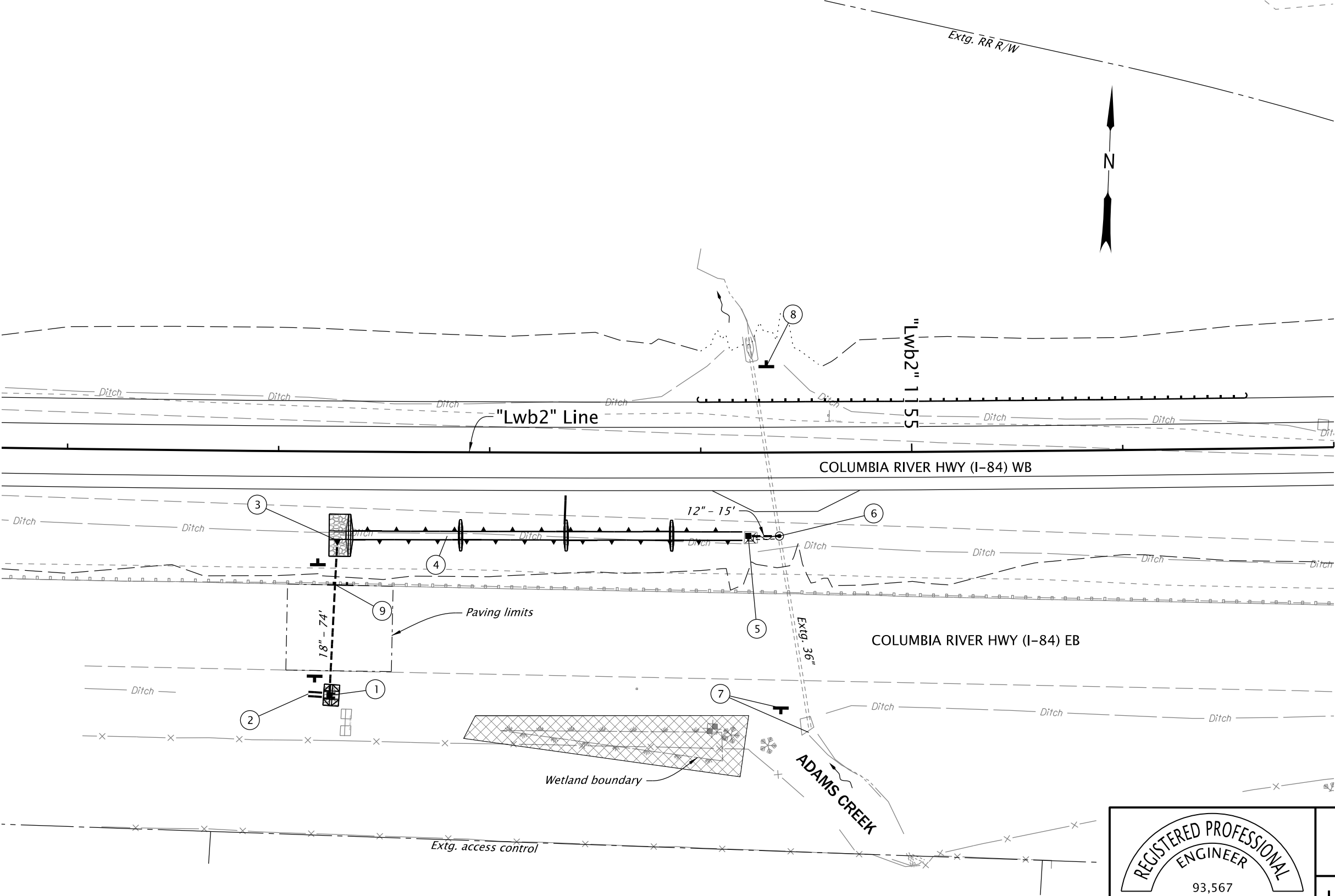
Checker: Anitha Vazrala

GENERAL CONSTRUCTION

SHEET NO.

C02A

Sec. 26, T. 3 N., R 10 E., W.M.



LEGEND
(Items in legend may not appear on plans)

Remove manhole:	
Adjust manhole:	
Const. manhole:	
Remove inlet:	
Adjust inlet:	
Const. inlet	
Const. manhole with inlet:	
Cap. manhole / inlet:	
Const. pipe:	
Const. perf. drain pipe:	
Remove pipe:	
Inst. paved culvert end slope:	
Inst. stormwater ID marker:	
Inst. rock riprap:	
Ditch:	
No work area:	
Regulated work area:	
Wetland boundary:	
Ordinary high water	

NOTE:
Confirm drainage structure rim elevations with roadway finish grade surface elevation prior to installation.

PLAN
SCALE: 1" = 50'

REGISTERED PROFESSIONAL
ENGINEER
93,567
Digitally Signed 2026.07.30 10:25:12 -0700
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWES: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Alan Babicky	Reviewer: David McDonald
CADD Tech: Matthew Jones	Checker: David McDonald
DRAINAGE & UTILITIES	
SHEET NO. C02B	

CONSTRUCTION NOTES

- 1

Sta. "Lwb2" 1152+25.0, 114.9' Rt.
Const. conc. inlet, type D mod. w 1.5' sump
Inst. stone embankment (as rock check dam) – 7 cu. yds.
Inst. culv. drainage marker, Type 2
DFI no. D50507, MP 63.19
(For details, see shts. C02E & HA02)
(See dwg. nos. RD365, RD370 & RD398)
- 2

Sta. "Lwb2" 1152+24.0, 114.9' Rt.
Ditch exc. – 11 cu. yds.
Const. 4' flat bottom, 1:4 slopes
(For type D mod. ditch details, see sht. HA02)
- 3

Sta. "Lwb2" 1152+28.2, 41.6' Rt.
Inst. 18" culv. pipe – 74'
10' depth
Const. sloped end section, 18"
Asphalt pavement sawcutting – 84 ft.
(6 to 14 inches deep)
Const. paved end slope – 35 sq. ft.
Inst. loose riprap (Class 50) – 19 cu. yds.
(Energy dissipator and check dam)
Inst. culv. drainage marker, Type 2
DFI no. D50507, MP 63.19
Trench resurf. – 13 sq. yds.
(For details, see sht. C02E , HA02 & HA03)
(See dwg. nos. RD300, RD302, RD317,
RD318, RD319, RD320, RD339 & RD386)
- 4

Sta. "Lwb2" 1152+28.2, Rt. to 1154+22.5, Rt.
Const. water quality swale, D01801
Inst. facility field markers, Type S1 & S2 – 2 ea.
DFI no. D01801
(For details, see HA series)
(See dwg. no. RD399)
- 5

Sta. "Lwb2" 1154+22.5, 39.6' Rt.
Removal of inlet
Const. conc. inlet, type D mod. w 1.5' sump
(For details, see sht. C02E)
- 6

Sta. "Lwb2" 1154+37.2, 40.4' Rt.
Removal of pipe – 11'
Const. conc. manhole, large precast 72" dia.
Extra for manhole over extg.
Inst. 12" storm sew. pipe – 15'
5' depth
(For details, see sht. C02E)
(See dwg. nos. RD335, RD336, RD344,
RD345, RD346, RD356 & RD370)
- 7

Sta. "Lwb2" 1154+37.9, Rt.
Inst. temp. water management
Bypass pump monitoring – 2 day
Inst. culv. drainage marker, Type 2
DFI no. D34811, MP 63.22
(For details, see sht. HA02 & HD series)
- 8

Sta. "Lwb2" 1154+30.0, 31.5' Lt.
Inst. culv. drainage marker, Type 2
DFI no. D34811, MP 63.22
(For details, see sht. HA02)
- 9

See sheet C02A for guardrail details

REGISTERED PROFESSIONAL

ENGINEER

93,567

Digitally Signed 2026.09.01 09:33:05 -07'00'

OREGON

MAY 8, 2018

WILLIAM A. BABICKY

RENEWS: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky Reviewer: David McDonald
CADD Tech: Matthew Jones Checker: David McDonald

DRAINAGE & UTILITIES NOTES

OREGON DEPARTMENT OF TRANSPORTATION

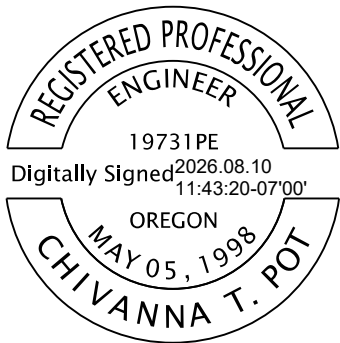
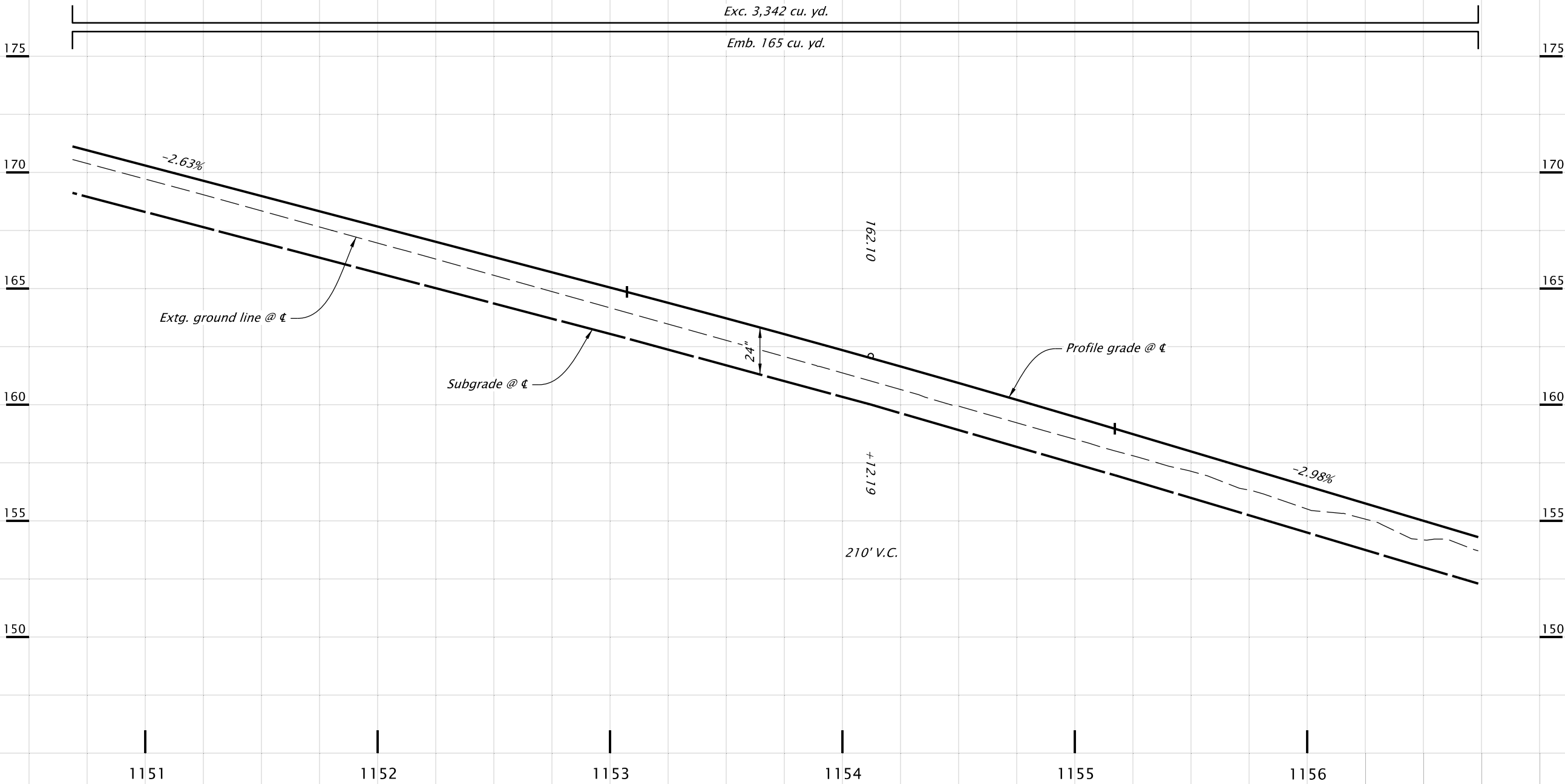
SHEET NO.
C02C

R_K21683_nt_02.dgn :: C02C 9/1/2026 8:13:51 AM hwye41y

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

" Lwb2 " LINE

60V-001



RENEWS: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

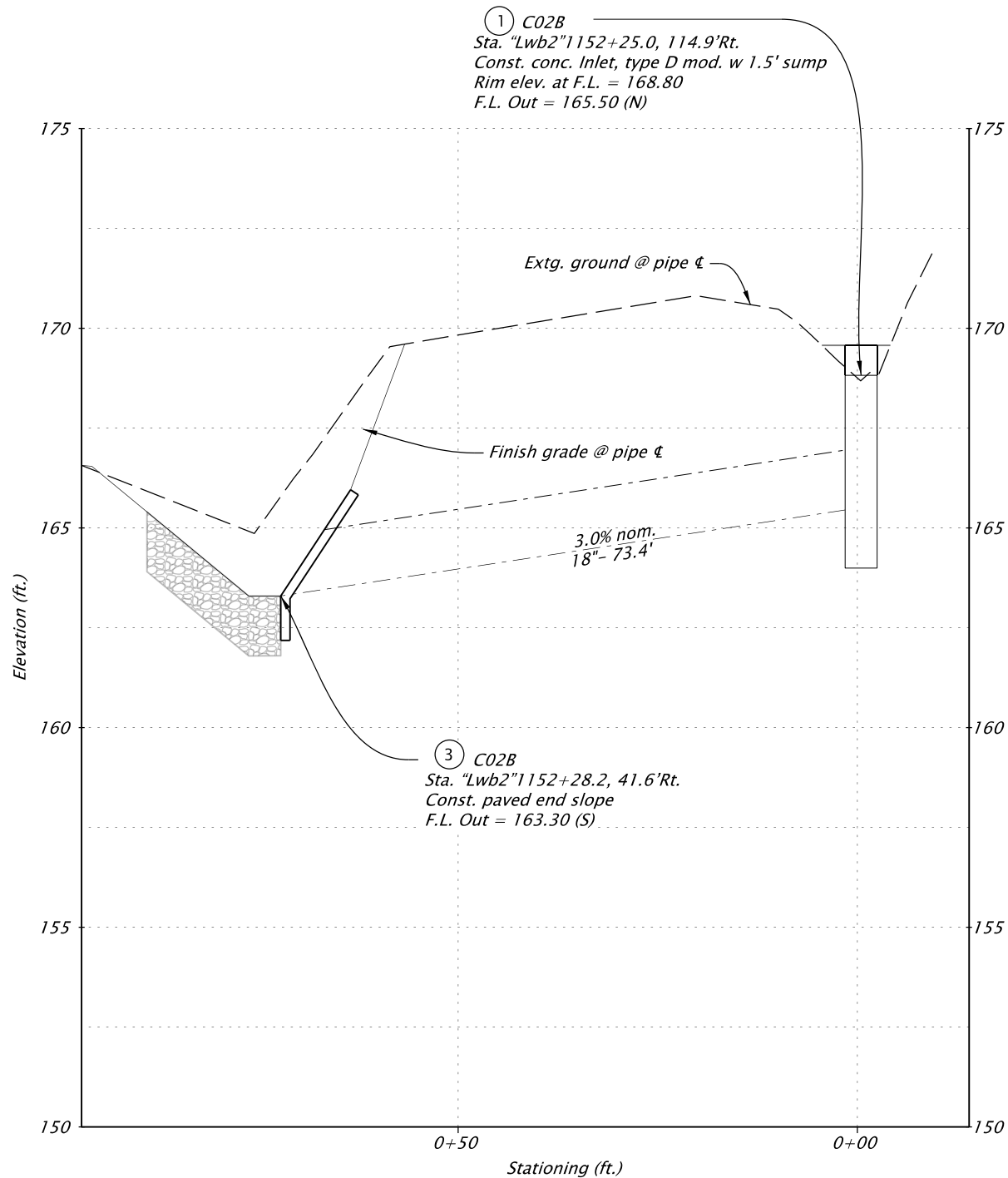
Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

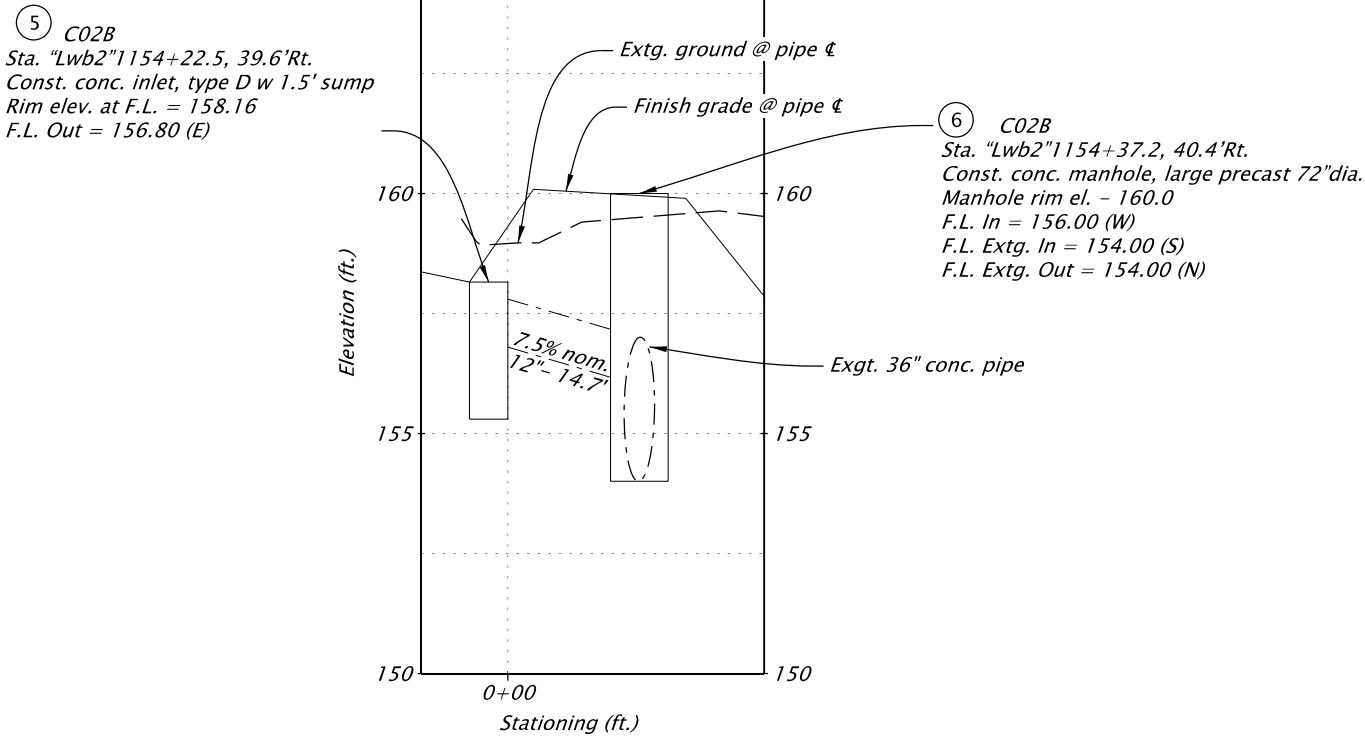
Checker: Anitha Vazrala

PROFILE

SHEET NO.
C02D



Profile Along Pipe ϵ
STA "LWB2" 1152+25 TO "LWB2" 1152+29
SCALE: 1" = 20'



Profile Along Pipe ϵ
STA "LWB2" 1154+22 TO "LWB2" 1154+38
SCALE: 1" = 20'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



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COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

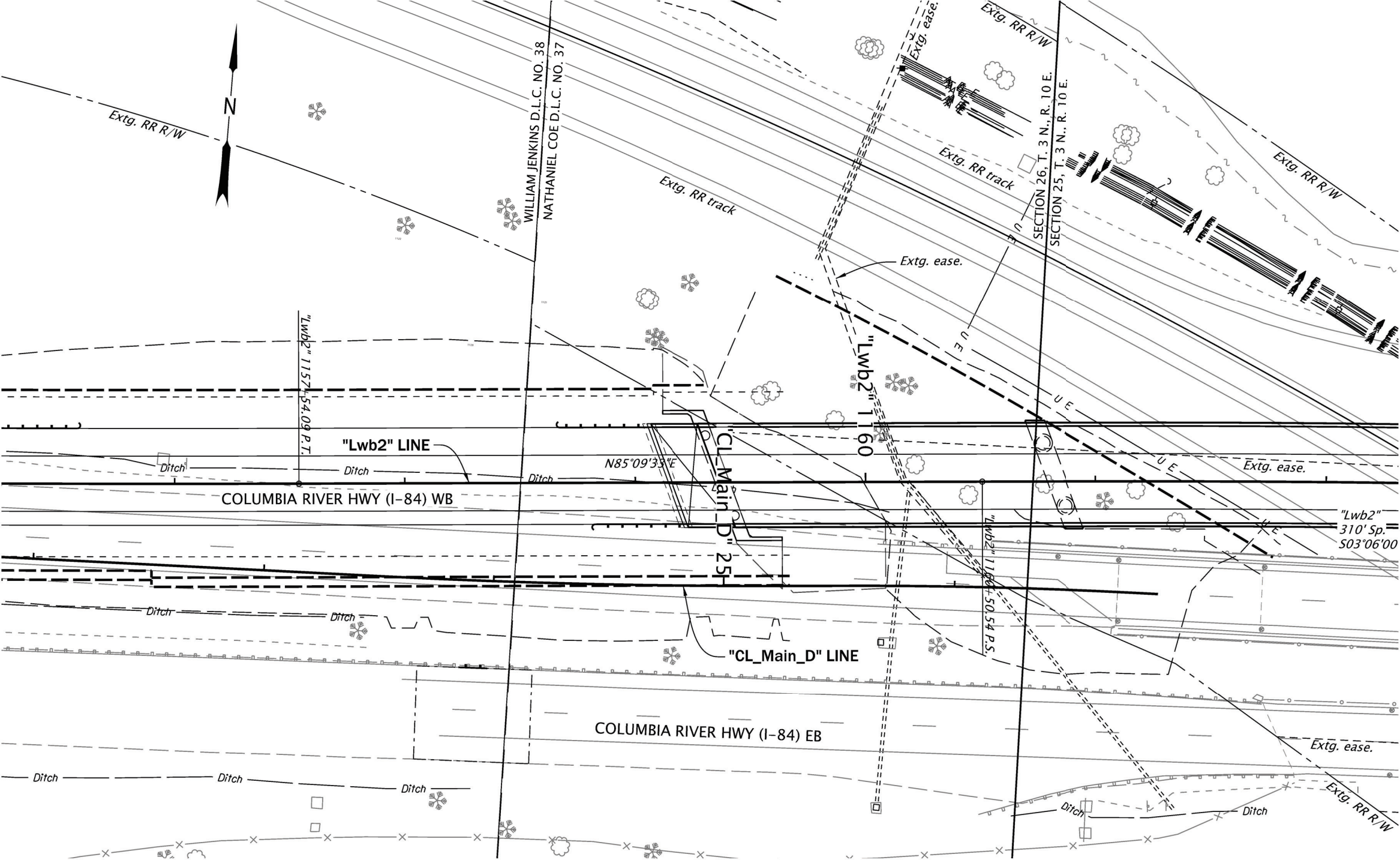
Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE PROFILE

SHEET NO.
C02E

Sec. 26 & 25, T. 3 N., R 10 E., W.M.



PLAN
SCALE: 1" = 50'



RENEWS: 12-31-2027

FINAL ELECTRONIC DOCUMENT
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OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

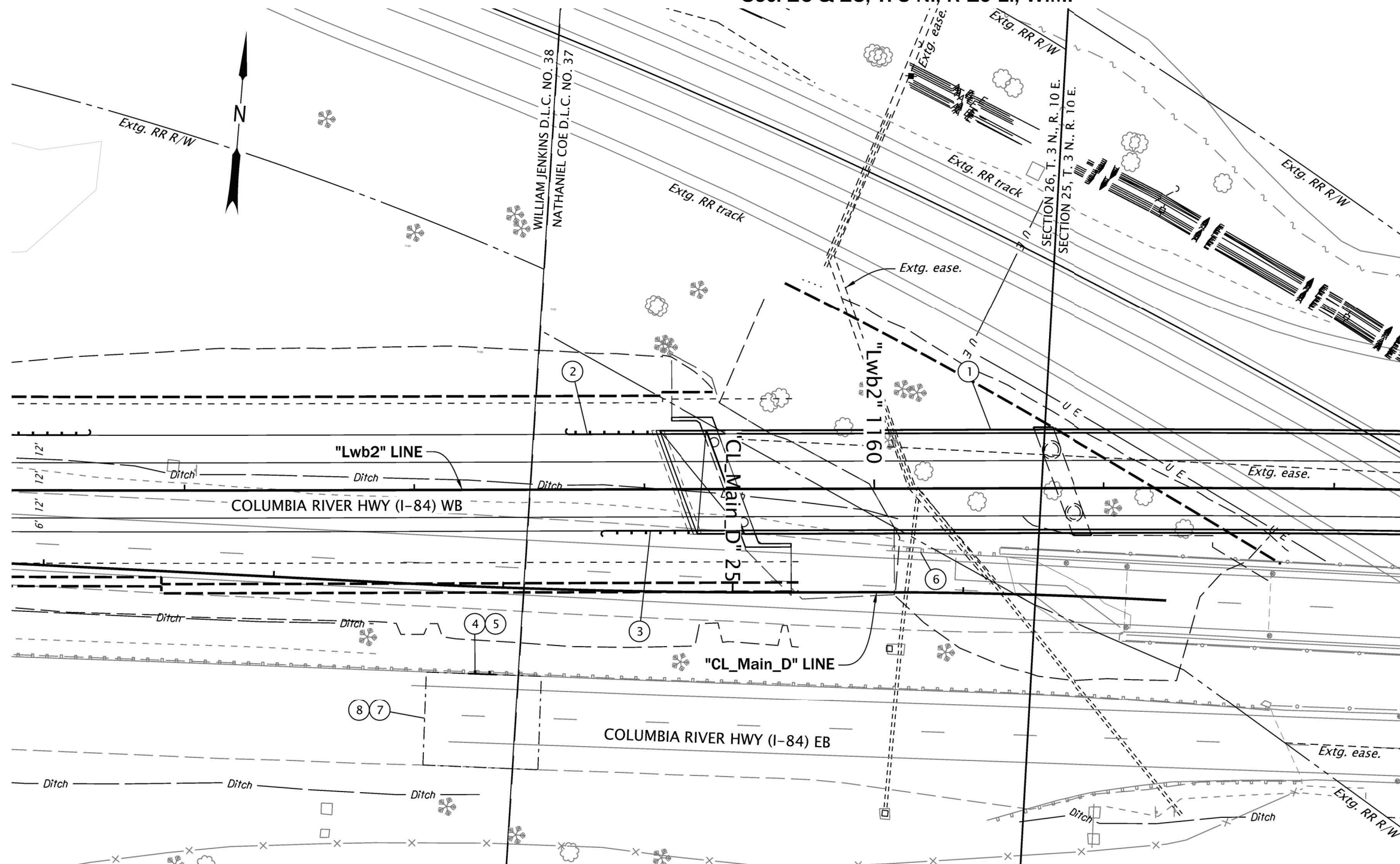
ALIGNMENT

SHEET NO.

C03

CONSTRUCTION NOTES

- ① See sht. C04A, note 1
Structure no. 24318
Const. structure
- ② Sta. "Lwb2" 1158+67.00 to Sta. "Lwb2" 1159+06.64,
24.00' Lt.
Const. Midwest Guardrail System downstream anchor
terminal (DAT)
Const. Midwest Guardrail System - 12.5'
(Type 3 Weatherized)
Const. Type "F" conc. rail, 42" transition to guardrail
- ③ Sta. "Lwb2" 1158+82.35 to Sta. "Lwb2" 1159+22.45,
18.00' Rt.
Const. Midwest Guardrail System downstream anchor
terminal (DAT)
Const. Midwest Guardrail System - 12.5'
(Type 3 Weatherized)
Const. Type "F" conc. rail, 42" transition to guardrail
(See dwg. Nos. RD436, RD580)
- ④ Sta. "Lwb2" 1158+23.82 to Sta. "Lwb2" 1158+45.32,
79.81' Rt.
Const. guardrail - 12.5' (Type 2A)
- ⑤ Removal extg. Guardrail - 12.5'
- ⑥ Removal extg. Guardrail - 104'
- ⑦ Cold plane pvmt. remval - 2" deep
228 sq. yd.
- ⑧ Const. lv. 4, 1/2" asph. conc. pvmt. -
2" ACP wearing course
12.6 tons



PLAN
SCALE: 1" = 50'



RENEWS: 12-31-2027

OREGON DEPARTMENT
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**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

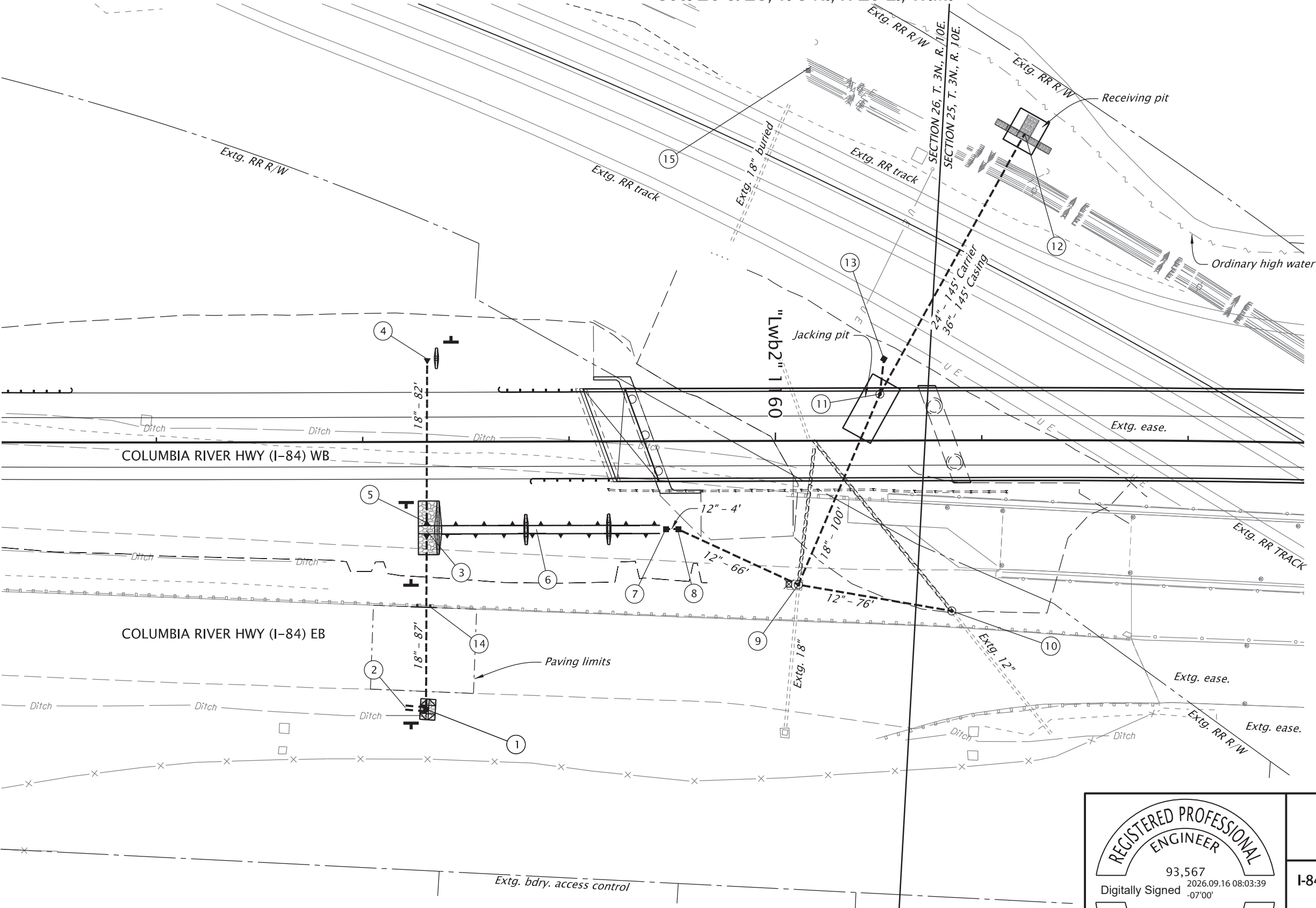
Checker: Anitha Vazrala

GENERAL CONSTRUCTION

SHEET NO.

C03A

Sec. 26 & 25, T. 3 N., R 10 E., W.M.



LEGEND

(Items in legend may not appear on plans)

- Remove manhole: [Symbol]
- Adjust manhole: [Symbol]
- Const. manhole: [Symbol]
- Remove inlet: [Symbol]
- Adjust inlet: [Symbol]
- Const. inlet: [Symbol]
- Const. manhole with inlet: [Symbol]
- Cap. manhole / inlet: [Symbol]
- Const. pipe: [Symbol]
- Const. perf. drain pipe: [Symbol]
- Remove pipe: [Symbol]
- Inst. paved culvert end slope: [Symbol]
- Inst. stormwater ID marker: [Symbol]
- Inst. rock riprap: [Symbol]
- Ditch: [Symbol]
- No work area: [Symbol]
- Regulated work area: [Symbol]
- Wetland boundary: [Symbol]
- Ordinary high water: [Symbol]

NOTE:
Confirm drainage structure rim elevations
with roadway finish grade surface elevation
prior to installation.

PLAN
SCALE: 1" = 50'



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones
Reviewer: David McDonald
Checker: David McDonald

DRAINAGE & UTILITIES

SHEET NO.
C03B

CONSTRUCTION NOTES

- 1

Sta. "Lwb2" 1158+30.2, 131.0' Rt.
Const. conc. inlet, type D mod. w 1.5' sump
Inst. stone embankment (as rock check dam) – 7 cu. yds.
Inst. culv. drainage marker, Type 2
DFI no. D50505, MP 63.32
(For details, see sht. C03E & HA02)
- 2

Sta. "Lwb2" 1158+30.2, 131.0' Rt
Ditch exc. – 11 cu. yds.
Const. 4' flat bottom, 1:4 slopes
(For type D mod. ditch details, see sht. HA02)
- 3

Sta. "Lwb2" 1158+30.7, 44.6' Rt.
Inst. 18" culv. pipe – 87'
10' depth
Asphalt pavement sawcutting – 84 ft.
(6 to 14 inches deep)
Const. sloped end section, 18"
Const. paved end slope – 40 sq. ft.
Const. loose riprap (Class 50) – 25 cu. yds.
(Energy dissipator and check dam)
Inst. culv. drainage marker, Type 2
DFI no. D50505, MP 63.32
Trench resurf. – 13 sq. yds.
(For details, see shts. C03E, HA02 & HA03)
- 4

Sta. "Lwb2" 1158+31.3, 40.5' Lt.
Const. sloped end section, 18"
Const. paved end slope – 44 sq. ft.
Inst. stone embankment (as rock check dam) – 4 cu. yds.
Ditch exc. – 3 cu. yds.
Inst. culv. drainage marker, Type 2
DFI no. D50506, MP 63.32
(For details, see shts. C03E, & HA02)
- 5

Sta. "Lwb2" 1158+30.8, 40.6' Rt.
Inst. 18" ductile iron pipe – 82'
5' depth
Const. sloped end section, 18"
Const. paved end slope – 35 sq. ft.
Inst. culv. drainage marker, Type 2
DFI no. D50506, MP 63.32
(For details, see shts. C03E, HA02 & HA03)
- 6

Sta. "Lwb2" 1158+30, Rt. to 1159+48, Rt.
Const. water quality swale, D01802
Inst. facility field markers, Type S1 & S2 – 2 ea.
DFI no. D01802
(For details, see HA series)
- 7

Sta. "Lwb2" 1159+47.6, 42.6' Rt.
Const. conc. inlet, type D w 1.5' sump
(For details, see sht. C03F)
- 8

Sta. "Lwb2" 1159+51.4, 42.6' Rt.
Const. conc. inlet, type D w 1.5' sump
Inst. 12" storm sew. pipe – 4'
5' depth
(For details, see sht. C03F)
(See dwg. no. RD364)
- 9

Sta. "Lwb2" 1160+10.9, 69.7' Rt.
Removal of inlet – 2
Removal of pipe – 64'
Const. conc. storm sew. manhole 48" dia.
Extra for manhole over extg. sewer
Inst. 12" storm sew. pipe – 142'
10' depth
(For details, see sht. C03F)
- 10

Sta. "Lwb2" 1160+85.3, 82.6' Rt.
Removal of pipe – 107'
Const. conc. storm sew. manhole 48" dia.
Extra for manhole over extg. sewer
(For details, see sht. C03F)
- 11

Sta. "Lwb2" 1160+50.7, 22.5' Lt.
Const. conc. manhole, large precast 60" dia.
Manhole rim el. – 100.4'
Inst. 18" storm sew. pipe – 100'
10' depth (slope anchors)
Inst. 12" storm sew. pipe – 18'
5' depth
(For details, see sht. C03F)
(See dwg. nos. RD330, RD346 & RD384)
- 12

Sta. "Lwb2" 1161+20.7, 148.5' Lt.
Inst. 36" pipe under railroad – 1 LS
tunneling, boring and jacking
36" smooth steel casing (145' casing pipe)
24" storm sew. pipe (145' carrier pipe)
Const. retaining wall, prefabricated modular gravity – 1 LS
(Gabion headwall & mat)
Const. loose riprap (Class 200) – 24 cu. yd.
(Energy dissipator)
Riprap geotextile type 2 – 70 sq. yd.
(See dwg. no. RD308)
(For details, see sht. C03F & HB series)
- 13

Sta. "Lwb2" 1160+53.1, 40.2' Rt.
Const. conc. inlet, type D w 1.5' sump
(For details, see sht. C03G)
- 14

See sht. C03A for guardrail details
- 15

Sta. "Lwb2" 1158+96.4, 238.6' Lt. to 1162+68.9, 33.9' Lt.
Remove structures and obstruction – 1 LS
(Utility poles and aerial lines)

REGISTERED PROFESSIONAL

ENGINEER

93,567

Digitally Signed 2026.09.16 08:04:49 -07'00'

OREGON

MAY 8, 2018

WILLIAM A. BABICKY

RENEWES: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

CADD Tech: Matthew Jones

Checker: David McDonald

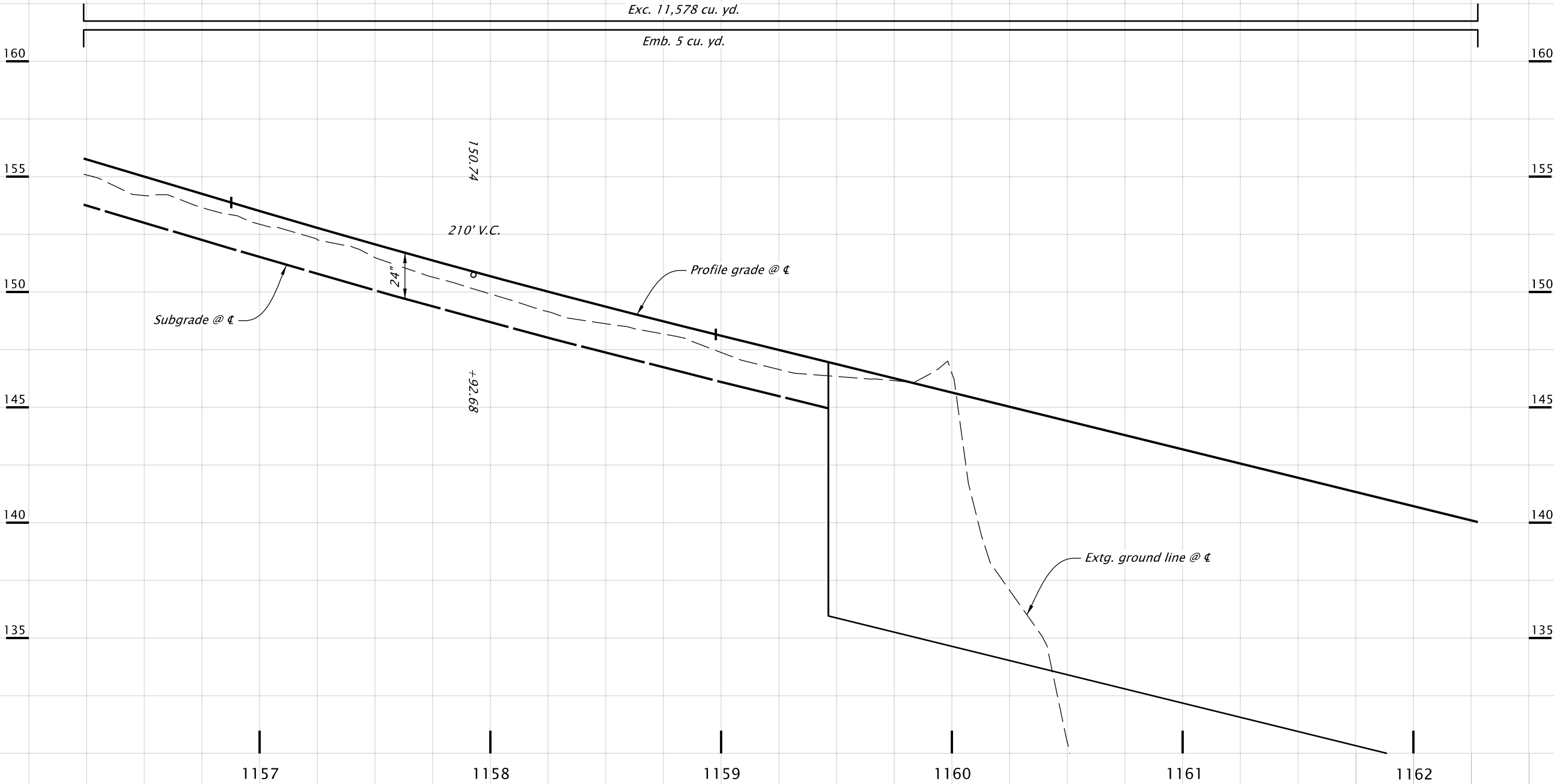
DRAINAGE & UTILITIES NOTES

SHEET NO.
C03C

R_K21683_nt_02.dgn :: C03C 9/16/2026 7:37:51 AM hwye41y

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

" Lwb2 " LINE



RENEWS: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

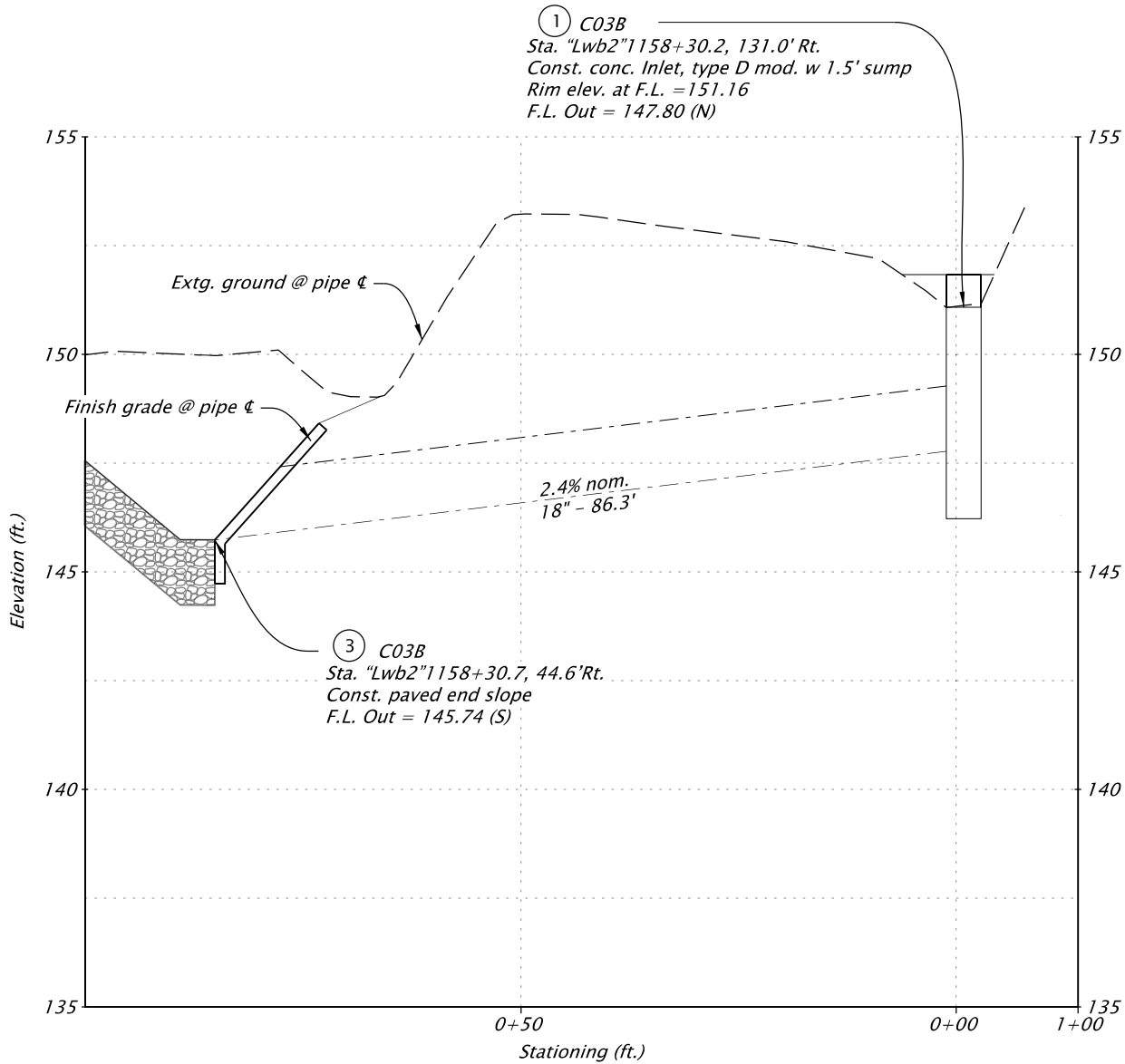
Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

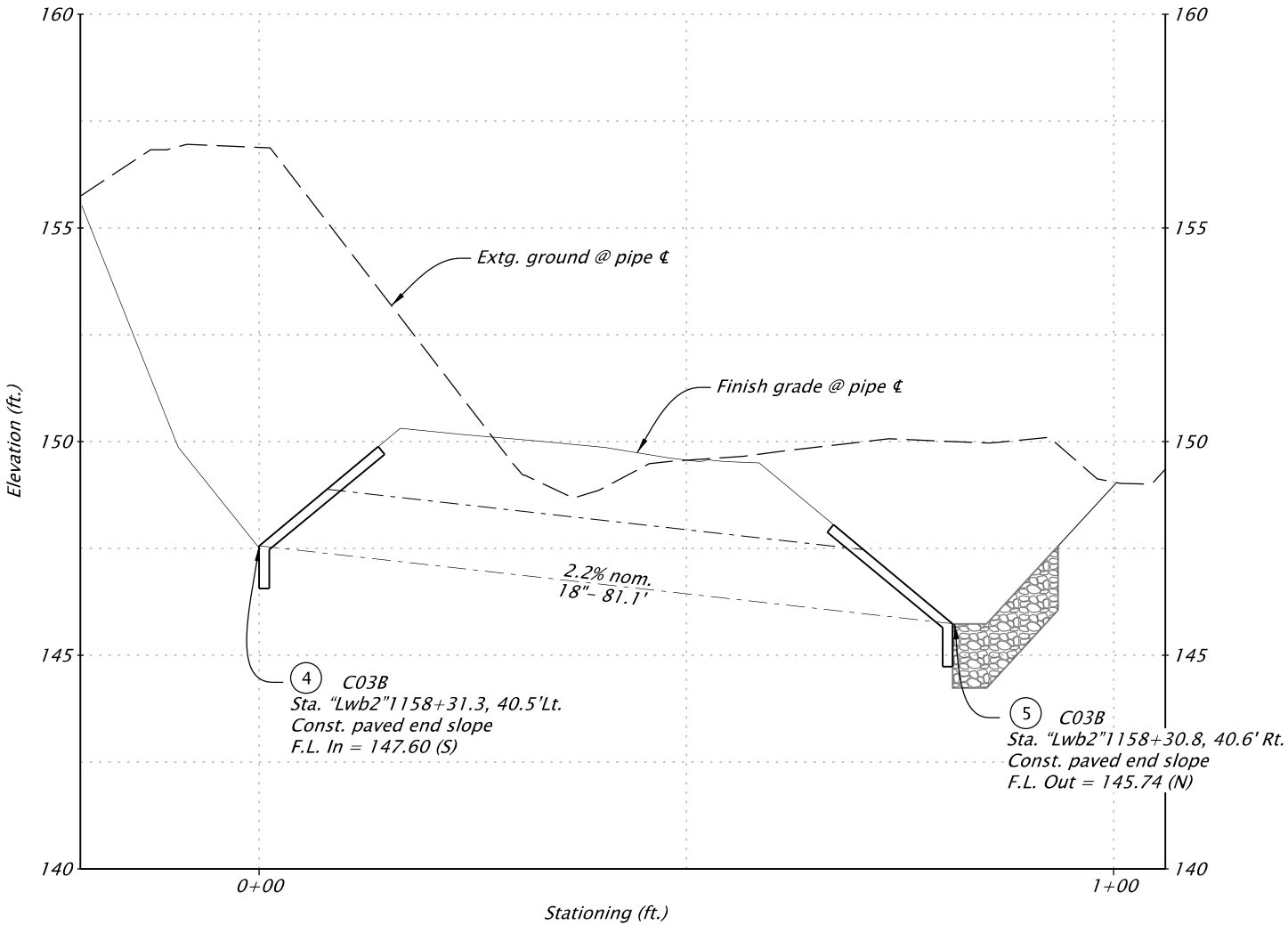
Checker: Anitha Vazrala

PROFILE

SHEET NO.
C03D



Profile Along Pipe 4
STA "LWB2" 1158+30 TO "LWB2" 1158+31
SCALE: 1" = 20'



Profile Along Pipe 4
STA "LWB2" 1158+30 TO "LWB2" 1158+31
SCALE: 1" = 20'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



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COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

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DRAINAGE PROFILE

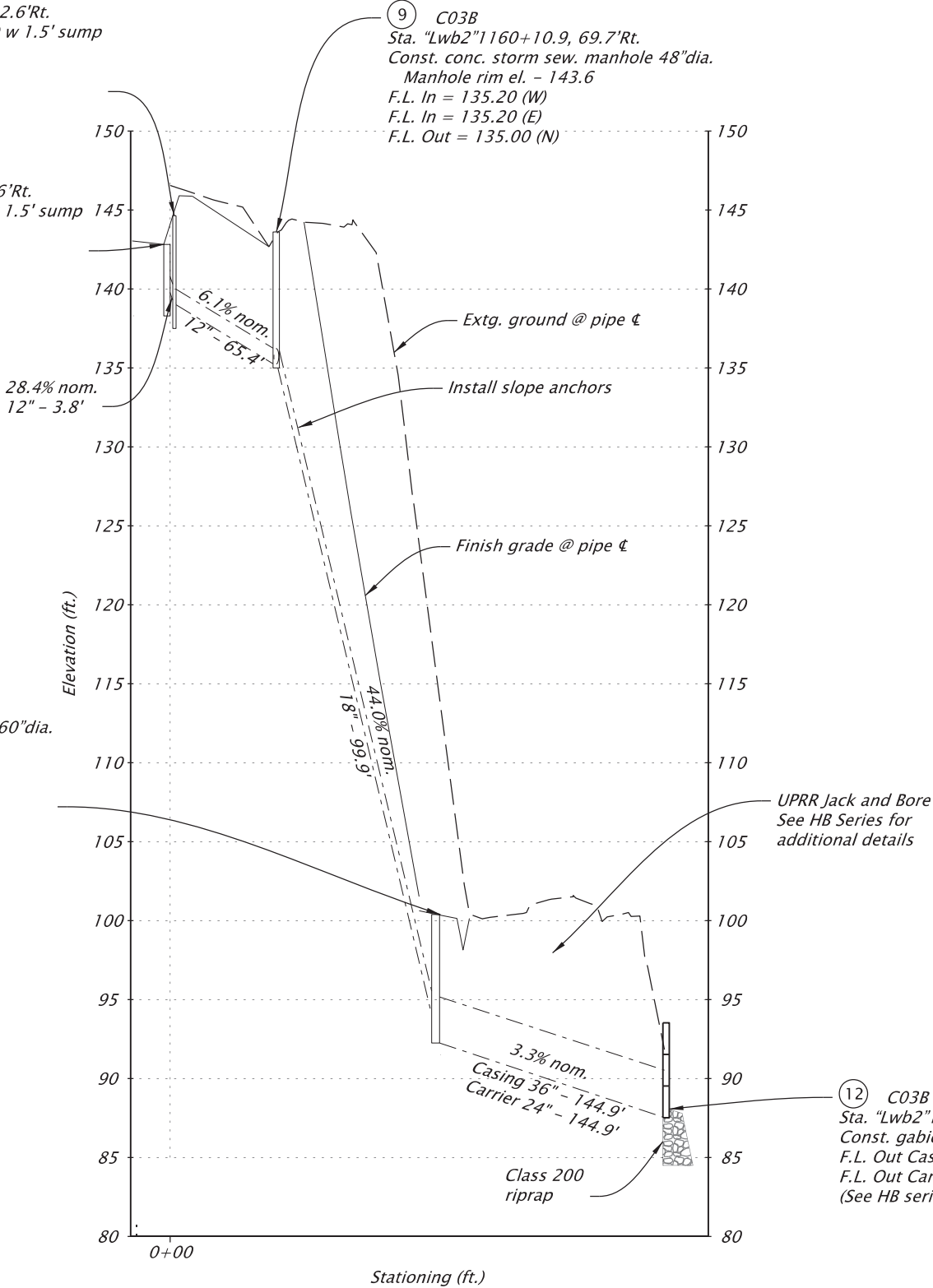
SHEET NO.

C03E

⑧ C03B
Sta. "Lwb2"1159+51.4, 42.6'Rt.
Const. conc. inlet, type D w 1.5' sump
Rim elev. =144.65
F.L. In = 139.30 (N)
F.L. Out = 139.00 (E)

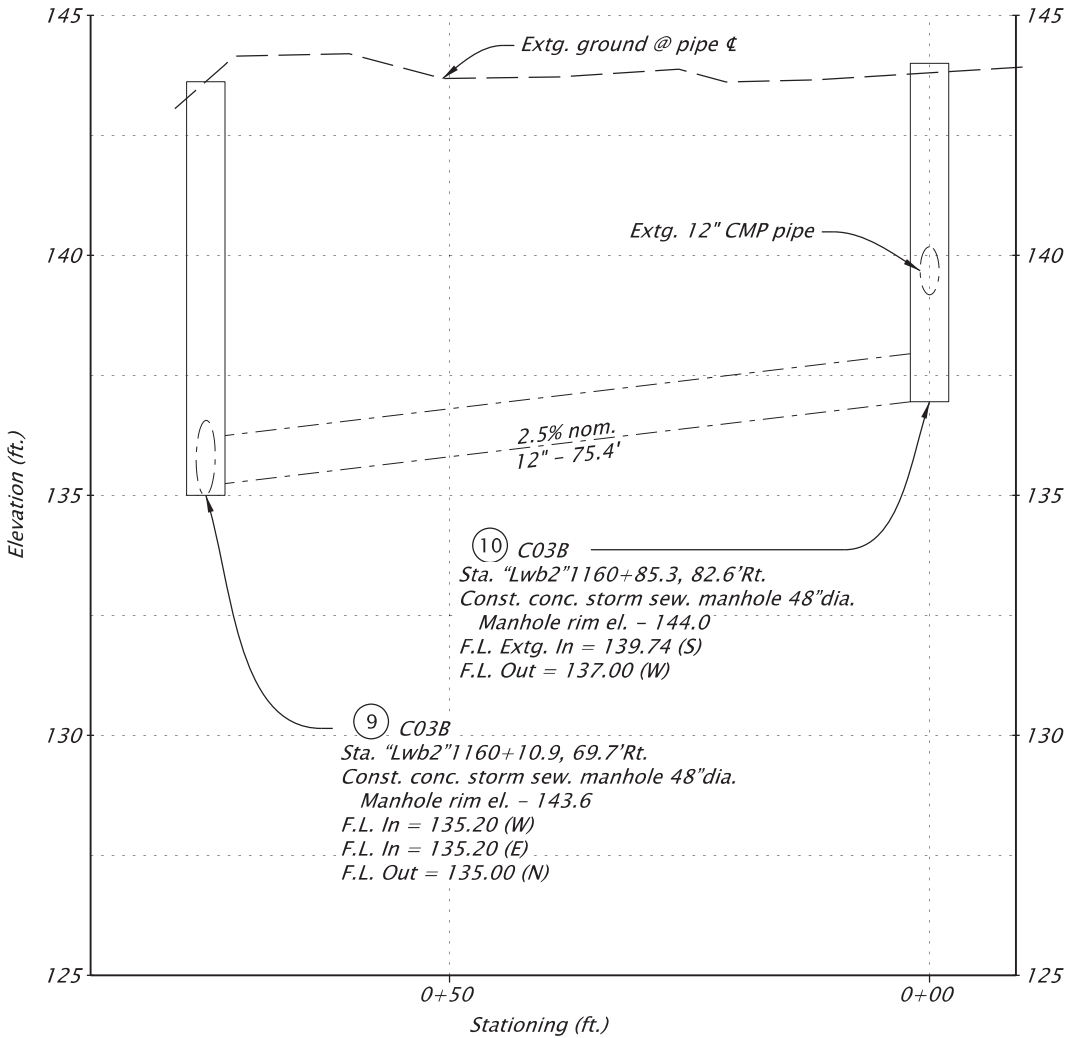
⑦ C03B
Sta. "Lwb2"1159+47.6, 42.6'Rt.
Const. conc. inlet, type D w 1.5' sump
Rim elev. at F.L. =142.80
F.L. Out = 139.80 (S)

⑪ C03B
Sta. "Lwb2"1160+50.7, 22.5'Lt.
Const. conc. storm sew. manhole 60"dia.
Manhole rim el. - 100.4
F.L. In = 93.00 (S)
F.L. Out Casing = 92.25 (N)
F.L. Out Carrier = 92.75 (N)



Profile Along Pipe 4
STA "LWB2" 1159+47 TO "LWB2" 1161+26
SCALE: 1" = 100'

⑫ C03B
Sta. "Lwb2"1161+20.7, 148.5'Lt.
Const. gabion basket headwall
F.L. Out Casing = 87.54 (S)
F.L. Out Carrier = 88.04 (S)
(See HB series for details)



Profile Along Pipe 4
STA "LWB2" 1160+10 TO "LWB2" 1160+85
SCALE: 1" = 20'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

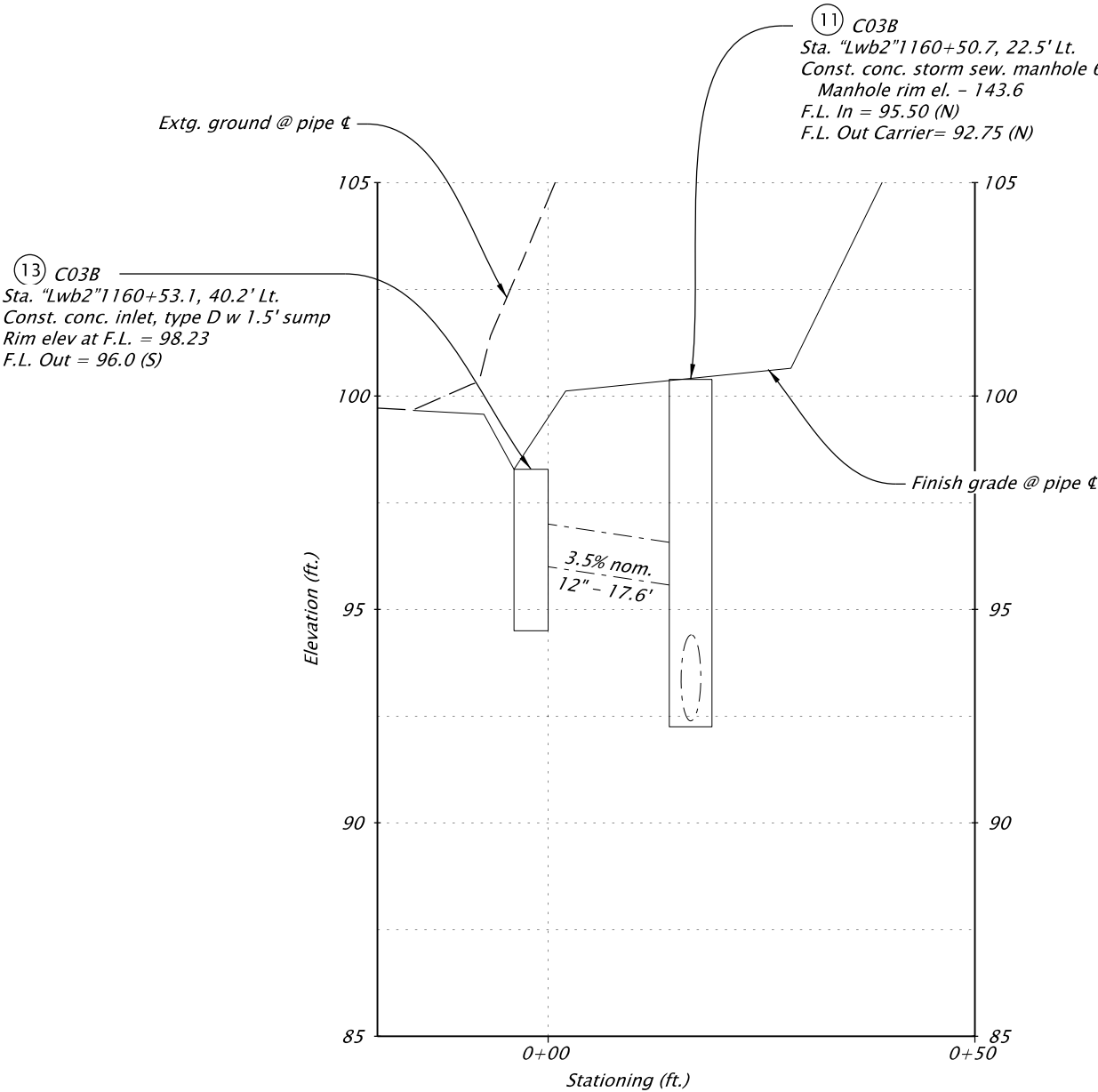
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE PROFILE

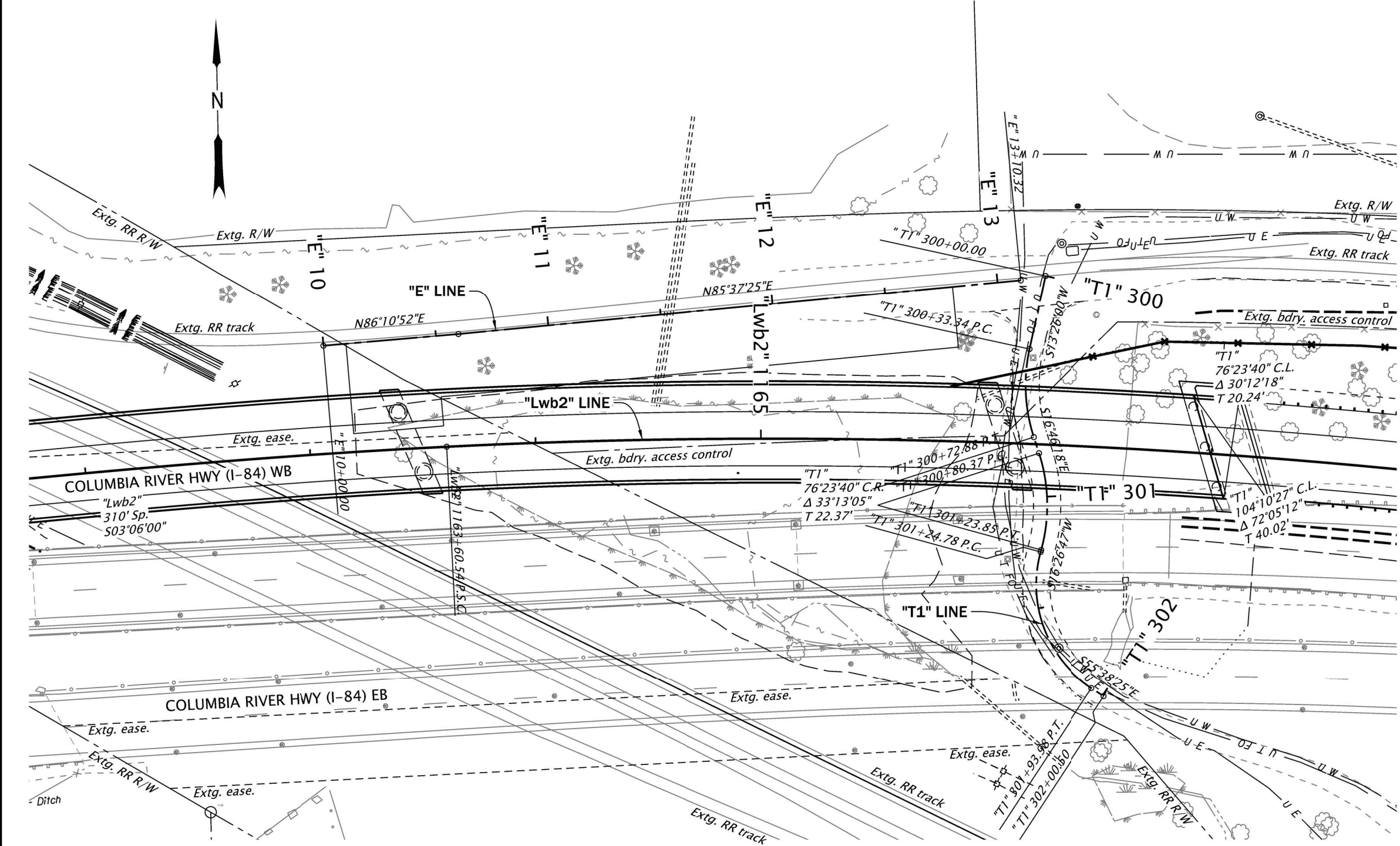
SHEET NO.
C03F



Profile Along Pipe 1
STA "LWB2" 1160+50 TO "LWB2" 1160+54
SCALE: 1" = 20'

 RENEWS: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Alan Babicky CADD Tech: Matthew Jones	Reviewer: David McDonald Checker: David McDonald
DRAINAGE PROFILE		SHEET NO. C03G

Sec. 25, T. 3 N., R 10 E., W.M.



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

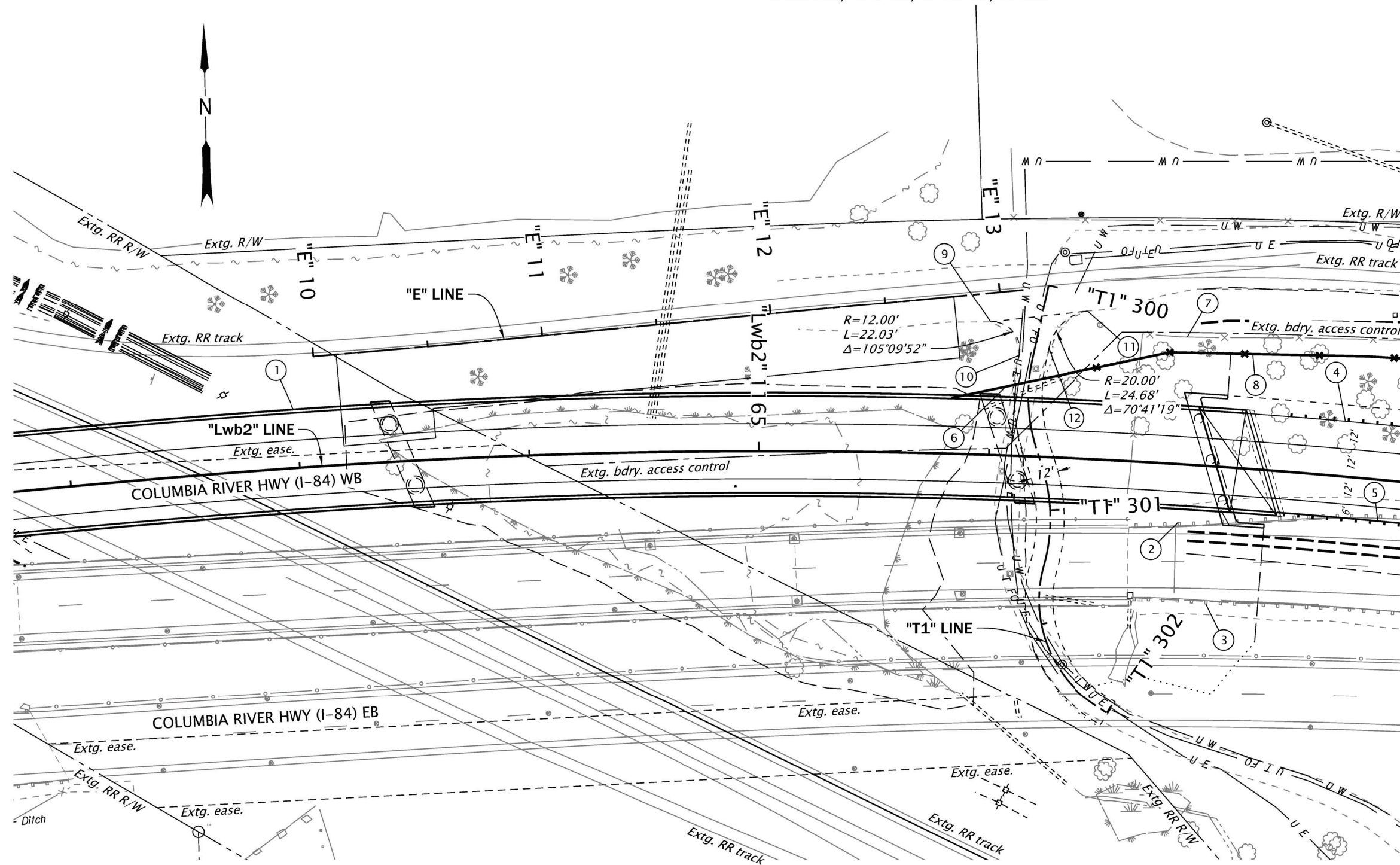
Checker: Anitha Vazrala

ALIGNMENT

SHEET NO.

C04

Sec. 25, T. 3 N., R 10 E., W.M.

PLAN
SCALE: 1" = 50'

CONSTRUCTION NOTES

- ① Structure no. 24318
Const. structure - 794'
Rdwy. width 42', Lt.
and reinf. panel at bridge ends
(For sht. nos., see sht. A02, Bridge)
- ② See sht. C05A, note 2
Remove extg. guardrail
- ③ See sht. C05A, note 3
Remove extg. guardrail
- ④ See sht. C05A, note 4
Const. guardrail
- ⑤ See sht. C05A, note 5
Const. guardrail
- ⑥ See sht. C05A, note 8
Structure no. 24391
Const. retaining wall
- ⑦ Remove extg. Fence
- ⑧ Fence
(See shts. GB07 and GB08)
- ⑨ Sta. "T" 300+21.07, 21.14' Rt. Elev. 94.80
- ⑩ Sta. "T" 300+32.65, 6.00' Rt. Elev. 93.74
- ⑪ Sta. "T" 300+07.42, 19.39' Lt. Elev. 95.45
- ⑫ Sta. "T" 300+26.30, 6.00' Lt. Elev. 94.49



RENEWS: 12-31-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUESTOREGON DEPARTMENT
OF TRANSPORTATIONI-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
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HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

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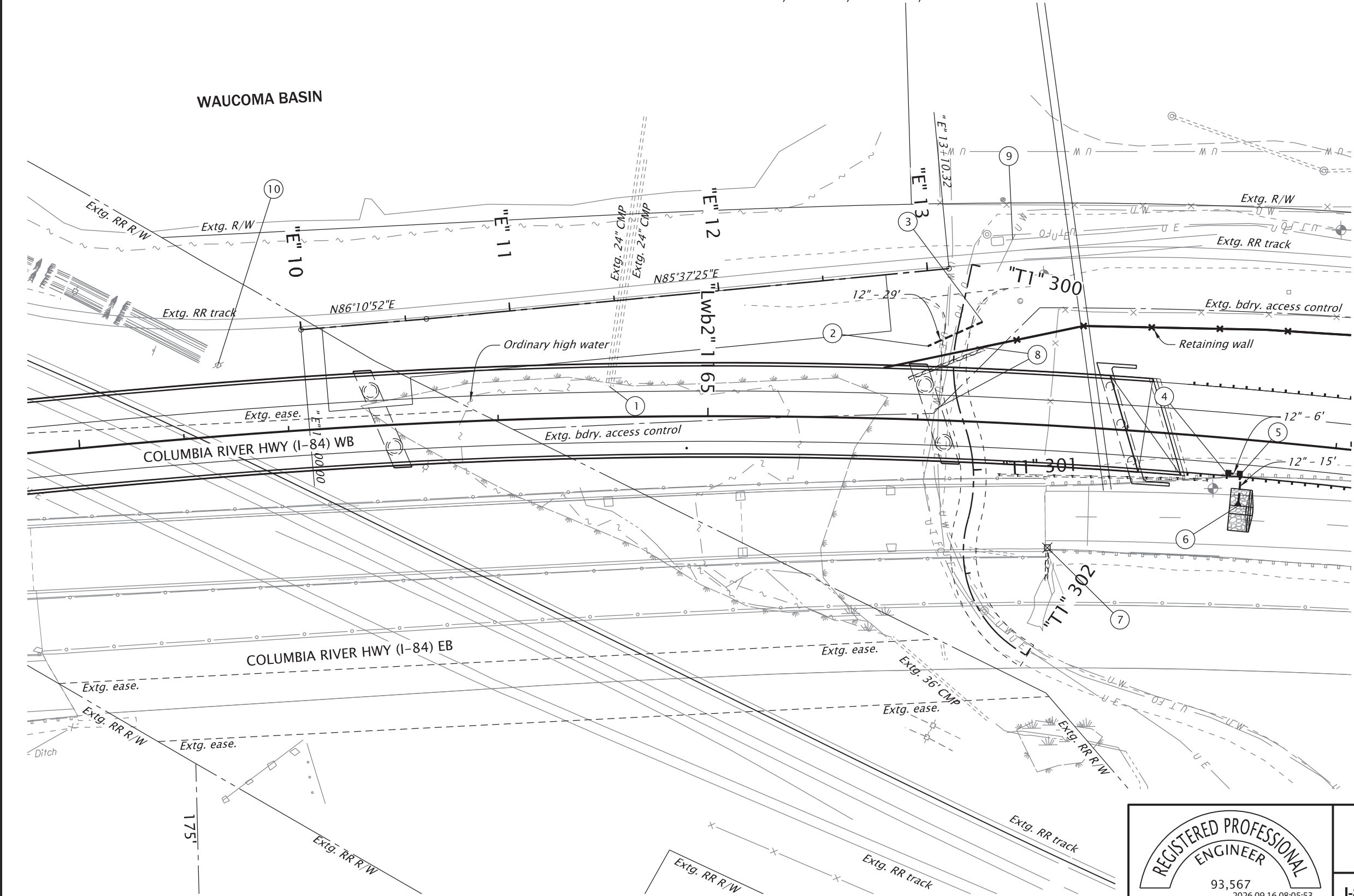
Checker: Anitha Vazrala

GENERAL CONSTRUCTION

SHEET NO.

C04A

Sec. 25, T. 3 N., R 10 E., W.M.



LEGEND
(Items in legend may not appear on plans)

Remove manhole:
Adjust manhole:
Const. manhole:
Remove inlet:
Adjust inlet:
Const. inlet
Const. manhole with inlet:
Cap. manhole / inlet:
Const. pipe:
Const. perf. drain pipe:
Remove pipe:
Inst. paved culvert end slope:
Inst. stormwater ID marker:
Inst. rock riprap:
Ditch:
No work area:
Regulated work area:
Wetland boundary:
Ordinary high water

NOTE:
Confirm drainage structure rim elevations
with roadway finish grade surface elevation
prior to installation.

PLAN
SCALE: 1" = 50'

REGISTERED PROFESSIONAL
ENGINEER
93,567
Digitally Signed 2026.09.16 08:05:53 -07'00'
OREGON
MAY 8, 2018
WILLIAM A. BABICKY

RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION

**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE & UTILITIES

SHEET NO.
C04B

CONSTRUCTION NOTES

- 1
- Sta. "Lwb2" 1164+00 to 1165+00
Inst. temp. water management
(For details, see sheet HD series)
- 2
- Sta. "T1" 300+41.2, 12.7' Rt.
Removal of pipe - 39'
Inst. 12" ductile iron pipe - 29'
5' depth
Const. sloped end section, 12"
Const. loose riprap (Class 50) - 5 cu. yd.
(Riprap pad)
(For details, see sht. C04E)
- 3
- Sta. "T1" 300+25.7, 10.7 Lt.
Const. sloped end section, 12"
(For details, see sht. C04E)
- 4
- Sta. "Lwb2" 1167+50.1, 17.7' Rt.
Const. conc. type G-2 inlet w 1.5' sump
(For details, see sht. C04E)
- 5
- Sta. "Lwb2" 1167+56.0, Rt.
Const. conc. type G-2 inlet w 1.5' sump
Inst. 12" storm sew. pipe - 6'
5' depth
(For details, see sht. C04E)
- 6
- Sta. "Lwb2" 1167+55.8, 31.8' Rt.
Inst. 12" storm sew. pipe - 15'
5' depth, in between guardrail posts
Const. sloped end 12"
Const. paved end slope -26 sq. ft.
Const. loose riprap (Class 50) - 19 cu. yd.
(Energy dissipator and check dam)
Ditch exc. - 11 cu. yds.
(For details, see sht. C04E)
(For details, see sht. HA02)
- 7
- Sta. "Lwb2" 1166+65.2, 58.3' Rt.
Removal of inlet
Removal of pipe - 16'
- 8
- Relocate extg. utilities
(by others)
- 9
- Protect extg. utilites in place
- 10
- See sht. C03C note 15

REGISTERED PROFESSIONAL
ENGINEER
93,567
Digitally Signed 2026.09.16 08:06:37 -07'00'
OREGON
MAY 8, 2018
WILLIAM A. BABICKY

RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

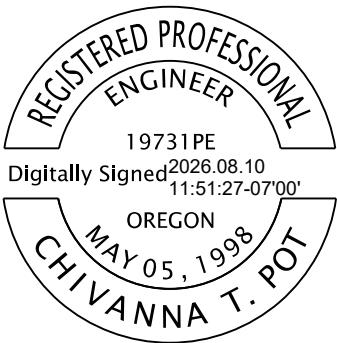
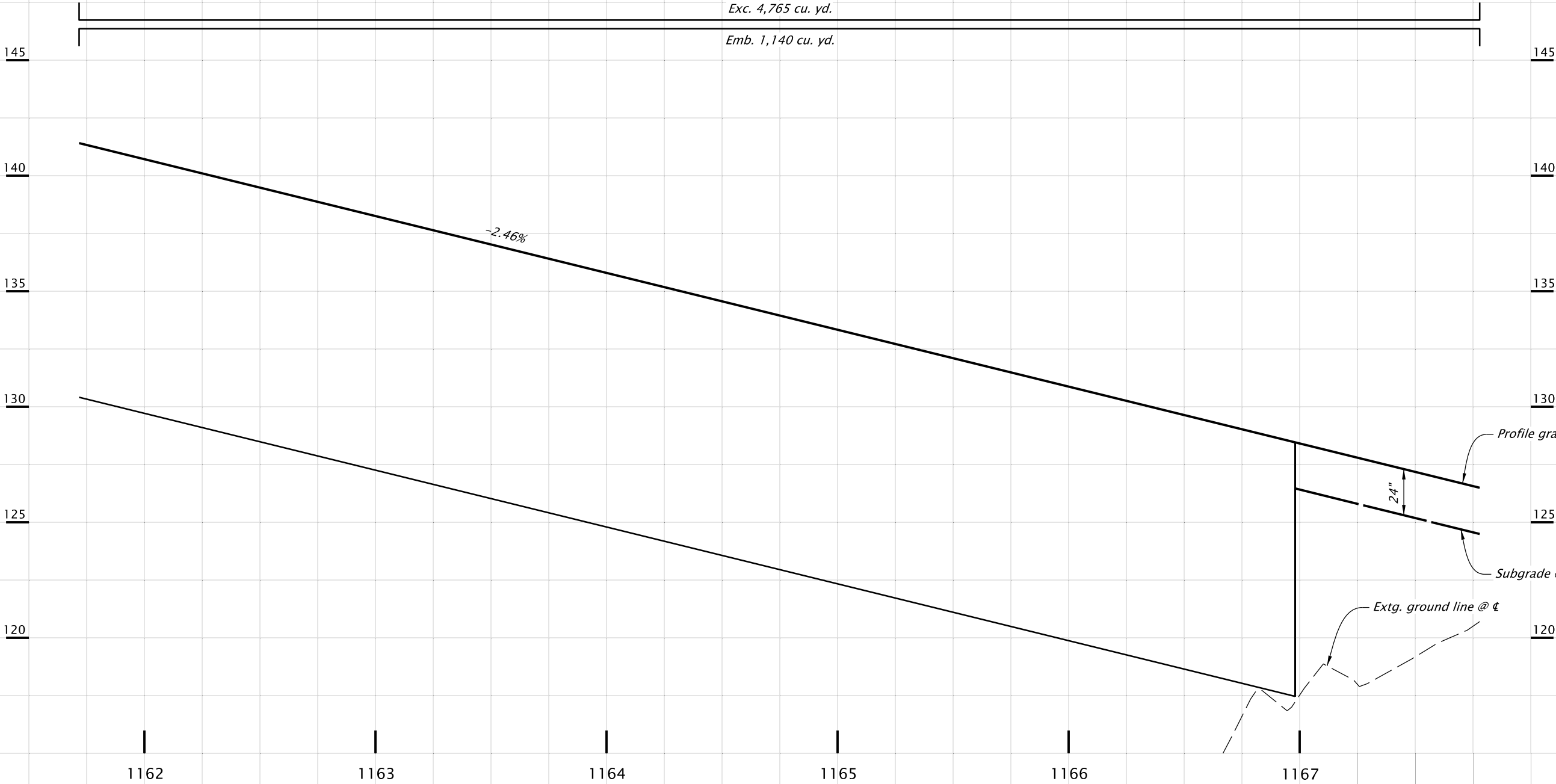
Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE & UTILITIES NOTES

SHEET NO.
C04C

" Lwb2 " LINE



RENEWES: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



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COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

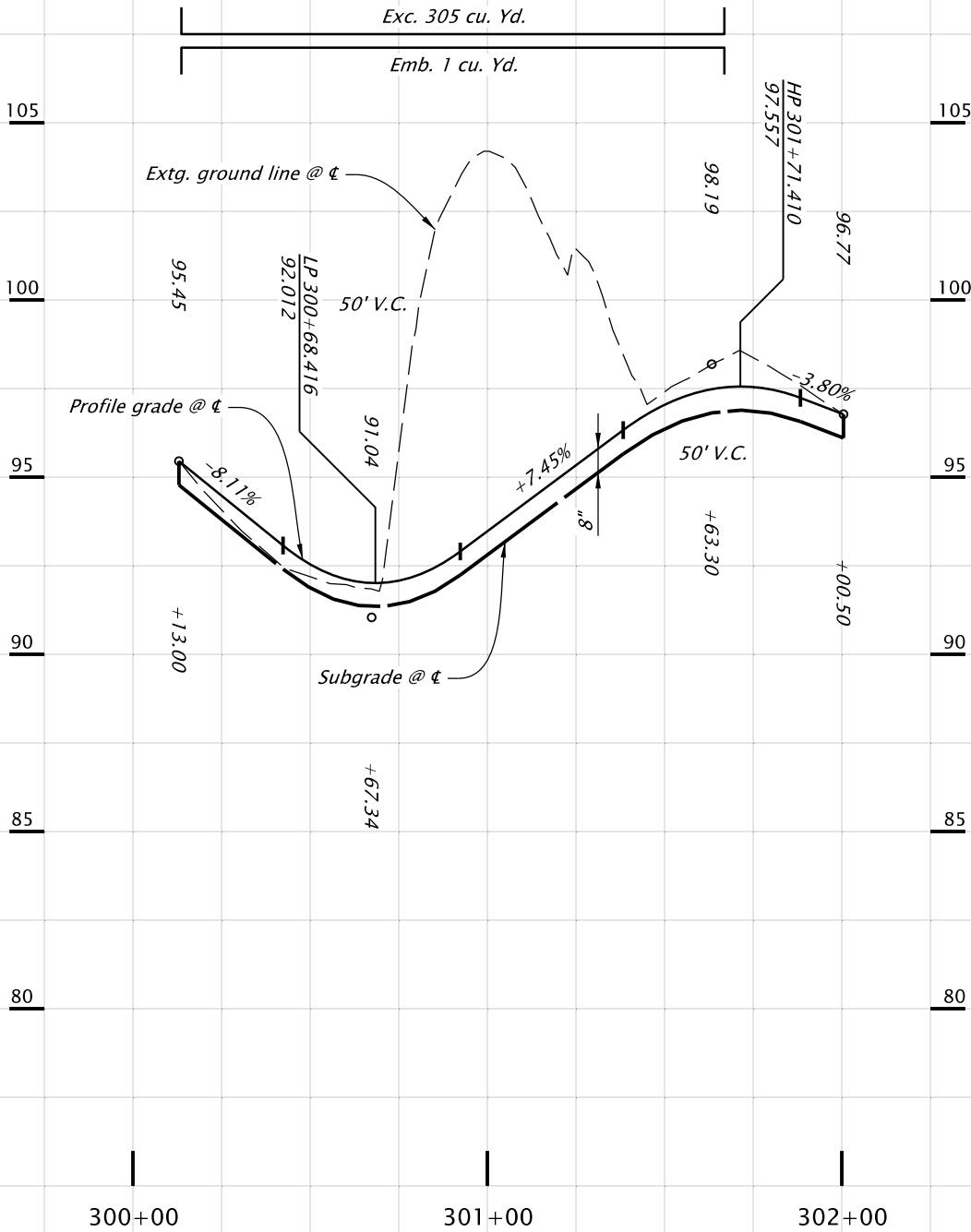
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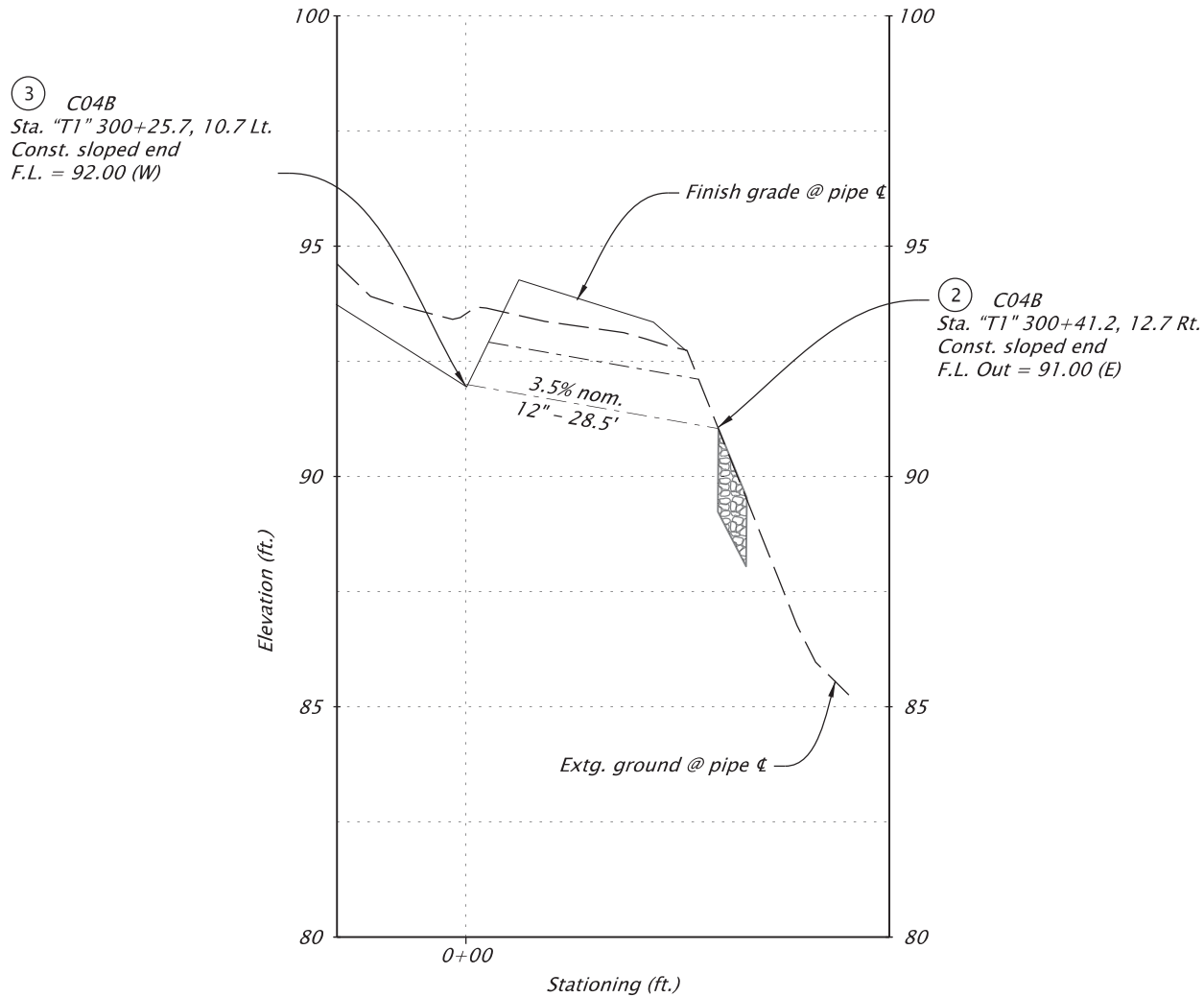
Checker: Anitha Vazrala

PROFILE

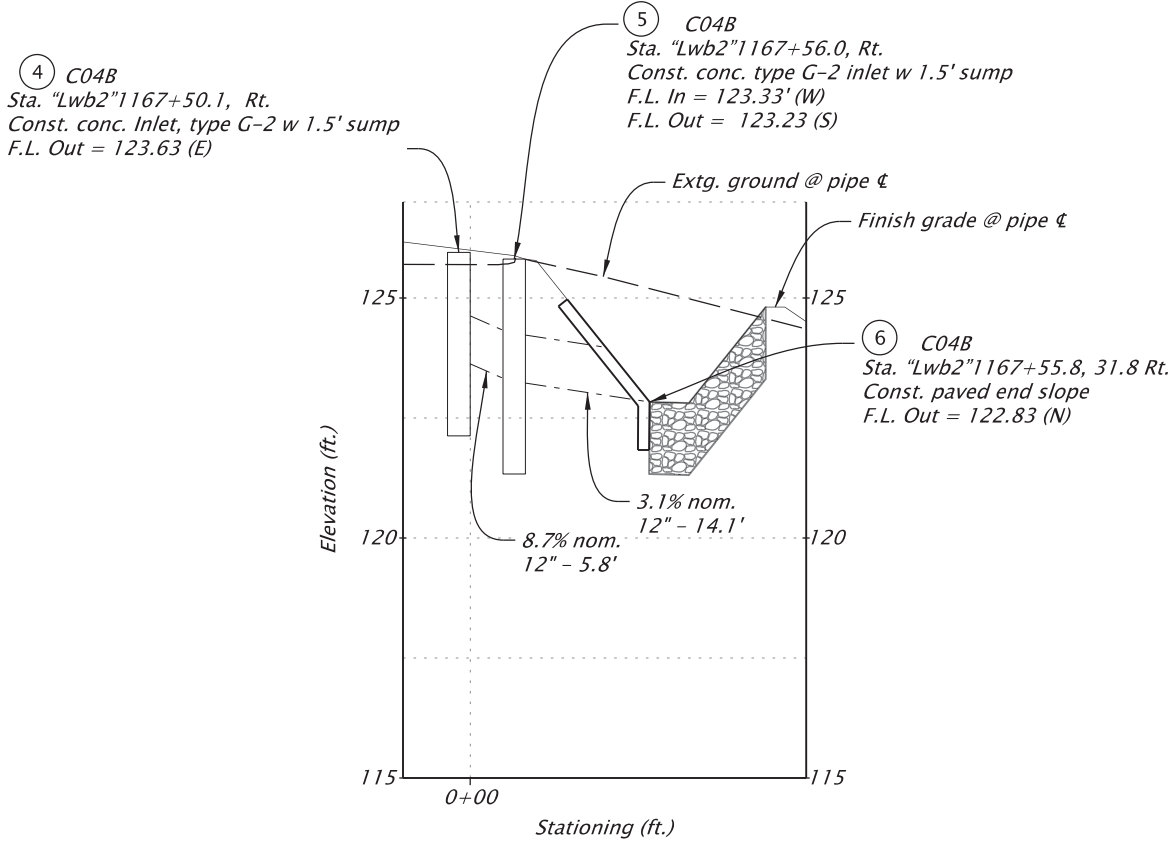
SHEET NO.
C04D



 RENEWS: 12-31-2026 FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Chivanna Pot	Reviewer: Bryan Dahlman
	CADD Tech: Sue Cross	Checker: Anitha Vazrala
PROFILE		SHEET NO. C04E



Profile Along Pipe 4
STA "T1" 300+25 TO "T1" 300+44
SCALE: 1" = 20'



Profile Along Pipe 4
STA "LWB2" 1167+50 TO "LWB2" 1167+56
SCALE: 1" = 20'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

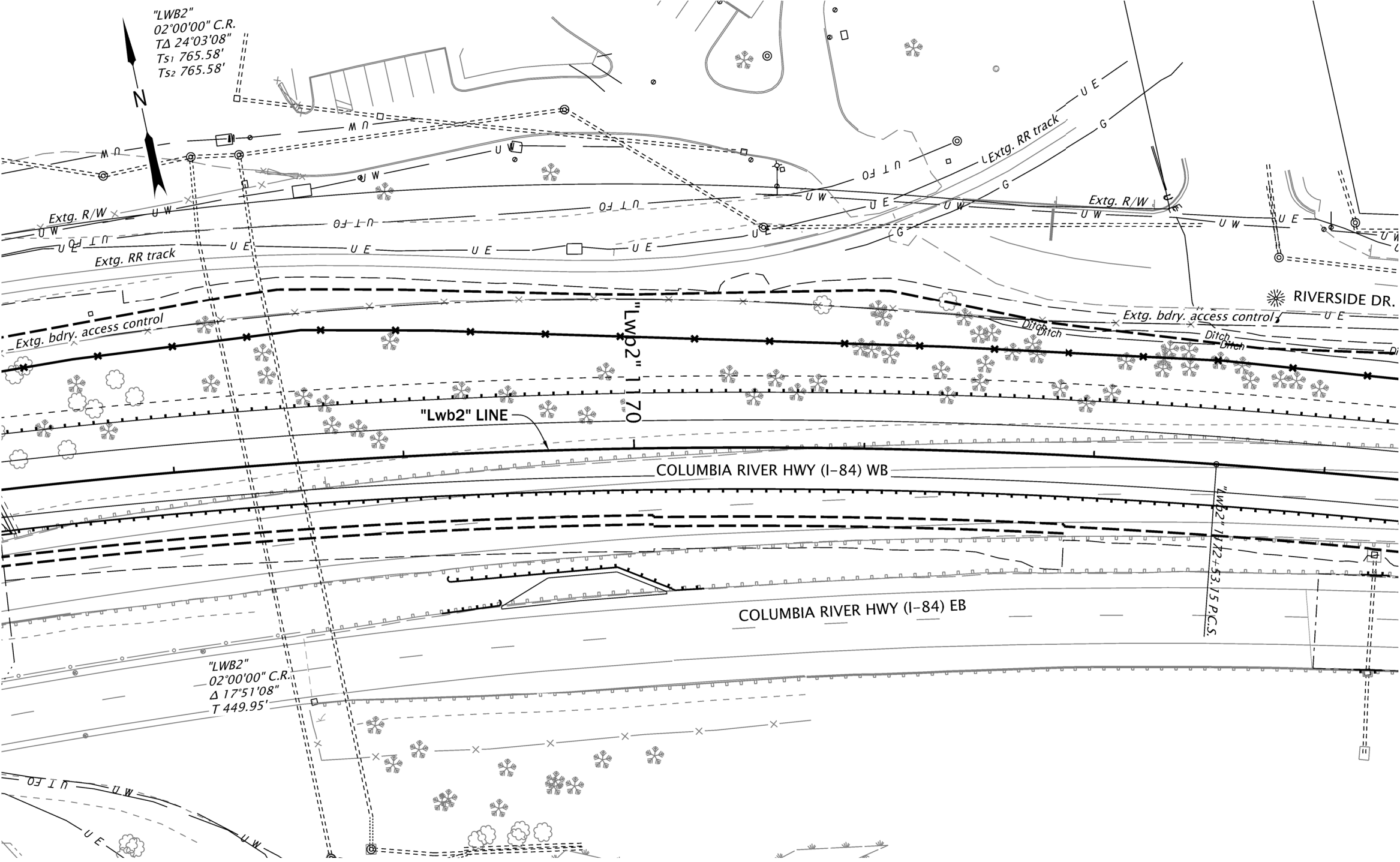
Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE PROFILE

SHEET NO.
C04F

Sec. 25, T. 3 N., R 10 E., W.M.

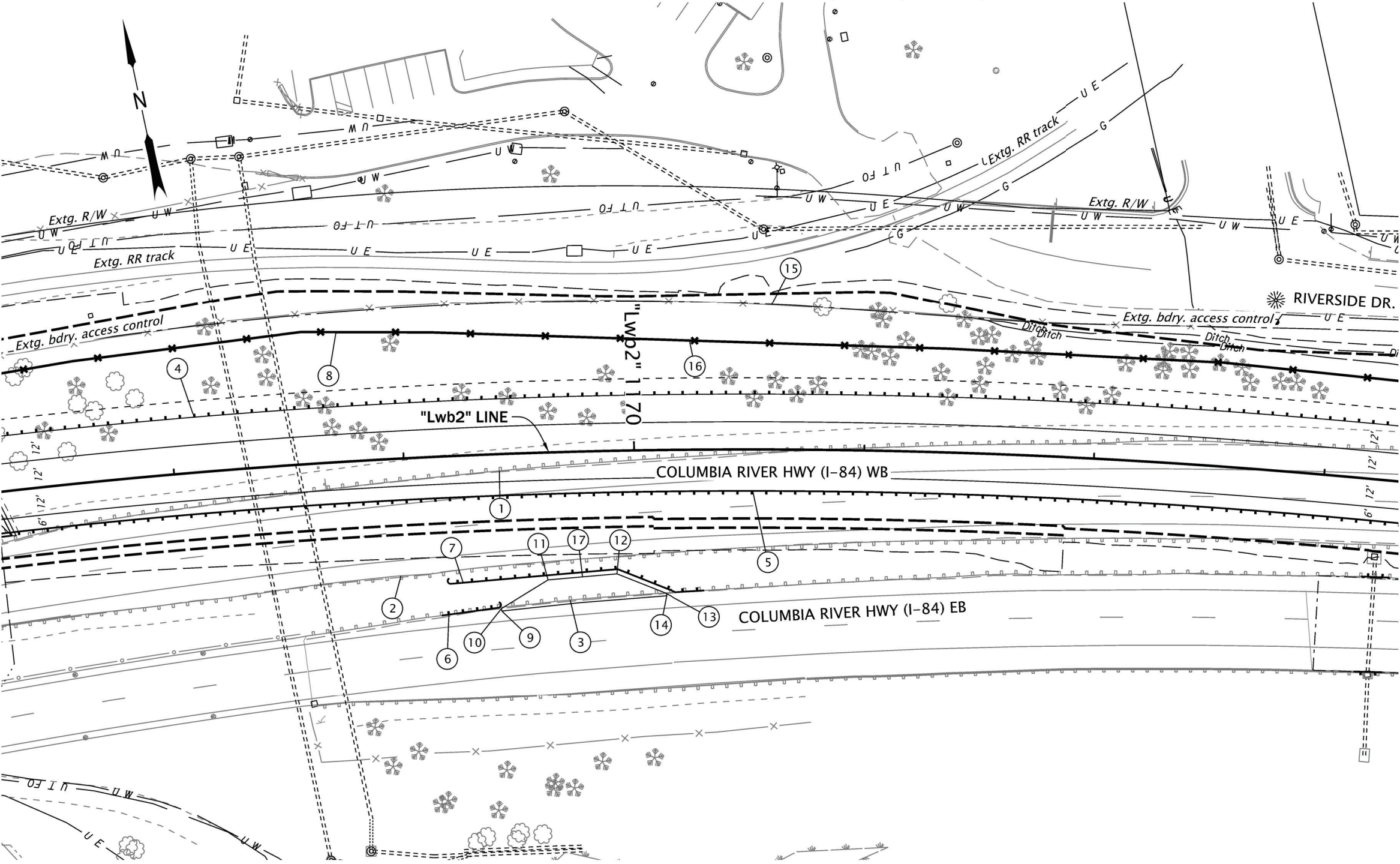


PLAN
SCALE: 1" = 50'



OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Chivanna Pot	Reviewer: Bryan Dahlman
CADD Tech: Sue Cross	Checker: Anitha Vazrala
ALIGNMENT	SHEET NO. C05

Sec. 25, T. 3 N., R 10 E., W.M.



PLAN
SCALE: 1" = 50'

CONSTRUCTION NOTES

- 1 Remove extg. guardrail - 1077.74'
- 2 Remove extg. guardrail - 1063.5'
- 3 Removal extg. guardrail - 112.5'
- 4 Sta. "Lwb2" 1167+27.13 to Sta. "Lwb2" 1177+39.27, Lt. Const. Type "F" conc. rail, 42" transition to guardrail Const. Midwest Guardrail System - 12.5' (Type 3 Weatherized) Const. Midwest Guardrail System - 1000.0' (Type 2A Weatherized)
- 5 Sta. "Lwb2" 1167+27.13 to Sta. "Lwb2" 1177+39.27, Rt. Const. Type "F" conc. rail, 42" transition to guardrail Const. Midwest Guardrail System - 12.5' (Type 3 Weatherized) Const. Midwest Guardrail System - 987.5' (Type 2A Weatherized)
- 6 Sta. "Lwb2" 1169+13.25 to Sta. "Lwb2" 1169+38.74, Rt. Const. guardrail end piece, Type C Const. guardrail anchor, Type 1 Const. guardrail - 28.125' (Type 2A Weatherized)
- 7 Sta. "Lwb2" 1169+17.79 to Sta. "Lwb2" 1170+30.26, Rt. Const. guardrail end piece, Type C Const. guardrail anchor, Type 1 Const. guardrail - 103.125' (Type 2A Weatherized)
- 8 Structure no. 24391 Const. retaining wall (For sht. nos., see sht. A02, Geotechnical)
- 9 Sta. "Lwb2" 1169+40.00, 68.04' Rt. Elev. 122.32
- 10 Sta. "Lwb2" 1169+39.92, 66.95 Rt. Elev. 122.32
- 11 Sta. "Lwb2" 1169+60.97, 55.24 Rt. Elev. 121.51
- 12 Sta. "Lwb2" 1169+91.49, 53.38 Rt. Elev. 120.70
- 13 Sta. "Lwb2" 1170+13.20, 62.23 Rt. Elev. 120.23
- 14 Sta. "Lwb2" 1170+13.39, 63.24 Rt. Elev. 120.23
- 15 Remove extg. fence
- 16 Fence (See shts. GB07 and GB08)
- 17 Maintenance pad 2 (For details, see sht. BB07) (See dwg. No. RD160)



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



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(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

GENERAL CONSTRUCTION

SHEET NO.

C05A

Sec. 25, T. 3 N., R 10 E., W.M.



LEGEND

(Items in legend may not appear on plans)

- Remove manhole: [Symbol]
- Adjust manhole: [Symbol]
- Const. manhole: [Symbol]
- Remove inlet: [Symbol]
- Adjust inlet: [Symbol]
- Const. inlet: [Symbol]
- Const. manhole with inlet: [Symbol]
- Cap. manhole / inlet: [Symbol]
- Const. pipe: [Symbol]
- Const. perf. drain pipe: [Symbol]
- Remove pipe: [Symbol]
- Inst. paved culvert end slope: [Symbol]
- Inst. stormwater ID marker: [Symbol]
- Inst. rock riprap: [Symbol]
- Ditch: [Symbol]
- No work area: [Symbol]
- Regulated work area: [Symbol]
- Wetland boundary: [Symbol]
- Ordinary high water: [Symbol]

NOTE:
Confirm drainage structure rim elevations
with roadway finish grade surface elevation
prior to installation.

PLAN
SCALE: 1" = 50'

REGISTERED PROFESSIONAL
ENGINEER
93,567
Digitally Signed 2026.07.30 11:09:27 -07'00'
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWES: 12-31-2027
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones
Reviewer: David McDonald
Checker: David McDonald

DRAINAGE & UTILITIES

SHEET NO.
C05B

CONSTRUCTION NOTES

- 1
- See sheet C04B for details
- 2
- Sta. "Lwb2" 1170+30.2, Rt. to 1171+88.7, Rt.
Const. water quality swale, D01803
Inst. drainage facility marker, Type S1 & S2 – 2 ea.
DFI no. D01803
(For details, see HA series)
- 3
- Sta. "Lwb2" 1171+88.7, 32.0' Rt.
Const. conc. inlet, type D w 1.5' sump
Const. loose riprap (stone embankment) – 17 cu. yds.
(Check dam)
Ditch exc. – 11 cu. yds.
(For details, see shts. C05E & HA06)
- 4
- Sta. "Lwb2" 1173+24.1, 31.1' Rt.
Removal of inlet
Const. conc. inlet, type D mod. w 1.5' sump
Inst. 12" storm sew. pipe – 145'
5' depth
(For details, see shts. C05E & HA02)
- 5
- Sta. "Lwb2" 1173+26.7, 83.3' Rt.
Removal of inlet
Removal of pipe – 54'
Const. conc. inlet, type G-2 w 1.5' sump
Inst. 18" storm sew. pipe – 53'
10' depth
Asphalt pavement sawcutting – 84 ft.
(6 to 14 inches deep)
Trench resurf. – 13 sq. yd.
(For details, see shts. C05E & HA02)
- 6
- Sta. "Lwb2" 1173+27.7, 100.4' Rt.
Inst. 3 piece elbow (shop fabricated)
Inst. 18" storm sew. pipe – 18'
10' depth
(For details, see shts. C05E & HA02)
- 7
- Sta. "Lwb2" 1173+28.8, 119.9' Rt.
Removal of pipe – 34'
Remove end section, Lt.
Inst. 12" storm sew. pipe – 20'
5' depth (w pipe anchors)
Inst. 3 piece elbow (shop fabricated)
Const. sloped end section, 12"
Const. loose riprap (Class 50) – 5 cu. yd.
(Riprap pad)
(For details, see shts. C05E & HA04)
- 8
- Sta. "Lwb2" 1173+34.7, 31.2' Rt.
Const. conc. inlet, type D mod. w 1.5' sump
(For details, see sht. C05E)
- 9
- See sheet C06A for guardrail details

REGISTERED PROFESSIONAL
ENGINEER
93,567
Digitally Signed 2026.07.30 11:12:36 -07'00'
OREGON
MAY 8, 2018
WILLIAM A. BABICKY

RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE & UTILITIES NOTES

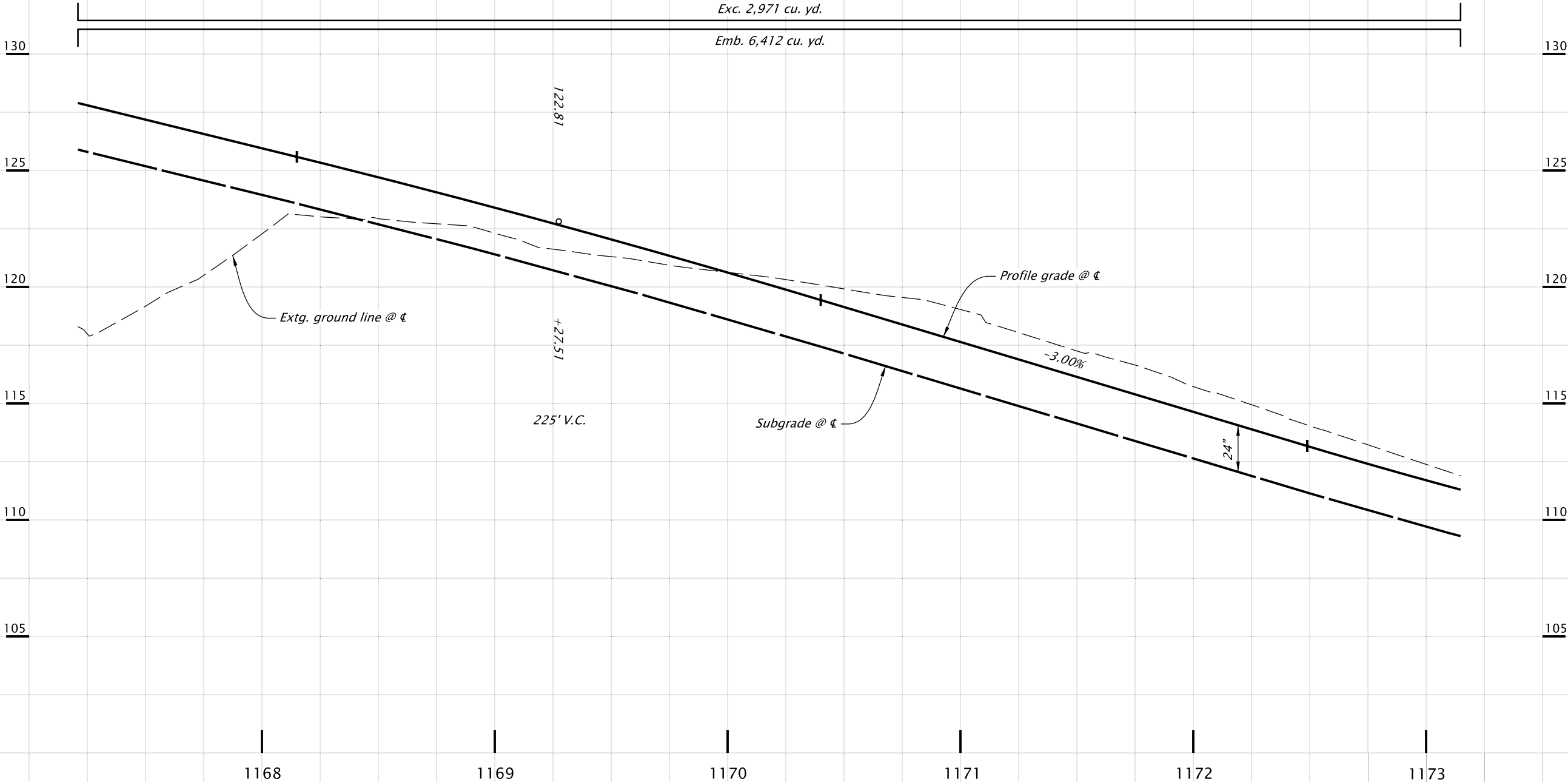
SHEET NO.
C05C

R_K21683_nt_02.dgn :: C05C 7/29/2026 10:03:02 AM hwye41y

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

" Lwb2 " LINE

60V-001



OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

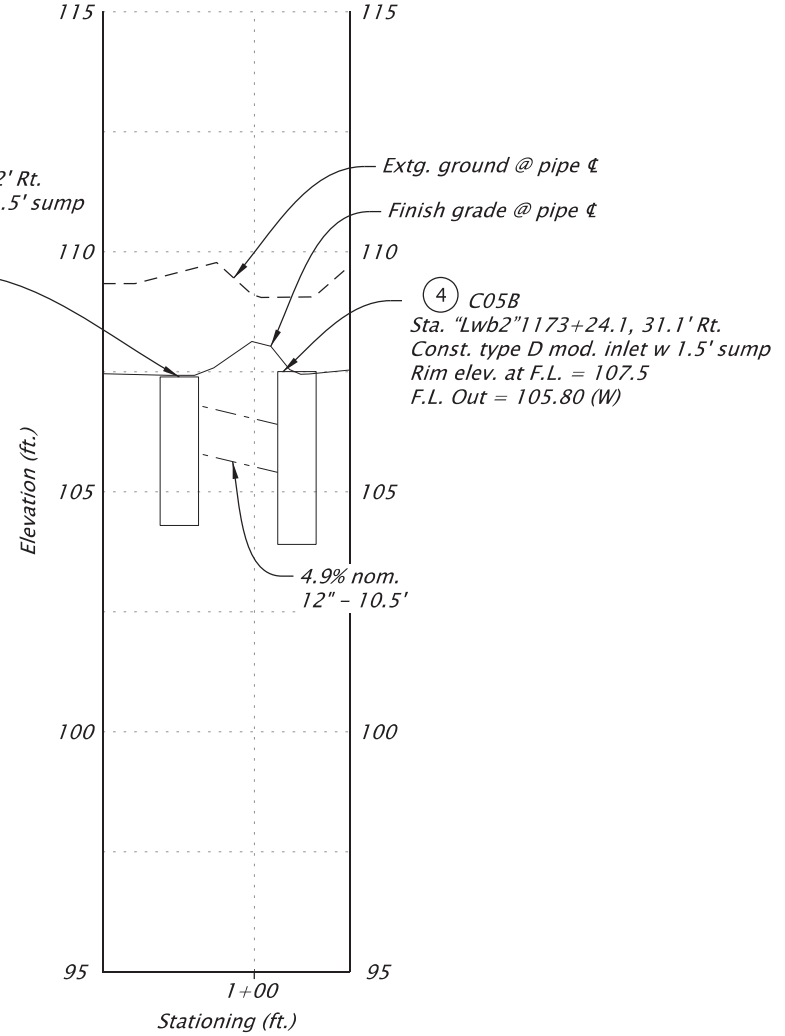
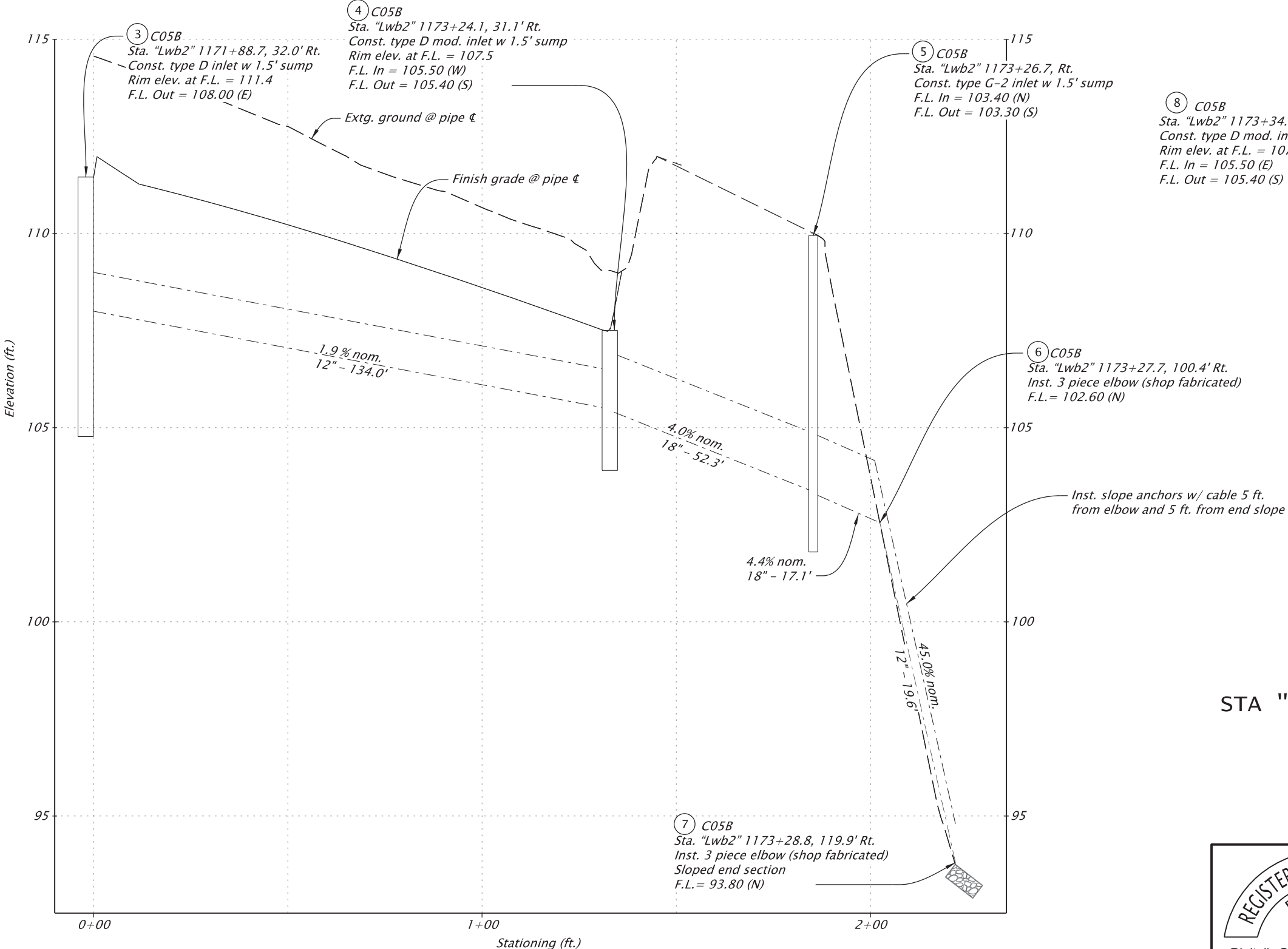
Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

PROFILE

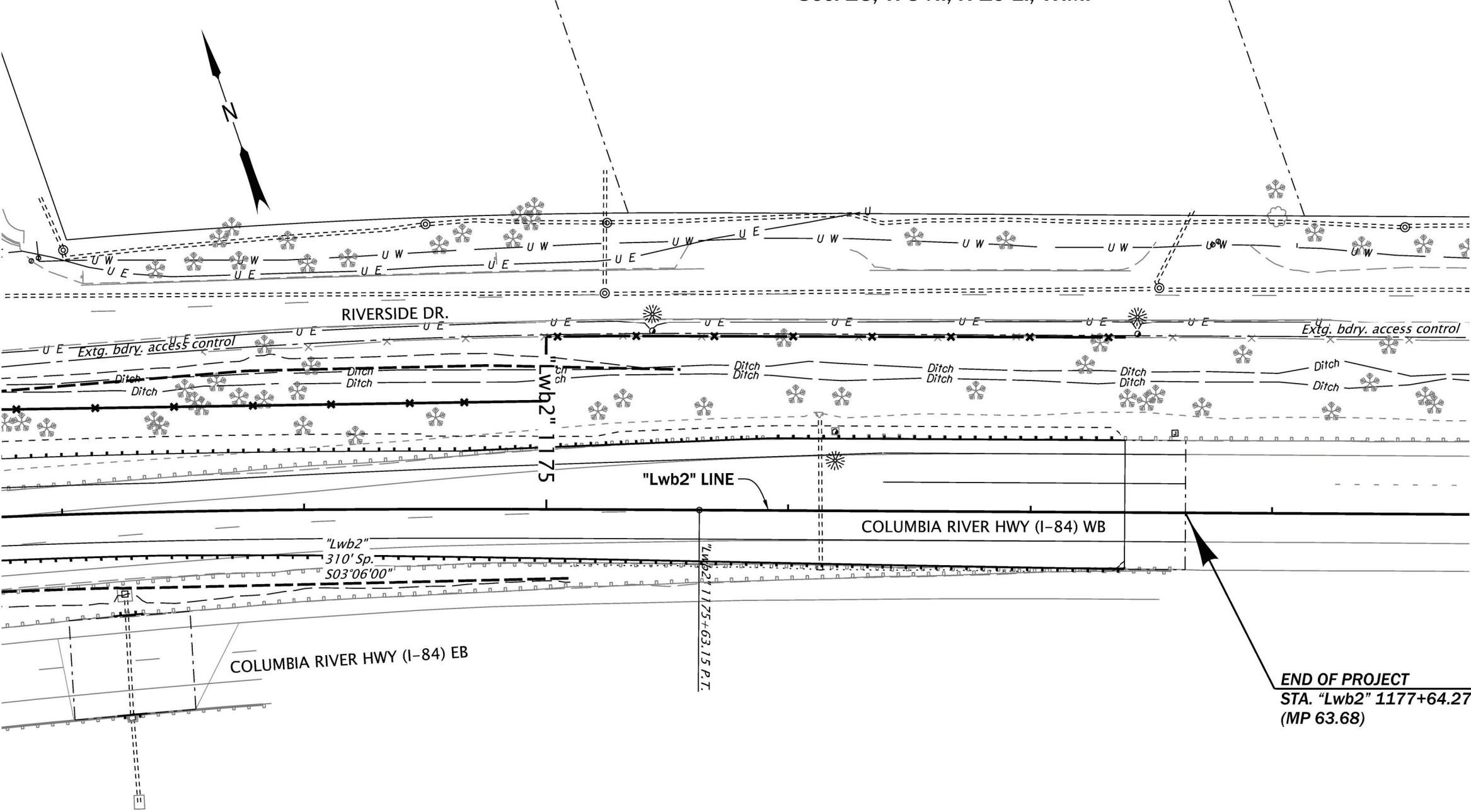
SHEET NO.
C05D



Profile Along Pipe 4
STA "LWB2" 1173+24 TO "LWB2" 1173+35
SCALE: 1" = 20'

 RENEWS: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Alan Babicky CADD Tech: Matthew Jones	Reviewer: David McDonald Checker: David McDonald
DRAINAGE PROFILE		SHEET NO. C05E

Sec. 25, T. 3 N., R 10 E., W.M.



END OF PROJECT
STA. "Lwb2" 1177+64.27
(MP 63.68)

PLAN
SCALE: 1" = 50'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



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(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

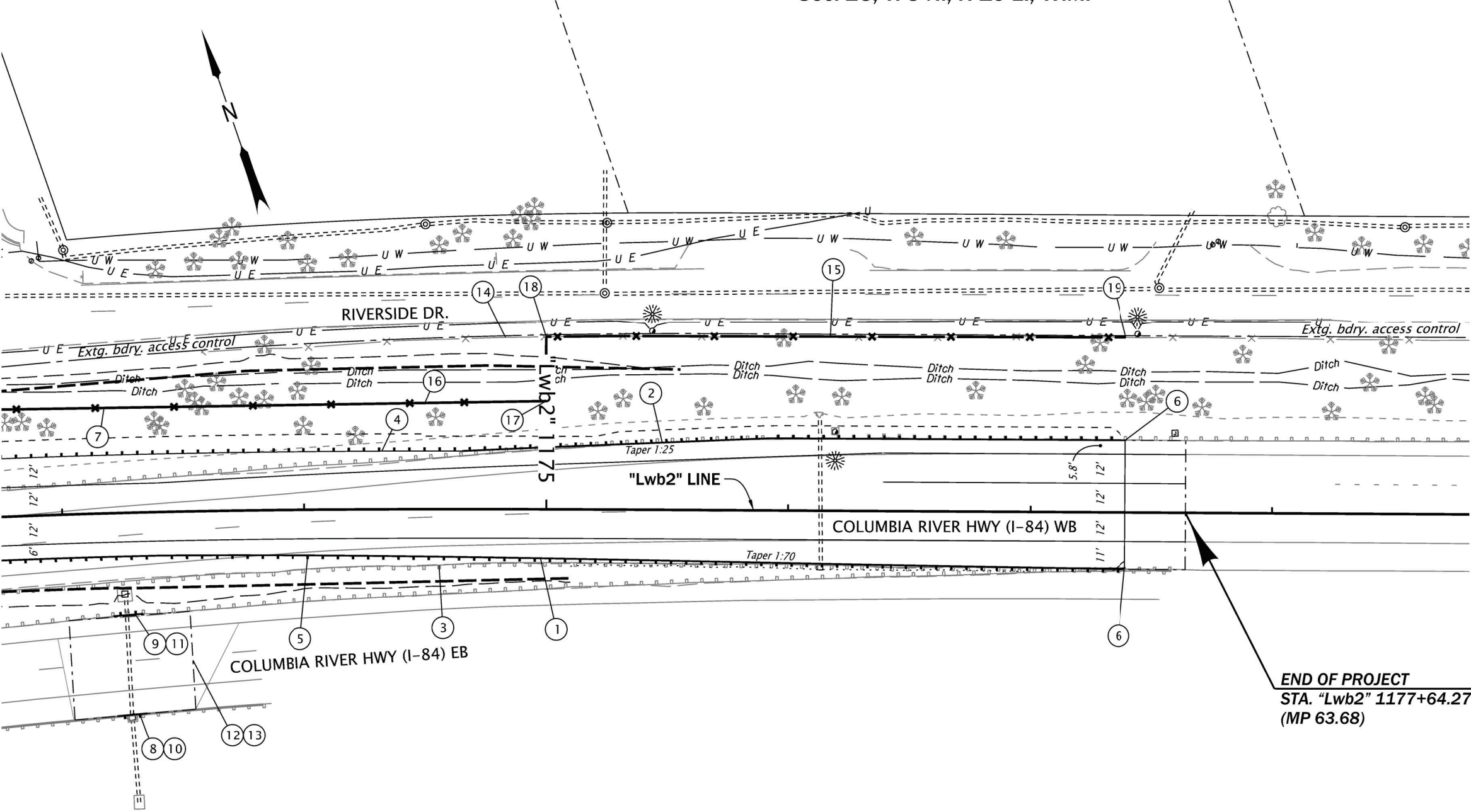
Checker: Anitha Vazrala

ALIGNMENT

SHEET NO.

C06

Sec. 25, T. 3 N., R 10 E., W.M.



PLAN
SCALE: 1" = 50'



RENEWALS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

GENERAL CONSTRUCTION

SHEET NO.

C06A

CONSTRUCTION NOTES

- 1
- Const. asph. conc. drainage curb
- 2
- See sht. C05A, note 2
Remove extg. guardrail
- 3
- See sht. C05A, note 3
Remove extg. guardrail
- 4
- See sht. C05A, note 4
Const. guardrail
- 5
- See sht. C05A, note 5
Const. guardrail
- 6
- Const. guardrail conversion – 2
- 7
- See sht. C05A, note 8
Structure no. 24391
Const. retaining wall
- 8
- Remove extg. guardrail – 12.5'
- 9
- Remove extg. guardrail – 12.5'
- 10
- Const. guardrail – 12.5' (Type 2A Weatherized)
- 11
- Const. guardrail – 12.5' (Type 2A Weatherized)
- 12
- Cold plane pvmt. removal – 2" deep
228 sq. yd.
- 13
- Const. lv. 4, 1/2" asph. conc. pvmt. – 2" deep
12.6 tons
- 14
- Remove extg. Fence
- 15
- Fence
(See shts. GB07 and GB08)
- 16
- Sta. "Lwb2" 1174+49.93, 43.82 Lt.
Const. chain link fence, Types CL4
(See dwg. Nos. RD815)
- 17
- Sta. "Lwb2" 1174+99.70, 44.69 Lt.
Const. chain link fence, Types CL4
- 18
- Sta. "Lwb2" 1174+99.71, 71.26 Lt.
Const. chain link fence, Types CL4
- 19
- Sta. "Lwb2" 1177+39.27, 72.33 Lt.
Const. chain link fence, Types CL4

REGISTERED PROFESSIONAL
ENGINEER
96,102 PE
Digitally Signed 2026.09.16 08:36:28 -07'00'
OREGON
MAY 12, 2020
RAYMOND D. CHONG

RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot
CADD Tech: Sue Cross

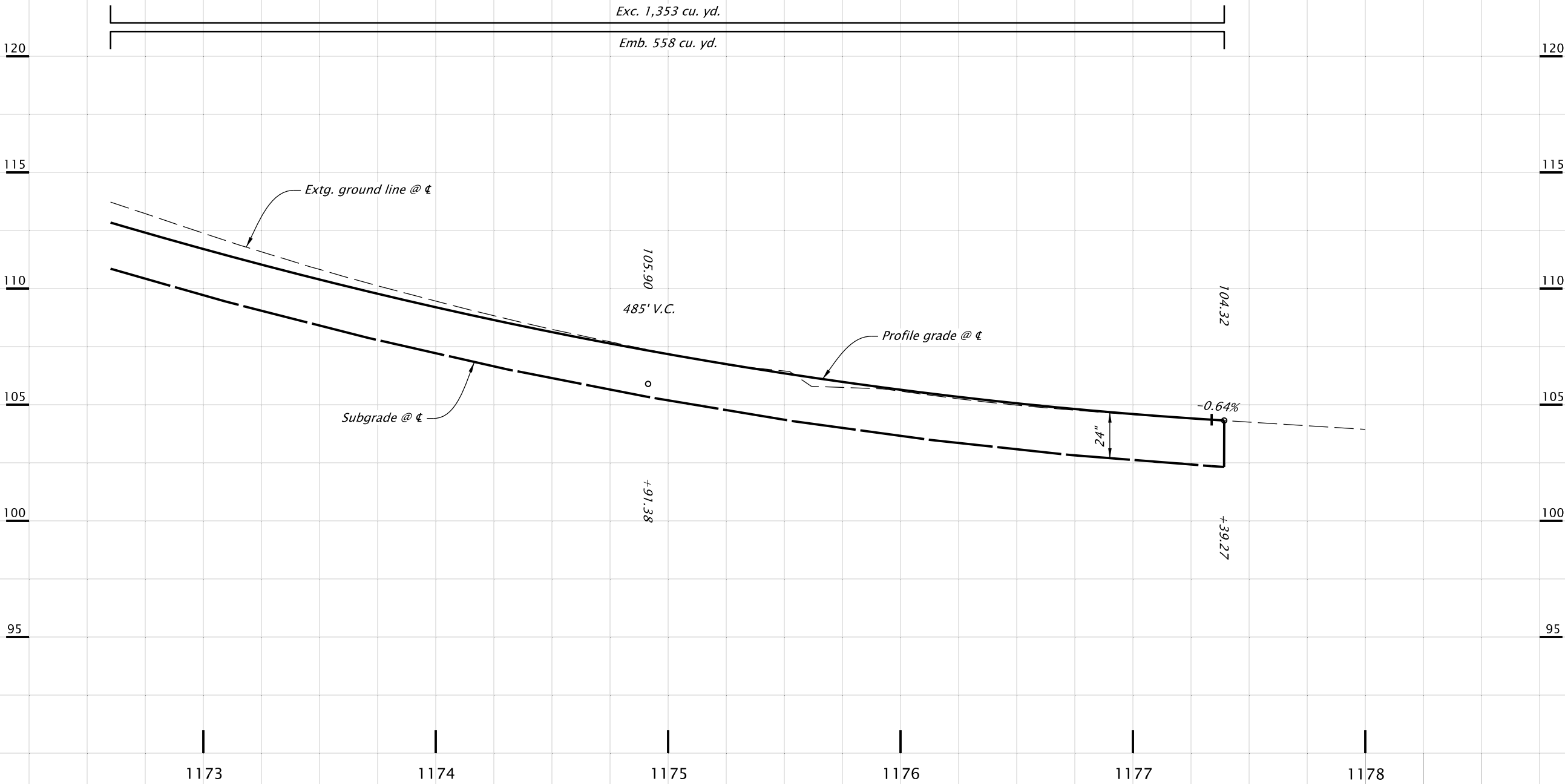
Reviewer: Bryan Dahlman
Checker: Anitha Vazrala

GENERAL CONSTRUCTION NOTES

SHEET NO.
C06B

" Lwb2 " LINE

60V-001



RENEWS: 12-31-2026

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Chivanna Pot

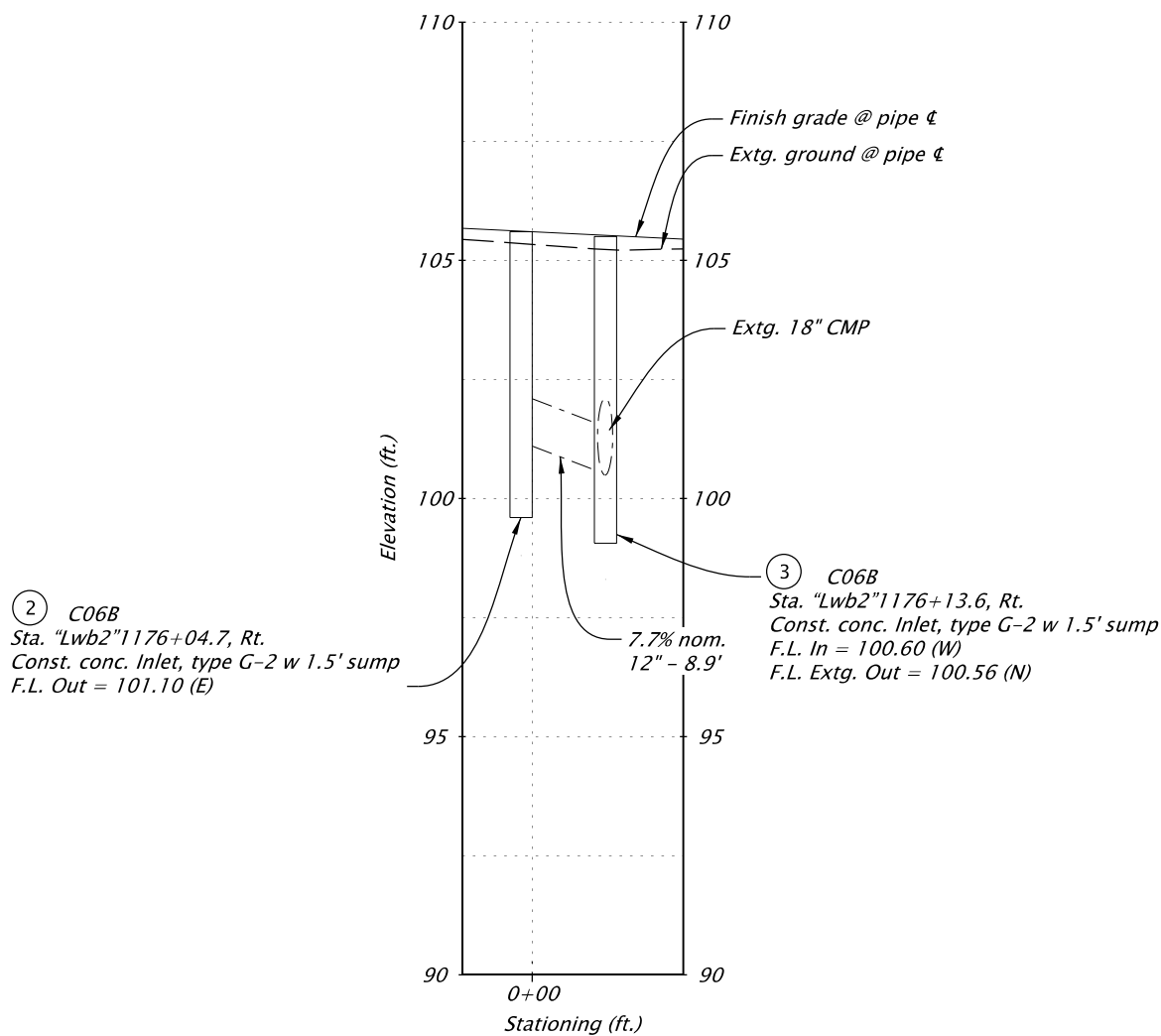
Reviewer: Bryan Dahlman

CADD Tech: Sue Cross

Checker: Anitha Vazrala

PROFILE

SHEET NO.
C06C



Profile Along Pipe 4
STA "LWB2" 1176+04 TO "LWB2" 1176+14
SCALE: 1" = 20'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

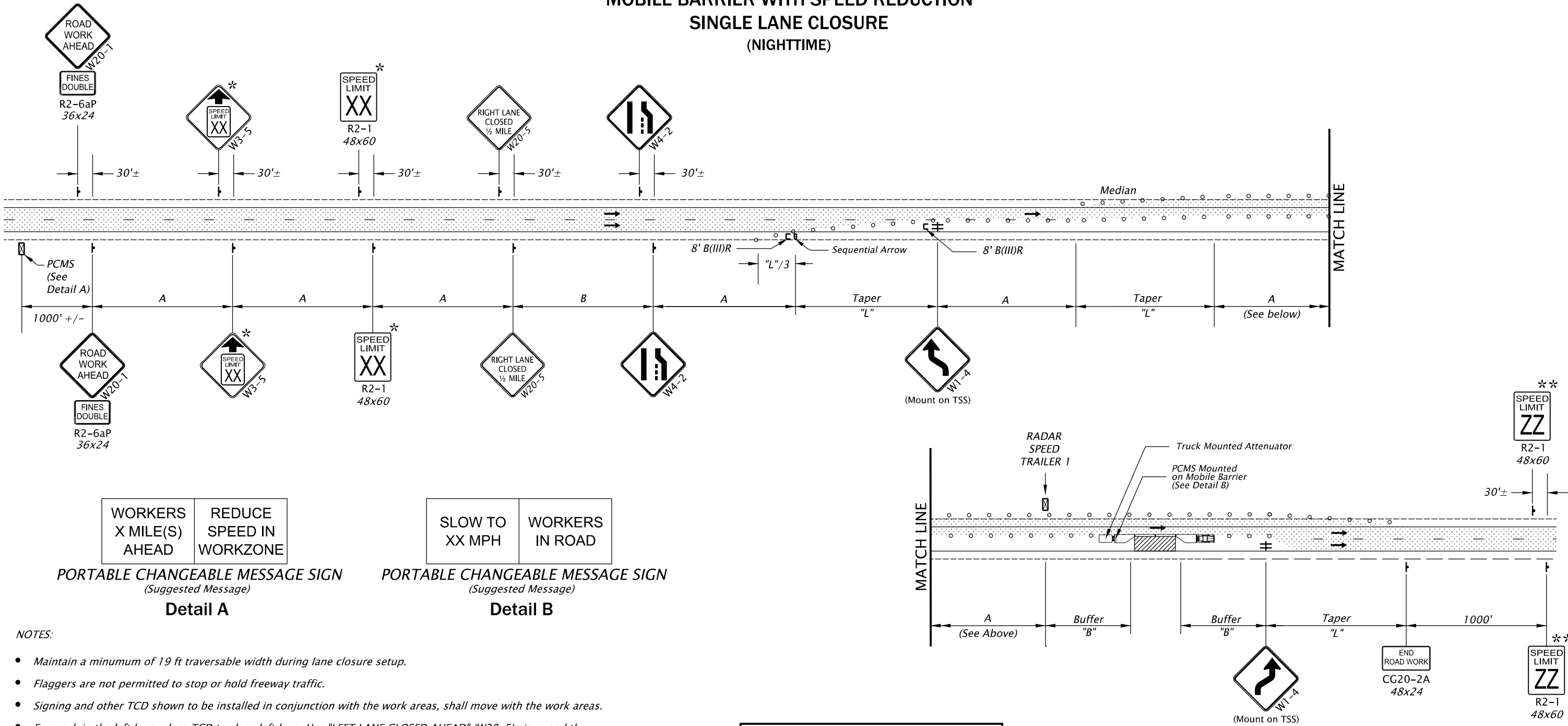
Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

DRAINAGE PROFILE

SHEET NO.
C06D

MOBILE BARRIER WITH SPEED REDUCTION
SINGLE LANE CLOSURE
(NIGHTTIME)



- NOTES:
- Maintain a minimum of 19 ft traversable width during lane closure setup.
 - Flaggers are not permitted to stop or hold freeway traffic.
 - Signing and other TCD shown to be installed in conjunction with the work areas, shall move with the work areas.
 - For work in the left lane, place TCD to close left lane. Use "LEFT LANE CLOSED AHEAD" (W20-5) signs and the "LEFT LANE ENDS" (W4-2) signs.
 - Remove shoulder rumble strips prior to shifting traffic onto shoulder.
 - To determine Taper Length ("L") and Buffer Length ("B"), use the "MINIMUM LENGTHS TABLE" on Dwg. No. TM800.
 - When the length of the area under construction is less than 600 ft., use a DOUBLE REVERSE CURVE (W1-4) sign in place of the first REVERSE CURVE (W1-4) sign.
 - To determine sign spacing A, B, and C, use "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Dwg. No. TM800.
 - All diamond shaped temporary signs are 48" x 48" unless otherwise shown.
 - All dimensions are in inches unless otherwise shown.
 - * "SPEED LIMIT XX" shown on signs to be determined by an approved speed zone order from State Traffic-Roadway Engineer.
 - ** Install two "SPEED LIMIT ZZ" (R2-1) signs displaying the pre-construction speed limit. Do not install the two "SPEED LIMIT ZZ" signs if located 1000' or less in advance of existing SPEED LIMIT signs, or as directed.

ACCOMPANIED BY DWGS.:
RD400, RD415, RD417, RD500, RD501, RD503,
RD530, RD545, RD570, TM204, TM212, TM670,
TM671, TM677, TM681, TM687, TM688, TM800,
TM810, TM820, TM821, TM822, TM830, TM831,
TM833, TM840, TM861, TM862, and TM880.

- ⊕ TEMPORARY SIGN SUPPORT
- ○ ○ Temp. Plastic Drums
See TCD Spacing Table on
TM800 for max. spacing.
- ▨ UNDER TRAFFIC
- ▨ UNDER CONSTRUCTION



RENEWES: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

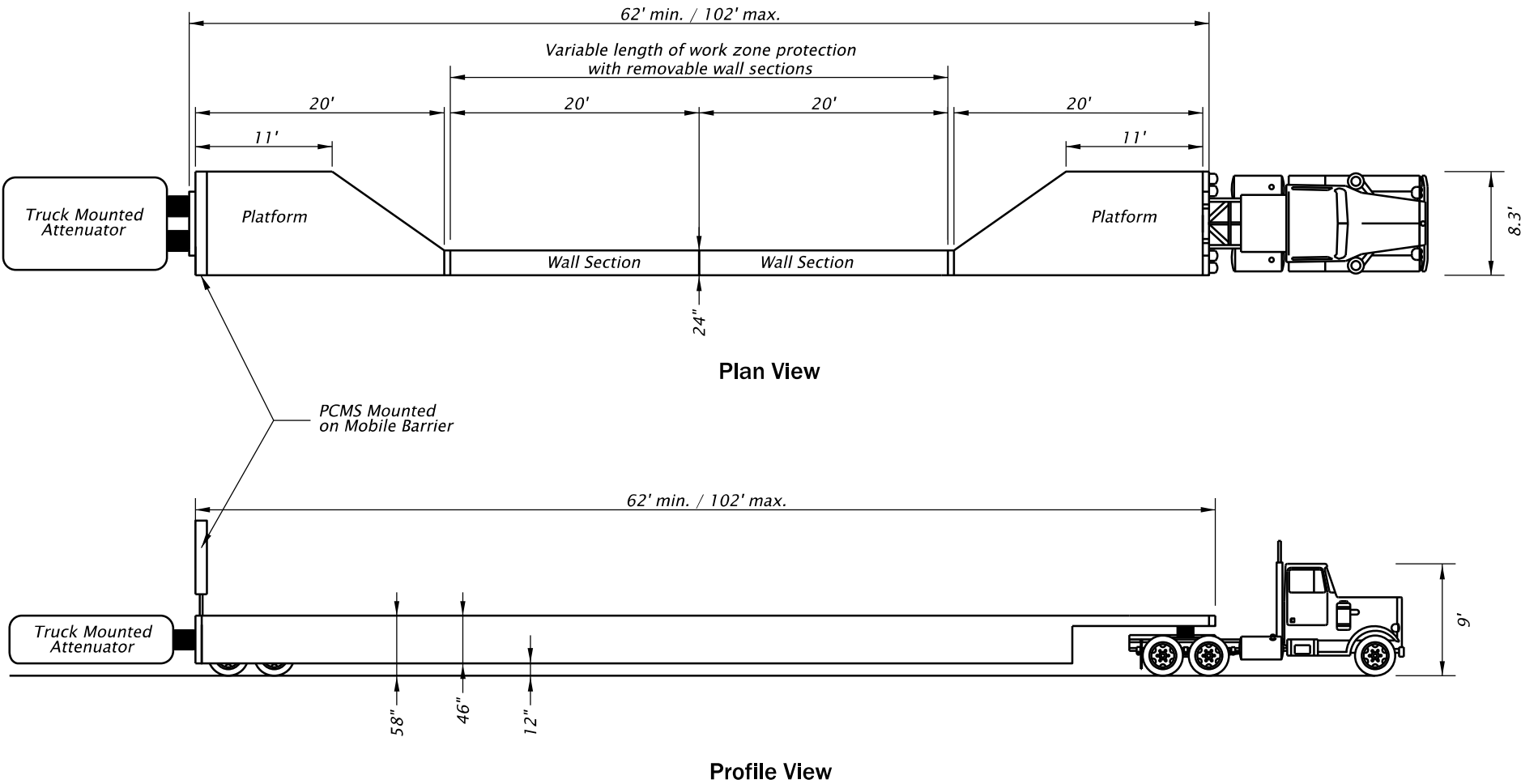
Checker: C. Mao

TRAFFIC CONTROL DETAILS

SHEET NO.

EA01

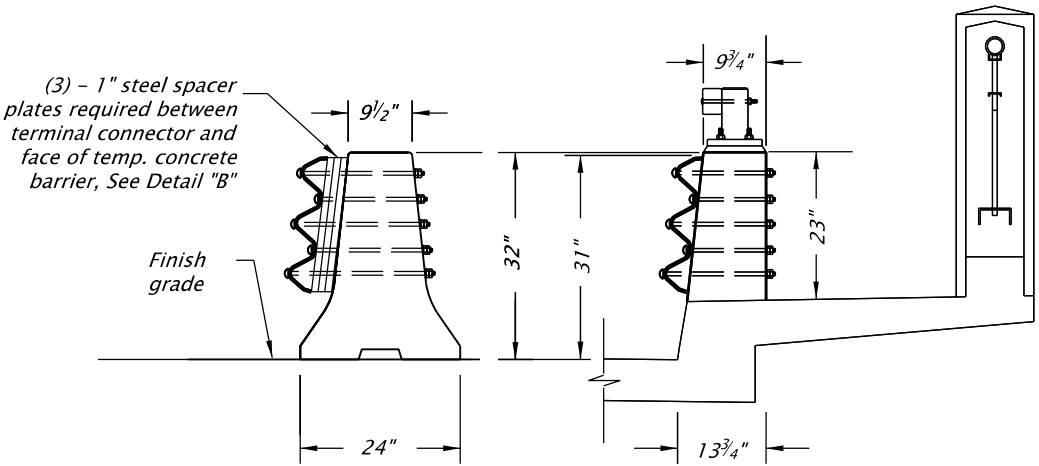
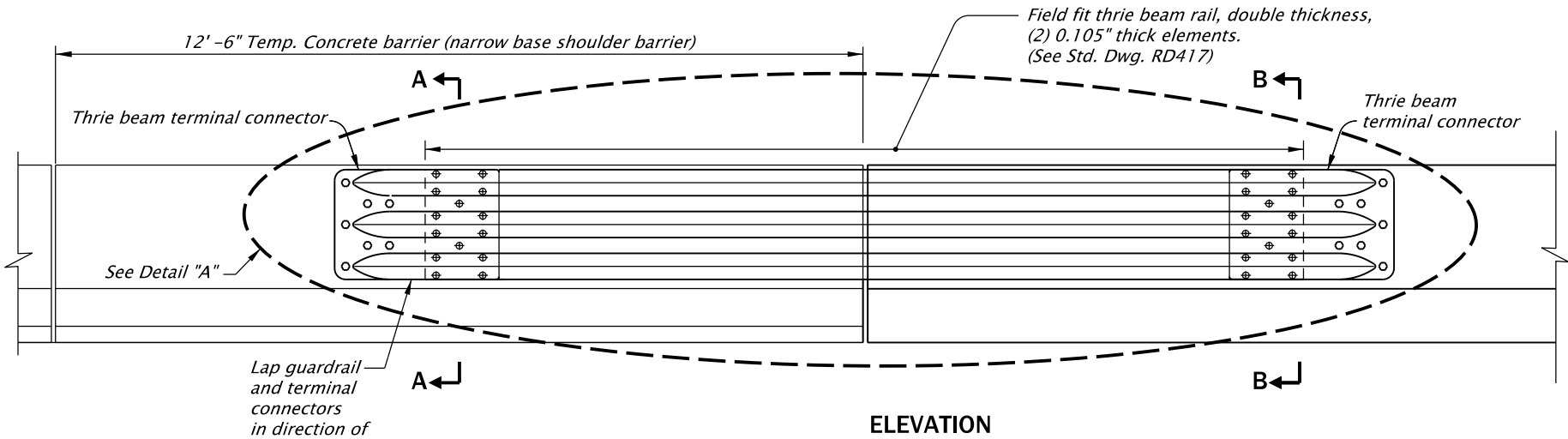
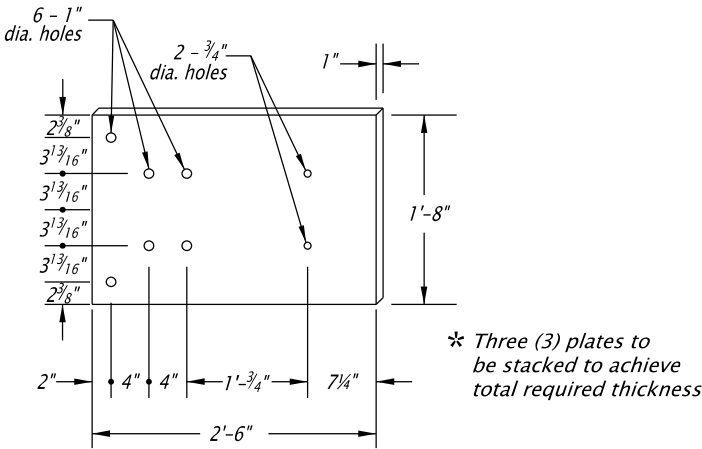
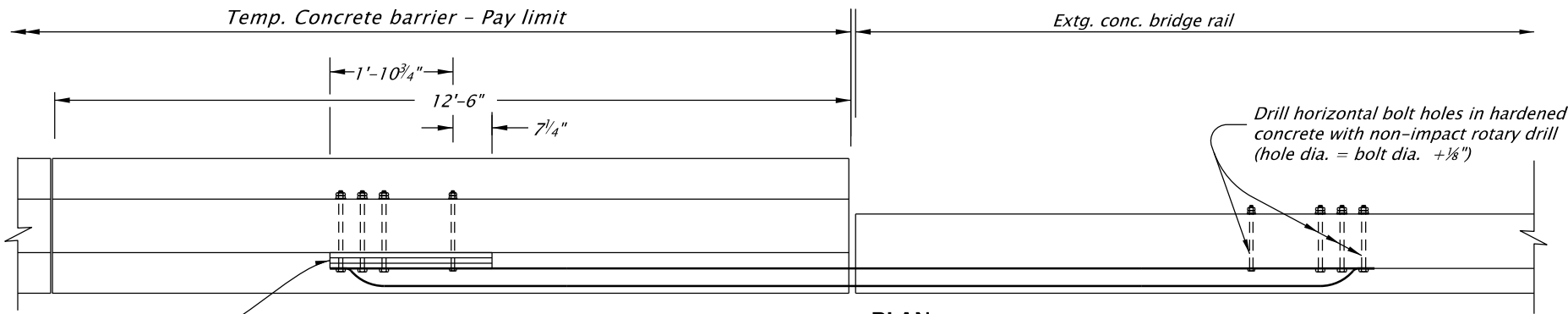
MOBILE BARRIER SYSTEM



- NOTES:
- Assemble and install per the manufacturer's recommendations.

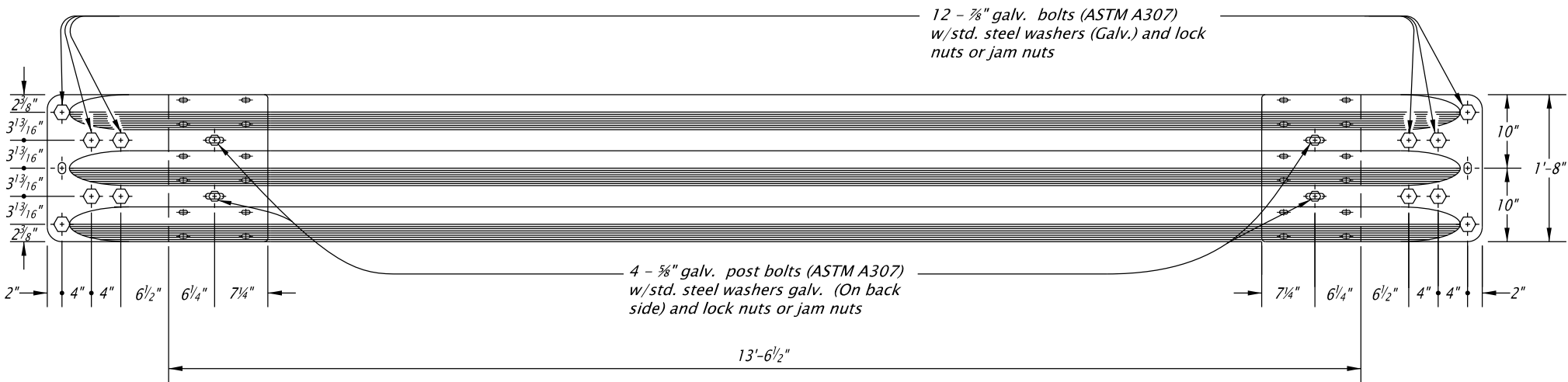
	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: M. Gabr CADD Tech: A. Graham	Reviewer: M. Bartley Checker: C. Mao
TRAFFIC CONTROL DETAILS		SHEET NO. EA02

TEMPORARY BRIDGE CONNECTION DETAILS



Temporary conc. barrier
SECTION A-A

Existing bridge rail
SECTION B-B



DETAIL "A"

- NOTES:
1. Temporary Concrete Barrier Connections will be Paid for Under the "Temporary Bridge Connections" (Section 226) Bid Item.
 2. See Std. Dwg. RD515 and RD516 for securing concrete barrier to roadway that is maintained for use in temporary installations.
 3. See Std. Dwg. RD400, RD415, RD417, RD500, RD501, RD503, RD530, RD545, & RD570, for details not shown.



RENEWS: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

Checker: C. Mao

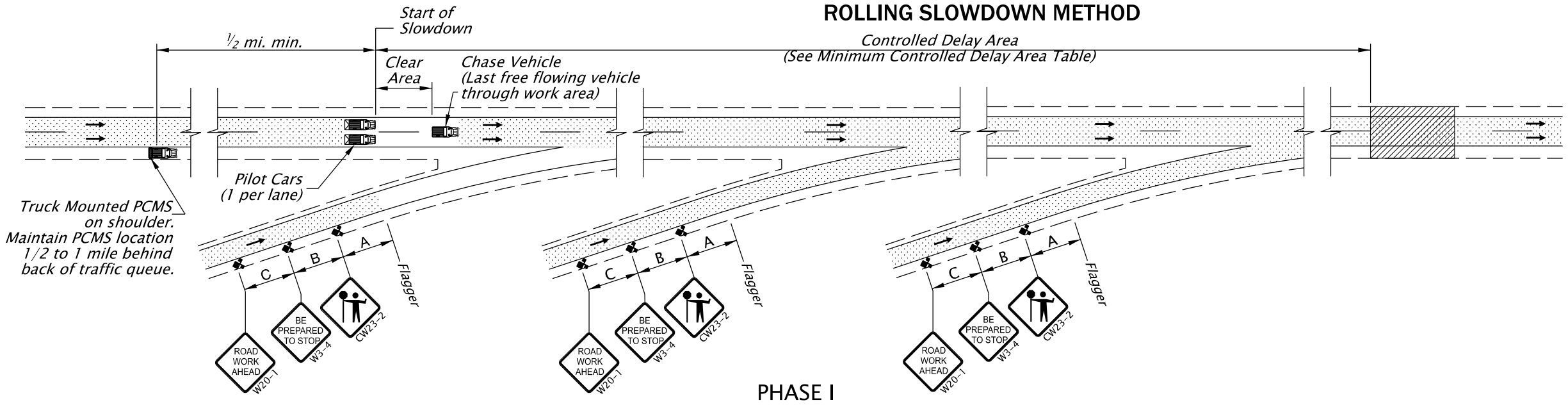
TRAFFIC CONTROL DETAILS

SHEET NO.

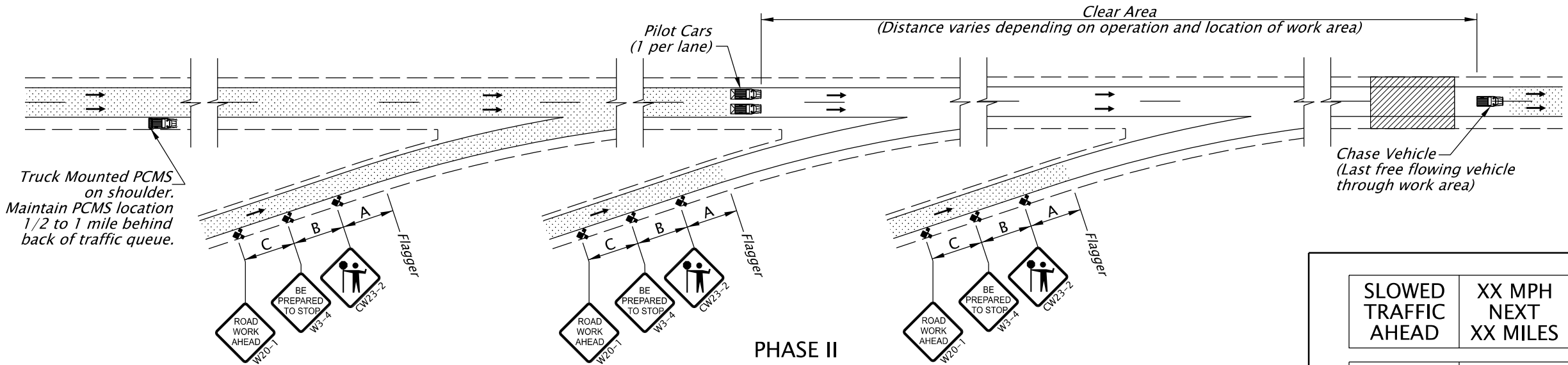
EA03

ROLLING SLOWDOWN METHOD

Controlled Delay Area
(See Minimum Controlled Delay Area Table)



PHASE I



PHASE II

GENERAL NOTES FOR ALL DETAILS:

- *Flaggers are not permitted to stop or hold freeway traffic.*
- *To determine sign spacing A, B, and C, use "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Drg. No. TM800.*
- *Schedule slowdown during off-peak traffic periods.*
- *Inform local law enforcement and media of the scheduled slowdown.*
- *Use truck mounted attenuators (TMA) on pilot cars.*
- *Use one pilot car per lane. Each pilot car shall have an arrow panel in caution mode with "DO NOT PASS" (R4-1) sign or a truck-mounted PCMS ("DO NOT PASS/SLOW VEHICLES").*

Minimum Controlled Delay Area Table						
Posted Speed* (mph)	Desired Gap (minutes)	Pilot Car Speed (mph)				
		10	20	30**	40	
55	10	2.1 miles	5.6 miles	12.5 miles	33.4 miles	
	15	3.2 miles	8.4 miles	18.8 miles	50.0 miles	
	20	4.2 miles	11.2 miles	25.0 miles	66.7 miles	
60	10	2.1 miles	5.3 miles	11.0 miles	24.5 miles	
	15	3.1 miles	7.9 miles	16.5 miles	36.7 miles	
	20	4.1 miles	10.5 miles	22.0 miles	48.9 miles	
65	10	2.0 miles	5.0 miles	10.0 miles	20.0 miles	
	15	3.0 miles	7.5 miles	15.0 miles	30.0 miles	
	20	4.0 miles	10.0 miles	20.0 miles	40.0 miles	
70	10	2.0 miles	4.8 miles	9.3 miles	17.3 miles	
	15	3.0 miles	7.2 miles	13.9 miles	26.0 miles	
	20	3.9 miles	9.6 miles	18.6 miles	34.7 miles	

**Table values assume level terrain and a free-flow speed 5 mph less than the posted speed to account for slower heavy vehicles.*

***Minimum recommended pilot car speed on freeways.*

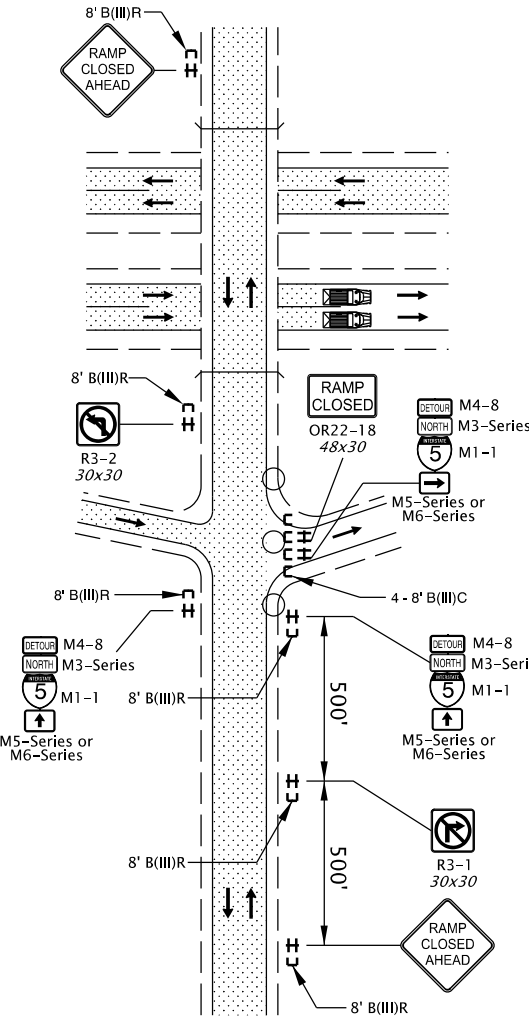
- UNDER TRAFFIC
- UNDER CONSTRUCTION
- TEMP. PLASTIC DRUMS ON 10' MAX. SPACING

SLOWED TRAFFIC AHEAD	XX MPH NEXT XX MILES
XX MPH TRAFFIC AHEAD	XX MPH NEXT XX MILES

SUGGESTED
PCMS MESSAGES

NOTES:

- *Consider using at on-ramps with high traffic volumes, short storage length, and when a detour is practical (additional travel time is less than 20 minutes).*
- *Mount all signs on TSS.*
- *Place additional detour signing as directed.*
- *See TM840 for typical Trailblazer Assembly sign sizes.*



RAMP CLOSURE &
DETOUR DETAIL



RENEWS: 6-30-2027

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I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
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COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

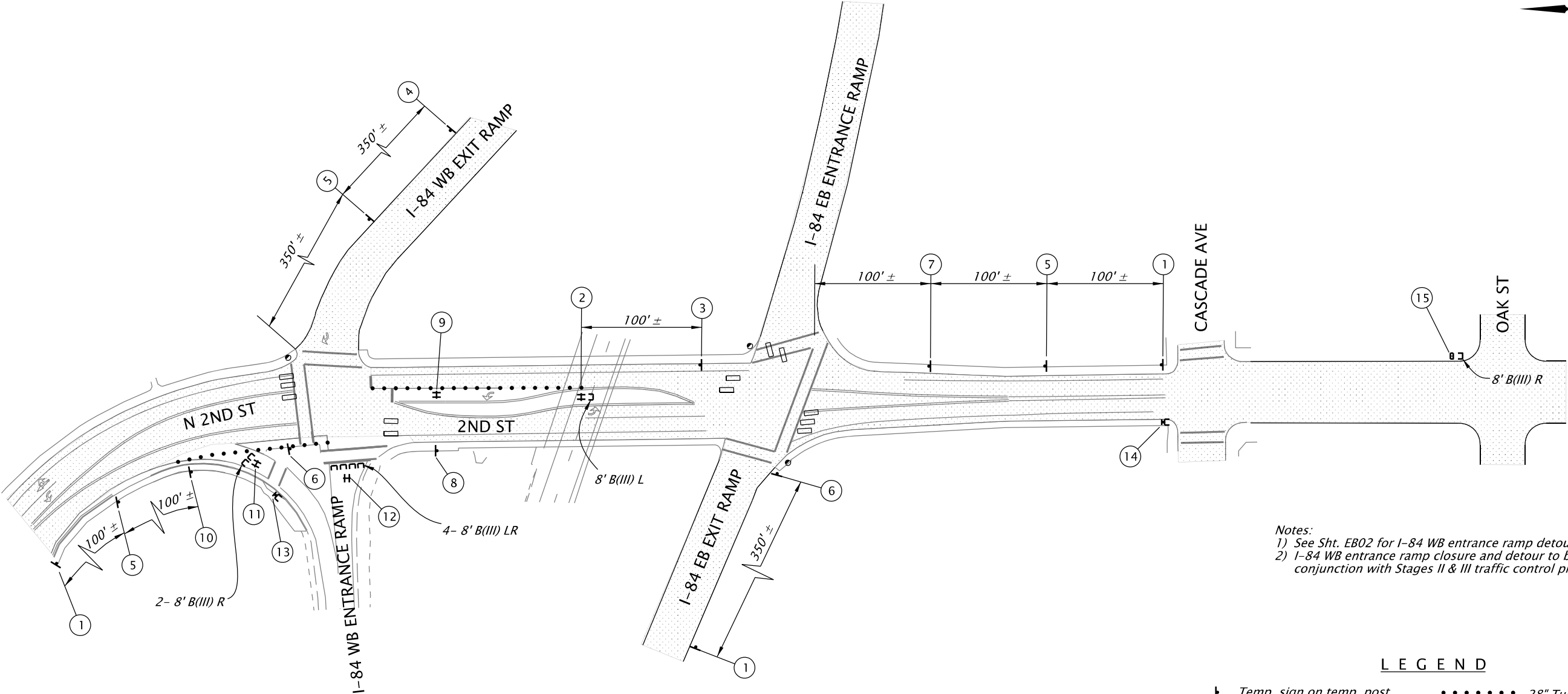
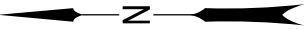
Checker: C. Mao

TRAFFIC CONTROL DETAILS

SHEET NO.

EA04

DETOUR
COLUMBIA RIVER HWY. (I-84 WB) ENTRANCE RAMP CLOSURE AT 2ND ST



Notes:
1) See Sht. EB02 for I-84 WB entrance ramp detour.
2) I-84 WB entrance ramp closure and detour to be set up in conjunction with Stages II & III traffic control plan, Shts. EC05-EC10.

LEGEND

- Temp. sign on temp. post
- Temp. sign on temp. sign support (TSS)
- 8' Type (III) barricade, R
- PCMS
- 28" Tubular markers on 10' max. spacing
- Under traffic

One Week Prior to Closure

RAMP TO I-84 W CLOSURE

MMM DD TO MMM DD

During Closure

RAMP TO I-84 W CLOSED

USE I-84 EAST TO EXIT 64

PORTABLE CHANGEABLE MESSAGE SIGN
(Suggested Message)
(Locate As Directed)

15

RENEW: 6-30-2027

OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

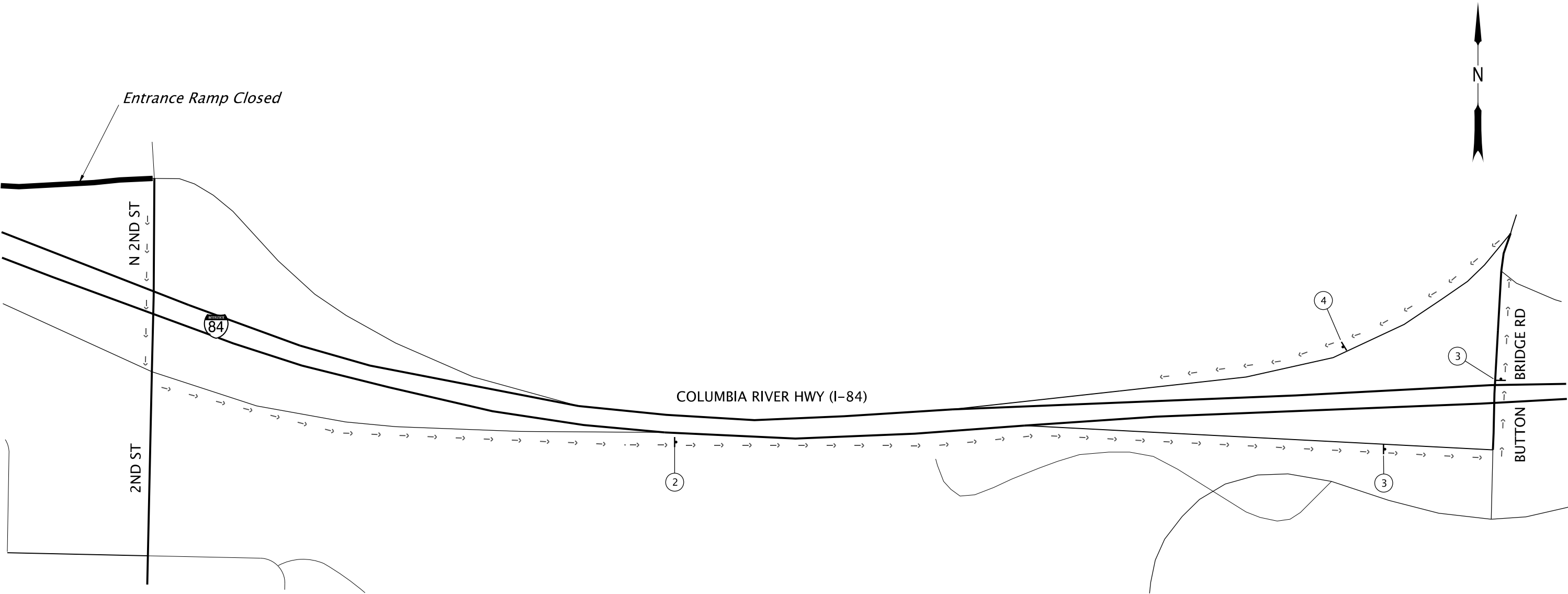
Designer: M. Gabr
CADD Tech: A. Graham

Reviewer: M. Bartley
Checker: C. Mao

TRAFFIC CONTROL DETOUR PLAN

SHEET NO. EB01

D E T O U R
COLUMBIA RIVER HWY (I-84 WB) ENTRANCE RAMP CLOSURE AT 2ND ST



DETOUR

WEST

84

↑

M6-3

21x15

1

DETOUR

WEST

84

↗

M6-2

21x15

2

DETOUR

WEST

84

←

M6-1

21x15

3

END

DETOUR

CG20-5

24x18

4

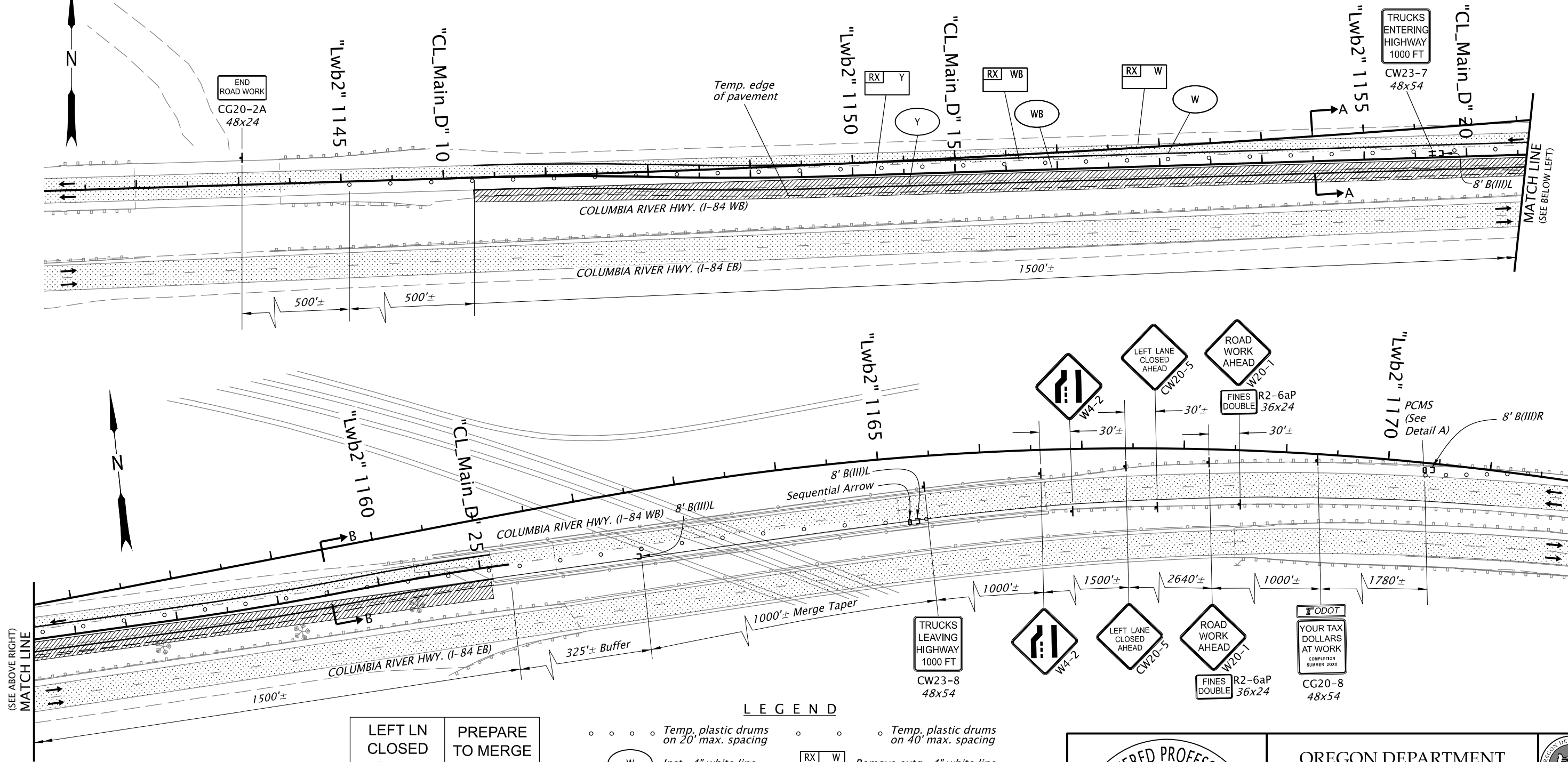
L E G E N D

Temp. Sign on Temp. Post - ← ← 2nd St to I-84 WB detour route

- Notes:
- 1) See Sht. EB01 for I-84 WB entrance ramp closure setup.
 - 2) I-84 WB entrance ramp closure and detour to be set up in conjunction with Stages II & III traffic control plan, Shts. EC05-EC10.

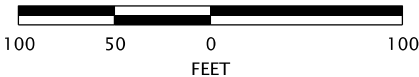
REGISTERED PROFESSIONAL ENGINEER 93,246PE Digitally Signed 2026.08.06 09:42:07 -07'00' OREGON JAN. 9, 2018 MOSTAFA E. GABR RENEWES: 6-30-2027 FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: M. Gabr CADD Tech: A. Graham	Reviewer: M. Bartley Checker: C. Mao
TRAFFIC CONTROL DETOUR PLAN		SHEET NO. EB02

PRE-STAGE I
COLUMBIA RIVER HWY. (I-84 WB) LEFT LANE CLOSURE
TEMPORARY WIDENING AND PAVEMENT MARKING MODIFICATION

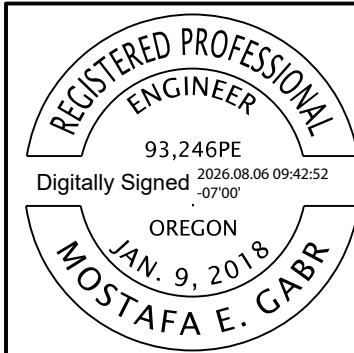


LEFT LN
CLOSED
1½ MILE
PREPARE
TO MERGE
RIGHT
PORTABLE CHANGEABLE MESSAGE SIGN
(Suggested Message)
Detail A

Notes:
1) Do not stage traffic across longitudinal shoulder rumble strips.
Remove rumble strips per TM830.
2) Remove trees that conflict with the temporary widening area.
3) See Sht. EC13 for section A-A details and Sht. EC14 for section B-B details.



LEGEND			
○ ○ ○ ○	Temp. plastic drums on 20' max. spacing	○ ○	Temp. plastic drums on 40' max. spacing
(W)	Inst. 4" white line	(RX) W	Remove extg. 4" white line
(WB)	Inst. 4" white broken line	(RX) WB	Remove extg. 4" white broken line
(Y)	Inst. 4" yellow line	(RX) Y	Remove extg. 4" yellow line
▨	Under traffic	▣	8' Type (III) barricade, L or R
▨	Under construction	—	Temp. concrete barrier
†	Temp. sign on temp. post	▨	Sequential arrow or PCMS
±	Temp. sign on temp. sign support (TSS)	▨	Temp. impact attenuator, narrow site



RENEWS: 6-30-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr
CADD Tech: A. Graham

Reviewer: M. Bartley
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.
EC01

STAGE I



"Lwb2" 1140

"Lwb2" 1145

"Lwb2" 1150

MATCH LINE
(SEE BELOW LEFT)

MATCH LINE
(SEE SHT. EC03)

"Lwb2" 1155

"Lwb2" 1160

"Lwb2" 1165

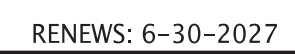
(SEE ABOVE RIGHT)
MATCH LINE

5) N

Notes:
 1) See Sht. EC13 for section A1-A1 details and Sht. EC14 for section B1-B1 details.
 2) Use TM861 for right lane closure setup on I-84 westbound. Lane closure shall be limited to lane closure hours specified in Special Provision 00220.40(f). Maintain a minimum of 19 ft traversable width during lane closure setup.



-  Temp. impact attenuator, narrow site
-  Under traffic
-  Under construction

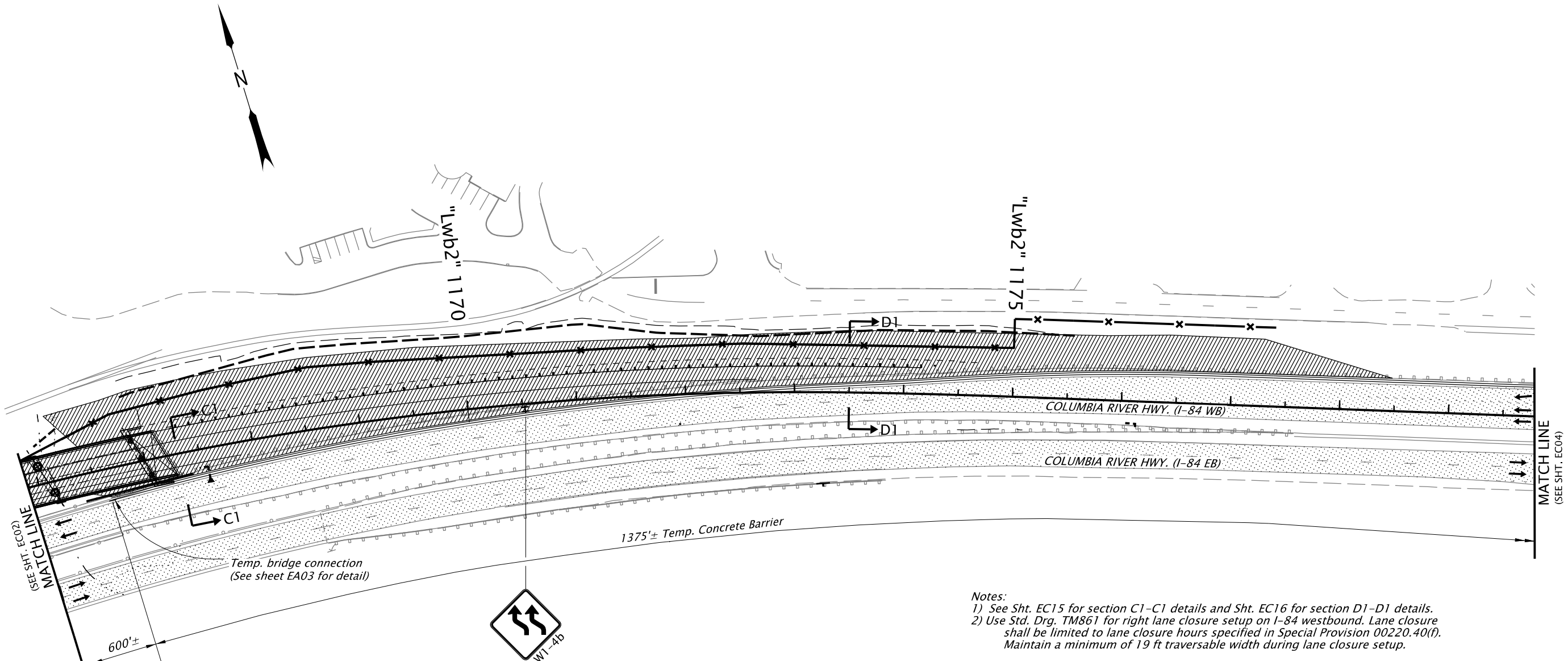


COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

TRAFFIC CONTROL PLAN

SHEET NO.
EC02

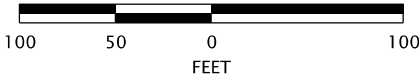
STAGE I
COLUMBIA RIVER HWY. (I-84 WB) RIGHT SHOULDER CLOSURE



Notes:
1) See Sht. EC15 for section C1-C1 details and Sht. EC16 for section D1-D1 details.
2) Use Std. Drg. TM861 for right lane closure setup on I-84 westbound. Lane closure shall be limited to lane closure hours specified in Special Provision 00220.40(f). Maintain a minimum of 19 ft traversable width during lane closure setup.

LEGEND

- ± Temp. sign on temp. sign support (TSS)
- Temp. concrete barrier
- Under traffic
- Under construction



RENEWES: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

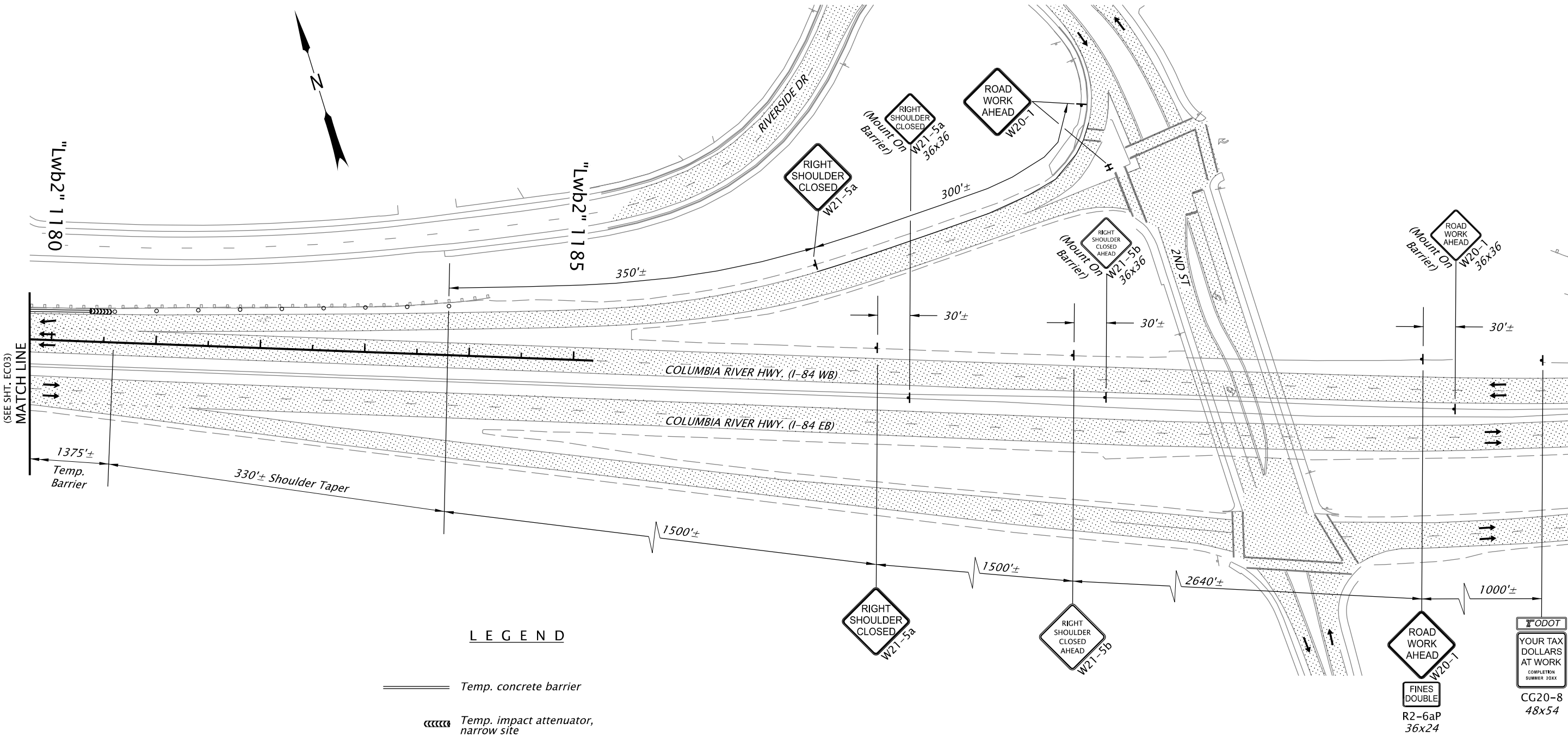
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

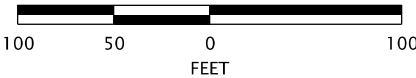
EC03

STAGE I
COLUMBIA RIVER HWY. (I-84 WB) RIGHT SHOULDER CLOSURE



LEGEND

- Temp. concrete barrier
- Temp. impact attenuator, narrow site
- Temp. sign on temp. post
- Temp. sign on temp. sign support (TSS)
- Temp. plastic drums on 40' max. spacing
- Under traffic
- Under construction



RENEWES: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

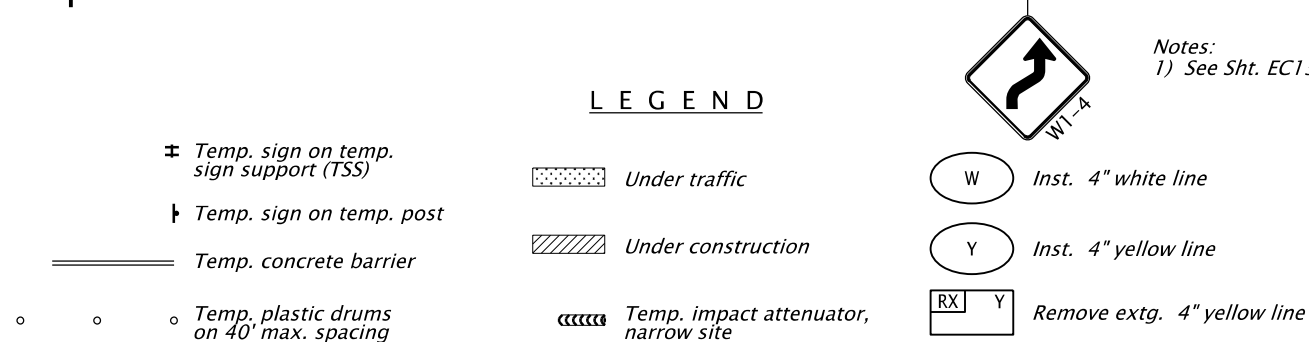
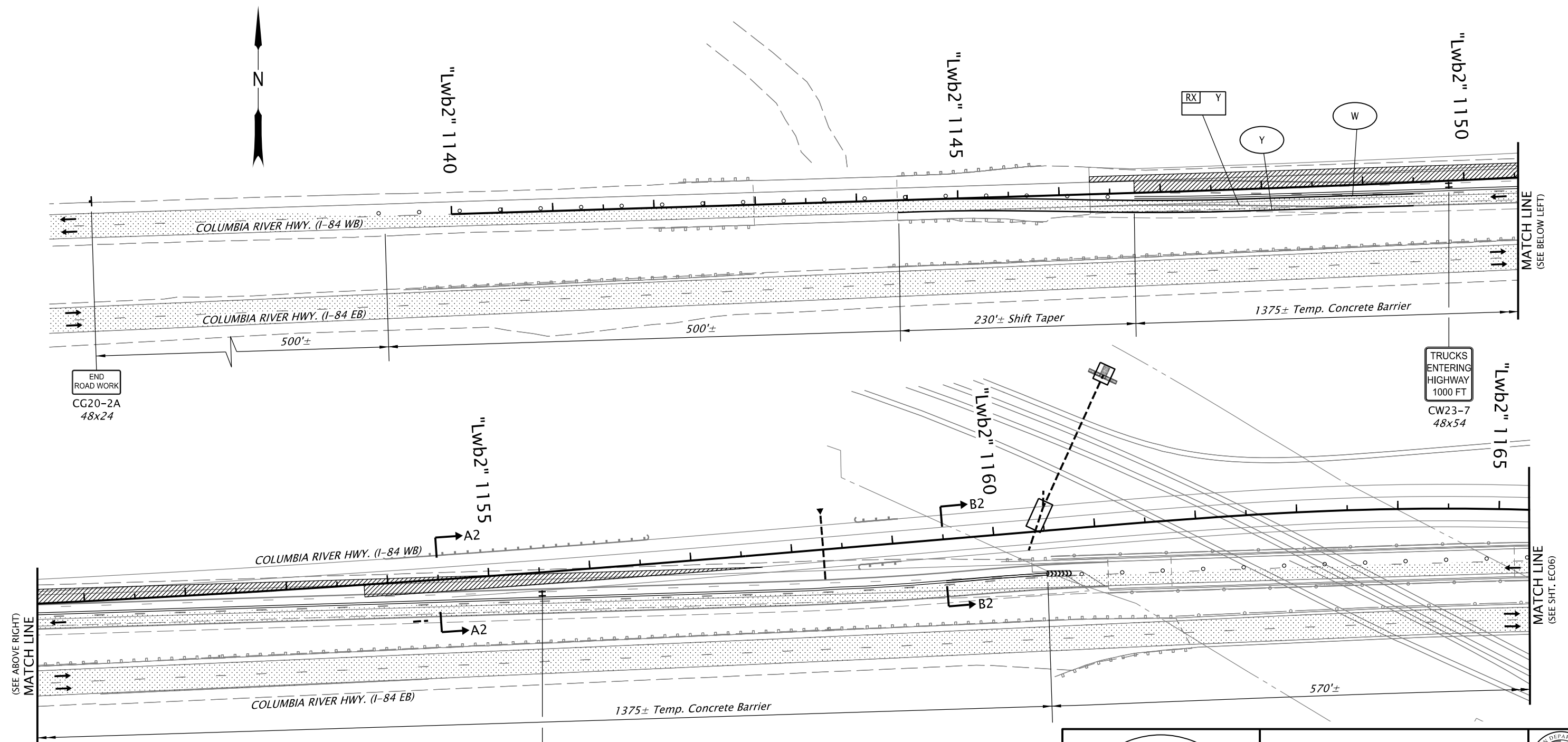
Checker: C. Mao

TRAFFIC CONTROL PLAN

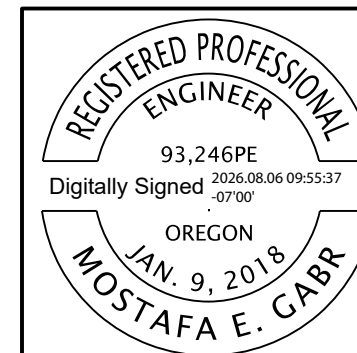
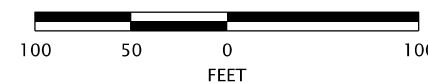
SHEET NO.

EC04

STAGE II COLUMBIA RIVER HWY. (I-84 WB) RIGHT LANE CLOSURE



Notes:
1) See Sht. EC13 for section A2-A2 details and Sht. EC14 for section B2-B2 details.



RENEWES: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

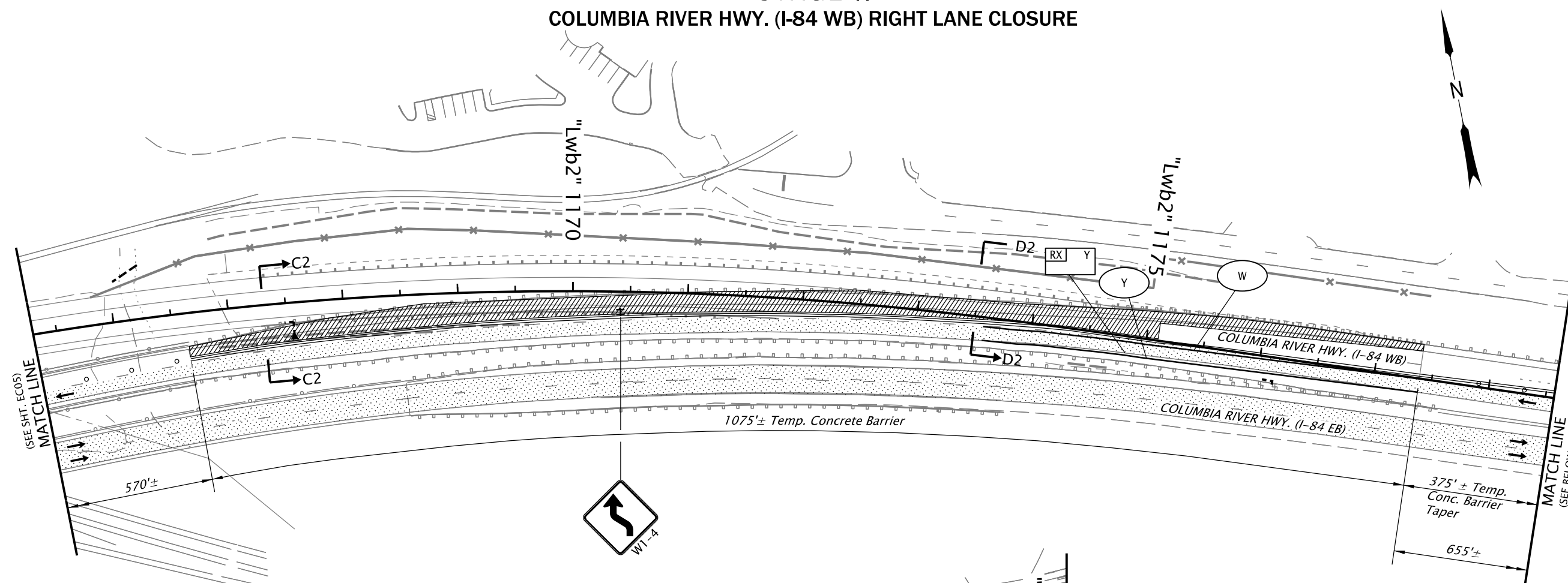
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

EC05

STAGE II COLUMBIA RIVER HWY. (I-84 WB) RIGHT LANE CLOSURE



LEGEND

8' Type (III) barricade, R

Temp. sign on temp. sign support (TSS)

Temp. concrete barrier

Temp. impact attenuator, narrow site

Temp. plastic drums on 40' max. spacing

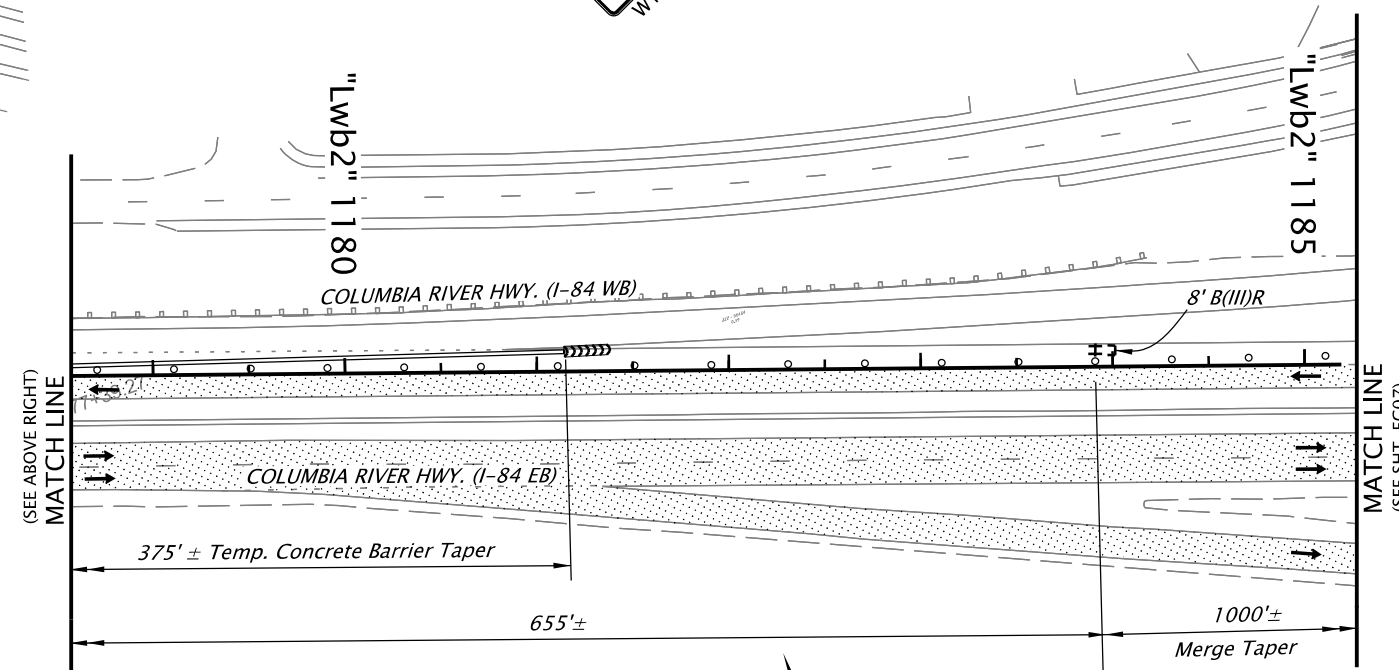
Under traffic

Under construction

Inst. 4" white line

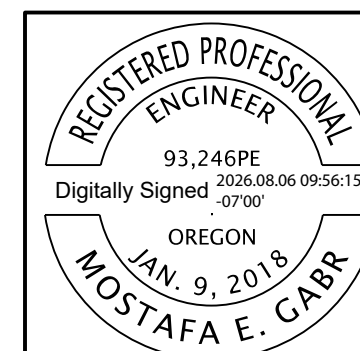
Inst. 4" yellow line

Remove extg. 4" yellow line



Notes:

1) See Sht. EC15 for section C2-C2 details and Sht. EC16 for section D2-D2 details.



RENEWES: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

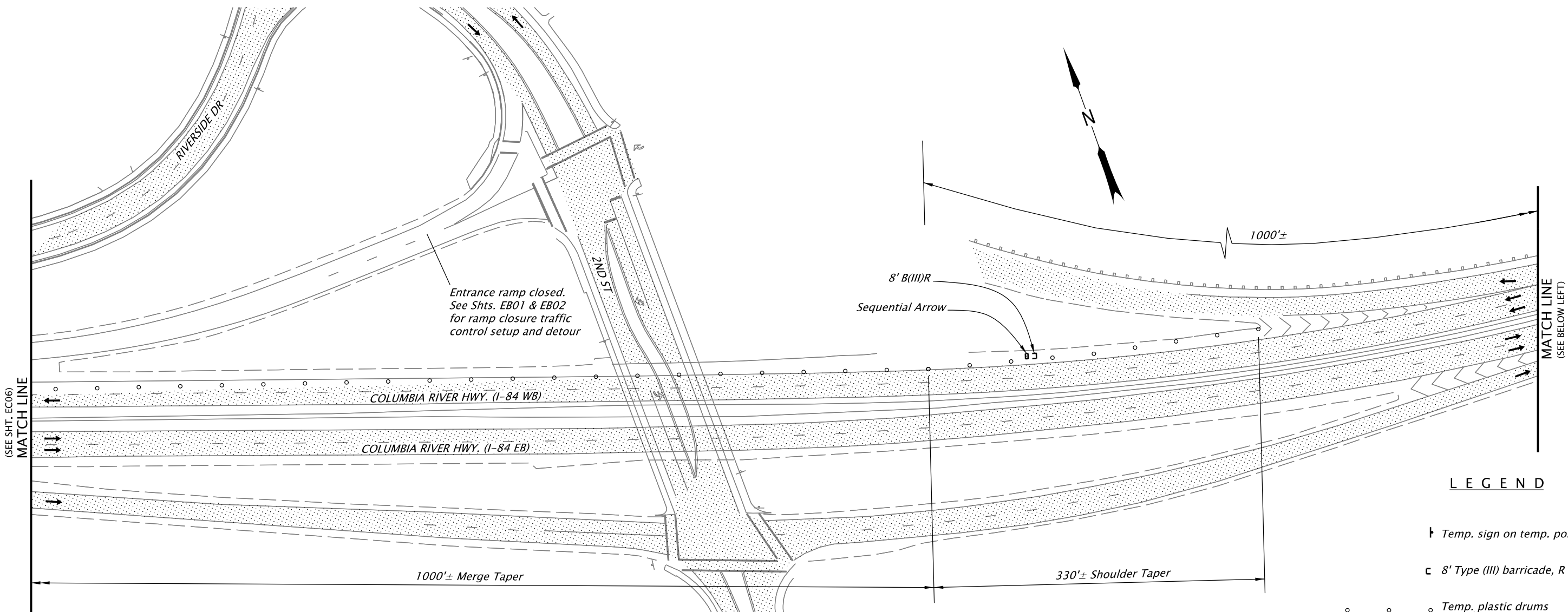
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

EC06

STAGE II
COLUMBIA RIVER HWY. (I-84 WB) RIGHT LANE CLOSURE



LEGEND

- Temp. sign on temp. post
- 8' Type (III) barricade, R
- Temp. plastic drums on 40' max. spacing
- Temp. plastic drums on 20' max. spacing
- Sequential arrow or PCMS
- Under traffic

RIGHT LN CLOSED 1½ MILE	PREPARE TO MERGE LEFT
-------------------------------	-----------------------------

PORTABLE CHANGEABLE MESSAGE SIGN
(Suggested Message)

Detail A



RENEWS: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

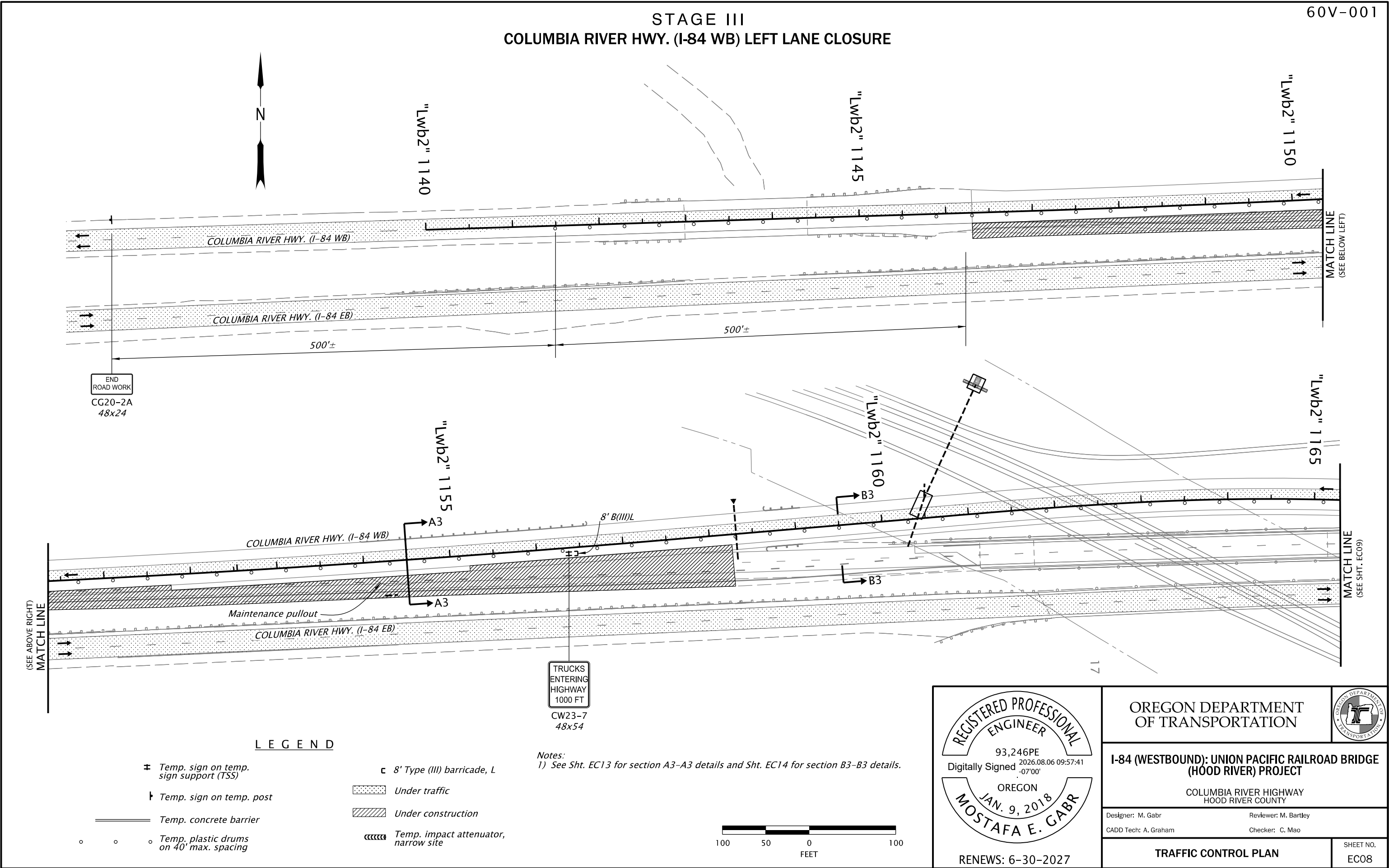
Checker: C. Mao

TRAFFIC CONTROL PLAN

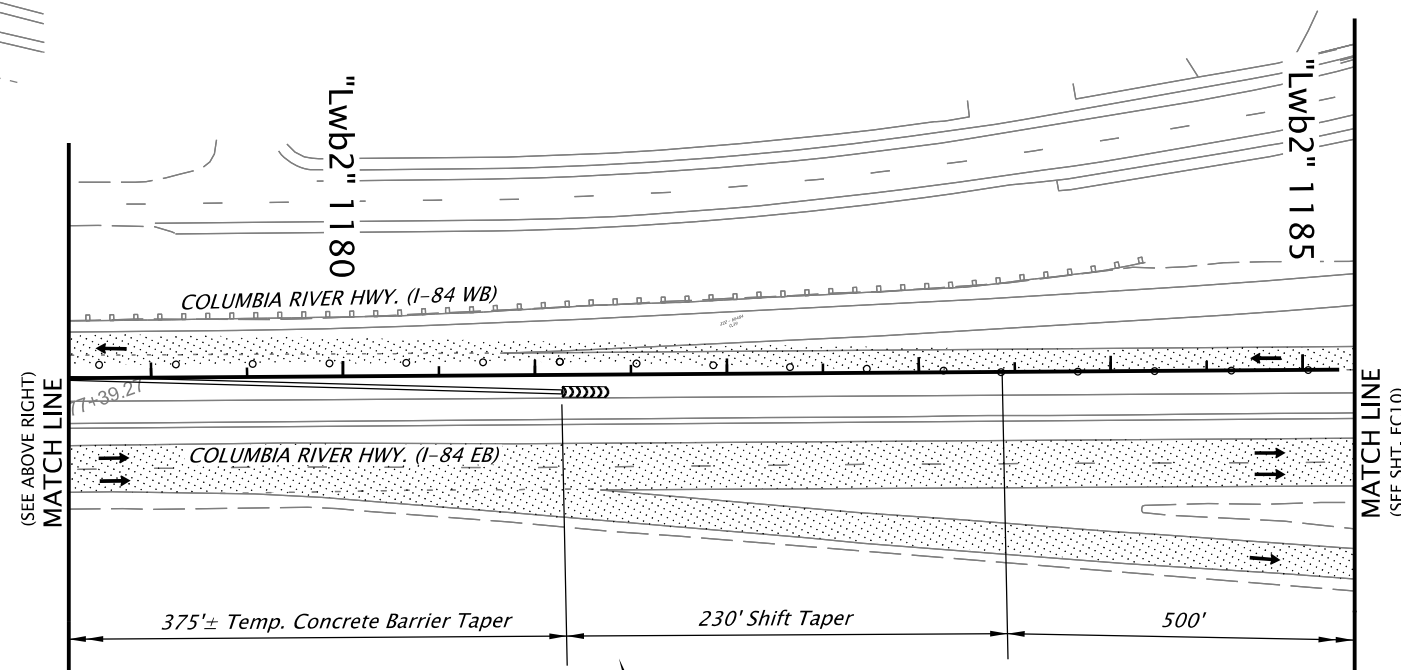
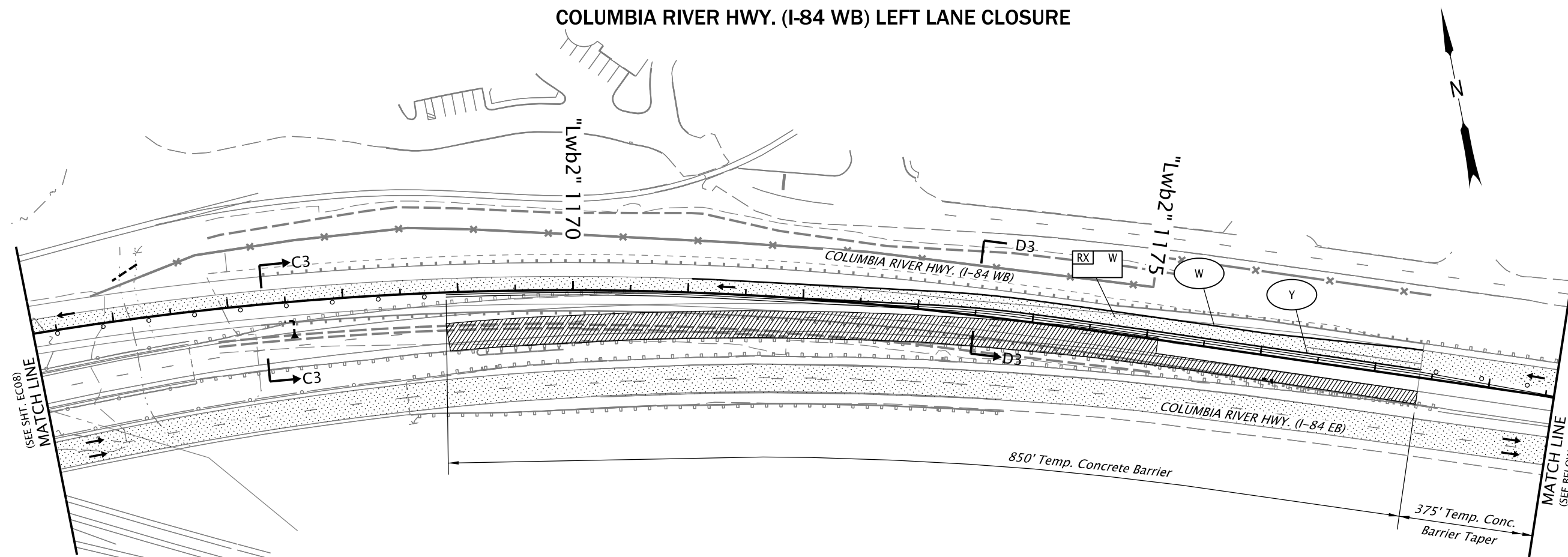
SHEET NO.

EC07

STAGE III
COLUMBIA RIVER HWY. (I-84 WB) LEFT LANE CLOSURE



STAGE III COLUMBIA RIVER HWY. (I-84 WB) LEFT LANE CLOSURE

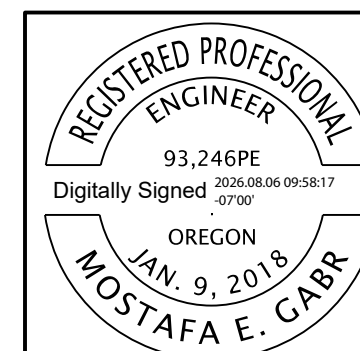


Notes:

1) See Sht. EC15 for section C3-C3 details and Sht. EC16 for section D3-D3 details.

LEGEND

- | | | | |
|------|---|--|--------------------------------------|
| ○ | Temp. plastic drums on 40' max. spacing | | Under traffic |
| W | Inst. 4" white line | | Under construction |
| Y | Inst. 4" yellow line | | Temp. concrete barrier |
| RX Y | Remove extg. 4" yellow line | | Temp. impact attenuator, narrow site |



RENEWES: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

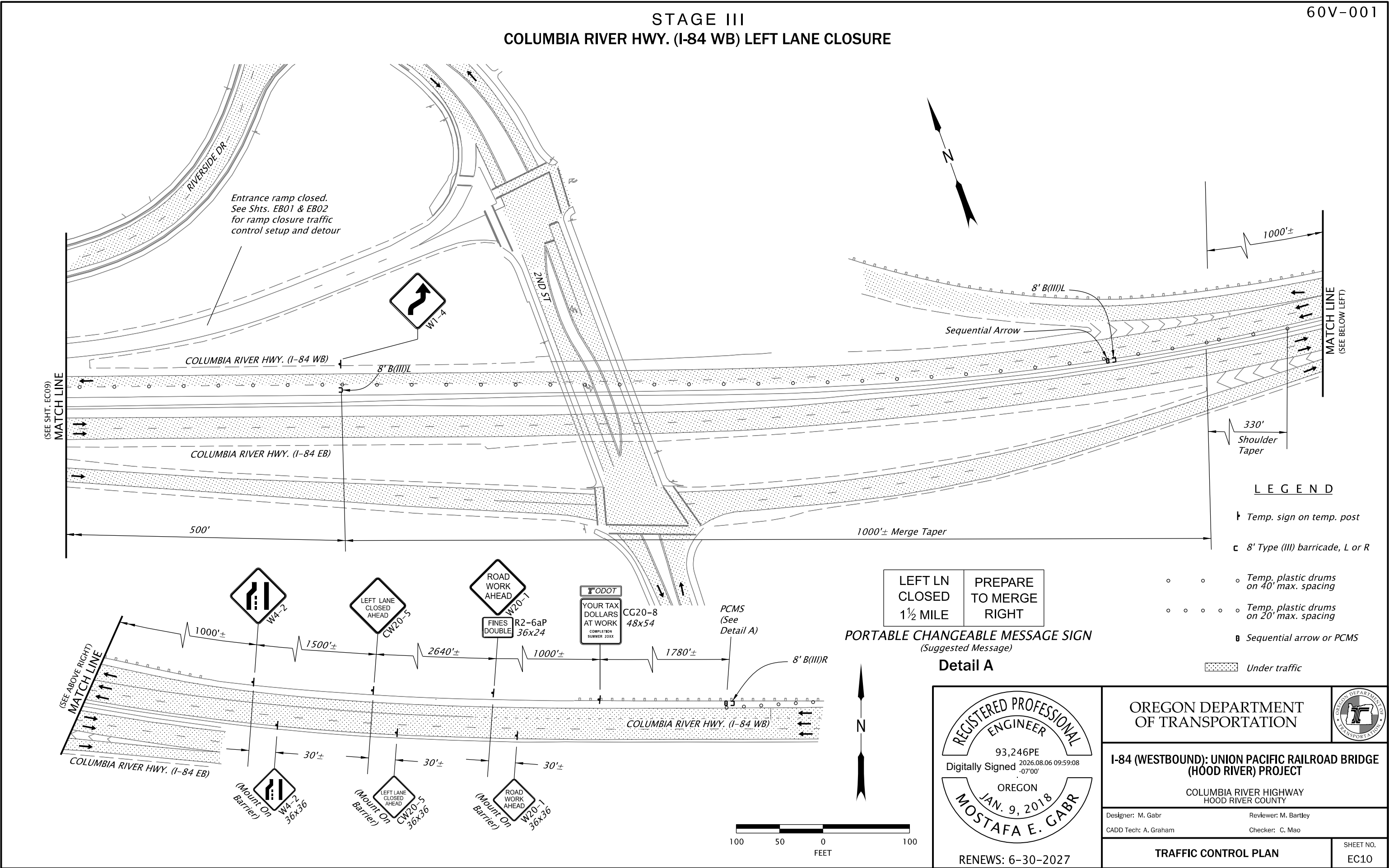
Checker: C. Mao

TRAFFIC CONTROL PLAN

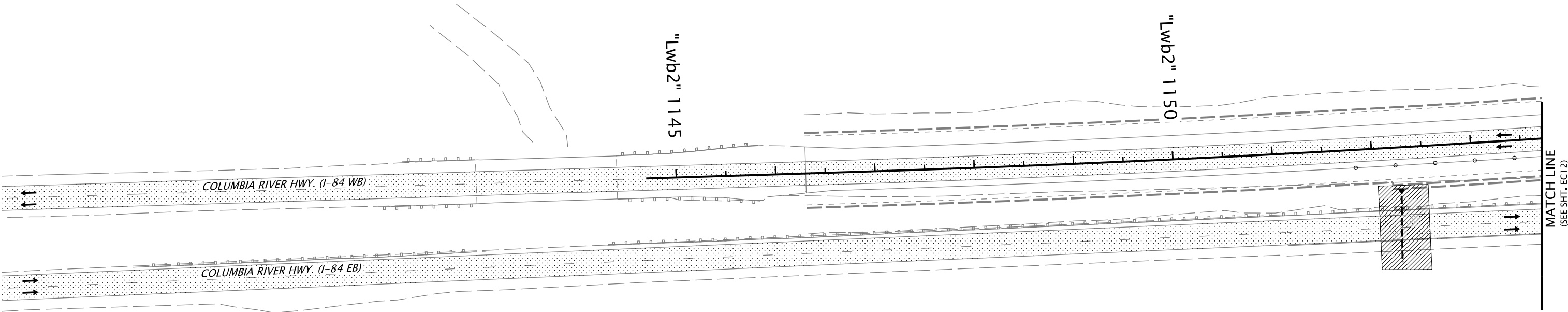
SHEET NO.

EC09

STAGE III
COLUMBIA RIVER HWY. (I-84 WB) LEFT LANE CLOSURE



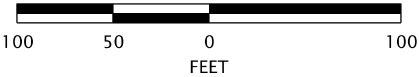
STAGE IV
COLUMBIA RIVER HIGHWAY (I-84 WB) WINGWALL B & D CONSTRUCTION AND OLD BRIDGE REMOVAL
COLUMBIA RIVER HIGHWAY (I-84 EB) MAINTENANCE PULLOUT CONSTRUCTION AND CULVERT INSTALLATION



- Notes:
- 1) See Std. Drg. TM880 for I-84 westbound traffic control setup during paving and striping.
 - 2) Close the right or left lane on I-84 eastbound as shown on Sht. EA01.
 - 3) Reinstall removed guardrail on I-84 eastbound at the end of the work shift. Mobile barrier to be used to cover guardrail gap during the workshift.
 - 4) Lane closures shall be limited to lane closure hours specified in Special Provision 00220.40(f). Maintain a minimum of 19 ft traversable width during lane closure setup.

LEGEND

- Under traffic
- Under construction



RENEWS: 6-30-2027

FINAL ELECTRONIC DOCUMENT
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OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

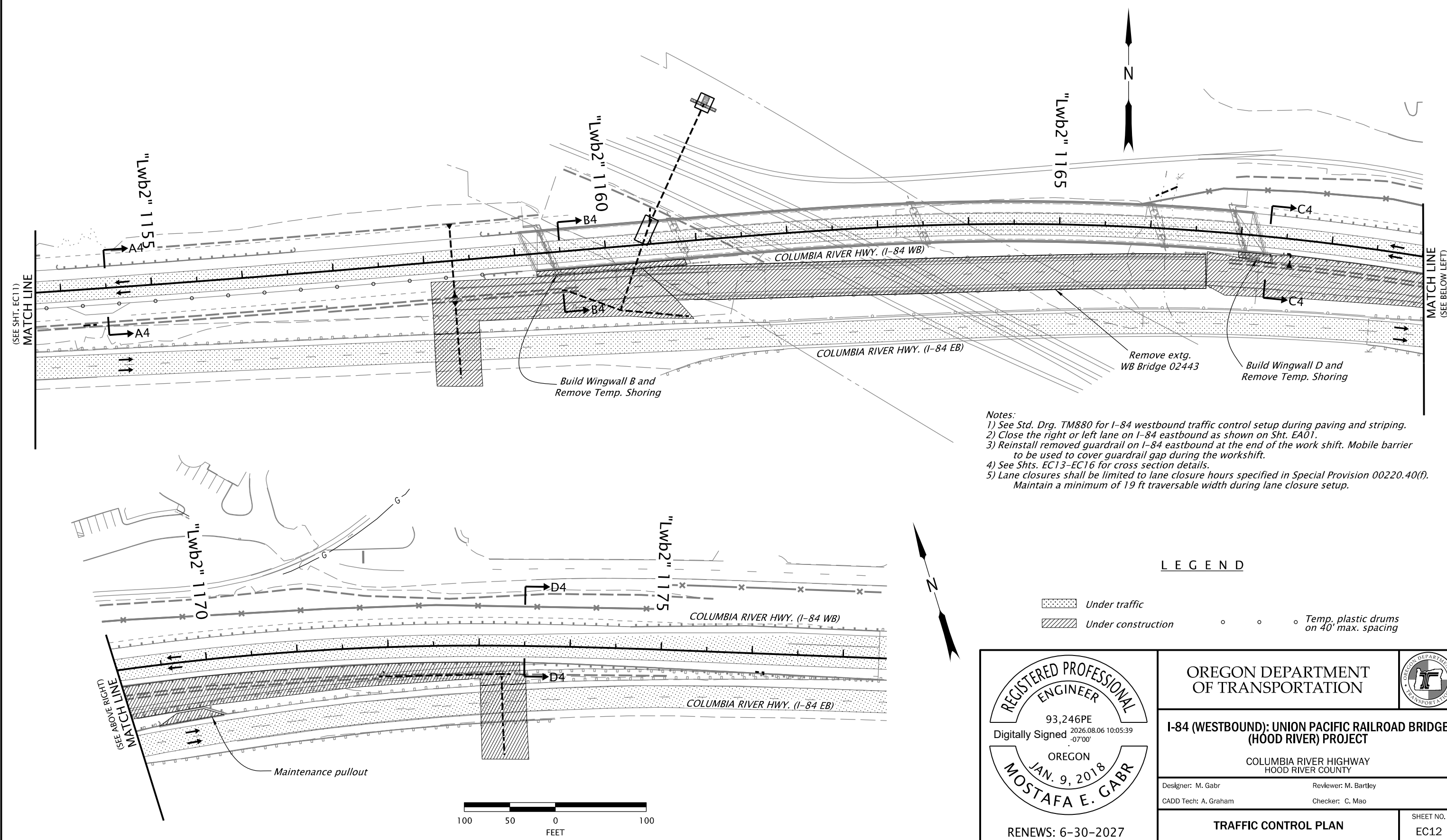
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

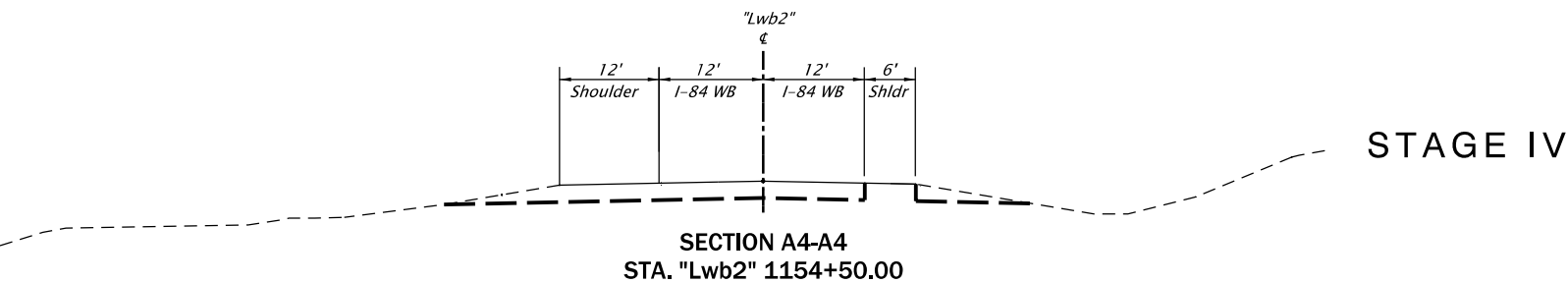
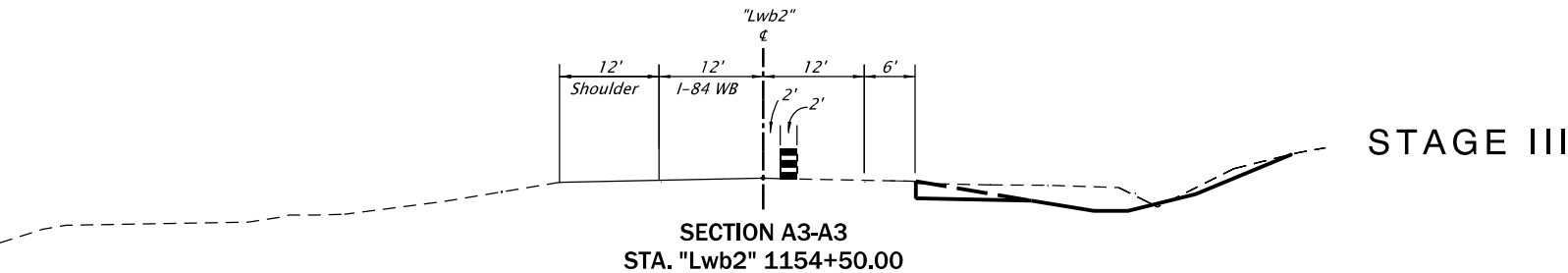
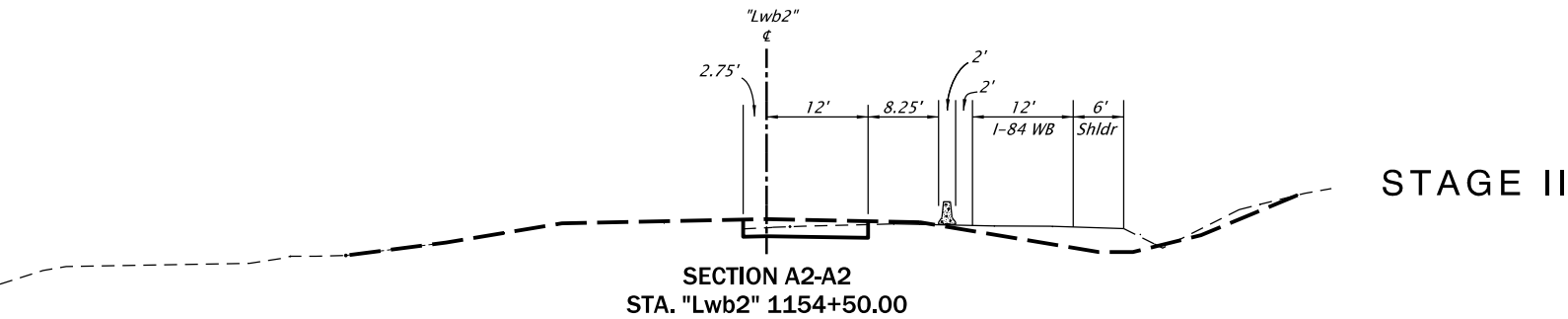
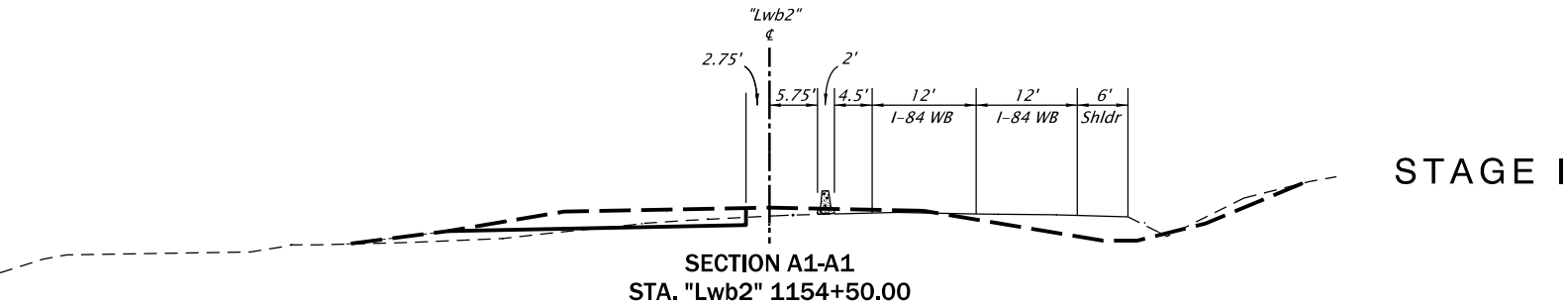
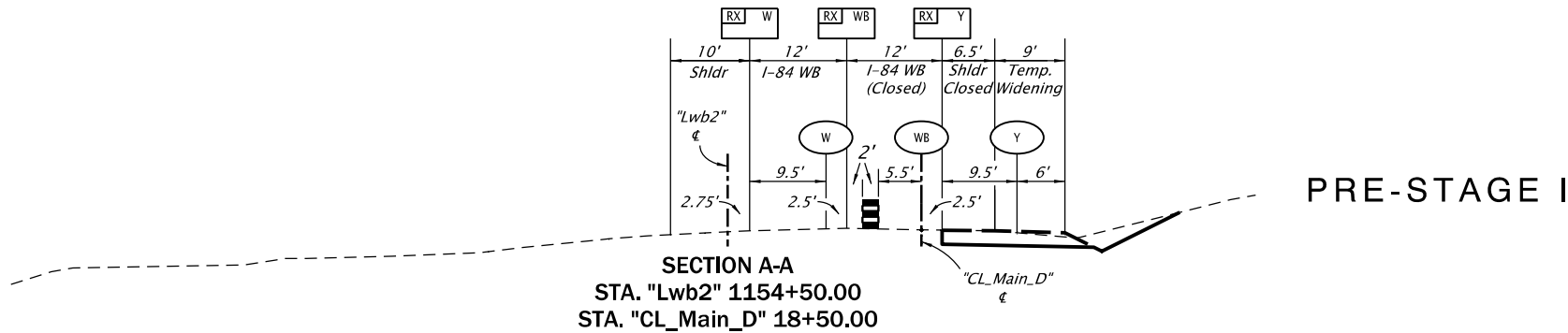
EC11

STAGE IV
COLUMBIA RIVER HIGHWAY (I-84 WB) WINGWALL B & D CONSTRUCTION AND OLD BRIDGE REMOVAL
COLUMBIA RIVER HIGHWAY (I-84 EB) MAINTENANCE PULLOUT CONSTRUCTION AND CULVERT INSTALLATION



REGISTERED PROFESSIONAL ENGINEER 93,246PE Digitally Signed 2026.08.06 10:05:39 -07'00' OREGON JAN. 9, 2018 MOSTAFA E. GABR RENEW: 6-30-2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: M. Gabr CADD Tech: A. Graham	Reviewer: M. Bartley Checker: C. Mao
TRAFFIC CONTROL PLAN		SHEET NO. EC12

COLUMBIA RIVER HWY (I-84 WB)
TRAFFIC CONTROL STAGING
STA. "Lwb2" 1154+50.00



LEGEND

- Temp. plastic drum
- Temp. concrete barrier
- Immediate grading limits
- Final grading limits
- Under traffic
- Existing ground
- Inst. 4" white line
- Inst. 4" white broken line
- Inst. 4" yellow line
- Remove extg. 4" white line
- Remove extg. 4" white broken line
- Remove extg. 4" yellow line



RENEWES: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

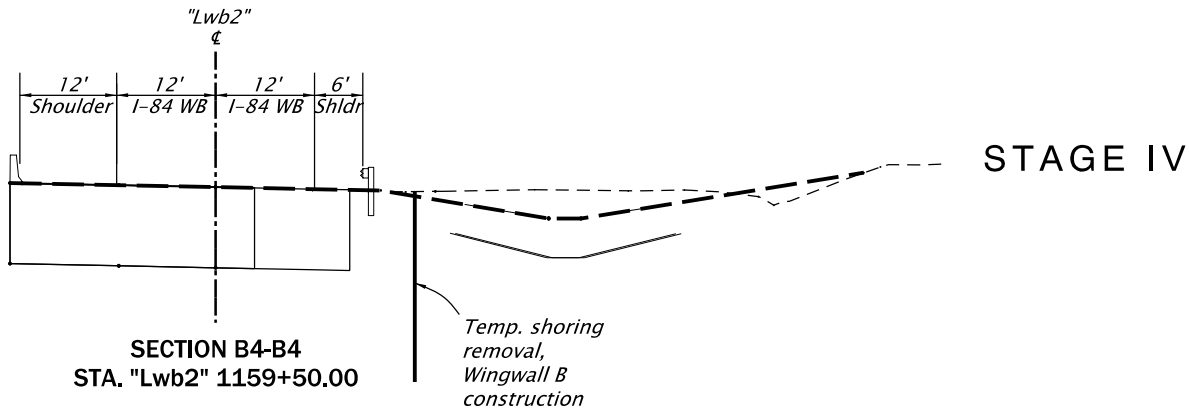
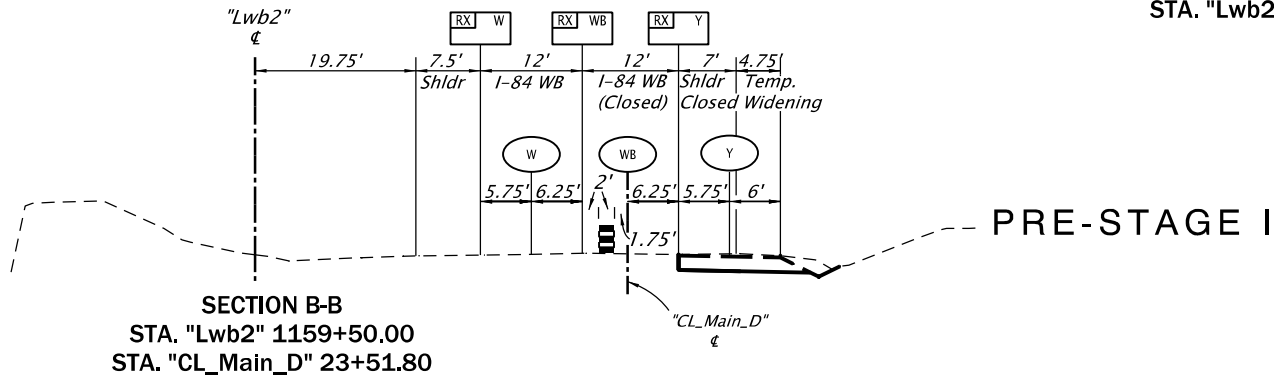
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

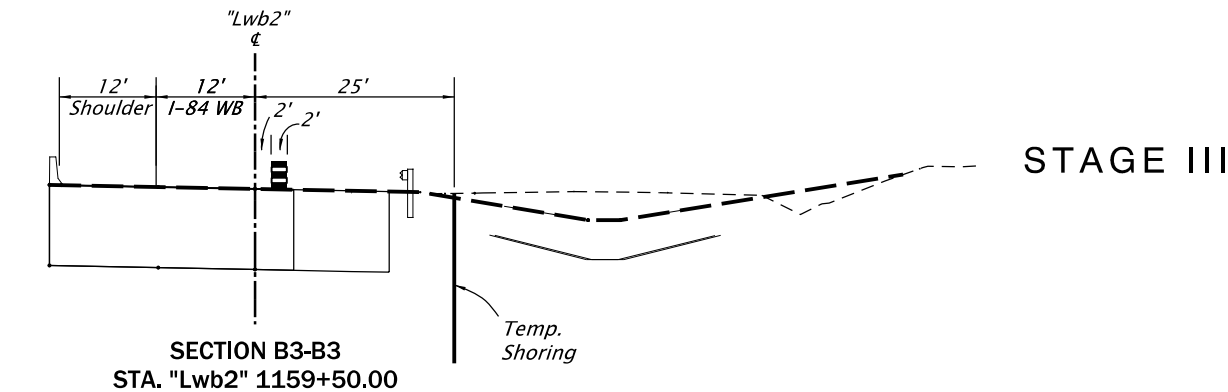
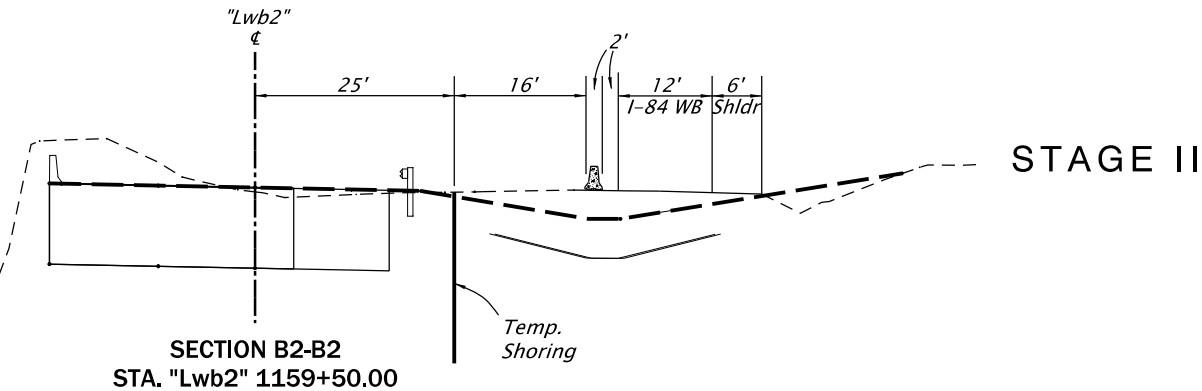
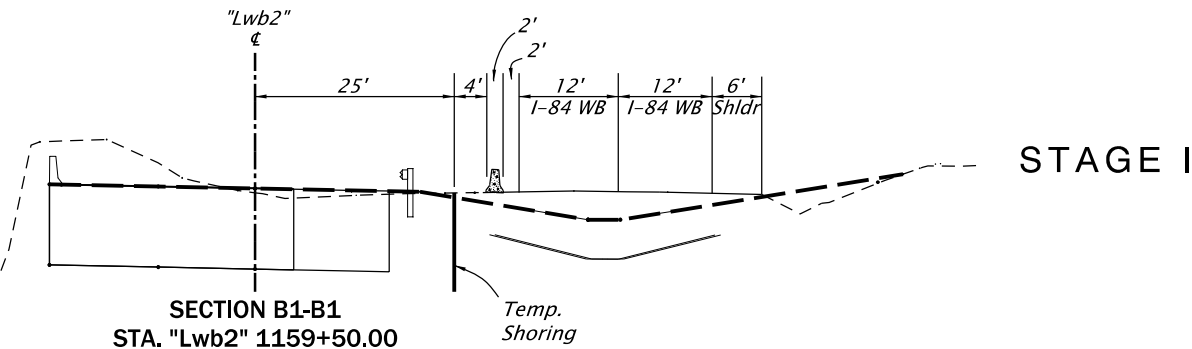
EC13

COLUMBIA RIVER HWY (I-84 WB)
TRAFFIC CONTROL STAGING
STA. "Lwb2" 1159+50.00



LEGEND

- Temp. plastic drum
- Temp. concrete barrier
- Immediate grading limits
- Final grading limits
- Under traffic
- Existing ground
- W Inst. 4" white line
- WB Inst. 4" white broken line
- Y Inst. 4" yellow line
- RX W Remove extg. 4" white line
- RX WB Remove extg. 4" white broken line
- RX Y Remove extg. 4" yellow line



RENEWES: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

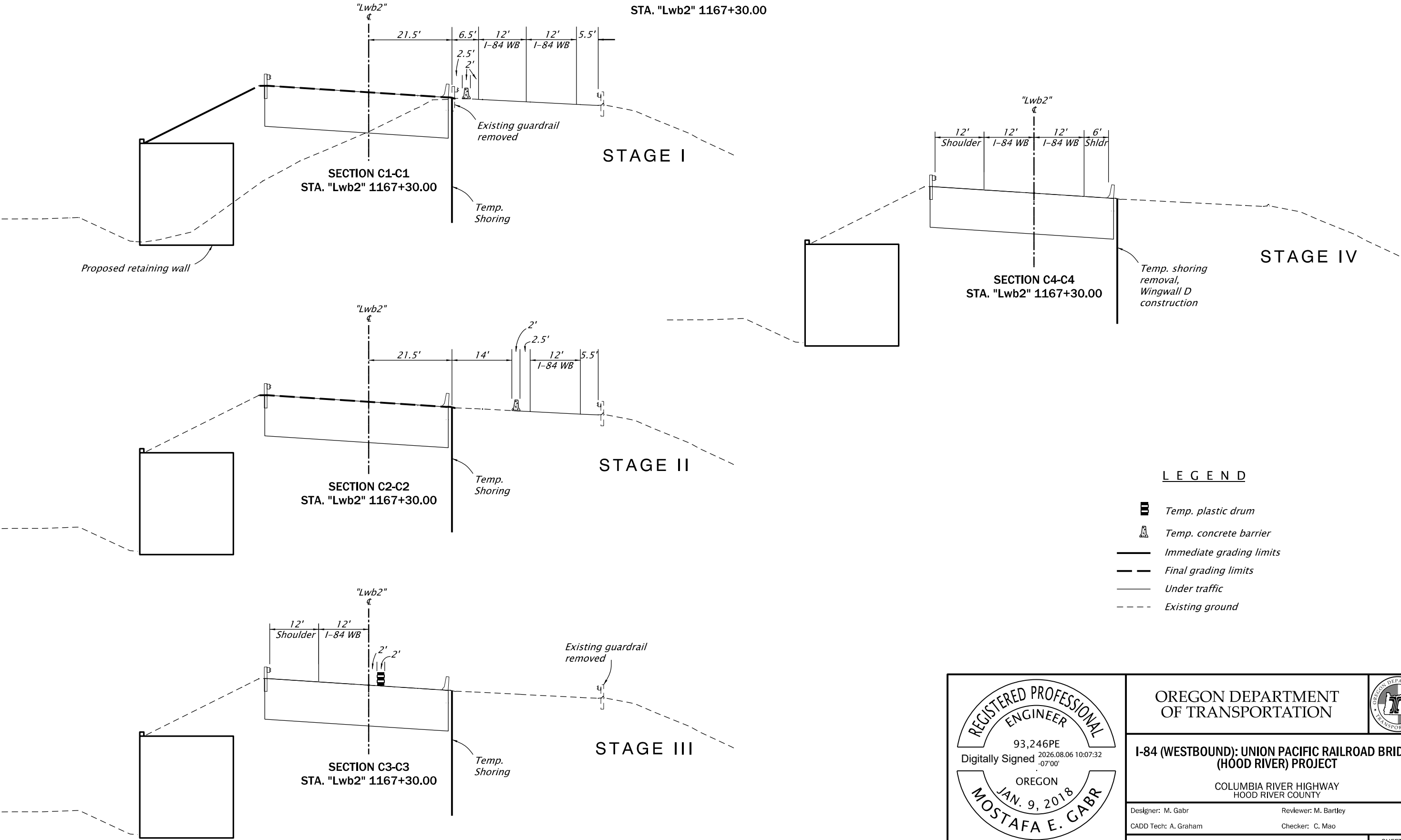
Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

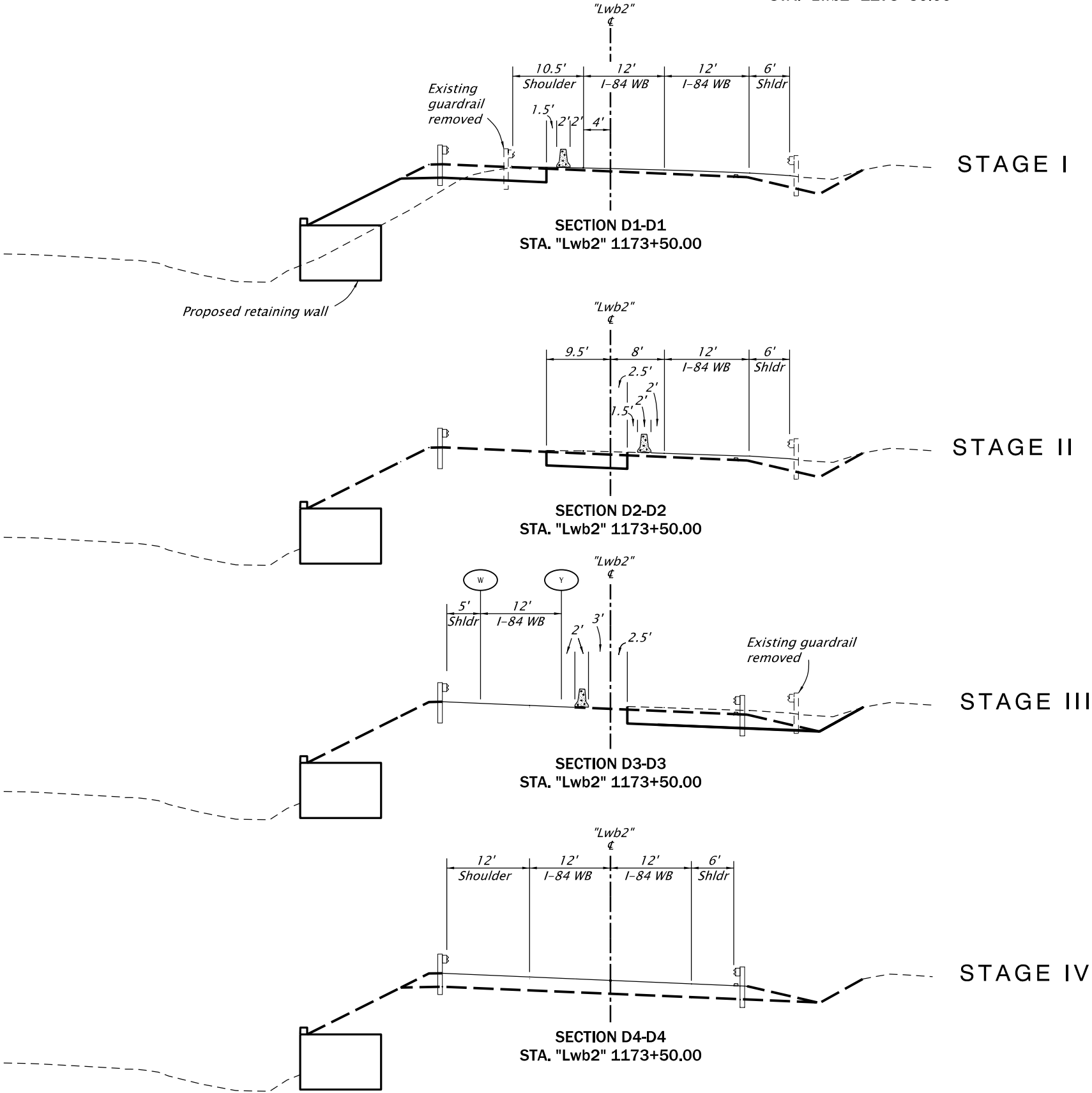
EC14

COLUMBIA RIVER HWY (I-84 WB)
TRAFFIC CONTROL STAGING
STA. "Lwb2" 1167+30.00



	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: M. Gabr CADD Tech: A. Graham	Reviewer: M. Bartley Checker: C. Mao
TRAFFIC CONTROL PLAN		SHEET NO. EC15

COLUMBIA RIVER HWY (I-84 WB)
TRAFFIC CONTROL STAGING
STA. "Lwb2" 1173+50.00



LEGEND

- Temp. concrete barrier
- Immediate grading limits
- Final grading limits
- Under traffic
- Existing ground
- Inst. 4" white line
- Inst. 4" yellow line



OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: M. Gabr

Reviewer: M. Bartley

CADD Tech: A. Graham

Checker: C. Mao

TRAFFIC CONTROL PLAN

SHEET NO.

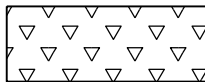
EC16

I-84 at UPRR												
Plant Type	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	Layout	Notes	Irrigation	Plant Mix 'A'	Totals
Plant Mix 'A'												
	Cornus sericea	Dogwood	No. 1 Cont.	5' O.C.	Container	25%	Multi-stem	Install above 2' above live willow stakes	Install in groups of 3-5	See specifications	264	264
	Oemleria cersiformis	Indian plum	No. 1 Cont.	5' O.C.	Container	15%	Multi-stem	Mix with groups	Install in groups of 3-5	See specifications	158	158
	Rosa nutkana	Nootka rose	No. 1 Cont.	5' O.C.	Container	10%	Multi-stem	Mix with groups	Install in groups of 3-7	See specifications	105	105
	Sambucus cerulea	blue elderberry	No. 1 Cont.	8' O.C.	Container	25%	Multi-stem	Mix with groups	Install in groups of 3-5	See specifications	264	264
	Salix lasiandra	Pacific willow	48"-60"	2' O.C.	Live Stake (cutting)	N/A	1.5"-2" Diam.	Mix with other willow	Install in groups of 7-10	See specifications	324	324
	Salix sessilifolia	Columbia River Willow	48"-60"	2' O.C.	Live Stake (cutting)	N/A	1.5"-2" Diam.	Mix with other willow	Install in groups of 7-10	See specifications	324	324
	Spirea douglasii	Douglas Spirea	No. 1 Cont.	5' O.C.	Container	25%	Multi-stem	Mix with groups	Install in groups of 7-10	See specifications	264	264
	Total In Mix											1703
Plant Mix 'B'												
	Carex obnupta	slough sedge	2x2x6"	1'O.C.	Plug	40%	Multi-stem	Mix with groups	Install in groups of 40-60	See specifications	1000	1000
	Carex stipata	sawbeak sedge	2x2x6"	1'O.C.	Plug	10%	Multi-stem	Mix with groups	Install in groups of 20-30	See specifications	250	250
	Juncus effusus	soft rush	2x2x6"	1'O.C.	Plug	20%	Multi-stem	Mix with groups	Install in groups of 40-60	See specifications	500	500
	Scirpus microcarpus	small-fruited bulrush	2x2x6"	1'O.C.	Plug	20%	Multi-stem	Mix with groups	Install in groups of 40-60	See specifications	500	500
	Sagittaria latifolia	Wapato	2x2x6"	1'O.C.	Plug	10%	Single-stem	Mix with groups	Install in groups of 20-30	See specifications	250	250
	Total In Mix											2500

GENERAL NOTES:

1. Ensure trees are planted beyond "clear zone". Verify with engineer prior to planting. Engineer shall approve all work outside designated work limits prior to construction.
2. Locate underground utility lines prior to any digging or ground disturbance.
3. Adjust planting locations so vegetation does not conflict with above – or below-ground utilities.
4. Adjust plant locations to avoid conflict with traffic sight lines and signs or other appurtenances.
5. All dimensions shown on details are minimum dimensions.
6. See Roadside Restoration Plant and Material Schedule for plants and landscape material.
7. Plan is schematic. Planting may be adjusted to fit site conditions with approval.
8. Do not apply fertilizers to plants.
9. Lay out plant material in groups as indicated in plant and material schedule, details and plan sheets.
10. Stake planting areas for approval by landscape architect or engineer prior to planting.
11. Do not plant any plant material prior to inspection and approval by landscape architect.
12. Comply with Oregon Standard Specifications for Construction and Special Provisions for construction applicable to this project.
13. Comply with the terms and conditions from NOAA–Fisheries and Federal Aid Highway Program – Endangered Species Act For Endangered Species FAHP–ESA requiring the utmost care when construction activity is taking place in or near water.
14. Verify field conditions prior to construction with any adjustments to the plans made as directed by the project engineer.
15. Protect all trees and land areas marked for protection. Do not damage natural (non–invasive) vegetation.
16. Comply with erosion control measures per Section 00280 and all applicable permits during construction.
17. Where discrepancies between the Plant & Material Schedule and the plans exist, plans shall prevail.

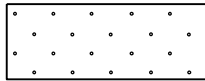
LEGEND



– Site Prep

– Planting Mix 'A'

– Pemanent Seeding Mix (Installed during ESC Phase)



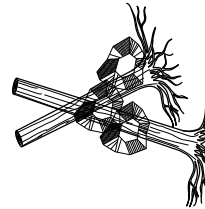
– Site Prep

– Planting Mix 'B'

– Wetland Seeding Mix (Installed during ESC Phase)



Live Stakes (Cuttings)



Woody Coarse Debris and Boulders (Installed during ESC phase)

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LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

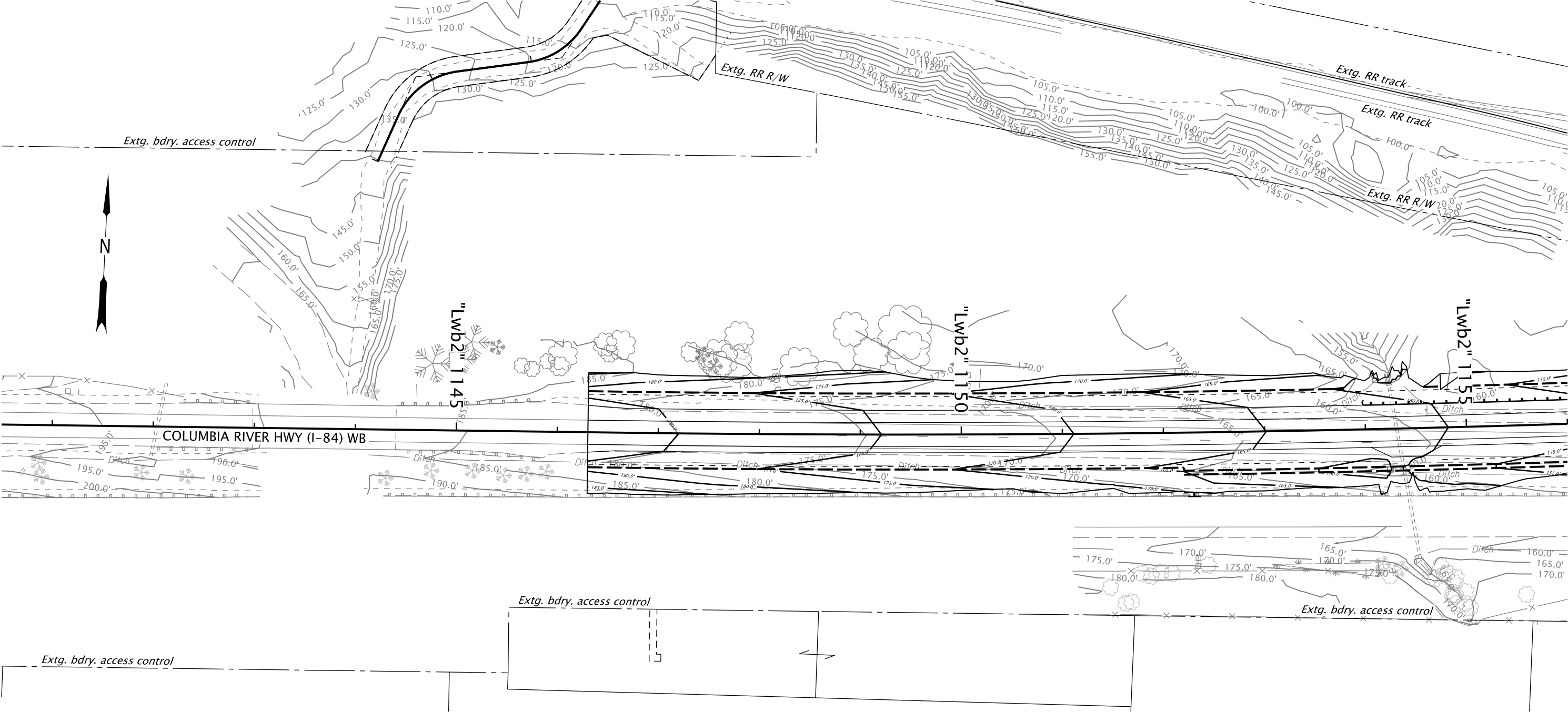
Designer: Magnus Bernhardt Reviewer: Celine Livengood

CADD Tech: Allcla Graham Checker: Anitha Vazrala

ROADSIDE DEVELOPMENT GENERAL NOTES

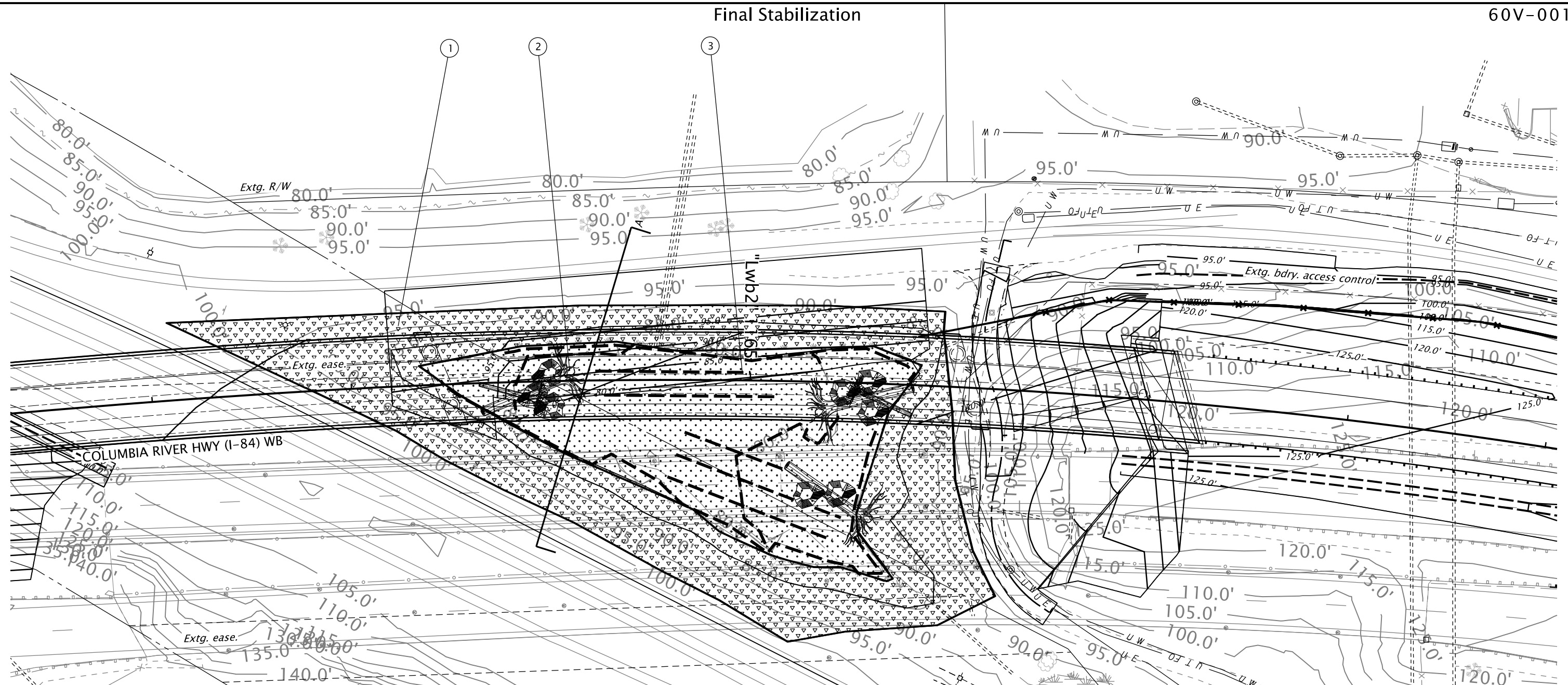
SHEET NO. FA01

No Work This Sheet



PLAN
SCALE: 1" = 100'

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	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
ROADSIDE DEVELOPMENT SITE LAYOUT PLAN		SHEET NO. FA02



PLAN

SCALE: 1" = 50'

CONSTRUCTION NOTES

NOTES

1. See Sheet FA06 for typical wetland section

- ① *Inst. Plant Mix 'A'*
- ② *Inst. Plant Mix 'B'*
- ③ *Inst. Live Stakes (Cuttings)*

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LANDSCAPE ARCHITECT

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**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt

Reviewer: Celine Livengood

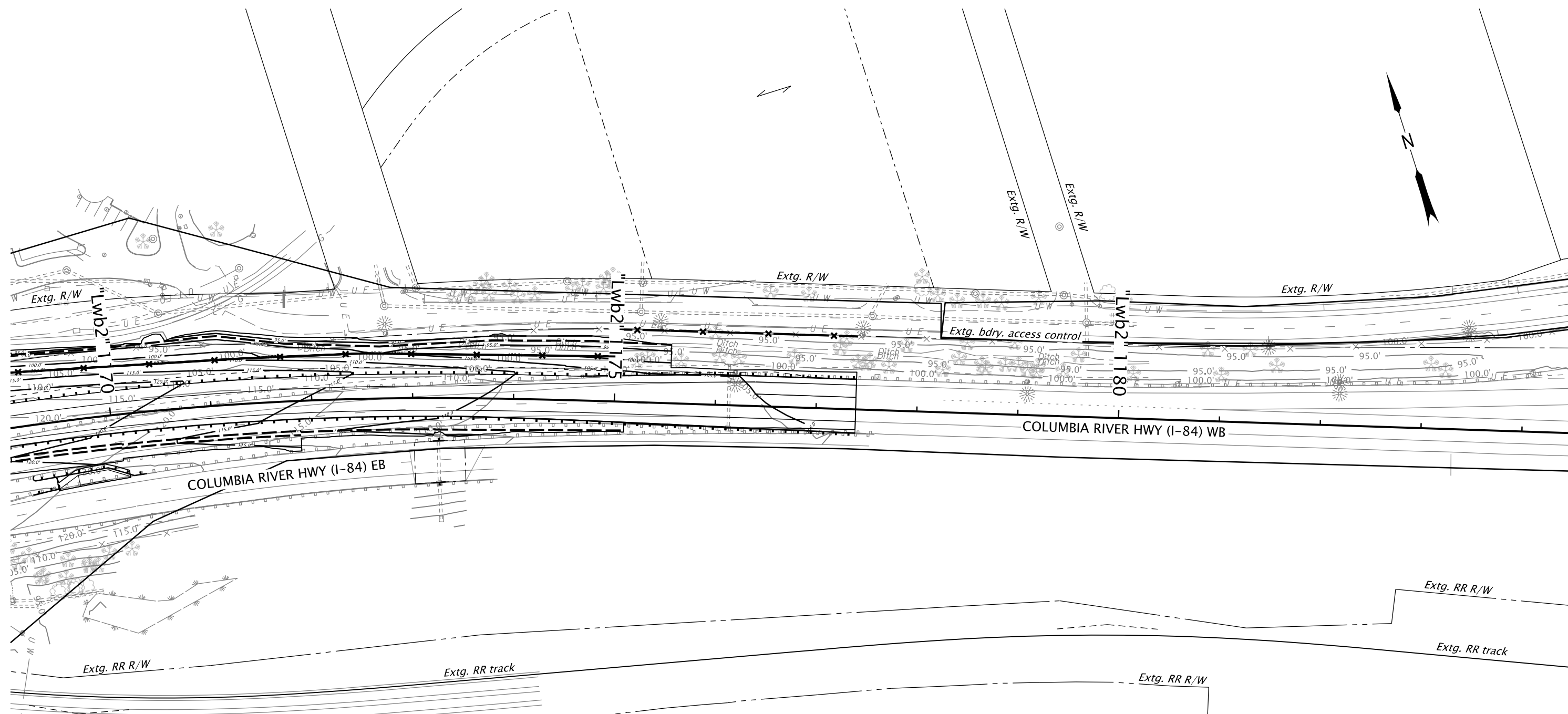
CADD Tech: Allcia Graham

Checker: Anitha Vazrala

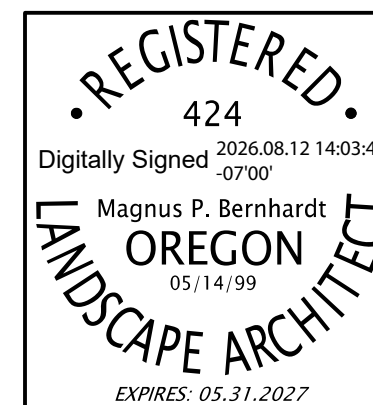
ROADSIDE DEVELOPMENT SITE LAYOUT PLAN

SHEET NO.
FA03

No Work This Sheet



PLAN
SCALE: 1" = 100'



OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt

Reviewer: Celine Livengood

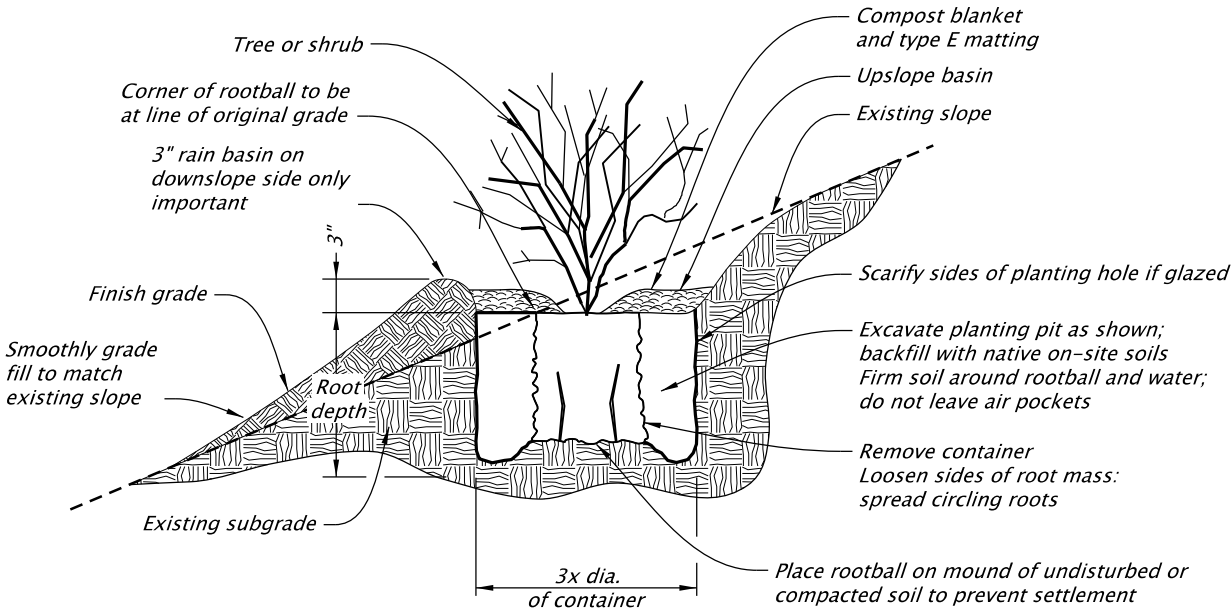
CADD Tech: Allcia Graham

Checker: Anitha Vazrala

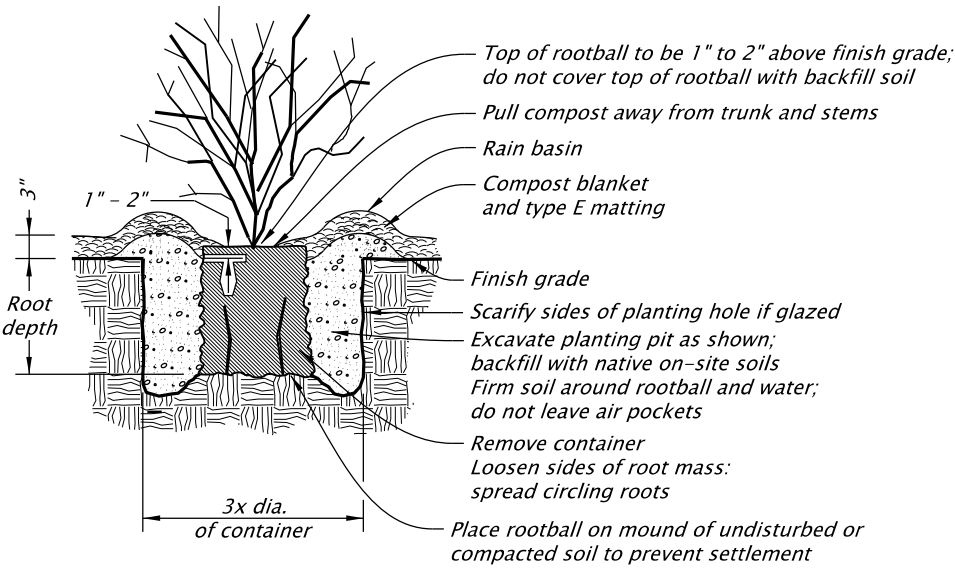
ROADSIDE DEVELOPMENT SITE LAYOUT PLAN

SHEET NO.

FA04

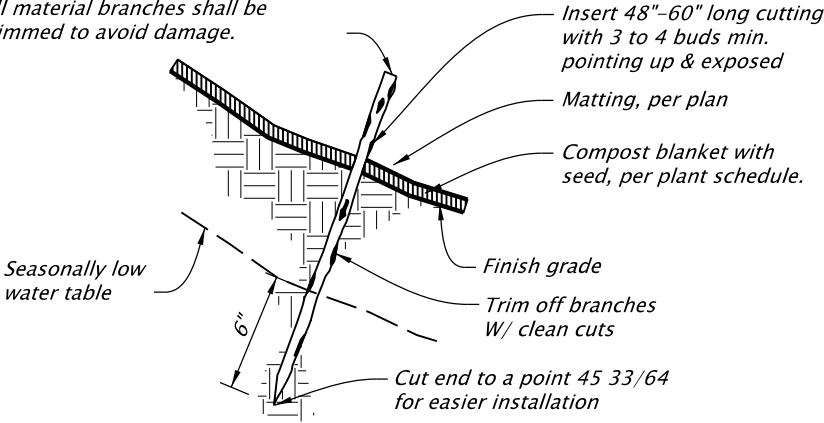


SLOPE PLANTING #1 CONTAINERS
SCALE: NTS



GENERAL PLANTING FOR #1 CONTAINERS
SCALE: NTS

Cut top square for easier installation.
Protect top from splitting.
All material branches shall be trimmed to avoid damage.

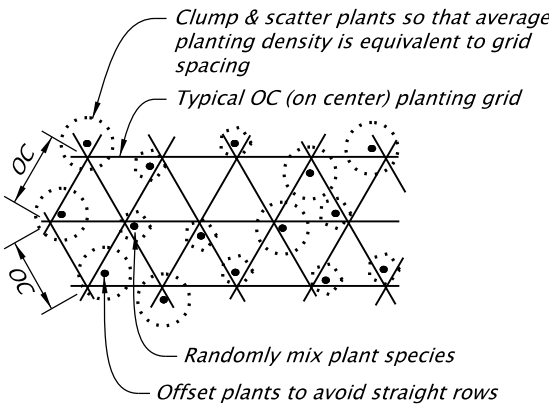


1. Take live stakes & poles from within a 0.5 mile radius of site and at elevations within +/- 100' of site elevation.
2. Take live stake cuttings from 2-3 year old wood.
3. Install cuttings within 48 hours after cutting. Keep cutting submersed in water prior to installation.
4. Use steel rod to drive pilot holes as necessary.
5. Cut live stakes & poles so 6" min. is in contact with seasonally low water table estimated at 2'-3' below seasonally high water table.
6. Insert 80% of stake into soil (see Special Provision 1040). Tamp ground firmly after installation to eliminate air pockets.

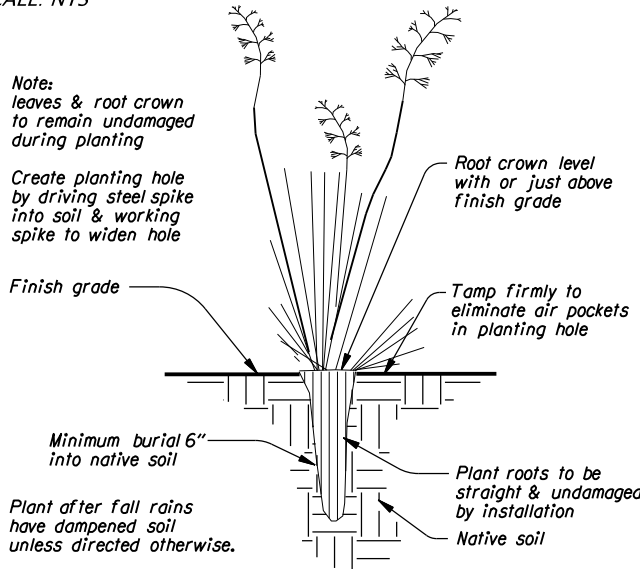
LIVE STAKE (CUTTING) INSTALLATION (TYP)
SCALE: NTS

NOTE:

After site prep and tree location staking is complete and prior to planting, Contractor shall construct typical tree, shrub and live stake planting/installations per details and specifications with Engineer and Agency Landscape Architect present. When the installations are complete to the satisfaction of the Engineer in coordination with Landscape Architect, the Contractor shall install the remaining plant material in the same manner.

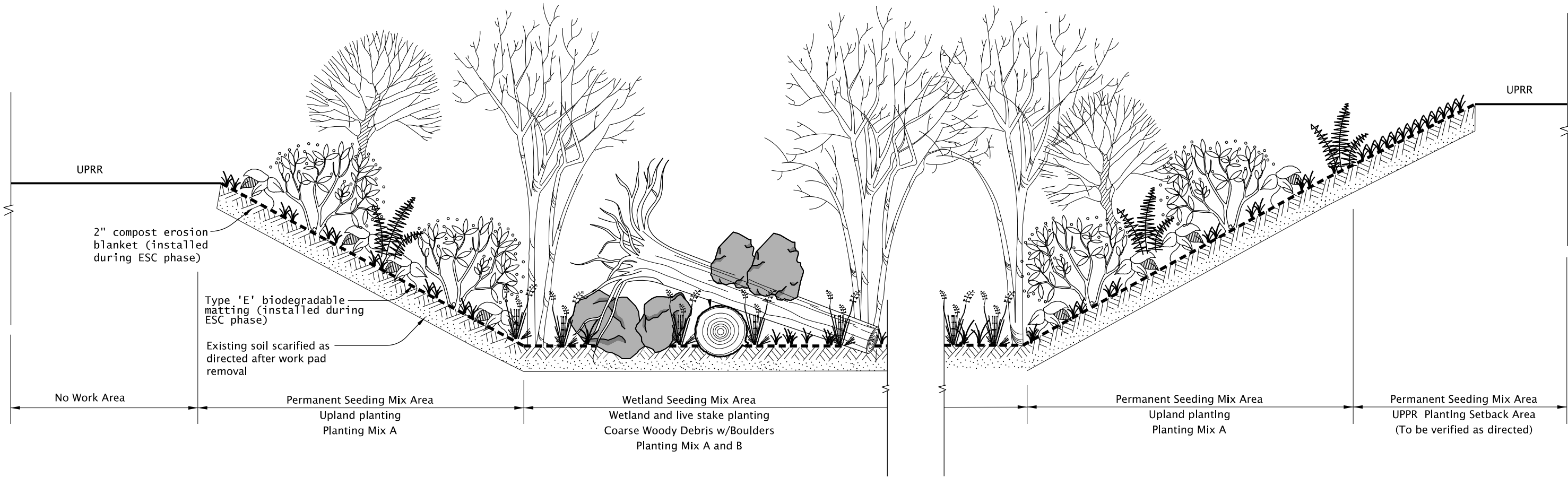


PLANTING LAYOUT
SCALE: NTS



GENERAL PLUG PLANTING
SCALE: NTS

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	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
ROADSIDE DEVELOPMENT SITE DETAILS		SHEET NO. FA05



**A WETLAND RESTORATION
TYPICAL SECTION**

Not To Scale

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**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt

Reviewer: Celine Livengood

CADD Tech: Allcia Graham

Checker: Anitha Vazrala

ROADSIDE DEVELOPMENT SITE DETAILS

SHEET NO.

FA06

EROSION AND SEDIMENT CONTROL GENERAL NOTES

The construction, adjustment, maintenance, and upgrading of these Erosion and Sediment Control measures is the responsibility of the contractor for the duration of the project to comply with Section 00280 of the Oregon Standard Specifications for construction and, when applicable, the NPDES 1200-CA permit.

Erosion and Sediment Control measures shown on this plan are for anticipated site conditions. Adjust or upgrade these measures for unexpected storm events to ensure that sediment and sediment-laden water does not leave the site.

Develop a revised plan of the Erosion and Sediment Control measures shown as required by Section 00280, Oregon Standard Specifications for Construction. Implement this plan for all clearing and grading activities and in segments applicable to each staging phase. Construct in such a manner so as to ensure that sediment and sediment-ladenwater does not enter the roadway or drainage system, or violate applicable water standards.

Install measures within the right-of-way unless directed otherwise.

NOTE:
Place check dams in ditch sections.

Graphic symbols are approximate. Place Erosion Control measures as required or directed.

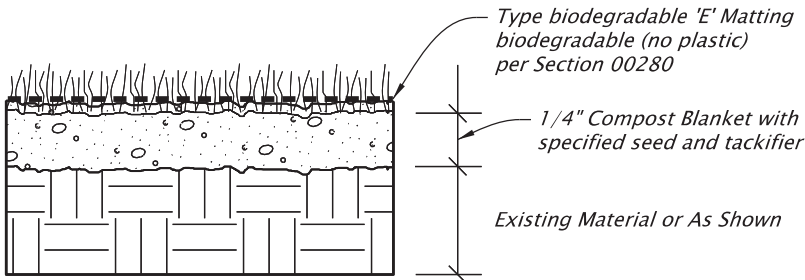
NOTE:
Areas bounded by temporary orange fence denote protected no work areas such as trees, wetlands, cultural resources, etc.

STANDARD DRAWINGS

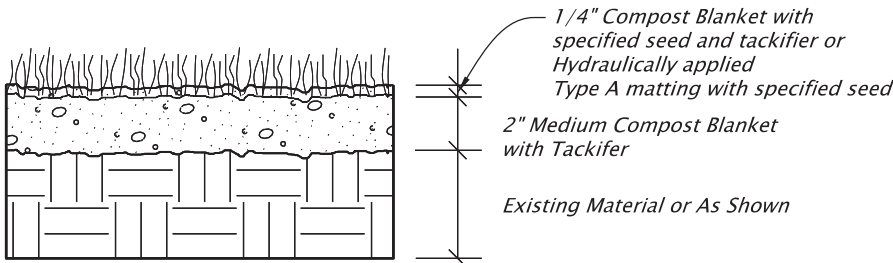
- RD1000 Construction Entrances
- RD1005 Check Dams Type 1, 3 and 4
- RD1006 Check Dams Type 2 and 6
- RD1010 Inlet Protection Type 2, 3, 6, 7, 10 and 11
- RD1015 Inlet Protection Type 4
- RD1030 Sediment Barrier Type 2, 3 and 4
- RD1031 Sediment Barrier Type 5 and 6
- RD1032 Sediment Barrier Type 8
- RD1033 Sediment Barrier Type 9
- RD1040 Sediment Fence
- RD1045 Temporary Slope Drain With Energy Dissipator
- RD1050 Temporary Scour Basin / Energy Dissipator
- RD1055 Slope and Channel Matting
- RD1060 Tire Wash Facility Type 1 and 2
- RD1065 Sediment Trap
- RD1070 Concrete Truck Wash Out

LEGEND

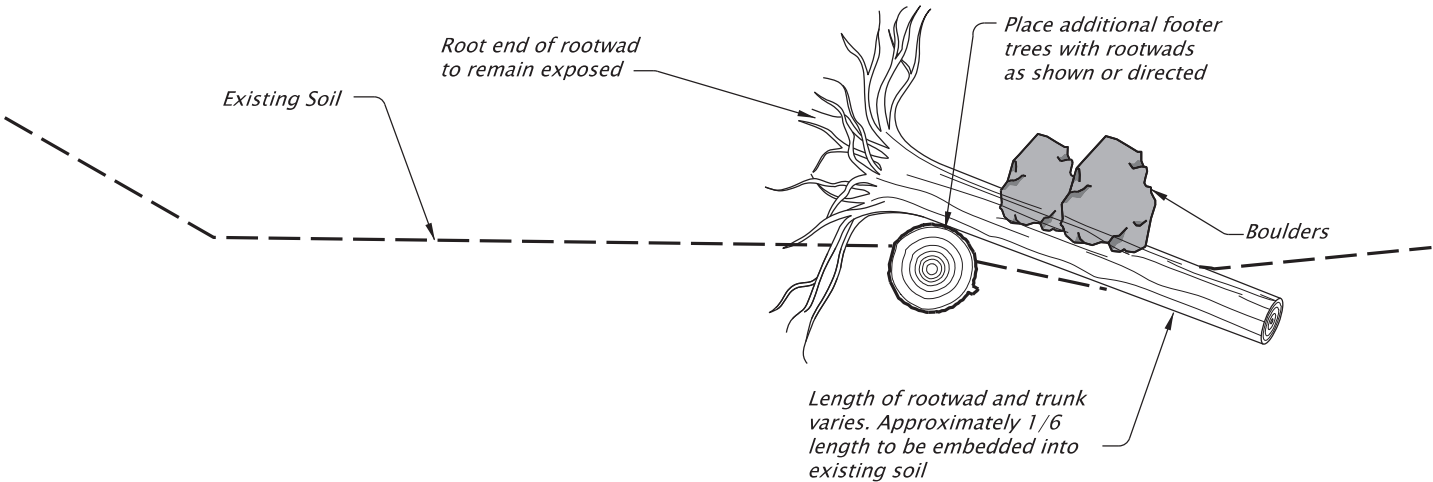
- Fill slope
- Cut slope
- Inlet protection
- Sediment fence
- Orange plastic fence (no work area)
- Check dam in ditch section
- Sediment barrier, straw wattle
- Construction entrance
- Wetland Seeding Mix and planting area
- Compost erosion blanket and 'Type E' erosion control matting
- Active Treatment System (Stormwater Treatment Tanks)
- Proposed work pad
- Type 'E' erosion control matting
- Specified seeding mix and Type 'A' hydraulically applied matting
- Compost erosion blanket with specified seeding mix
- Flow direction
- Slope direction
- Riparian clearing and grubbing FB03
- Vegetation clearing within wetland FB03



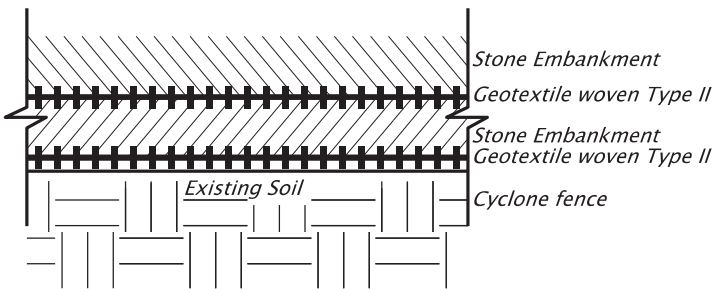
COMPOST EROSION BLANKET WITH MATTING AND SPECIFIED SEEDING MIX
SCALE: NTS



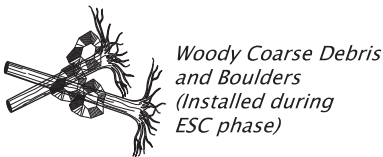
COMPOST EROSION BLANKET WITH SPECIFIED SEEDING MIX
SCALE: NTS



WOODY COARSE DEBRIS
SCALE: NTS



PROPOSED WORK PAD
SCALE: NTS



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424
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LANDSCAPE ARCHITECT
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OREGON DEPARTMENT OF TRANSPORTATION

I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

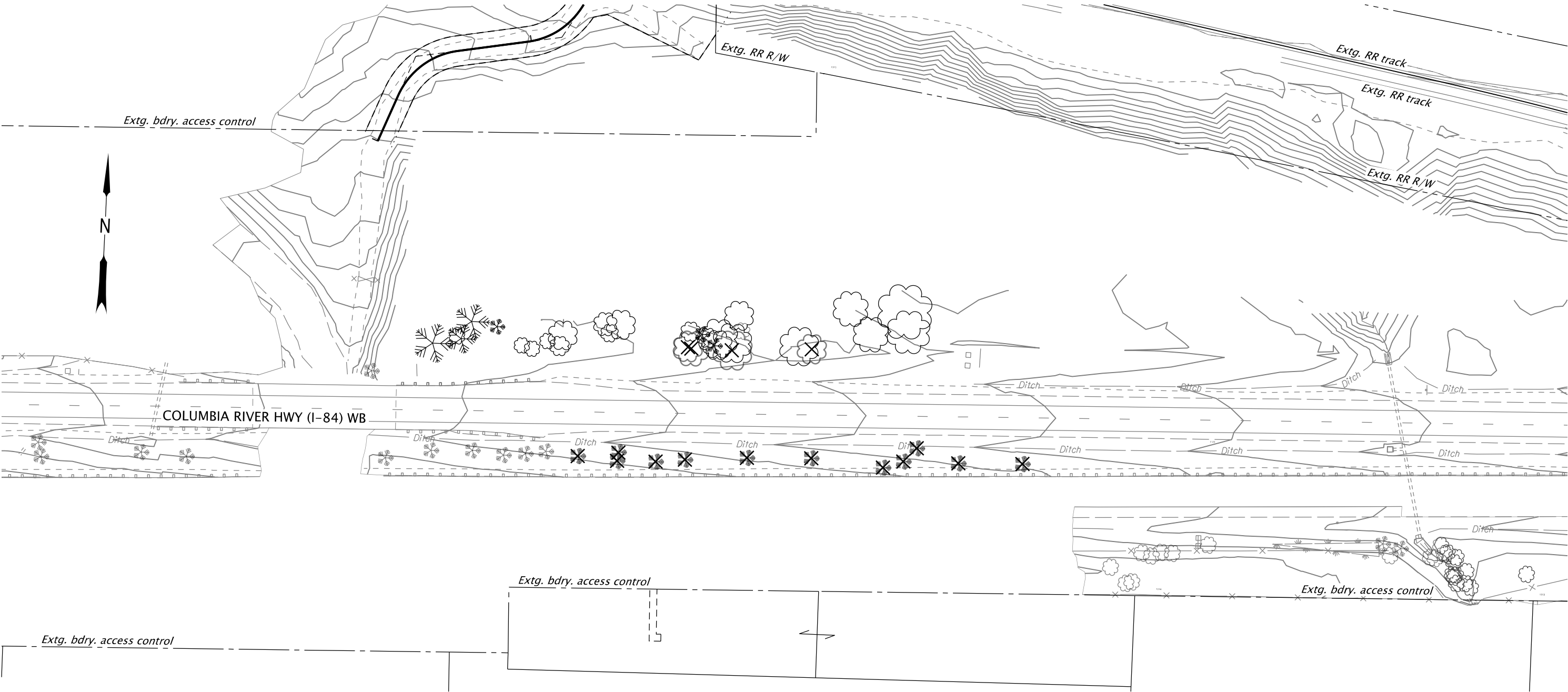
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

Designer: Magnus Bernhardt Reviewer: Celine Livengood
CADD Tech: Allcla Graham Checker: Anitha Vazrala

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO. FB01

Pre-Stage 1
TREE REMOVAL PLAN



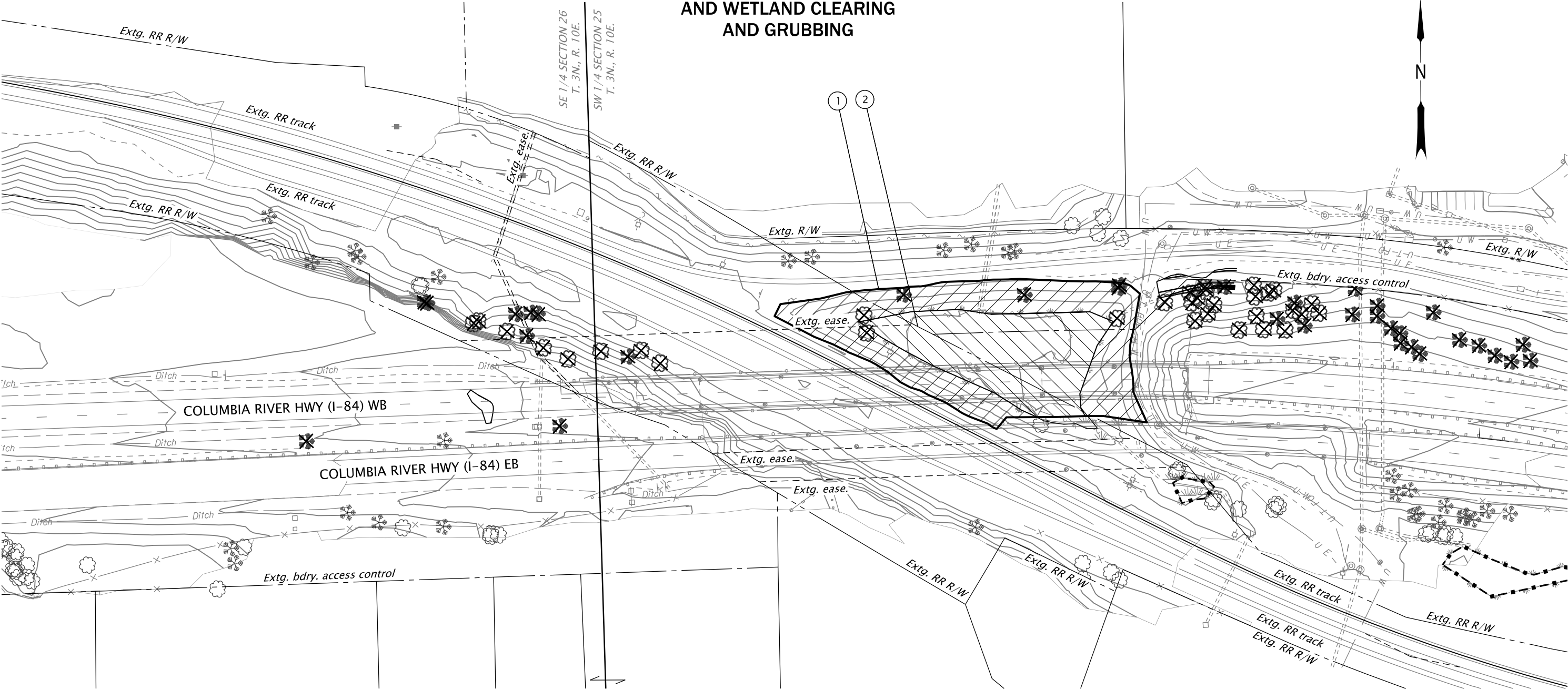
TREE REMOVAL LEGEND

-  Evergreen tree to remain
-  Deciduous tree to remain
-  Evergreen tree to be cleared and grubbed
-  Deciduous tree to be cleared and grubbed

PLAN
SCALE: 1" = 100'

REGISTERED. 424 Digitally Signed 2026.08.12 14:05:32 -07'00' Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
TREE REMOVAL PLAN		
SHEET NO. FB02		

Pre-Stage 1
TREE REMOVAL PLAN
AND WETLAND CLEARING
AND GRUBBING



TREE REMOVAL LEGEND

- Evergreen tree to remain
- Deciduous tree to remain
- Evergreen tree to be cleared and grubbed
- Deciduous tree to be cleared and grubbed

NOTES

1. Clear and grub vegetation outside of the wetland boundary within the riparian area as directed.

CONSTRUCTION NOTES
(Wetland Area Clearing and Grubbing)

- 1 Clear and grub vegetation outside of the wetland boundary within the riparian area as directed.
- 2 Clear vegetation within the wetland boundary. Vegetation to remain cleared between 4-6 inches of existing soils prior to installing proposed work pad.

PLAN

SCALE: 1" = 100'

See Sheet FB01 for legend

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OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt
CADD Tech: Allcia Graham
Reviewer: Celine Livengood
Checker: Anitha Vazrala

TREE REMOVAL PLAN

SHEET NO.
FB03

Pre-Stage 1
TREE REMOVAL PLAN



TREE REMOVAL LEGEND

- Evergreen tree to remain
- Deciduous tree to remain
- Evergreen tree to be cleared and grubbed
- Deciduous tree to be cleared and grubbed

PLAN
SCALE: 1" = 100'

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I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

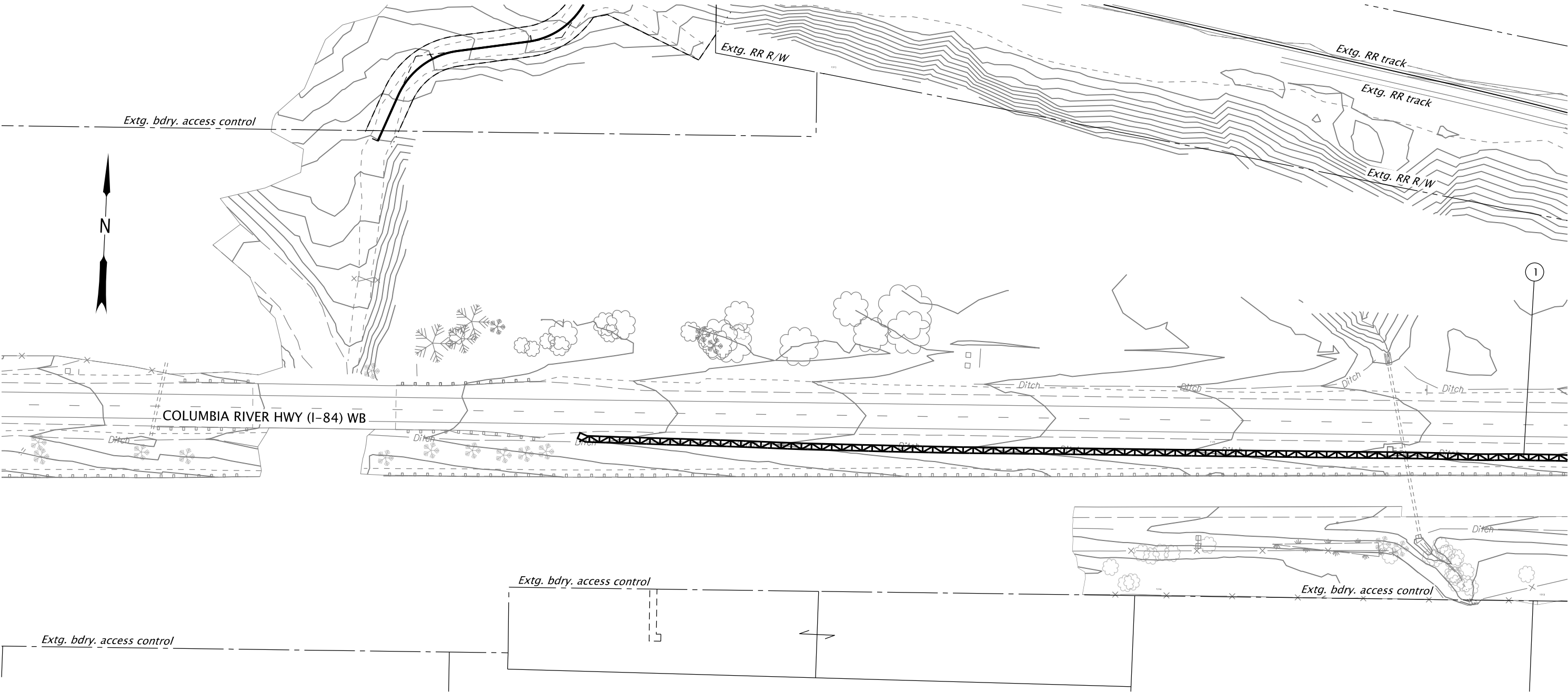
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt Reviewer: Celine Livengood
CADD Tech: Allcia Graham Checker: Anitha Vazrala

TREE REMOVAL PLAN

SHEET NO.
FB04

Pre Stage 2
Shoulder Widening



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

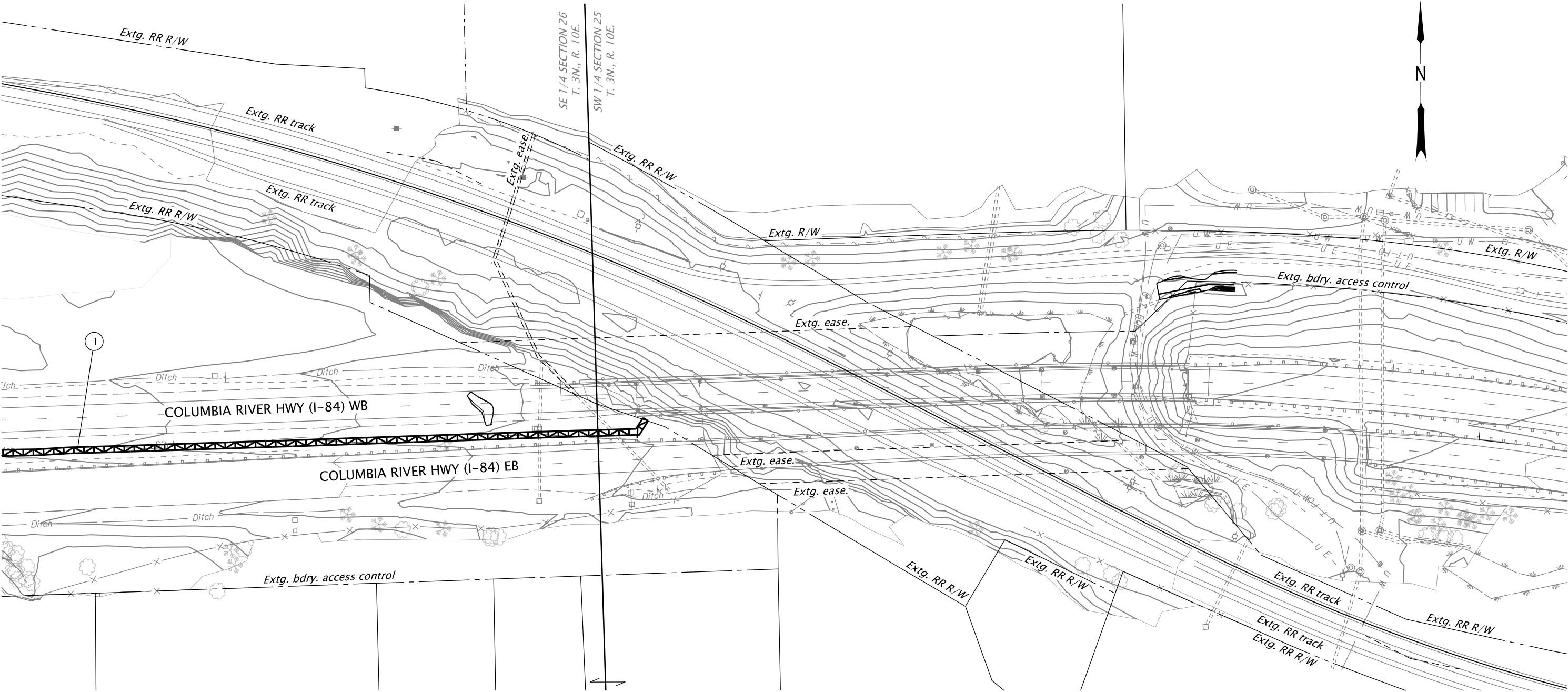
See Sheet FB01 for legend

- 1 Inst. sediment barrier
Types 3
(See dwg. RD1030)

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I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
Designer: Magnus Bernhardt	Reviewer: Celine Livengood	
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB05

Pre Stage 2
Shoulder Widening



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

See Sheet FB01 for legend

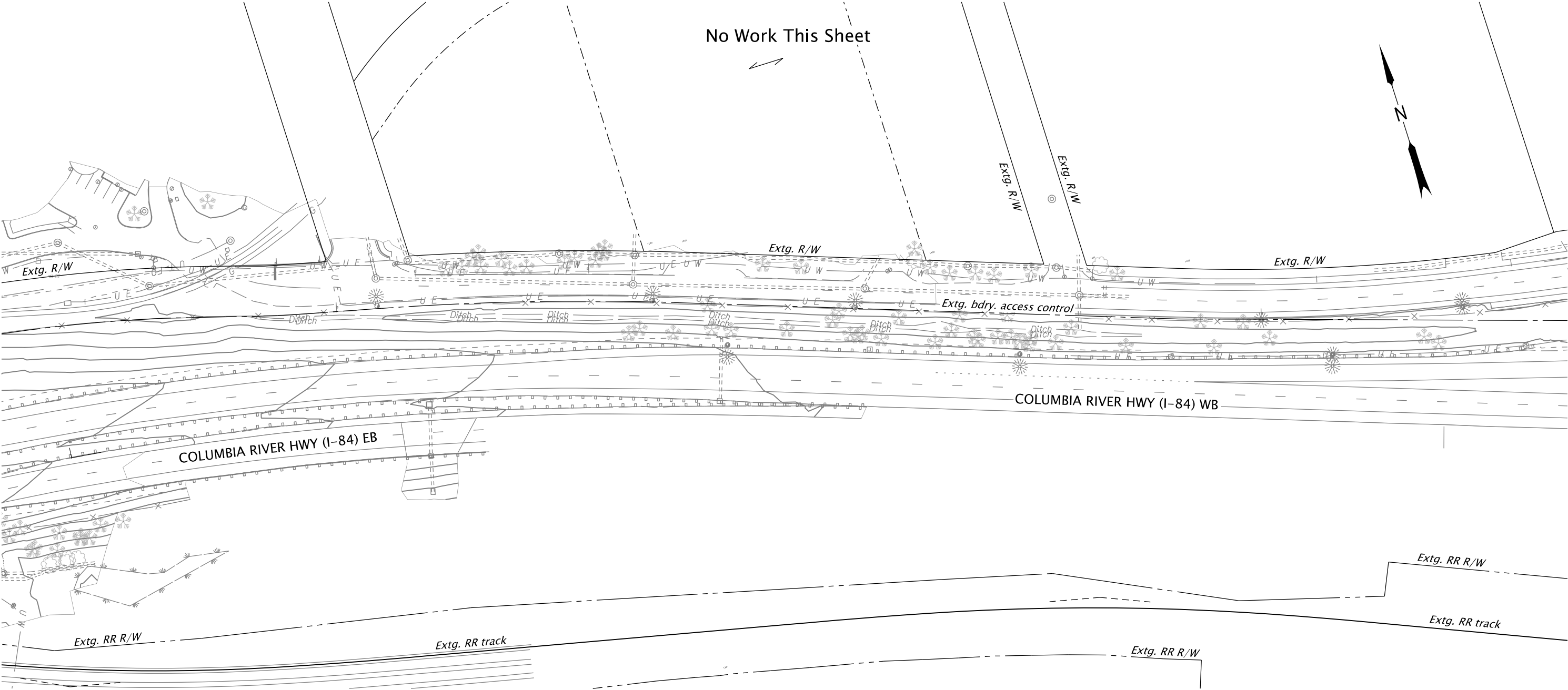
- 1 Inst. sediment barrier
Types 3
(See dwg. RD1030)

REGISTERED.
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I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB06	

Pre Stage 2
Shoulder Widening

No Work This Sheet



PLAN
SCALE: 1" = 100'

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LANDSCAPE ARCHITECT

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I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB07	

Stage 1
Bridge Construction, MSE wall work and grading.



PLAN
SCALE: 1" = 100'

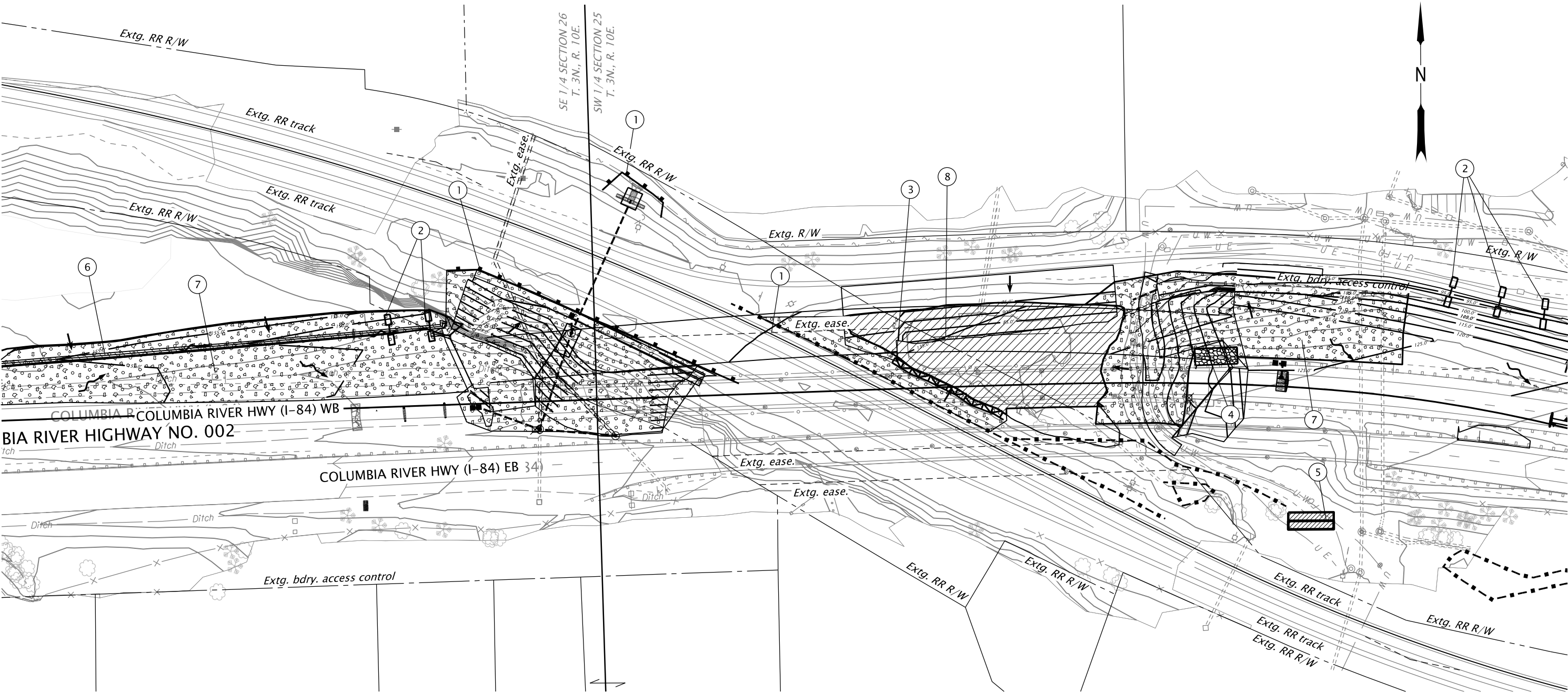
CONSTRUCTION NOTES

- 1 Const. check dam
Types 1
(See dwg. RD1005)
- 2 Const. construction
entrance
(See dwg. RD1000)
- 3 Inst. Type 'E'
matting
(See dwg. RD1055)
- 4 Inst. Hydraulically applied Type 'A'
matting

See Sheet FB01 for legend

REGISTERED. 424 Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT Digitally Signed 2026.08.12 14:07:32 -07'00' EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB08

Stage 1
Bridge Construction, MSE wall work, grading, construction pad, temporary water management and ISM



See Sheet FB01 for legend

PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

- 1 Const. sediment fence
(See dwg. RD1040)

2 Const. check dam
Types 1
(See dwg. RD1005)

3 Inst. sediment barrier
Types 3
(See dwg. RD1030)
- 4 Const. construction
entrance
(See dwg. RD1000)

5 Inst. Active Treatment System
(Stormwater Treatment Tanks)

6 Inst. Type 'E'
matting
(See dwg. RD1055)
- 7 Inst. Hydraulically applied Type 'A'
matting

8 Install proposed
work pad
(see proposed detail sheet FB01)

NOTES
1. See Geo-Technical and
Hydraulic Sheets for ISM

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05/14/99

LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

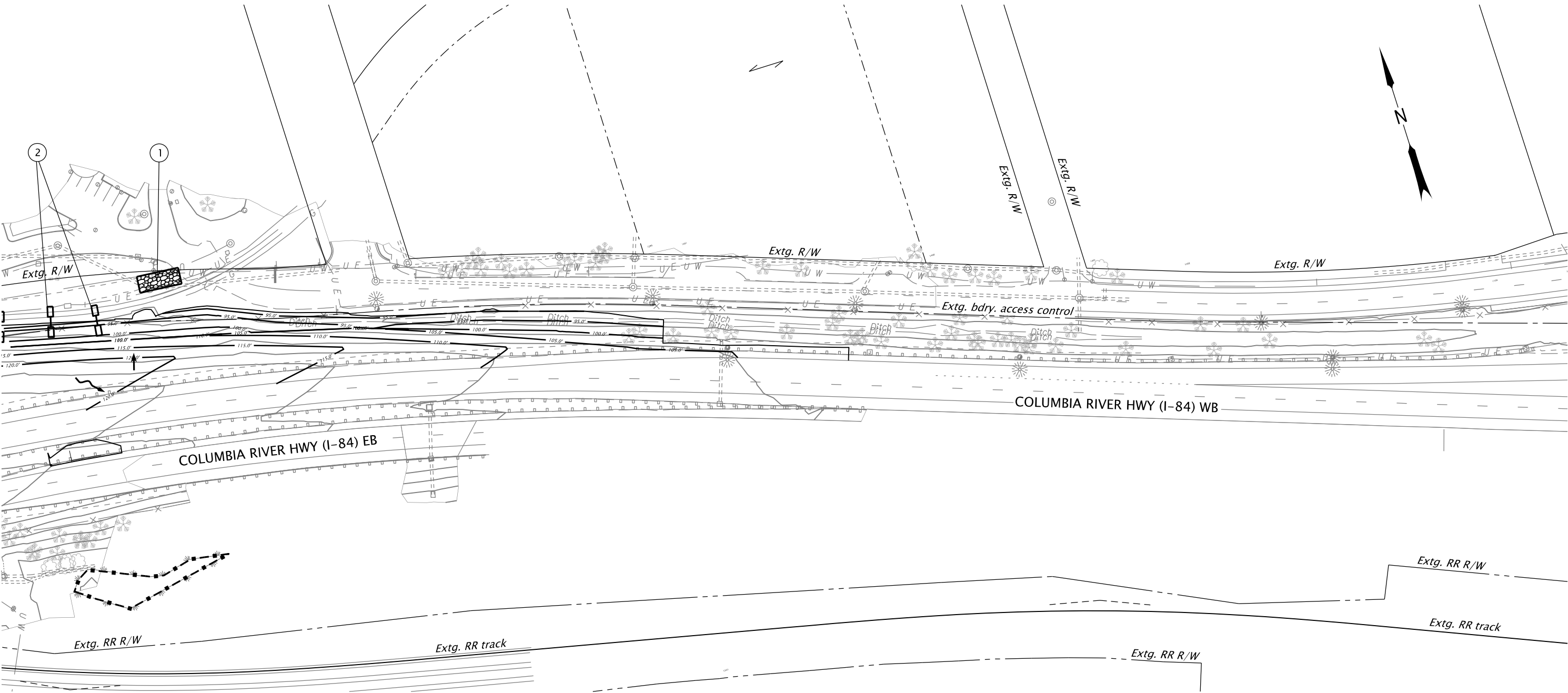
Designer: Magnus Bernhardt
CADD Tech: Alliea Graham

Reviewer: Celine Livengood
Checker: Anitha Vazrala

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO.
FB09

Stage 1
Bridge Construction, MSE wall work and grading.



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

- 1 Const. construction entrance
(See dwg. RD1000)
- 2 Const. check dam Types I
(See dwg. RD1005)

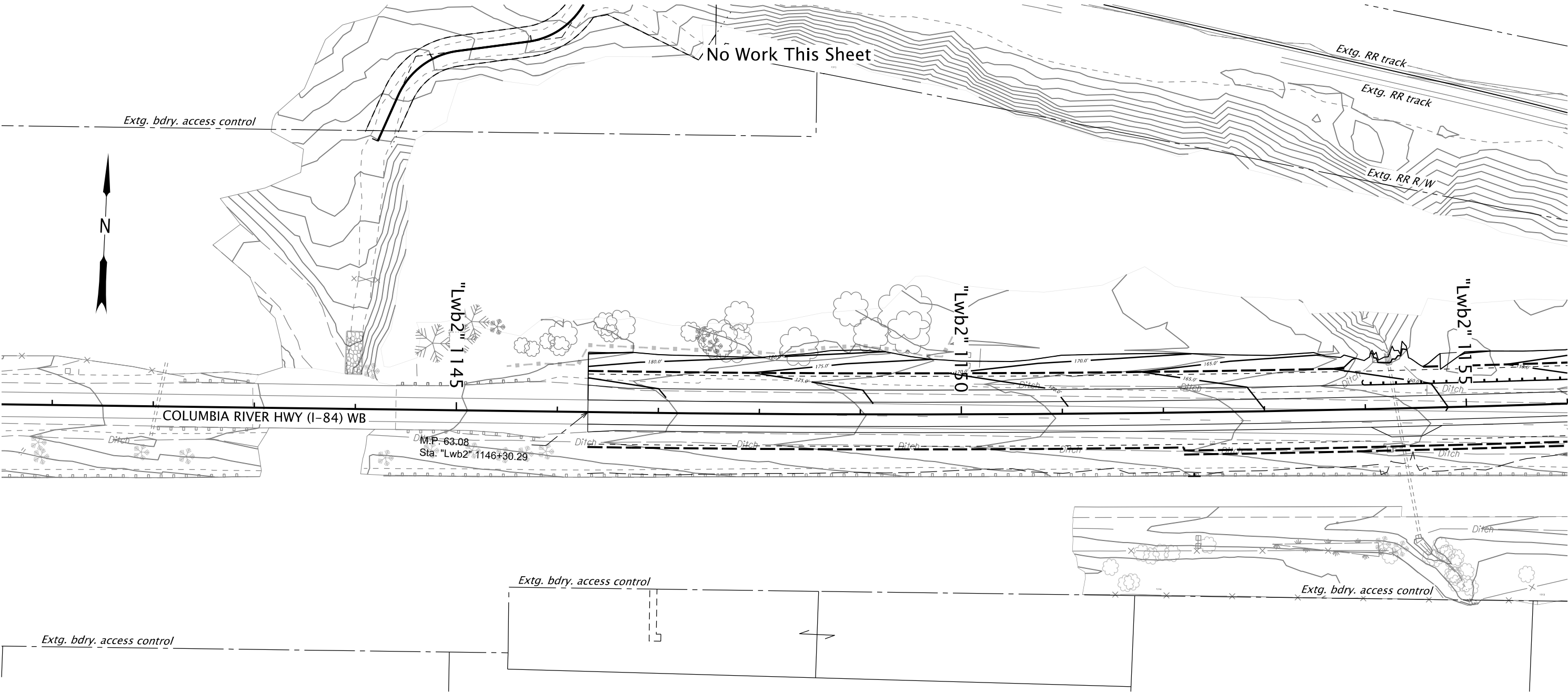
See Sheet FB01 for legend

REGISTERED.
424
Digitally Signed 2026.08.12 14:08:18 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION		
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
Designer: Magnus Bernhardt	Reviewer: Celine Livengood	
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB10

Stage 1 Phase 2
Bridge Construction

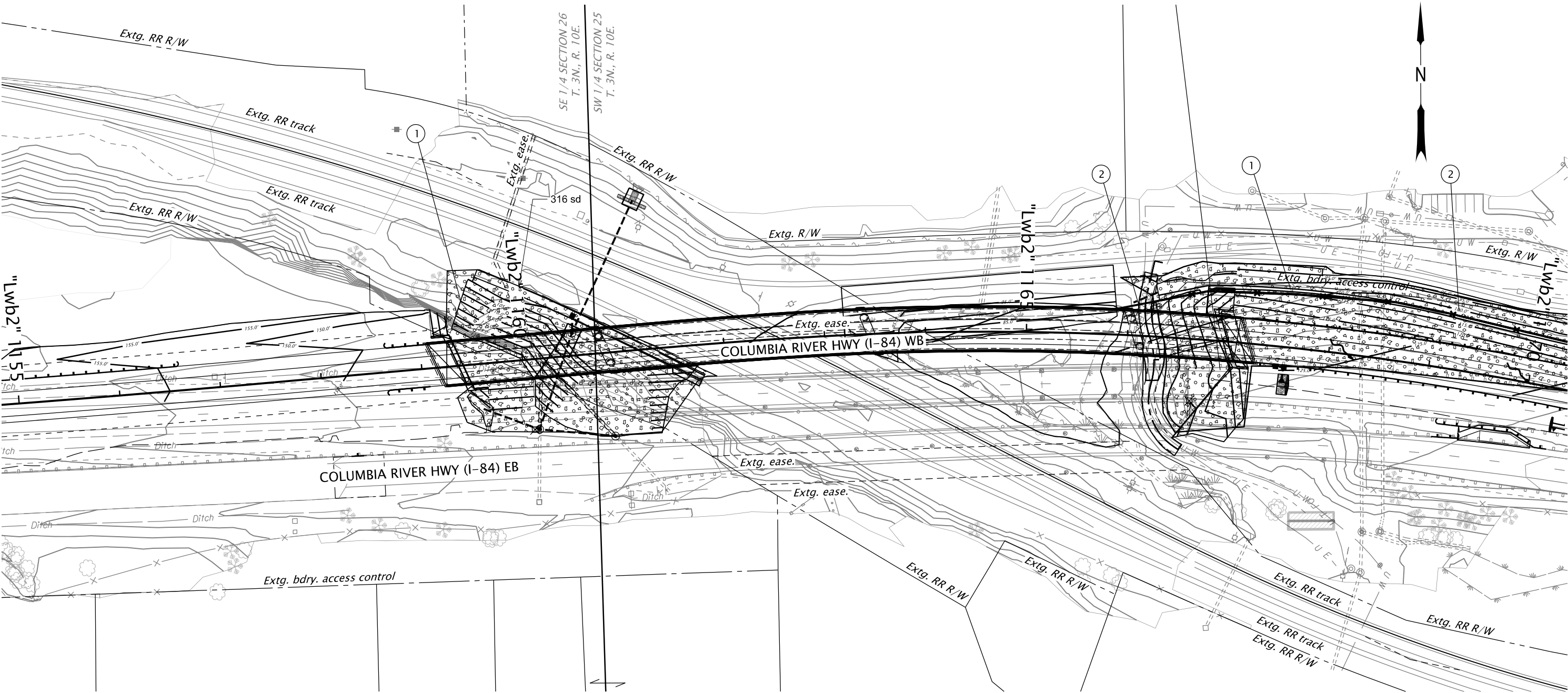
No Work This Sheet



PLAN
SCALE: 1" = 100'

REGISTERED. 424 Digitally Signed 2026.08.12 14:08:39 -07'00' Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB11

Stage 1 Phase 2
Bridge Construction, MSE wall work and grading, north side stabilization.



CONSTRUCTION NOTES

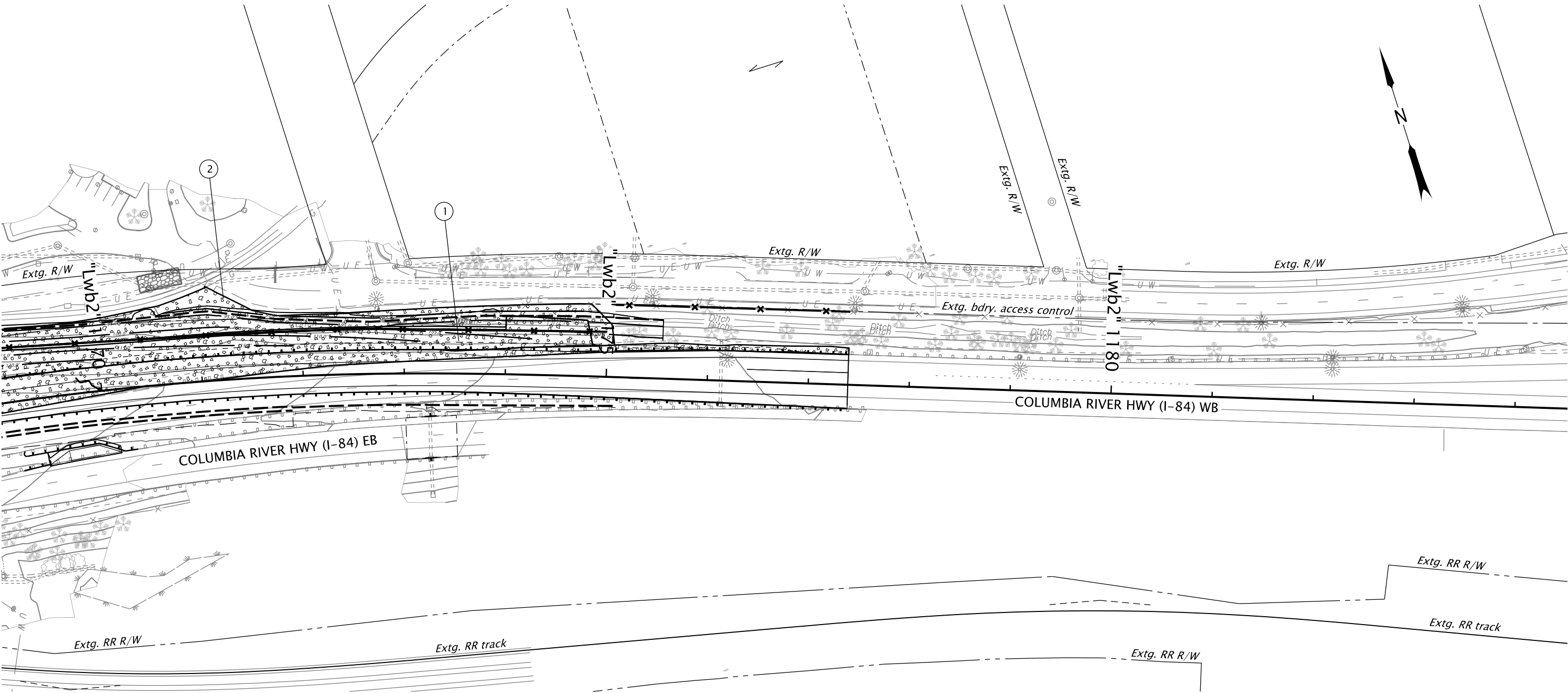
See Sheet FB01 for legend

- ① Inst. Hydraulically applied Type 'A' matting
- ② Inst. sediment barrier Types 3 (See dwg. RD1030)

REGISTERED
424
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Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB12	

Stage 1 Phase 2
Bridge Construction, MSE wall work and grading, north side stabilization.



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

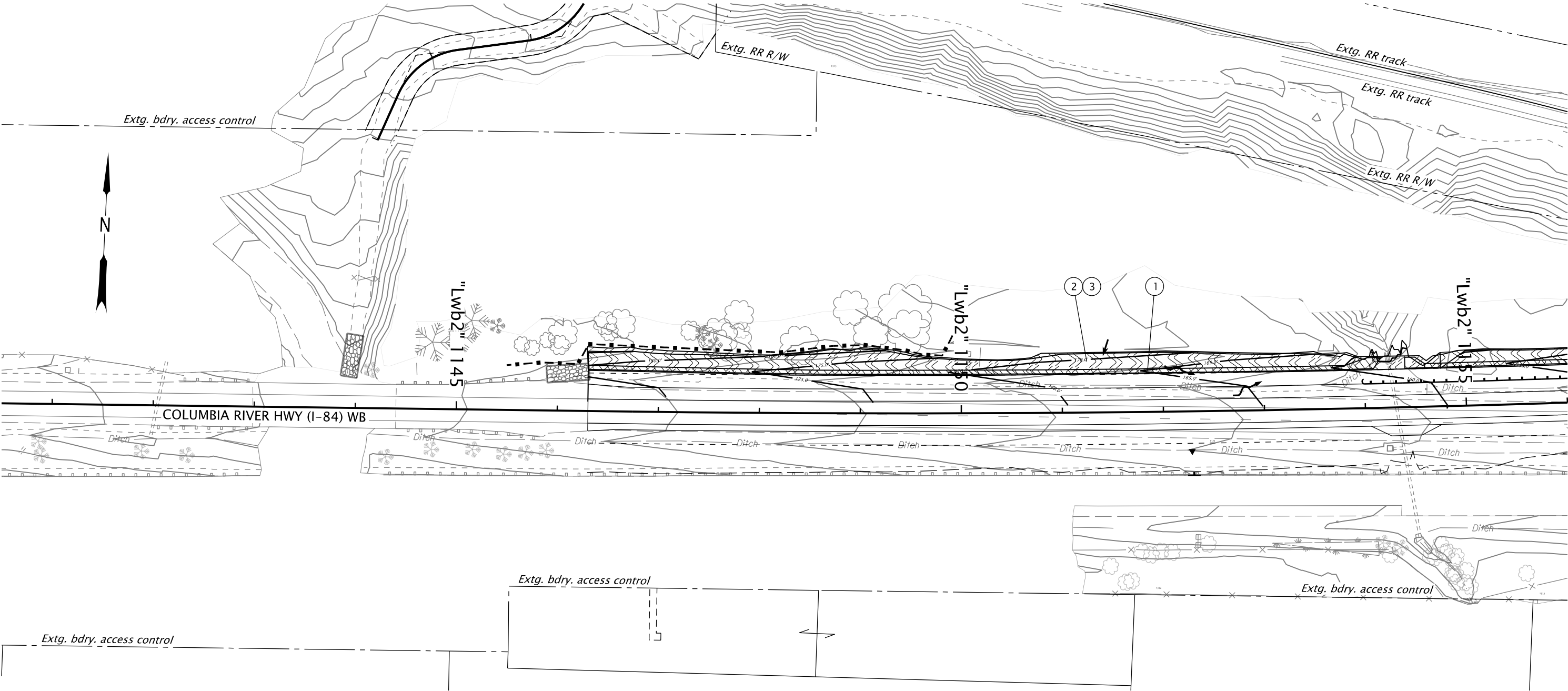
See Sheet FB01 for legend

- ① Inst. Hydraulically applied Type 'A' matting
- ② Inst. sediment barrier Types 3 (see dwg. RD1030)

REGISTERED.
424
Digitally Signed 2026.08.12 14:09:25 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB13	

Stage 1 Phase 3
Bridge Construction, MSE wall work and grading, north side stabilization.



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

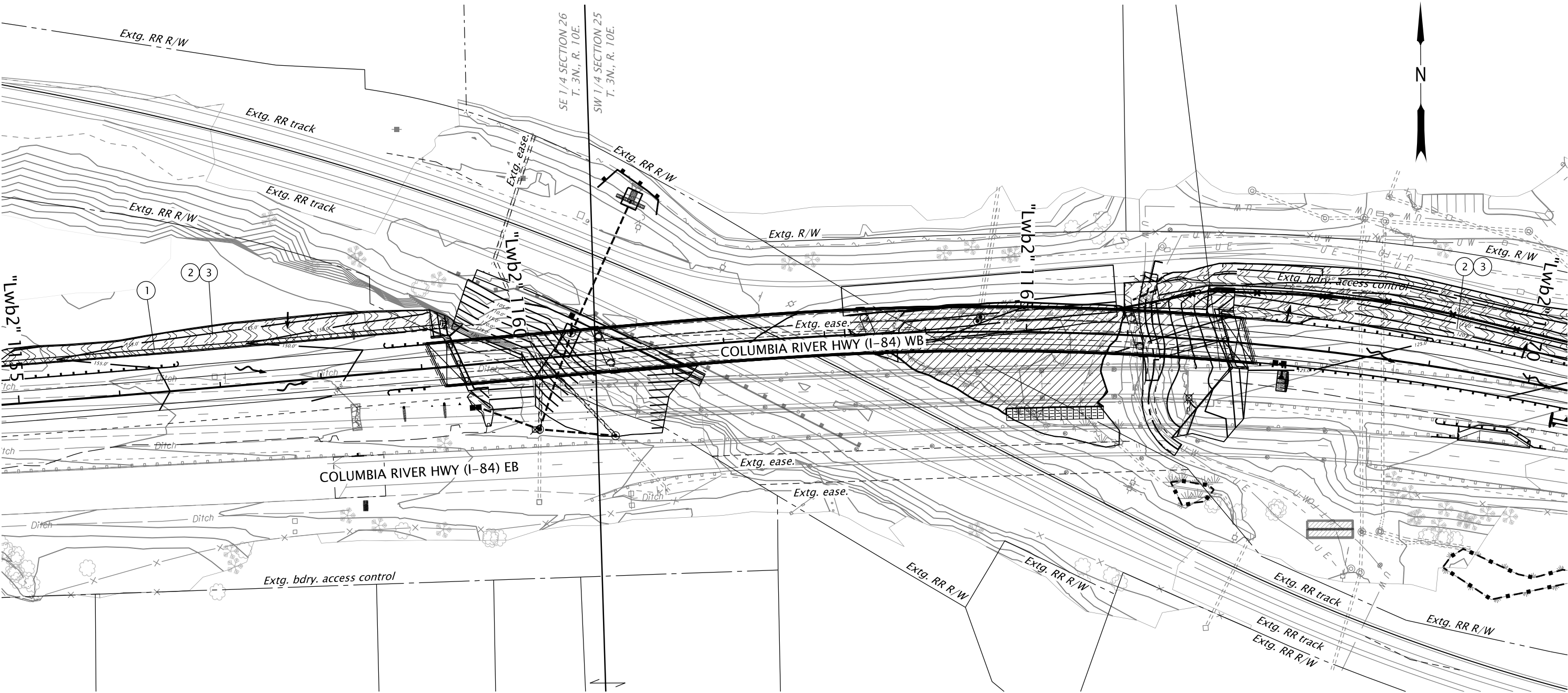
- 1 Inst. Type 'E' matting (See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket (For details, see sheet FB01)
- 3 Apply permanent seeding mix

See Sheet FB01 for legend

REGISTERED
424
Digitally Signed 2026.08.12 14:09:45 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB14	

Stage 1 Phase 3
Bridge Construction, MSE wall work and grading, north side stabilization.



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

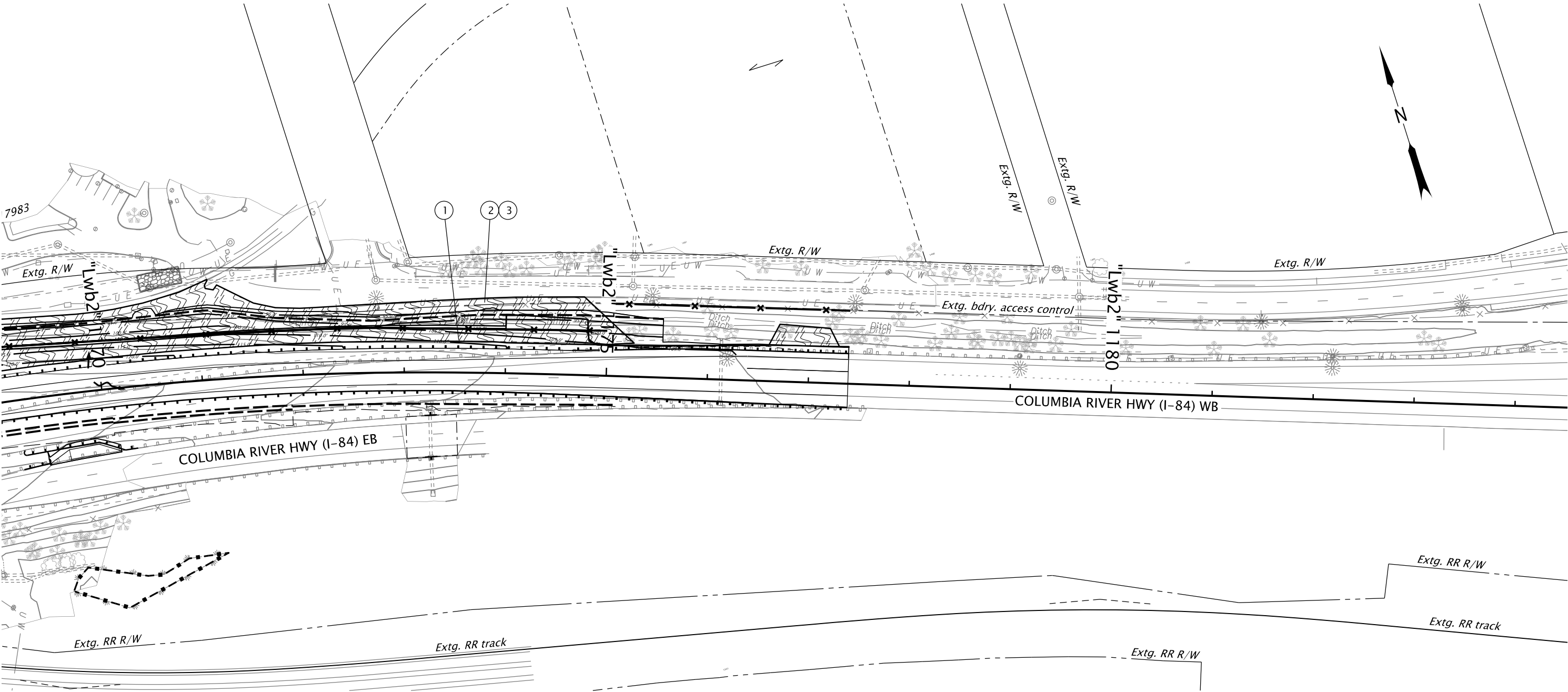
- 1 Inst. Type 'E' matting (See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket (For details, see sheet FB01)
- 3 Apply permanent seeding mix

See Sheet FB01 for legend

REGISTERED.
424
Digitally Signed 2026.08.12 14:10:04 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB15	

Stage 1 Phase 3
Bridge Construction, MSE wall work and grading, north side stabilization.



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

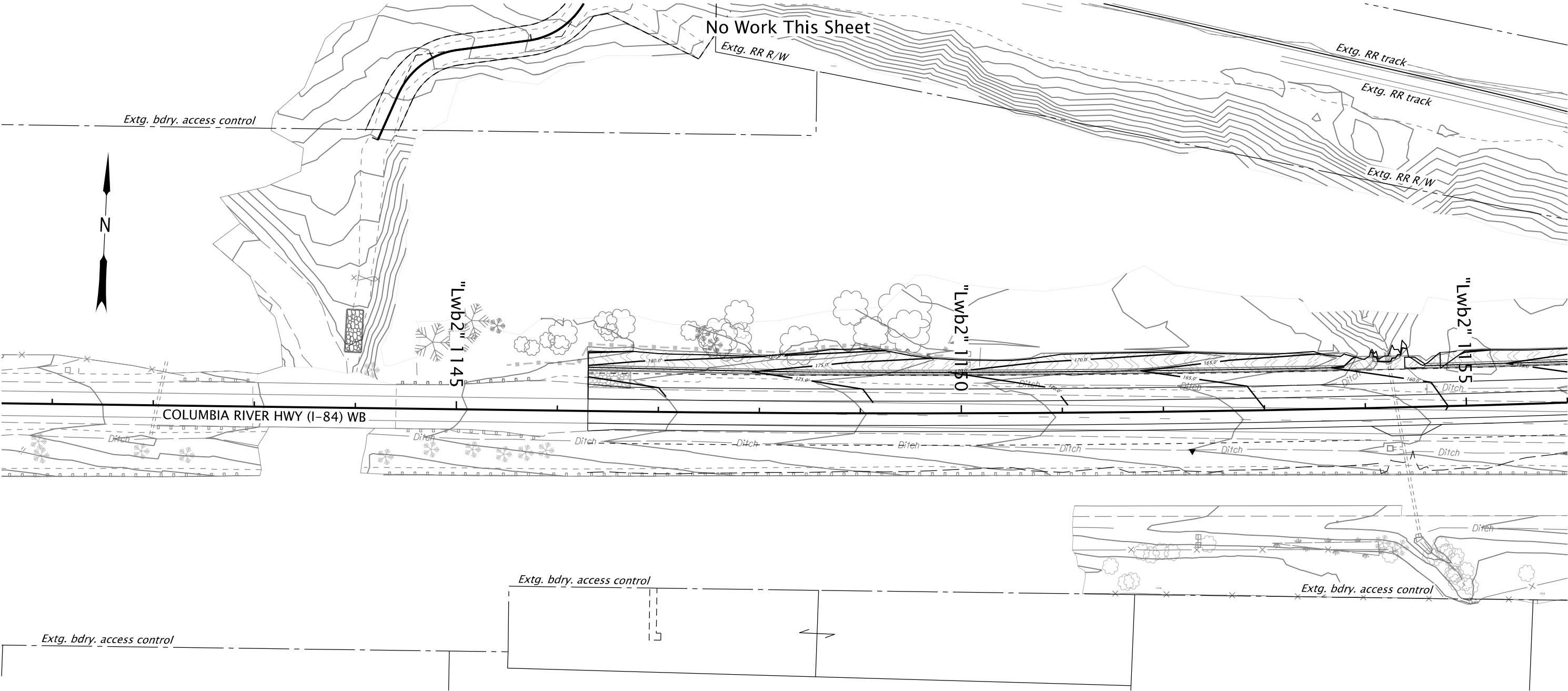
See Sheet FB01 for legend

- 1 Inst. Type 'E' matting
(See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket
(For details, see sheet FB01)
- 3 Apply permanent seeding mix

REGISTERED
424
Digitally Signed 2026.08.12 14:10:27 -07'00'
Magnus P. Bernhardt
OREGON
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LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB16	

Stage 2
Bridge Construction
No Work This Sheet

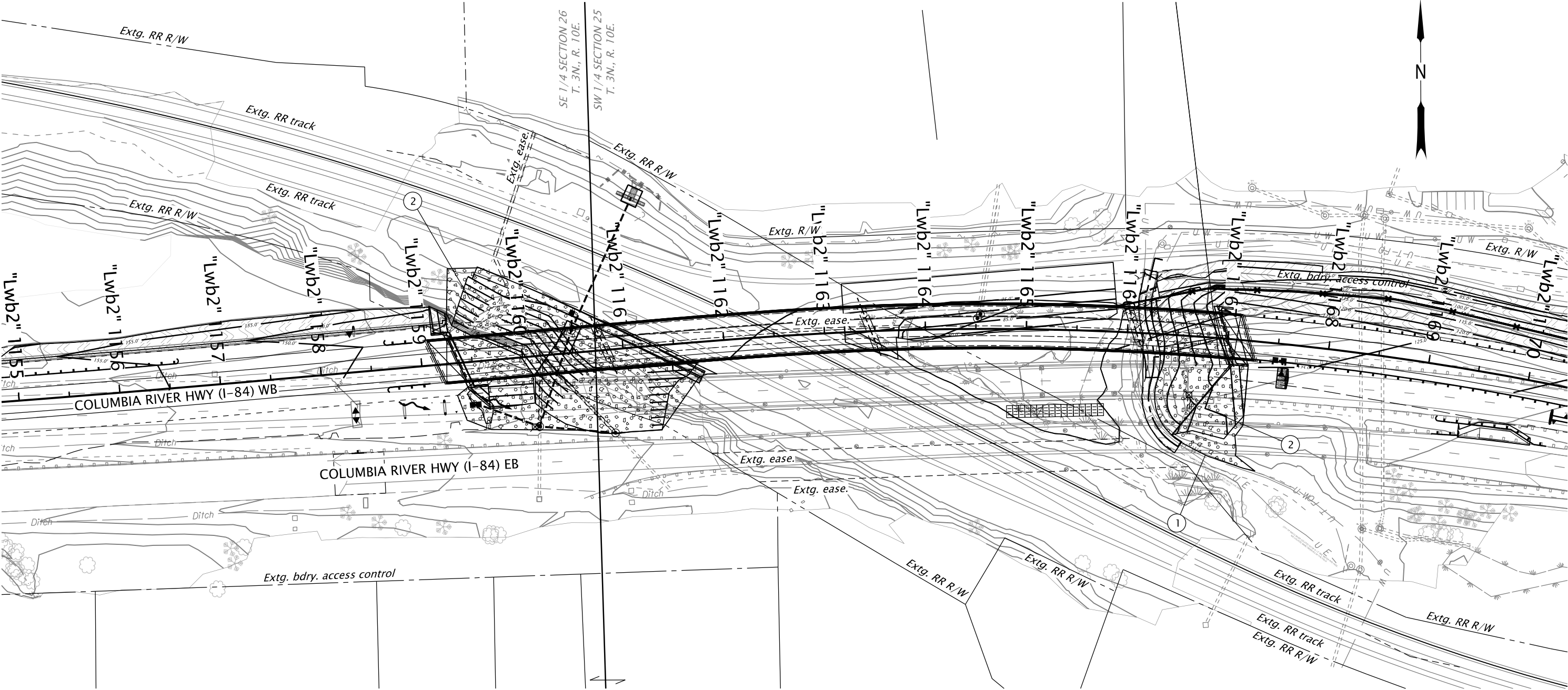


PLAN
SCALE: 1" = 100'

See Sheet FB01 for legend

REGISTERED. 424 Digitally Signed 2026.08.12 14:10:46 -07'00' Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB17

Stage 2
Bridge Construction



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

- 1 Inst. sediment barrier
Types 3
(See dwg. RD1030)
- 2 Inst. Hydraulically applied Type 'A'
matting

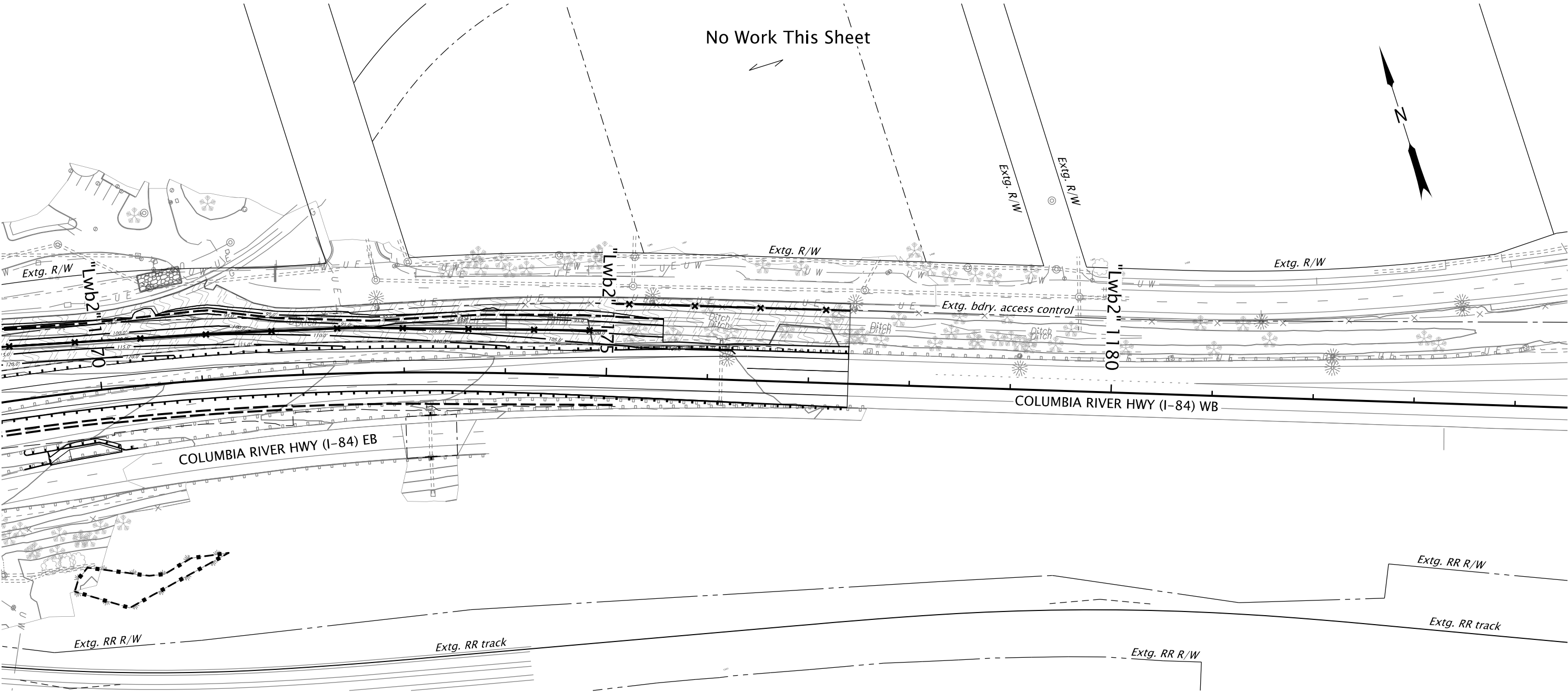
See Sheet FB01 for legend

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424
Digitally Signed 2026.08.12 14:11:06 -07'00'
Magnus P. Bernhardt
OREGON
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LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB18	

Stage 2
Bridge Construction

No Work This Sheet



PLAN
SCALE: 1" = 100'

REGISTERED.
424
Digitally Signed 2026.08.12 14:11:26 -07'00'
Magnus P. Bernhardt
OREGON
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LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB19	

Stage 3
Median

No Work This Sheet

Extg. RR R/W

Extg. RR track

Extg. RR track

Extg. RR R/W

Extg. bdry. access control

N

"Lwb2" 1145

"Lwb2" 1150

"Lwb2" 1155

COLUMBIA RIVER HWY (I-84) WB

Extg. bdry. access control

Extg. bdry. access control

Extg. bdry. access control

PLAN

SCALE: 1" = 100'

REGISTERED

424

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LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt

Reviewer: Celine Livengood

CADD Tech: Allcia Graham

Checker: Anitha Vazrala

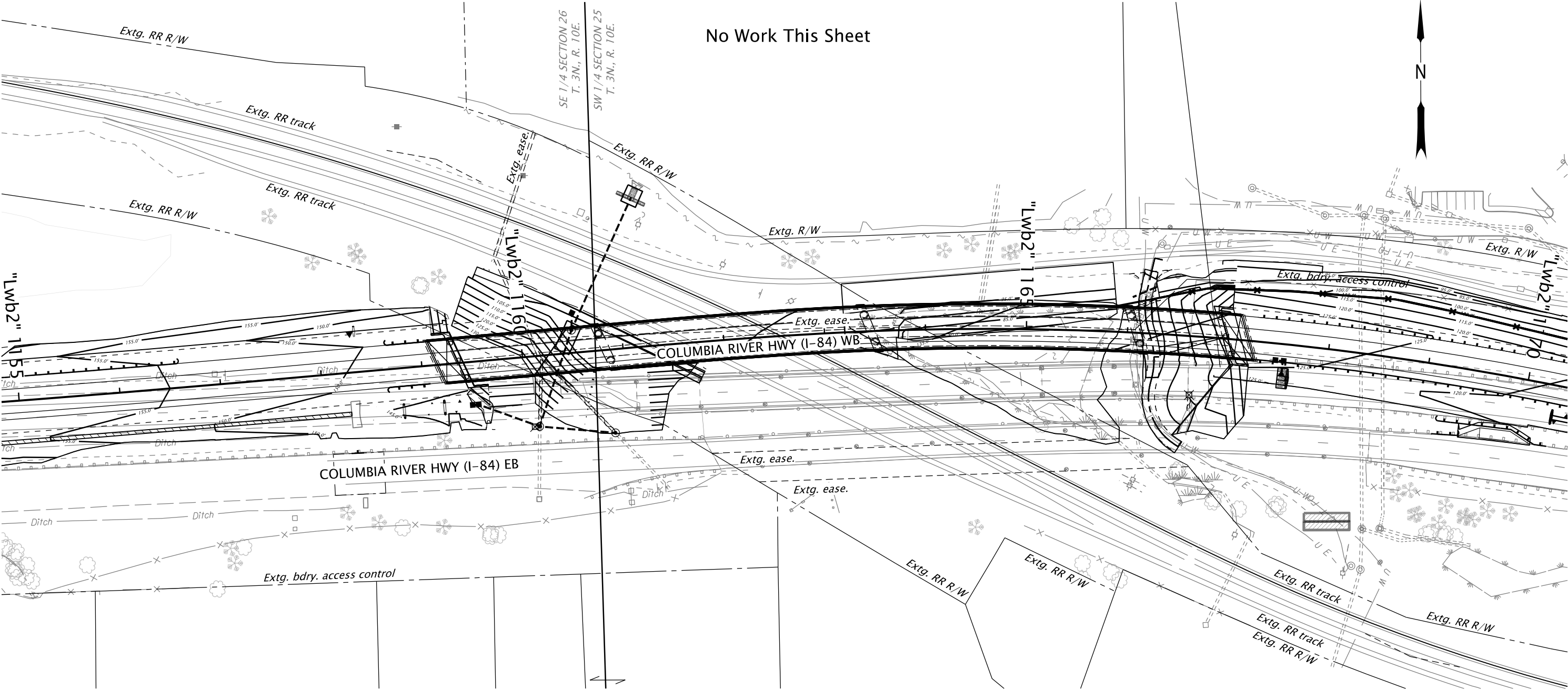
EROSION AND SEDIMENT CONTROL PLAN

SHEET NO.

FB20

Stage 3
Median

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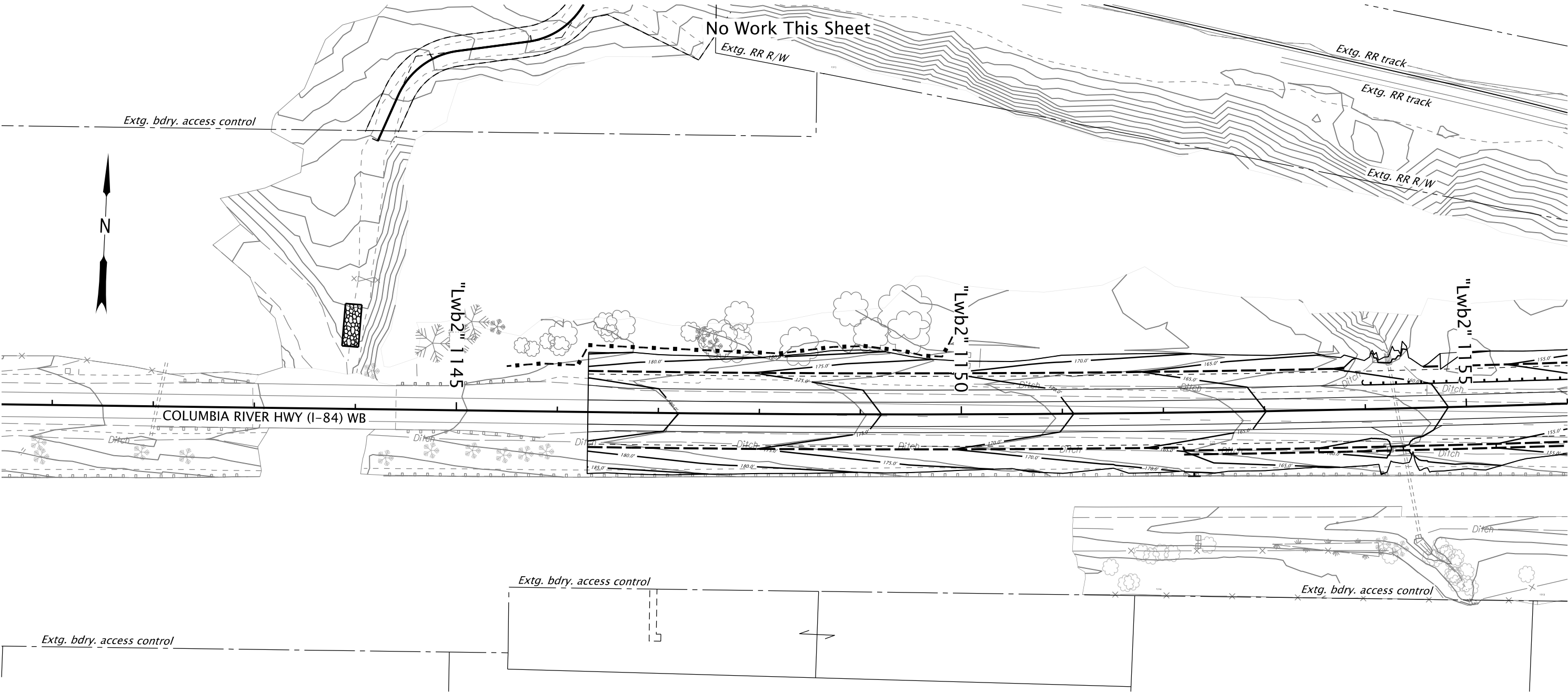


PLAN
SCALE: 1" = 100'

REGISTERED. 424 Digitally Signed 2026.08.12 14:12:13 -07'00' Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB21

Stage 4
Bridge Removal

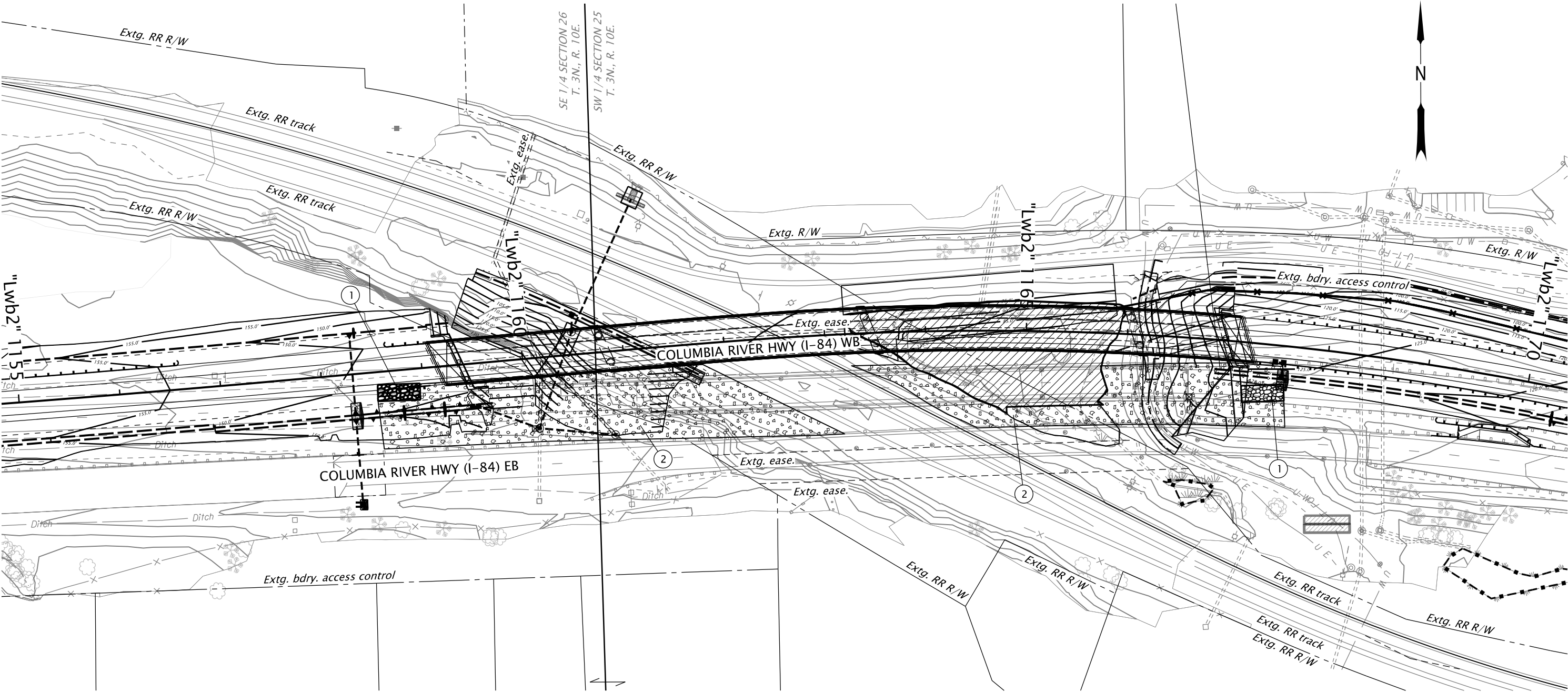
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PLAN
SCALE: 1" = 100'

REGISTERED. 424 Digitally Signed 2026.08.12 14:12:51 -07'00' Magnus P. Bernhardt OREGON 05/14/99 LANDSCAPE ARCHITECT EXPIRES: 05.31.2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB23

Stage 4
Bridge Removal



CONSTRUCTION NOTES

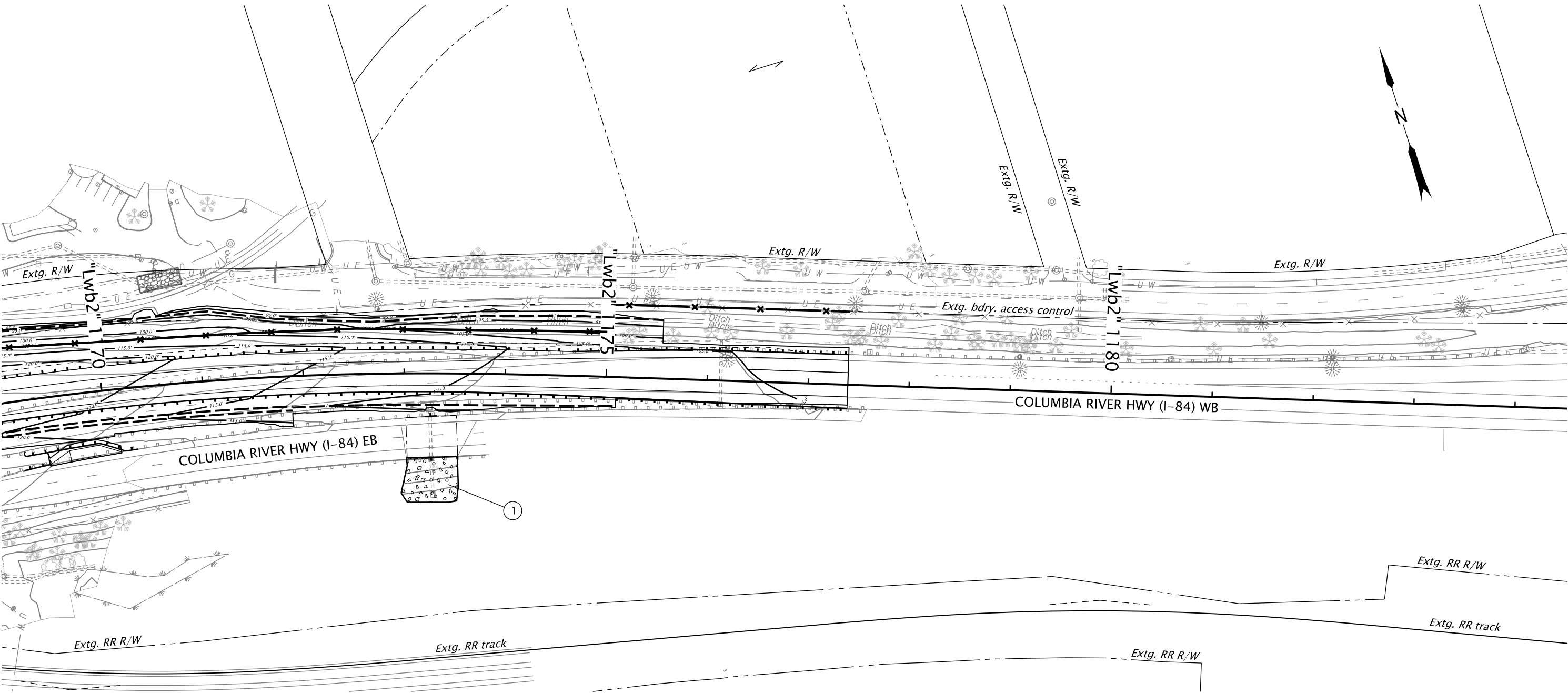
See Sheet FB01 for legend

- 1 Const. construction entrance
(See dwg. RD1000)
- 2 Inst. Hydraulically applied Type 'A' matting

REGISTERED.
424
Digitally Signed 2026.08.12 14:13:11 -07'00'
Magnus P. Bernhardt
OREGON
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LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION		
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
Designer: Magnus Bernhardt	Reviewer: Celine Livengood	SHEET NO. FB24
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
EROSION AND SEDIMENT CONTROL PLAN		

Stage 4
Bridge Removal



PLAN
SCALE: 1" = 100'

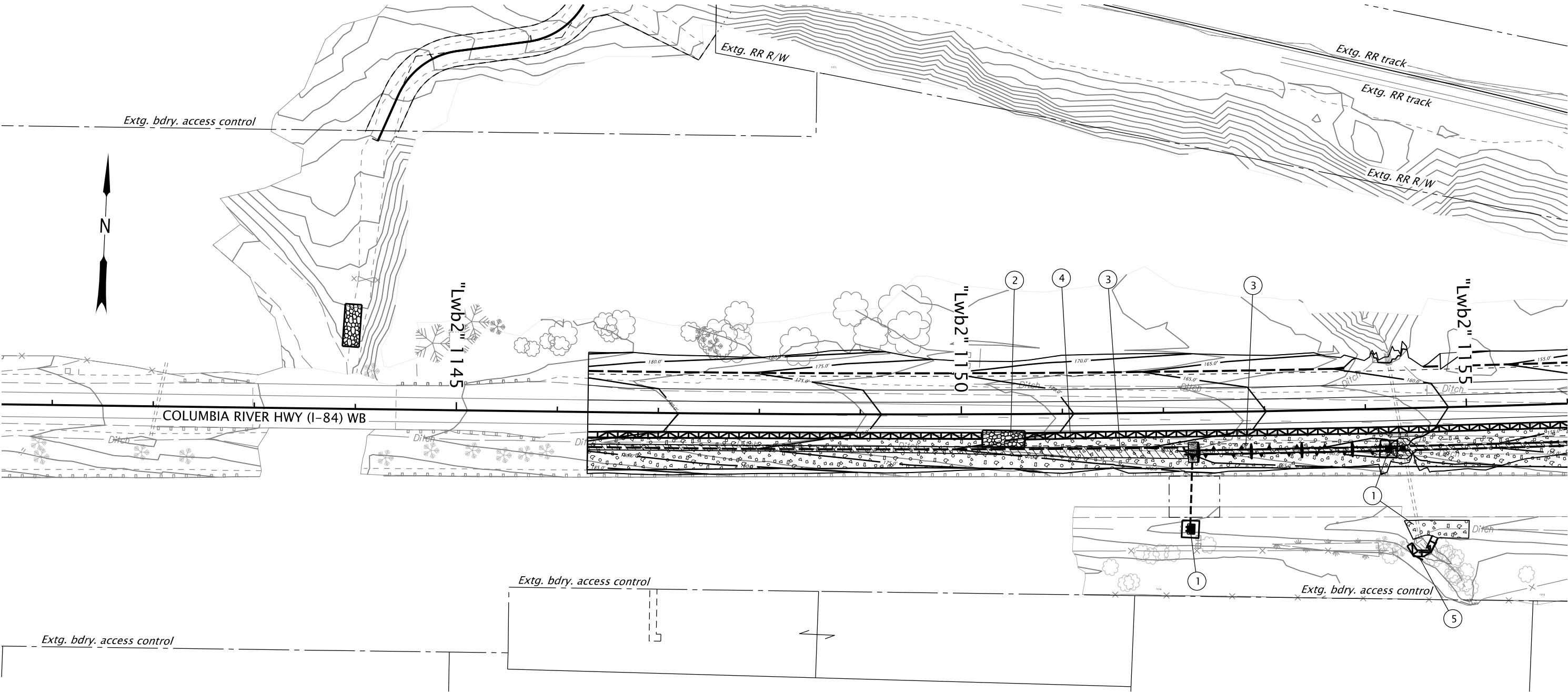
CONSTRUCTION NOTES

- 1 Inst. Hydraulically applied Type 'A' matting

REGISTERED.
424
Digitally Signed 2026.08.12 14:13:36 -07'00'
Magnus P. Bernhardt
OREGON
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LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB25	

Stage 4 Phase 2
Median Water Quality Facilities



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

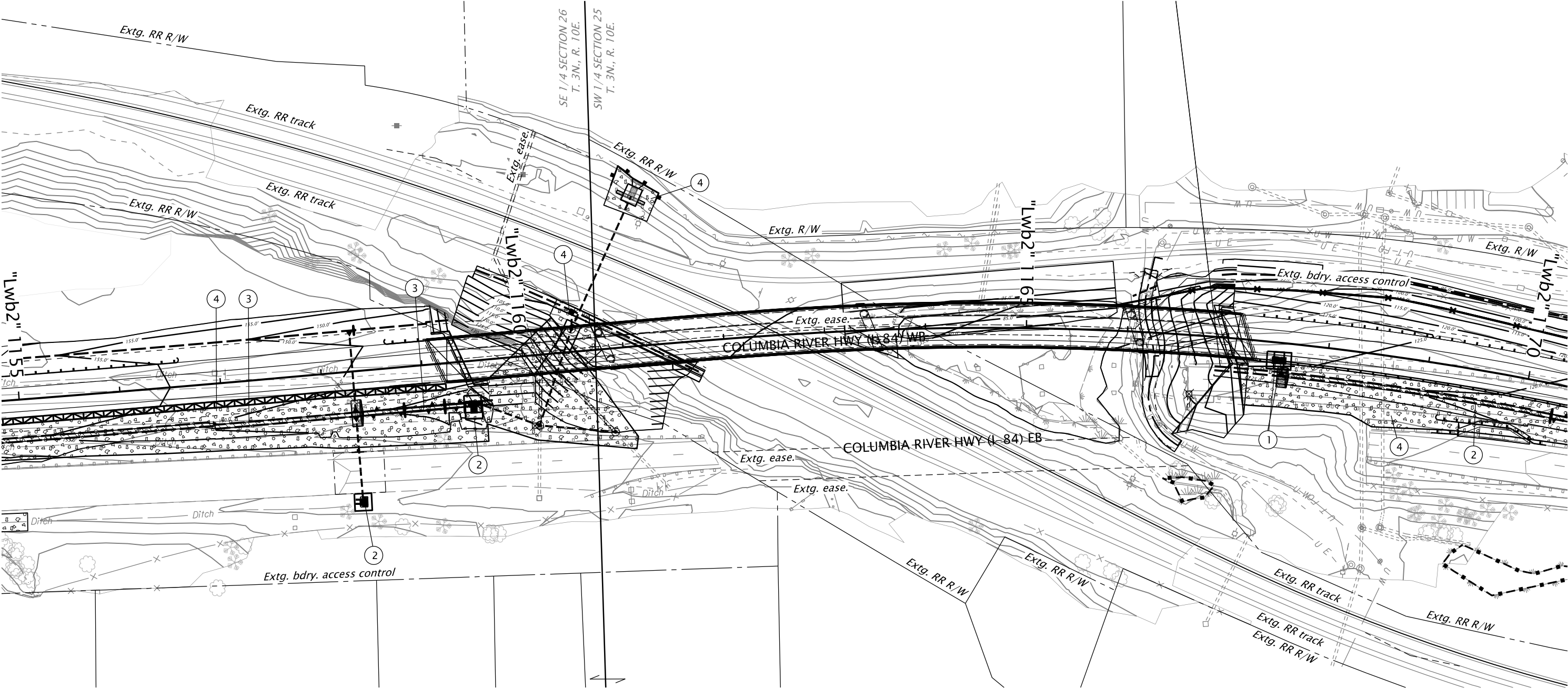
See Sheet FB01 for legend

- | | |
|---|--|
| 1 Const. inlet protection
Type 4 - biofilter bags
(See dwg. RD1015) | 4 Inst. Hydraulically applied Type 'A'
matting |
| 2 Const. construction
entrance
(See dwg. RD1000) | 5 Inst. sediment barrier Type 3
(See dwg. RD1030) |
| 3 Inst. Type 'E'
matting
(See dwg. RD1055) | |

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424
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-07'00'
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OREGON
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LANDSCAPE ARCHITECT
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FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION		
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
Designer: Magnus Bernhardt	Reviewer: Celine Livengood	
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB26

Stage 4 Phase 2
Median Water Quality Facilities



See Sheet FB01 for legend

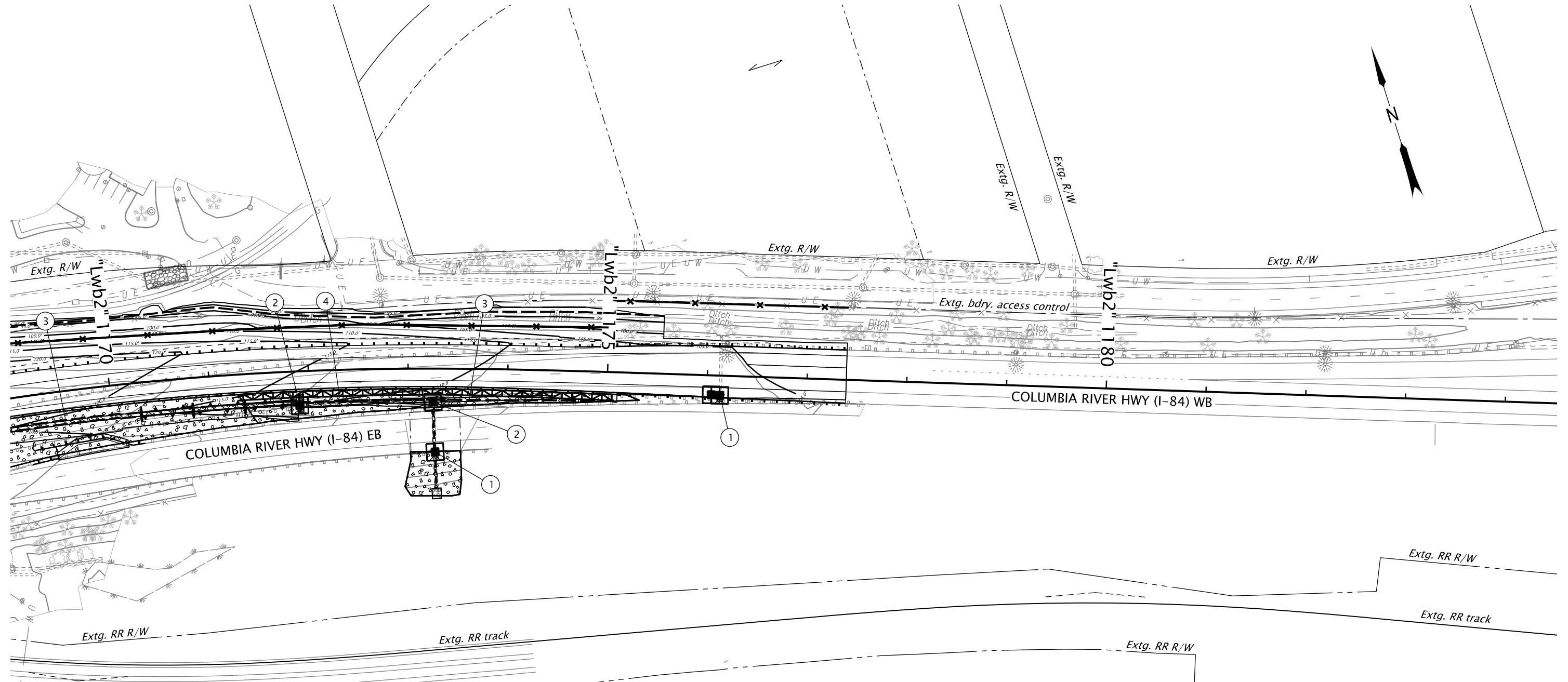
PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

- 1 Const. inlet protection Type 3 (See dwg. RD1010)
- 2 Const. inlet protection Type 4 - biofilter bags (See dwg. RD1015)
- 3 Inst. Type 'E' matting (See dwg. RD1055)
- 4 Inst. Hydraulically applied Type 'A' matting

REGISTERED.
424
Digitally Signed 2026.08.12 14:14:30 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB27	



PLAN

SCALE: 1" = 100'

See Sheet FB01 for legend

CONSTRUCTION NOTES

- ① *Const. inlet protection
Type 3
(See dwg. RD1010)*
- ② *Const. inlet protection
Type 4 – biofilter bags
(See dwg. RD1015)*
- ③ *Inst. Type 'E'
matting
(See dwg. RD1055)*
- ④ *Inst. Hydraulically applied Type 'A'
matting*

REGISTERED

424

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Magnus P. Bernhardt

OREGON

05/14/99

LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT
OF TRANSPORTATION

**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt

Reviewer: Celine Livengood

CADD Tech: Allcia Graham

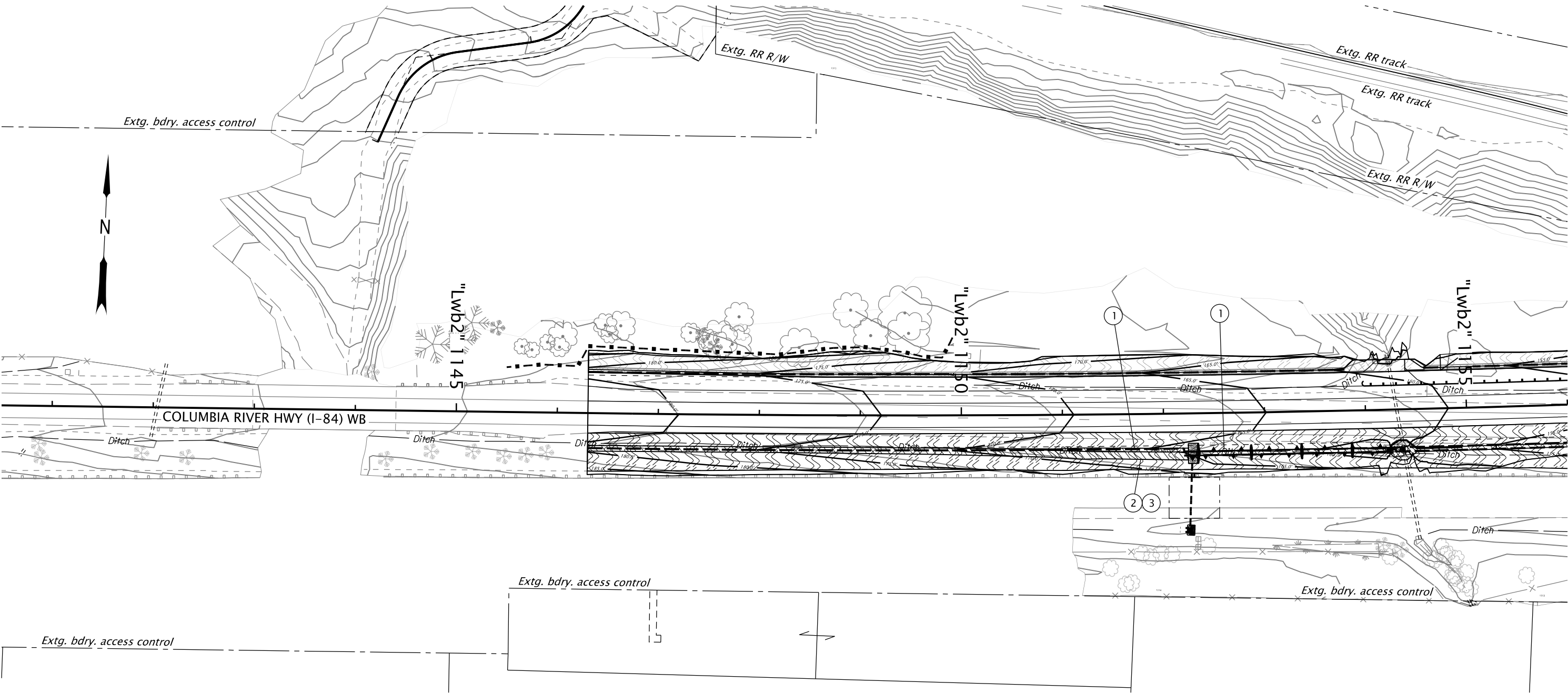
Checker: Anitha Vazrala

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO.

FB28

Stage 5
Final Stabilization



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

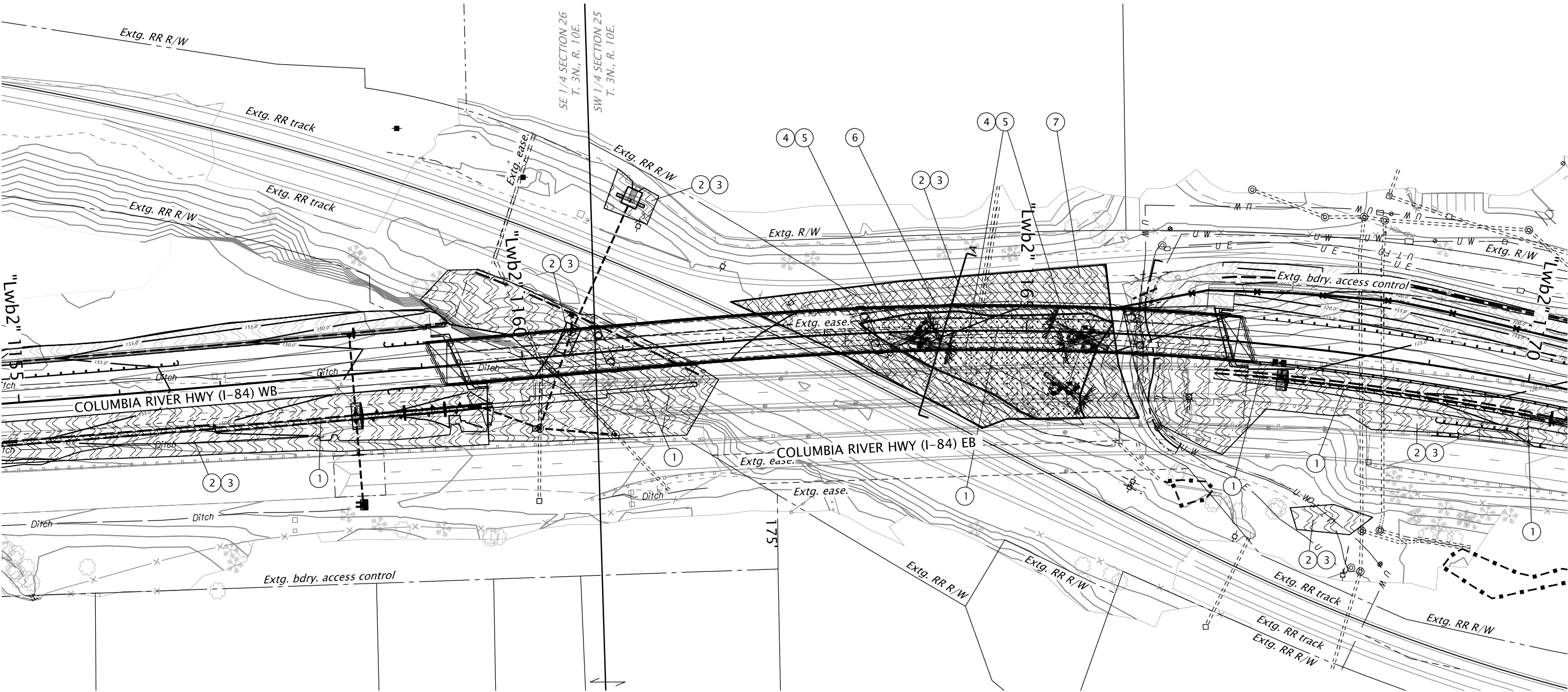
See Sheet FB01 for legend

- 1 Inst. Type 'E' matting (See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket (For details, see Sheet FB01)
- 3 Apply permanent seeding mix

REGISTERED.
424
Digitally Signed 2026.08.12 14:15:11 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt	Reviewer: Celine Livengood
CADD Tech: Allcia Graham	Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB29	

Stage 5
Final Stablization



See Sheet FB01 for legend

PLAN
SCALE: 1" = 100'

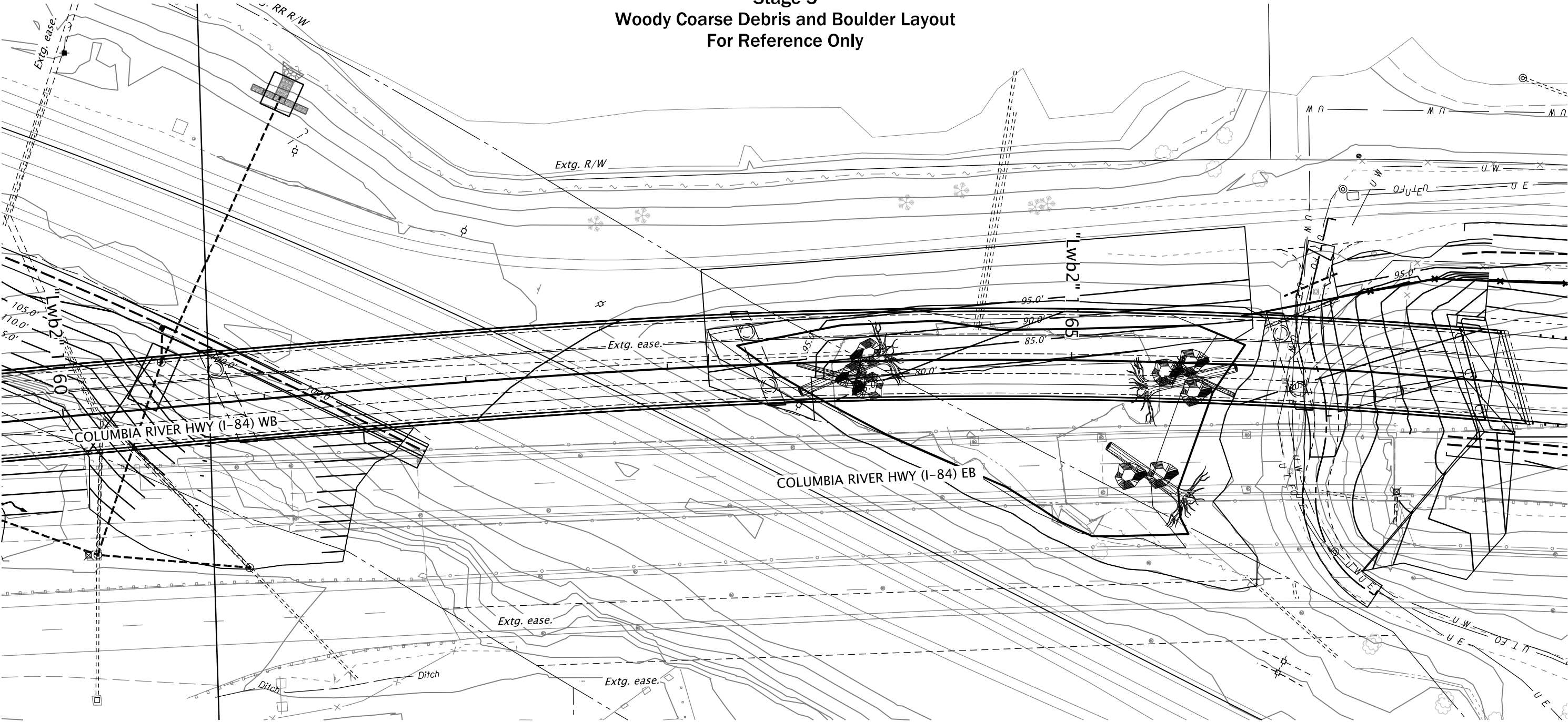
CONSTRUCTION NOTES

- 1 Inst. Type 'E' matting (See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket (For details, see Sheet FB01)
- 3 Apply permanent seeding mix
- 4 Inst. Woody Coarse Debris as shown and directed (See det. Sheet FB01)
- 5 Inst. Boulders to top and sides of Woody Coarse Debris as shown and directed (See det. Sheet FB01)
- 6 Apply Wetland Seeding Mix in area shown
- 7 Apply Permanent Seeding Mix outside Wetland Seeding area as shown.

REGISTERED.
424
Digitally Signed 2026.08.12 14:15:35 -07'00'
Magnus P. Bernhardt
OREGON
05/14/99
LANDSCAPE ARCHITECT
EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION 	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Magnus Bernhardt CADD Tech: Allcia Graham	Reviewer: Celine Livengood Checker: Anitha Vazrala
EROSION AND SEDIMENT CONTROL PLAN	
SHEET NO. FB30	

Stage 5
Woody Coarse Debris and Boulder Layout
For Reference Only



See Sheet FB01 for legend

PLAN
SCALE: 1" = 50'

REGISTERED.

424

Digitally Signed 2026.08.12 14:15:58 -07'00'

Magnus P. Bernhardt

OREGON

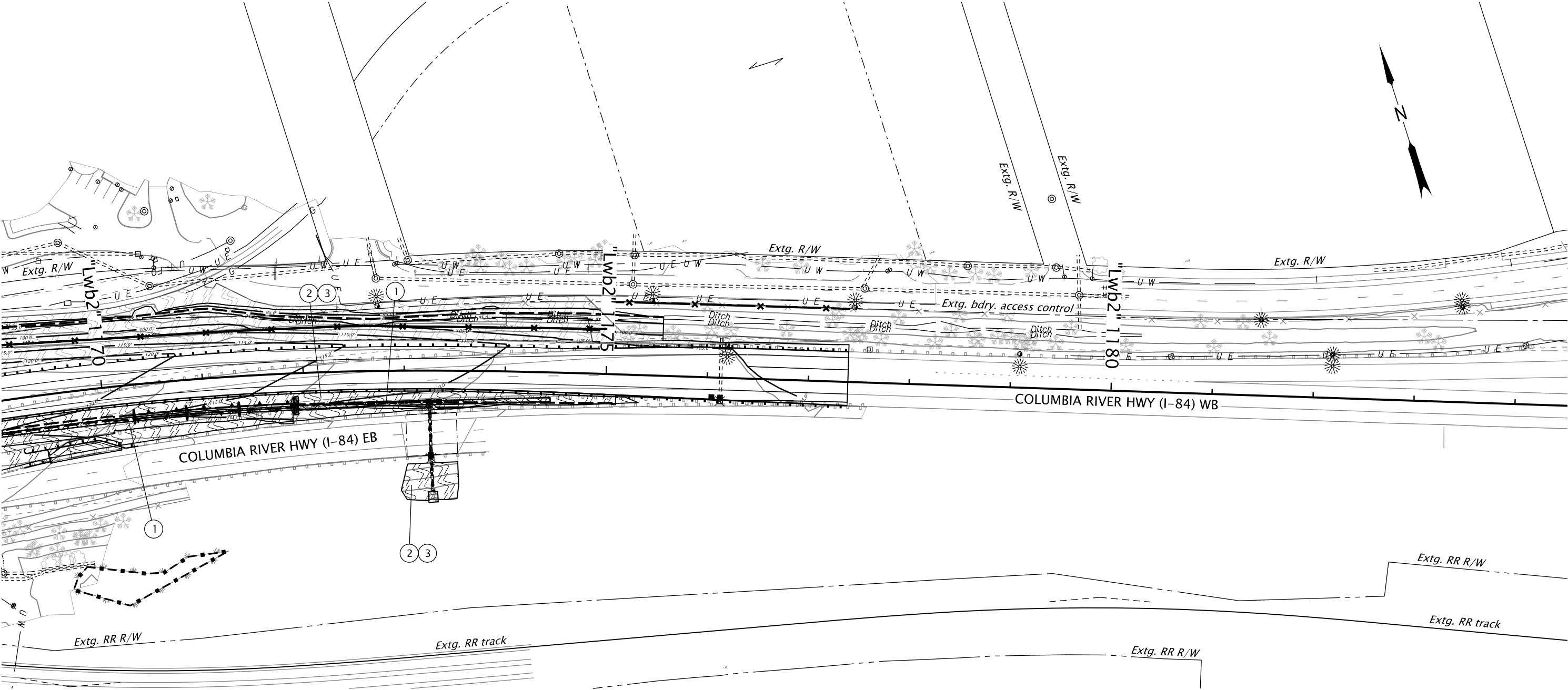
05/14/99

LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT OF TRANSPORTATION		
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
Designer: Magnus Bernhardt	Reviewer: Celine Livengood	
CADD Tech: Allcia Graham	Checker: Anitha Vazrala	
EROSION AND SEDIMENT CONTROL PLAN		SHEET NO. FB30A

Stage 5
Final Stabilization



PLAN
SCALE: 1" = 100'

CONSTRUCTION NOTES

See Sheet FB01 for legend

- 1 Inst. Type 'E' matting (See dwg. RD1055)
- 2 Inst. 2" thick Compost Erosion Blanket (For details, see Sheet FB01)
- 3 Apply permanent seeding mix

REGISTERED.

424

Digitally Signed 2026.08.12 14:16:20 -07'00'

Magnus P. Bernhardt

OREGON

05/14/99

LANDSCAPE ARCHITECT

EXPIRES: 05.31.2027

OREGON DEPARTMENT
OF TRANSPORTATION



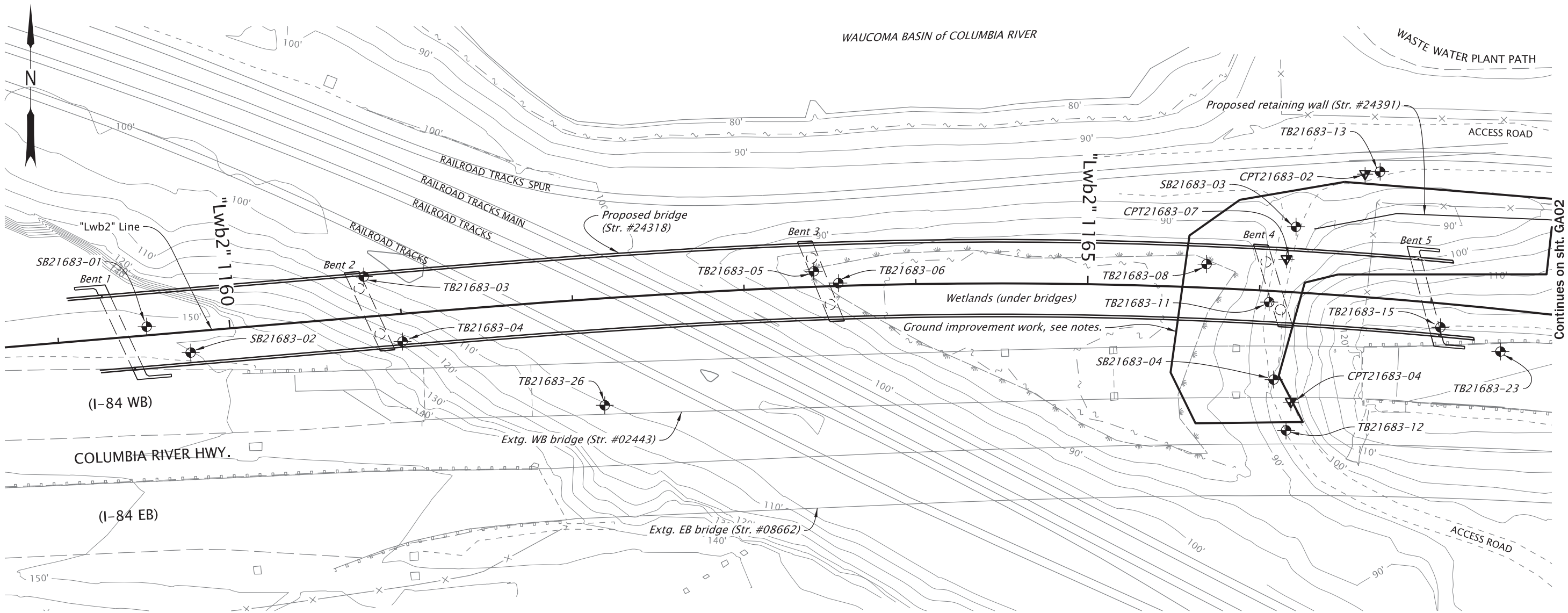
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Magnus Bernhardt Reviewer: Celine Livengood
CADD Tech: Allcia Graham Checker: Anitha Vazrala

EROSION AND SEDIMENT CONTROL PLAN

SHEET NO.
FB31



WEST LAYOUT OF EXPLORATIONS
Scale: 1" = 60'

LEGEND

- = Drill hole location
- = Cone penetration test location

EXPLORATION LOCATION TABLE			
EXPLORATION NO.	STATION	OFFSET	DATA SHEET
CPT21683-02	1166+56.3	71.3 Lt.	GB05 & JB57
CPT21683-04	1166+22.1	63.9 Rt.	JB56
CPT21683-07	1166+14.7	18.9' Lt.	JB56
SB21683-01	1159+51.9	5.1 Lt.	JB02
SB21683-02	1159+76.1	12.1 Rt.	JB02
SB21683-03	1166+19.0	38.1 Lt.	JB56
SB21683-04	1166+11.1	51.4 Rt.	GB05 & JB56
TB21683-03	1160+80.1	23.5 Lt.	JB02
TB21683-04	1160+99.5	16.1 Rt.	JB02

EXPLORATION LOCATION TABLE (continued)			
EXPLORATION NO.	STATION	OFFSET	DATA SHEET
TB21683-05	1163+40.9	9.0 Lt.	JB03
TB21683-06	1163+54.9	1.7 Lt.	JB03
TB21683-08	1165+68.6	13.8 Lt.	JB03 & JB56
TB21683-11	1166+06.0	6.6 Rt.	JB03 & JB56
TB21683-12	1166+20.3	80.5 Rt.	JB56
TB21683-13	1166+64.7	73.4 Lt.	GB05, JB03 & JB57
TB21683-15	1167+06.8	13.9 Rt.	GB05, JB03 & JB57
TB21683-23	1167+43.1	24.5 Rt.	GB05, JB03 & JB57
TB21683-26	1162+14.5	62.2 Rt.	Geotechnical Report

SHEET NOTES:

5-foot elevation contour interval, based on North American Vertical Datum (1988)

Ground improvement limits shown are approximate, for more details see shts. JB51 - JB54.



RENEWS: 01-01-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: JEFF JONES

Reviewer: SCOTT D. BILLINGS

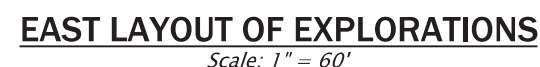
CADD Tech: F. JEREMY SCHAD

Checker: T.B.D.

EXPLORATION LOCATION INDEX

SHEET NO.

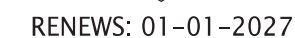
GA01



EXPLORATION LOCATION TABLE			
EXPLORATION NO.	STATION	OFFSET	DATA SHEET
<i>CPT21683-05</i>	<i>1167+91.9</i>	<i>104.0 Lt.</i>	<i>JB57</i>
<i>CPT21683-06</i>	<i>1172+14.2</i>	<i>68.9 Lt.</i>	<i>GB04</i>
<i>TB21683-16</i>	<i>1168+00.3</i>	<i>107.7 Lt.</i>	<i>GB05 & JB57</i>
<i>TB21683-17</i>	<i>1169+08.4</i>	<i>14.0 Rt.</i>	<i>GB05 & JB57</i>
<i>TB21683-19</i>	<i>1171+49.1</i>	<i>2.4 Rt.</i>	<i>GB04</i>
<i>TB21683-20</i>	<i>1171+92.6</i>	<i>69.4 Lt.</i>	<i>GB04</i>
<i>TB21683-21</i>	<i>1174+16.1</i>	<i>13.5 Lt.</i>	<i>GB04</i>
<i>TB21683-22</i>	<i>1175+60.5</i>	<i>81.7 Lt.</i>	<i>GB04</i>
<i>TB21683-23</i>	<i>1167+43.1</i>	<i>24.5 Rt.</i>	<i>GB05, JB03 & JB57</i>
<i>TP21683-01</i>	<i>1168+65.1</i>	<i>42.9 Lt.</i>	<i>GA02 & GB03</i>
<i>TP21683-02</i>	<i>1169+76.2</i>	<i>50.1 Lt.</i>	<i>GA02 & GB03</i>
<i>TP21683-03</i>	<i>1170+26.0</i>	<i>49.4 Lt.</i>	<i>GA02 & GB03</i>

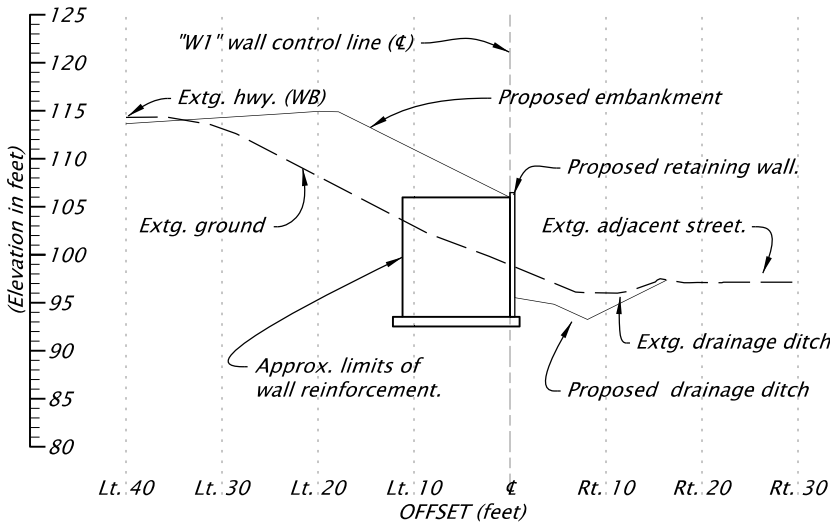
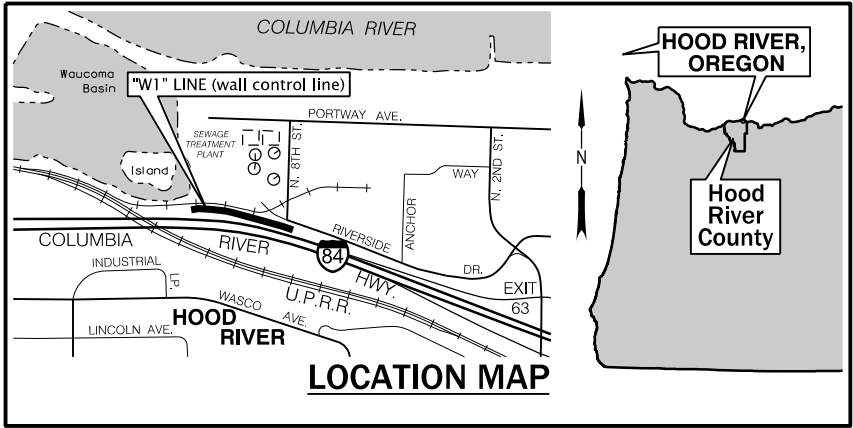
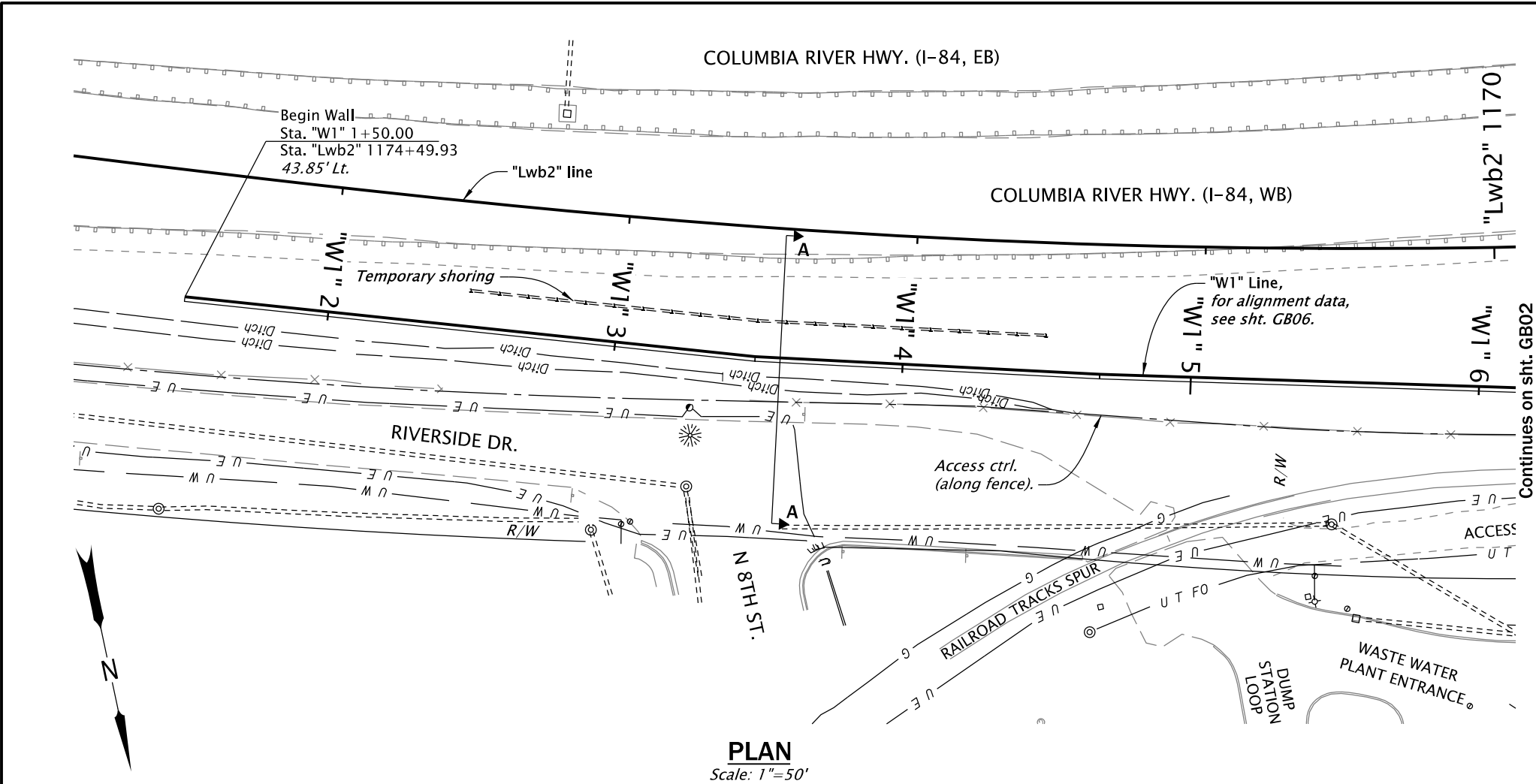
5-foot elevation contour interval, based on North American Vertical Datum (1988)

Ground improvement limits shown are approximate,
for more details see shfts. JB51 - JB54.

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Checker: TBD

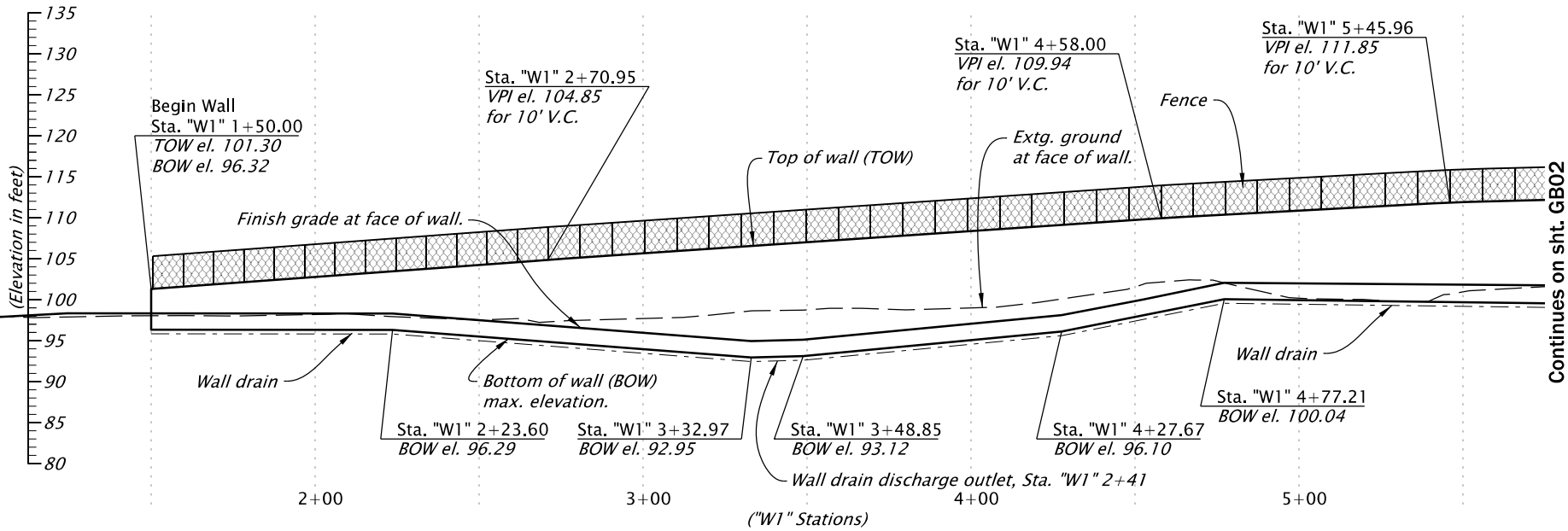
GA02



SHEET NOTES:

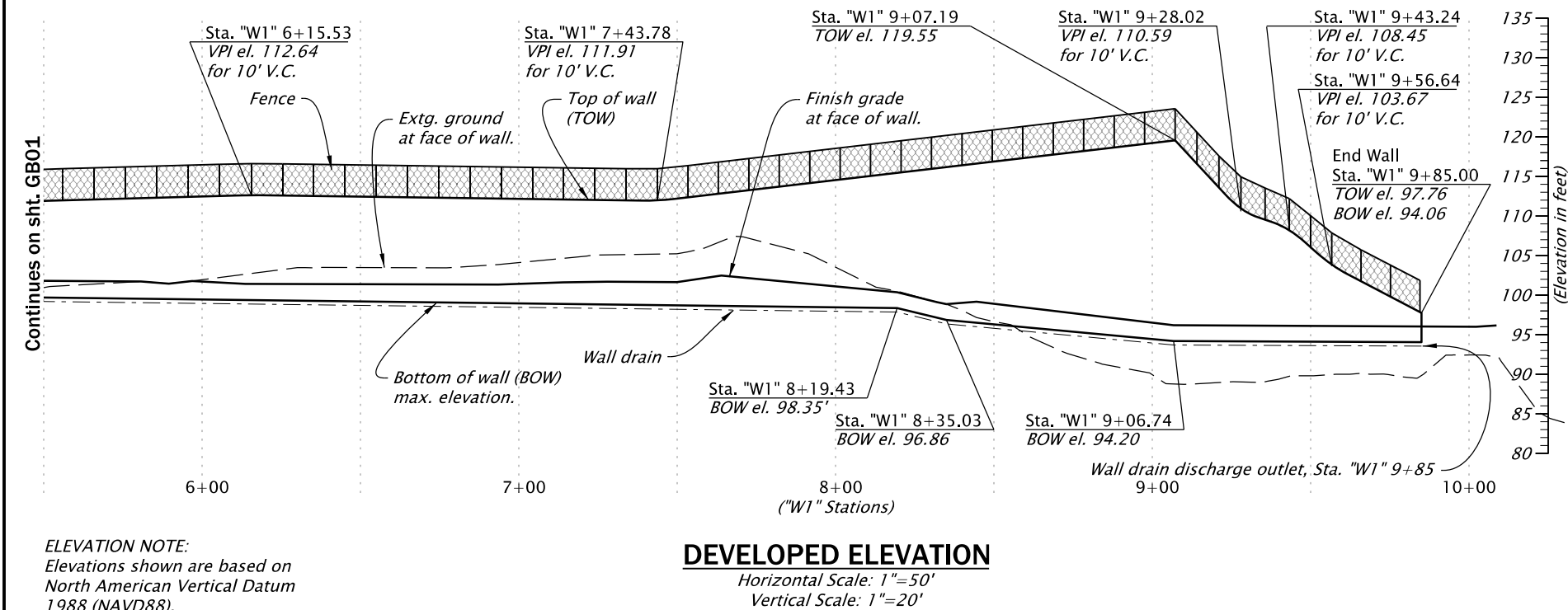
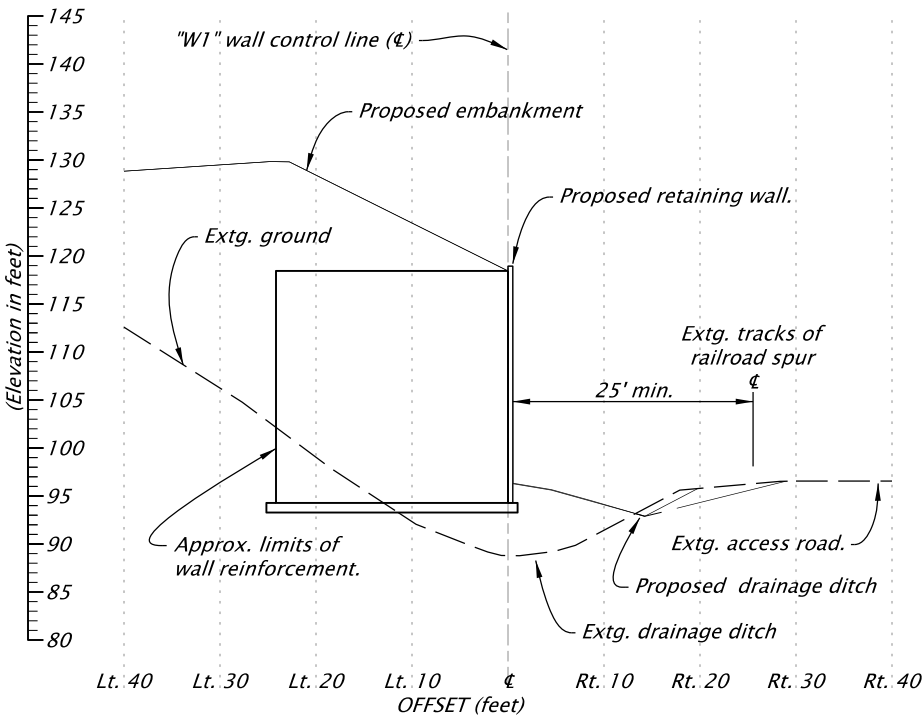
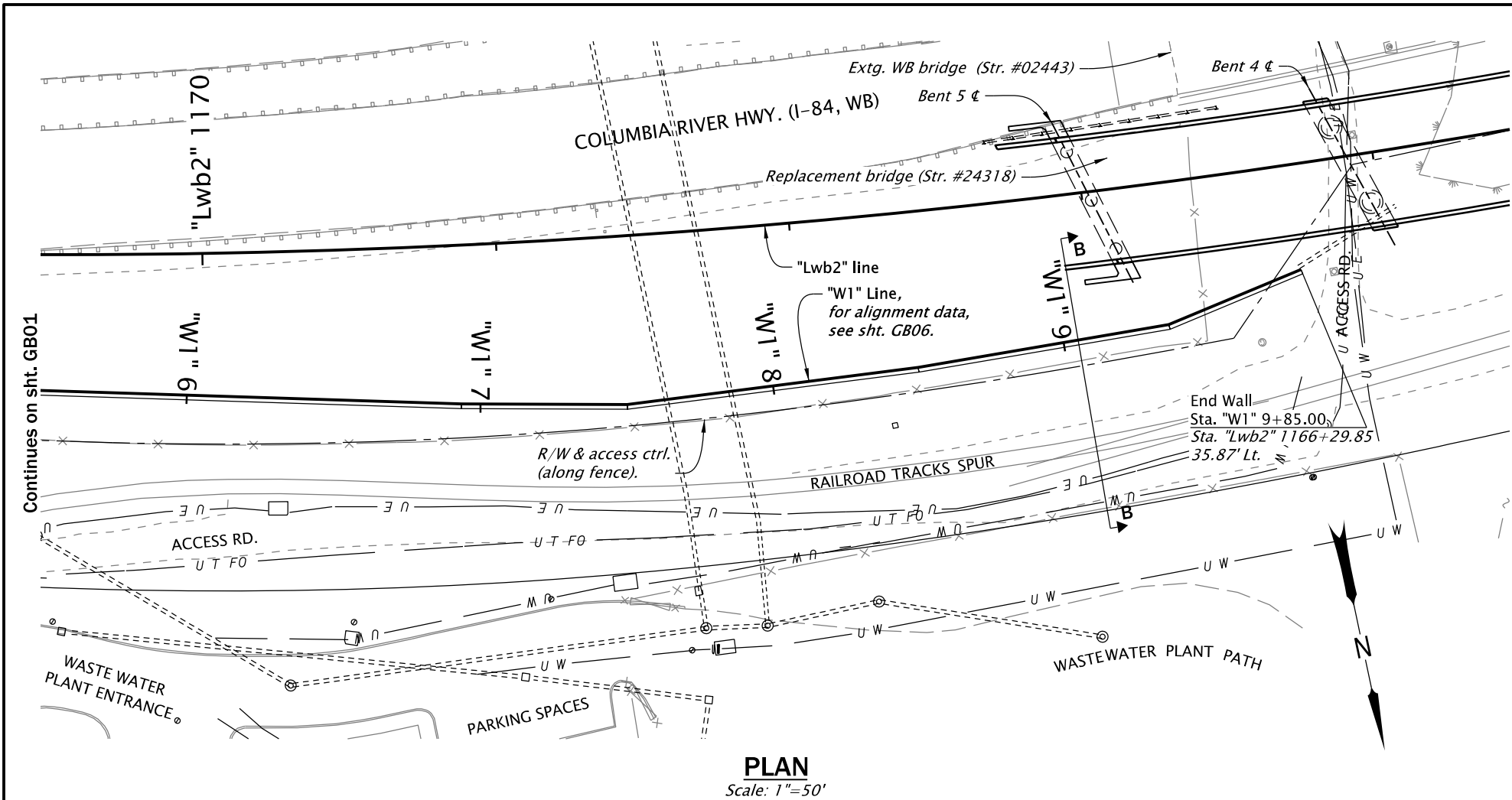
For ground improvement work, see shts. JB51 - JB54.
For geotechnical data, see shts. GB03 & GB05.
For general wall notes and other details, see sht. GB06.

For typical wall section and architectural treatment detail, see sht. GB07.
For wall coping details, see sht. GB08.



ELEVATION NOTE:
Elevations shown are based on North American Vertical Datum 1988 (NAVD88).

STRUCTURE NO. 24391		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114542		rtw_HWY 2WB_NS_45.71274/121.51838		
CALC. BOOK 8037		I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
HWY: 002 M.P.: 63.56		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
COUNTY Hood River	EXPIRES: 6-30-2027	Designer: Palo Giscombe	Reviewer: Brad L. Hayes	SHEET NO. GB01
DATE 07/2026		CADD Tech: F. Jeremy Schad	Checker: N/A	
		RETAINING WALL PLAN & ELEVATION		



SHEET NOTES:

For ground improvement work, see shts. JB51 – JB54.
For geotechnical data, see shts. GB03 & GB05.
For general wall notes and other details, see sht. GB06.

For typical wall section and architectural treatment detail, see sht. GB07.
For wall coping details, see sht. GB08.

STRUCTURE NO.	24391
BDS DWG NO.	114543
CALC. BOOK	8037
HWY: 002	
M.P.: 63.56	
COUNTY	Hood River
DATE	07/2026

REGISTERED PROFESSIONAL
ENGINEER
92,012
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OREGON
MARCH 14, 2017
PALO GISCOMBE
EXPIRES: 6-30-2027

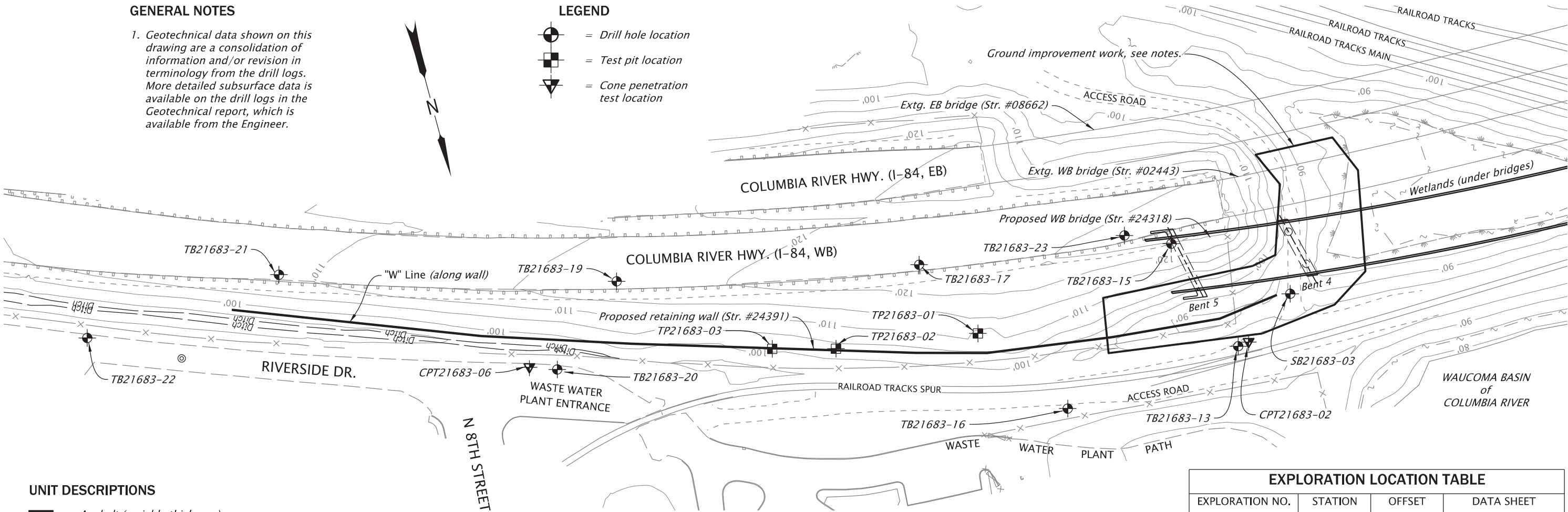
OREGON DEPARTMENT OF TRANSPORTATION	
rtw_HWY 2WB_NS_45.71274/121.51838 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Palo Giscombe	Reviewer: Brad L. Hayes
CADD Tech: F. Jeremy Schad	Checker: N/A
RETAINING WALL PLAN & ELEVATION	SHEET NO. GB02

GENERAL NOTES

1. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. More detailed subsurface data is available on the drill logs in the Geotechnical report, which is available from the Engineer.

LEGEND

- = Drill hole location
- = Test pit location
- = Cone penetration test location



UNIT DESCRIPTIONS

- Asphalt (variable thickness).
- GRAVEL, GP (Base Course)
- SAND, Silty SAND with some clay and gravel to Silty sandy GRAVEL with some clay, SP, SM to GM; brown, non-plastic to medium plasticity, damp to wet, loose to medium dense (Embankment Fill)
- SAND to SAND with some silt, SP to SP-SM; gray-brown, non-plastic, damp to wet, loose to dense, fine to medium sand (Dredge Sand Fill)
- SILT to sandy SILT to sandy CLAY, ML, MH, CL; brown to dark gray, low to medium plasticity, wet, soft to stiff, scattered organics and wood debris (Fine-Grained Alluvium)
- Silty SAND to clayey SAND, with some gravel to silty GRAVEL with some sand, SM, SC, GM; dark gray to brown, non-plastic to medium plasticity, wet, very loose to very dense (Coarse-Grained Alluvium)
- Sandy GRAVEL with trace clay to silty sandy GRAVEL to clayey SAND, GP, GM, SC; brown and gray, low to medium plasticity, moist, sub-rounded to sub-angular, very dense (Valley-Filling Outwash Gravel)
- Silty sandy GRAVEL, GM; light green, slightly weathered, very dense, gravel and boulders in volcanic ash (Lahar Deposit)

PLAN VIEW
Scale: 1"=80'

TEST PIT DATA	
DEPTH (ft.)	DESCRIPTION
TP21683-01	
0 to 9	GRAVEL with cobbles, boulders and trace sand and silt, GW; gray, dry to damp, loose to medium dense, angular, 15% cobbles and 5% boulders up to 2 feet in dimension, primarily fresh to slightly weathered basalt. (Embankment Fill)
9 to 11	SAND with trace silt, trace gravel, SP; gray-brown, non-plastic, dry to damp, medium dense, fine sand. (Dredge Sand Fill)
TP21683-02	
0 to 3	GRAVEL with cobbles, boulders and trace sand and silt, GW; gray, dry to damp, loose to medium dense, angular, 40% cobbles and 10% boulders up to 2 feet in dimension, primarily fresh to slightly weathered basalt. (Embankment Fill)
3 to 4	SAND with trace silt, trace gravel, SP; gray-brown, non-plastic, dry to damp, medium dense, fine sand. (Dredge Sand Fill)
TP21683-03	
0 to 3	GRAVEL with cobbles, boulders and trace sand and silt, GW; gray, dry to damp, loose to medium dense, angular, 40% cobbles and 5% boulders up to 2 feet in dimension, primarily fresh to slightly weathered basalt. (Embankment Fill)
3 to 4	SAND with trace silt, trace gravel, SP; gray-brown, non-plastic, dry to damp, medium dense, fine sand. (Dredge Sand Fill)

SHEET NOTES

5-foot elevation contour interval, based on North American Vertical Datum (1988).

For subsurface exploration data, see sheets GB04 & GB05.

Ground improvement limits shown are approximate, for more details see shts. JB51 - JB54.

EXPLORATION LOCATION TABLE			
EXPLORATION NO.	STATION	OFFSET	DATA SHEET
CPT21683-02	"W1" 9+50.0	27.5 Rt.	GB05
CPT21683-06	"W1" 3+88.2	24.4 Rt.	GB04
TB21683-13	"W1" 9+41.1	27.4 Rt.	GB05
SB21683-03	"W1" 9+95.2	4.9 Rt.	GB05
TB21683-15	"W1" 9+08.4	63.5 Lt.	GB05
TB21683-16	"W1" 8+07.8	53.3 Lt.	GB05
TB21683-17	"W1" 6+96.0	68.2 Lt.	GB05
TB21683-19	"W1" 4+53.8	47.2 Lt.	GB04
TB21683-20	"W1" 4+10.4	25.0 Rt.	GB04
TB21683-21	"W1" 1+84.3	30.0 Lt.	GB04
TB21683-22	"W1" 0+38.4	35.8 Rt.	GB04
TB21683-23	"W1" 8+73.0	76.2 Lt.	GB05
TP21683-01	"W1" 7+42.8	13.9 Lt.	GB03
TP21683-02	"W1" 6+30.3	0.4 Rt.	GB03
TP21683-03	"W1" 5+79.7	2.1 Rt.	GB03

STRUCTURE NO.
24391

BDS DWG NO.
114544

CALC. BOOK
8037

HWY: 002
M.P.: 63.56

COUNTY
Hood River

DATE
07/2026

CERTIFIED
OREGON
JEFFREY ALLEN JONES

Digitally Signed 2026.08.12 10:43:23 -07'00'

E2235
ENGINEERING GEOLOGIST

RENEWS: 01-01-2027

OREGON DEPARTMENT OF TRANSPORTATION

rtw_HWY 2WB_NS_45.71274/121.51838
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: JEFF JONES
CADD Tech: F. JEREMY SCHAD

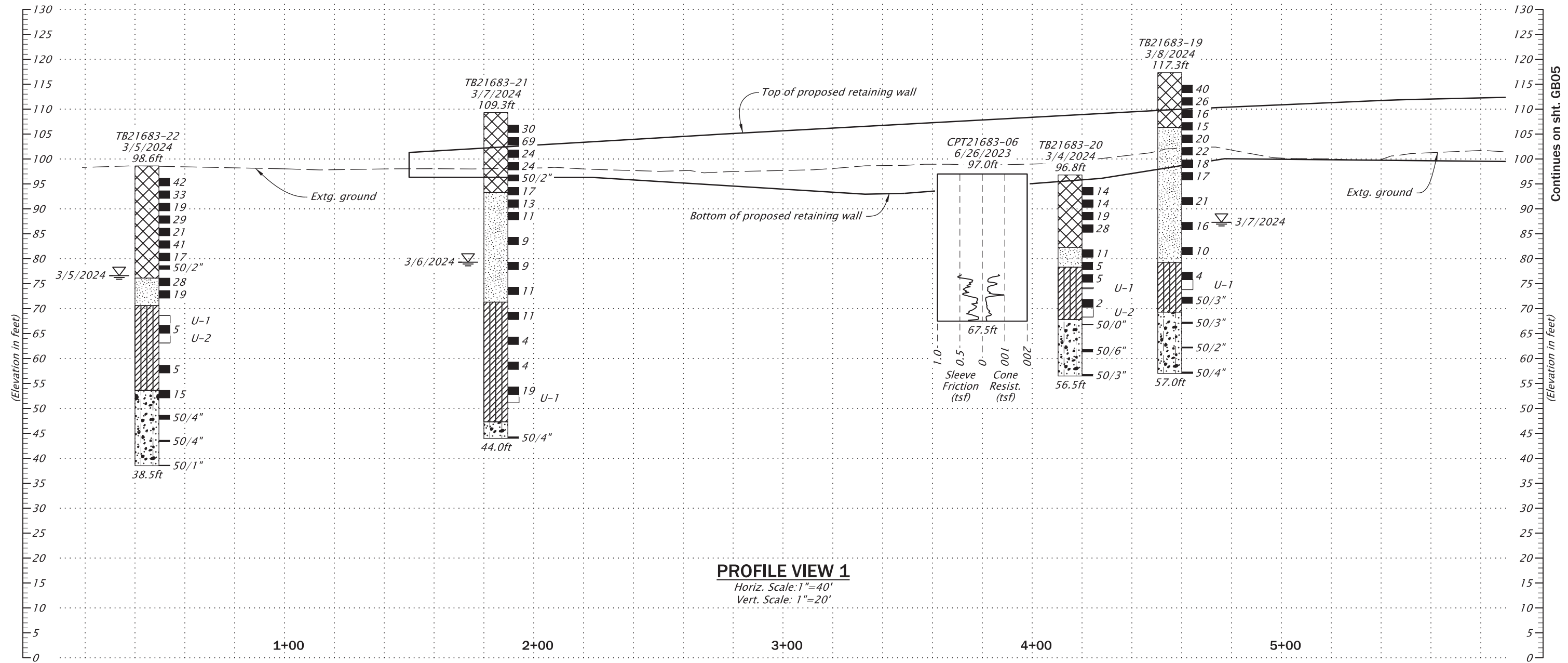
Reviewer: SCOTT D. BILLINGS
Checker: T.B.D.

RETAINING WALL
GEOTECHNICAL DATA

SHEET NO.
GB03

GE_K21683_gtpl_05.dgn :: Plan Sheet 8/8/2026 8:34:55 PM hwy55h

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



SHEET NOTES

Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. More detailed subsurface data is available on the drill logs in the Geotechnical report, which is available from the Engineer.

For horizontal layout & locations of subsurface explorations, see sht. GB03.

Elevations are based on North American Vertical Datum (1988).

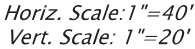
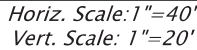
TEST BORE NOTES

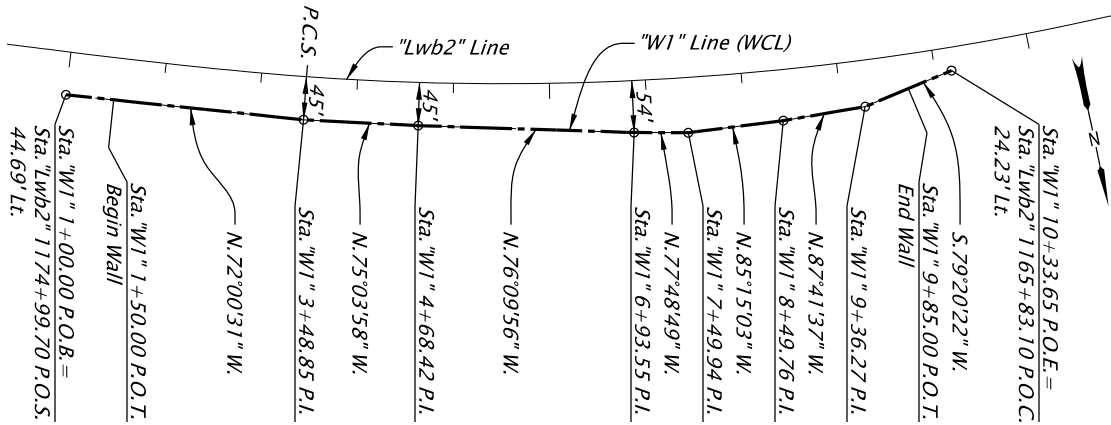
- In accordance with ASTM D1586-84, N values are reported for an interval of 1 ft., unless noted otherwise.
- Borings without groundwater levels indicated reflect the use of wet drilling methods, which often preclude direct observation of groundwater during drilling.
- Near-surface data gaps shown on the Cone Penetration Testing (CPT) logs reflect pre-drilling performed to penetrate gravelly soils prior to commencing the CPT.

LEGEND

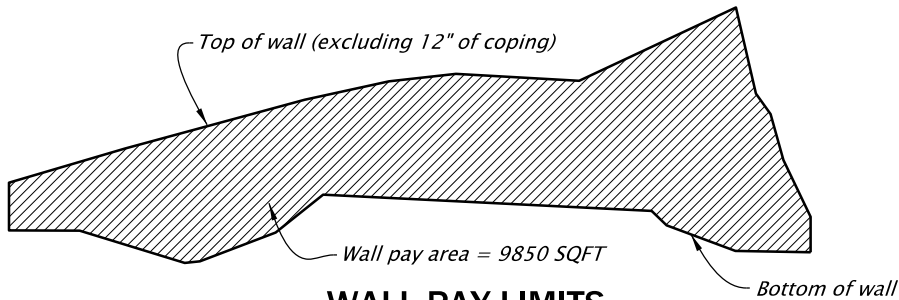
- N ■ = Standard penetration test & N value
- ▽ = Groundwater level in test hole, measured on date shown.
- U-# □ = Undisturbed sample & #.

STRUCTURE NO. 24391		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114544		rtw_HWY 2WB_NS_45.71274/121.51838 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 8037		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.56		Designer: JEFF JONES	Reviewer: SCOTT D. BILLINGS	
COUNTY Hood River	RENEWS: 01-01-2027	CADD Tech: F. JEREMY SCHAD	Checker: T.B.D.	SHEET NO. GB04
DATE 07/2026		RETAINING WALL GEOTECHNICAL DATA		

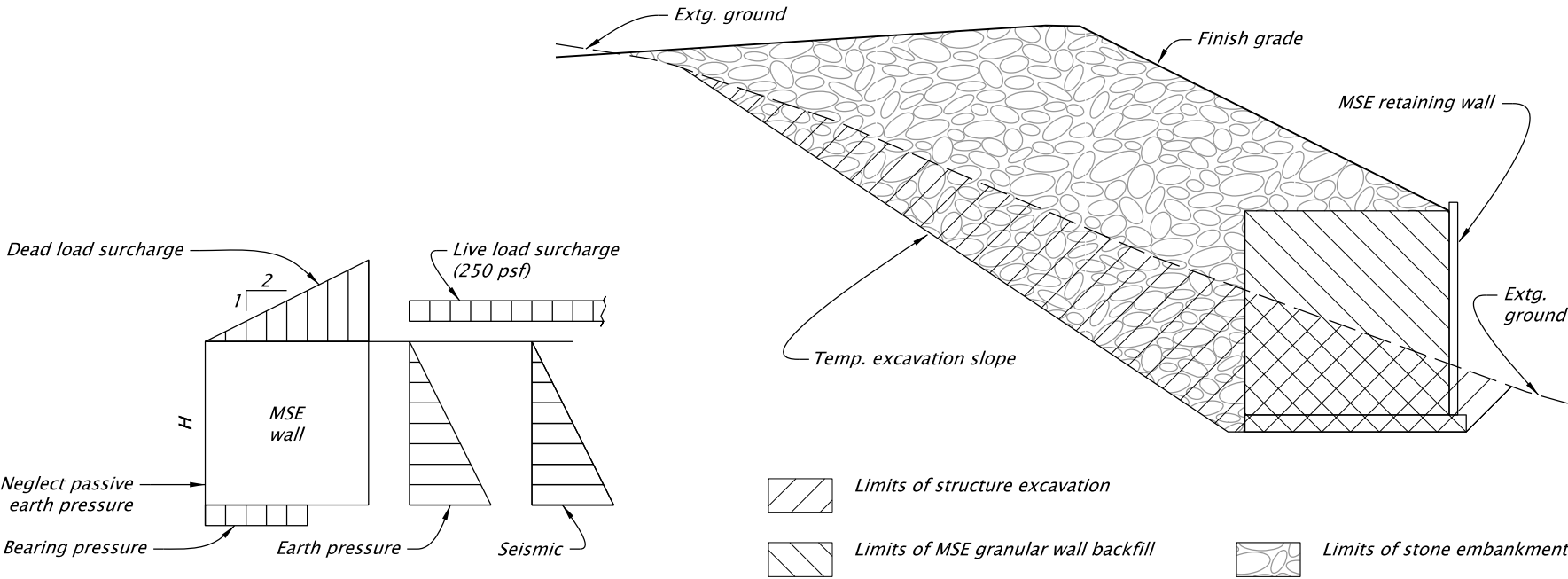




WALL CONTROL LINE (WCL)
Scale: 1"=200'



WALL PAY LIMITS
Horizontal Scale: 1"=200'
Vertical Scale: 1"=20'



MSE WALL LOADING DIAGRAM
No Scale

EXCAVATION PAY LIMITS
No Scale

MSE WALL GENERAL NOTES:

Provide all materials and perform all workmanship according to the 2024 Oregon Standard Specifications for Construction and supplemental project special provisions.

Perform MSE Wall design in accordance with the 2024 AASHTO LRFD Bridge Design Specification, and applicable interims, as modified by the ODOT Geotechnical Design Manual.

Perform seismic design in accordance with the 2023 AASHTO Guide Specifications for LRFD Seismic Bridge Design and 2024 AASHTO LRFD Bridge Design Specifications as modified by the ODOT Geotechnical Design Manual.

The design earthquake has a 1000-year recurrence interval with a site design peak bedrock acceleration (PGA) of 0.1575g. Design horizontal ground acceleration (kh) is 0.1169g (~1/2 As of 0.2338g). The site class is D.

ODOT has performed external stability calculations to determine adequate performance under static and design seismic loads. The walls are expected to meet external stability requirements when the reinforcement lengths are 0.7H or a minimum of 8 feet long, whichever is greater, where H is the total height, including the embedment depth.

MSE wall vendor shall perform all internal and external design for MSE walls. The design drawings and calculations shall be signed and sealed by a Professional Geotechnical Engineer licensed in the State of Oregon.

All material and workmanship shall conform to Special Provisions Section 0596A for Mechanically Stabilized Earth Walls.

Retaining wall is designed for the following soil property values:

Material	Density (pcf)	Angle of internal friction (deg)	Cohesion (psf)
Foundation	120	34	0
Backfilled	135	36	0
Reinforced	130	34	0

Provide a minimum service life of 100 years for all components.

Supply concrete in cast-in-place leveling pads, coping, etc. as required by the manufacturer, but at a minimum Class 4000.

Provide coping contraction joints at 15'-0" maximum spacing and coping expansion joints at 45'-0" maximum spacing. Stop horizontal bars 2" clear of expansion joints. Align coping joints with vertical wall joints.

Provide architectural finish on all wall facing panels per the Special Provisions. Provide a General Finish on all wall coping.

Meet a minimum factor of safety for soil reinforcement pullout of 1.5.

Use the following loss rates for galvanized steel soil reinforcements:

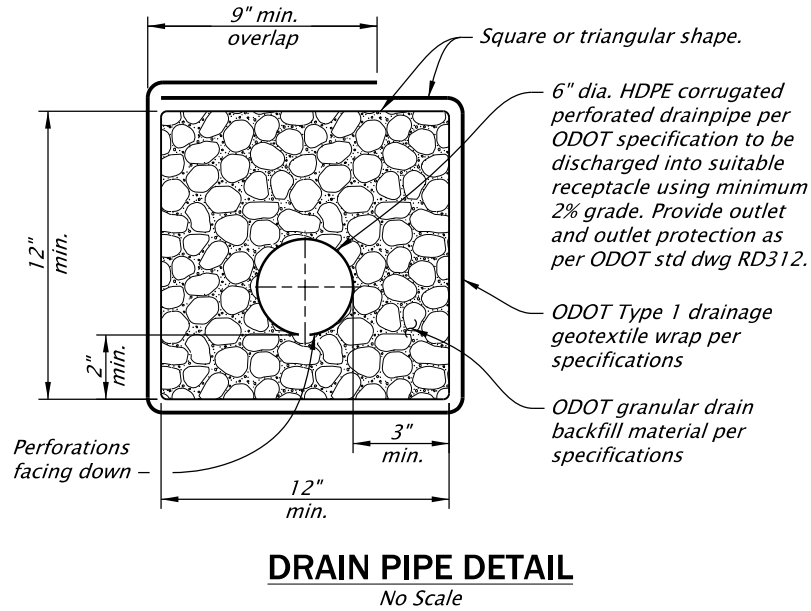
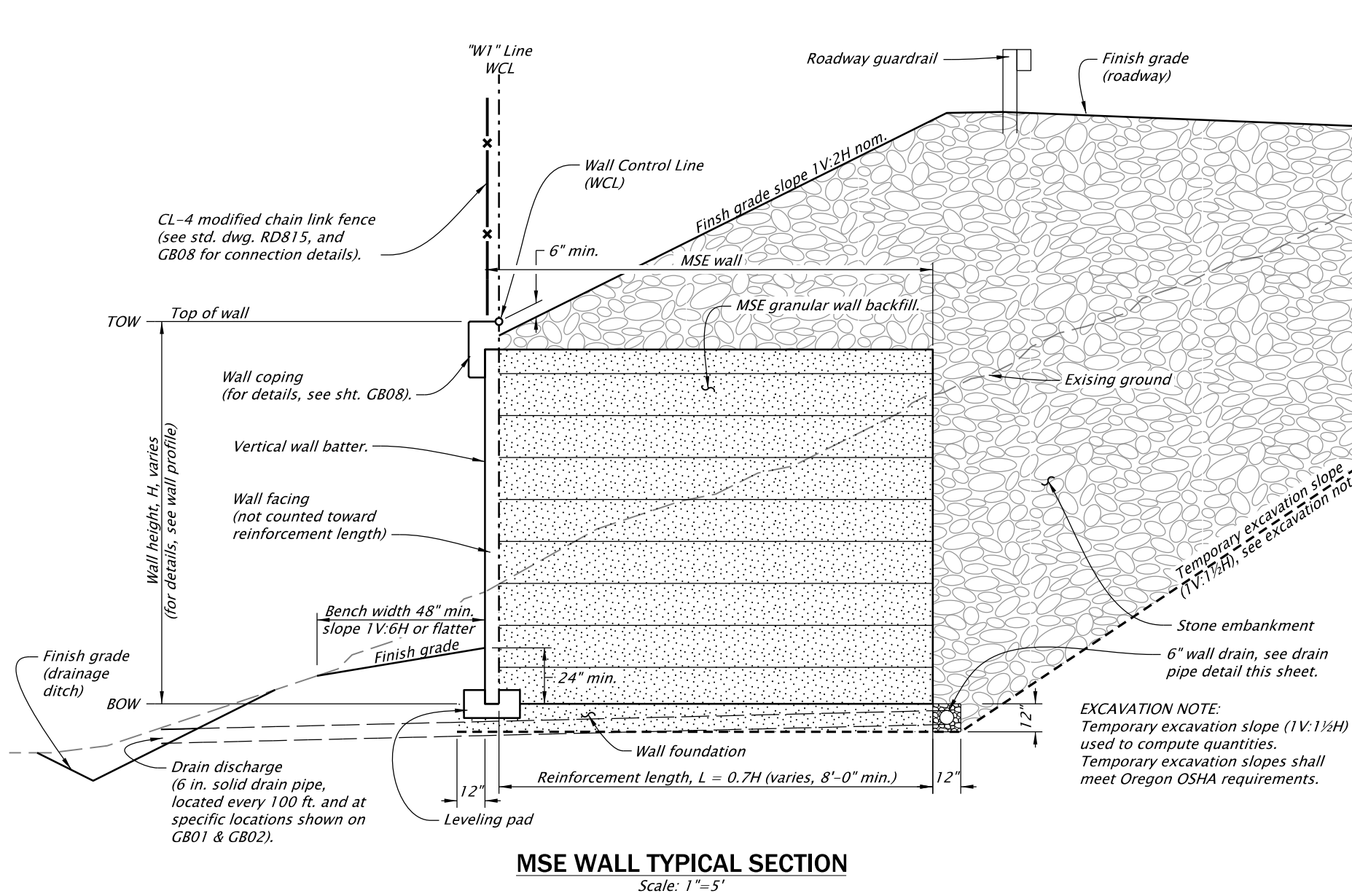
Zinc galvanized loss = 0.60 mil/yr for the first 2 years
Zinc galvanized loss = 0.60 mil/yr for subsequent years
Carbon steel loss = 0.47 mil/yr after zinc depletion

Allowable tensile stresses in steel soil reinforcements shall meet the following limits:

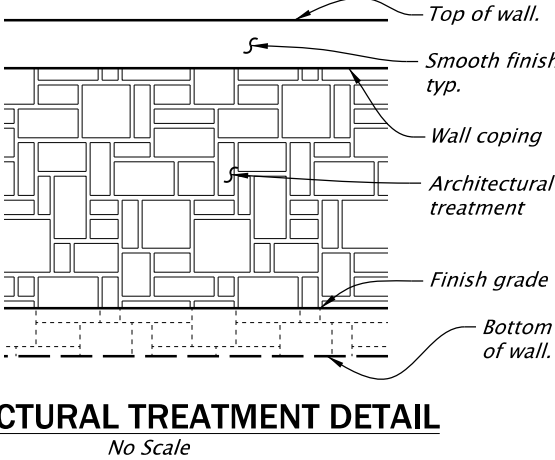
Strip or grid-type reinforcements and connections 0.55Fy
At welded connections of transverse grid members 0.48Fy

For extensible soil reinforcements, calculate the long-term reinforcement strength (Ultimate Limit State Condition) using Minimum Average Roll Values (MARV) and a combined reduction factor to account for potential long-term degradation due to installation damage (RFID), creep (RFCR), and chemical aging (RFD) of 7.

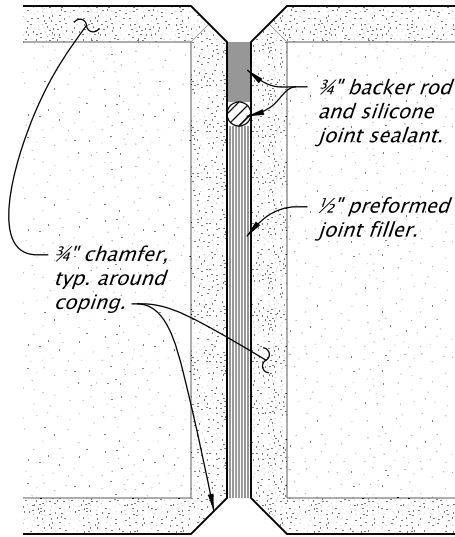
STRUCTURE NO. 24391		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114547		rtw_HWY 2WB_NS_45.71274/121.51838	
CALC. BOOK 8037		I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.56		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: Palo Giscombe	Reviewer: Brad L. Hayes
DATE 07/2026	EXPIRES: 6-30-2027	CADD Tech: F. Jeremy Schad	Checker: N/A
		RETAINING WALL GENERAL NOTES & DETAILS	



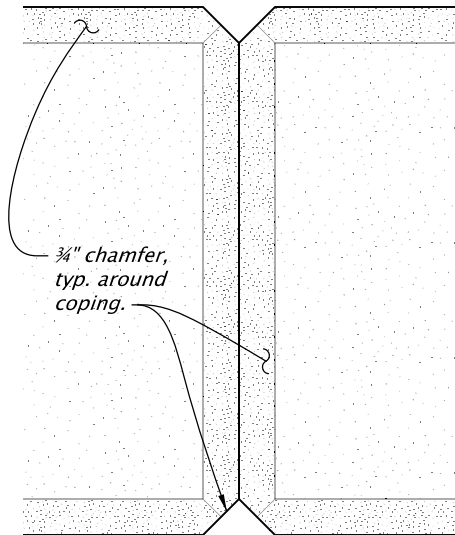
- DETAIL NOTES:**
- Provide general surface finish on all smooth concrete wall surfaces.
 - Extend architectural treatment and finishing at least 12" below finish grade.
 - Provide architectural treatment form liners according to the Special Provisions.



STRUCTURE NO. 24391	REGISTERED PROFESSIONAL ENGINEER 92,012 Digitally Signed 2026.08.11 09:28:54 -07'00' OREGON MARCH 14, 2017 PALO GISCOMBE EXPIRES: 6-30-2027	OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114548		rtw_HWY 2WB_NS_45.71274/121.51838 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 8037		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.56		Designer: Palo Giscombe	Reviewer: Brad L. Hayes
COUNTY Hood River		CADD Tech: F. Jeremy Schad	Checker: N/A
DATE 07/2026		RETAINING WALL DETAILS	
			SHEET NO. GB07



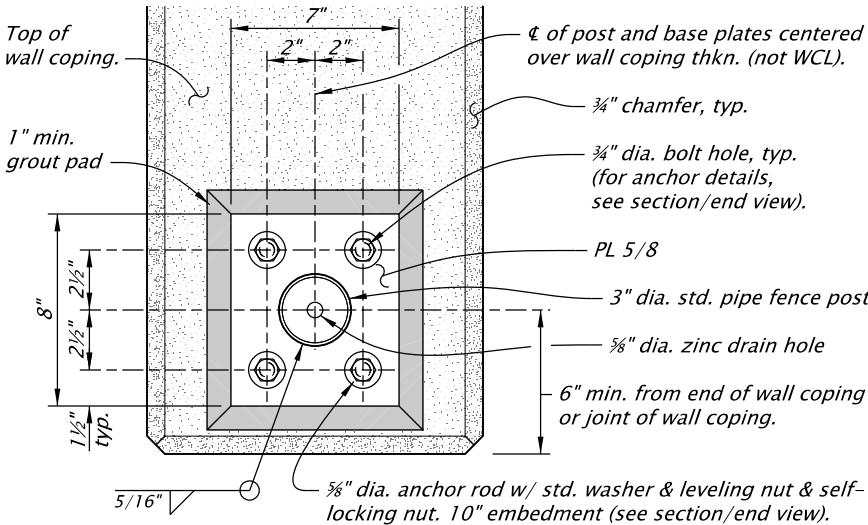
(FACE OF WALL VIEW)
EXPANSION JOINT



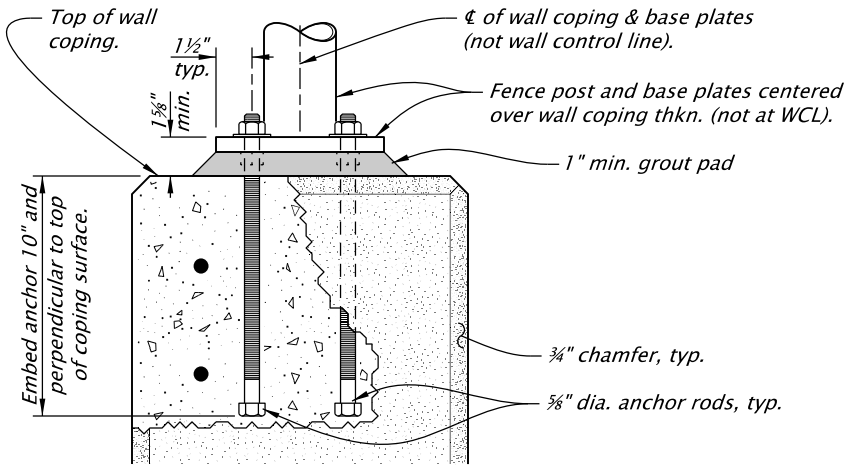
(FACE OF WALL VIEW)
CONTRACTION JOINT

DETAIL NOTES:
- Coping top and bottom edges follow the top of wall profile, as per wall coping section this sheet.
- Coping joints are vertically plumb.
- Place coping joints no closer than 2 ft from a vertical angle break of the TOW profile.

COPING DETAIL - JOINTS
Not to scale

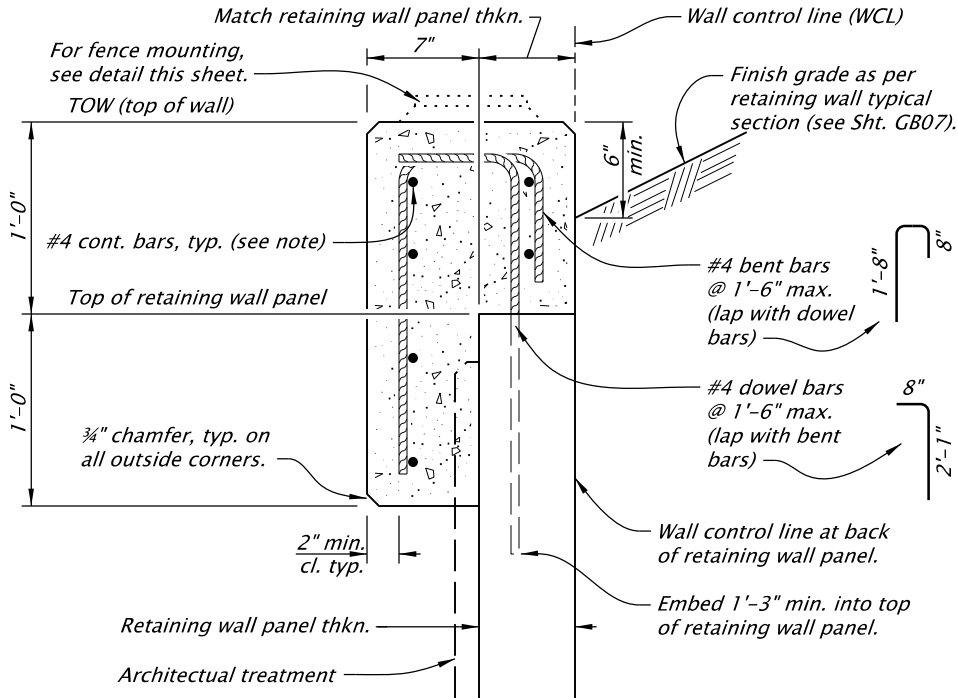


BASE PLATE TOP VIEW



ANCHOR SECTION / COPING END VIEW

COPING DETAIL - FENCE MOUNTING
Scale: 1 1/2 inch = 1'-0 inch

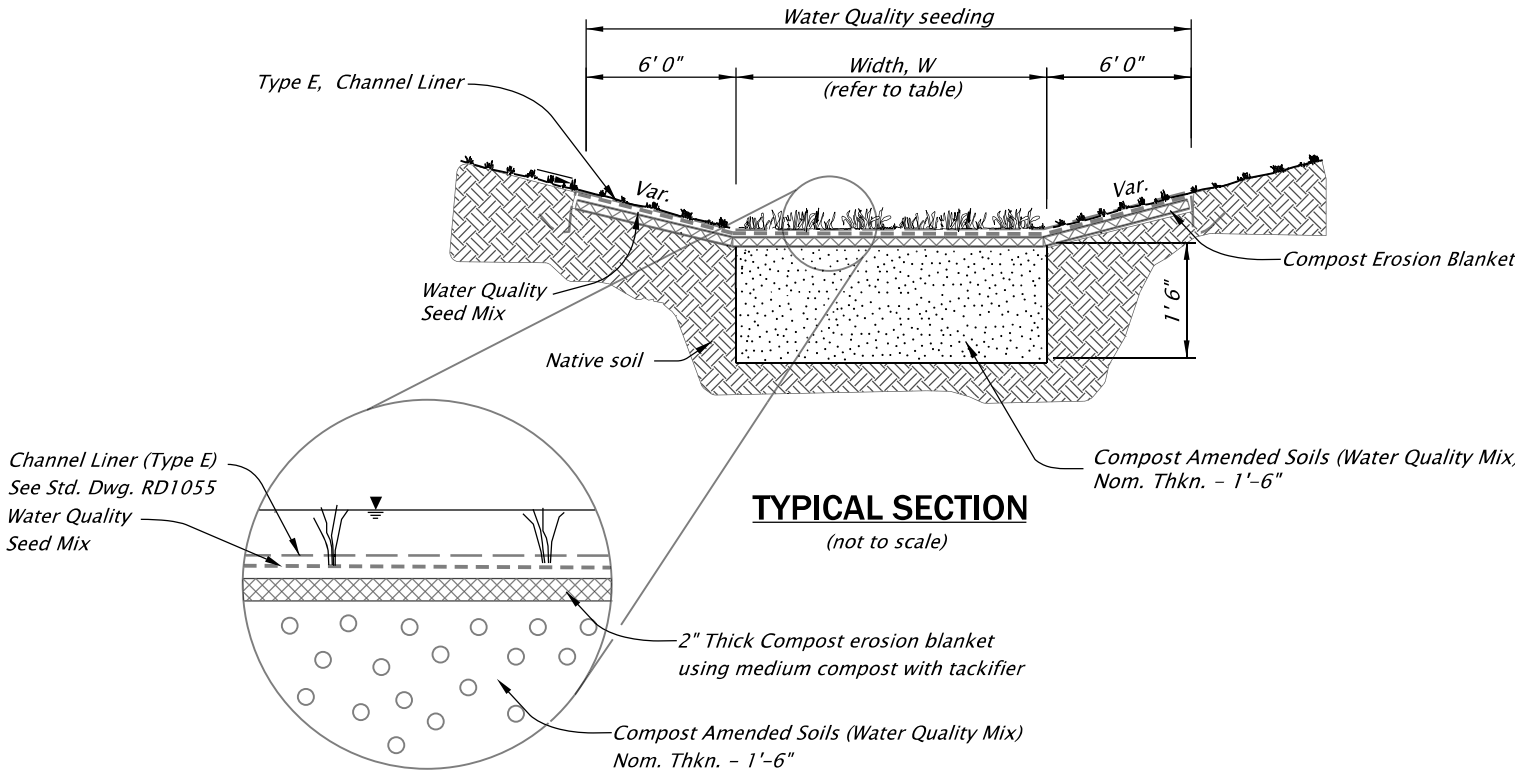
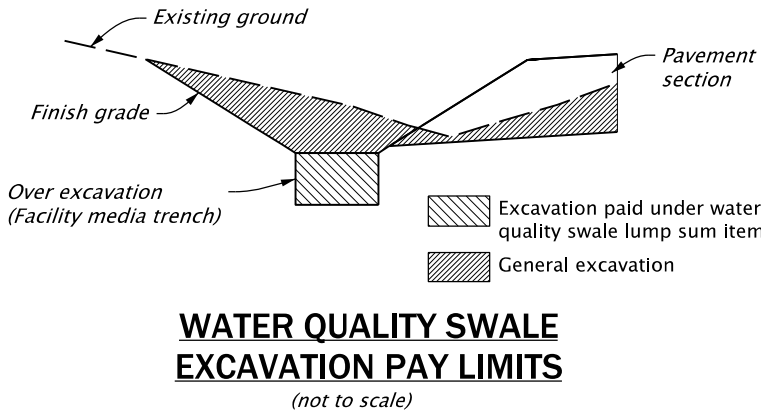
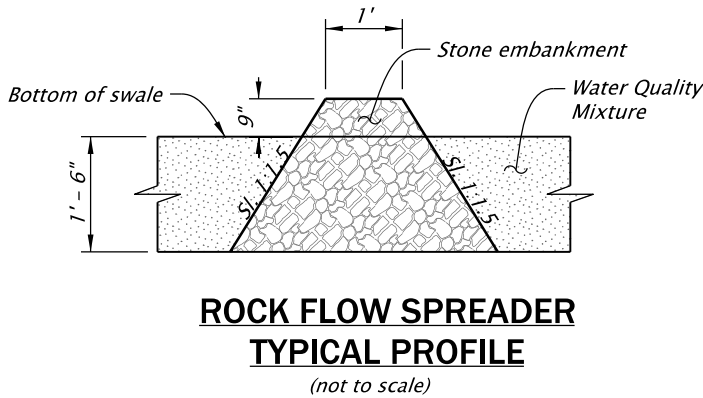
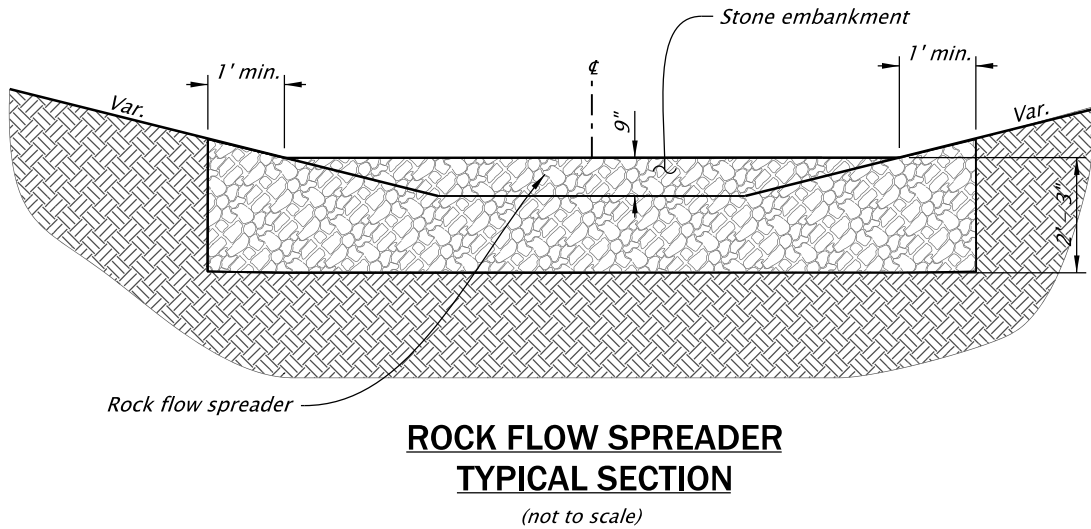


CONTINUOUS BARS NOTE:
Provide 1'-9 inch min. splice lengths between exp. joints.
Increase to 2'-3 inch when more than 12 inch fresh concrete is cast below bars.
Splice alternate bars, staggered at least one splice length.

TOP OF WALL COPING SECTION
Scale: 1 inch = 1'-0 inch

STRUCTURE NO. 24391	REGISTERED PROFESSIONAL ENGINEER 92,012 Digitally Signed 2026.08.11 09:29:46 -07'00' OREGON MARCH 14, 2017 PALO GISCOMBE EXPIRES: 6-30-2027	OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114549		rtw_HWY 2WB_NS_45.71274/121.51838 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 8037		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.56		Designer: Palo Giscombe CADD Tech: F. Jeremy Schad	Reviewer: George F. Bornstedt Checker: N/A
COUNTY Hood River		RETAINING WALL DETAILS	SHEET NO. GB08
DATE 07/2026			

WATER QUALITY SWALE DETAILS



BIOFILTRATION SWALE DATA							
Facility Name	Plan Sheet & Note #	STA. To STA.	W (ft.)	Longitudinal Slope (ft./ft.)	Side Slope Left (V:H)	Side Slope Right (V:H)	DFI ID Number
WQ 1	C02C, Note 4	STA "Lwb2" 1152+28 TO 1154+22	4	0.026	1:6	1:4	D01801
WQ 2	C03C, Note 6	STA "Lwb2" 1158+31 TO 1159+47	4	0.025	1:6	1:6	D01802
WQ 3	C05C, Note 2	STA "Lwb2" 1170+30 TO 1171+88	4	0.030	1:4	1:4	D01803



RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION

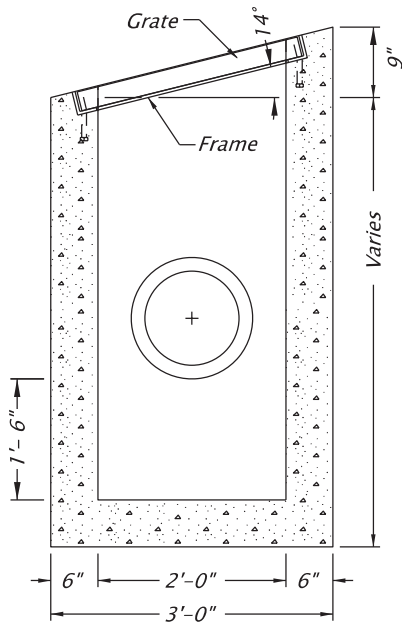
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones
Reviewer: David McDonald
Checker: David McDonald

DETAILS

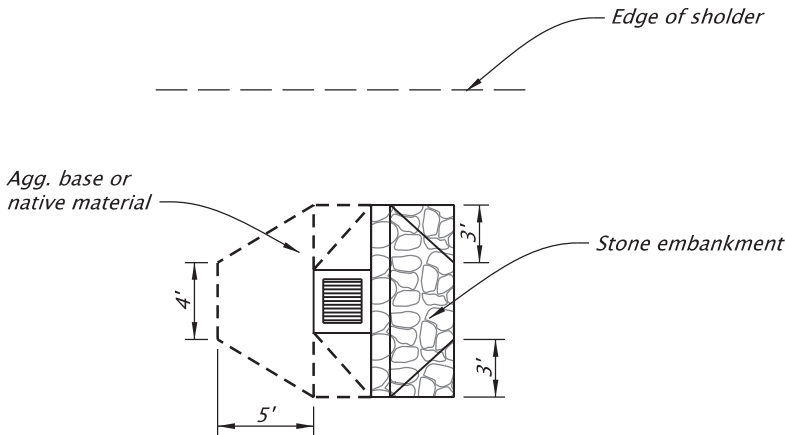
SHEET NO.
HA01



DITCH INLET TYPE D MODIFIED
(For details not shown see dwg. no. RD370)
(not to scale)

CULVERT DRAINAGE MARKER TABLE							
Culvert Location		Structure Number	DFI Number	Type 1 Marker		Type 2 Marker	
Station	MP			Inlet	Inlet & Outlet	Inlet	Inlet & Outlet
"Lwb2" 1152+25 Rt.	63:19	NA	D50507		✓		✓
"Lwb2" 1154+30 Rt.	63:22	NA	D34811		✓		✓
"Lwb2" 1158+30 Rt.	63:32	NA	D50505		✓		✓
"Lwb2" 1158+31 Lt.	63:32	NA	D50506		✓		✓

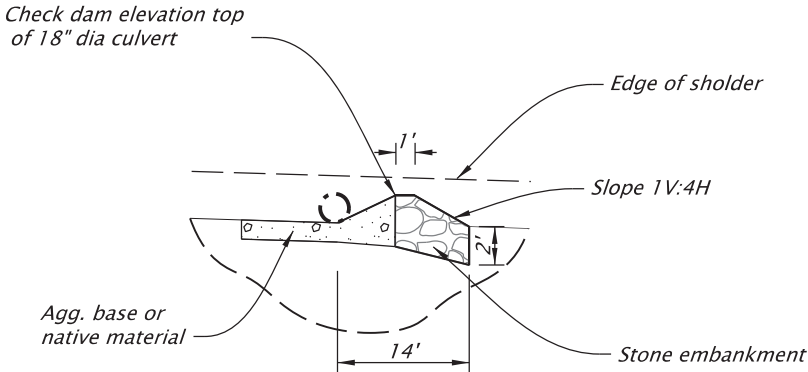
See Std. Dwg. RD398 ✓ Check where appropriate



TYPE D MODIFIED DITCH DETAIL
(not to scale)

FACILITY DRAINAGE MARKER TABLE						
Facility Location		DFI Number	Type S2 Marker		Type S1 Marker	
Station	MP		Begin	End	Red	Green
"Lwb2" 1152+28 Rt.	63:19	D01801	✓		✓	
"Lwb2" 1154+22 Rt.	63:23	D01801		✓		✓
"Lwb2" 1158+30 Rt.	63:32	D01802	✓		✓	
"Lwb2" 1159+47 Rt.	63:34	D01802		✓		✓
"Lwb2" 1170+61 Rt.	63:56	D01803	✓		✓	
"Lwb2" 1171+88 Rt.	63:58	D01803		✓		✓

See Std. Dwg. RD399 ✓ Check where appropriate
Red = Beginning of facility
Green = End of facility



DITCH CHECK DAM DETAIL
(not to scale)



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

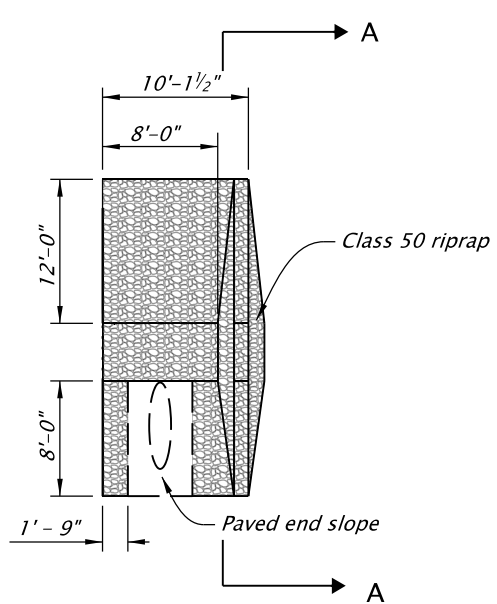
CADD Tech: Matthew Jones

Checker: David McDonald

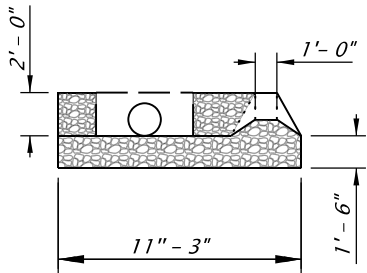
DETAILS

SHEET NO.

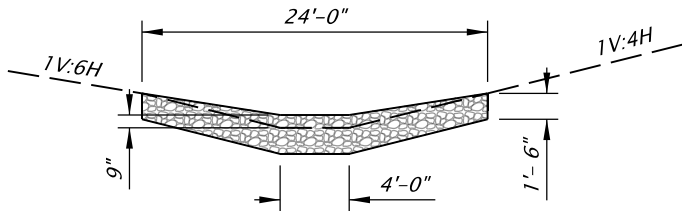
HA02



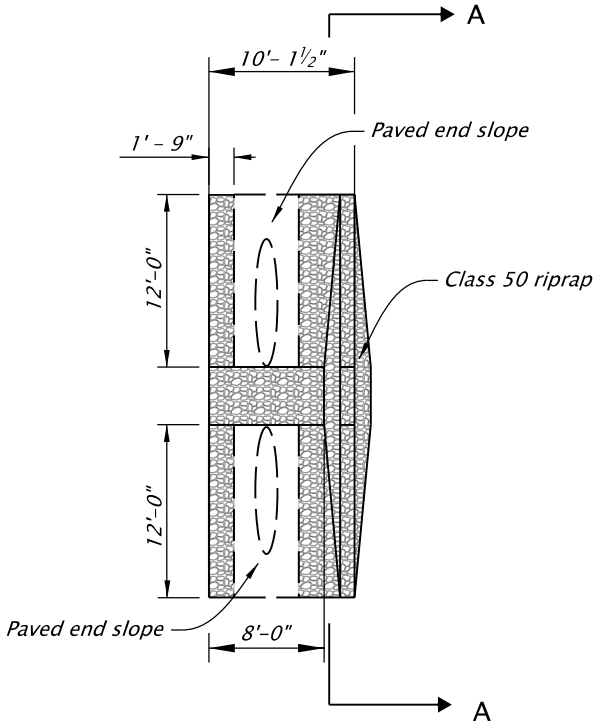
**"WQ1" PLAN
RIPRAP BASIN**
SCALE: NTS



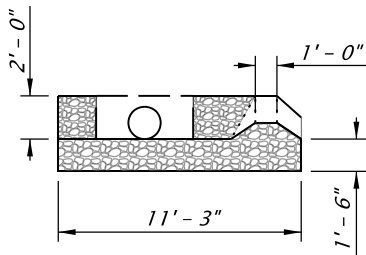
**"WQ1" ELEVATION
RIPRAP BASIN**
SCALE: NTS



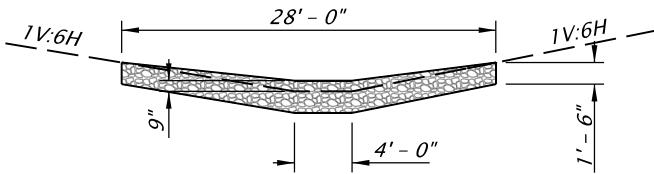
**"WQ1" SECTION A-A
RIPRAP BASIN**
SCALE: NTS



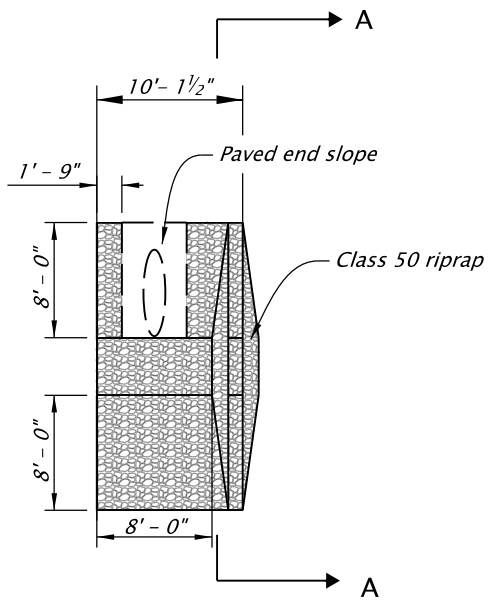
**"WQ2" PLAN
RIPRAP BASIN**
SCALE: NTS



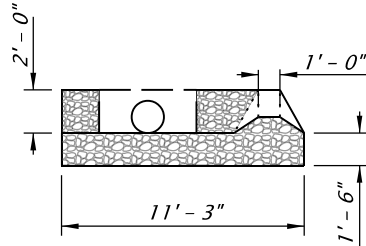
**"WQ2" ELEVATION
RIPRAP BASIN**
SCALE: NTS



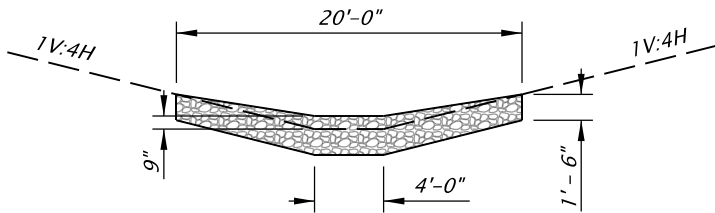
**"WQ2" SECTION A-A
RIPRAP BASIN**
SCALE: NTS



**"LWb2" Sta. 1167+55
PLAN RIPRAP BASIN**
SCALE: NTS



**"LWb2" Sta. 1167+55
ELEVATION RIPRAP BASIN**
SCALE: NTS



**"LWb2" Sta. 1167+55
SECTION A-A RIPRAP BASIN**
SCALE: NTS



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

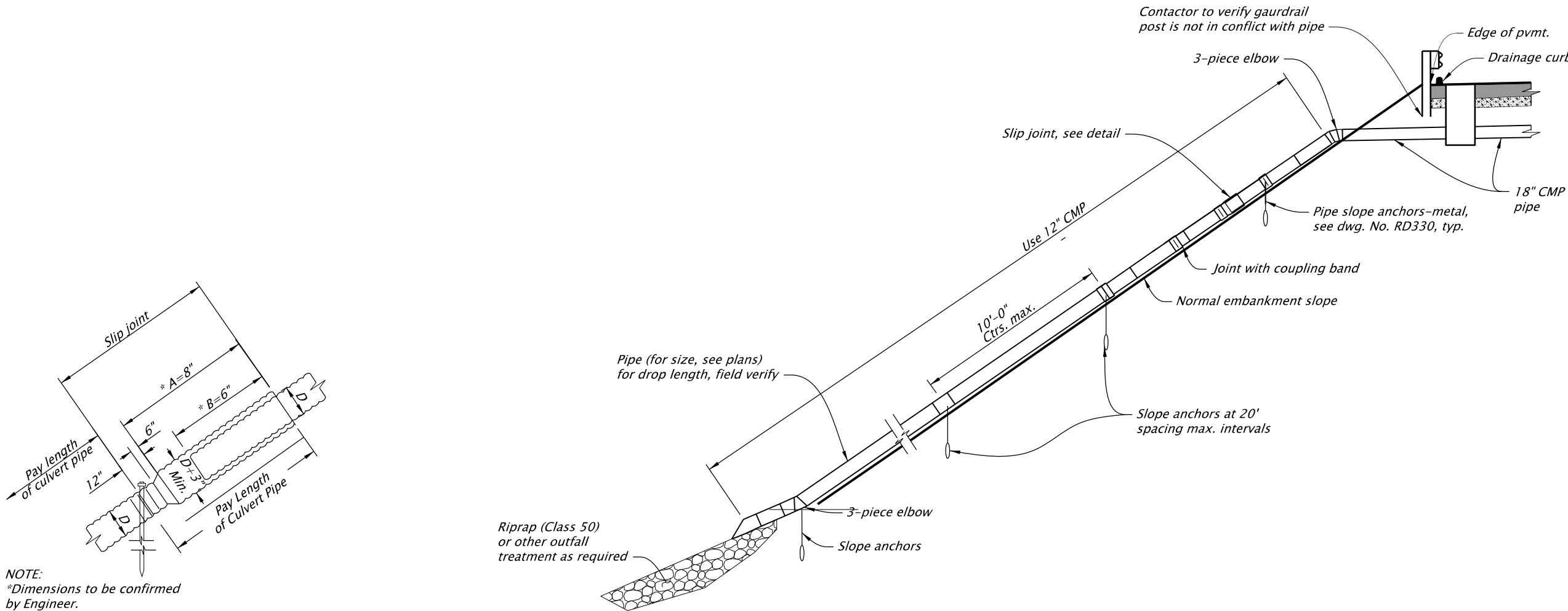
CADD Tech: Matthew Jones

Checker: David McDonald

DETAILS

SHEET NO.

HA03

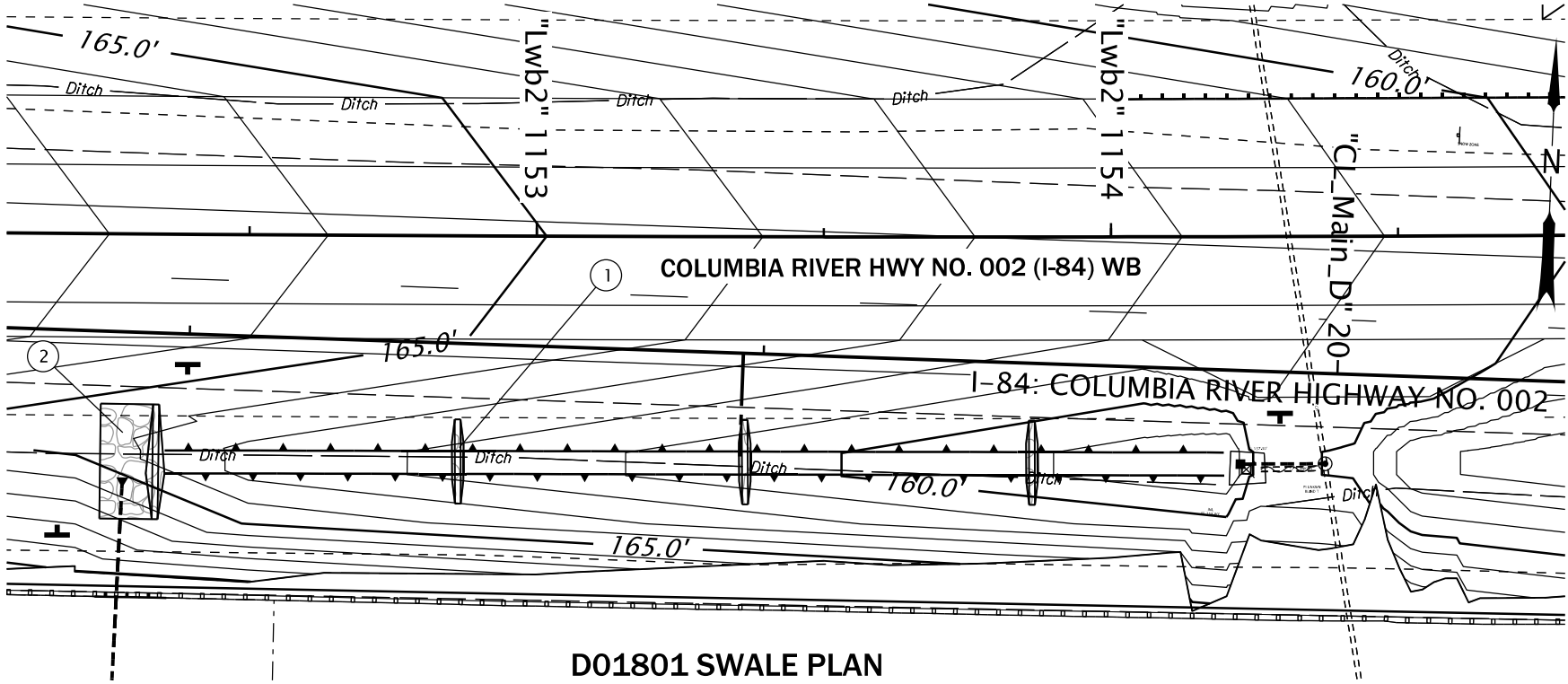


- GENERAL NOTES"
- 1. The slip joint are used where indicated in the plans.
 - 2. The dimensions A & B are dependent upon the type of embankment to be placed. Nominal measurements are A+8" & B+6". This should be discussed when determining the need for a slip joint.
 - 3. For all exposed metal pipe and fittings, coat as specified in 00445.11.

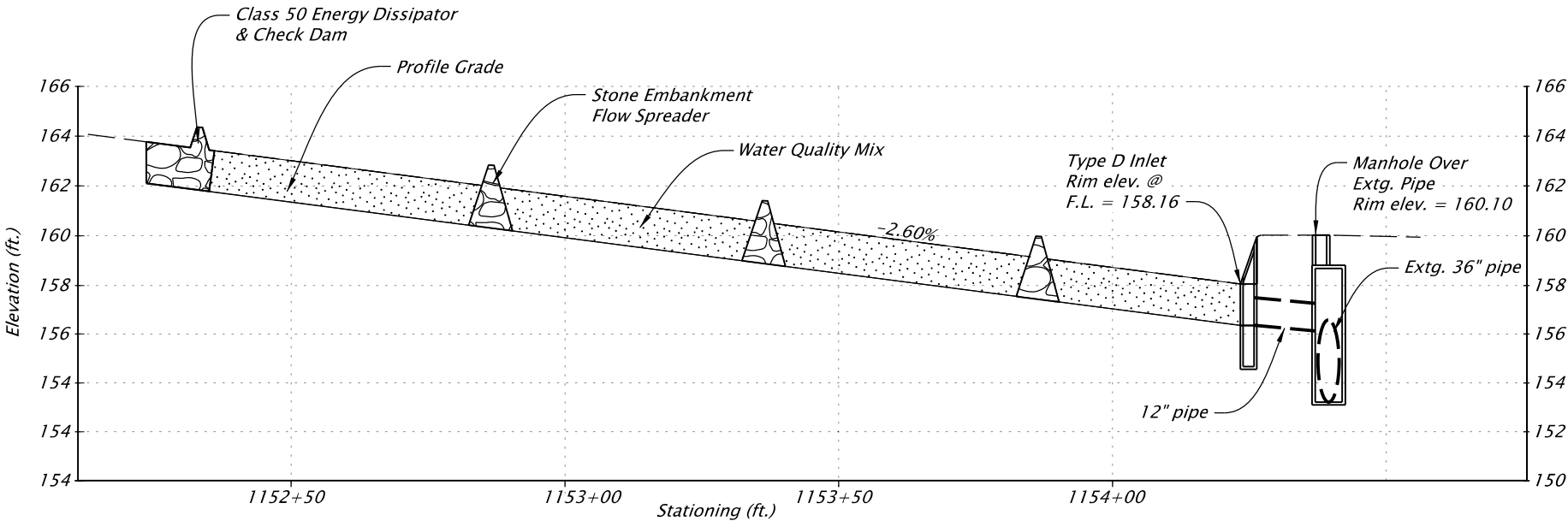
 REGISTERED PROFESSIONAL ENGINEER 93,567 Digitally Signed 2026.07.30 11:21:34 -07'00' OREGON MAY 8, 2018 WILLIAM A. BABICKY RENEWS: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION	
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
	Designer: Alan Babicky CADD Tech: Matthew Jones	Reviewer: David McDonald Checker: David McDonald
DETAILS		SHEET NO. HA04

CONSTRUCTION NOTES

- 1
- Const. water quality swale, D01801
Sta. "Lwb2" 1152+28, Rt. to 1154+30, Rt.
Excavation - 45 cu. yds.
Rock flow spreader (stone embankment) - 15 cu. yds.
Water quality mixture - 55 cu. yds.
Compost erosion blanket - 290 sq. yds
Channel liner matting (Type E) - 370 sq. yds.
Water quality seed mix - 0.1 ac.
Fine grade around type D inlet & manhole
See sheet HA01 thru HA02 for additional details
- 2
- See sheet C02B and HA03 for additional details



D01801 SWALE PLAN
"Lwb2" Sta. 1152+28 To Sta. 1154+22
SCALE: 1" = 30'



PROFILE D01801 BIO SWALE
Horz. Scale: 1" = 30'
Ver. Scale: 1" = 5'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

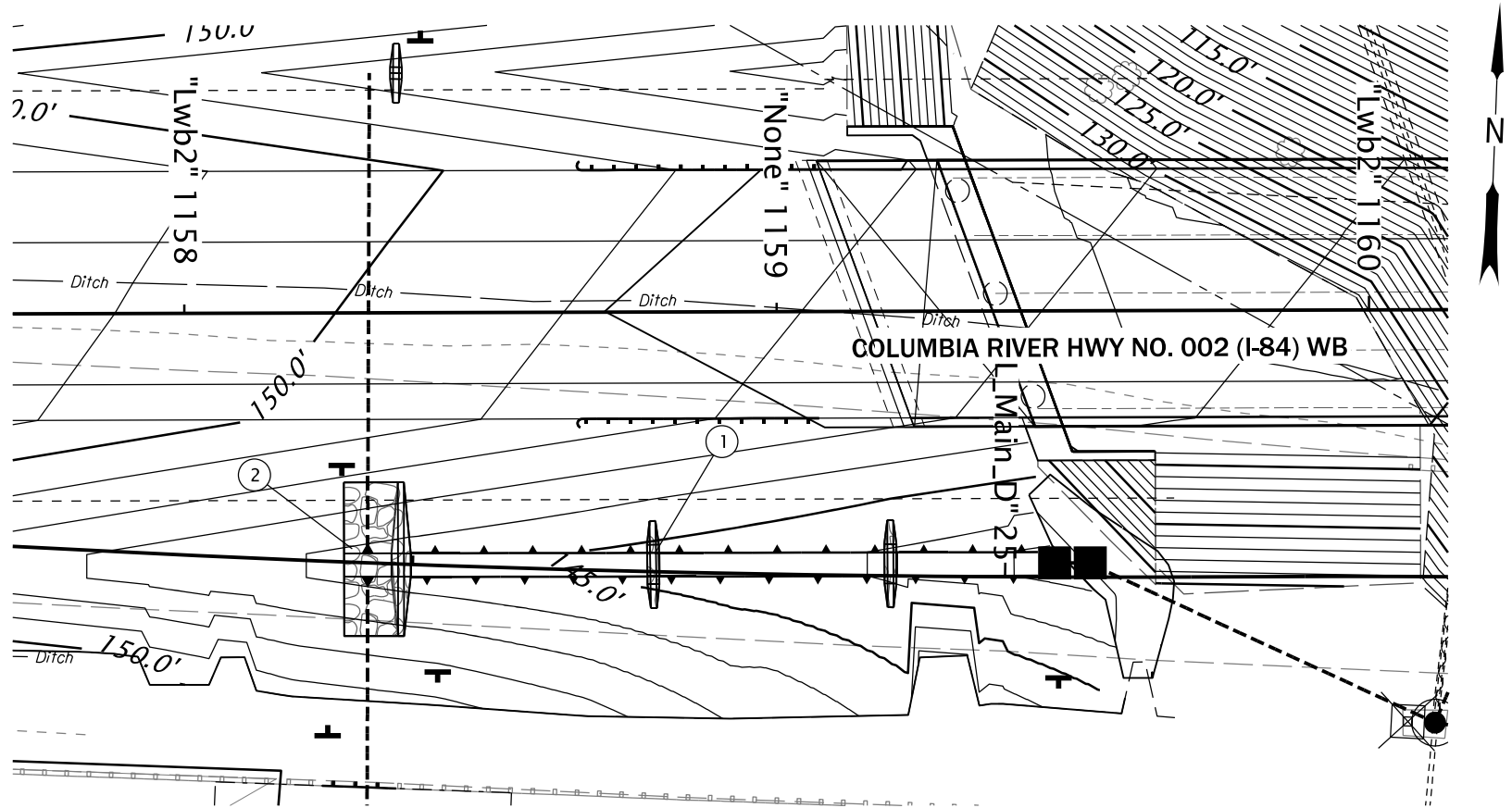
Reviewer: David McDonald
Checker: David McDonald

STORMWATER PLAN

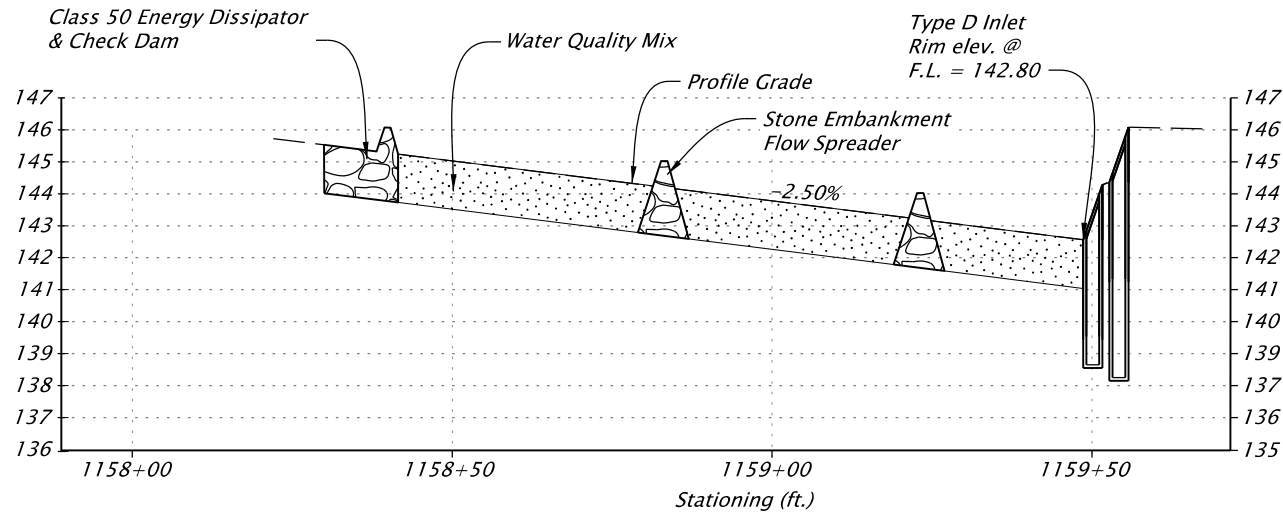
SHEET NO.
HA05

CONSTRUCTION NOTES

- 1
- Const. water quality swale, D01802
Sta. "Lwb2" 1158+30, Rt. to 1159+47, Rt.
Excavation - 25 cu. yds.
Rock flow spreader (stone embankment) - 17 cu. yds.
Water quality mixture - 31 cu. yds.
Compost erosion blanket - 190 sq. yds
Channel liner matting (Type E) - 240 sq. yds.
Water quality seed mix - 0.1 ac.
Fine grade around type D inlet
See sheet HA01 thru HA02 for additional details
- 2
- See sheet C03B and HA03 for additional details



D01802 SWALE PLAN
"Lwb2" Sta. 1158+30 To Sta. 1159+47
SCALE: 1" = 30'



PROFILE D01802 BIO SWALE
Horz. Scale: 1" = 30'
Ver. Scale: 1" = 5'



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

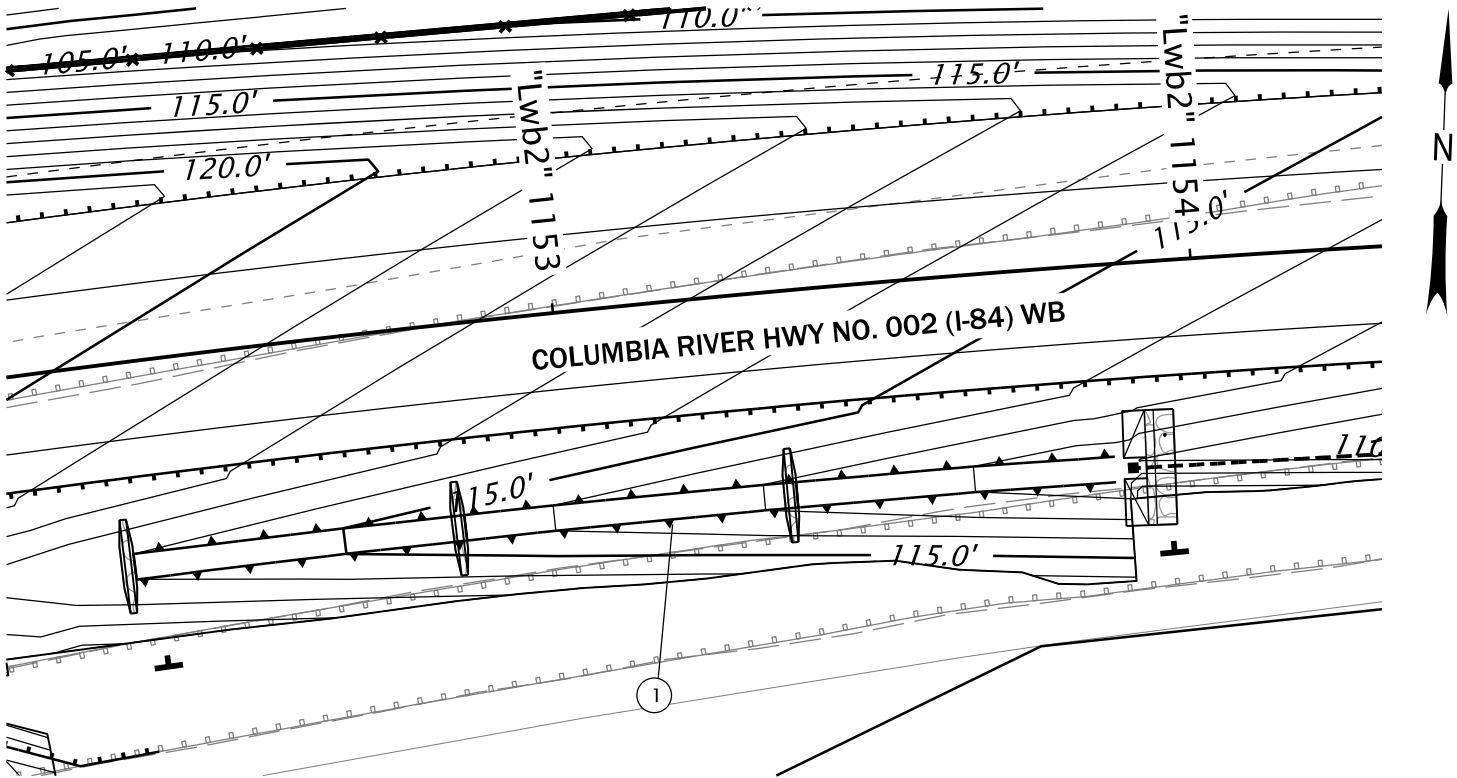
Reviewer: David McDonald
Checker: David McDonald

STORMWATER PLAN

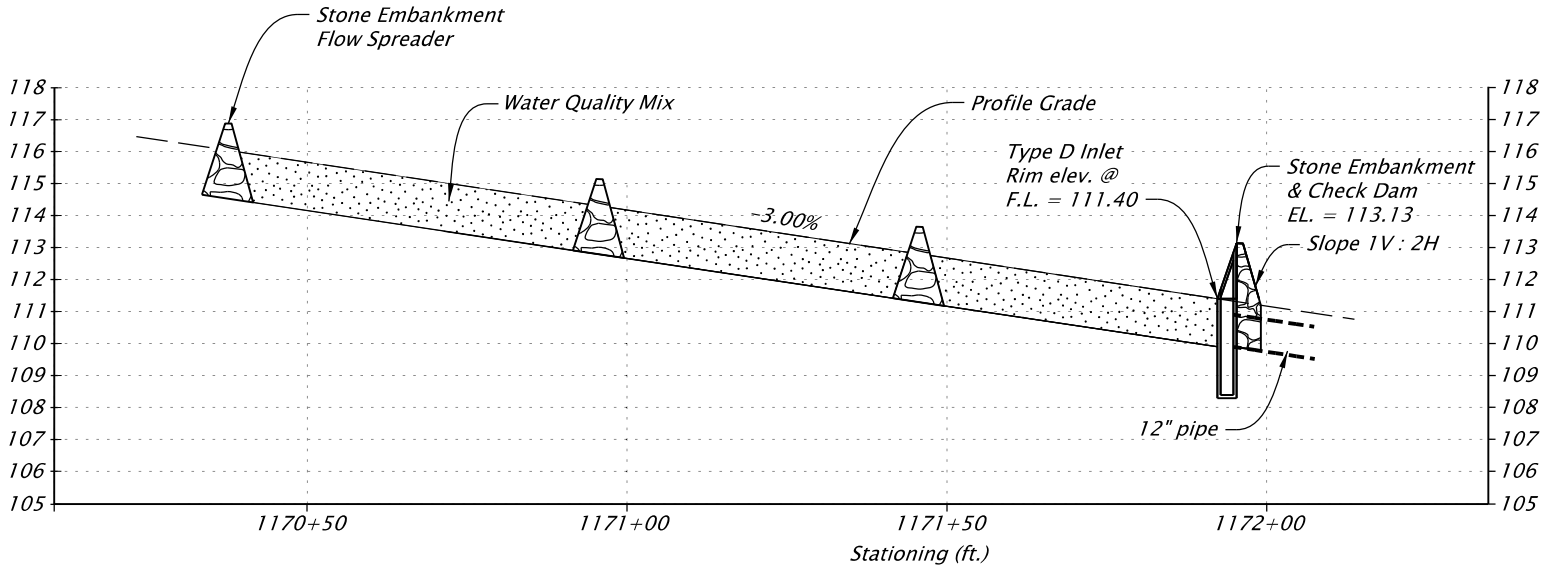
SHEET NO.
HA06

CONSTRUCTION NOTES

- 1 Const. water quality swale, D01803
Sta. "Lwb2" 1170+30, Rt. to 1171+88, Rt.
Excavation - 36 cu. yds.
Rock flow spreader (stone embankment) - 14 cu. yds.
Water quality mixture - 47 cu. yds.
Compost erosion blanket - 215 sq. yds
Channel liner matting (Type E) - 285 sq. yds.
Water quality seed mix - 0.1 ac.
Fine grade around type D inlet
See sheet HA01 thru HA02 for additional details



D01803 SWALE PLAN
"Lwb2" Sta. 1170+30 To Sta. 1171+88
SCALE: 1" = 30'



PROFILE D01803 BIO SWALE
Horz. Scale: 1" = 30'
Ver. Scale: 1" = 5'



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

STORMWATER PLAN

SHEET NO.
HA07

This technical drawing illustrates the proposed construction of bridge bents 1 and 2 over the Columbia River Highway (I-84) Right-of-Way (R/W). The plan view shows the alignment of the highway and the proposed bridge structure, including the location of existing railroad tracks and utility easements.

Plan View Details:

- Bent 1:** Located at the left end of the drawing, it features a rectangular foundation area labeled "Tunneling, Jack and Bore Pit" with dimensions of 25' min by 34'-8".
- Bent 2:** Located further along the alignment, it features a larger rectangular foundation area labeled "Const. pipe under railroad prior to const. bent 2 foundations".
- Carrier and Casing:** A horizontal dashed line indicates the "24" - 145' Carrier" and "36" - 145' Casing".
- Utility Easements:** Multiple "U E" labels indicate utility easements running parallel to the highway R/W.
- Existing Features:** Labels include "Extg. RR track", "Extg. RR R/W", "Ditch", and "COLUMBIA RIVER HWY (I-84) WR".

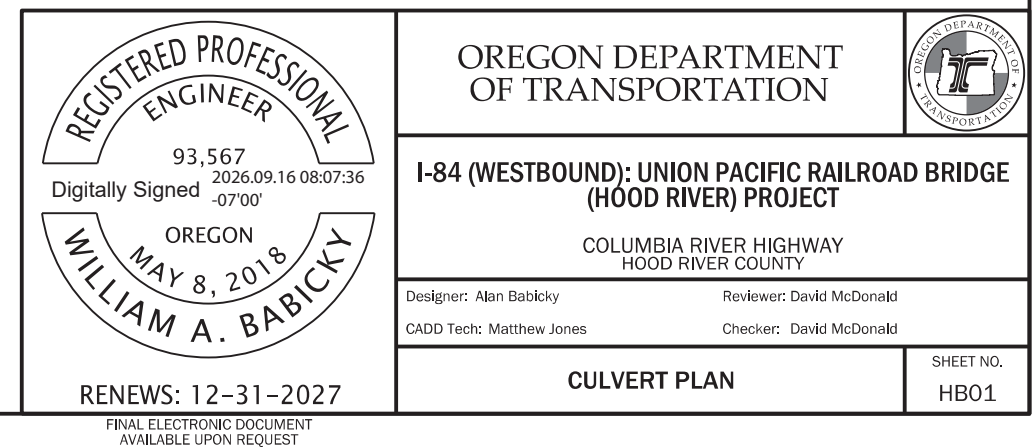
Cross-Section A-A (Right Bent):

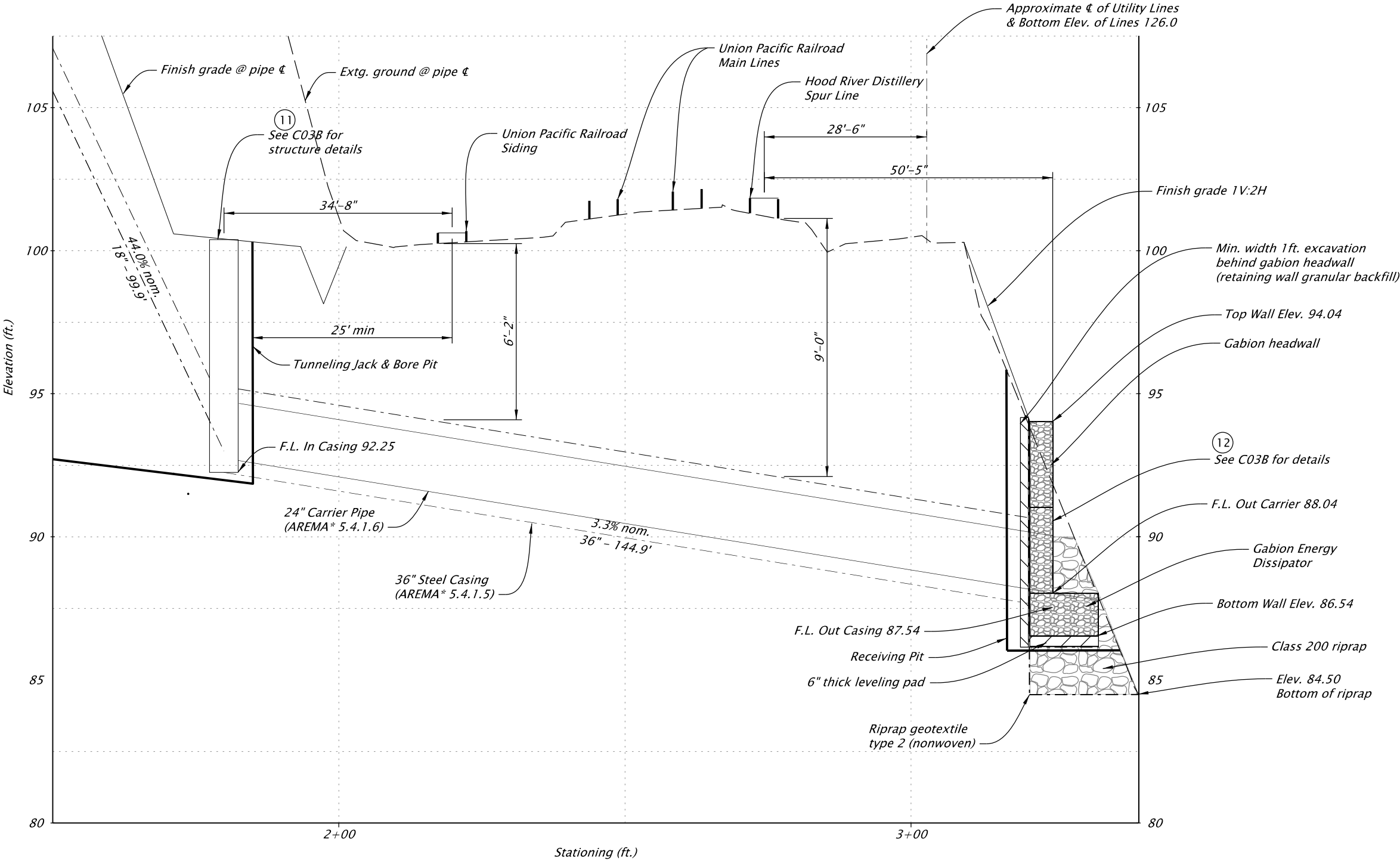
- Gabion Headwall:** A structure 6 ft. high, 16'-4" wide at the top, and 14'-5" wide at the base.
- Gabion Mat:** Dimensions are 12 ft. x 6 ft. x 1.5 ft.
- Receiving Pit:** A pit located downstream from the headwall.
- Class 200 riprap:** Material used for the riverbed protection.
- Ordinary High Water:** Indicated by a wavy line representing the water level.
- Dimensions:** The total width of the structure is 50'-5". The depth of the receiving pit is 10'-9".

Geographical Context:

- The drawing is divided into sections: "SECTION 25, T. 3N., R. 10E." and "SECTION 26, T. 3N., R. 10E."
- A north arrow points towards the upper right corner.
- A reference to "Section A-A see sht. HB03" is provided.

PLAN
SCALE: 1" = 20'





* AMERICAN RAILWAY ENGINEERING AND
MAINTENANCE-OF-WAY ASSOCIATION
(AREMA)



OREGON DEPARTMENT OF TRANSPORTATION	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Alan Babicky	Reviewer: David McDonald
CADD Tech: Matthew Jones	Checker: David McDonald
CULVERT PROFILE	
SHEET NO. HB02	

GENERAL NOTES

The implementation of this Temporary Water Management Plan and the construction, maintenance, replacement and upgrading of this facility is the responsibility of the contractor until all construction is completed and approved.

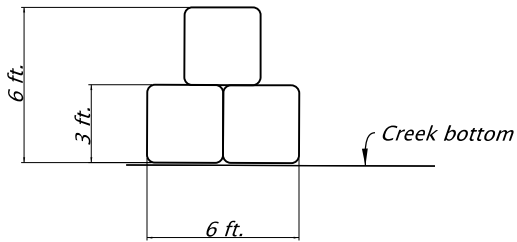
The Temporary Water Management Facility shown on this plan is the minimum requirements for anticipated site conditions. During the construction periods, this facility shall be upgraded for unexpected storm events and to insure that sediment and sediment-laden water does not leave the site.

Remove all Temporary Water Management features and restore site as per plans and specifications.

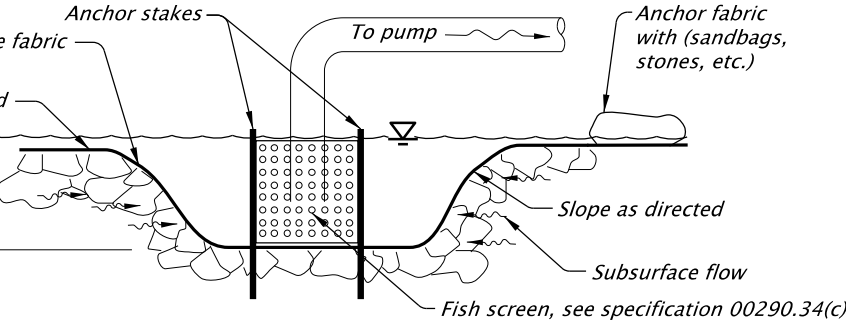
A common recommendation is to make the bulk bag isolation barrier as wide as its height (eg., a six foot high wall would have base of six feet). This is the min. width to height ratio that should be used to construct a bulk bag isolation barrier. This is based on each bag having a placed dimension of about 3 foot high by 3 foot wide by 3 foot long. Do not exceed 6 feet in height, use other construction methods to isolate. This a 3,000 pound bag of dry streambed gravel. The streambed gravel must meet the requirements of Special Provisions 2024 Sec. 00245.

The estimated number of bags needed for 100 linear feet of barrier that is as wide as its height is:

Height (ft)	# bags
3	34
6	100



BULK BAG FOOTPRINT DETAIL
Not to Scale

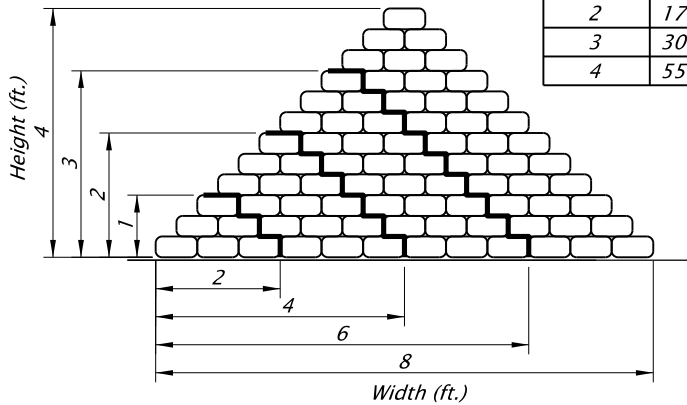


FISH SCREEN SUMP DETAIL
NO SCALE

A common recommendation is to make the sandbag barrier twice as wide as its height (e.g., a one foot high wall would have a base width of 2 feet). This is the minimum width-to-height ratio that should be used to construct a sandbag barrier. This is based on each bag having a placed dimension of about 4 to 5 inches high by 9 to 10 inches wide by 14 inches long. This is a 30 pound bag of dry sand.

The estimated number of bags needed for 100 linear feet of barrier that is twice as wide as its height is:

Height (ft)	# bags
1	600
2	1700
3	3000
4	5500



SANDBAG FOOTPRINT DETAIL
NO SCALE

COLUMBIA RIVER / WAUCOMA BASIN AT HWY # 002

ESTIMATED DISCHARGES FOR
TEMPORARY WATER MANAGEMENT (TWM)

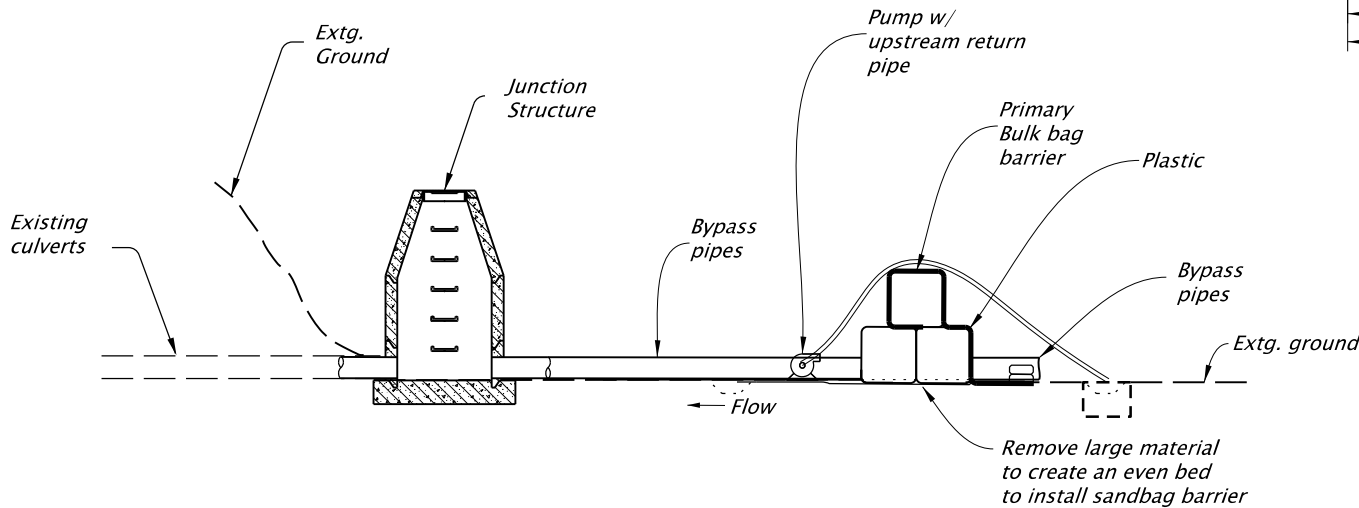
	AVERAGE DAILY DISCHARGE IN CUBIC FEET PER SECOND		
NOTE	1	2	3
Ave. Annual	10.8	3.9	1.0

- 1) Average daily discharge expected to be exceeded 2 days each month.
- 2) Average daily discharge expected to be exceeded 8 days each month.
- 3) Average daily discharge expected to be exceeded 16 days each month.

In-water work periods extends from 15 July through 30 September
& from 15 November through 15 of March

Listed discharges are surface water from the upstream watershed. The estimated discharges are based on nearby gauged basins. Discharges in the subject watershed may differ.

	TWM FLOW EVENTS CUBIC FEET PER SECOND		
NOTE	2-year	5-year	10-year
Peak Discharge	25.95	36.69	45.94



NOTE:
Width and depth of bulk bag barrier will vary depending on site and stream flow conditions.

FULL ISOLATION DETAIL
NOT TO SCALE

LEGEND

- Sandbag or bulk bag barrier line
- Sandbag isolation barrier
- Concrete barrier line
- Energy dissipator
- Sediment control facility
- Dewatering sump pump
- Bank scour repair



RENEWS: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky

Reviewer: David McDonald

CADD Tech: Matthew Jones

Checker: David McDonald

DETAILS

SHEET NO.

HD01

FULL ISOLATION NOTES

- 1

Isolating the work site upstream: Install single primary sandbag barrier across the stream channel. If Needed, install secondary sandbag barrier.
- 2

Size the temporary water management facility based on site conditions. Route water around work area using pipe, pump or combination. Fish screen not required at this location. The discharge table below can be used to estimate the size of the bypass pipe and/or pump.
- 3

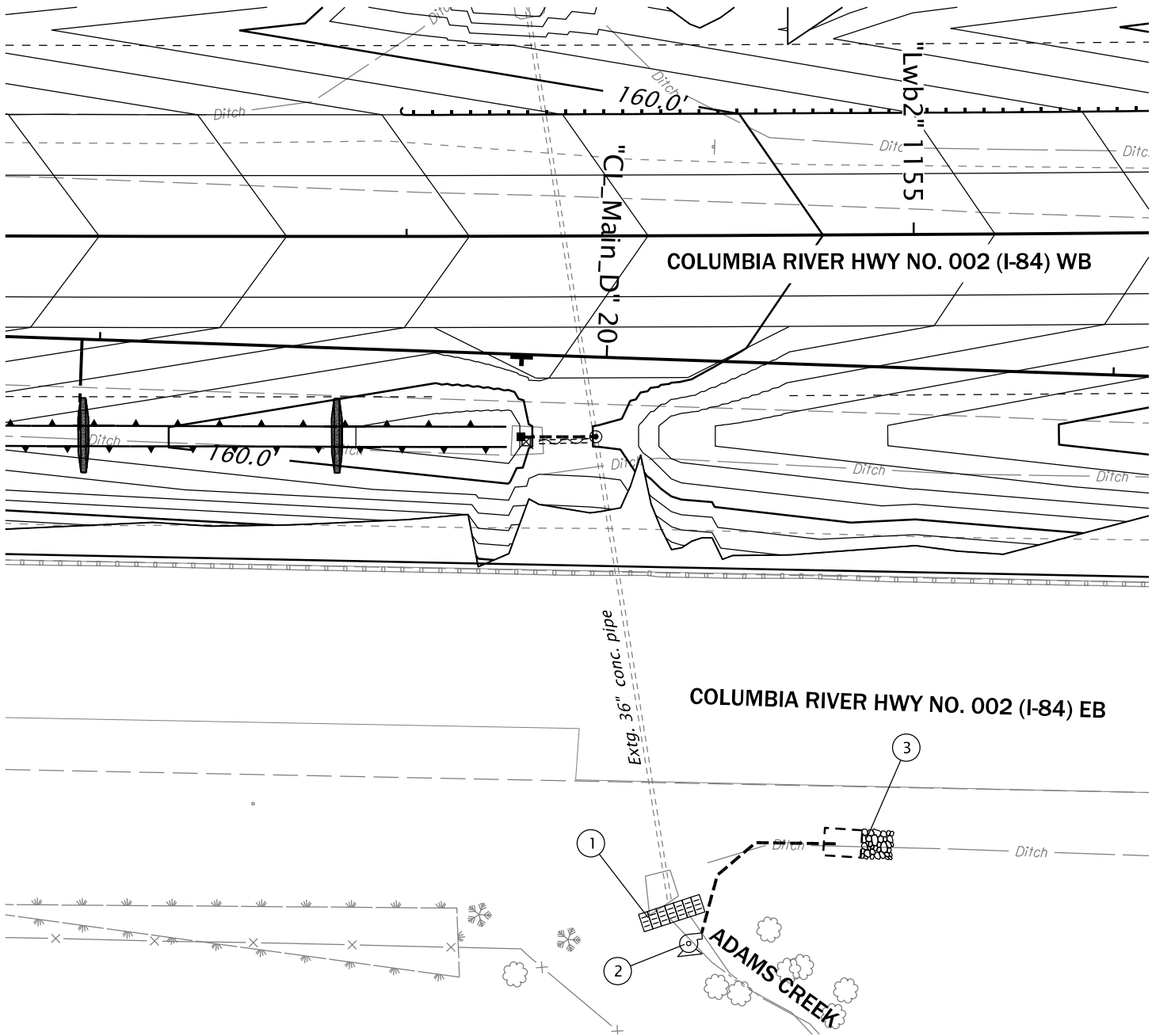
Provide adequate sediment control measures during dewatering of the work area to insure sediment laden water does not leave the site.

ADAMS CREEK AT HWY #002

ESTIMATED DISCHARGES FOR
TEMPORARY WATER MANAGEMENT

NOTE	AVERAGE DAILY DISCHARGE IN CUBIC FEET PER SECOND (GALLONS PER MINUTE)		
	1	2	3
JULY	1:0	0:2	0:1
AUGUST	0:5	0:2	0:1
SEPTEMBER	1:0	0:2	0:1
OCTOBER	2:0	1:0	0:1

1) Average daily discharge expected to be exceeded 2 days each month.
2) Average daily discharge expected to be exceeded 8 days each month.
3) Average daily discharge expected to be exceeded 16 days each month.
In-water work period extends from 15 July through 30 September.
Listed discharges are surface water from the upstream watershed. The estimated discharges are based on nearby gauged basins. Discharges in the subject watershed may differ.



ADAMS CREEK TWM PLAN
SCALE: 1" = 30'



RENEWES: 12-31-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Alan Babicky
CADD Tech: Matthew Jones

Reviewer: David McDonald
Checker: David McDonald

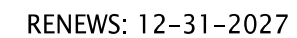
TEMPORARY WATER
MANAGEMENT PLAN

SHEET NO.
HD02



- 1 *Isolating the work site upstream: Install bulk bag, barrier across the stream channel. If Needed, install secondary bulk bag barrier.*
- 2 *Size the temporary water management facility based on site conditions and duration to be in place. Extend pipes and install junction structures during the July 15 – September 30 in water work window. The estimated discharge table is located on HD01.*
- 3 *Remove pipe extension and junction structures when temporary embankment is removed during an in water work window. Restore pipes to existing condition.*
- 4 *Water seeping through the primary barrier and contained by the secondary barrier shall be returned to an area up stream of the sandbag barrier to a temporary settling basin or other approved location.*
- 5 *Provide adequate sediment control measures during dewatering of the work area to insure sediment laden water does not leave the site.*

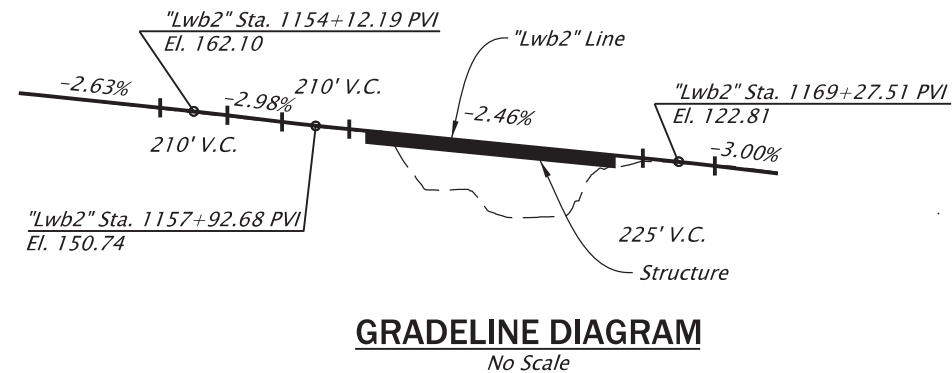
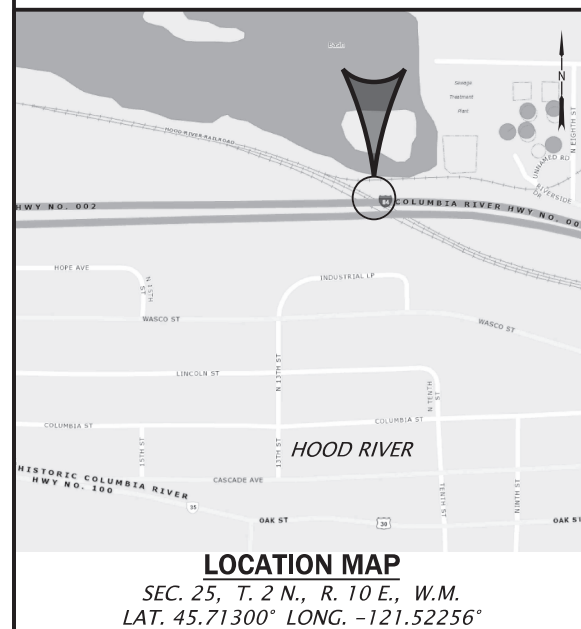
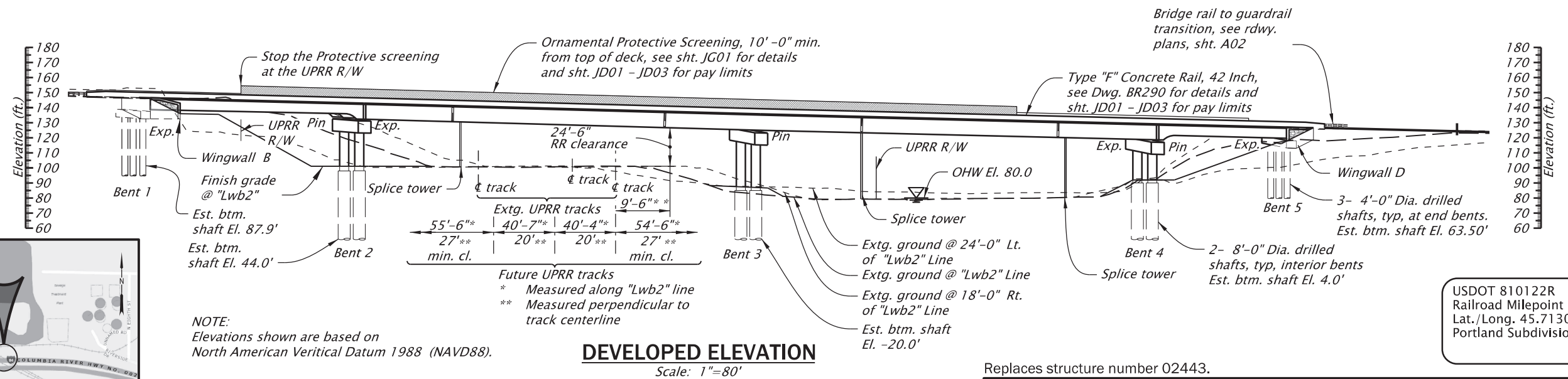
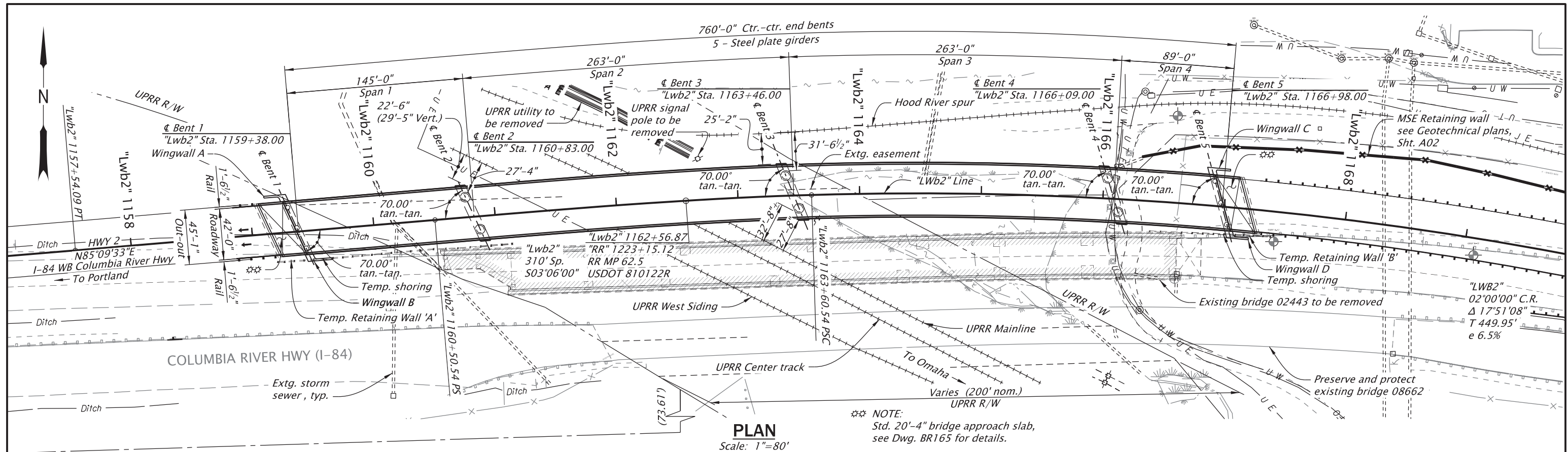
SCALE: 1" = 30'



Checker: David McDonald

HD03

Bidding Plans



ACCOMPANIED BY DRAWINGS: <i>BR145, BR165, BR195, BR290, and BR291</i>	REPLACES STRUCTURE NO. 24318
	BDS DWG NO. 114480
	CALC. BOOK 7841
	HWY: 002 M.P.: 63.41
NOT FOR CONSTRUCTION. INFORMATIONAL DRAWINGS: <i>09233, 10193 - 10200, 59623, 59624, 60527 - 60534</i>	COUNTY Hood River
IF THIS MEASURES 1 INCH THEN DRAWING IS TO SCALE	DATE 08/2026



OREGON DEPARTMENT
OF TRANSPORTATION

Hwy 2WB over RR_MP63.41
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)

PLAN AND ELEVATION

SHEET NO.
JA01

GENERAL NOTES:

DESIGN NOTES

Bridge is designed according to the 2020, 9th edition of the "AASHTO LRFD Bridge Design Specifications" and the Fall 2024 edition of the "ODOT Bridge Design Manual ", as modified by the following:

Design includes an allowance of 25psf for future wearing surface and all of the following Live Loads :

Service and Strength I Limit States:
HL-93: Design truck (or trucks per LRFD 3.6.1.3) or the design tandems and the design lane load.

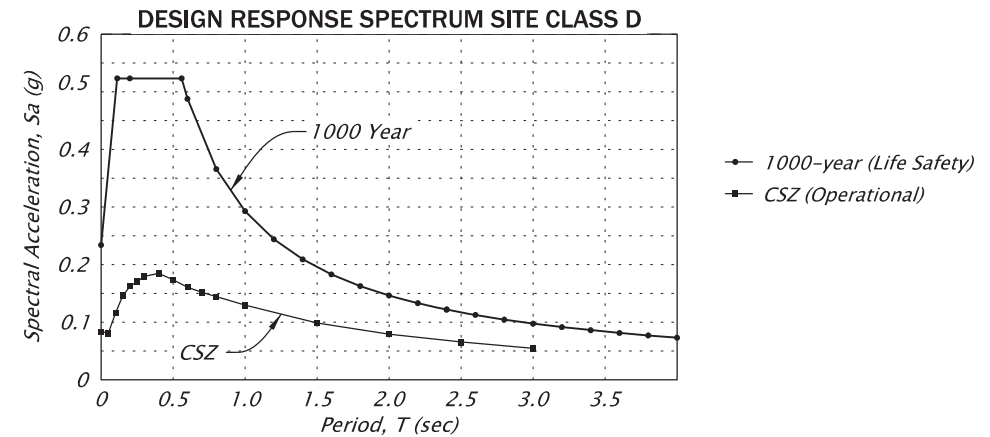
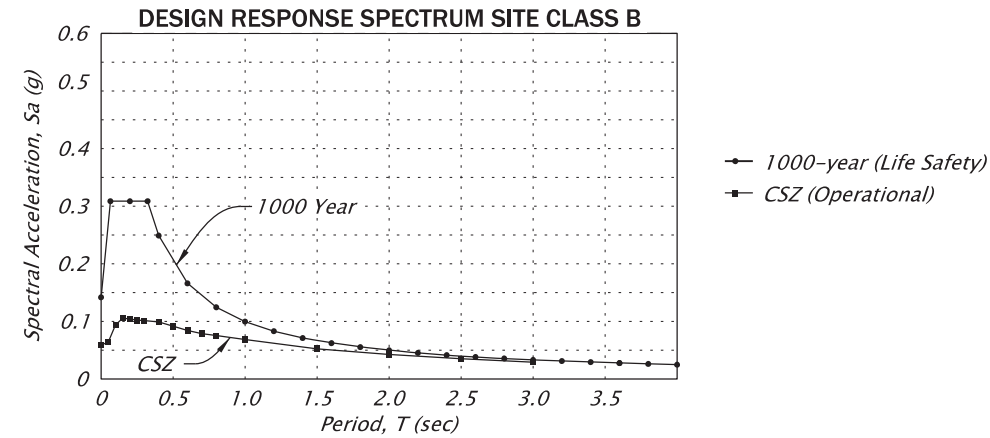
Strength II Limit State:
ODOT Type STP-5BW Permit truck
ODOT Type STP-4E Permit truck
EV3 truck

Seismic design is performed in accordance with the "AASHTO Guide Specifications for LRFD Seismic Bridge Design" as modified by the Fall 2025 edition of the "ODOT Bridge Design Manual". The bridge site is defined as a Site Class B (Bents 1 & 2) with Site Factor (Fpga) of 0.90 and Site Class D (Bents 3-5) with Site Factor (Fpga) of 1.49.

Seismic Performance criteria	Earthquake	Mapped Hazard Values			Site Class	Design Hazard Values			Seismic Design Category
		PGA	S _s	S ₁		A _s	S _{DS}	S _{D1}	
Life Safety	1000 – year Return	0.1575	0.3429	0.1245	B	0.1417	0.3086	0.0997	A
Operational	Cascadia Subduction zone	0.0588	0.1042	0.0683	B	0.0529	0.0938	0.0546	A

Seismic Performance criteria	Earthquake	Mapped Hazard Values			Site Class	Design Hazard Values			Seismic Design Category
		PGA	S _s	S ₁		A _s	S _{DS}	S _{D1}	
Life Safety	1000 – year Return	0.1575	0.3429	0.1245	D	0.2338	0.5231	0.2926	B*
Operational	Cascadia Subduction zone	0.0838	0.1620	0.1294	D	0.1340	0.2591	0.3029	B*

*Bridge detailing for Seismic Design Category D in liquefiable soils.



CONSTRUCTION NOTES:

Furnish all materials and perform all work according to the "Oregon Standard Specifications for Construction 2024".

Furnish reinforcing steel according to ASTM Specification A706 for the following bars:
•Welded
•Column spirals and vertical reinforcement
•Drilled shaft spirals and vertical reinforcement
•Field bent stirrups

Furnish field bent stirrups according to ASTM A706.

Furnish ASTM Specification A706, or AASHTO Specification M31 (ASTM A615) Grade 80 reinforcing steel in the deck, caps and drilled shafts, unless noted otherwise for these elements.

Furnish all other reinforcing steel according to ASTM Specification A706, or AASHTO M31 (ASTM A615) Grade 60, unless othwerwise shown.

Reinforcing Splice Lengths (Class B) Grade 60 f'c = 3.3 ksi, λrc = 0.4, 2in min. concrete clear cover										
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14 & #18
Uncoated	1'-3"	1'-9"	2'-2"	2'-7"	3'-0"	3'-5"	3'-10"	4'-4"	4'-10"	Not permitted
Coated (1)	1'-7"	2'-1"	2'-7"	3'-2"	3'-8"	4'-2"	4'-8"	5'-3"	5'-10"	Not permitted
Coated (2)	2'-0"	2'-7"	3'-3"	3'-11"	4'-7"	5'-2"	5'-10"	6'-7"	7'-4"	Not permitted

Reinforcing Splice Lengths (Class B) Grade 60 f'c = 4.0 ksi, λrc = 0.4, 2in min. concrete clear cover										
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14 & #18
Uncoated	1'-4"	1'-7"	2'-0"	2'-5"	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	Not permitted

Reinforcing Splice Lengths (Class B) Grade 60 f'c = 4.5 ksi, λrc = 0.4, 2in min. concrete clear cover										
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14 & #18
Uncoated	1'-4"	1'-6"	1'-11"	2'-3"	2'-7"	3'-0"	3'-4"	3'-9"	4'-2"	Not permitted
Coated (1)	1'-4"	1'-10"	2'-3"	2'-8"	3'-2"	3'-7"	4'-0"	4'-6"	5'-0"	Not permitted
Coated (2)	1'-8"	2'-3"	2'-10"	3'-4"	3'-11"	4'-5"	5'-0"	5'-8"	6'-3"	Not permitted

Reinforcing Splice Lengths (Class B) Grade 80 f'c = 4.0 ksi, λrc = 0.4, 2in min. concrete clear cover										
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14 & #18
Uncoated	1'-7"	2'-1"	2'-8"	3'-2"	3'-8"	4'-2"	4'-9"	5'-4"	5'-11"	Not permitted

Reinforcing Splice Lengths (Class B) Grade 80 f'c = 4.5 ksi, λrc = 0.4, 2in min. concrete clear cover										
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14 & #18
Uncoated	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-7"	Not permitted
Coated (1)	1'-10"	2'-5"	3'-0"	3'-7"	4'-2"	4'-9"	5'-4"	6'-0"	6'-8"	Not permitted
Coated (2)	2'-3"	3'-0"	3'-9"	4'-5"	5'-2"	5'-11"	6'-8"	7'-6"	8'-4"	Not permitted

Use Coated (1) for epoxy coated bars with cover at least 3*db and clear spacing between bars at least 6*db.

Use Coated (2) for epoxy coated bars with cover less than 3*db or clear spacing between bars less than 6*db.

Increase all splice lengths 30% for horizontal or nearly horizontal bars so placed that more than 12" of fresh concrete is cast below the bar.

Splice reinforcing steel at alternate bars, staggered at least one splice length or as far as possible, unless shown otherwise.

db = bar diameter.

Use epoxy coated reinforcing steel in deck and approach slabs, including all bars extending out of the deck and approach slabs into the rail. Use uncoated reinforcing steel for all other reinforcement.

CONSTRUCTION NOTES (CONT.):

Splice reinforcing steel at alternate bars, staggered at least one splice length or as far as possible, unless shown otherwise.

Support the bottom mat reinforcing steel from the forms with precast mortar blocks at 24" maximum centers each way.

Support the top mat of reinforcing steel from the bottom mat of reinforcing steel with wire bar supports as shown in Chapter 3 of the "CRSI Manual of Standard Practice" (SBU, BBU, or CHCU). Place wire bar supports at 24" maximum centers.

Provide 2" concrete cover for all reinforcing unless shown otherwise.

All reinforcing spacing is intended to be maximum unless shown otherwise.

Do not fabricate reinforcing steel for columns until final substructure elevations have been determined in the field.

Provide a ¾" chamfer on all exposed concrete edges unless noted otherwise.

Furnish Class 4000 – ⅜" concrete for all drilled shafts.

Furnish Class HPC(IC) 4500 – 1½" concrete in deck, and approach slabs.

Furnish General Structural Class 4000 – ¾" concrete in for all other concrete.

Furnish Foundation Class 3300 – 1½" concrete for sleeper slab.

See Foundation Plan for foundation design notes.

Furnish structural steel tubing per ASTM A500, Grade A or B.

Furnish steel shapes and plates for ornamental protective screening per ASTM A36.

Perform welding for ornamental protective screening according to AWS D1.1 Structural Welding Code.

See Ornamental Screening Details for fabrication and installation notes.

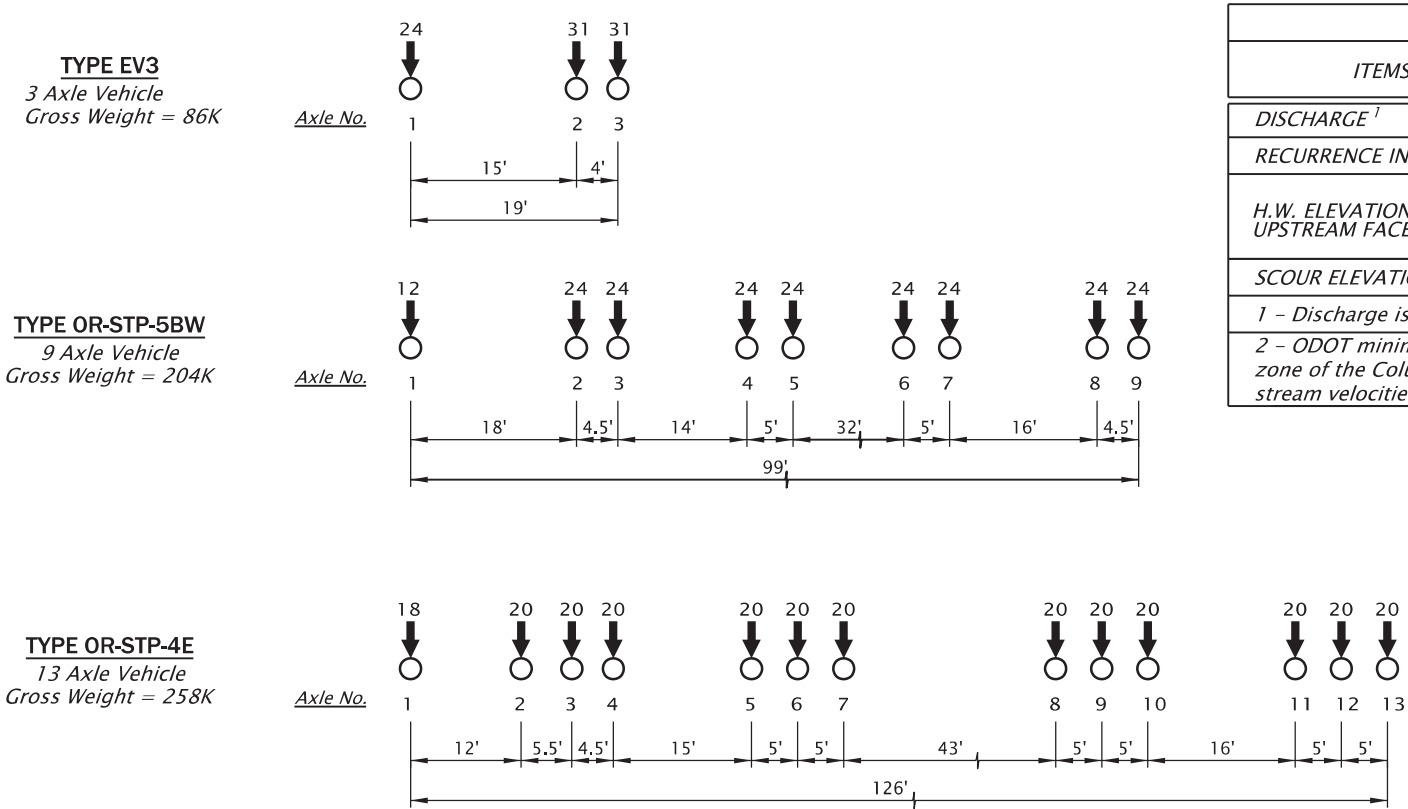
Field verify all dimensions and elevations prior to beginning work.

Utilities to be relocated by others.

For temporary work access and temporary fills in Span 3, see Roadway plans, Sht. A02.

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114481		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
COUNTY Hood River		CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
DATE 08/2026	RENEWS: 12-31-2027	GENERAL NOTES - 1	
		SHEET NO. JA02	

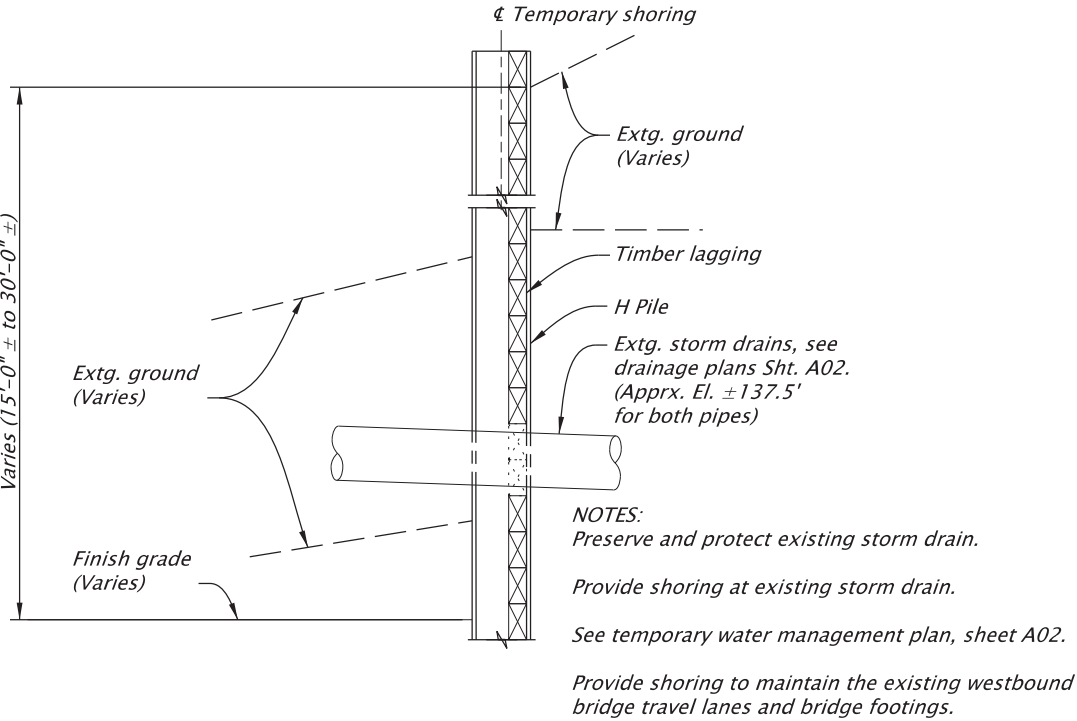


HYDRAULIC DATA			
ITEMS	(UNITS)	DESIGN FLOOD	MAX. PROBABLE FLOOD
DISCHARGE ¹	(cfs)	24.67	39.54
RECURRENCE INTERVAL	(yrs.)	100	500
H.W. ELEVATION AT UPSTREAM FACE OF BRIDGE	(ft.)	90.1	92.5
SCOUR ELEVATION ²	(ft.)	72.0	72.0
1 - Discharge is based on SBUH analysis.			
2 - ODOT minimum scour elev. 6ft. below thalweg. Area is a backwater zone of the Columbia River, with no significant scour risk due to negligible stream velocities.			

BRIDGE IDENTIFICATION MARKER TABLE	
Phone Number (Agency Dispatch Center)	503-283-5859
Route (RTE)	I-84
Highway No. (HWY)	002
Milepoint (MP)	63.41
Bridge No. (BR)	24318
Structure Name	Hwy 2WB over RR_MP63.41
(See dwg. no. BR195 for details.)	

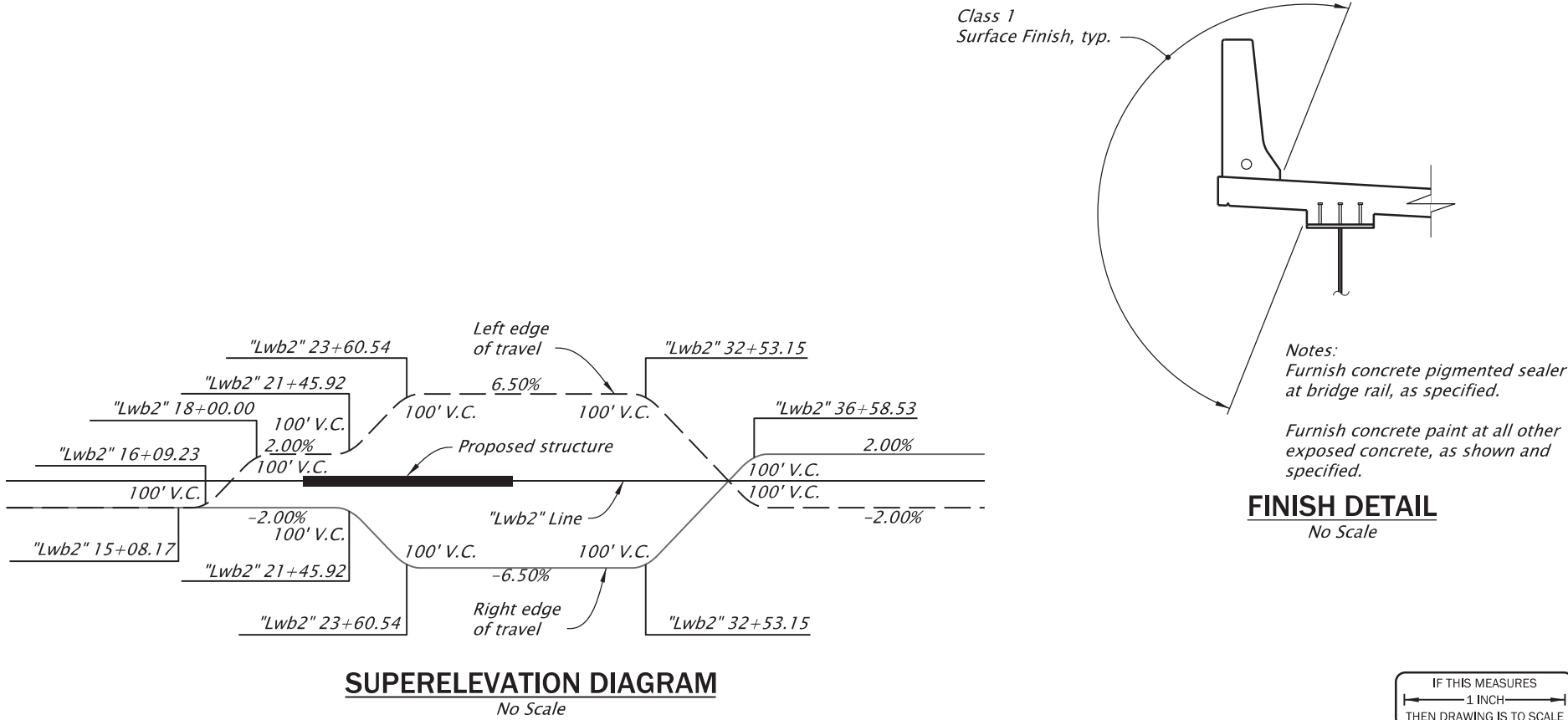
OREGON PERMIT LOADS FOR STATE OWNED BRIDGES

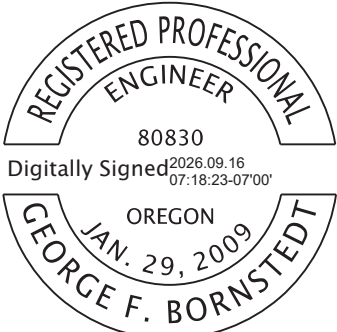
Note: Units are kips and Feet



PROPOSED TEMPORARY SHORING PIPE PROTECTION

No Scale



STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
BDS DWG NO. 114482				
CALC. BOOK 7841				
HWY: 002 M.P.: 63.41				
COUNTY Hood River				
DATE 08/2026	RENEW: 12-31-2027	Designer: George F. Bornstedt CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)	SHEET NO. JA03

RAILROAD NOTES

See Construction Notes on General Overhead Structure Drawing, this sheet.

See Minimum Construction Clearance Envelope on Temporary Clearance Envelope drawing, sheet JA05.

The permanent vertical and horizontal design clearances must be maintained in relation to the top-of-rail and centerline of existing and future tracks, respectively. Any reduction of these clearances is not permitted. Verify clearances throughout construction. A compliance report shall be submitted to the Railroad before project closing. All discrepancies shall be brought to the attention of the Railroad.

Verify the elevation of the existing top-of-rail profile before starting construction. Top-of-rail survey shall be performed for 1000 feet on either side of proposed overhead structure. Bring all discrepancies to the attention of the Railroad prior to construction.

Prior to construction, obtain Railroad approval of all relevant construction items, including but not limited to, shoring, track & ground monitoring, erection, demolition, and falsework.

Design and construct any shoring system that impacts the Railroad operations and/or supports the Railroad embankment per the UPRR-BNSF "Guidelines for Temporary Shoring". Submit to the Railroad detailed plans indicating the nature and extent of the proposed track protection shoring. Install the temporary shoring system per the approved plans.

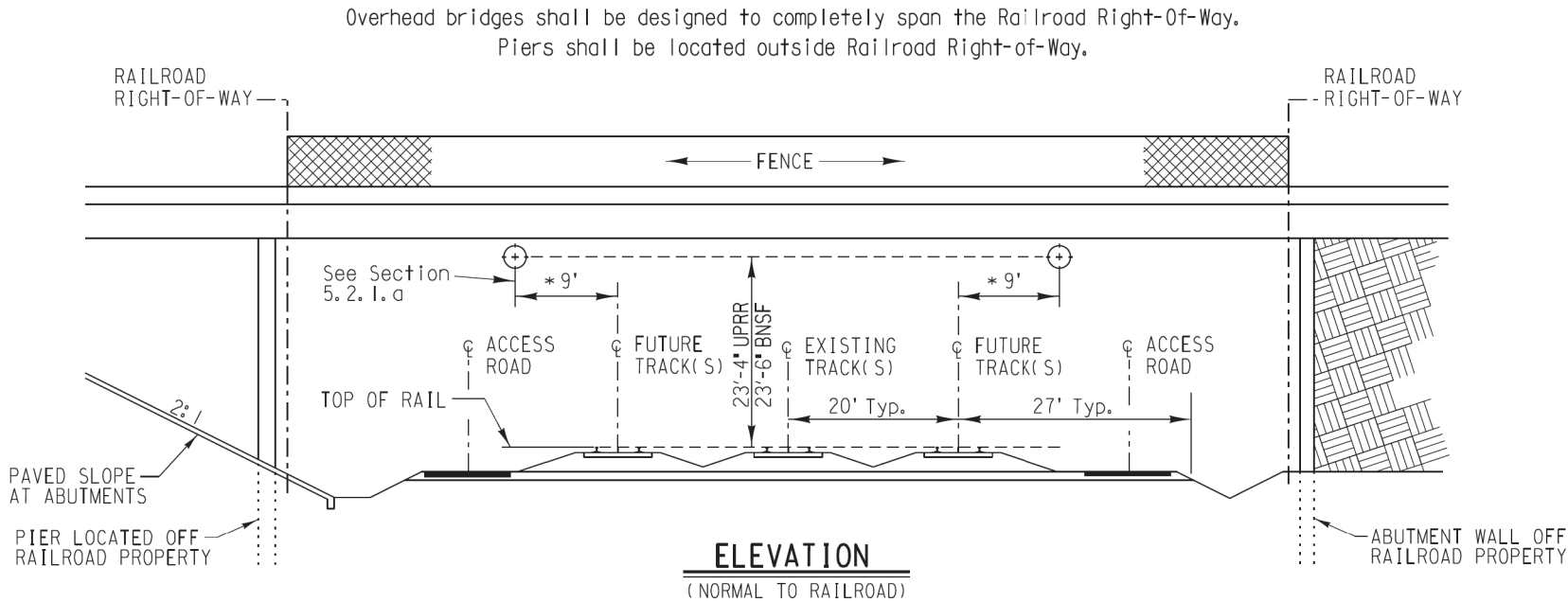
Construction activities must be performed within designated track windows. Coordinate all requests for construction work windows with the Railroad's Designated Representative to ensure that the work is scheduled to eliminate any potential disruption to the Railroad's operations.

When trains pass the work site, all work within 50 feet of track centerline shall cease with all equipment properly secured, and all personnel must clear the area within 25 feet of track centerline.

Comply with Railroad Call Before You Dig process before any excavation on Railroad right-of-way.

No crane movements under lifted loads will be allowed.

On Railroad right-of-way, remove existing substructure at least 3 feet below finished grade or at least 2 feet below base of rail whichever is lower, unless otherwise specified.



CONSTRUCTION NOTES:

- Any shoring system that impact the Railroad operations and/or supports Railroad embankment shall be designed and constructed per the Railroad temporary Shoring requirements.
- All demolition within the Railroad right-of-way and/or demolition that may impact the Railroad tracks or operations shall comply with the Railroad demolition requirements.
- Erection over the Railroad right-of-way shall be designed to cause no interruption to all Railroad operations.
- The elevation of the existing top-of-rail profile shall be verified before beginning construction. All discrepancies shall be brought to the attention of the Railroad prior to construction.
- The proposed grade separation project shall not change the quantity and/or characteristics of the flow in the Railroad ditches and/or drainage structures.
- The contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.
- For Railroad coordination please refer to the Railroad's Coordination Requirements as part of the Specifications or Special Provisions of the project.
- Temporary Construction Clearances, including falsework clearances, shall comply with Figure 1.
- All permanent clearances shall be verified before project closeout.

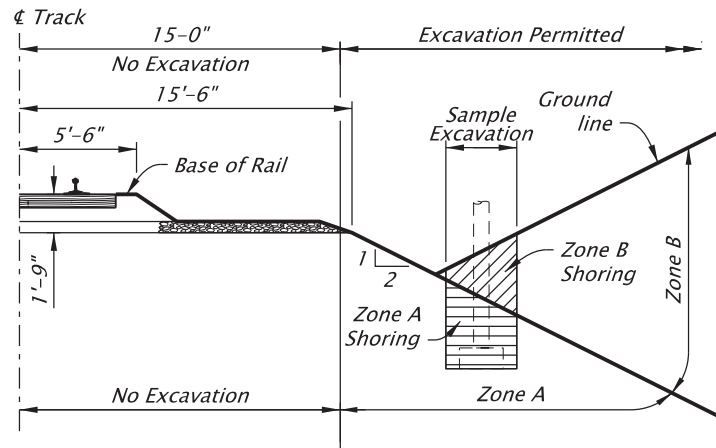
* See Section 5.2.1.a for Curved Track adjustments.

BRIDGE STANDARDS	
GRADE SEPARATION GUIDELINES	
GENERAL OVERHEAD STRUCTURE DRAWING	
DESIGN BY: RAF	CHECKED BY: AMH
APPROVED:	
UPRR - SENIOR MANAGER STRUCTURES DESIGN	
BNSF - ASSISTANT DIRECTOR STRUCTURES DESIGN	
FILE OWNER: UPRR	DATE: 1/05/16
PLAN NO.: 711100	SHEET: 1
PLOTTER: 5/12/2016 9:14:06 AM	

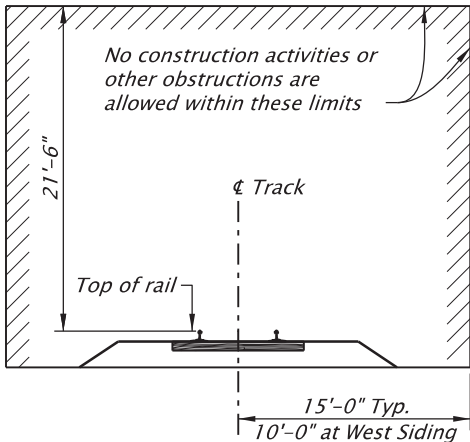
USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

For accompanied by drawings, see sht. JA01

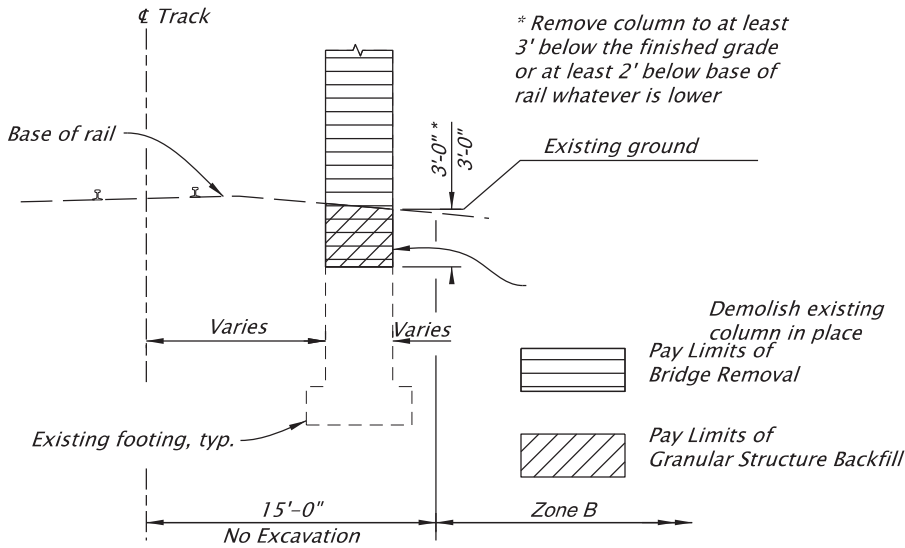
STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114483			
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: George F. Bornstedt CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
DATE 08/2026	RENEW: 12-31-2027	RAILROAD DETAILS - 1	



GENERAL EXCAVATION ZONES
No Scale



MINIMUM CONSTRUCTION
CLEARANCE ENVELOPE
(Normal to Railroad) UPRR Figure 1.
No Scale



EXISTING COLUMN REMOVAL DETAIL
No Scale

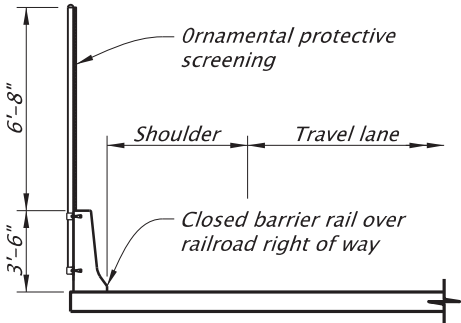
Notes:
All dimensions are measured perpendicular to CL Track.

For excavations which encroach into Zone A or B, provide plans and calculations signed and stamped by a Professional Engineer registered in Oregon.

Zone A
Design shoring for Railroad live load surcharge and OSHA standard loads. No sloping cuts are allowed.

Zone B
Design shoring for OSHA standard loads. Sloping cuts are allowed.

Detail derived from UPRR-BNSF "Guidelines for Temporary Shoring".



TYPICAL RAIL SECTION
No Scale

TOP OF HIGHEST RAIL ELEVATIONS		
STATION	LT. Rail	RT. Rail
1213+00.00	102.61	102.67
1214+00.00	102.49	102.55
1215+00.00	102.48	102.54
1216+00.00	102.32	102.30
1217+00.00	102.35	102.33
1218+00.00	102.35	102.28
1219+00.00	102.42	102.31
1220+00.00	102.32	102.25
1221+00.00	102.20	102.10
1222+00.00	101.87	101.83
1223+00.00	101.84	101.76
1224+00.00	101.68	101.65
1225+00.00	101.45	101.44
1226+00.00	101.33	101.29
1227+00.00	101.16	101.20
1228+00.00	101.03	101.20
1229+00.00	101.12	101.30
1230+00.00	101.03	101.24
1231+00.00	100.87	101.10
1232+00.00	100.80	100.96
1233+00.00	100.75	100.85

NOTE:
Elevations shown are for the highest rail (left track).
Stations are measured from the intersection of the Mainline and Rail CL.

CONCEPTUAL REMOVAL SEQUENCE

Field verify all existing elevations and dimensions.

Remove existing pier wall to 12" below ground line.

Rubble remaining concrete in place to the depth specified. Remove concrete and backfill with Granular Structural Backfill within the same shift.

Perform demolition during track time and in manner that maintains minimum operating clearances.

Existing Bent 4a left shown, remove and backfill other bents in a similar manner.

Design removal of existing footings so that all demolition activities and phasing will not compromise safety nor impact Railroad operations.

Railroad review and approval of a detailed work plan for removal of the existing bridge structure is required prior to commencement of work.

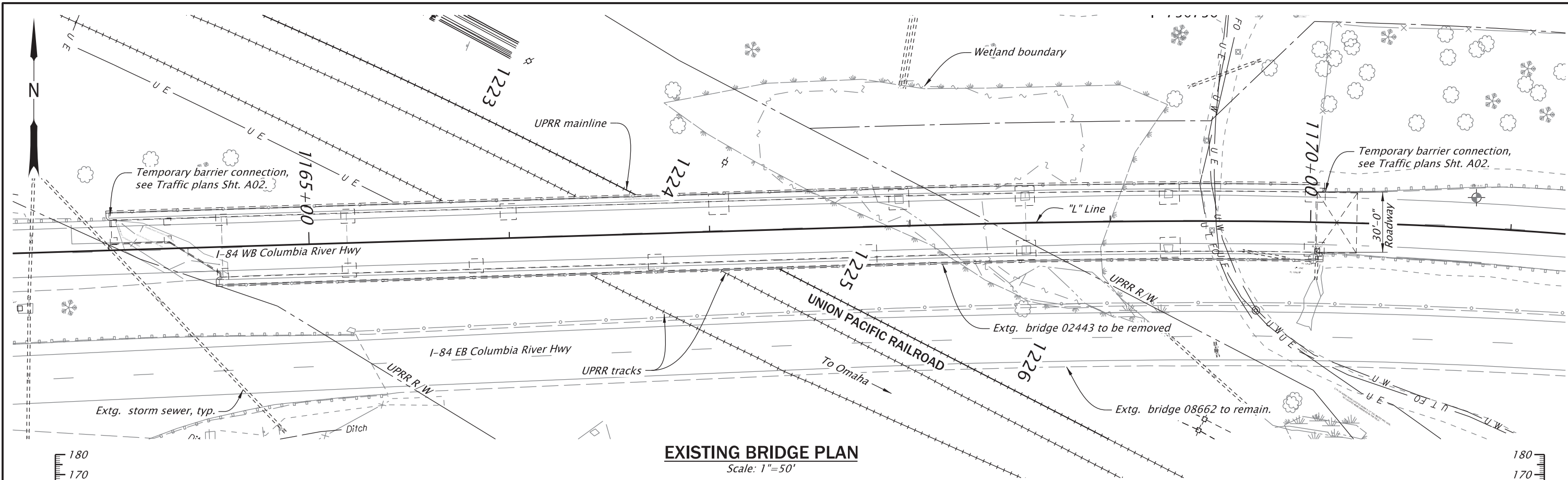
For additional details, see sht. JA06.

For accompanied by drawings, see sht. JA01

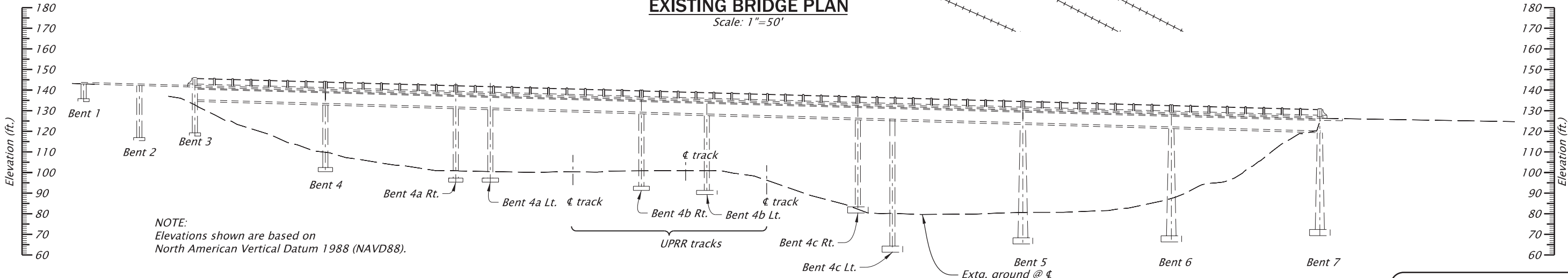
STRUCTURE NO.	24318
BDS DWG NO.	114484
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

REGISTERED PROFESSIONAL
ENGINEER
80830
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OREGON
JAN. 29, 2009
GEORGE F. BORNSTEDT
RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
RAILROAD DETAILS - 2	
SHEET NO. JA05	



EXISTING BRIDGE PLAN
Scale: 1"=50'



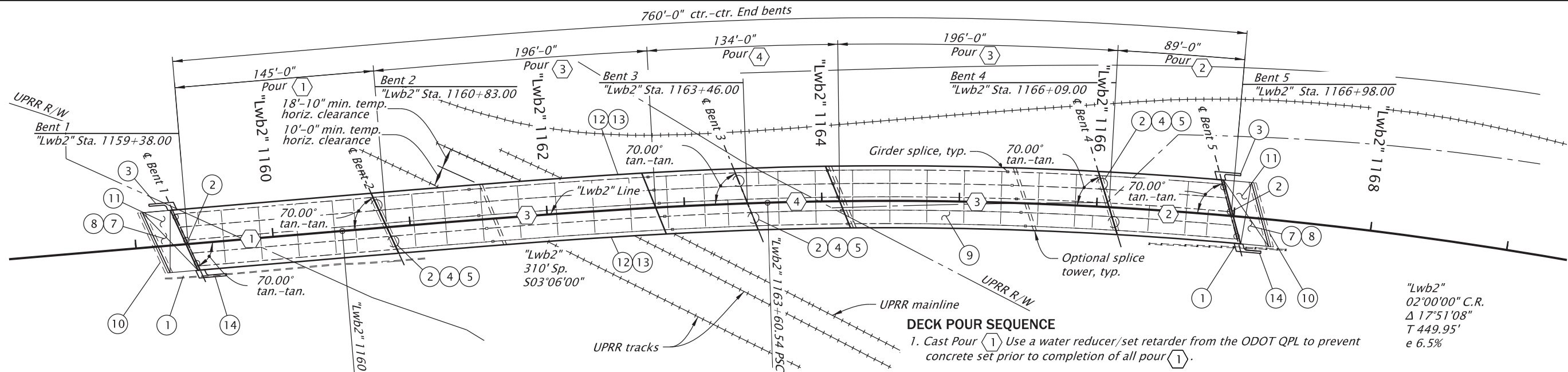
EXISTING BRIDGE ELEVATION
Scale: 1"=50'

REMOVAL NOTES:

- Remove existing bridge after traffic is on the new bridge as shown or directed.
- Maintain UPRR Minimum Construction Clearance Envelope , see Sht. JA05.
- Provide Temporary Work Access and Containment for Bridge Removal, as shown and specified.
- Remove existing columns, except columns in railroad ballast, 3'-0" below finish grade surface, typ.
- Remove columns in railroad ballast 3'-0" below finish grade as shown on Sht. JA05.
- For grading after bridge removal, see Roadway Construction Sht. A02.
- For site restoration, see Sht. A02.

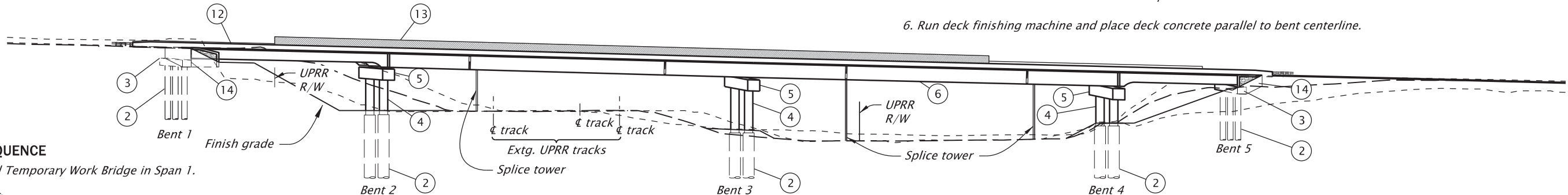
USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

STRUCTURE NO. 02443 & 24318	 RENEW: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114485				
CALC. BOOK 7841		I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
COUNTY Hood River		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess	
DATE 08/2026		CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
		BRIDGE REMOVAL PLAN		SHEET NO. JA06



DECK POUR SEQUENCE
Scale: 1"=80'

- DECK POUR SEQUENCE**
1. Cast Pour 1 Use a water reducer/set retarder from the ODOT QPL to prevent concrete set prior to completion of all pour 1.
 2. Cast Pour 2 Use a water reducer/set retarder from the ODOT QPL to prevent concrete set prior to completion of all pour 2.
 3. Cast Pours 3. Pours 1, 2, and 3 may be cast simultaneously or separately as desired by the Contractor. Use a water reducer/set retarder from the ODOT QPL to prevent concrete set prior to completion of all pours 3.
 4. After a minimum of 3 days after the completion of Pour 3, and concrete has reached 70% full strength, Cast Pour 4.
 5. Pour deck concrete full deck width in each pour.
 6. Run deck finishing machine and place deck concrete parallel to bent centerline.



CONSTRUCTION SEQUENCE

- 1 Install Shoring and Temporary Work Bridge in Span 1.
- 2 Install Drilled Shafts.
- 3 Construct Bent 1 & 5 Caps and Wingwalls A & C.
- 4 Construct Columns.
- 5 Construct Bent 2-4 Caps.
- 6 Erect Girders.
- 7 Backfill Bents 1 & 5 and cast CLSM and construct temporary retaining walls.
- 8 Cast Backwall (after CLSM at Bents 1 & 5).
- 9 Cast Bridge Deck.
- 10 Construct Sleeper Slabs.
- 11 Construct Bridge Approach Slabs.
- 12 Construct Bridge Rail.
- 13 Install Ornamental Protective Screening.
- 14 Construct Wingwalls B & D (Stage IV) and backfill after cure.

CONSTRUCTION SEQUENCE
Scale: 1"=80'

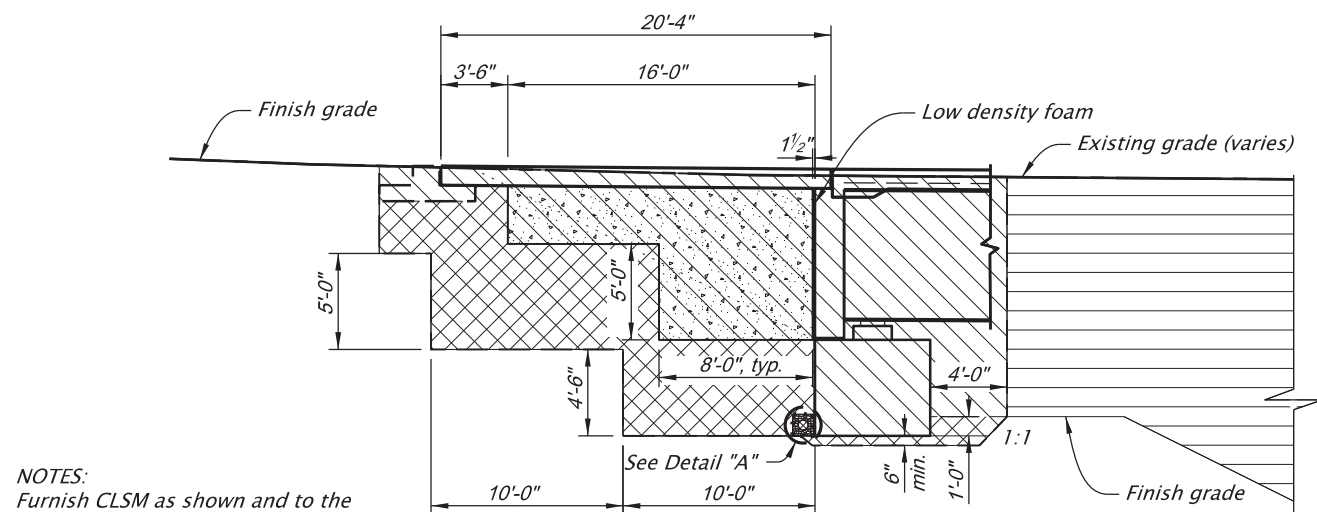
USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

Replaces structure number 02443.

STRUCTURE NO.	24318
BDS DWG NO.	114486
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

REGISTERED PROFESSIONAL ENGINEER
80830
Digitally Signed 2026.09.16 07:20:30-07'00"
OREGON
JAN. 29, 2009
GEORGE F. BORNSTEDT
RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
CONSTRUCTION SEQUENCE	
SHEET NO. JA07	



NOTES:
Furnish CLSM as shown and to the transverse limits of the Backwall parallel to the Bridge Approach Slab edges.

Furnish low density polyethylene foam or approved equal foam and Cast Backwall against CLSM in approach fills, as shown.

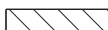
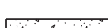
Backfill Wingwalls in equal 2'-0" max. lifts each face.

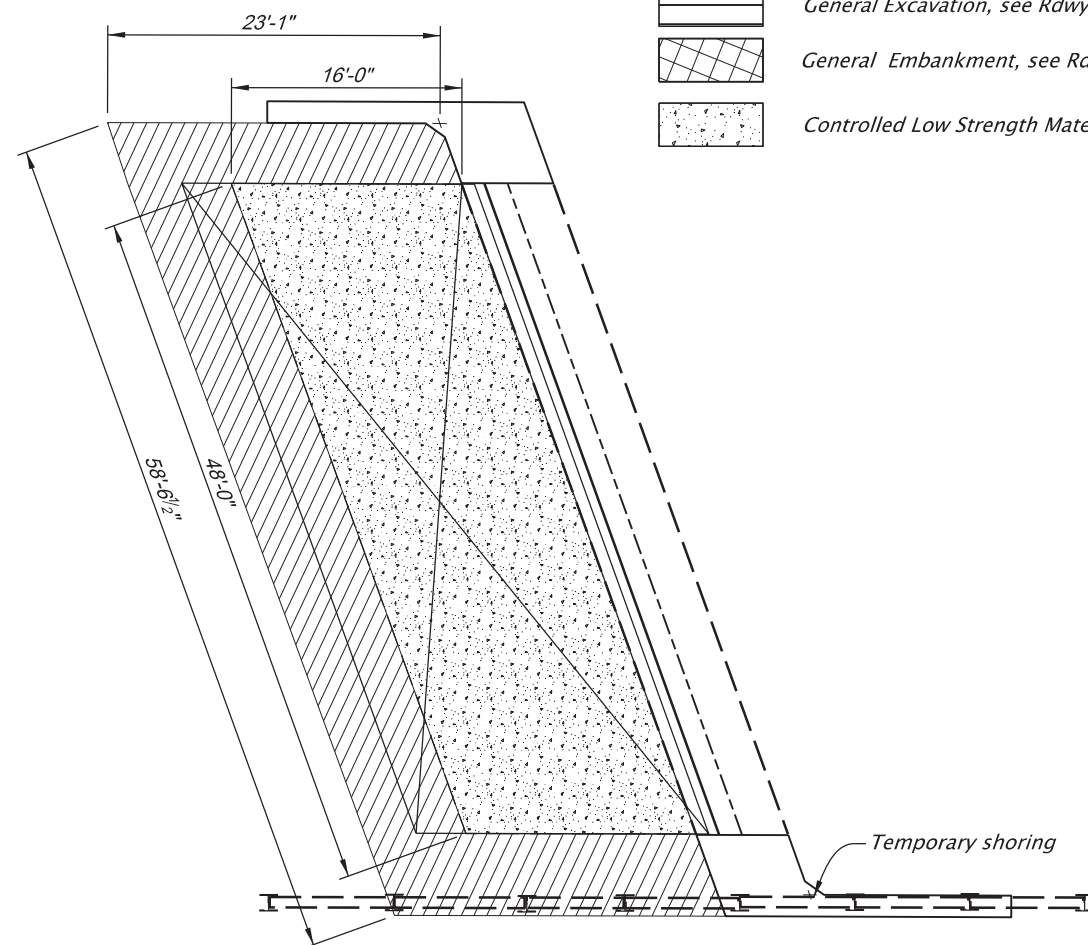
*Stop drain pipe at outside face of wingwalls
and wrap textile over end of pipe.*

STRUCTURE EXCAVATION & BACKFILL

(Parallel to "Lwb2" Line)

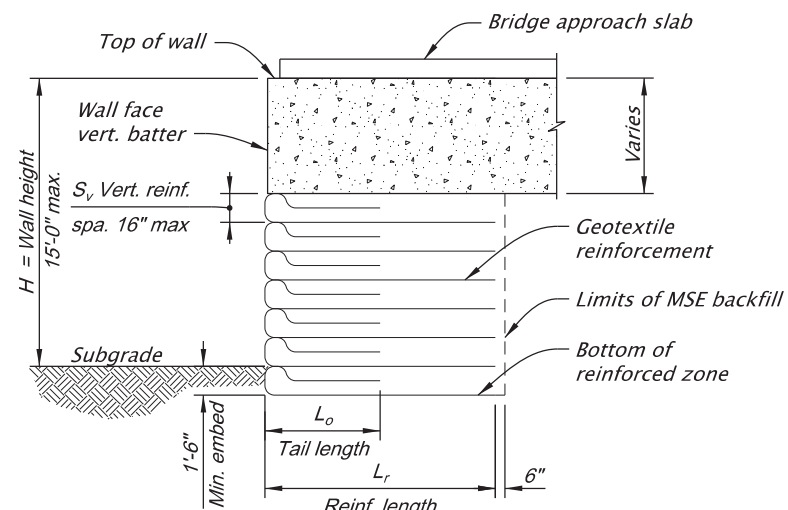
LEGEND

- | | |
|---|---|
|  | <i>Structure Excavation</i> |
|  | <i>Granular Structure Backfill</i> |
|  | <i>General Excavation, see Rdwy Plans sheet A02</i> |
|  | <i>General Embankment, see Rdwy Plans sheet A02</i> |
|  | <i>Controlled Low Strength Material (CLSM)</i> |



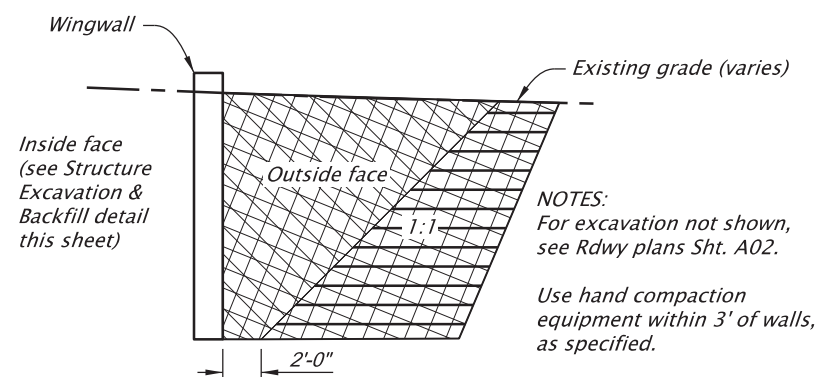
BRIDGE APPROACH BACKFILL PLAN

(Parallel to "Lwb2" Line)
(Bent 1 shown, Bent 5 similar.)



TEMPORARY GEOTEXTILE-REINFORCED MSE WALL

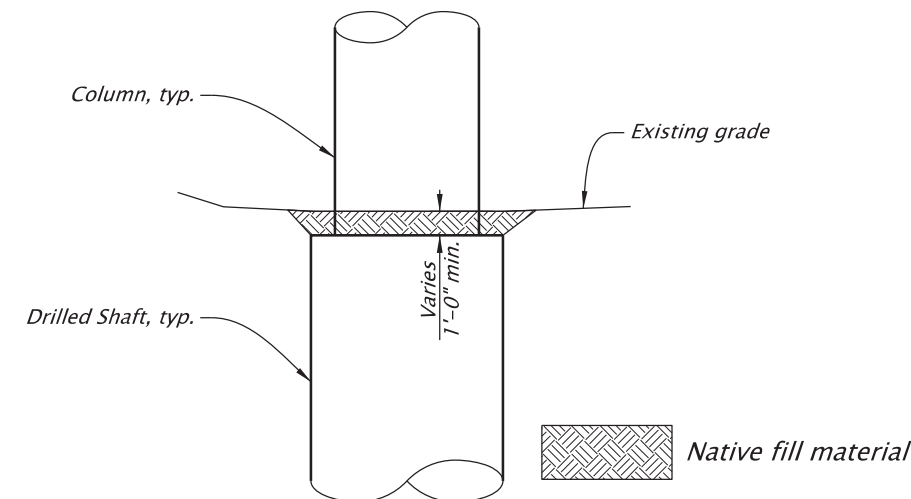
No Scale



WINGWALL STRUCTURE EXCAVATION & BACKFILL

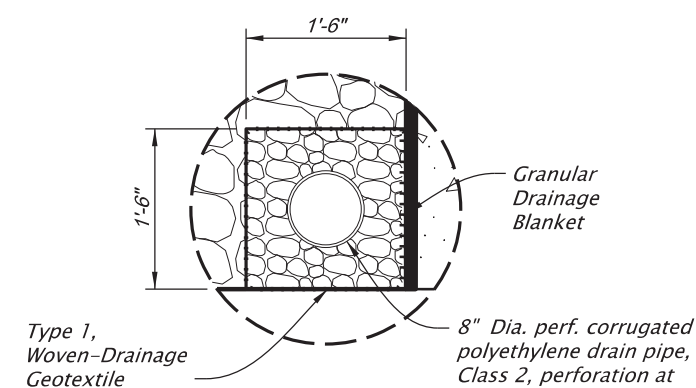
NOTES:
For excavation not shown,
see Rdwy plans Sht. A02.

Use hand compaction equipment within 3' of walls, as specified.



GRADING AT DRILLED SHAFTS

No Scale

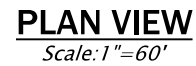


DETAIL "A"

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318			
BDS DWG NO. 114487		OREGON DEPARTMENT OF TRANSPORTATION	
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
DATE 08/2026		CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
RENEWS: 12-31-2027	EXCAVATION AND BACKFILL LIMITS & MISCELLANEOUS DETAILS		SHEET NO. JA08



	<i>Asphalt (variable thickness).</i>
	<i>SAND, Silty SAND with some clay and gravel to Silty sandy GRAVEL with some clay, SP, SM to GM; brown, non-plastic to medium plasticity, damp to wet, loose to medium dense (Embankment Fill)</i>
	<i>SAND to SAND with some silt, SP to SP-SM; gray-brown, non-plastic, damp to wet, loose to dense, fine to medium sand (Dredge Sand Fill)</i>

	<i>Sandy SILT with gravel, ML; red-brown, non-plastic to low plasticity, moist, dicey, very dense (Valley-Filling Outwash Gravel)</i>
	<i>SILT to sandy SILT to sandy CLAY, ML, MH, CL; brown to dark gray, low to medium plasticity, wet, soft to stiff, scattered organics and wood debris (Fine-Grained Alluvium)</i>
	<i>Silty SAND to clayey SAND, with some gravel to silty GRAVEL with some sand, SM, SC, GM; dark gray to brown, non-plastic to medium plasticity, wet, very loose to very dense (Coarse-Grained Alluvium)</i>

Silty SAND to clayey SAND with some gravel to sandy GRAVEL with some silt, SM, SC, GP-GM; brown and gray, low to medium plasticity, moist, very dense (Colluvium)

Sandy GRAVEL with trace clay to silty sandy GRAVEL to clayey SAND, GP, GM, SC; brown and gray, low to medium plasticity, moist, sub-rounded to sub-angular, very dense (Valley-Filling Outwash Gravel)

EXPLORATION NO.	STATION	OFFSET	DATA SHEET
<i>CPT21683-02</i>	<i>1166+56.3</i>	<i>71.3 Lt.</i>	<i>JB57</i>
<i>CPT21683-04</i>	<i>1166+22.1</i>	<i>63.9 Rt.</i>	<i>JB56</i>
<i>CPT21683-07</i>	<i>1166+14.7</i>	<i>18.9' Lt.</i>	<i>JB56</i>
<i>SB21683-01</i>	<i>1159+51.9</i>	<i>5.1 Lt.</i>	<i>JB02</i>
<i>SB21683-02</i>	<i>1159+76.1</i>	<i>12.1 Rt.</i>	<i>JB02</i>
<i>SB21683-03</i>	<i>1166+19.0</i>	<i>38.1 Lt.</i>	<i>JB56</i>
<i>SB21683-04</i>	<i>1166+11.1</i>	<i>51.4 Rt.</i>	<i>JB56</i>
<i>TB21683-03</i>	<i>1160+80.1</i>	<i>23.5 Lt.</i>	<i>JB02</i>
<i>TB21683-04</i>	<i>1160+99.5</i>	<i>16.1 Rt.</i>	<i>JB02</i>
<i>TB21683-05</i>	<i>1163+40.9</i>	<i>9.0 Lt.</i>	<i>JB03</i>
<i>TB21683-06</i>	<i>1163+54.9</i>	<i>1.7 Lt.</i>	<i>JB03</i>
<i>TB21683-08</i>	<i>1165+68.6</i>	<i>13.8 Lt.</i>	<i>JB03, JB56</i>
<i>TB21683-11</i>	<i>1166+06.0</i>	<i>6.6 Rt.</i>	<i>JB03, JB56</i>
<i>TB21683-12</i>	<i>1166+20.3</i>	<i>80.5 Rt.</i>	<i>JB56</i>
<i>TB21683-13</i>	<i>1166+64.7</i>	<i>73.4 Lt.</i>	<i>JB03, JB57</i>
<i>TB21683-15</i>	<i>1167+06.8</i>	<i>13.9 Rt.</i>	<i>JB03, JB57</i>
<i>TB21683-23</i>	<i>1167+43.1</i>	<i>24.5 Rt.</i>	<i>JB03, JB57</i>
<i>TB21683-26</i>	<i>1162+14.5</i>	<i>62.2 Rt.</i>	<i>Geotechnical Report</i>

1. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. More detailed subsurface data is available on the drill logs in the Geotechnical report, which is available from the Engineer.

5-foot elevation contour interval, based on North American Vertical Datum (1988).

For subsurface exploration data, see shts. JB02 & JB03.

Ground improvement limits shown are approximate,
for more details see shts. JB51 – JB54.

RENEWS: 01-01-2027



COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: JEFF JONES

Reviewer: SCOTT D. BILLINGS

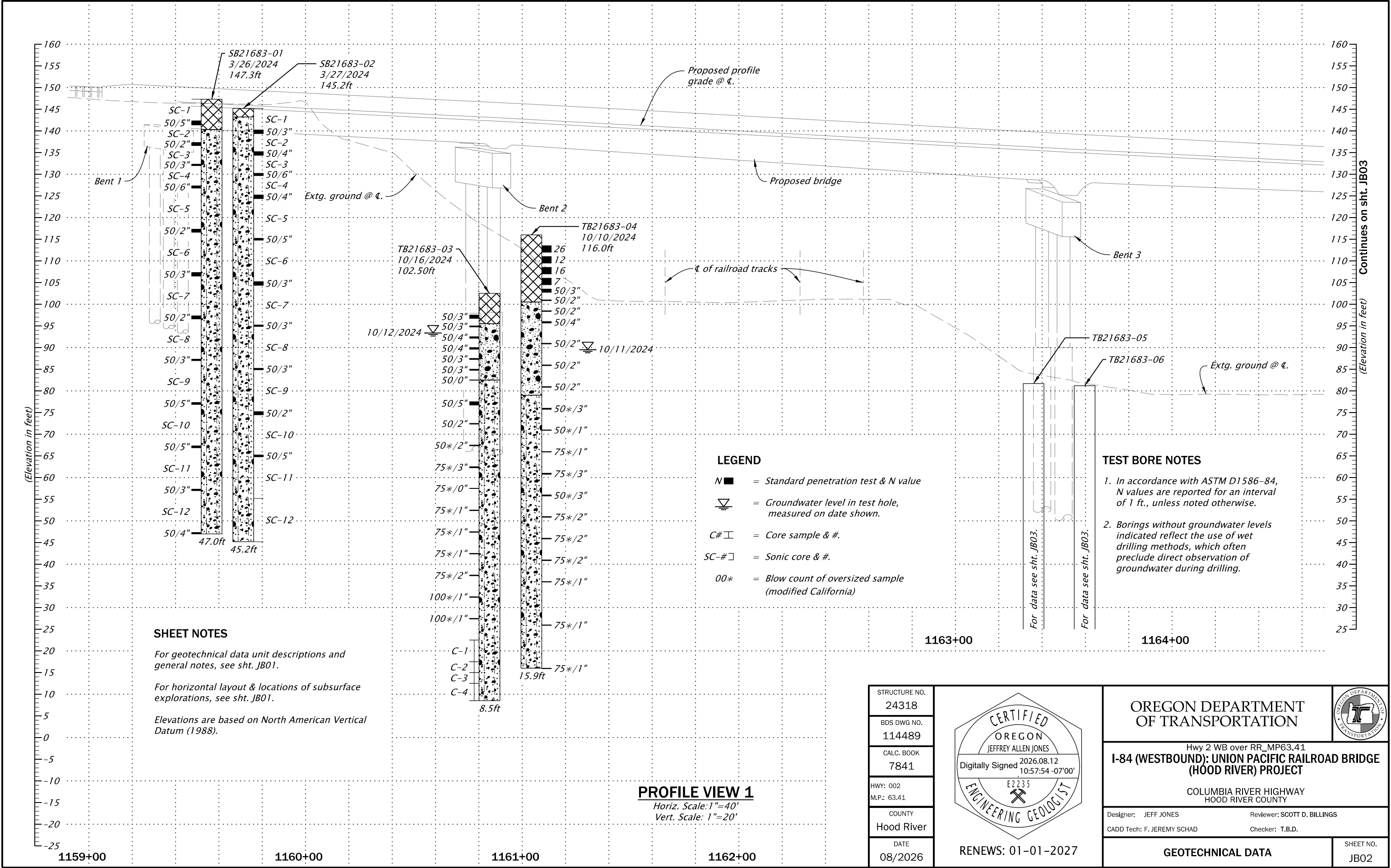
CADD Tech: F. JEREMY SCHAD

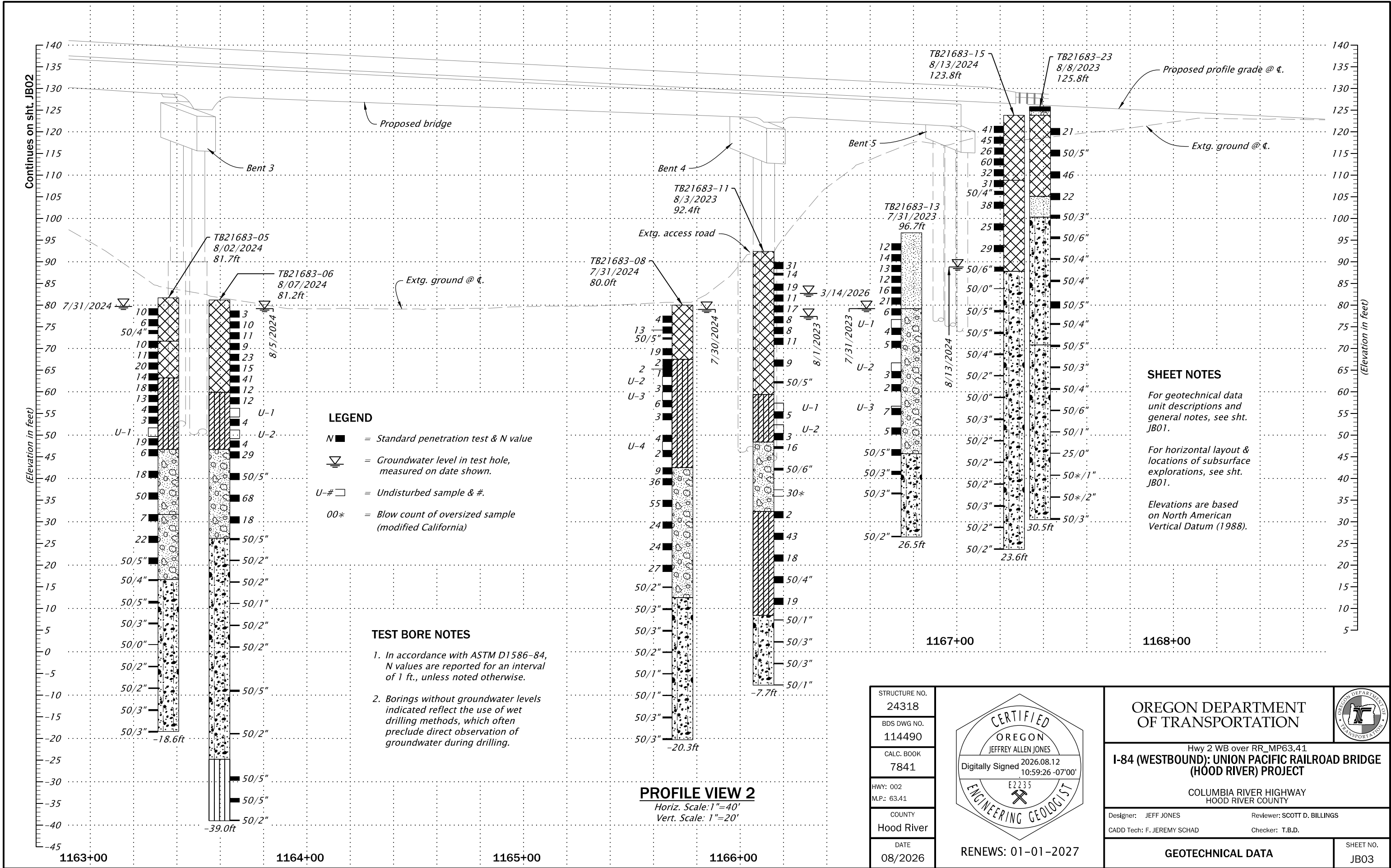
Checker: T.B.D.

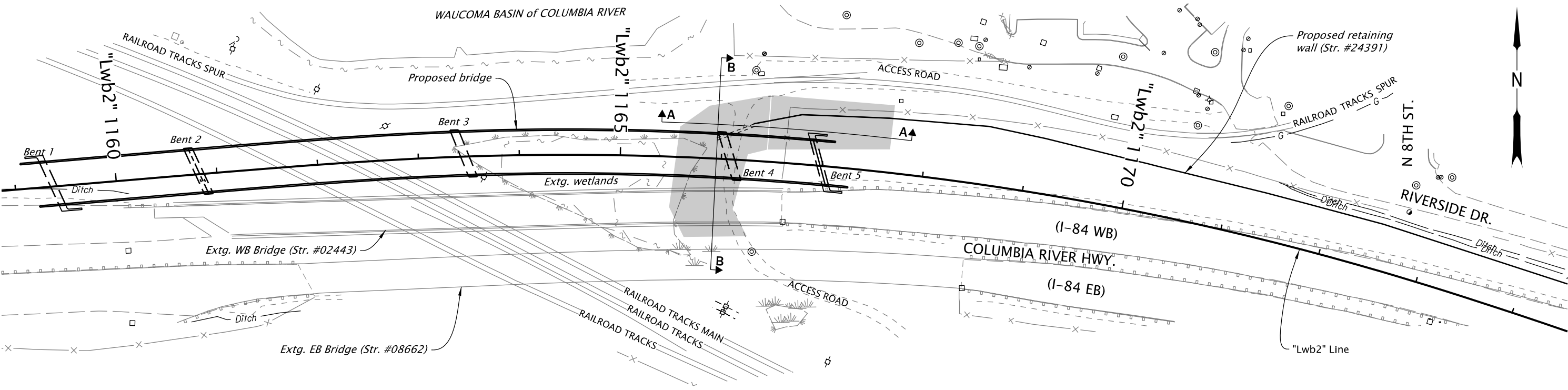
GEOTECHNICAL DATA

SHEET NO.

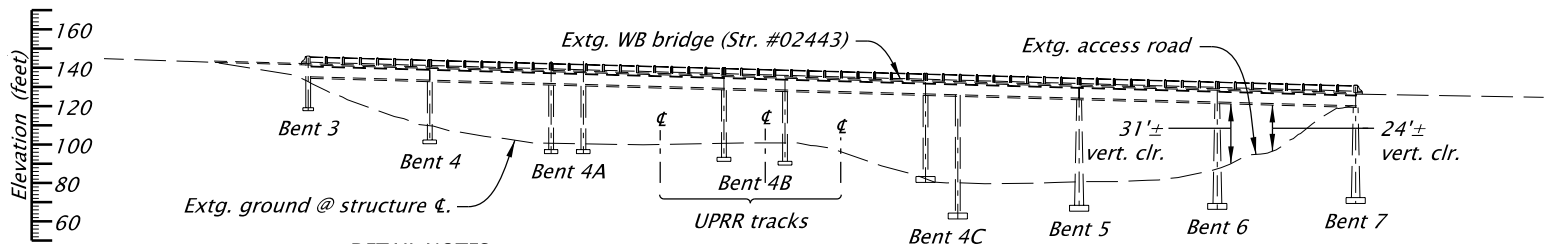
301







GROUND IMPROVEMENT LAYOUT
Scale: 1"=100'



DETAIL NOTES:

- Clearance dimensions shown reference approximate clearance between existing grade and bottom of existing bridge girders in ISM area.
- Contractor to field verify overhead clearance dimensions within ISM construction area.
- Elevations shown are based on North American Vertical Datum 1988 (NAVD88).

OVERHEAD CLEARANCE DATA
Scale: 1"=100'

GENERAL GROUND IMPROVEMENT NOTES:

1. Improved soil mass (ISM) is formed by cellular arrangement of overlapping soil-cement columns.
2. Soil-cement columns are created by jet grouting techniques.
3. See Special Provision Section 00345 for required soil-cement column design parameters.

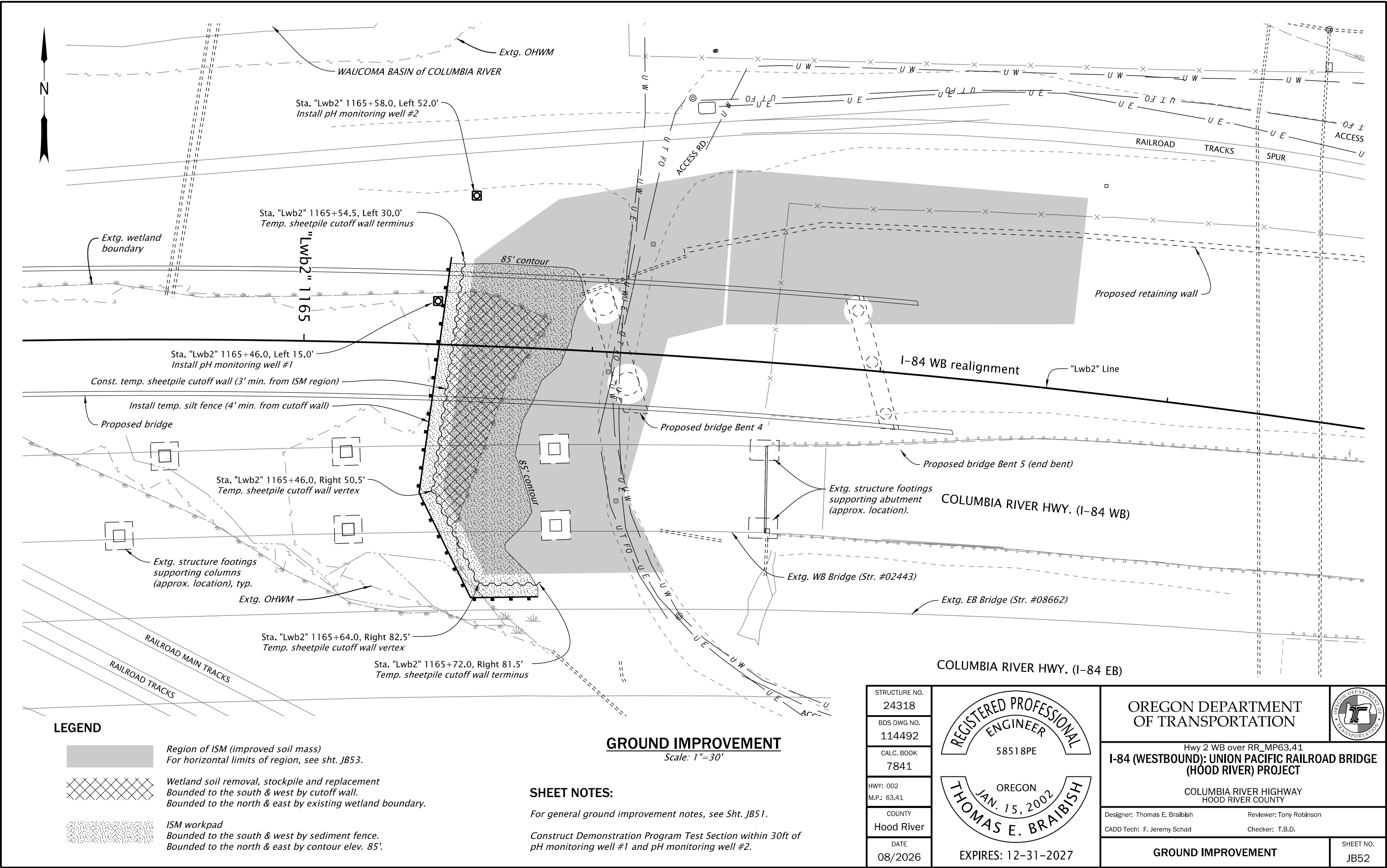
LEGEND

Region of ISM (improved soil mass)

SHEET NOTES:

- For horizontal and vertical limits of ISM region, see sht. JB53.
- For Section A-A and Section B-B views, see sht. JB53.
- Temporary work not shown. For details, shts. JB52 & JB54.
- For geotechnical data, see shts. JB55 - JB57.

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114491		Hwy 2 WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: Thomas E. Braibish CADD Tech: F. Jeremy Schad	Reviewer: Tony Robinson Checker: T.B.D.
COUNTY Hood River	EXPIRES: 12-31-2027		SHEET NO. JB51
DATE 08/2026	GROUND IMPROVEMENT		



LEGEND

Region of ISM (improved soil mass)
For horizontal limits of region, see sht. JB53.

Wetland soil removal, stockpile and replacement
Bounded to the south & west by cutoff wall.
Bounded to the north & east by existing wetland boundary.

ISM workpad
Bounded to the south & west by sediment fence.
Bounded to the north & east by contour elev. 85'.

GROUND IMPROVEMENT
Scale: 1"=30'

SHEET NOTES:

For general ground improvement notes, see Sht. JB51.

Construct Demonstration Program Test Section within 30ft of pH monitoring well #1 and pH monitoring well #2.

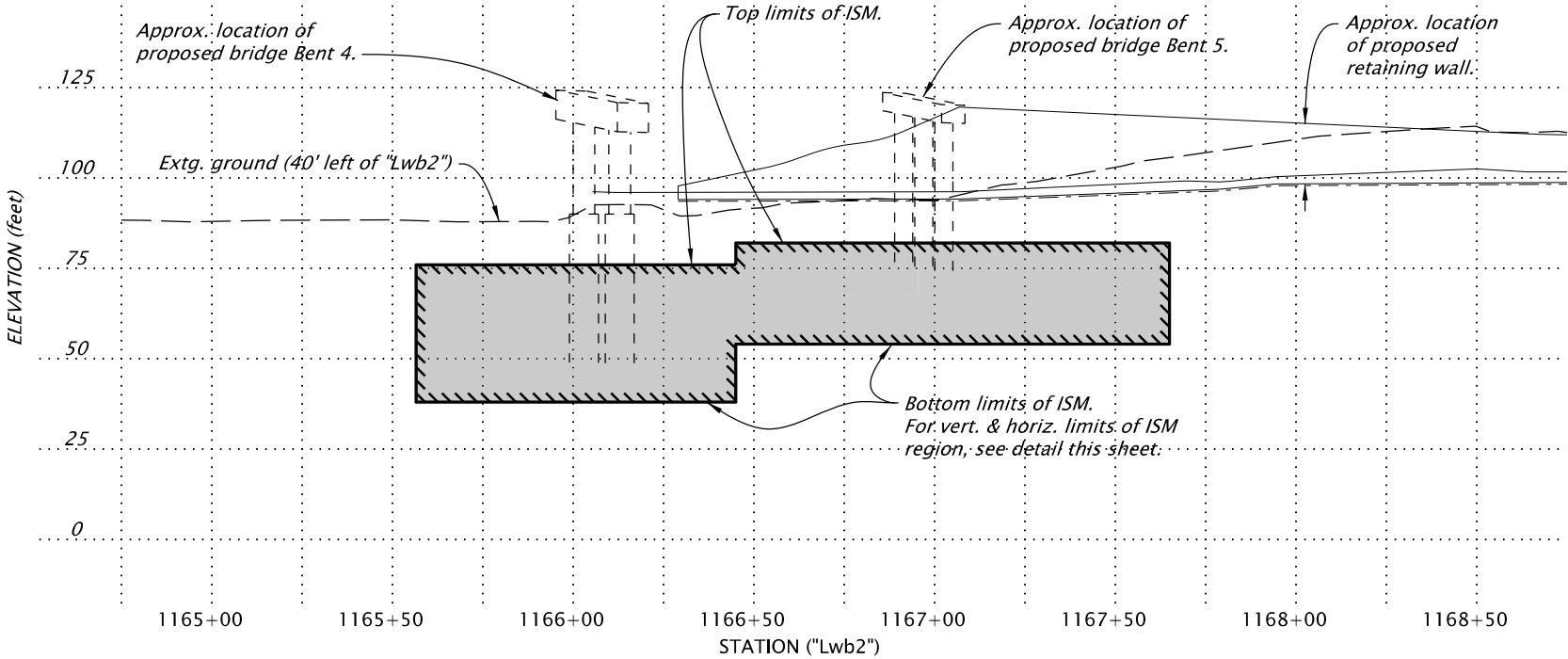
STRUCTURE NO.	24318
BDS DWG NO.	114492
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

REGISTERED PROFESSIONAL ENGINEER
58518PE

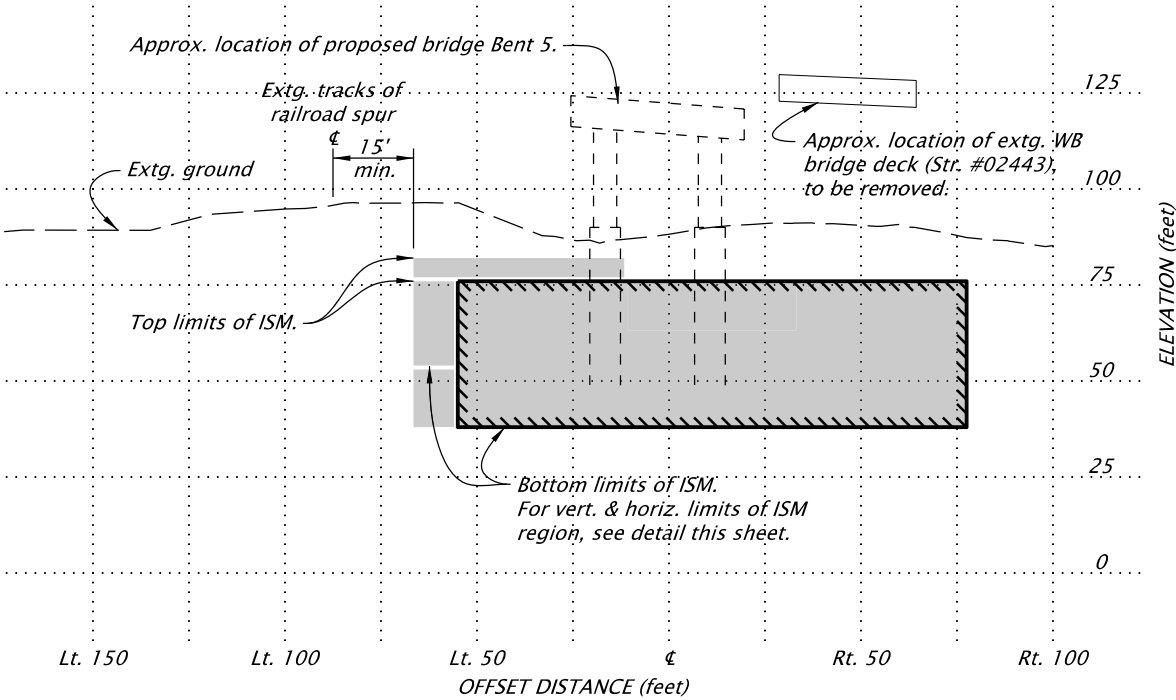
THOMAS E. BRAIBISH
JAN. 15, 2002
OREGON

EXPIRES: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2 WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Thomas E. Braibish	Reviewer: Tony Robinson
CADD Tech: F. Jeremy Schad	Checker: T.B.D.
GROUND IMPROVEMENT	
SHEET NO. JB52	



SECTION A-A (offset 40' left of "Lwb2" Line)
ISM CROSS SECTION
Scale: 1"=50'



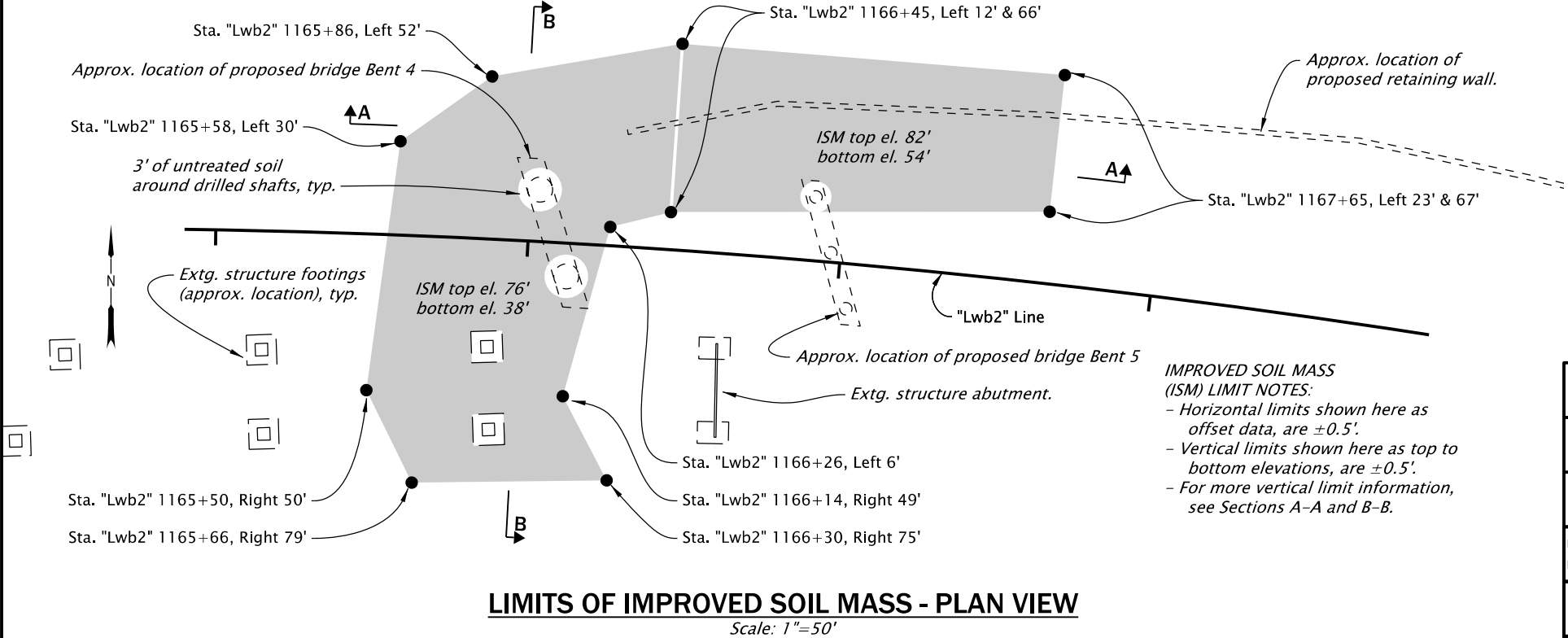
SECTION B-B (@ Sta. "Lwb2" 1166+00)
ISM CROSS SECTION
Scale: 1"=50'

LEGEND

-  Region of ISM (improved soil mass)
-  Region of ISM (improved soil mass) at section cut

SHEET NOTES:

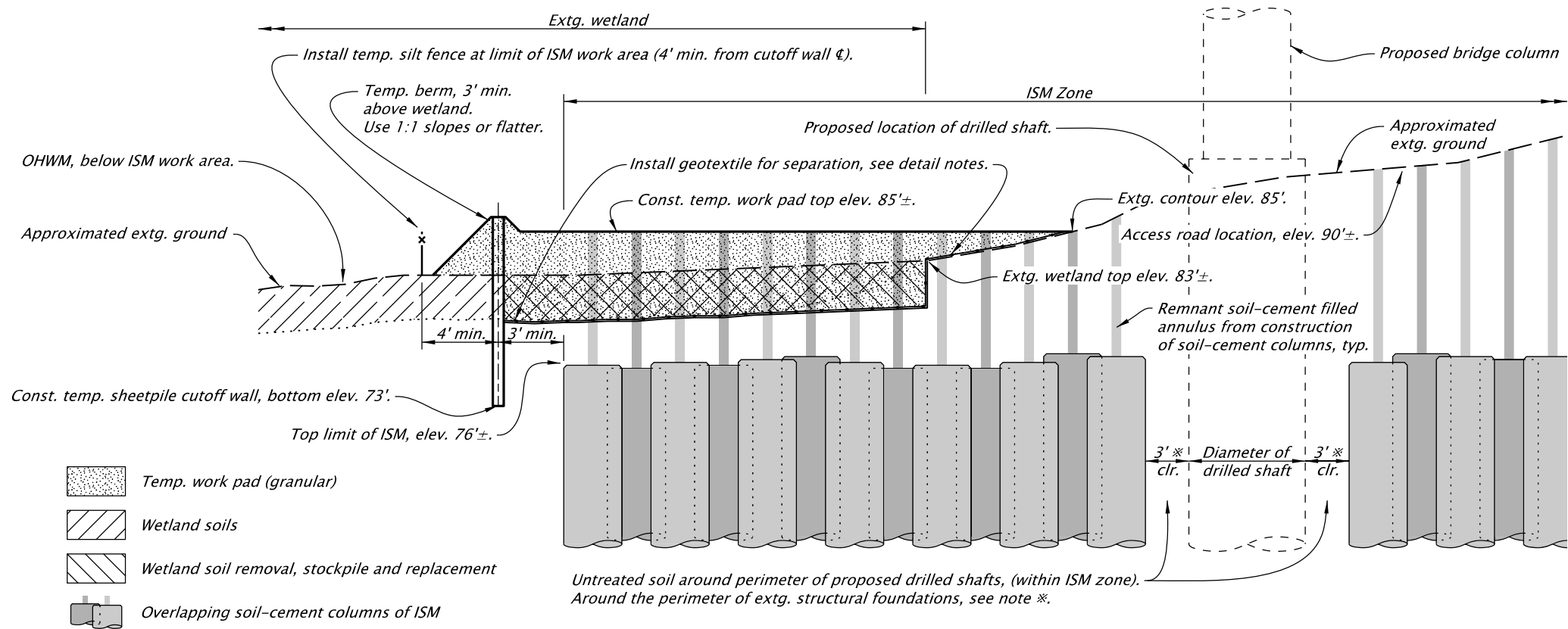
For general ground improvement notes, see Sht. JB51.
Temporary work not shown. For details, shts. JB52 & JB54.



LIMITS OF IMPROVED SOIL MASS - PLAN VIEW
Scale: 1"=50'

IMPROVED SOIL MASS (ISM) LIMIT NOTES:
- Horizontal limits shown here as offset data, are $\pm 0.5'$.
- Vertical limits shown here as top to bottom elevations, are $\pm 0.5'$.
- For more vertical limit information, see Sections A-A and B-B.

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114493		Hwy 2 WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: Thomas E. Braibish CADD Tech: F. Jeremy Schad	Reviewer: Tony Robinson Checker: T.B.D.
COUNTY Hood River	EXPIRES: 12-31-2027		SHEET NO. JB53
DATE 08/2026	FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST		

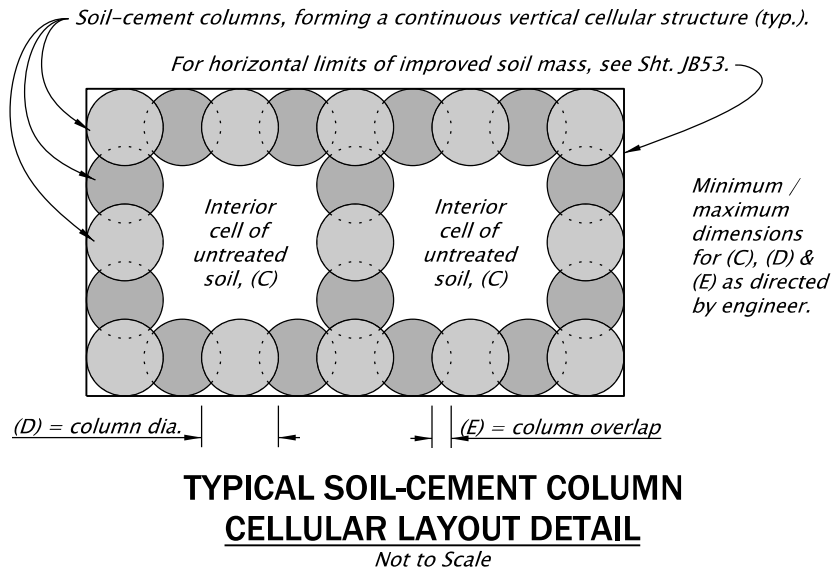


TEMPORARY SHEETPILE CUTOFF WALL NOTES:
1. Provide sheetpile wall (PZ-27 or approved equal) as shown in and as per Sht. JB52.
2. Fill equally on both sides of cutoff wall in 1ft. lifts.

DETAIL NOTES:
Use Type 2 woven riprap geotextile for separation directly under work pad, up to cutoff wall.
* Clearance distance around the perimeter of extg. structural foundations is unnecessary.

ISM WORK PAD AND FOUNDATION CLEARANCE

Not to scale

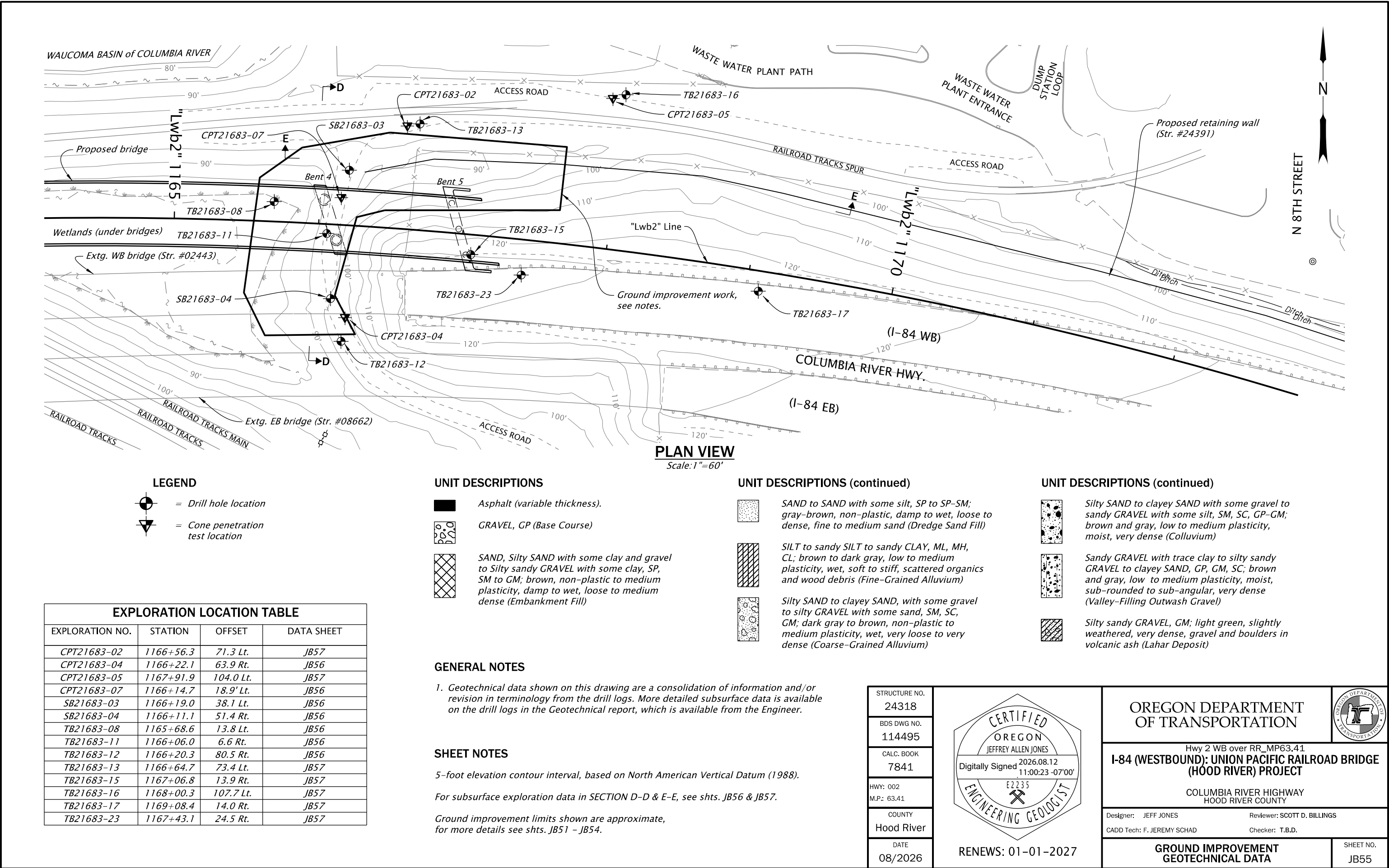


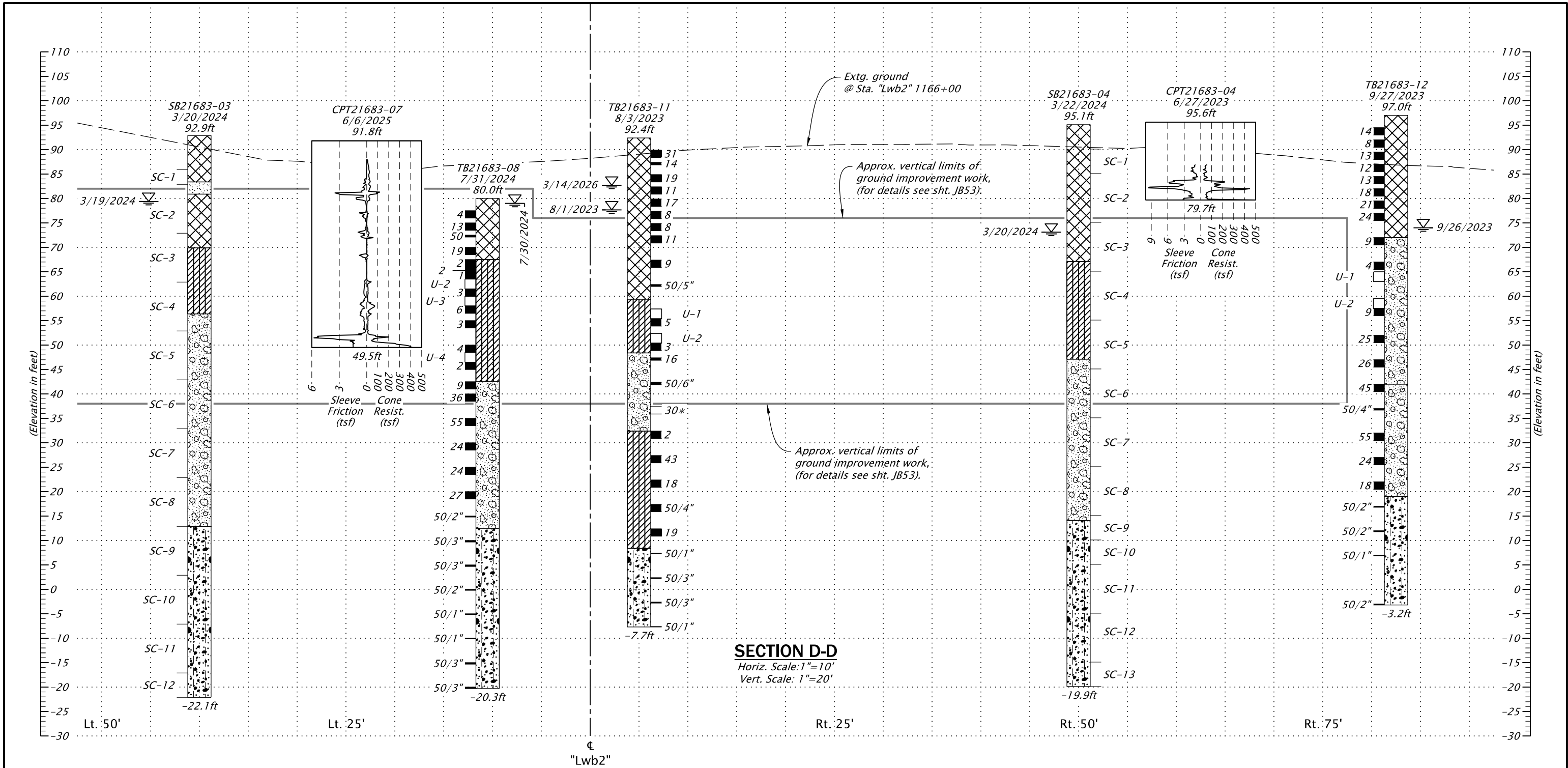
SHEET NOTES:

For general ground improvement notes, see Sht. JB51.

For horizontal and vertical limits of ISM region, see sht. JB53.

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 58518PE OREGON JAN. 15, 2002 THOMAS E. BRAIBISH EXPIRES: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION		OREGON DEPARTMENT OF TRANSPORTATION
BDS DWG NO. 114494		Hwy 2 WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Thomas E. Braibish	Reviewer: Tony Robinson	
COUNTY Hood River		CADD Tech: F. Jeremy Schadt	Checker: T.B.D.	
DATE 08/2026	GROUND IMPROVEMENT DETAILS		SHEET NO. JB54	





SHEET NOTES

Elevations are based on North American Vertical Datum (1988).

For geotechnical data unit descriptions and general notes, see sht. JB55.

For horizontal layout & locations of subsurface explorations, see sht. JB55.

TEST BORE NOTES

- In accordance with ASTM D1586-84, N values are reported for an interval of 1 ft., unless noted otherwise.
- Borings without groundwater levels indicated reflect the use of wet drilling methods, which often preclude direct observation of groundwater during drilling.
- Near-surface data gaps shown on the Cone Penetration Testing (CPT) logs reflect pre-drilling performed to penetrate gravelly soils prior to commencing the CPT.

LEGEND

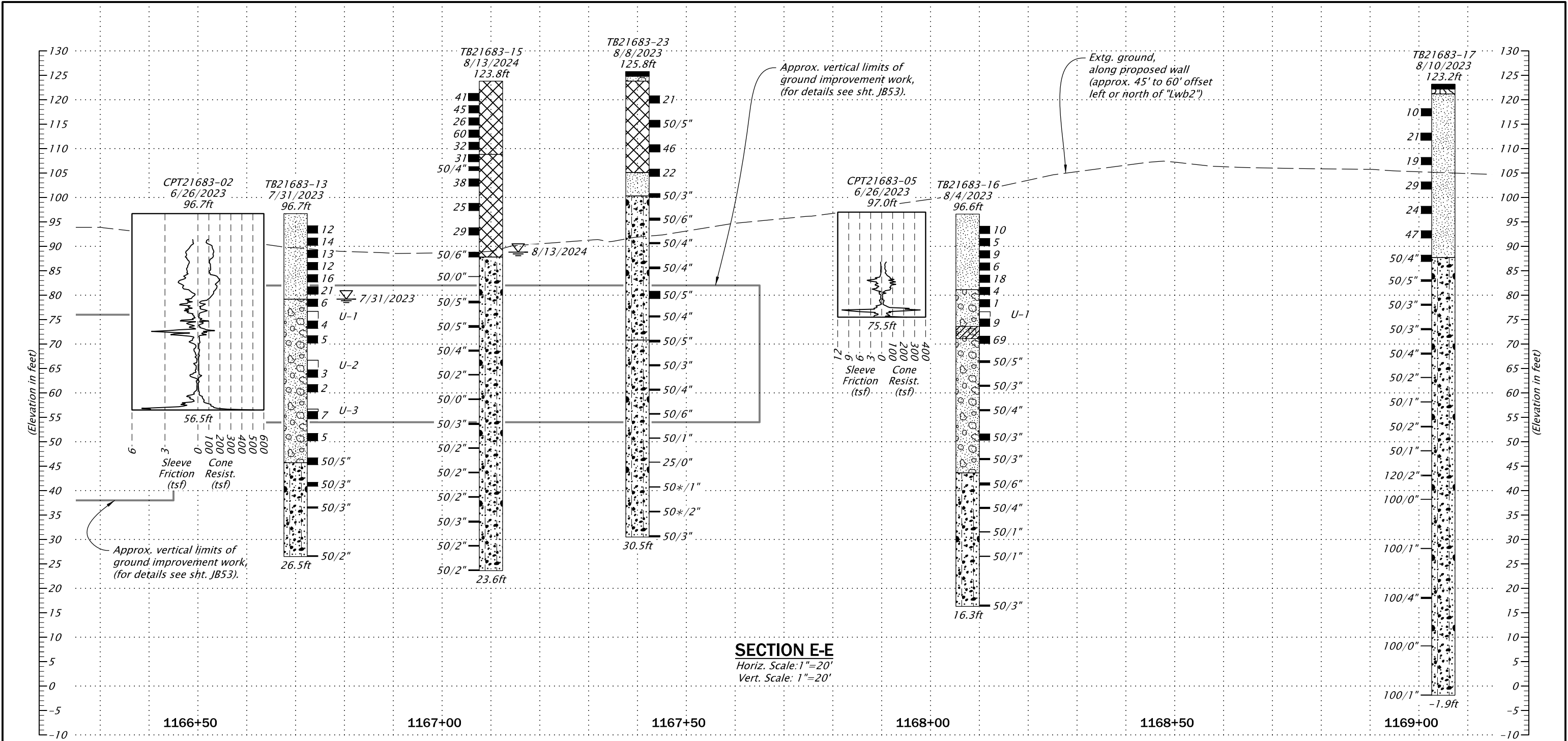
- N ■ = Standard penetration test & N value
- ▽ = Groundwater level in test hole, measured on date shown.
- U-# □ = Undisturbed sample & #.
- SC-# □ = Sonic core & #.
- 00* = Blow count of oversized sample (modified California)

STRUCTURE NO.	24318
BDS DWG NO.	114496
CALC. BOOK	7841
HWY: 002	M.P.: 63.41
COUNTY	Hood River
DATE	08/2026



RENEWS: 01-01-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2 WB over RR_MP63.41	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: JEFF JONES	Reviewer: SCOTT D. BILLINGS
CADD Tech: F. JEREMY SCHAD	Checker: T.B.D.
GROUND IMPROVEMENT GEOTECHNICAL DATA	
SHEET NO. JB56	



SHEET NOTES

Elevations are based on North American Vertical Datum (1988).

For geotechnical data unit descriptions and general notes, see sht. JB53.

For horizontal layout & locations of subsurface explorations, see sht. JB55.

TEST BORE NOTES

- In accordance with ASTM D1586-84, N values are reported for an interval of 1 ft., unless noted otherwise.
- Borings without groundwater levels indicated reflect the use of wet drilling methods, which often preclude direct observation of groundwater during drilling.
- Near-surface data gaps shown on the Cone Penetration Testing (CPT) logs reflect pre-drilling performed to penetrate gravelly soils prior to commencing the CPT.

LEGEND

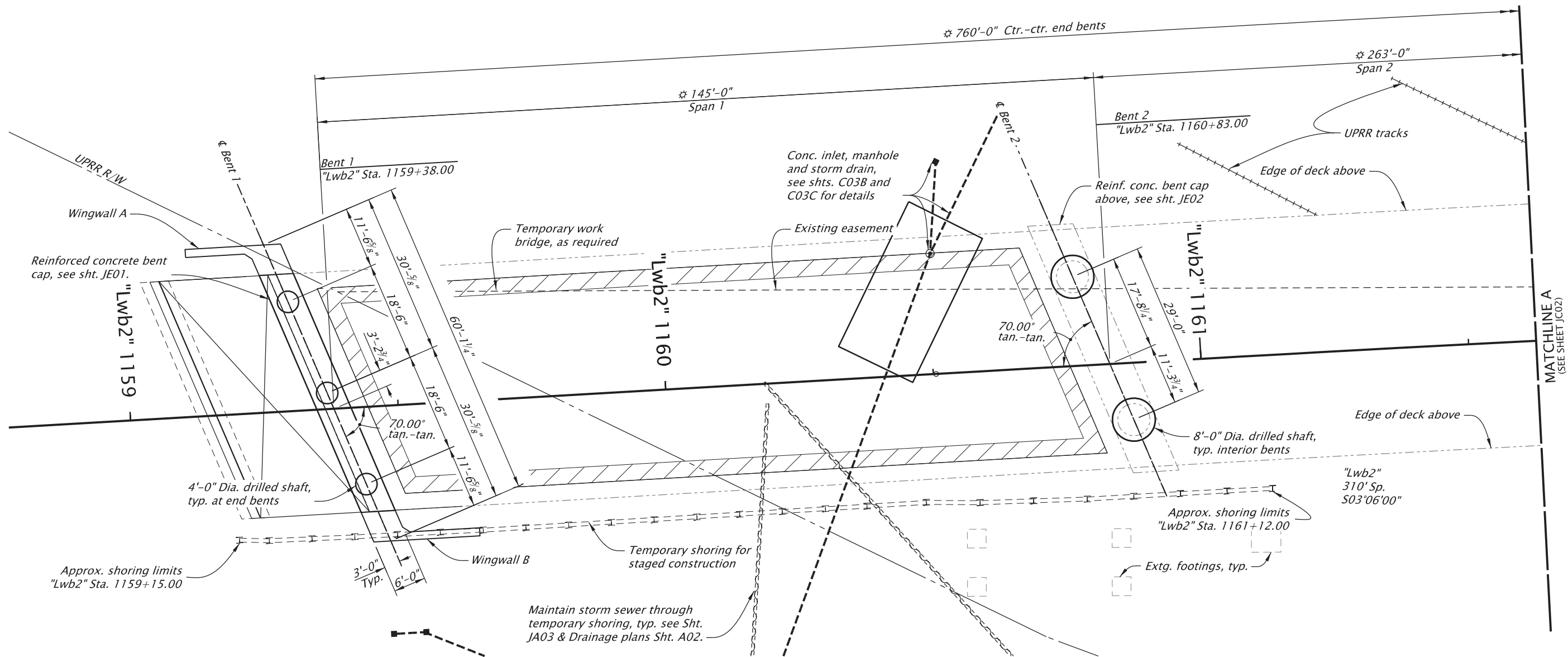
- N ■ = Standard penetration test & N value
- ▽ = Groundwater level in test hole, measured on date shown.
- U-# □ = Undisturbed sample & #.
- 00* = Blow count of oversized sample (modified California)

STRUCTURE NO.	24318
BDS DWG NO.	114497
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026



RENEWS: 01-01-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2 WB over RR_MP63.41	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: JEFF JONES	Reviewer: SCOTT D. BILLINGS
CADD Tech: F. JEREMY SCHAD	Checker: T.B.D.
GROUND IMPROVEMENT GEOTECHNICAL DATA	SHEET NO. JB57



PLAN
Scale: 1"=20'

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

FOUNDATION NOTES:
For General Notes, see sht. JA02 & JA03.

For Drilled Shaft details, see shts. JC04 and JC05.

For Bent Cap details, see sht. JE01 & JE02.

For Wingwall details, see sht. JE07 – JE08.

✱ = Measured along "Lwb2" Line.

Bent 2 drilled shaft construction after storm drain pipe jack and bore is installed under UPRR tracks, see Stormwater plans sht. A02.

DRILLED SHAFT DATA			
LOCATION	DRILED SHAFT DIAMETER	TOP OF SHAFT ELEVATION (FT.)	TIP OF SHAFT ELEVATION (FT.)
Bent 1, Lt.	4'-0"	133.90	83.90
Bent 1, Mid.	4'-0"	133.40	83.40
Bent 1, Rt.	4'-0"	132.90	82.90
Bent 2, Lt.	8'-0"	98.00	44.00
Bent 2, Rt.	8'-0"	98.00	44.00

IF THIS MEASURES
1 INCH
THEN DRAWING IS TO SCALE

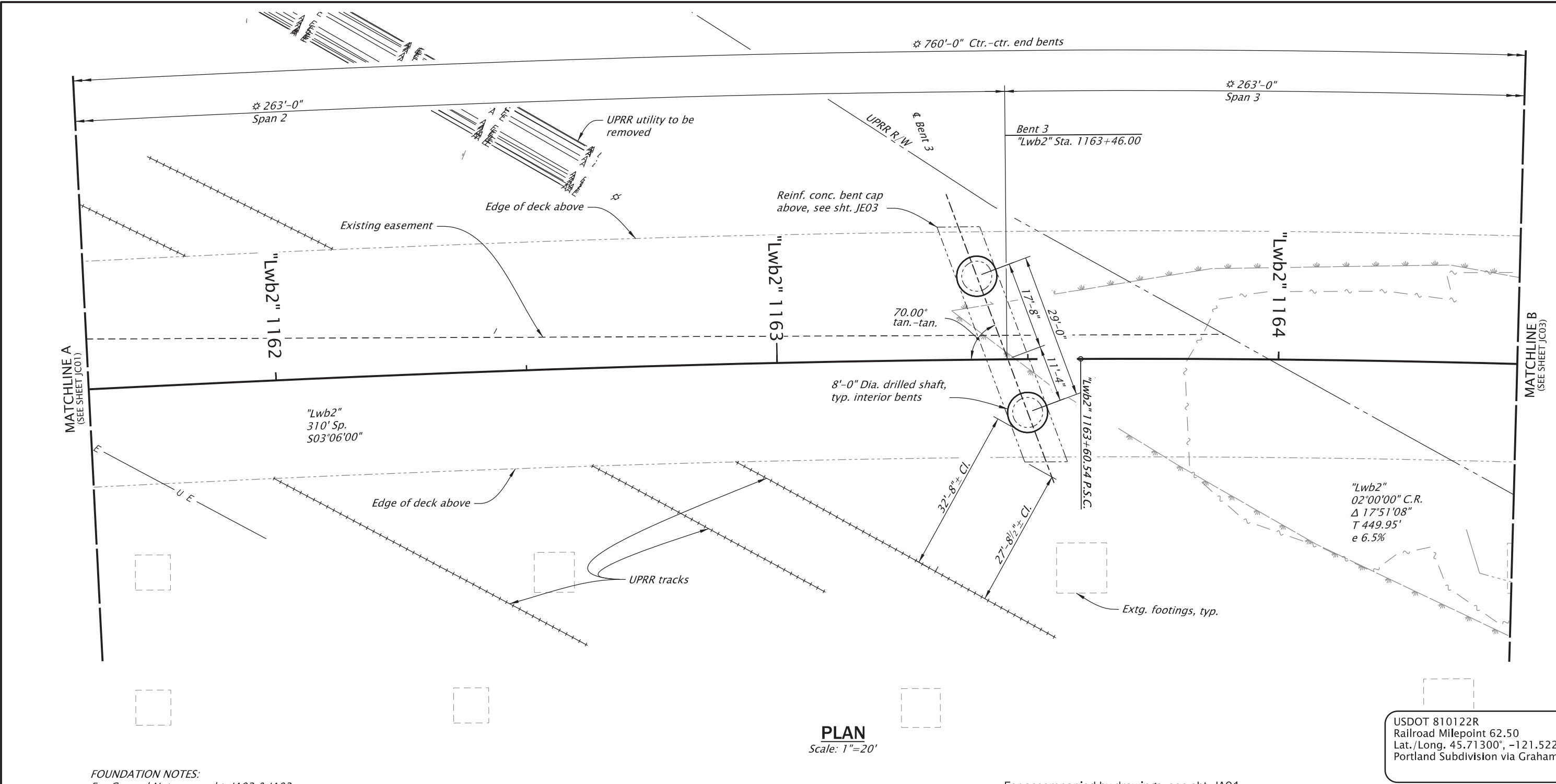
For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114498
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026



RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt CADD Tech: Jim Culppepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
FOUNDATION PLAN - 1	
SHEET NO. JC01	



FOUNDATION NOTES:
For General Notes, see sht. JA02 & JA03.
For Drilled Shaft details, see sht. JC05.
For Bent Cap details, see sht. JE03.
✱ = Measured along "Lwb2" Line.

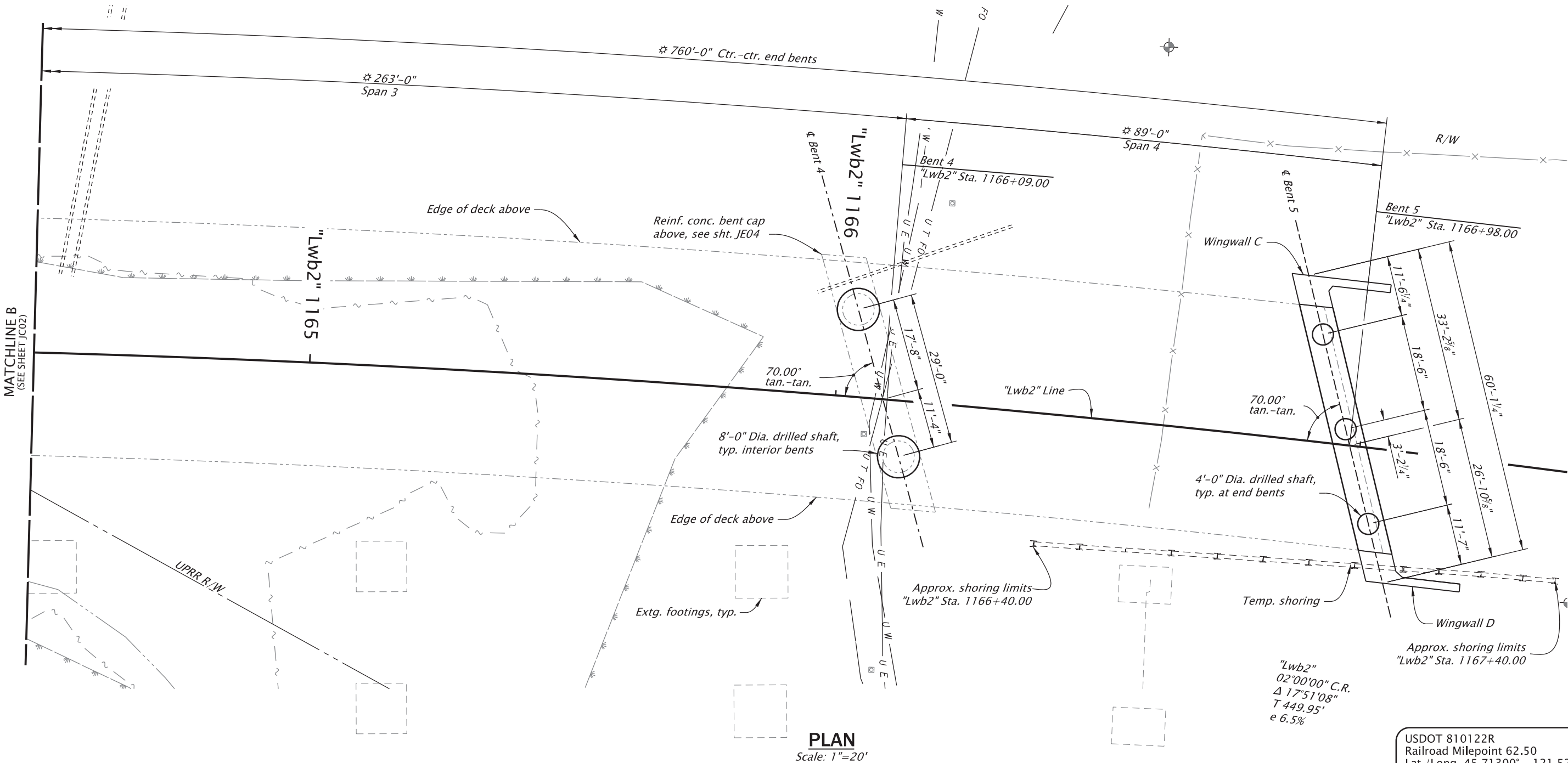
DRILLED SHAFT DATA			
LOCATION	DRILLED SHAFT DIAMETER	TOP OF SHAFT ELEVATION (FT.)	TIP OF SHAFT ELEVATION (FT.)
Bent 3, Lt.	8'-0"	85.00	-25.00
Bent 3, Rt.	8'-0"	85.00	-25.00

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114499
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

REGISTERED PROFESSIONAL ENGINEER
80830
Digitally Signed 2026.09.16 07:22:30-07'00"
OREGON
JAN. 29, 2009
GEORGE F. BORNSTEDT
RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
FOUNDATION PLAN - 2	
SHEET NO. JC02	



PLAN
Scale: 1"=20'

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

DRILLED SHAFT DATA			
LOCATION	DRILLED SHAFT DIAMETER	TIP OF SHAFT ELEVATION (FT.)	TIP OF SHAFT ELEVATION (FT.)
Bent 4, Lt.	8'-0"	89.00	4.00
Bent 4, Rt.	8'-0"	89.00	4.00
Bent 5, Lt.	4'-0"	116.11	66.11
Bent 5, Mid.	4'-0"	114.83	64.83
Bent 5, Rt.	4'-0"	113.54	63.54

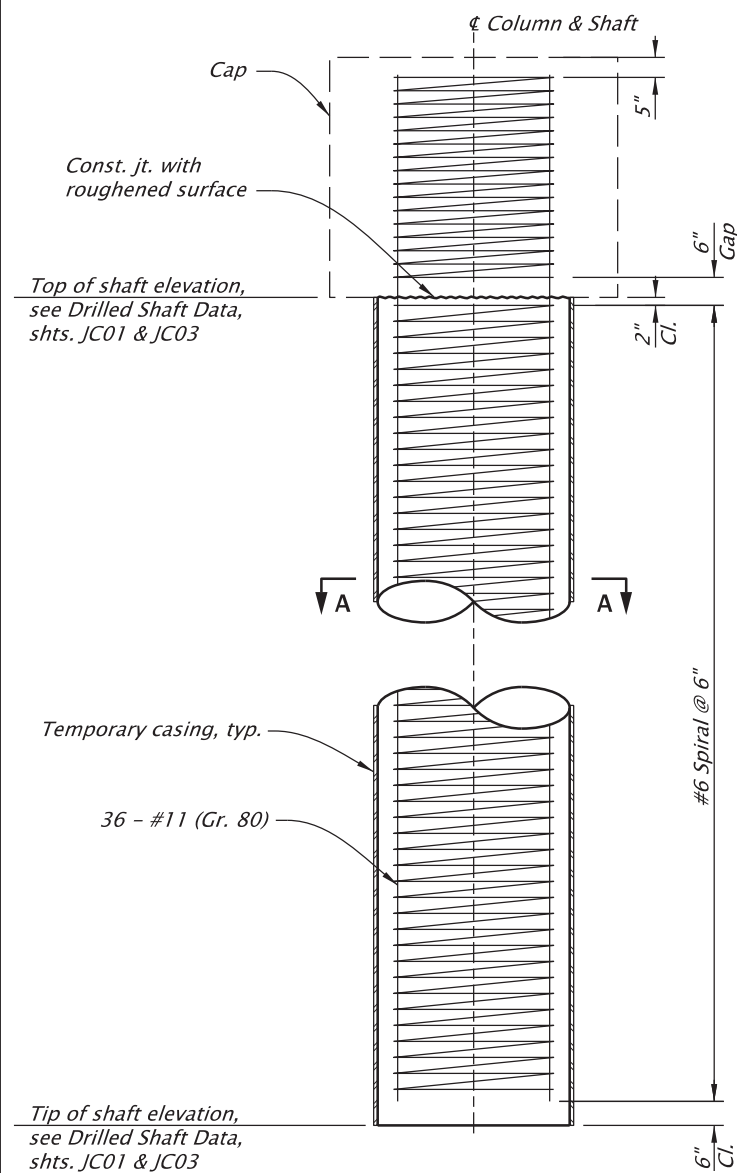
FOUNDATION NOTES:
For General Notes, see sht. JA02 & JA03.
For Drilled Shaft details, see sht. JC05.
For Bent Cap details, see sht. JE04 & JE05.
For Wingwall details, see sht. JE09.
✱ = Measured along "Lwb2" Line.

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114500
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

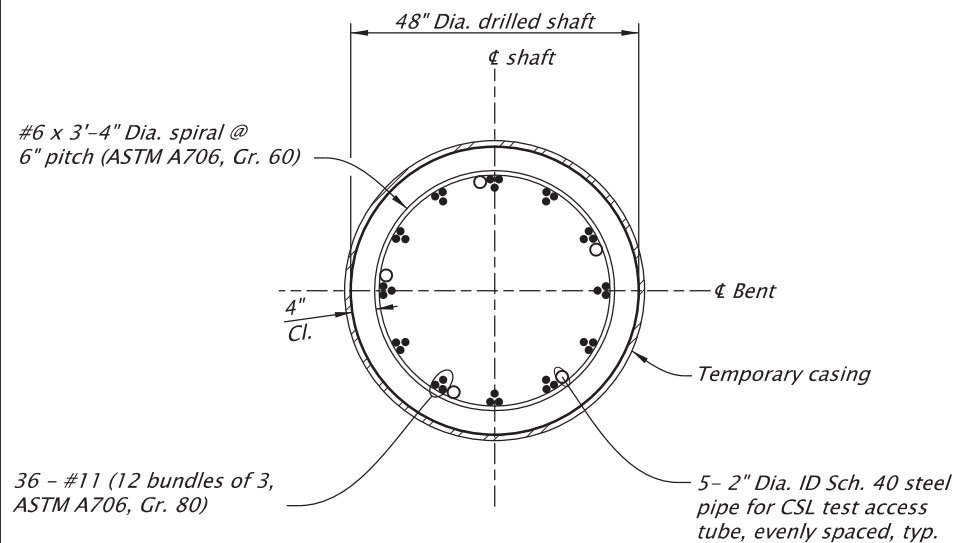
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80830
Digitally Signed 2026.09.16 07:23:15-07'00"
OREGON
JAN. 29, 2009
GEORGE F. BORNSTEDT
RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION
Hwy 2WB over RR_MP63.41
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY
Designer: George F. Bornstedt
Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)
Checker: Joel Tubbs (DEA)
FOUNDATION PLAN - 3
SHEET NO. JC03



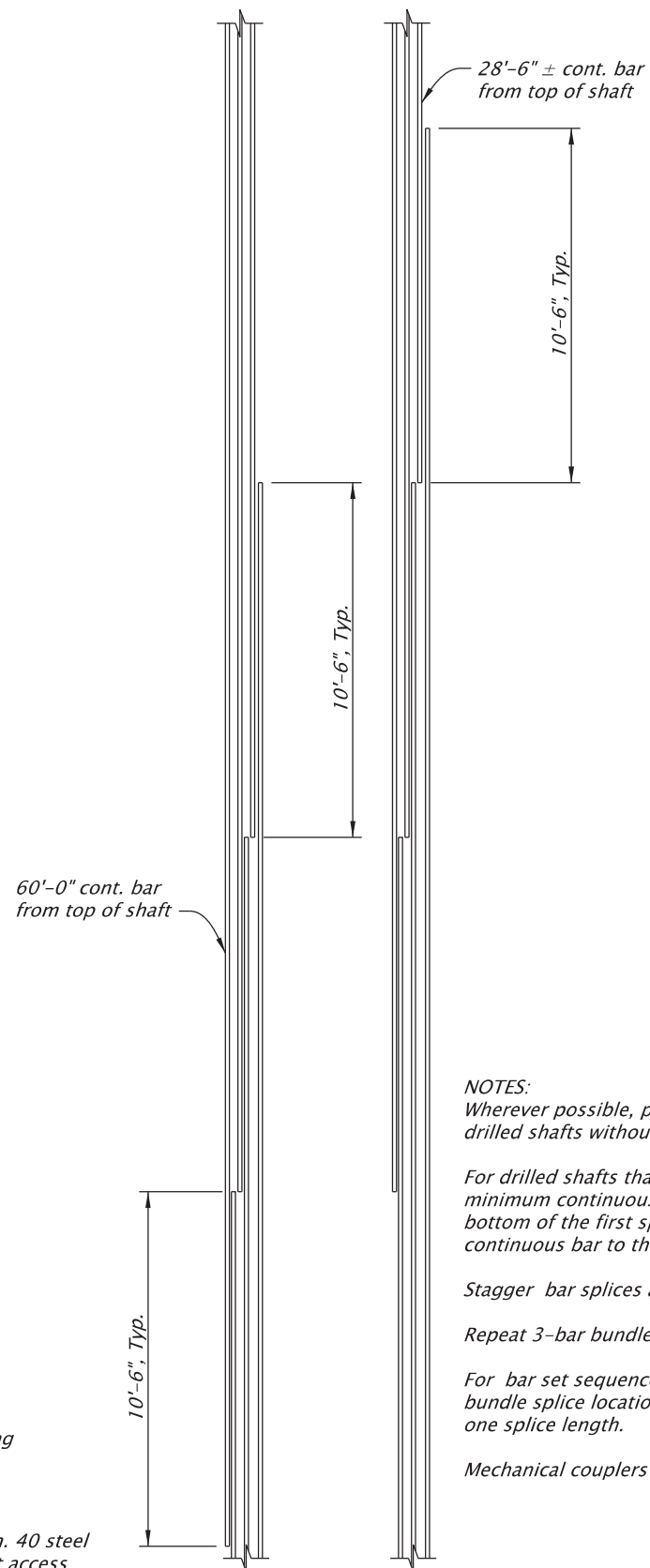
BENT 1 AND 5 - DRILLED SHAFT DETAIL

Scale: $1/4" = 1'-0"$



SECTION A-A

Scale: 3/8"=1'-0"



DRILLED SHAFT SPLICE DETAIL

(Not to Scale – Exaggerated)

NOTES:

Wherever possible, provide 60'-0" full length bars in drilled shafts without splices.

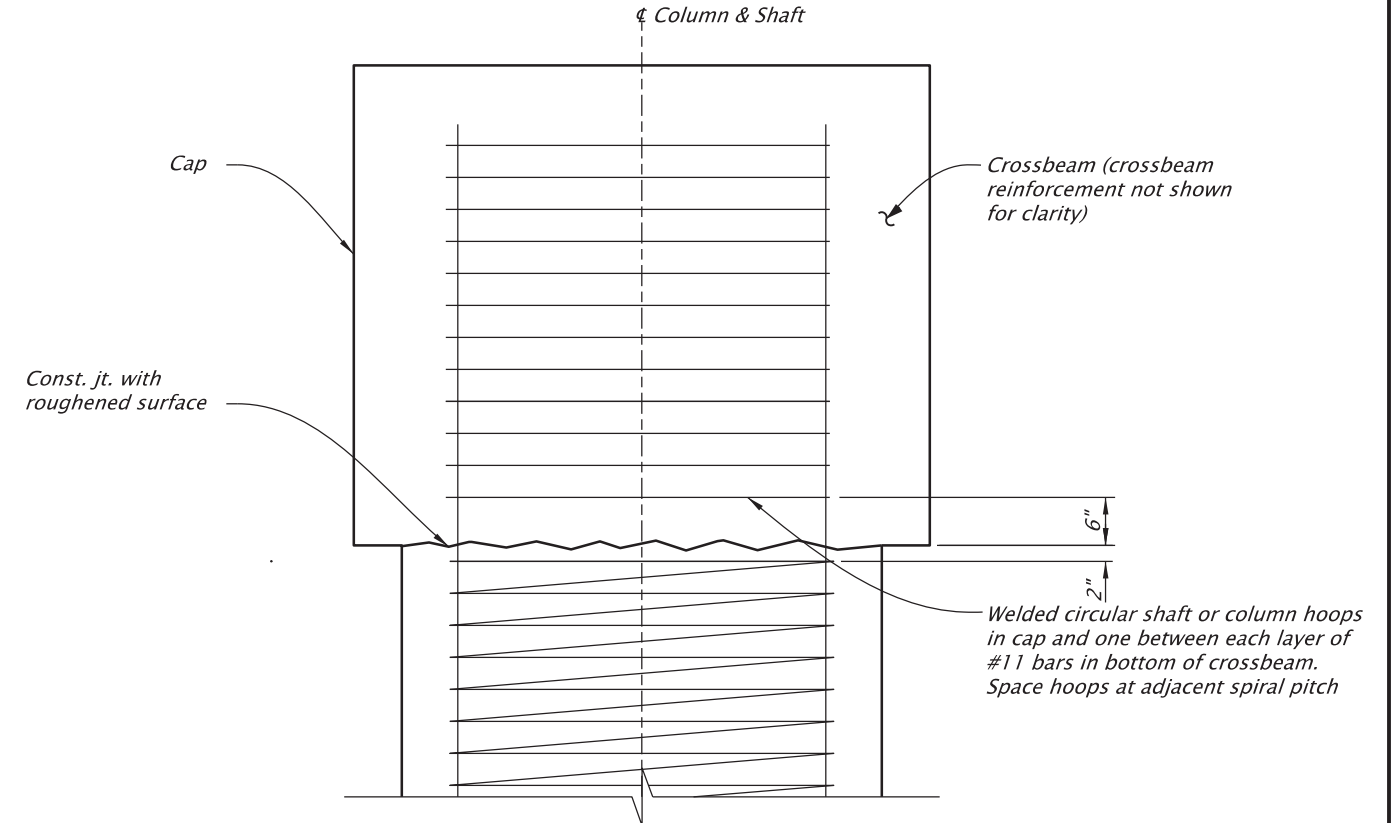
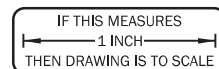
For drilled shafts that require splices, provide a 28'-6" minimum continuous bar from top of shaft to the bottom of the first splice, and a 60'-0" minimum continuous bar to the bottom of the last splice in the set.

Stagger bar splices as shown.

Repeat 3-bar bundle stagger every other bar set.

For bar set sequences that end with adjacent 3-bar bundle splice locations, adjust 3-bar bundle stagger up one splice length.

Mechanical couplers are not allowed in drilled shafts.



OPTIONAL HOOP DETAIL
AT TOP OF SHAFT OR COLUMN

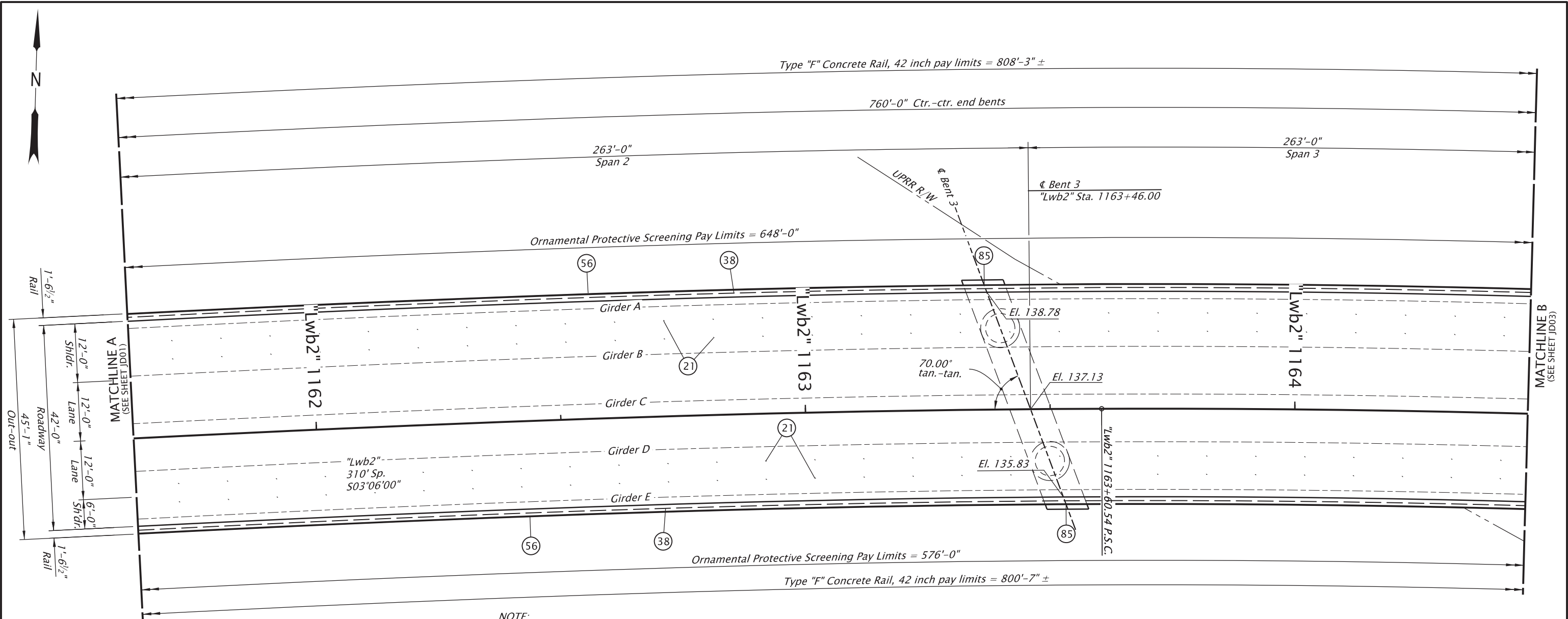
No Scale

DRILLED SHAFT NOTES:

1. *Provide roughened surface at construction joints ($\frac{1}{4}$ " min. amplitude).*
2. *Welded hoops shall utilize the alternate welded splice detail. Stagger splices a minimum distance of $\frac{1}{3}$ of the hoop circumference.*
3. *Welded hoops may be substituted for spirals to facilitate placement of crossbeam reinforcement.*
4. *See Sht. JC05 for spiral splice details.*

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318			
BDS DWG NO. 114501		OREGON DEPARTMENT OF TRANSPORTATION	
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
DATE 08/2026		CADD Tech: JIm Culpepper (DEA)	Checker: Joel Tubbs (DEA)
RENEWES: 12-31-2027		BENT 1 AND 5 DRILLED SHAFT DETAILS	
		SHEET NO. JC04	



NOTE:
Deck elevations shown are finish grade at
top of concrete at "Lwb2" Line and on gutter
line at centerline of bent.

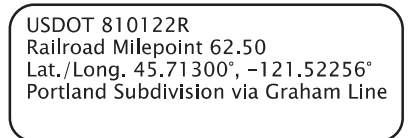
See sht. JD01 for Detail Reference Numbers.

DECK PLAN
Scale: 1"=20'

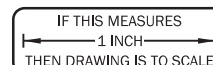
USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	DESIGNER: Desire Giraneza CADD Tech: Jim Culpepper (DEA)	REVIEWER: Stephen T. Burgess CHECKER: Joel Tubbs (DEA)	SHEET NO. JD02
BDS DWG NO. 114504						
CALC. BOOK 7841		RENEW: 06-30-2027	DECK PLAN - 2			
HWY: 002 M.P.: 63.41						
COUNTY Hood River						
DATE 08/2026						



STRUCTURE NO.
24318
BDS DWG NO.
114505
CALC. BOOK
7841
HWY: 002
M.P.: 63.41
COUNTY
Hood River
DATE
08/2026



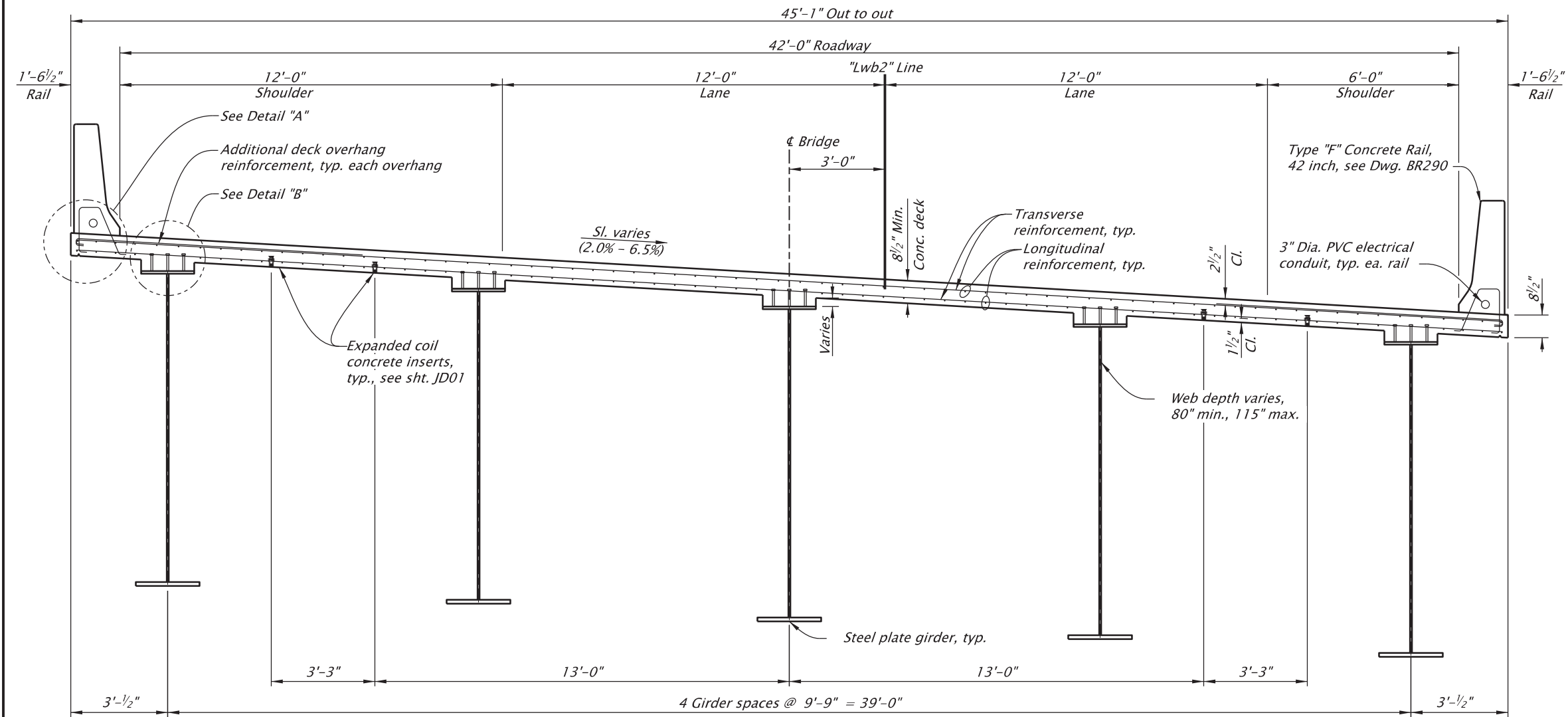
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



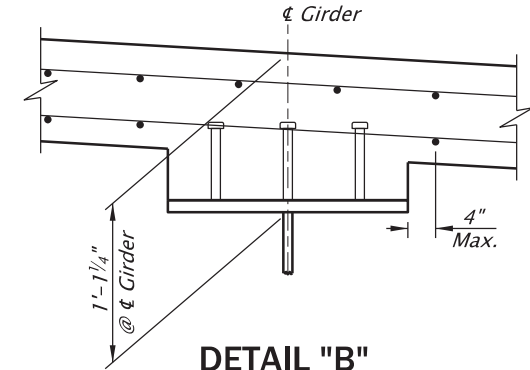
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DECK PLAN - 3

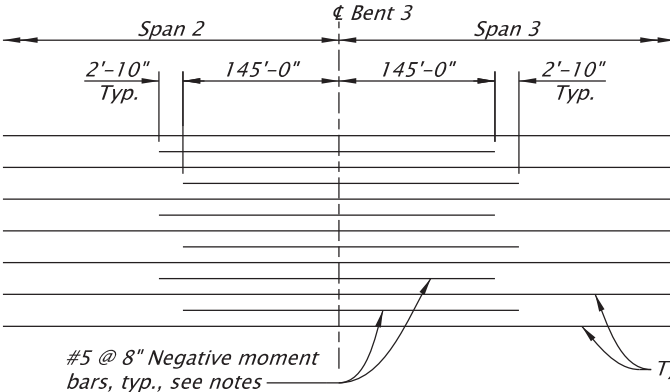
SHEET NO.
JD03



TYPICAL DECK SECTION
Scale: 1/4" = 1'-0"

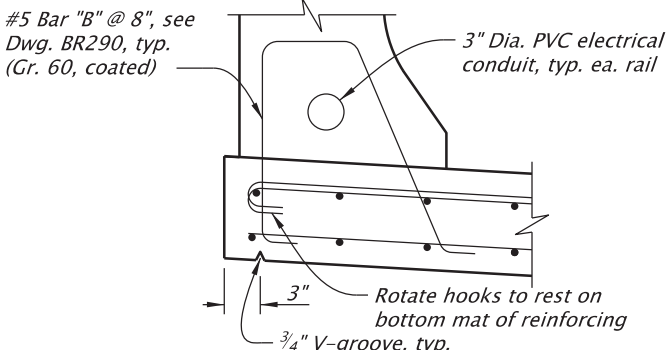


DETAIL "B"
Scale: 3/4" = 1'-0"



TOP MAT NEGATIVE MOMENT BARS DIAGRAM
No Scale

NOTES:
Alternate with typical longitudinal bars.
Stagger end by 2'-10" as shown.
Place over Bent 3.



DETAIL "A"
Scale: 3/4" = 1'-0"

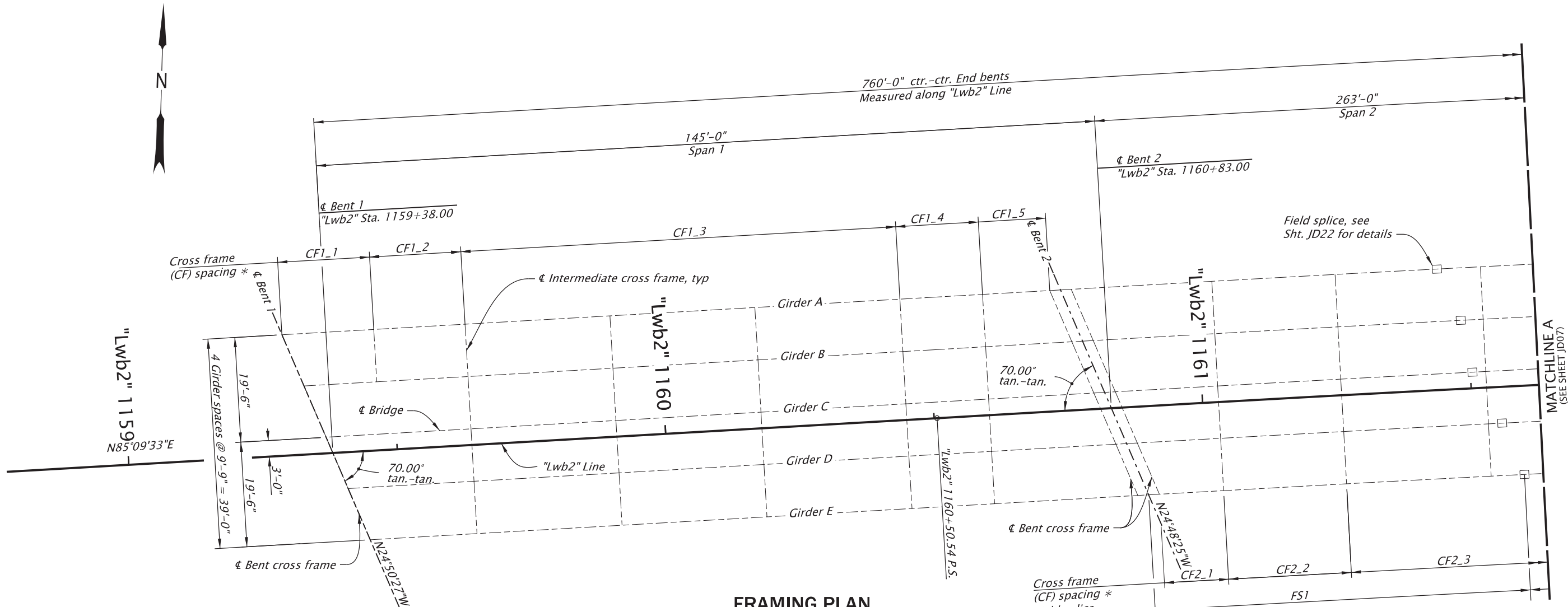
IF THIS MEASURES
1 INCH
THEN DRAWING IS TO SCALE

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114506
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026
REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 07:59:11 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	
RENEW: 06-30-2027	

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
TYPICAL DECK SECTION	
SHEET NO. JD04	



FRAMING PLAN

Scale: 1"=20'

STRUCTURAL STEEL NOTES:

Furnish all weathering structural steel in girder webs, flanges, and cross-frames, including splice plates, and all connection and gusset plates conforming to ASTM Specification A709, Grade 50W, except as noted.

Furnish all steel members subject to tensile stresses according to ASTM A709 Impact Testing Temperature Zone 2 requirements. This includes all girder flanges and webs designated with a .

Paint structural steel portion as shown on Shts. JD10 through JD13 and finish all exposed faces of weathering steel according to the Special Provisions.

Provide steel erection plan for approval prior to construction.

For the purpose of Charpy toughness testing and welding inspection/repair, etc., primary members are girders, all splice plates, all bearing and stiffener plates, and all cross frame members.

Web thickness shown may be increased up to 1/16" at no cost to the Agency.

Detail girders and cross frame such that the girder webs are plumb at the Steel Dead Load Fit (SDLF) condition and prior to deck placement.

Do not punch or drill holes through girder flanges or interior girder webs for temporary work.

STRUCTURAL STEEL NOTES CONT.:

Erect all bearing stiffeners and beam ends to be vertical in their final erected position under full dead load.

Furnish shear connectors according to ASTM A108 headed concrete anchor studs.

Use the following fillet weld sizes, unless otherwise shown:

Base Metal Thickness (T) of Thicker Part Joined	$T \leq \frac{3}{4}"$	$\frac{3}{4}" < T$
Weld Size	$\frac{1}{4}"$	$\frac{5}{16}"$

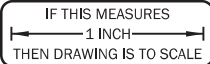
Furnish $\frac{7}{8}"$ diameter Type 3 weathering high-strength bolts at structural connections according to ASTM Specification F3125 GR A325 unless shown otherwise. All structural steel connections are slip critical connections with Class B faying surfaces unless shown otherwise. Exclude bolt threads from shear planes.

Tighten all high strength bolts using the "Turn-of-Nut" method.

Produce the finish coat on painted portions of all girders as specified in 00594.10.

Assumed design temperature is 47° F.

Apply caulk to girders and cross frames within the painted limits. Fill and seal crevices and gaps between structural shapes and plates, around bolt heads and nuts, and similar areas that would retain moisture.

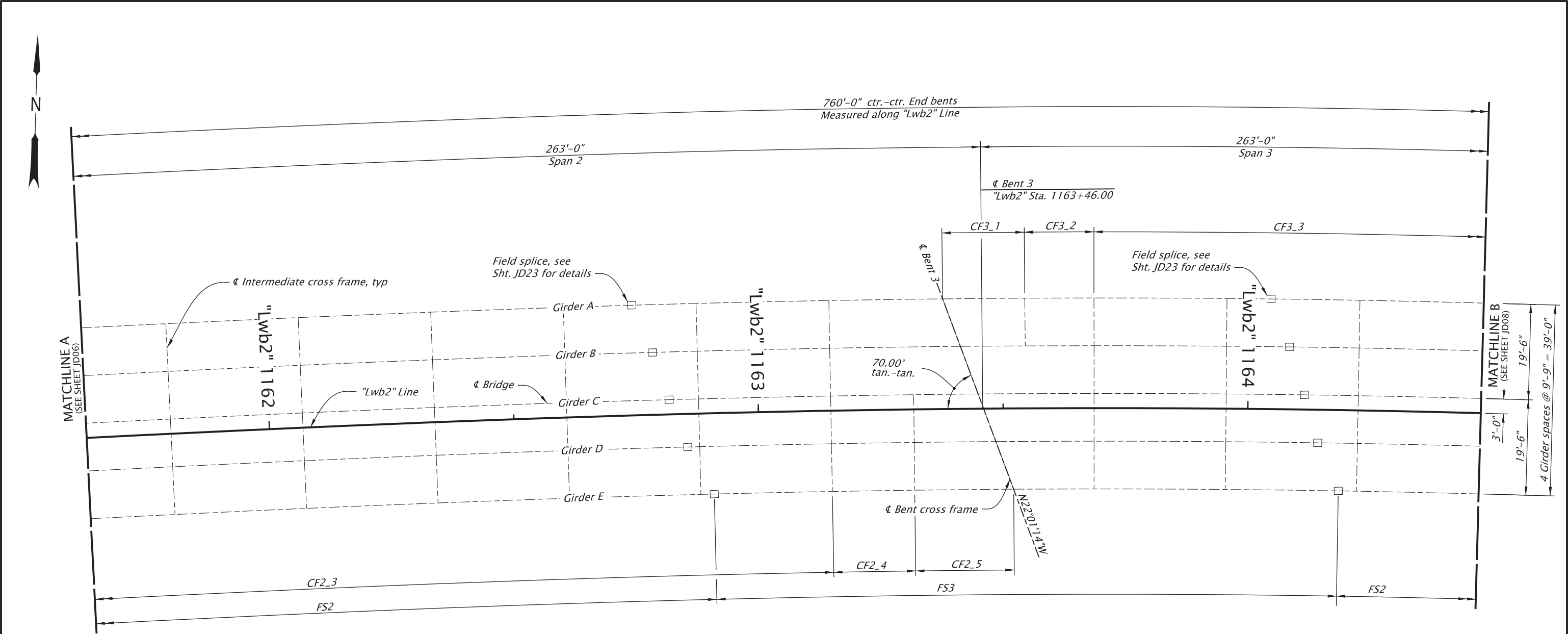


* See sheet JD09 for cross-frame frame spacing information.
** See sheets JD10 to JD13 for field splice location information.

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114508		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: Desire Giraneza CADD Tech: Jim Culpepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
COUNTY Hood River	DATE 08/2026	STEEL FRAMING PLAN - 1	
RENEW: 06-30-2027		SHEET NO. JD06	

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



Note:
For Structural Steel Notes, see sht. JD06

FRAMING PLAN
Scale: 1"=20'

For accompanied by drawings, see sht. JA01

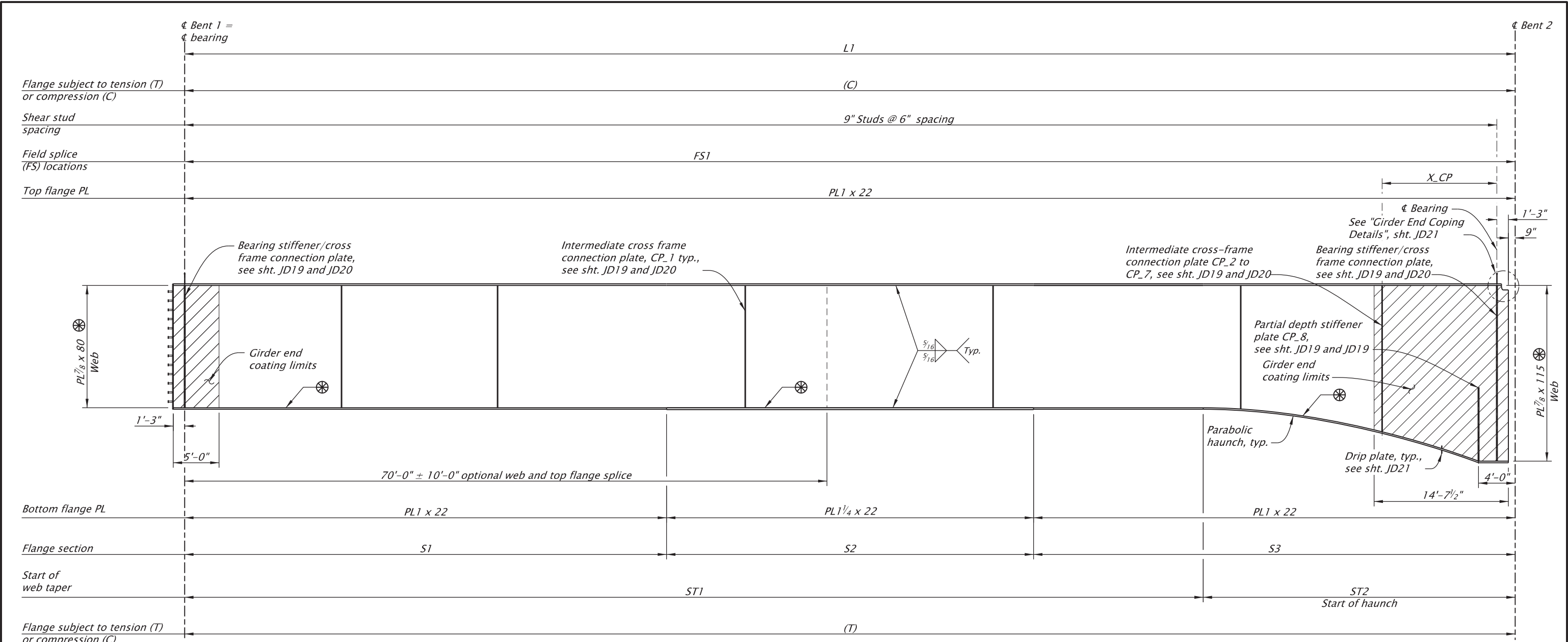
STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114509				
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
COUNTY Hood River		Designer: Desire Giraneza CADD Tech: Jim Culpepper (DEA)		Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
DATE 08/2026	STEEL FRAMING PLAN - 2		SHEET NO. JD07	

CROSS-FRAME LAYOUT - SPAN 1						
	Cross-frame ID *	CF1_1	CF1_2	CF1_3	CF1_4	CF1_5
Girder A	Spacing (+/-)	17'-1 1/8"	17'-0"	27'-0"	15'-4 7/8"	12'-6 1/8"
	Number of spaces	1	1	3	1	1
Girder B	Spacing (+/-)	13'-6 1/2"	17'-0"	27'-0"	15'-4 7/8"	16'-0 3/4"
	Number of spaces	1	1	3	1	1
Girder C	Spacing (+/-)	27'-0"	--	27'-0"	15'-4 7/8"	19'-7 1/8"
	Number of spaces	1	--	3	1	1
Girder D	Spacing (+/-)	23'-5 1/2"	--	27'-0"	15'-4 3/4"	23'-1 5/8"
	Number of spaces	1	--	3	1	1
Girder E	Spacing (+/-)	19'-10 7/8"	--	27'-0"	15'-4 3/4"	26'-8 1/4"
	Number of spaces	1	--	3	1	1
CROSS-FRAME LAYOUT - SPAN 2						
	Cross-frame ID *	CF2_1	CF2_2	CF2_3	CF2_4	CF2_5
Girder A	Spacing (+/-)	26'-2"	22'-11 1/2"	27'-1 1/4"	--	23'-3"
	Number of spaces	1	1	7	--	1
Girder B	Spacing (+/-)	22'-7 1/2"	22'-11 3/8"	27'-0 5/8"	--	26'-8 1/4"
	Number of spaces	1	1	7	--	1
Girder C	Spacing (+/-)	19'-1 1/8"	22'-11 1/8"	27'-0"	16'-11 5/8"	13'-1 7/8"
	Number of spaces	1	1	7	1	1
Girder D	Spacing (+/-)	15'-6 1/4"	22'-10 7/8"	26'-11 3/8"	16'-10 7/8"	16'-8 3/8"
	Number of spaces	1	1	7	1	1
Girder E	Spacing (+/-)	11'-11 7/8"	22'-10 5/8"	26'-10 3/4"	16'-9 7/8"	20'-2 3/4"
	Number of spaces	1	1	7	1	1
CROSS-FRAME LAYOUT - SPAN 3						
	Cross-frame ID *	CF3_1	CF3_2	CF3_3	CF3_4	CF3_5
Girder A	Spacing (+/-)	16'-9 5/8"	14'-1 3/4"	27'-2 1/4"	--	14'-7 3/8"
	Number of spaces	1	1	8	--	1
Girder B	Spacing (+/-)	13'-3 1/8"	14'-0 5/8"	27'-1 1/8"	--	18'-1 1/4"
	Number of spaces	1	1	8	--	1
Girder C	Spacing (+/-)	23'-8 1/4"	--	27'-0"	--	21'-7 1/8"
	Number of spaces	1	--	8	--	1
Girder D	Spacing (+/-)	20'-0 7/8"	--	26'-10 7/8"	13'-0 1/4"	12'-0 3/8"
	Number of spaces	1	--	8	1	1
Girder E	Spacing (+/-)	16'-5 3/8"	--	26'-9 3/4"	13'-0 1/4"	15'-6 1/4"
	Number of spaces	1	--	8	1	1
CROSS-FRAME LAYOUT - SPAN 4						
	Cross-frame ID *	CF4_1	CF4_2	CF4_3	CF4_4	CF4_5
Girder A	Spacing (+/-)	20'-7 5/8"	15'-0 3/4"	27'-2 1/4"	--	24'-9 3/4"
	Number of spaces	1	1	1	--	1
Girder B	Spacing (+/-)	17'-1 1/8"	14'-11 5/8"	27'-1 1/8"	--	28'-2 7/8"
	Number of spaces	1	1	1	--	1
Girder C	Spacing (+/-)	13'-7 3/8"	14'-9 3/4"	27'-0"	16'-0"	15'-8 1/8"
	Number of spaces	1	1	1	1	1
Girder D	Spacing (+/-)	24'-9 1/4"	--	26'-10 7/8"	15'-10 7/8"	19'-2 1/2"
	Number of spaces	1	--	1	1	1
Girder E	Spacing (+/-)	21'-1 1/2"	--	26'-9 3/4"	15'-9 3/4"	22'-8 7/8"
	Number of spaces	1	--	1	1	1

* See sheets JD06 to JD08 for cross-frame ID layout

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:03:35 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	OREGON DEPARTMENT OF TRANSPORTATION	Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	DESIGNER: Desire Giraneza CADD Tech: Jim Culpepper (DEA)	REVIEWER: Stephen T. Burgess Checker: Joel Tubbs (DEA)	SHEET NO. JD09
BDS DWG NO. 114511						
CALC. BOOK 7841						
HWY: 002 M.P.: 63.41						
COUNTY Hood River						
DATE 08/2026	RENEW: 06-30-2027		STEEL FRAMING PLAN - 4			



GIRDER ELEVATION - SPAN 1
No Scale

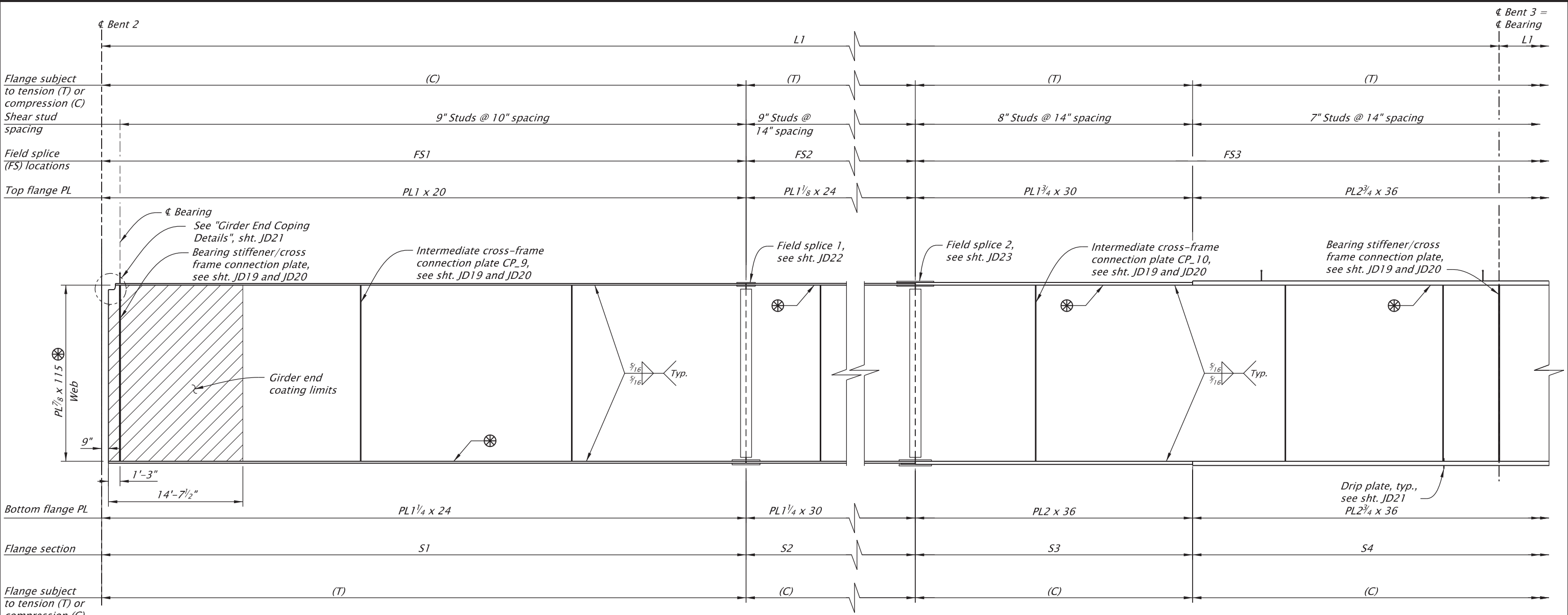
- Notes:
- ⊗ Indicates check sample required from plate so marked.
 - For steel general notes, see sht. JD06.
 - For camber details, see sht. JD14 and JD15.
 - For stiffener, connection plate and welding details, see sht. JD19 – JD21.
 - For X_CP, See Stiffener/Connection Plate Dimensions, see sht. JD20.
 - For drip plate bar details, see sht. JD21.

See Framing Plan sheets for cross frame and stiffener spacing.

GIRDER SCHEDULE (FEET), ALONG GIRDER CL - SPAN 1							
GIRDER	L1	FS1	S1	S2	S3	ST1	ST2
A	145.01	145.01	50.00	51.50	43.51	110.00	35.01
B	145.01	145.01	50.00	40.00	55.01	110.00	35.01
C	145.00	145.00	50.00	40.00	55.00	110.00	35.00
D	144.99	144.99	50.00	40.00	54.99	110.00	34.99
E	144.99	144.99	50.00	40.00	54.99	110.00	34.99

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114512			
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: Desire Giraneza CADD Tech: Jim Culppepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
DATE 08/2026	RENEW: 06-30-2027	STEEL GIRDER DETAILS - SPAN 1	



Note:
For notes, see sht. JD10

GIRDER ELEVATION - SPAN 2
No Scale

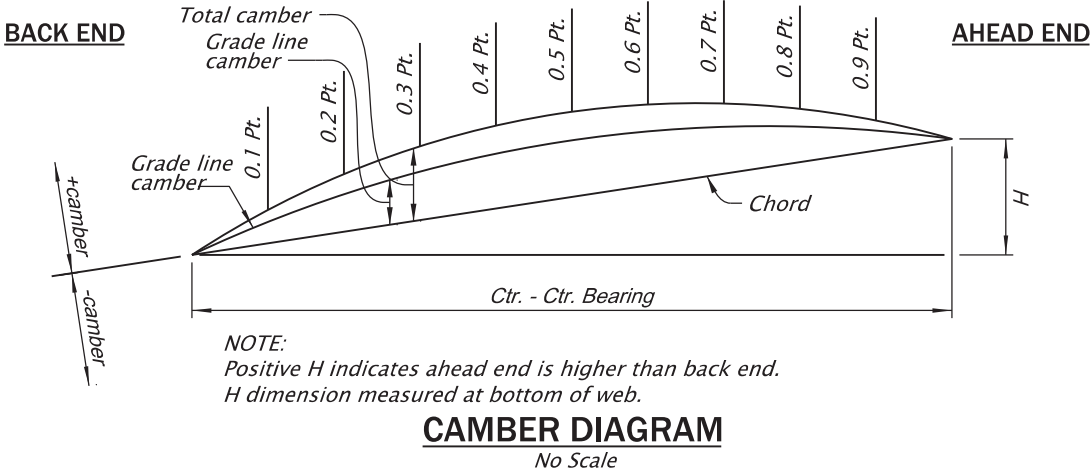
GIRDER SCHEDULE (FEET), ALONG GIRDER CL - SPAN 2								
GIRDER	L1	FS1	FS2	FS3	S1	S2	S3	S4
A	264.1	70.00	130.50	131.16	70.00	130.50	35.00	61.16
B	263.62	70.00	130.25	130.54	70.00	130.25	30.00	70.54
C	263.15	70.00	130.00	129.93	70.00	130.00	30.00	69.93
D	262.67	70.00	129.75	129.80	70.00	129.75	30.00	69.80
E	262.2	70.00	129.50	129.19	70.00	129.50	29.75	69.69

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		
BDS DWG NO. 114513		
CALC. BOOK 7841		
HWY: 002 M.P.: 63.41		
COUNTY Hood River		
DATE 08/2026	99900PE Digitally Signed 2026.09.16 08:05:13 -07'00'	OREGON DEPARTMENT OF TRANSPORTATION Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY Designer: Desire Giraneza Reviewer: Stephen T. Burgess CADD Tech: Jim Culppepper (DEA) Checker: Joel Tubbs (DEA)
RENEW: 06-30-2027	STEEL GIRDER DETAILS - SPAN 2	SHEET NO. JD11

BR_K21683_gdcb_06.dgn :: JD12 9/15/2026 3:08:48 PM jxc

Girder	Item	Span 1 Camber, inches										Span 4 Camber, inches									
		Span 1										Span 4									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	"H" (inches)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	"H" (inches)
Girder A	Beam DL + Cross Frames	0.41	0.78	1.06	1.23	1.29	1.23	1.05	0.76	0.40	-75.78	0.07	0.13	0.18	0.22	0.23	0.22	0.19	0.14	0.07	9.36
	Deck DL	0.99	1.88	2.56	2.98	3.12	2.97	2.53	1.84	0.96		0.17	0.33	0.47	0.56	0.60	0.58	0.50	0.36	0.19	
	Bridge Rail	0.12	0.23	0.32	0.37	0.39	0.37	0.32	0.23	0.12		0.02	0.04	0.05	0.06	0.07	0.06	0.05	0.04	0.02	
	FWS	0.12	0.22	0.30	0.35	0.37	0.35	0.30	0.22	0.12		0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.04	0.02	
	Shrinkage	0.63	1.13	1.48	1.69	1.76	1.69	1.48	1.12	0.62		0.24	0.43	0.57	0.66	0.69	0.67	0.59	0.45	0.25	
	Subtotal	2.28	4.23	5.72	6.62	6.93	6.61	5.68	4.18	2.22		0.51	0.97	1.31	1.55	1.65	1.59	1.37	1.03	0.56	
	Gradeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	2.28	4.23	5.72	6.62	6.93	6.61	5.68	4.18	2.22		0.51	0.97	1.31	1.55	1.65	1.59	1.37	1.03	0.56	
Girder B	Beam DL + Cross Frames	0.41	0.77	1.05	1.22	1.28	1.22	1.04	0.76	0.40	-76.38	0.06	0.12	0.17	0.21	0.22	0.21	0.18	0.13	0.07	9.36
	Deck DL	1.00	1.88	2.56	2.98	3.12	2.97	2.54	1.84	0.96		0.17	0.33	0.46	0.55	0.59	0.57	0.49	0.36	0.19	
	Bridge Rail	0.12	0.22	0.30	0.35	0.37	0.35	0.30	0.22	0.12		0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.04	0.02	
	FWS	0.16	0.30	0.40	0.47	0.49	0.47	0.40	0.30	0.16		0.03	0.05	0.07	0.08	0.08	0.08	0.07	0.05	0.03	
	Shrinkage	0.64	1.14	1.50	1.71	1.78	1.71	1.50	1.13	0.63		0.24	0.43	0.57	0.66	0.69	0.67	0.59	0.45	0.25	
	Subtotal	2.33	4.31	5.81	6.74	7.05	6.72	5.78	4.26	2.27		0.52	0.97	1.32	1.56	1.65	1.59	1.38	1.03	0.57	
	Gradeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	2.33	4.31	5.81	6.74	7.05	6.72	5.78	4.26	2.27		0.52	0.97	1.32	1.56	1.65	1.59	1.38	1.03	0.57	
Girder C	Beam DL + Cross Frames	0.41	0.77	1.05	1.22	1.28	1.22	1.04	0.76	0.40	-76.86	0.06	0.12	0.17	0.20	0.22	0.21	0.18	0.13	0.07	9.36
	Deck DL	1.00	1.88	2.56	2.99	3.13	2.98	2.54	1.85	0.96		0.17	0.32	0.45	0.54	0.58	0.56	0.48	0.35	0.19	
	Bridge Rail	0.12	0.22	0.30	0.35	0.37	0.35	0.30	0.22	0.12		0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.04	0.02	
	FWS	0.16	0.30	0.40	0.47	0.49	0.47	0.40	0.30	0.16		0.03	0.05	0.07	0.08	0.08	0.08	0.07	0.05	0.03	
	Shrinkage	0.65	1.16	1.52	1.74	1.81	1.74	1.52	1.15	0.64		0.24	0.44	0.58	0.67	0.70	0.68	0.59	0.45	0.26	
	Subtotal	2.34	4.33	5.84	6.77	7.08	6.76	5.80	4.27	2.27		0.52	0.97	1.32	1.56	1.64	1.58	1.37	1.02	0.56	
	Gradeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	2.34	4.33	5.84	6.77	7.08	6.76	5.80	4.27	2.27		0.52	0.97	1.32	1.56	1.64	1.58	1.37	1.02	0.56	
Girder D	Beam DL + Cross Frames	0.41	0.77	1.05	1.22	1.28	1.22	1.04	0.76	0.40	-77.22	0.06	0.12	0.17	0.20	0.21	0.20	0.17	0.13	0.07	9.36
	Deck DL	1.00	1.89	2.57	2.99	3.13	2.98	2.55	1.85	0.97		0.16	0.31	0.44	0.53	0.56	0.54	0.46	0.34	0.18	
	Bridge Rail	0.12	0.22	0.30	0.35	0.37	0.35	0.30	0.22	0.12		0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.04	0.02	
	FWS	0.16	0.30	0.40	0.47	0.49	0.47	0.40	0.30	0.16		0.03	0.05	0.07	0.08	0.08	0.08	0.07	0.05	0.03	
	Shrinkage	0.67	1.19	1.56	1.78	1.85	1.77	1.54	1.16	0.65		0.25	0.44	0.59	0.68	0.72	0.69	0.60	0.46	0.26	
	Subtotal	2.36	4.36	5.88	6.81	7.12	6.79	5.83	4.30	2.29		0.52	0.97	1.32	1.55	1.63	1.57	1.35	1.01	0.55	
	Gradeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	2.36	4.36	5.88	6.81	7.12	6.79	5.83	4.30	2.29		0.52	0.97	1.32	1.55	1.63	1.57	1.35	1.01	0.55	
Girder E	Beam DL + Cross Frames	0.41	0.78	1.06	1.23	1.29	1.23	1.05	0.77	0.40	-77.34	0.06	0.12	0.16	0.19	0.21	0.20	0.17	0.12	0.07	9.36
	Deck DL	1.00	1.89	2.58	3.00	3.14	2.99	2.56	1.86	0.97		0.16	0.30	0.42	0.50	0.54	0.51	0.44	0.32	0.17	
	Bridge Rail	0.12	0.23	0.32	0.37	0.39	0.37	0.32	0.23	0.12		0.02	0.04	0.05	0.06	0.07	0.06	0.05	0.04	0.02	
	FWS	0.12	0.22	0.30	0.35	0.37	0.35	0.30	0.22	0.12		0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.04	0.02	
	Shrinkage	0.69	1.22	1.60	1.82	1.88	1.80	1.57	1.18	0.65		0.25	0.46	0.61	0.70	0.73	0.70	0.62	0.47	0.26	
	Subtotal	2.35	4.34	5.85	6.77	7.08	6.74	5.80	4.25	2.26		0.51	0.96	1.29	1.52	1.61	1.54	1.33	1.00	0.54	
	Gradeline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	2.35	4.34	5.85	6.77	7.08	6.74	5.80	4.25	2.26		0.51	0.96	1.29	1.52	1.61	1.54	1.33	1.00	0.54	



For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:07:14 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114516		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
COUNTY Hood River		CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
DATE 08/2026	RENEWS: 06-30-2027	GIRDER CAMBER DETAILS - 1	
		SHEET NO. JD14	

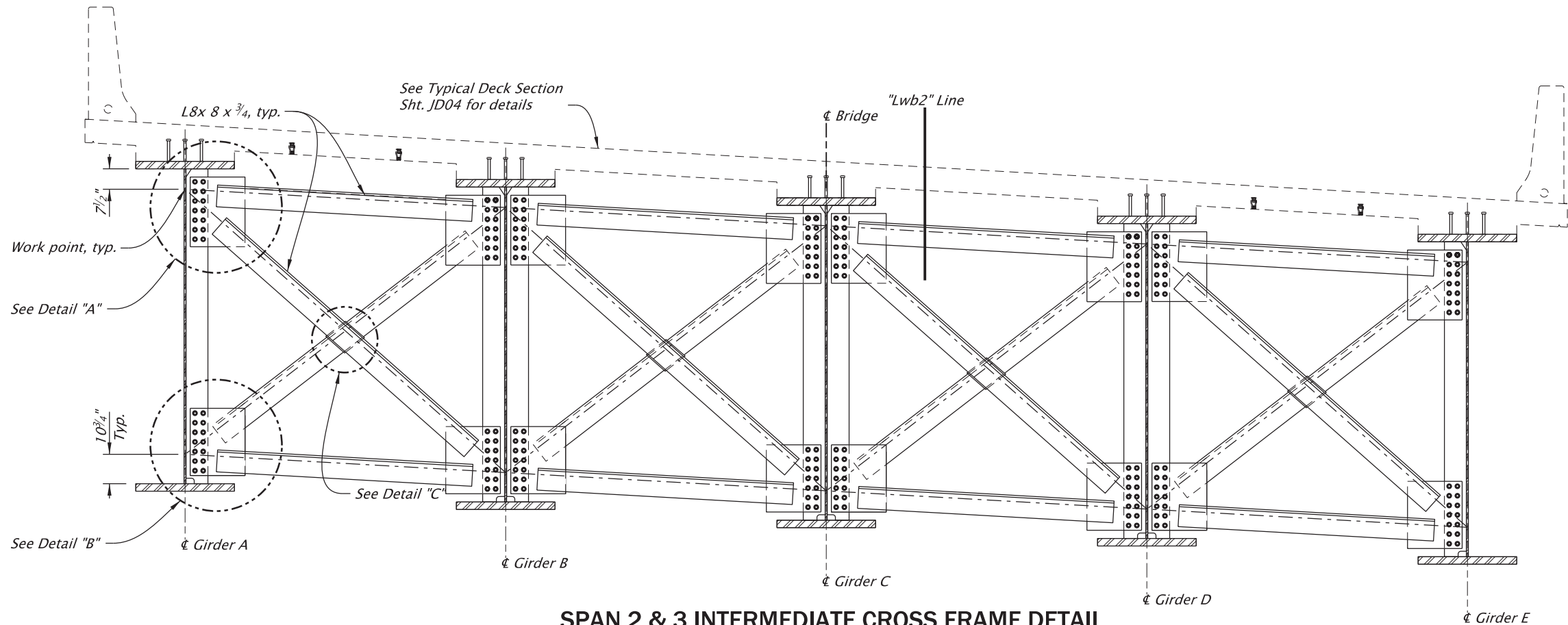
Girder	Item	Span 2 & 3 Camber, inches																			
		Span 2										Span 3									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	"H" (inches)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	"H" (inches)
Girder A	Beam DL + Cross Frames	0.99	1.79	2.27	2.41	2.22	1.75	1.14	0.55	0.13	-77.16	0.26	0.79	1.50	2.22	2.76	2.98	2.79	2.20	1.22	-66.18
	Deck DL	1.77	3.20	4.06	4.30	3.95	3.11	2.02	0.98	0.25		0.40	1.27	2.45	3.70	4.65	5.06	4.78	3.78	2.11	
	Bridge Rail	0.23	0.42	0.53	0.58	0.54	0.43	0.29	0.15	0.04		0.04	0.15	0.29	0.43	0.54	0.58	0.53	0.42	0.23	
	FWS	0.22	0.40	0.51	0.55	0.51	0.41	0.28	0.14	0.04		0.04	0.14	0.28	0.41	0.51	0.55	0.51	0.40	0.22	
	Shrinkage	0.62	0.93	1.00	0.91	0.72	0.49	0.29	0.17	0.07		-0.04	-0.06	-0.03	0.09	0.28	0.49	0.63	0.65	0.47	
	Subtotal	3.83	6.74	8.37	8.75	7.94	6.20	4.02	1.98	0.53		0.70	2.29	4.49	6.85	8.75	9.65	9.24	7.45	4.24	
	Graseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	3.83	6.74	8.37	8.75	7.94	6.20	4.02	1.98	0.53		0.70	2.29	4.49	6.85	8.75	9.65	9.24	7.45	4.24	
Girder B	Beam DL + Cross Frames	0.98	1.76	2.24	2.38	2.20	1.74	1.14	0.57	0.16	-77.16	0.26	0.79	1.50	2.22	2.76	2.98	2.79	2.20	1.22	-70.74
	Deck DL	1.75	3.16	4.00	4.24	3.90	3.09	2.02	1.01	0.28		0.39	1.21	2.32	3.49	4.37	4.74	4.46	3.51	1.94	
	Bridge Rail	0.22	0.40	0.51	0.55	0.51	0.42	0.28	0.14	0.04		0.04	0.14	0.28	0.42	0.51	0.55	0.51	0.40	0.22	
	FWS	0.30	0.54	0.69	0.74	0.69	0.56	0.38	0.19	0.06		0.06	0.19	0.38	0.56	0.69	0.74	0.69	0.54	0.30	
	Shrinkage	0.62	0.94	1.02	0.93	0.74	0.51	0.30	0.16	0.06		-0.01	0.01	0.09	0.26	0.47	0.68	0.81	0.79	0.55	
	Subtotal	3.87	6.80	8.46	8.84	8.04	6.32	4.12	2.06	0.60		0.74	2.34	4.57	6.94	8.81	9.68	9.25	7.43	4.22	
	Graseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	3.87	6.80	8.46	8.84	8.04	6.32	4.12	2.06	0.60		0.74	2.34	4.57	6.94	8.81	9.68	9.25	7.43	4.22	
Girder C	Beam DL + Cross Frames	0.96	1.74	2.21	2.36	2.18	1.74	1.15	0.58	0.17	-77.16	0.23	0.70	1.33	1.96	2.42	2.60	2.43	1.90	1.04	-75.54
	Deck DL	1.73	3.12	3.95	4.19	3.87	3.08	2.03	1.03	0.30		0.36	1.13	2.18	3.26	4.08	4.42	4.15	3.26	1.80	
	Bridge Rail	0.22	0.40	0.51	0.55	0.51	0.42	0.28	0.14	0.04		0.04	0.14	0.28	0.42	0.51	0.55	0.51	0.40	0.22	
	FWS	0.30	0.54	0.69	0.74	0.69	0.56	0.38	0.19	0.06		0.06	0.19	0.38	0.56	0.69	0.74	0.69	0.54	0.30	
	Shrinkage	0.63	0.95	1.04	0.95	0.76	0.52	0.29	0.14	0.05		0.02	0.09	0.22	0.43	0.67	0.87	0.97	0.91	0.61	
	Subtotal	3.84	6.75	8.40	8.79	8.00	6.31	4.14	2.09	0.62		0.71	2.26	4.38	6.63	8.37	9.18	8.75	7.01	3.98	
	Graseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	3.84	6.75	8.40	8.79	8.00	6.31	4.14	2.09	0.62		0.71	2.26	4.38	6.63	8.37	9.18	8.75	7.01	3.98	
Girder D	Beam DL + Cross Frames	0.95	1.72	2.19	2.34	2.17	1.74	1.16	0.60	0.18	-77.28	0.21	0.64	1.22	1.81	2.25	2.42	2.26	1.78	0.98	-80.46
	Deck DL	1.71	3.08	3.91	4.15	3.84	3.07	2.04	1.05	0.32		0.32	1.03	2.00	3.02	3.79	4.11	3.87	3.05	1.69	
	Bridge Rail	0.22	0.40	0.51	0.55	0.51	0.42	0.28	0.14	0.04		0.04	0.14	0.28	0.42	0.51	0.55	0.51	0.40	0.22	
	FWS	0.30	0.54	0.69	0.74	0.69	0.56	0.38	0.19	0.06		0.06	0.19	0.38	0.56	0.69	0.74	0.69	0.54	0.30	
	Shrinkage	0.64	0.97	1.06	0.97	0.77	0.52	0.29	0.13	0.03		0.06	0.19	0.36	0.61	0.86	1.06	1.14	1.03	0.67	
	Subtotal	3.82	6.72	8.36	8.76	7.99	6.32	4.15	2.10	0.64		0.68	2.19	4.25	6.42	8.11	8.89	8.47	6.80	3.86	
	Graseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	3.82	6.72	8.36	8.76	7.99	6.32	4.15	2.10	0.64		0.68	2.19	4.25	6.42	8.11	8.89	8.47	6.80	3.86	
Girder E	Beam DL + Cross Frames	0.94	1.71	2.18	2.33	2.17	1.75	1.17	0.61	0.19	-77.16	0.17	0.57	1.11	1.66	2.08	2.25	2.12	1.67	0.93	-86.10
	Deck DL	1.69	3.05	3.87	4.12	3.82	3.07	2.05	1.06	0.34		0.26	0.90	1.81	2.77	3.50	3.82	3.62	2.87	1.60	
	Bridge Rail	0.23	0.42	0.53	0.58	0.54	0.43	0.29	0.15	0.04		0.04	0.15	0.29	0.43	0.54	0.58	0.53	0.42	0.23	
	FWS	0.22	0.40	0.51	0.55	0.51	0.41	0.28	0.14	0.04		0.04	0.14	0.28	0.41	0.51	0.55	0.51	0.40	0.22	
	Shrinkage	0.66	1.00	1.09	1.00	0.79	0.53	0.28	0.11	0.02		0.11	0.29	0.52	0.79	1.06	1.25	1.29	1.13	0.72	
	Subtotal	3.74	6.58	8.18	8.58	7.83	6.18	4.08	2.08	0.63		0.62	2.05	4.00	6.07	7.69	8.45	8.07	6.50	3.70	
	Graseline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Total	3.74	6.58	8.18	8.58	7.83	6.18	4.08	2.08	0.63		0.62	2.05	4.00	6.07	7.69	8.45	8.07	6.50	3.70	

GIRDER SOFFIT ELEVATION							
GIRDER	BENT 1	BENT 2*	BENT 2**	BENT 3	BENT 4***	BENT 4****	BENT 5
A	139.96	133.53	133.41	127.77	121.58	121.5	122.28
B	139.68	133.25	133.12	127.1	120.86	120.78	121.56
C	139.4	132.97	132.84	126.42	120.14	120.06	120.84
D	139.12	132.68	132.56	125.73	119.42	119.34	120.12
E	138.83	132.4	132.32	125.02	118.7	118.61	119.39

* *⌘ Bearings @ end span 1*
 ** *⌘ Bearings @ begin span 2*
 *** *⌘ Bearings @ end span 3*
 **** *⌘ Bearings @ begin span 4*

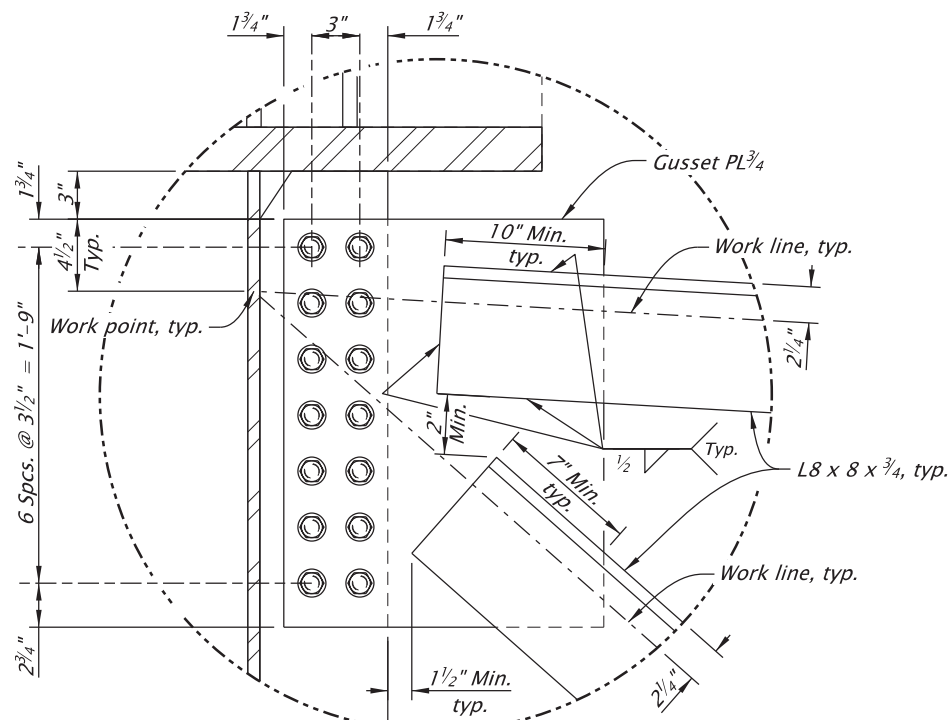
For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318			OREGON DEPARTMENT OF TRANSPORTATION
BDS DWG NO. 114517			Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT
CALC. BOOK 7841		99900PE Digitally Signed 2026.09.16 08:07:53 -07'00'	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY
HWY: 002 M.P.: 63.41		OREGON MAY 10, 2022 DESIRE GIRANEZA	Designer: Desire Giraneza CADD Tech: Jlm Culpepper (DEA)
COUNTY Hood River	DATE 08/2026	GIRDER CAMBER DETAILS - 2	SHEET NO. JD15
RENEWS: 06-30-2027			



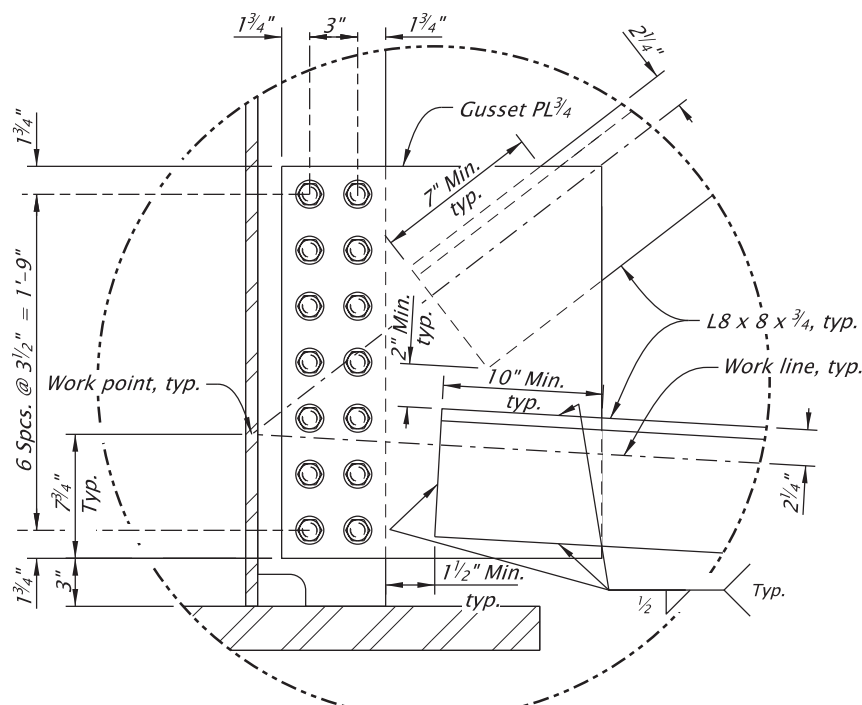
SPAN 2 & 3 INTERMEDIATE CROSS FRAME DETAIL

Scale: 1/4" = 1'-0"



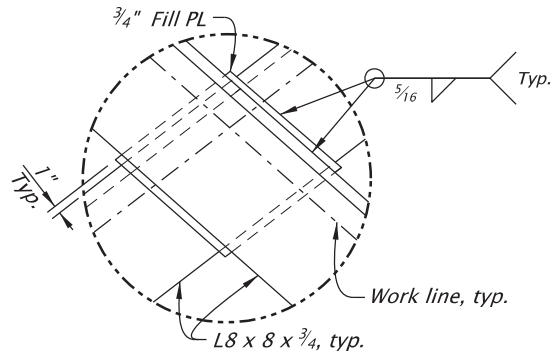
DETAIL "A"

Scale: 1" = 1'-0"



DETAIL "B"

Scale: 1" = 1'-0"



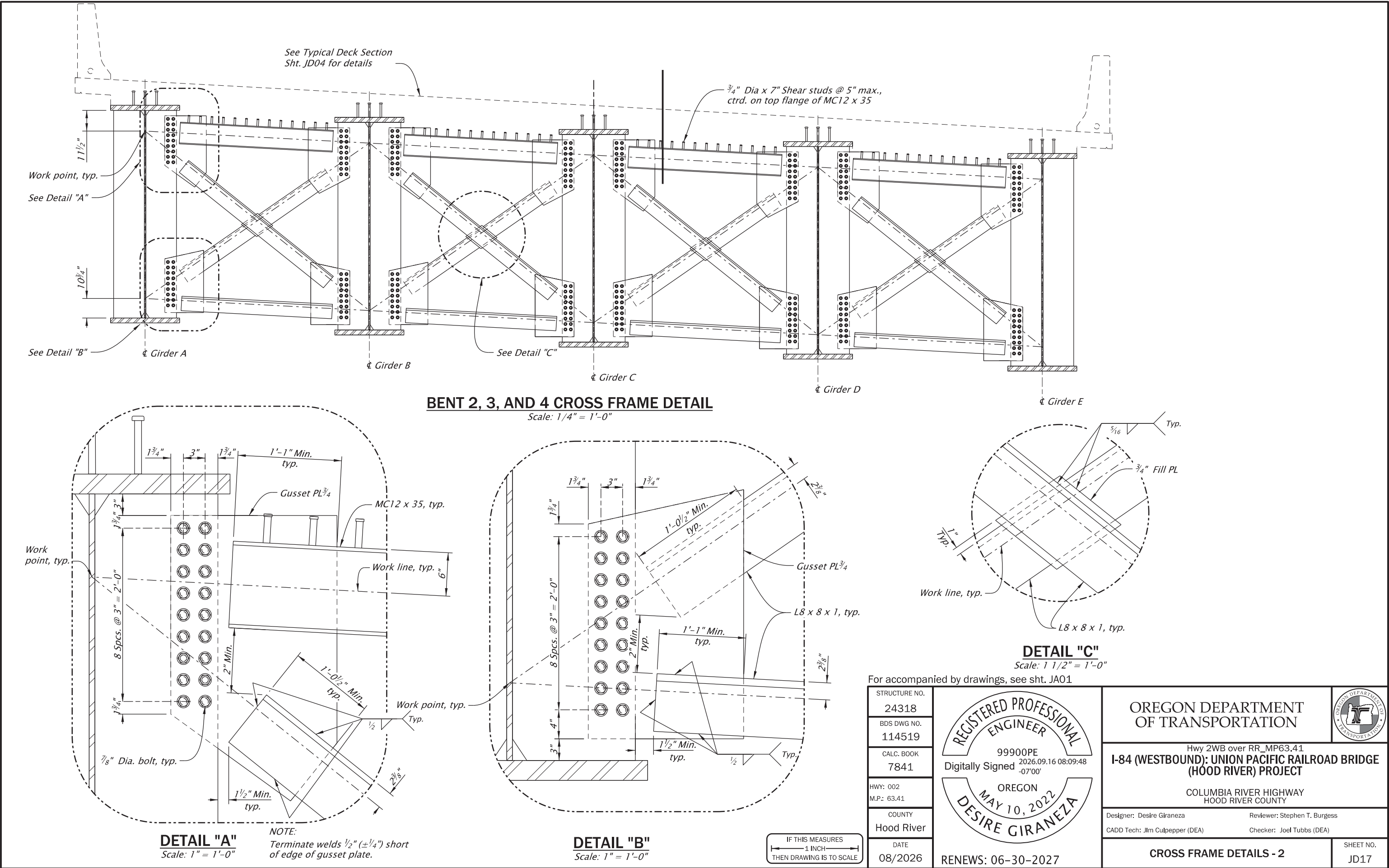
DETAIL "C"

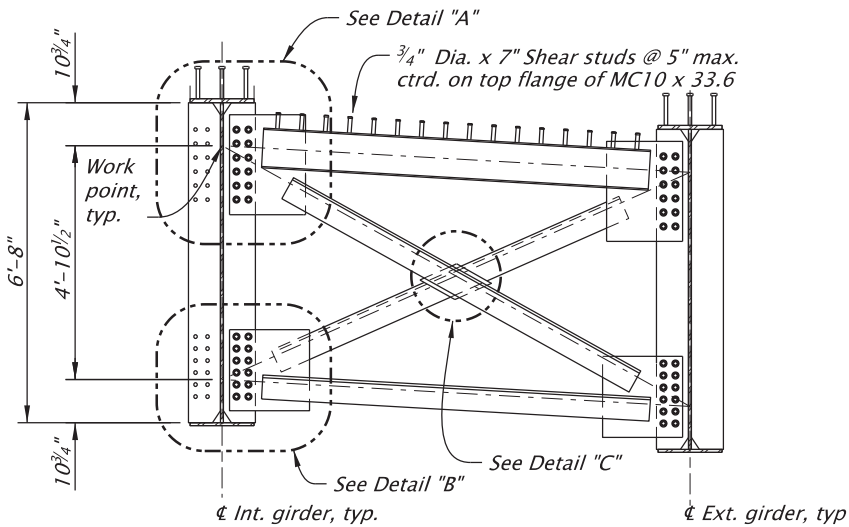
Scale: 1 1/2" = 1'-0"

For accompanied by drawings, see sht. JA01

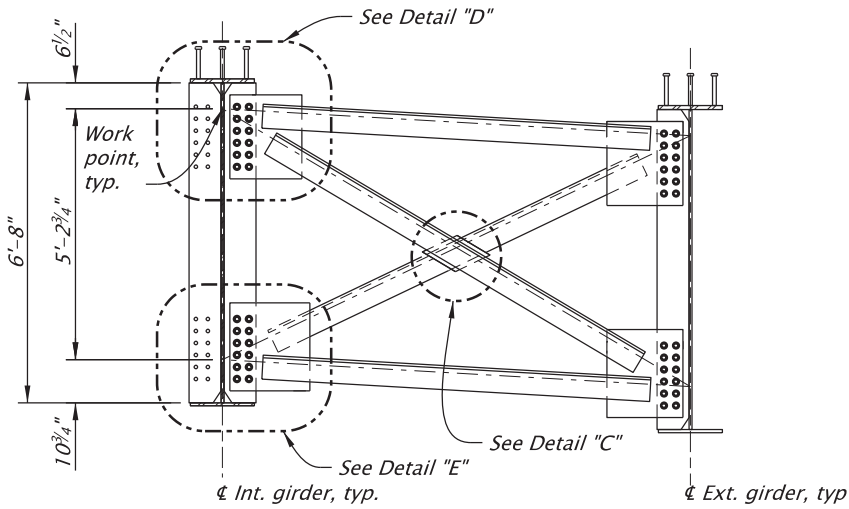
STRUCTURE NO.	24318
BDS DWG NO.	114518
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026
REGISTERED PROFESSIONAL ENGINEER	99900PE
Digitally Signed	2026.09.16 08:08:57 -07'00'
OREGON	MAY 10, 2022
DESIRE GIRANEZA	
RENEWES: 06-30-2027	

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
CROSS FRAME DETAILS - 1	
SHEET NO. JD16	

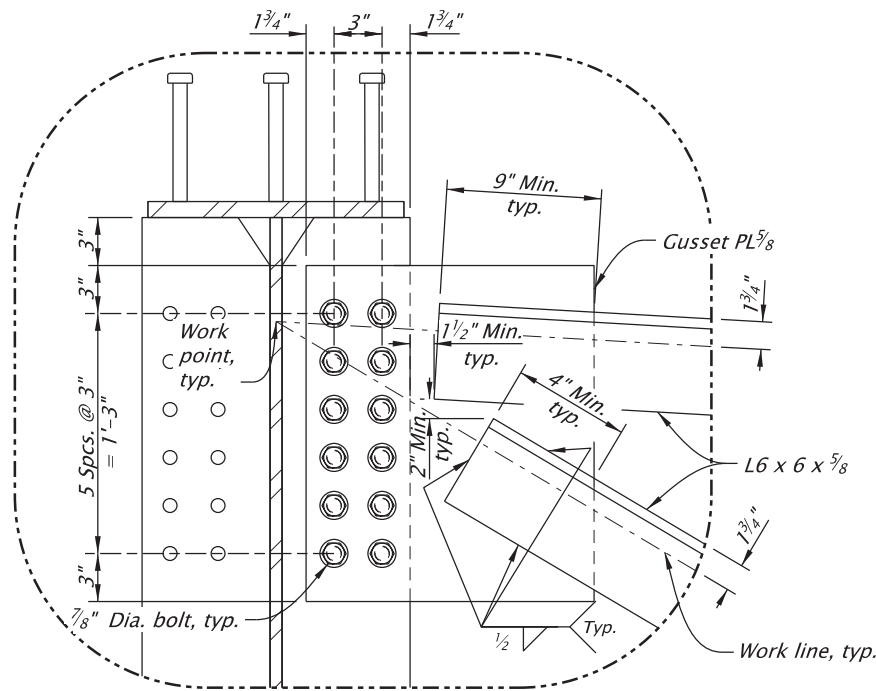




BENT 1 AND 5 CROSS FRAME DETAIL
Scale: 1/4" = 1'-0"

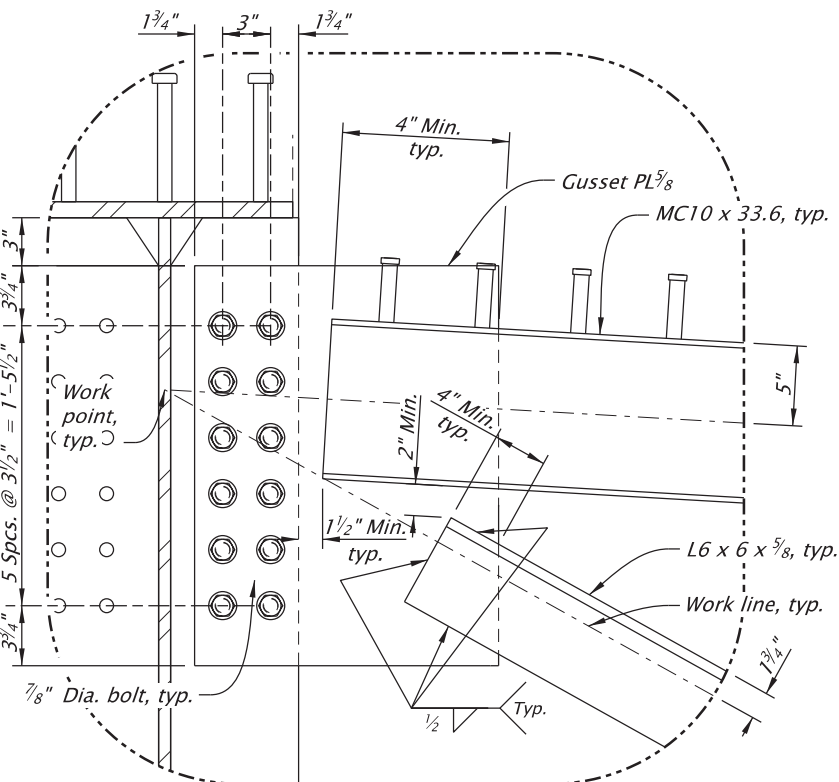


SPAN 1 AND 4 INTERMEDIATE CROSS FRAME DETAIL
Scale: 1/4" = 1'-0"



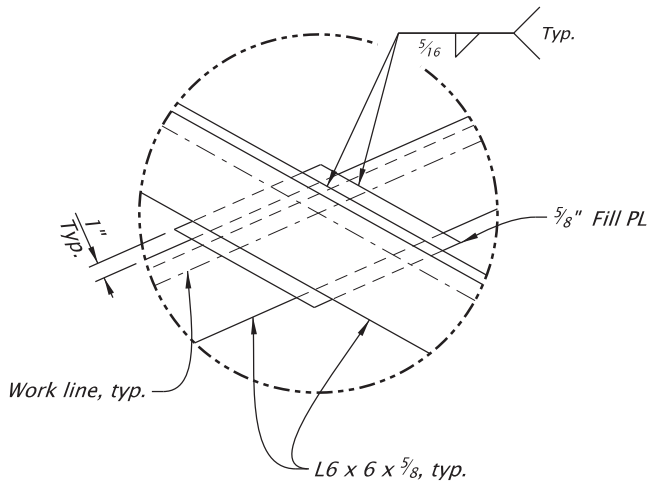
DETAIL "D"
Scale: 1" = 1'-0"

NOTE: Terminate welds 1/2" ($\pm 1/4$ ") short of edge of gusset plate.

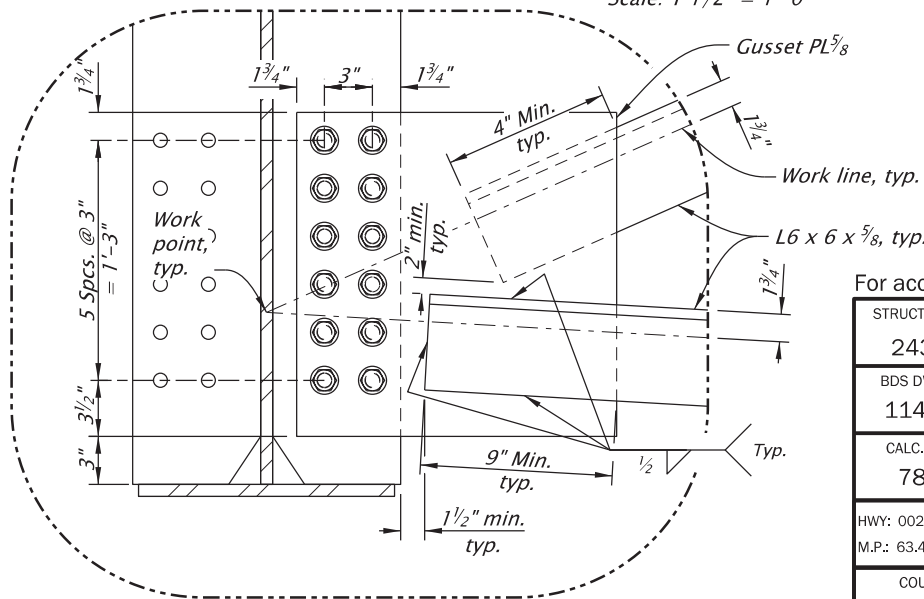


DETAIL "A"
Scale: 1" = 1'-0"
(Bent 1 & 5)

Note: Terminate welds 1/2" ($\pm 1/4$ ") short of edge of gusset plate.



DETAIL "C"
Scale: 1 1/2" = 1'-0"



DETAIL "B"
Scale: 1" = 1'-0"
(Bent 1 & 5)

IF THIS MEASURES
1 INCH
THEN DRAWING IS TO SCALE

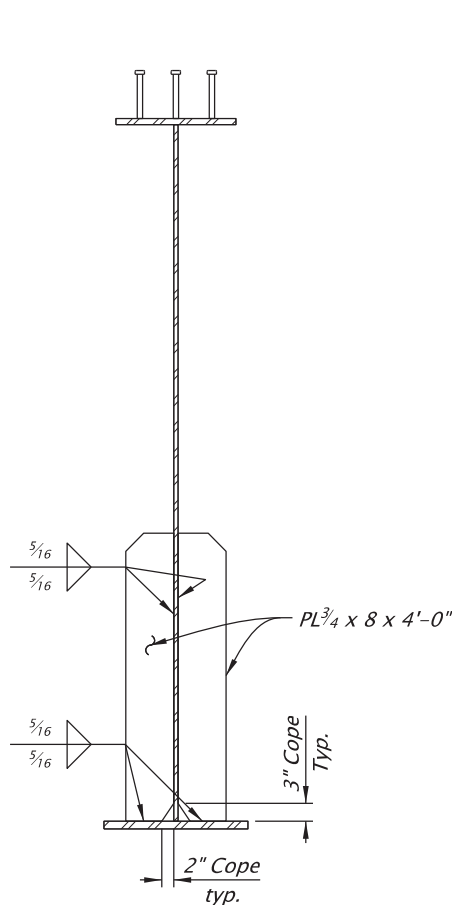
For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114520
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

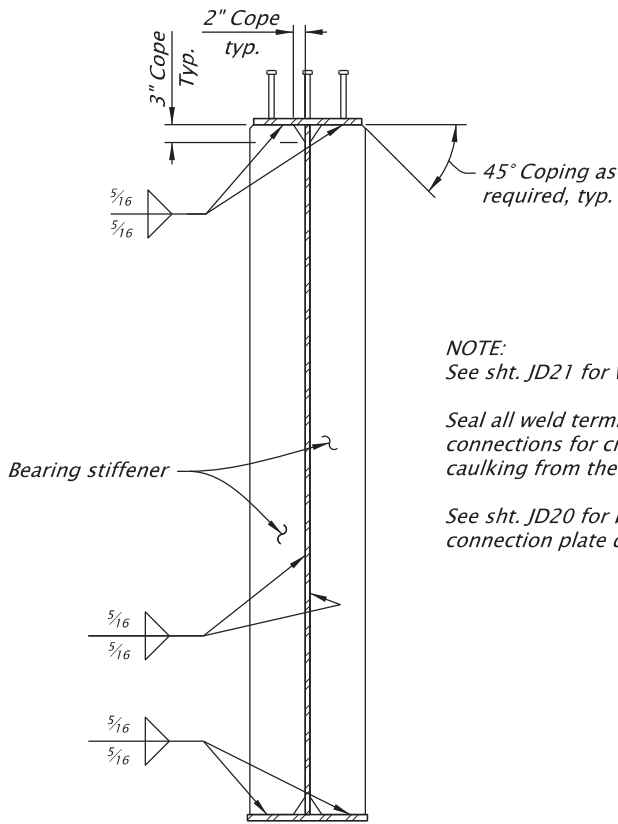


RENEW: 06-30-2027

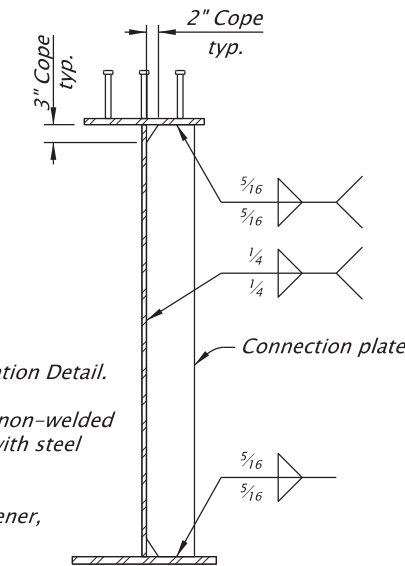
OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
CROSS FRAME DETAILS - 3	
SHEET NO. JD18	



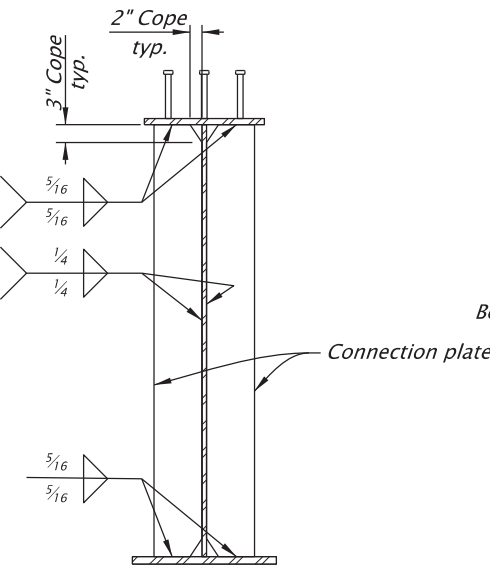
PARTIAL DEPTH STIFFENER DETAIL
Scale: 3/8" = 1'-0"



BENT 2 AND 4 BEARING STIFFENER
Scale: 3/8" = 1'-0"

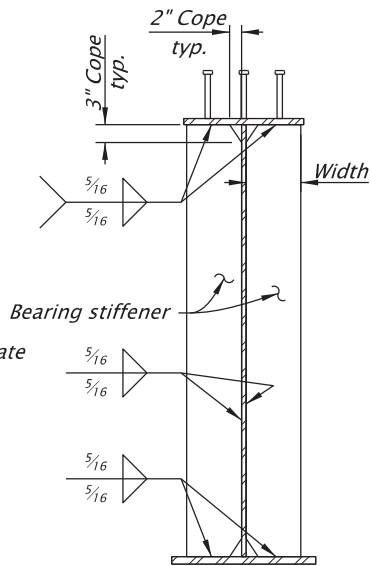


AT EXTERIOR GIRDER

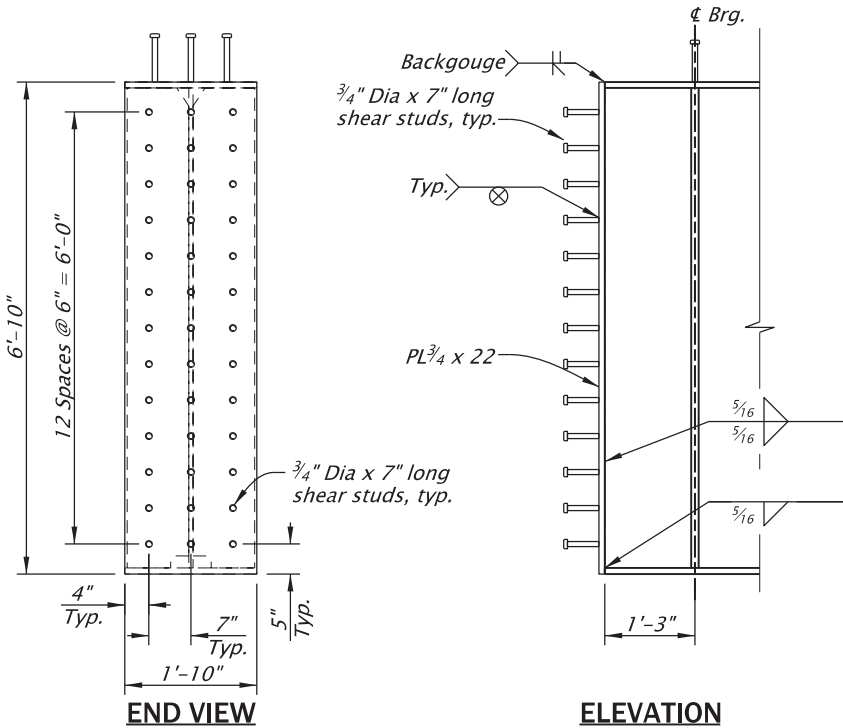


AT INTERIOR GIRDER

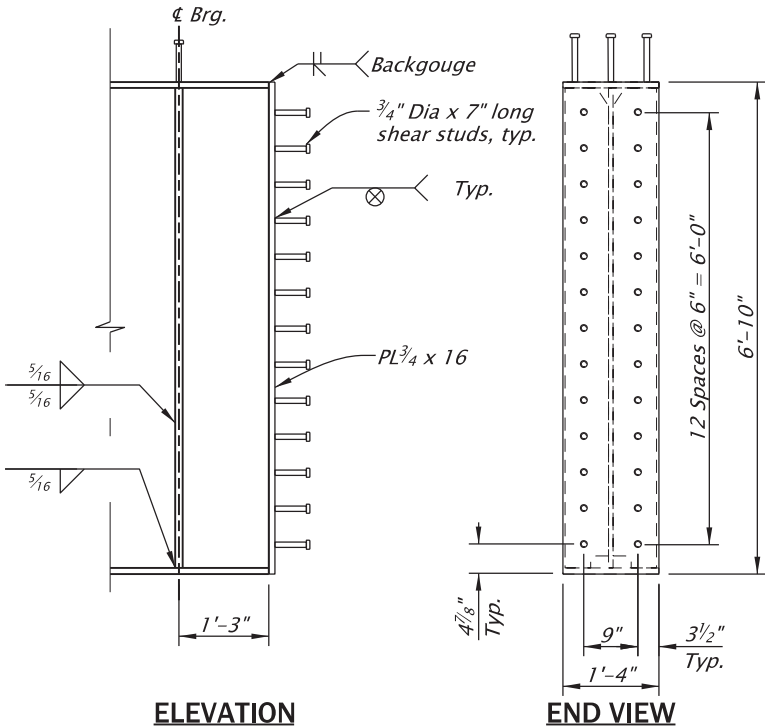
INTERMEDIATE CROSS FRAME CONNECTION PLATES
Scale: 3/8" = 1'-0"



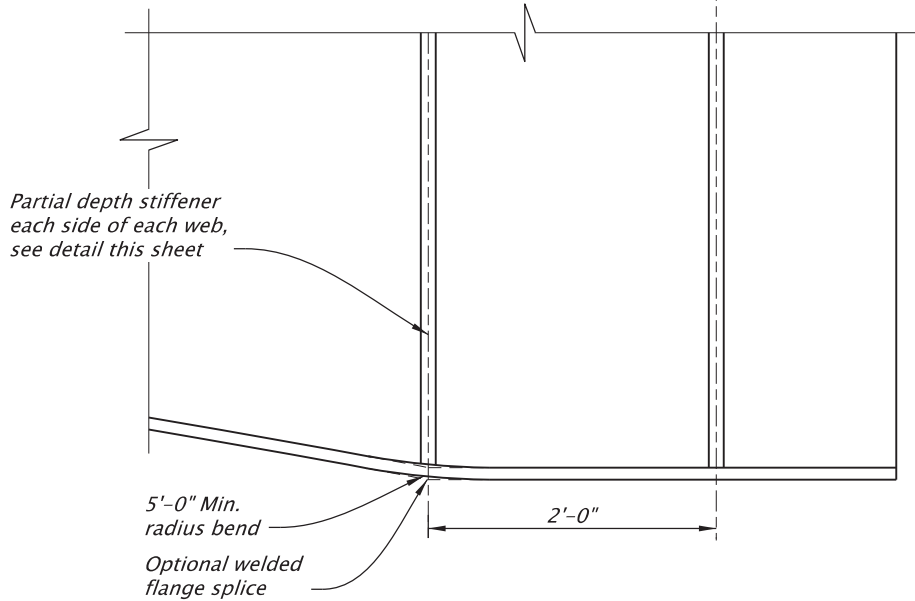
BEARING AND CONNECTION PLATE AT BENTS
Scale: 3/8" = 1'-0"



BENT 1 GIRDER END PLATE DETAILS
Scale: 3/8" = 1'-0"



BENT 5 GIRDER END PLATE DETAILS
Scale: 3/8" = 1'-0"



BOTTOM FLANGE ANGLE POINT DETAIL
Scale: 3/4" = 1'-0"

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114521
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026
REGISTERED PROFESSIONAL ENGINEER	99900PE
Digitally Signed	2026.09.16 08:11:17 -07'00'
OREGON	MAY 10, 2022
DESIRE GIRANEZA	
RENEWES:	06-30-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41	
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
CONNECTION PLATE DETAILS - 1	
SHEET NO. JD19	

BEARING CONNECTION PLATE DIMENSIONS							
Bent	1	2*	2**	3	4***	4****	5
Height (in.)	80	115	115	115	115	115	80
Thickness (in.)	1	1	1	1 1/2	1	1	7/8
Width (in.)	10	10	11	17	11	9	7

* ⌀ Bearings @ end span 1
** ⌀ Bearings @ begin span 2
*** ⌀ Bearings @ end span 3
**** ⌀ Bearings @ begin span 4

STIFFENER/INTERMEDIATE CROSS-FRAME CONNECTION PLATE DIMENSIONS																
Plate ID ✱	CP_1	CP_2	CP_3	CP_4	CP_5	CP_6	CP_7	CP_8	CP_9	CP_10	CP_11	CP_12	CP_13	CP_14	CP_15	CP_16
Girder	A – E	A	A	B	C	D	E	A–E	A–E	A–E	A	B	C	C	D	E
X_CP ✱	varies	27'-9 ³ / ₈ "	12'-4 ¹ / ₂ "	15'-11"	19'-5 ⁵ / ₈ "	23'-0 ¹ / ₈ "	26'-6 ³ / ₄ "	2'-9"	FS1 & FS2	FS3	20'-6 ¹ / ₄ "	16'-11 ¹ / ₂ "	13'-4 ⁷ / ₈ "	28'-2 ⁵ / ₈	24'-7 ³ / ₄ "	28'-11 ⁷ / ₈ "
Height (in)	80	81 1/8	96 5/8	91 3/8	87 1/8	83 7/8	81 5/8	48	115	115	85	88 1/2	92 7/8	80 1/2	81 3/4	84 1/8
Thickness (in.)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	7/8	7/8	3/4	3/4	3/4	3/4	3/4	3/4
Width (in.)	8	8	8	8	8	8	8	8	8	10	8	8	8	8	8	8

NOTE:
✱ See sheets JD10 to JD13

For accompanied by drawings, see sht. JA01

STRUCTURE NO.
24318

BDS DWG NO.
114522

CALC. BOOK
7841

HWY: 002
M.P.: 63.41

COUNTY
Hood River

DATE
08/2026

REGISTERED PROFESSIONAL
ENGINEER

99900PE
Digitally Signed 2026.09.16 08:12:34 -07'00'

OREGON
MAY 10, 2022
DESIRE GIRANEZA

RENEW: 06-30-2027

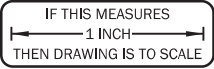
OREGON DEPARTMENT
OF TRANSPORTATION

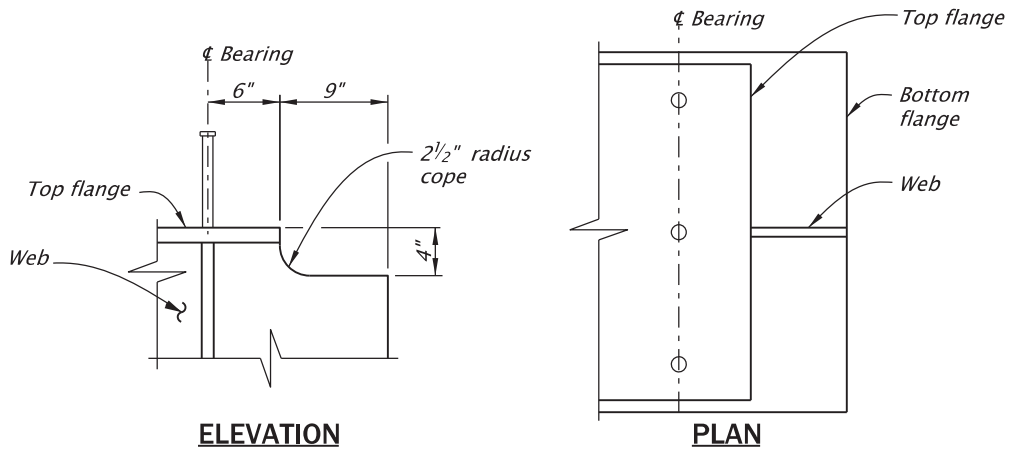
Hwy 2WB over RR_MP63.41
**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Desire Giraneza Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA) Checker: Joel Tubbs (DEA)

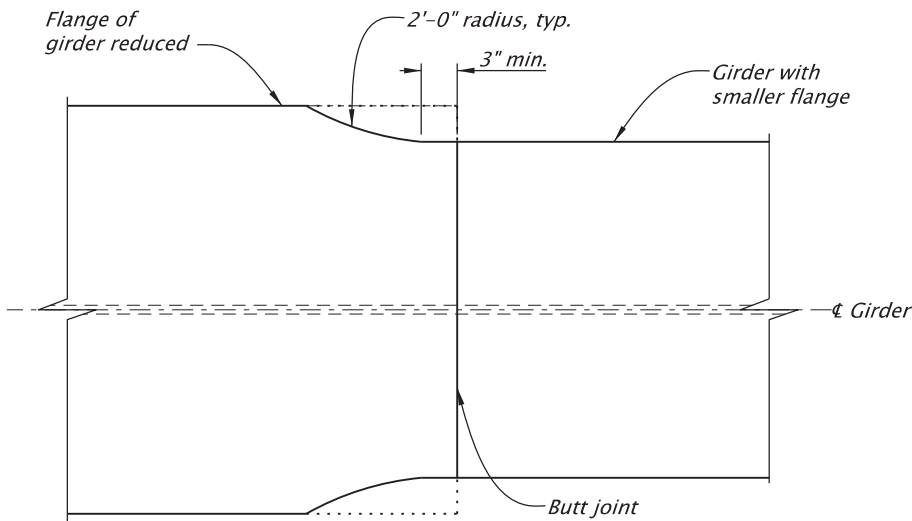
CONNECTION PLATE DETAILS - 2

SHEET NO.
JD20

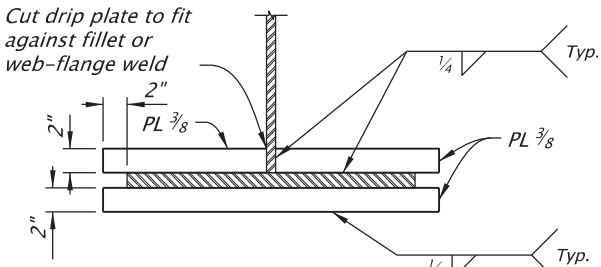
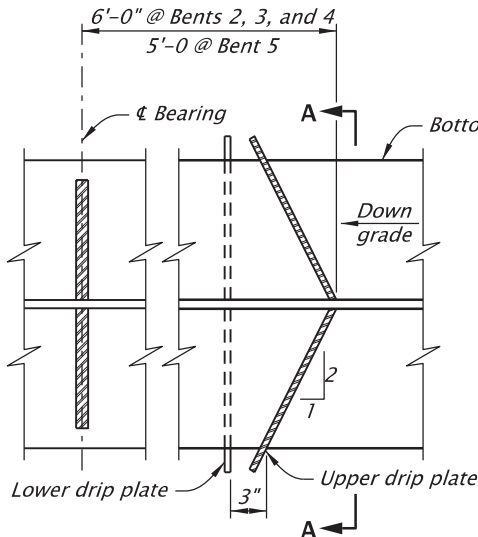




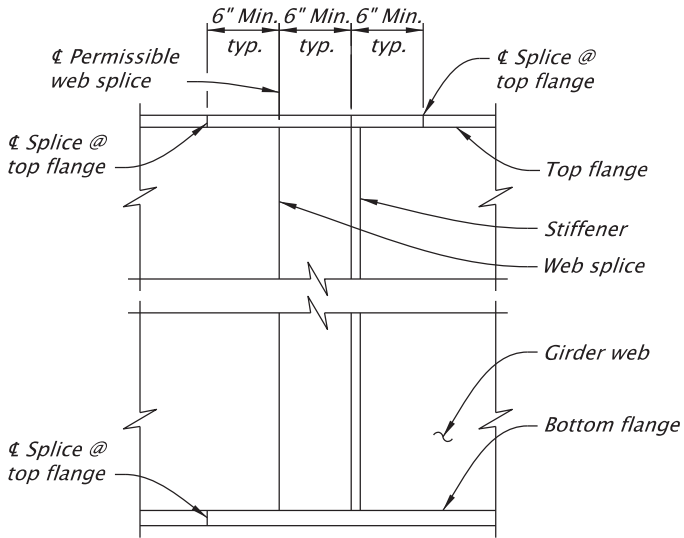
GIRDER END COPING DETAIL
Scale: 3/4" = 1'-0"



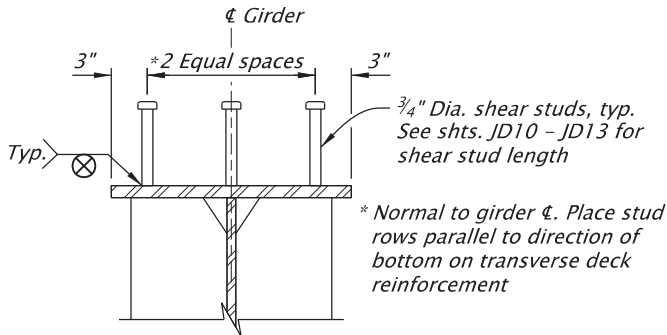
FLANGE WIDTH REDUCTION DETAIL
Scale: 3/4" = 1'-0"



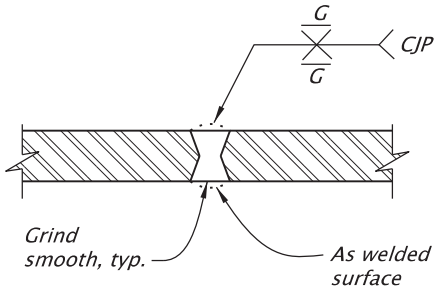
NOTE:
Terminate welds 1/2" ($\pm$ 1/4") short of
edge of flange and flange-web weld.



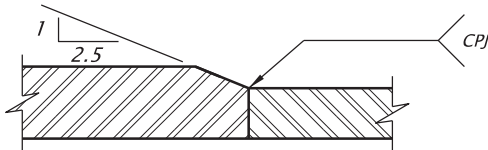
SHOP SPlice OFFSET DETAIL
Scale: 3/4" = 1'-0"



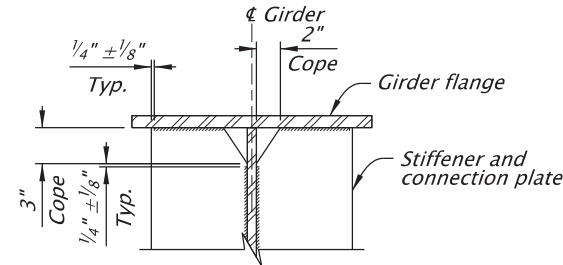
SHEAR STUD DETAIL
Scale: 3/4" = 1'-0"



EQUAL THICKNESS FLANGE OR WEB SPlice



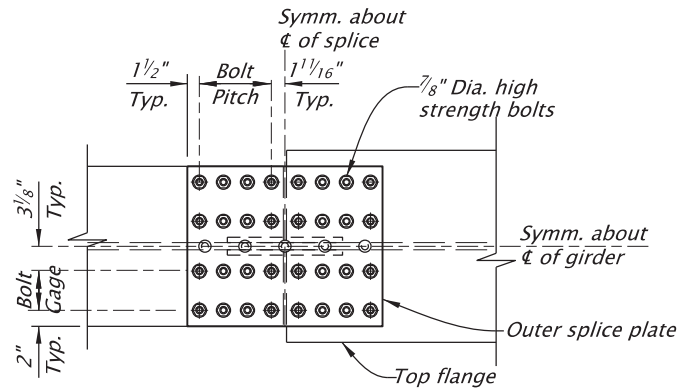
UNEQUAL THICKNESS FLANGE SPlice
SHOP FLANGE SPlice
No Scale



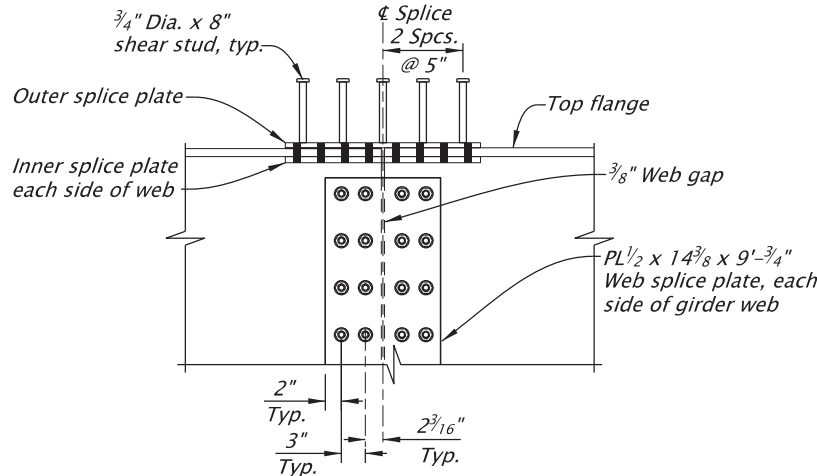
WELD TERMINATION DETAIL
Scale: 3/4" = 1'-0"

For accompanied by drawings, see sht. JA01

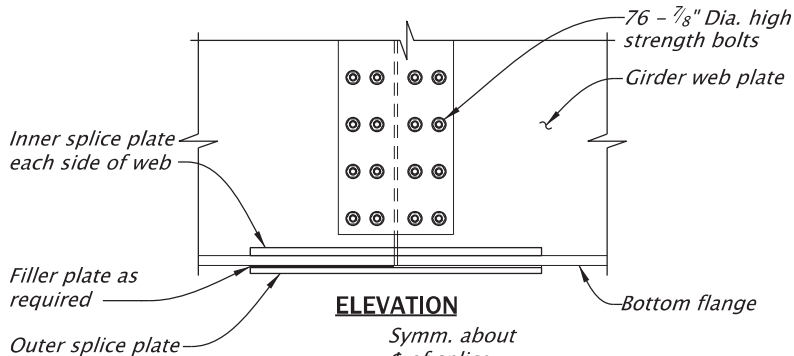
STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:13:22 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114523		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Desire Giraneza	Reviewer: Stephen T. Burgess	
COUNTY Hood River	RENEWS: 06-30-2027	CADD Tech: JIm Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		WELDING AND MISCELLANEOUS DETAILS		SHEET NO. JD21



PLAN - TOP FLANGE



ELEVATION



PLAN - BOTTOM FLANGE

NOTE:
Bolts shown may not represent the actual bolt pattern, see Table this sheet.

FIELD SPICE 1 AND 4 DETAILS

No Scale

Filler Plate							
Field Splice	Location	Plate	Thk, in.	Width, in.	Length, in.	Qty.	
1 And 4	Top Flange	Outer Splice Plate	¾	20	24⅜	1	
		Inner Splice Plate	¾	8⅞"	24⅜	2	
		Filler Plate	⅛	20	12	1	
		Bolt Gage	1 Spaces @ 4⅞" = 4⅞"				32
		Bolt Pitch	3 Spaces @ 3" = 9"				
	Bottom Flange	Outer Splice Plate	¾	24	36⅜	1	
		Inner Splice Plate	¾	10⅞	36⅜	2	
		Bolt Gage	1 Spaces @ 6⅞" = 6⅞"				48
Bolt Pitch	5 Spaces @ 3" = 15"						

Shear studs on top of splice plate along & girder, typ.

Outer splice plate

Filler plate as required

Top flange

Inner splice plate

LEGEND

- Girders
- Filler plates
- Splice plates

Inner splice plate

Bottom flange

Filler plate as required

Outer splice plate

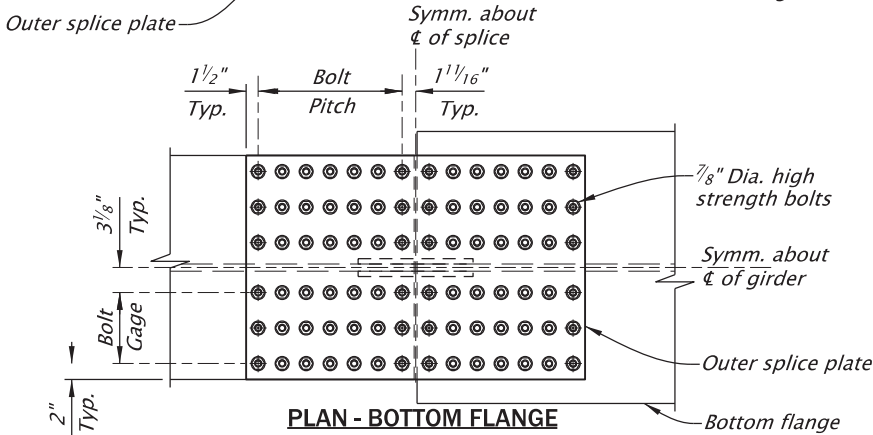
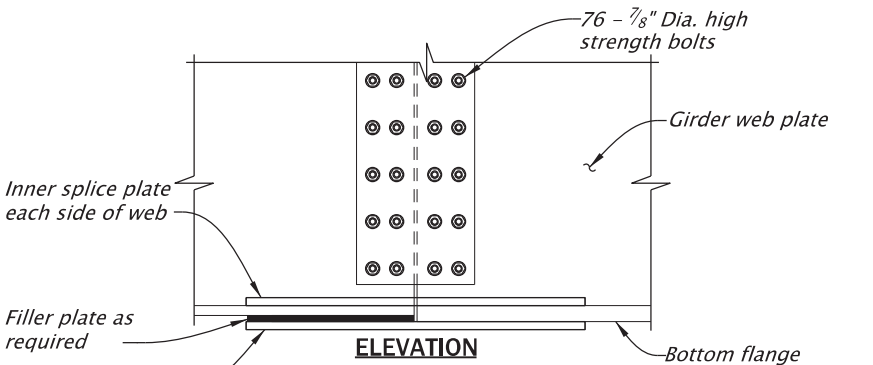
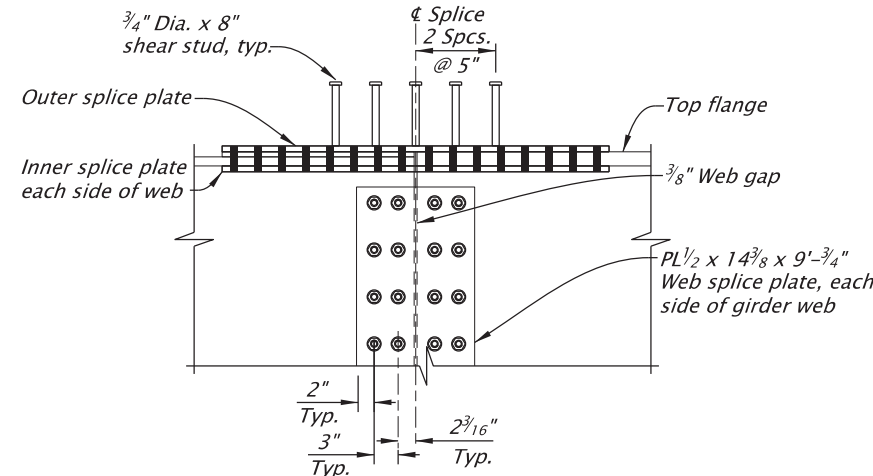
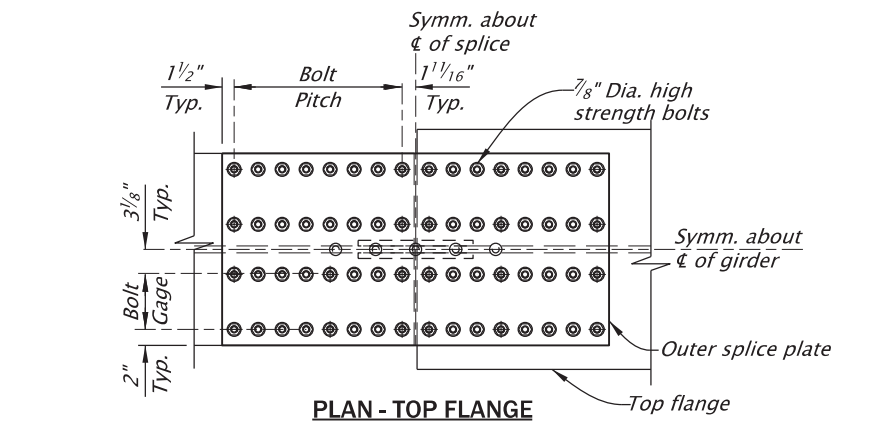
NOTE:
Opposite side similar without filler plates.

FIELD SPICE 1 AND 4 SECTION

No Scale

For accompanied by drawings, see sht. JA01

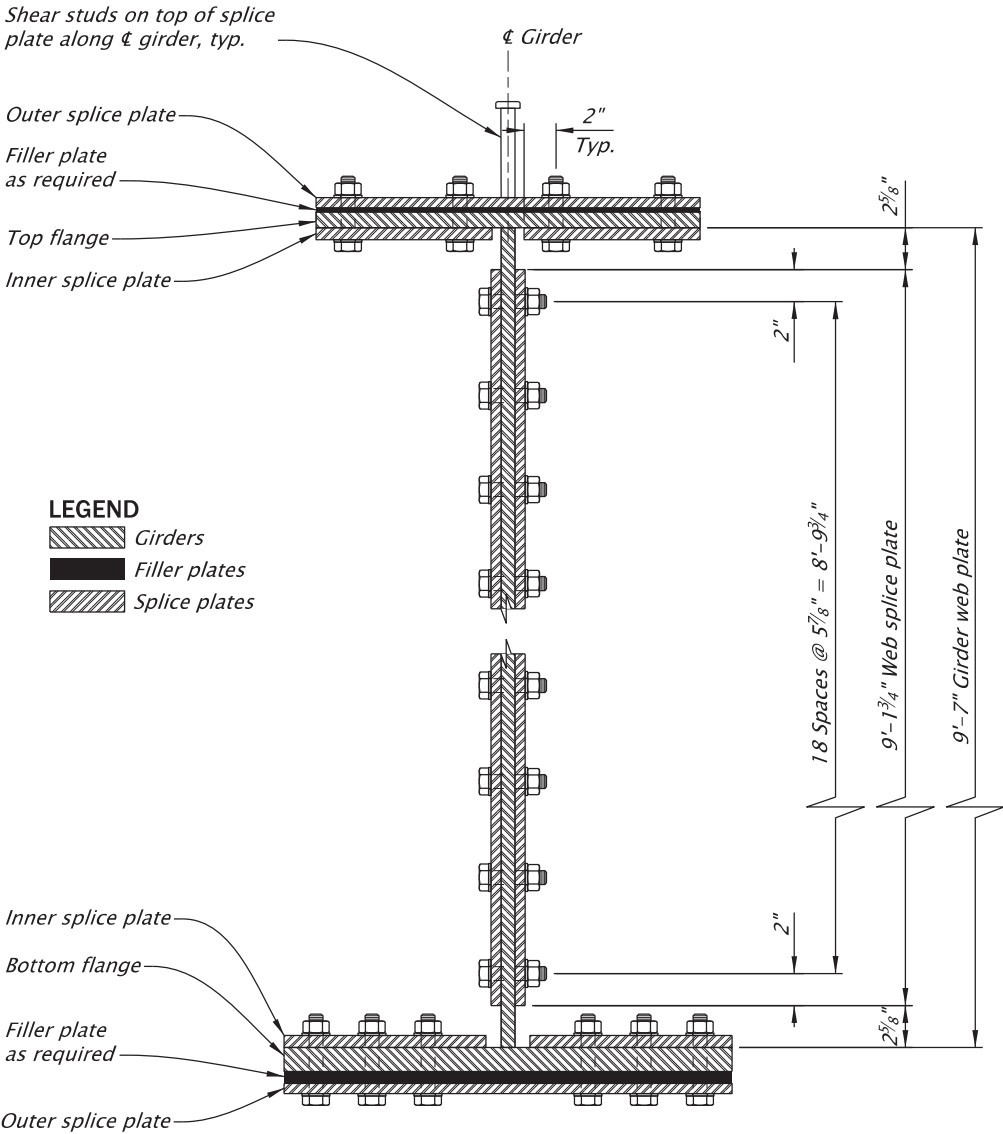
STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:13:53 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114524		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Desire Giraneza	Reviewer: Stephen T. Burgess	
COUNTY Hood River		CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026	RENEWS: 06-30-2027	FIELD SPICE DETAILS 1		SHEET NO. JD22



NOTE:
Bolts shown may not represent the actual bolt pattern, see Table this sheet.

FIELD SPLICE 2 AND 3 DETAILS
No Scale

FIELD SPLICE SCHEDULE							
Field Splice	Location	Plate	Thk, in.	Width, in.	Length, in.	Qty.	
2 And 3	Top Flange	Outer Splice Plate	$\frac{3}{4}$	24	$48\frac{3}{8}$	1	
		Inner Splice Plate	$\frac{3}{4}$	$10\frac{7}{8}$	$48\frac{3}{8}$	2	
		Filler	$\frac{5}{8}$	24	24	1	
		Bolt Gage	1 Spaces @ $6\frac{7}{8}" = 6\frac{7}{8}"$				64
		Bolt Pitch	7 Spaces @ $3" = 21"$				
	Bottom Flange	Outer Splice Plate	$\frac{3}{4}$	30	$42\frac{3}{8}$	1	
		Inner Splice Plate	$\frac{3}{4}$	$13\frac{7}{8}$	$42\frac{3}{8}$	2	
		Filler	$\frac{5}{8}$	30	21	1	
		Bolt Gage	2 Spaces @ $4\frac{15}{16}" = 4\frac{15}{16}"$				84
		Bolt Pitch	6 Spaces @ $3" = 18"$				



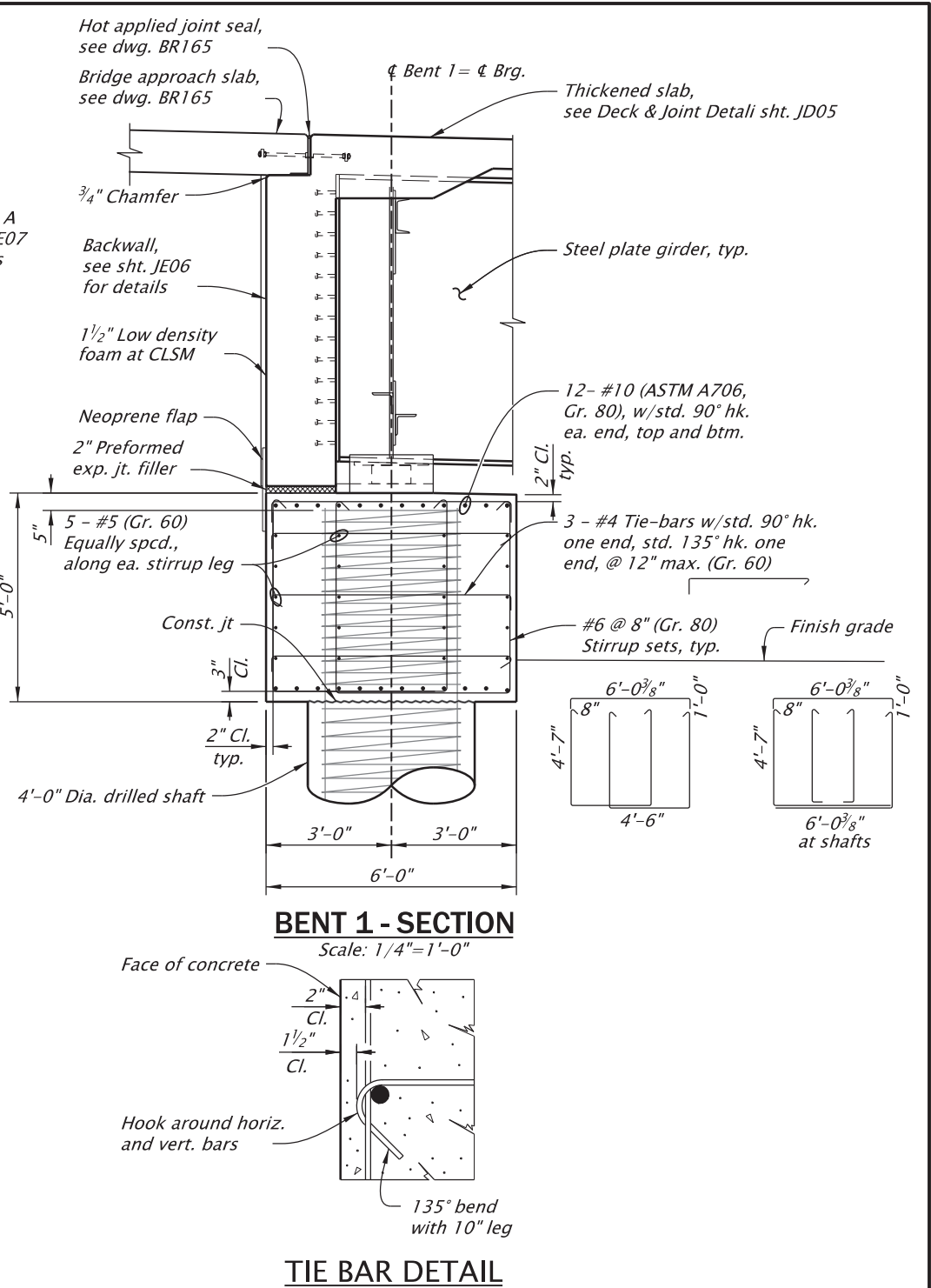
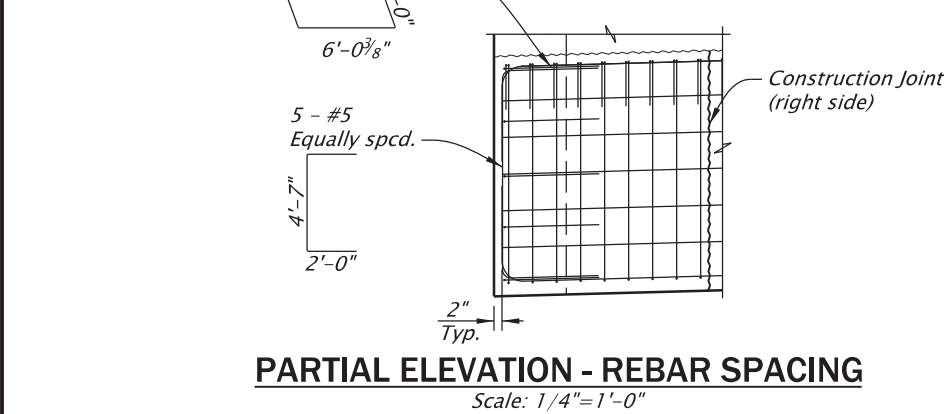
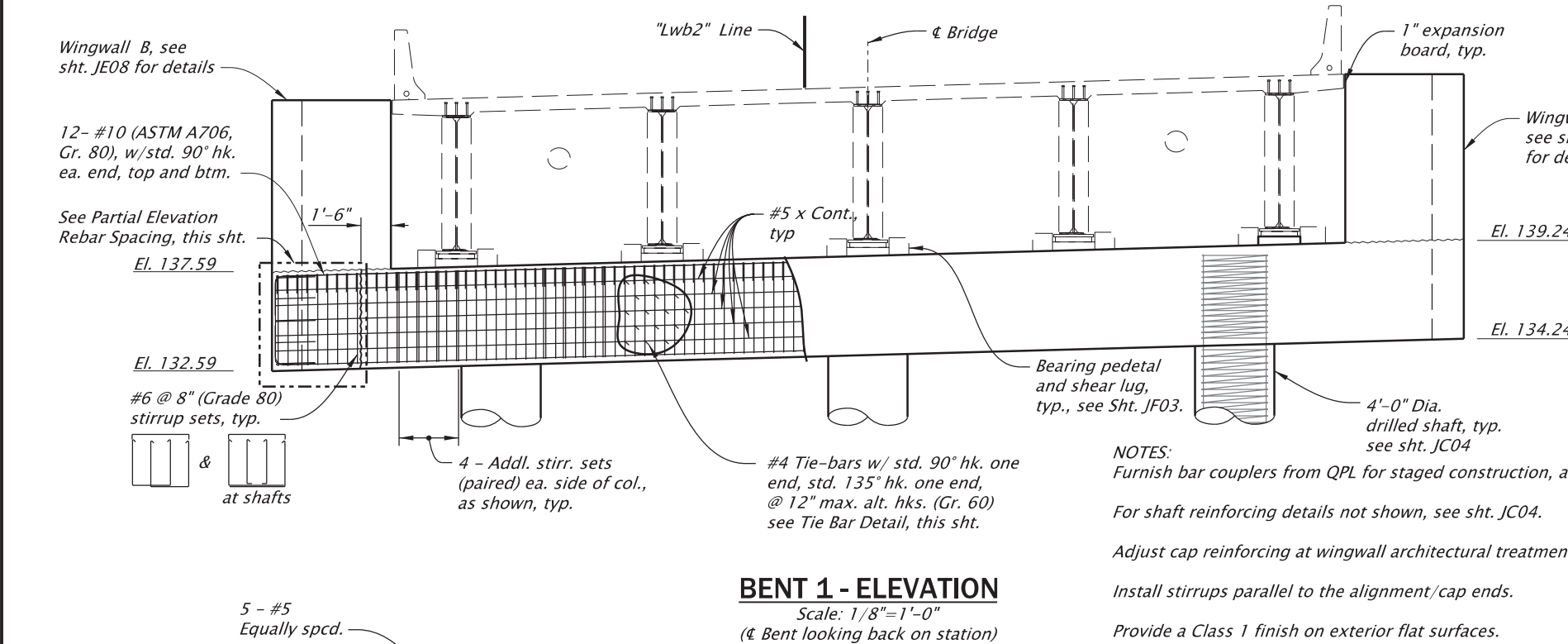
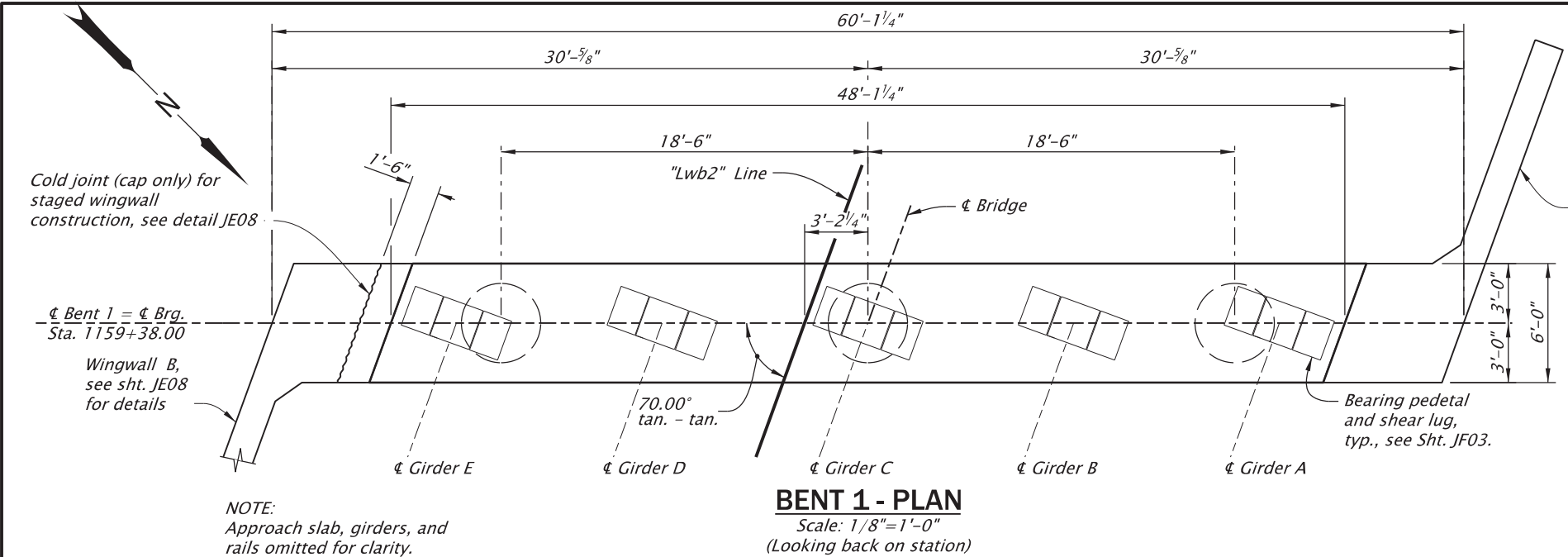
NOTE:
Opposite side similar without filler plates.

FIELD SPLICE 2 AND 3 SECTION
No Scale

- SPLICE NOTES:**
1. Exclude all bolt threads from shear planes.
 2. To provide bolt entering the tightening clearance, assemble flange splices prior to web splice plate.
 3. Where possible only the head of bolts shall be exposed to view.
 4. See shts. JD11 and JD12 for girder splice locations.
 5. See shts. JD11 and JD12 for flange sizes.
 6. Schedule quantities are for each splice location.
 7. See sht. JD06 for Structural Steel Notes.

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114525			
CALC. BOOK 7841		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
HWY: 002 M.P.: 63.41		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
COUNTY Hood River		Designer: Desire Giraneza CADD Tech: Jim Culppepper (DEA)	Reviewer: Stephen T. Burgess Checker: Joel Tubbs (DEA)
DATE 08/2026	RENEW: 06-30-2027	FIELD SPLICE DETAILS 2	

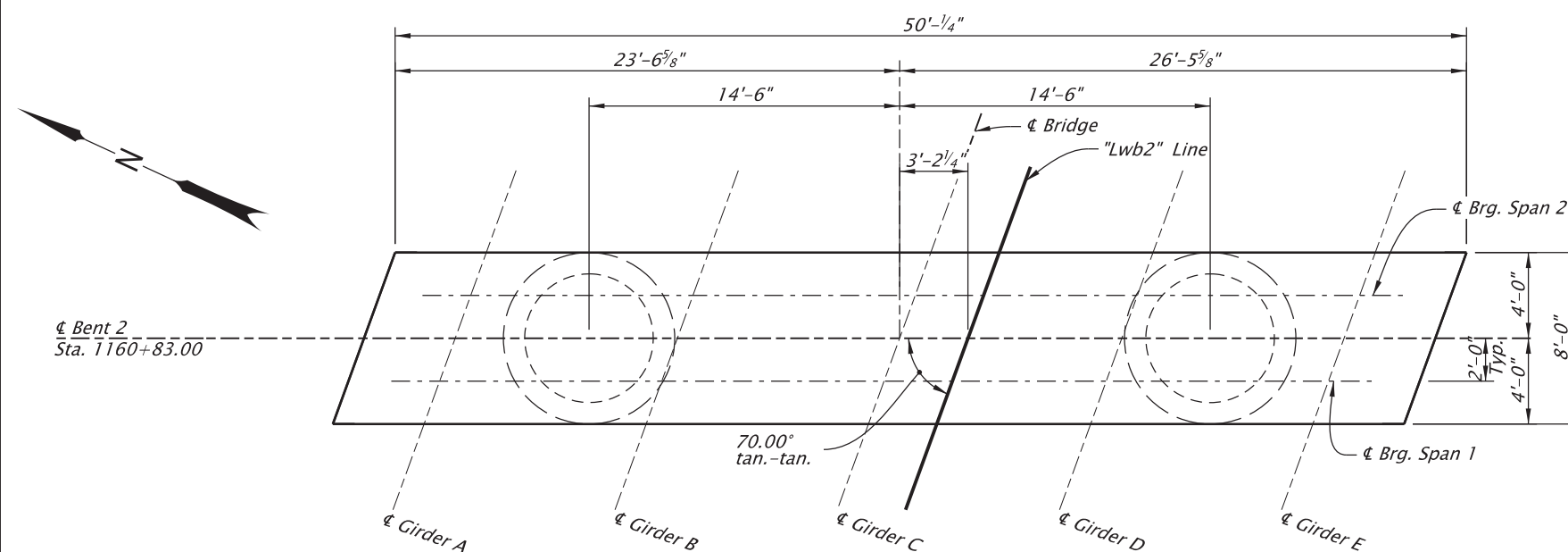


NOTES:
Furnish bar couplers from QPL for staged construction, as required.
For shaft reinforcing details not shown, see sht. JC04.
Adjust cap reinforcing at wingwall architectural treatment only.
Install stirrups parallel to the alignment/cap ends.
Provide a Class 1 finish on exterior flat surfaces.

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 80830 Digitally Signed 2026.09.16 07:25:11-07'00" OREGON JAN. 29, 2009 GEORGE F. BORNSTEDT	OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114526		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
COUNTY Hood River	DATE 08/2026	CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
RENEW: 12-31-2027		SHEET NO. JE01	

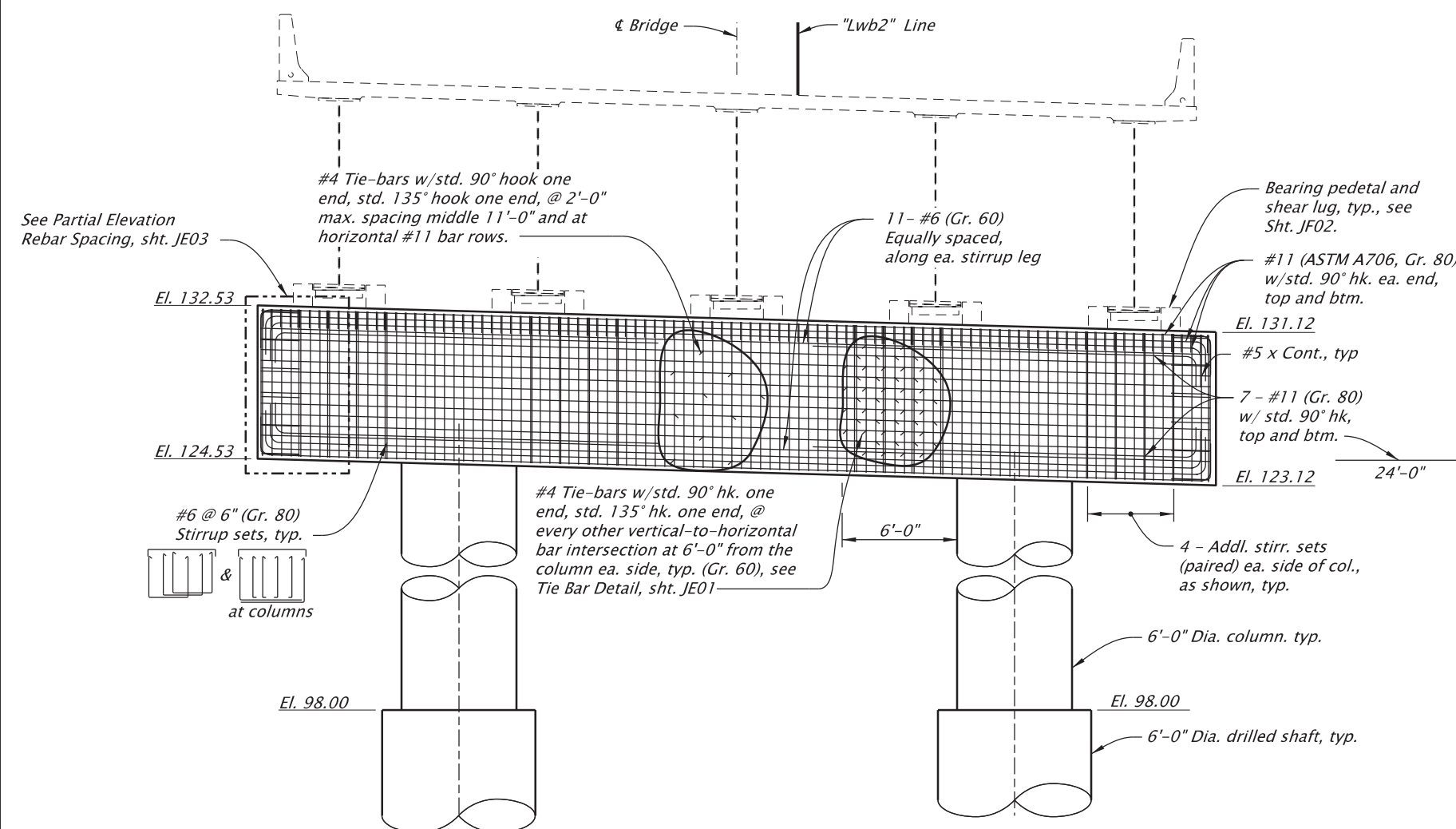
Bidding Plans



*Note:
Deck slab, girders, and rails
omitted for clarity.*

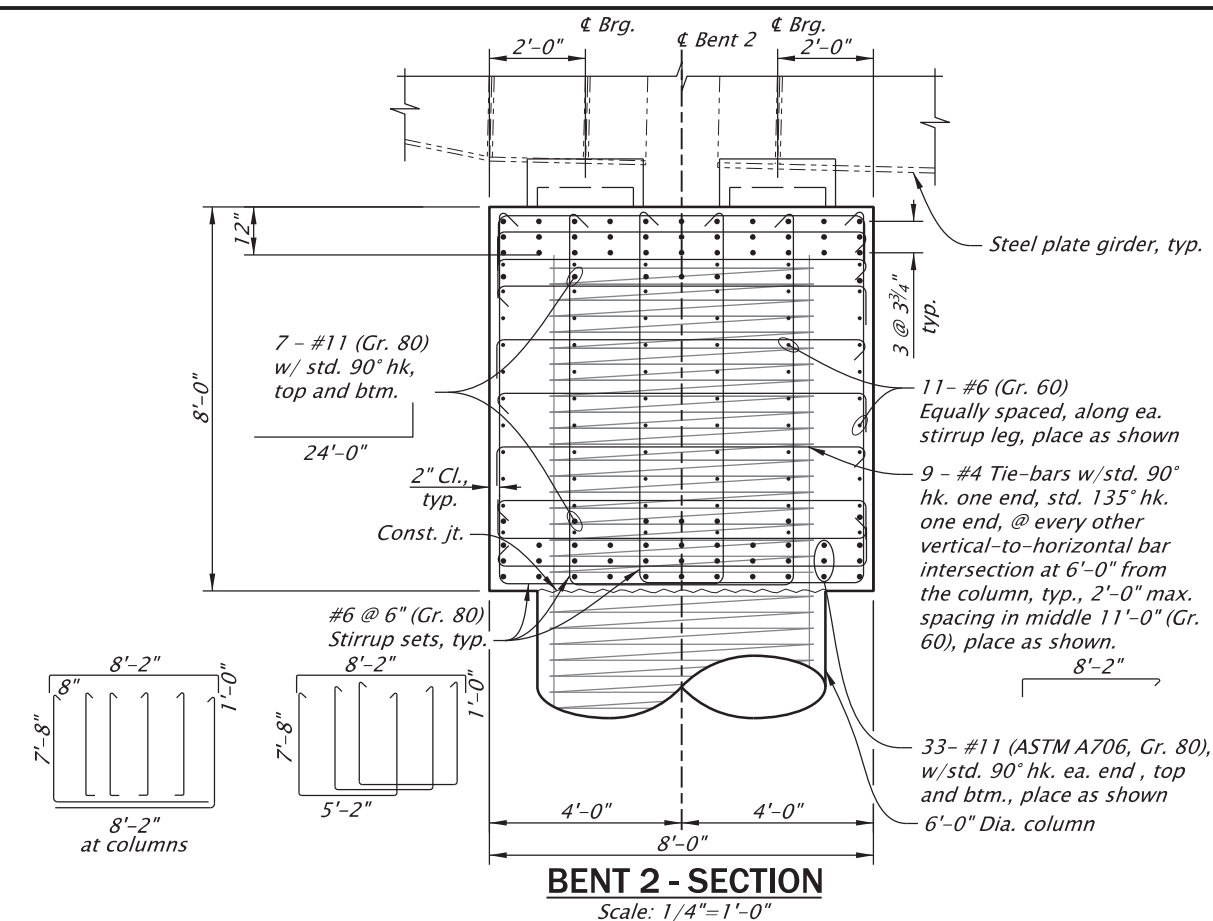
BENT 2 - PLAN

Scale: 1/8"=1'-0"



BENT 2 - ELEVATION

Scale: $1/8"=1'-0"$
(∇ Bent looking ahead on station)



NOTES:
For column and shaft reinforcing details not shown, see sht. JC05.

Install stirrups parallel to the alignment/ cap ends.

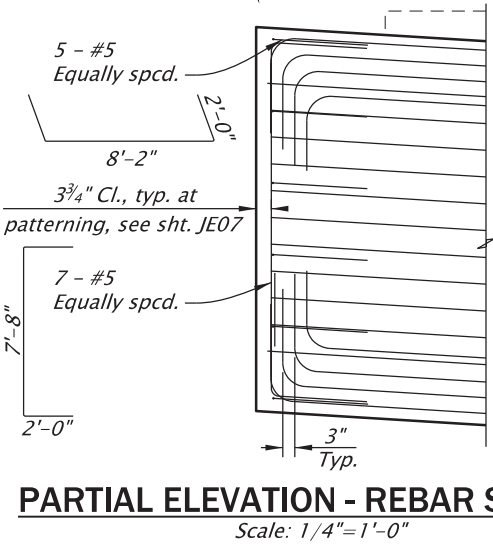
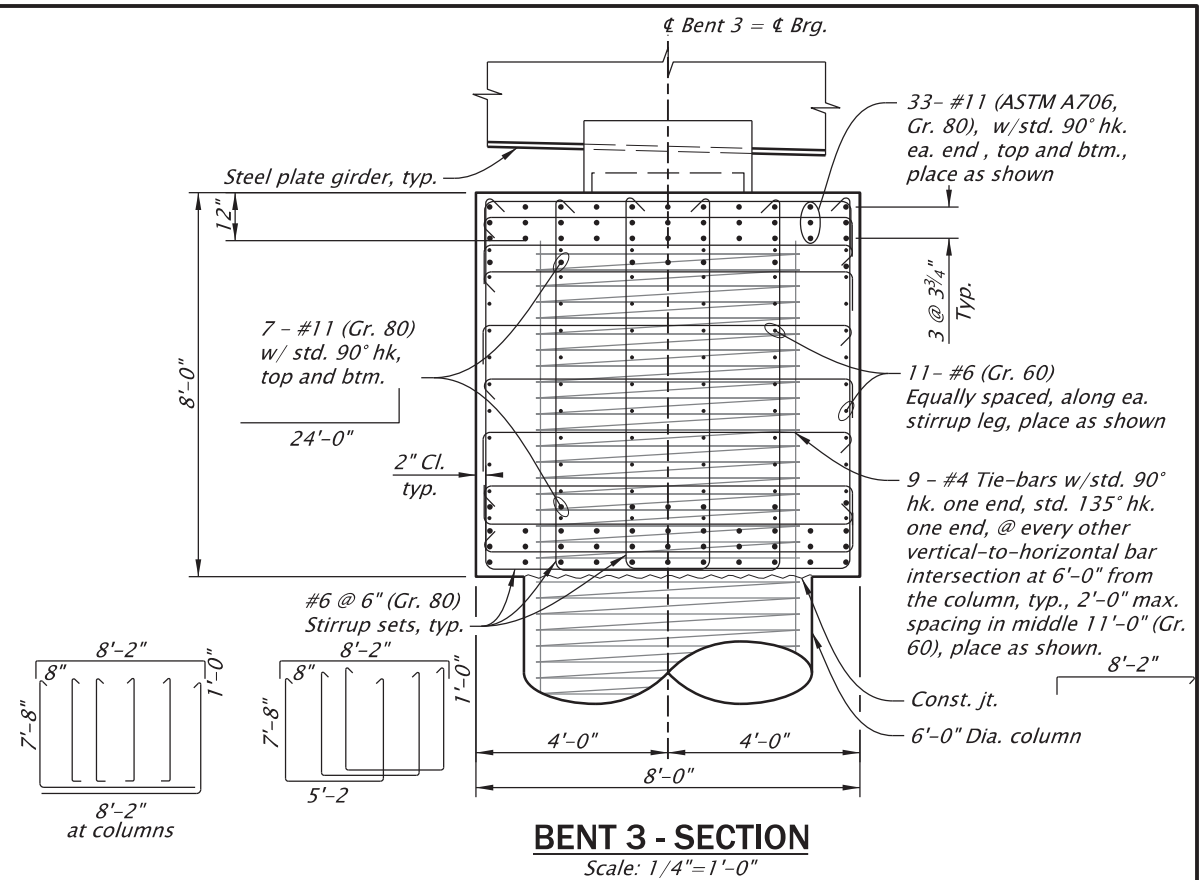
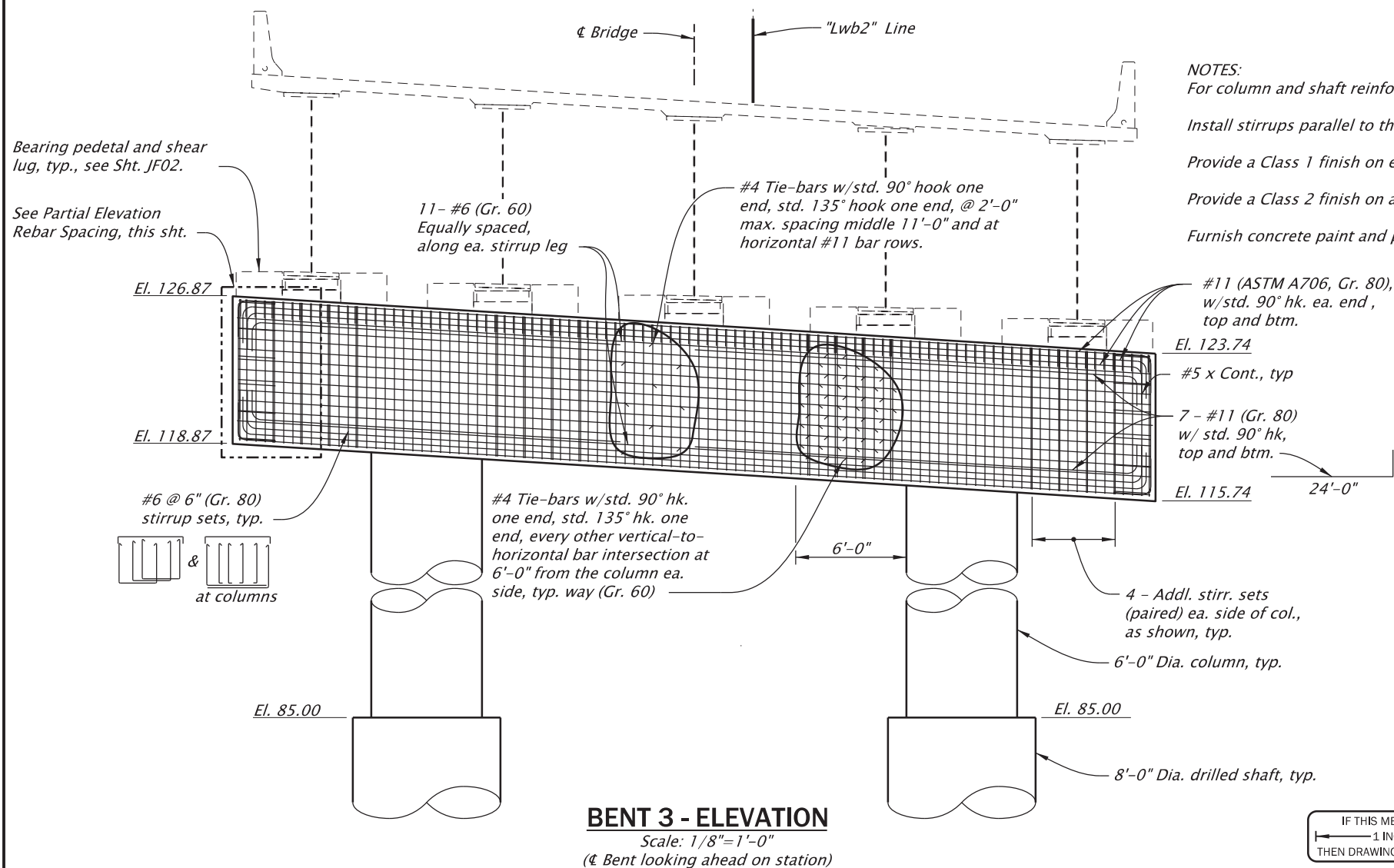
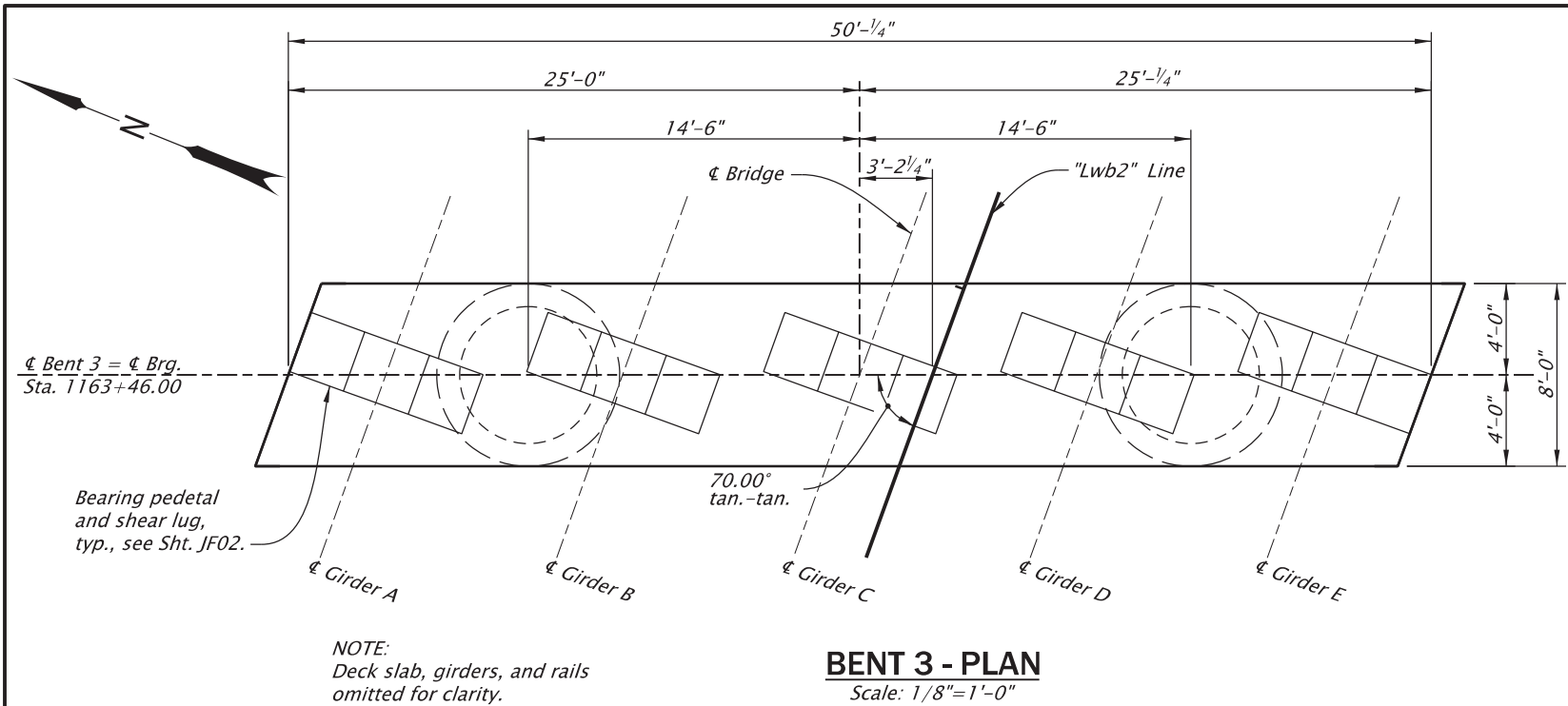
Provide a Class 1 finish on exterior flat surfaces.

Provide a Class 2 finish on all other exposed concrete surfaces.

Furnish concrete paint and patterning as shown and specified.

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114527		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt Reviewer: Stephen T. Burgess CADD Tech: Jim Culpepper (DEA) Checker: Joel Tubbs (DEA)		
COUNTY Hood River				
DATE 08/2026	RENEWS: 12-31-2027			SHEET NO. JE02



NOTES:
For column and shaft reinforcing details not shown, see sht. JC05.

Install stirrups parallel to the alignment/ cap ends.

Provide a Class 1 finish on exterior flat surfaces.

Provide a Class 2 finish on all other exposed concrete surfaces.

Furnish concrete paint and patterning as shown and specified.

For accompanied by drawings, see sht. JA01

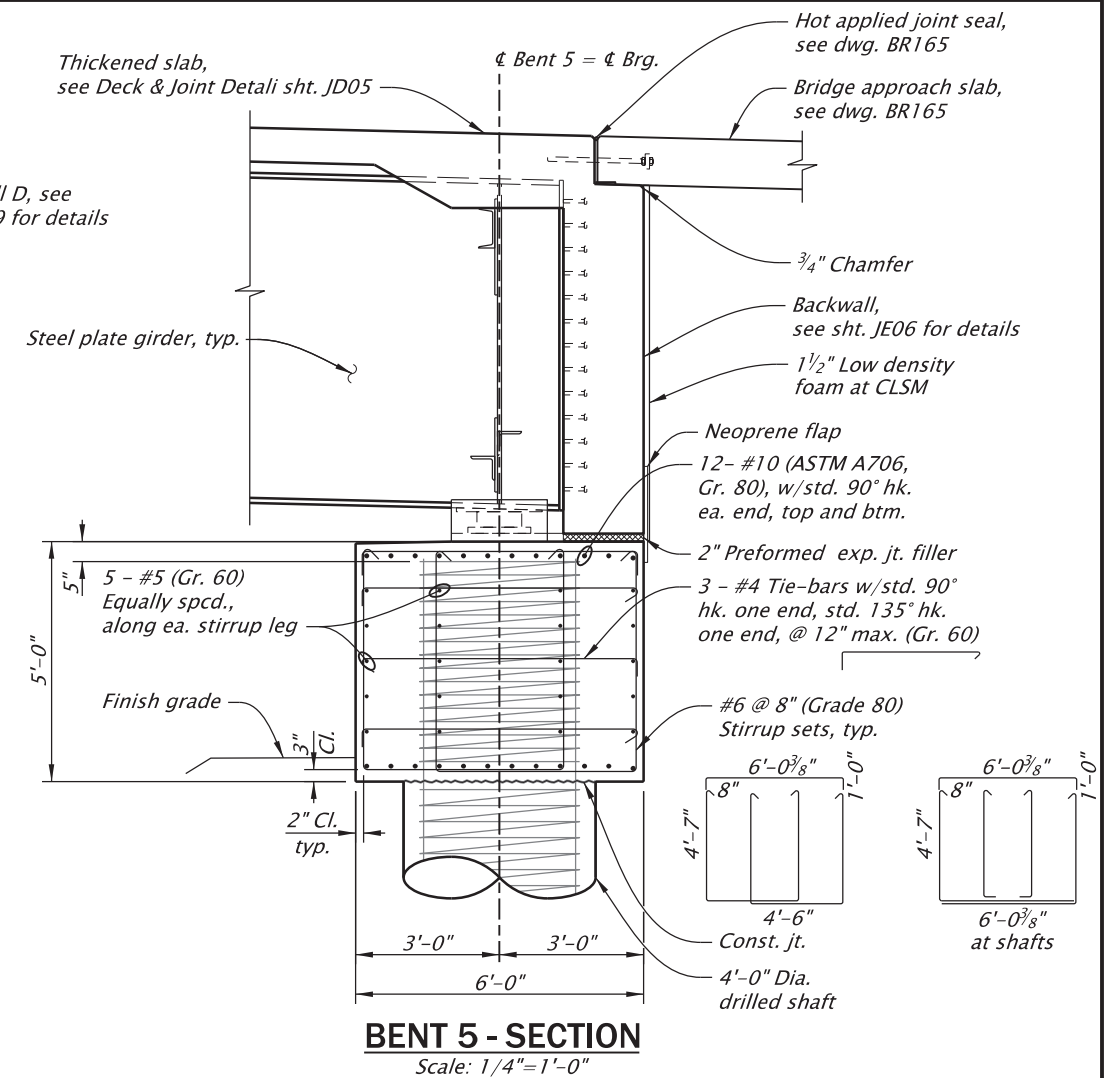
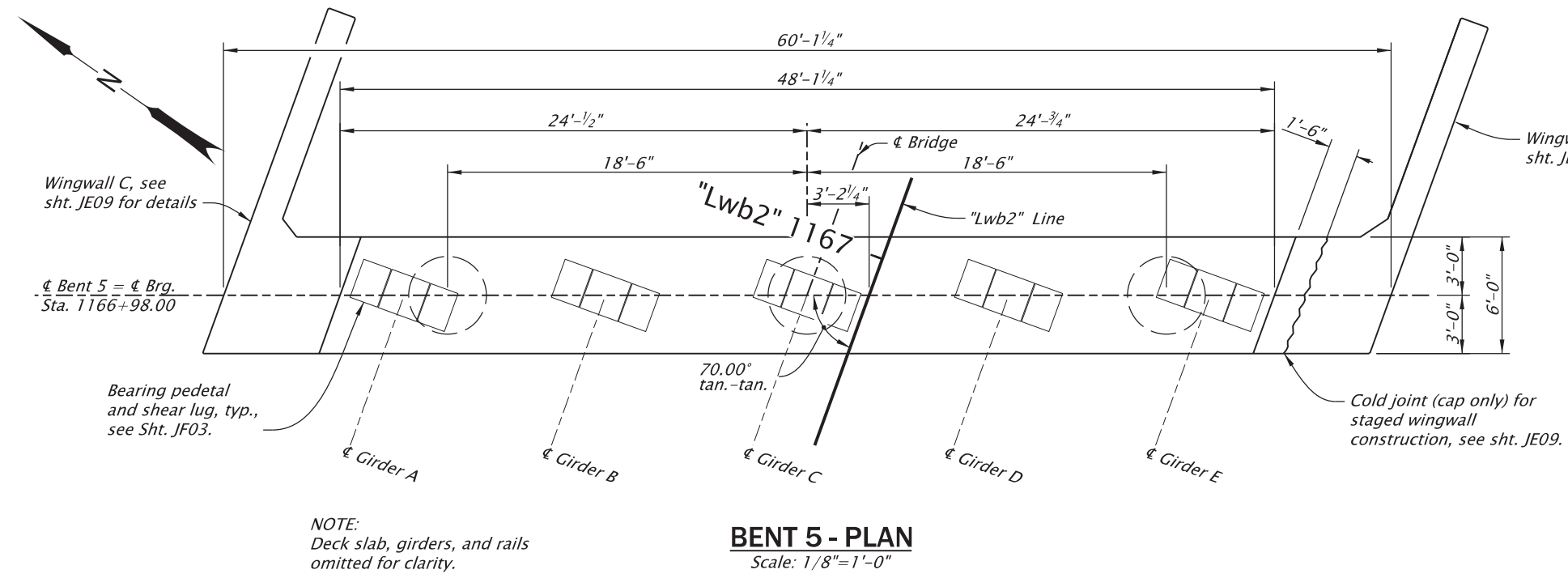
STRUCTURE NO.	24318
BDS DWG NO.	114528
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

REGISTERED PROFESSIONAL
ENGINEER
80830
Digitally Signed 2026.09.16 07:27:15-07'00"
OREGON
JAN. 29, 2009
GEORGE F. BORNSTEDT

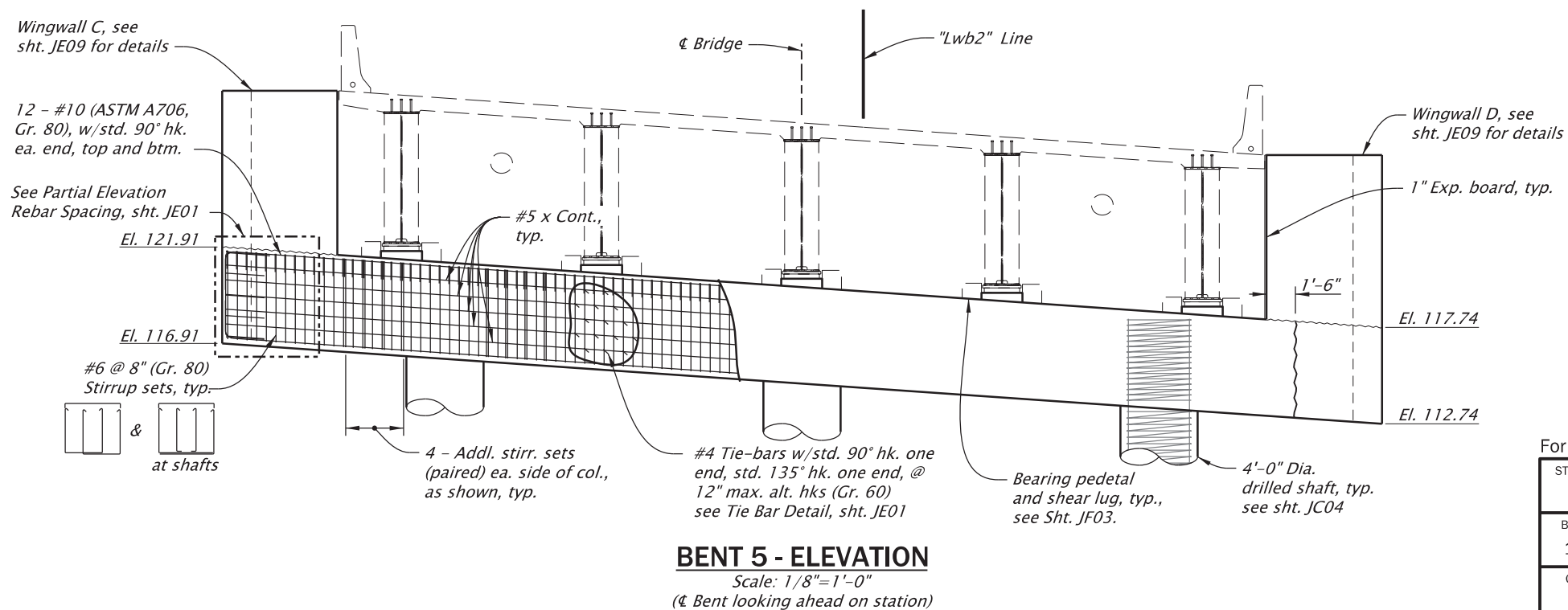
RENEW: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
BENT 3 PLAN AND ELEVATION	
SHEET NO. JE03	

Bidding Plans

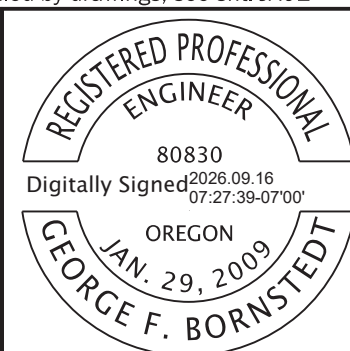


NOTES:
Furnish bar couplers from QPL for staged construction, as required.
For shaft reinforcing details not shown, see sht. JC04.
Install stirrups parallel to the alignment/ cap ends.
Adjust cap reinforcing at wingwall architectural treatment only.
Provide a Class 1 finish on exterior flat surfaces.
Provide a Class 2 finish on all other exposed concrete surfaces.
Furnish concrete paint and patterning as shown and specified.



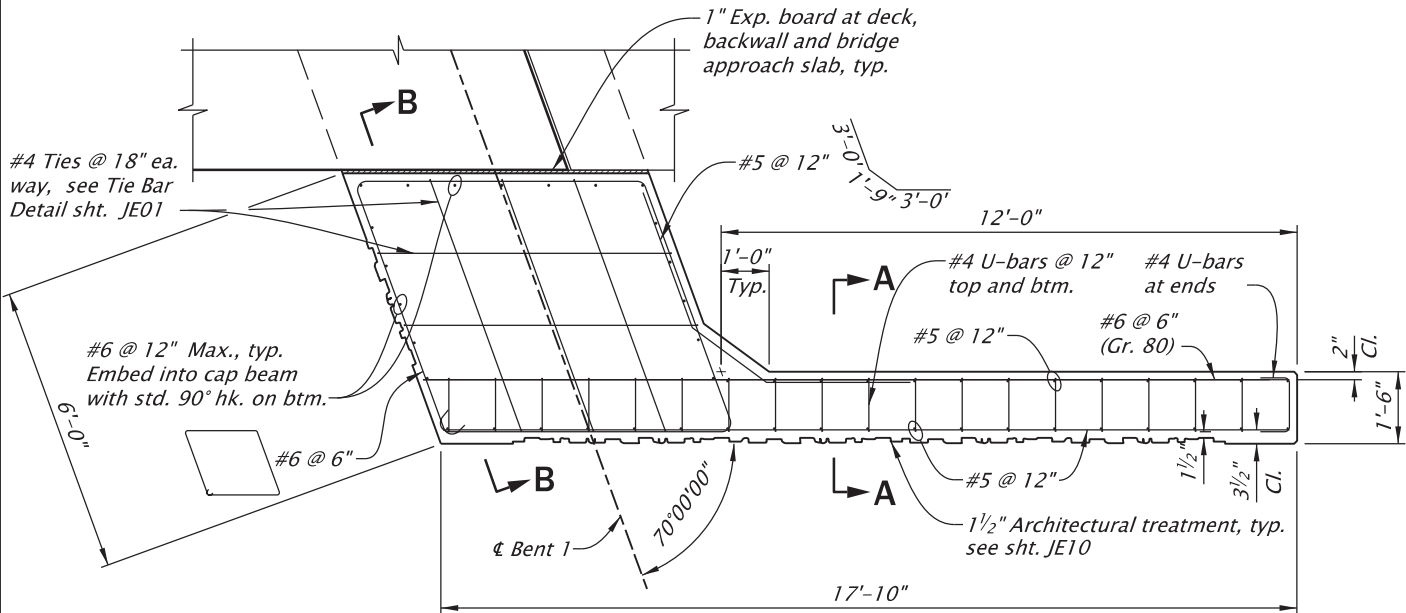
For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114530
CALC. BOOK	7841
HWY: 002	
M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026



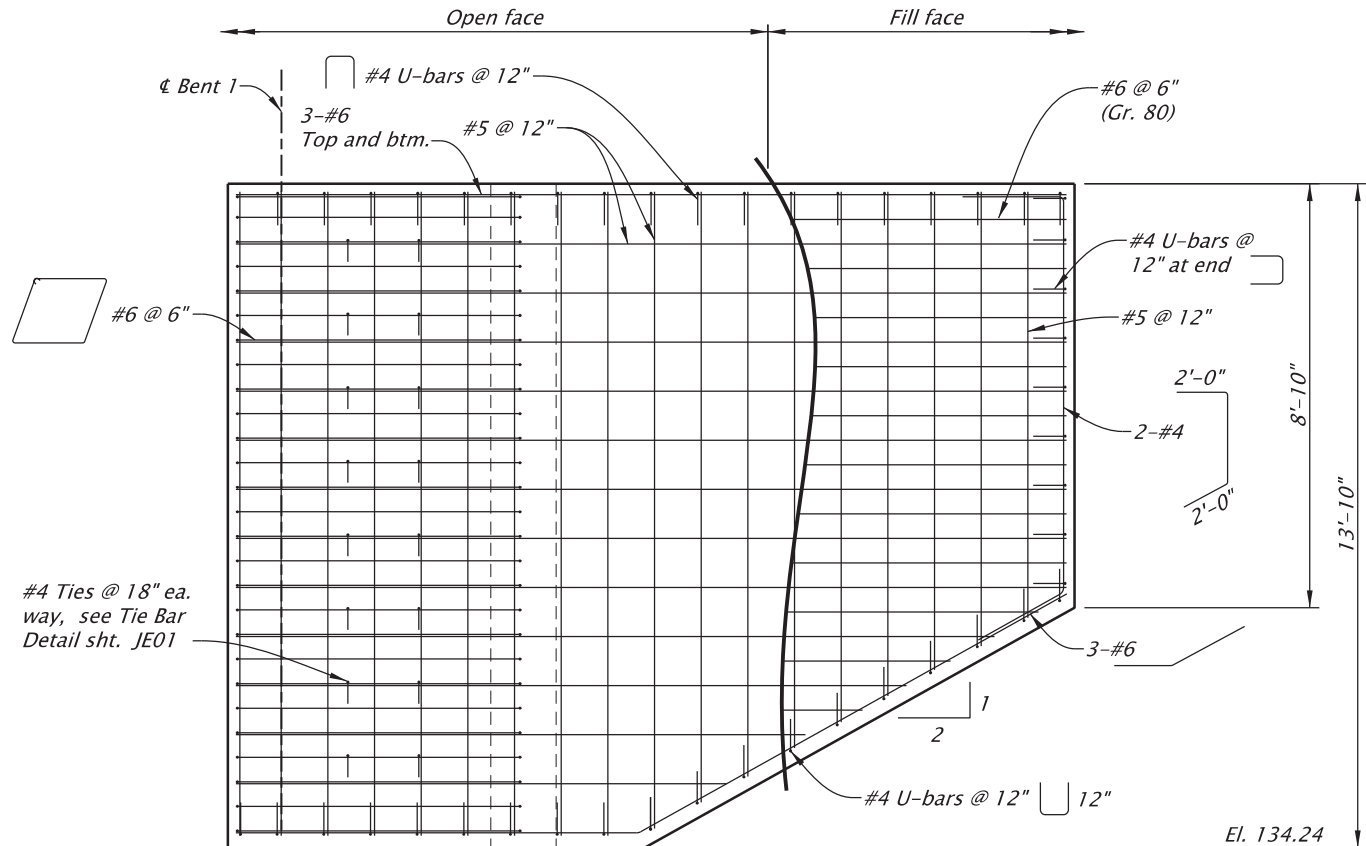
RENEWS: 12-31-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
BENT 5 PLAN AND ELEVATION	
SHEET NO. JE05	



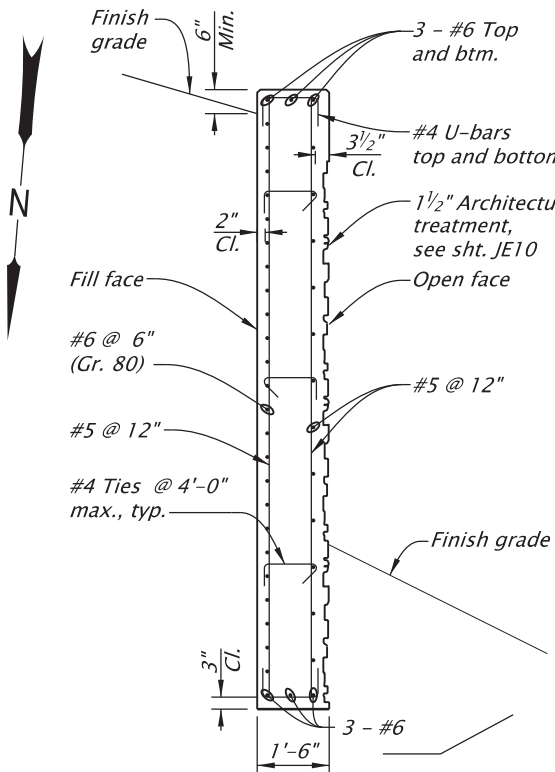
WINGWALL PLAN

Scale: 1/4" = 1'-0"



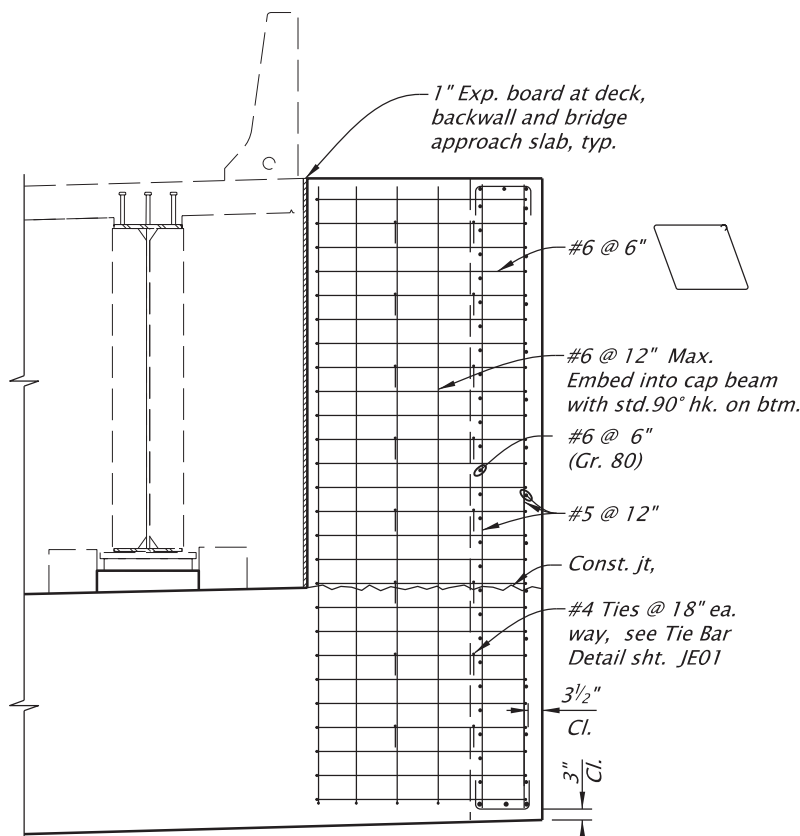
WINGWALL ELEVATION

Scale: 1/4" = 1'-0"



SECTION A-A

Scale: 1/4" = 1'-0"



SECTION B-B

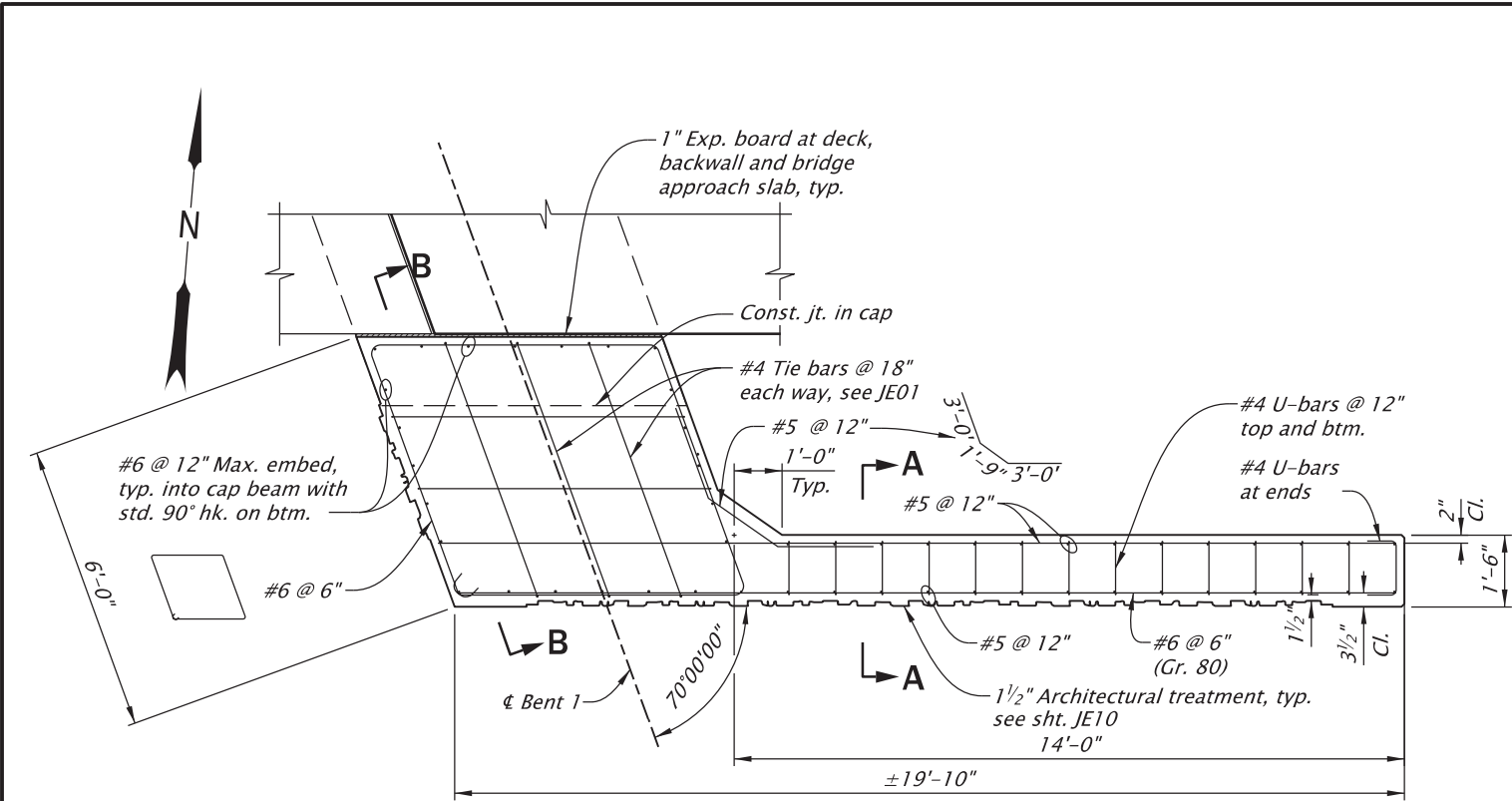
Scale: 1/4" = 1'-0"

NOTES:
For reinforcing notes, see sht. JA02.
Alternate column hoop terminations in opposite corners.
For Tie Bar Detail see JE01.
Adjust cap reinforcing at architectural treatment only.
Provide a Class 1 finish on exposed flat surfaces.

Provide a Class 2 finish on exposed textured surfaces.
Furnish concrete coating and patterning as shown and specified.
Provide 3/4" chamfer at all exposed corners.
Provide roughened surface at construction joints (1/4" min. amplitude).
All reinforcement shown on this sheet is Grade 60, unless noted otherwise.

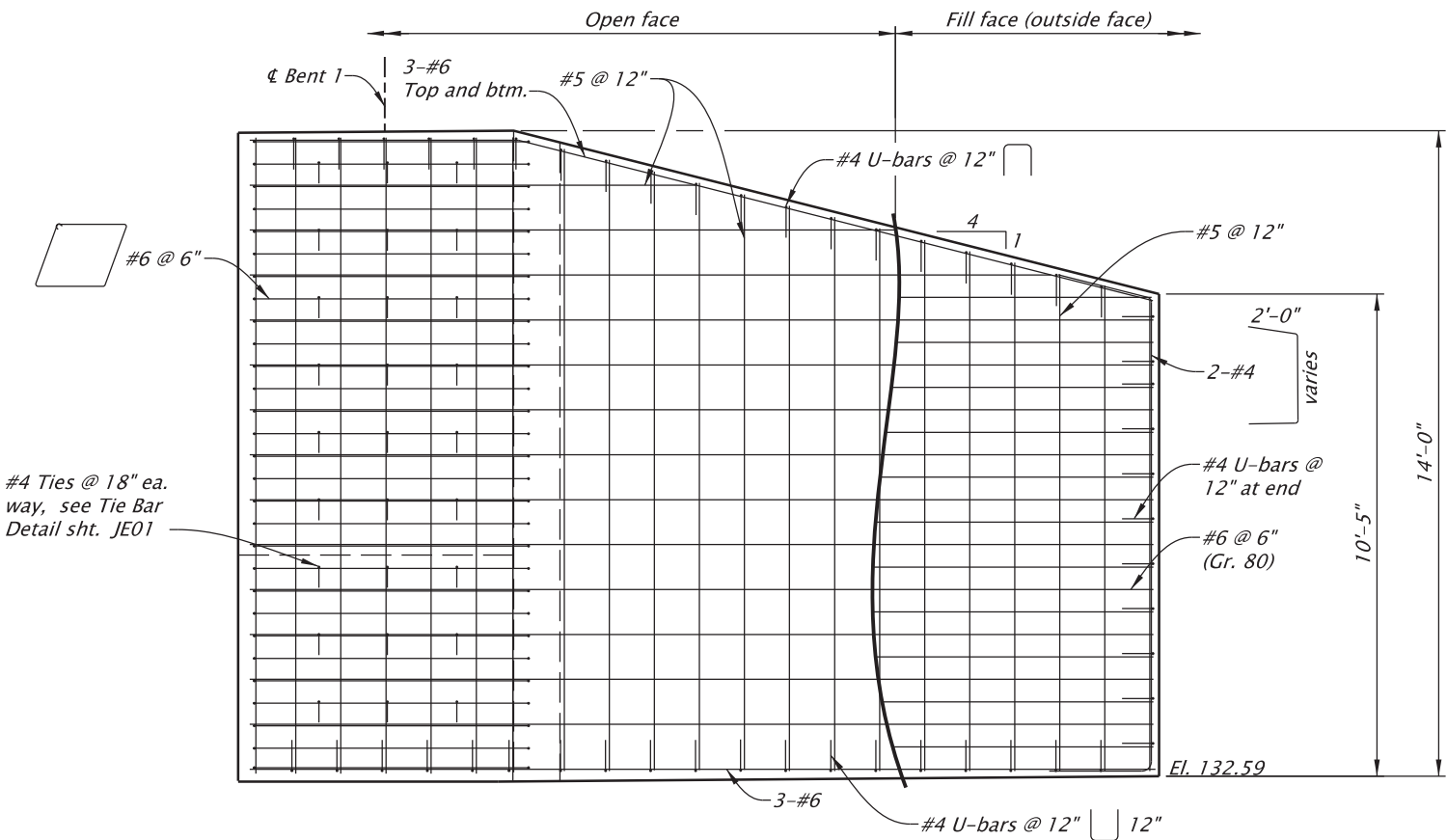
For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114532		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
COUNTY Hood River	CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026	RENEW: 12-31-2027	WINGWALL A DETAILS	
		SHEET NO. JE07	



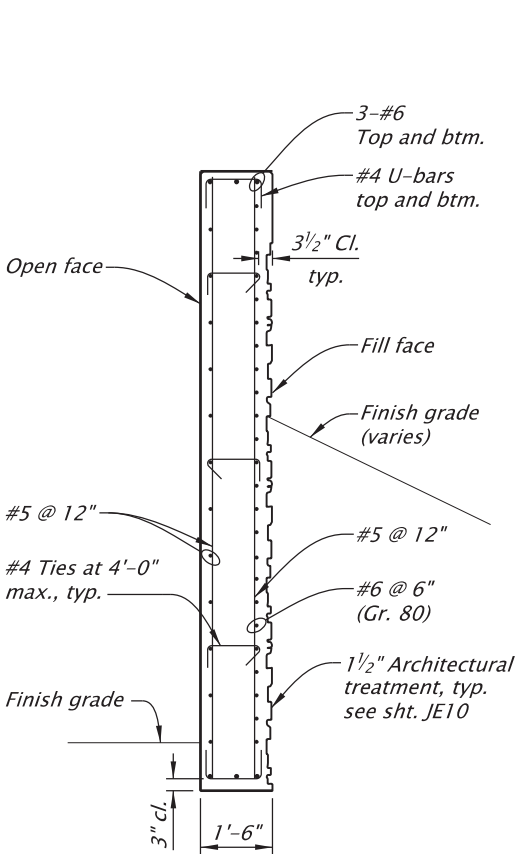
WINGWALL PLAN

Scale: 1/4" = 1'-0"



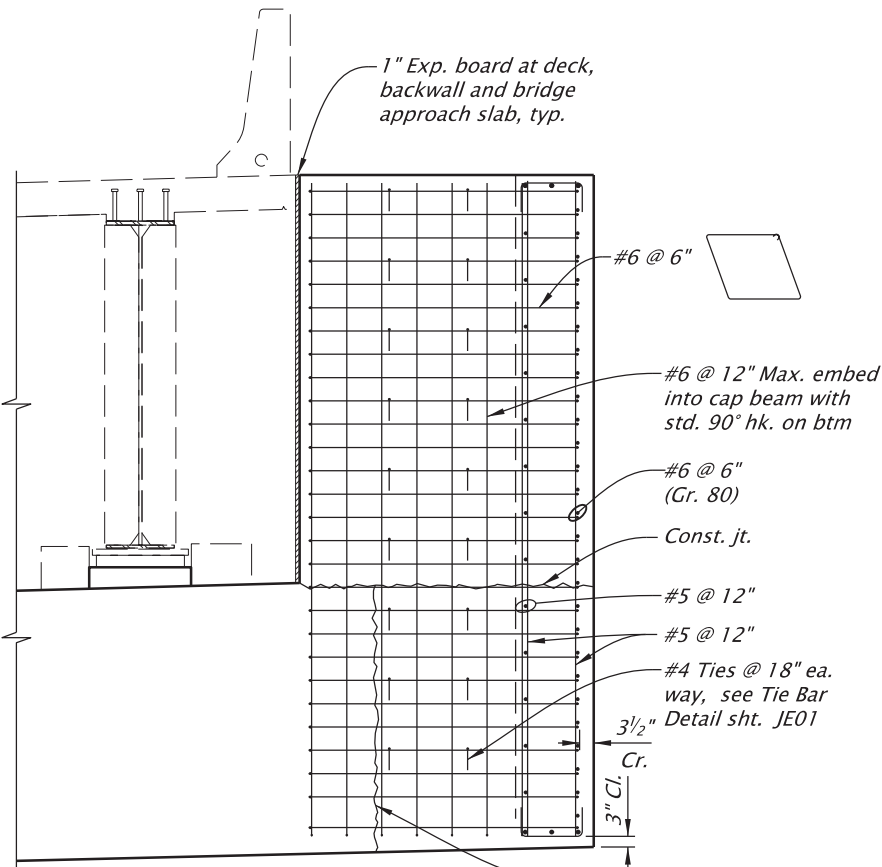
WINGWALL ELEVATION

Scale: 1/4" = 1'-0"



SECTION A-A

Scale: 1/4" = 1'-0"



SECTION B-B

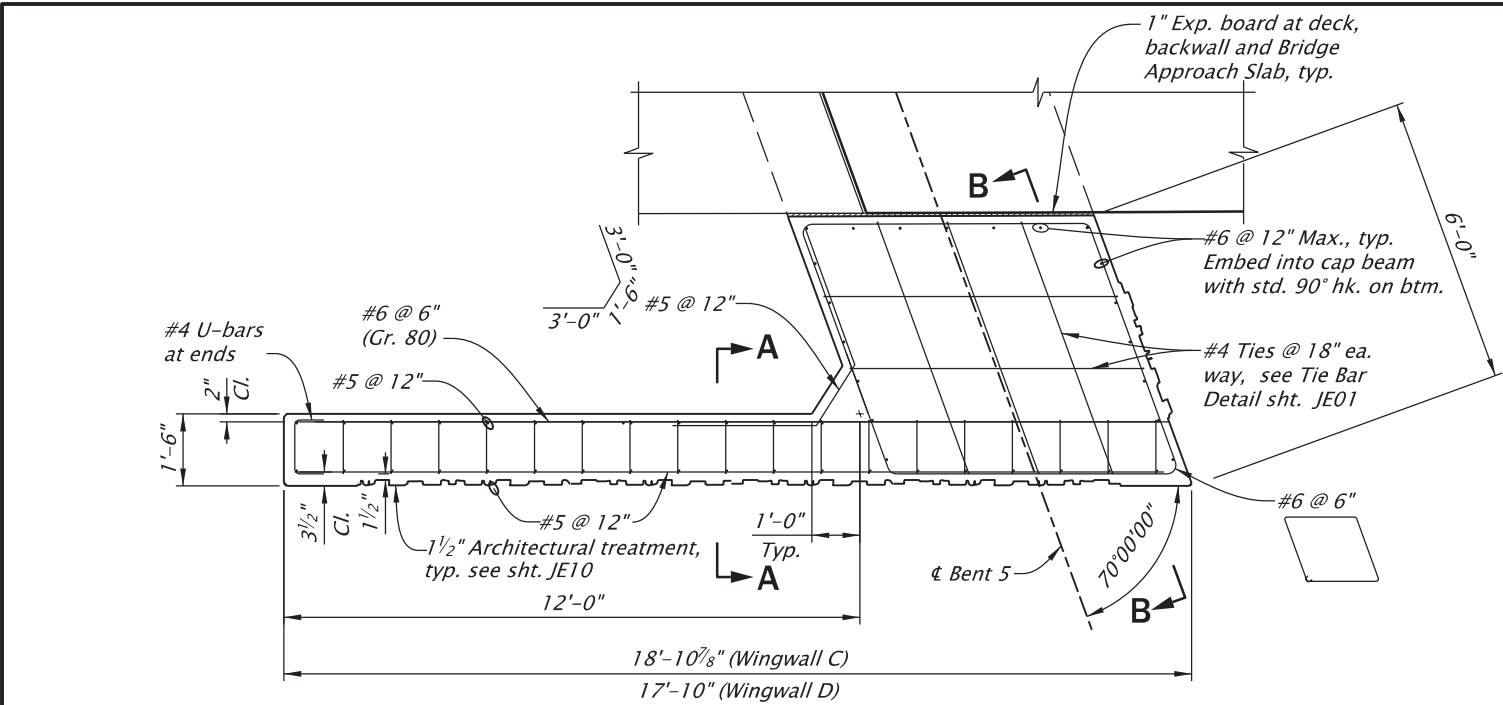
Scale: 1/4" = 1'-0"

- NOTES:
- For reinforcing notes, see sht. JA02.
 - For Tie Bar Detail see JE01.
 - Alternate column hoop terminations in opposite corners.
 - Adjust cap reinforcing at architectural treatment only.
 - Furnish bar couplers from the QPL as required for staged construction.
 - Provide a Class 1 finish on exposed flat surfaces.

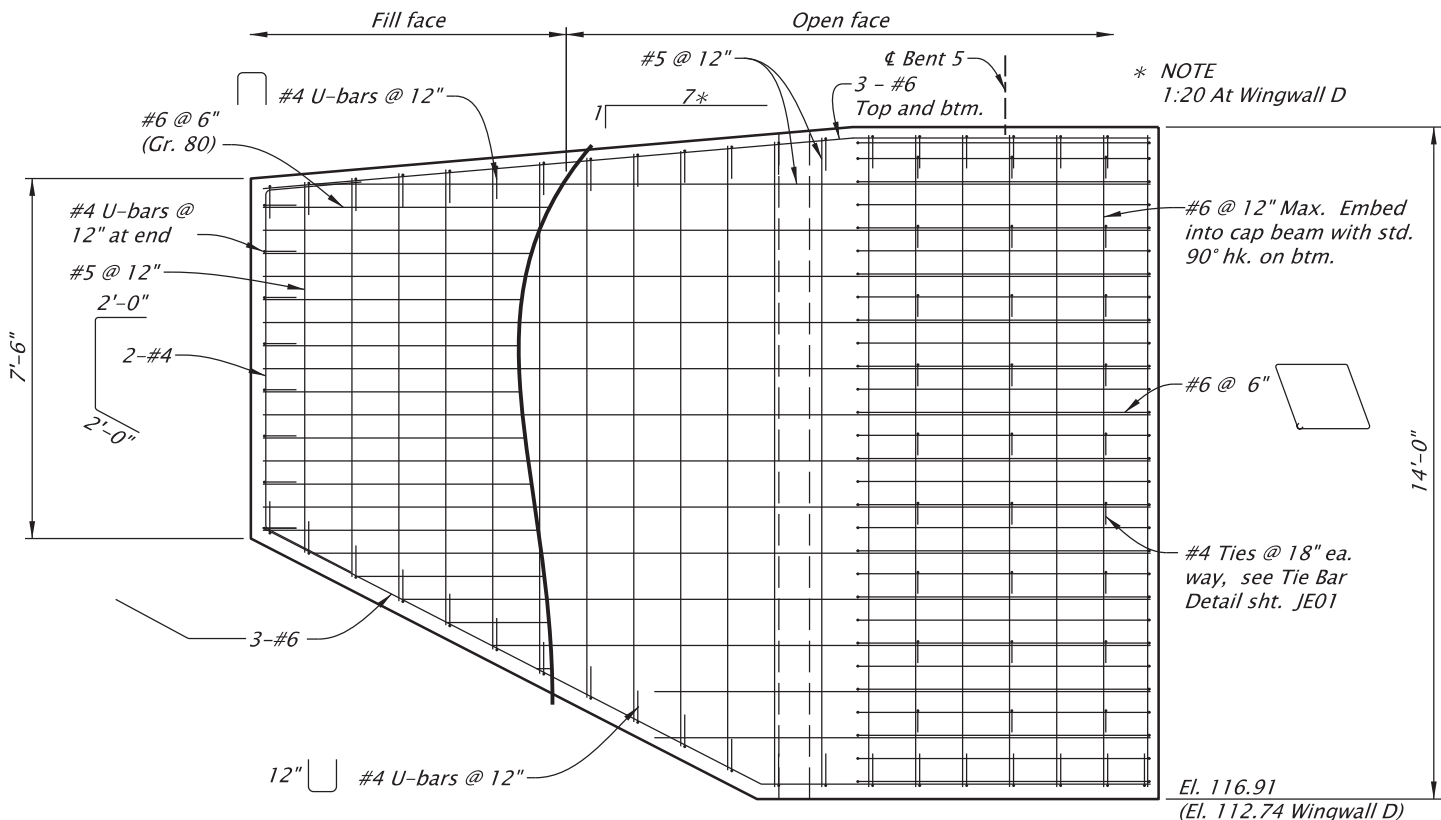
- Provide a Class 2 finish on exposed textured surfaces.
- Furnish concrete coating and patterning as shown and specified.
- Provide 3/4" chamfer at all exposed corners.
- Provide roughened surface at construction joints (1/4" min. amplitude).
- All reinforcement shown on this sheet is Grade 60, unless noted otherwise.

For accompanied by drawings, see sht. JA01

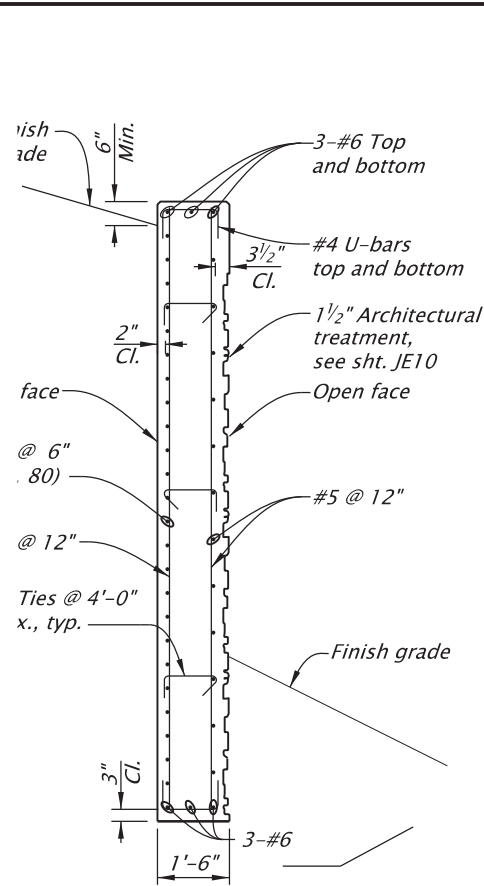
STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 80830 Digitally Signed 2026.09.16 07:34:35-07'00" OREGON JAN. 29, 2009 GEORGE F. BORNSTEDT	OREGON DEPARTMENT OF TRANSPORTATION	
BDS DWG NO. 114533		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess
COUNTY Hood River	DATE 08/2026	CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
RENEW: 12-31-2027		WINGWALL B DETAILS	
IF THIS MEASURES 1 INCH THEN DRAWING IS TO SCALE		SHEET NO. JE08	



WINGWALL PLAN
Scale: 1/4" = 1'-0"
(Wingwall C shown, Wingwall D similar)

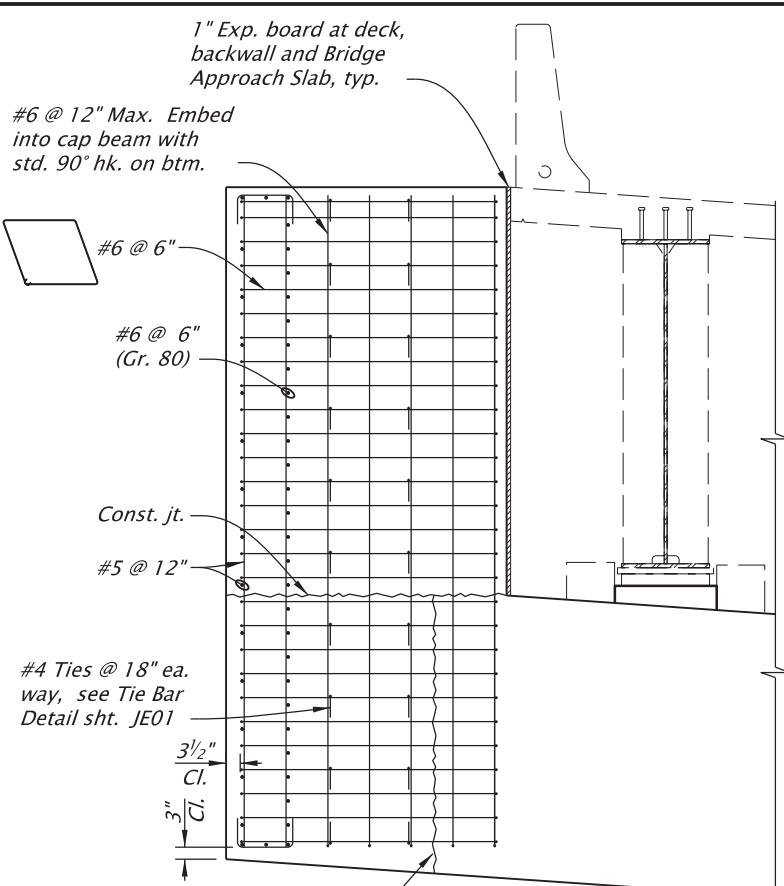


WINGWALL ELEVATION
Scale: 1/4" = 1'-0"
(Wingwall C shown, Wingwall D similar)



SECTION A-A
Scale: 1/4" = 1'-0"

NOTES:
Furnish bar couplers from the QPL as required for staged construction.
For Tie Bar Detail see JE01.
For reinforcing notes, see sht. JA02.
Alternate column hoop terminations in opposite corners.
Adjust cap reinforcing at architectural treatment only.
Provide a Class 1 finish on exposed flat surfaces.



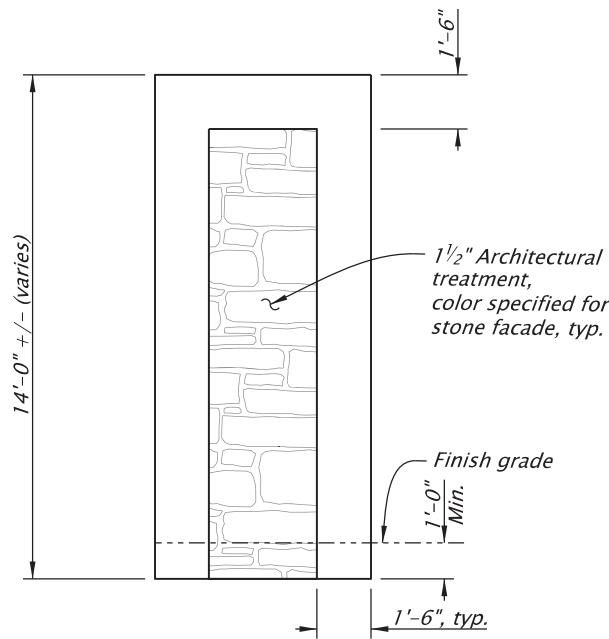
NOTES:
Bent Cap and Backwall reinforcement not shown for clarity.
Construct Wingwall D column above cap and wing during Stage IV.

SECTION B-B
Scale: 1/4" = 1'-0"

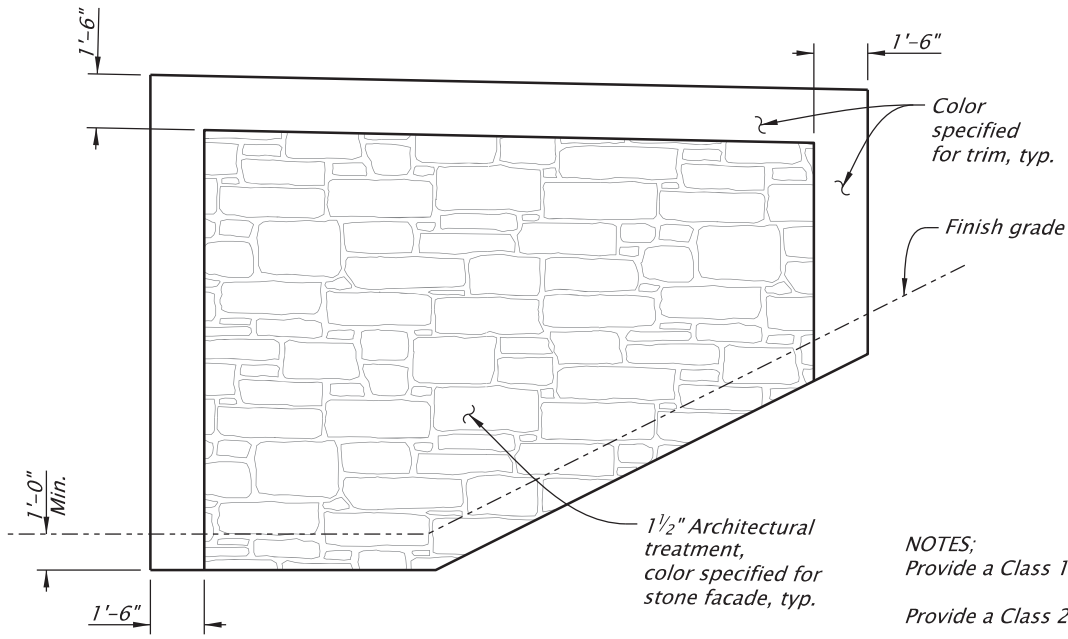
Provide a Class 2 finish on exposed textured surfaces.
Furnish concrete coating and patterning as shown and specified.
Provide roughened surface at construction joints (1/4" min. amplitude).
Provide 3/4" chamfer at all exposed corners.
All reinforcement shown on this sheet is Grade 60, unless noted otherwise.

For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 80830 Digitally Signed 2026.09.16 07:35:06-07'00" OREGON JAN. 29, 2009 GEORGE F. BORNSTEDT	OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114534		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess	
COUNTY Hood River	RENEW: 12-31-2027	CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		WINGWALL C & D DETAILS		SHEET NO. JE09



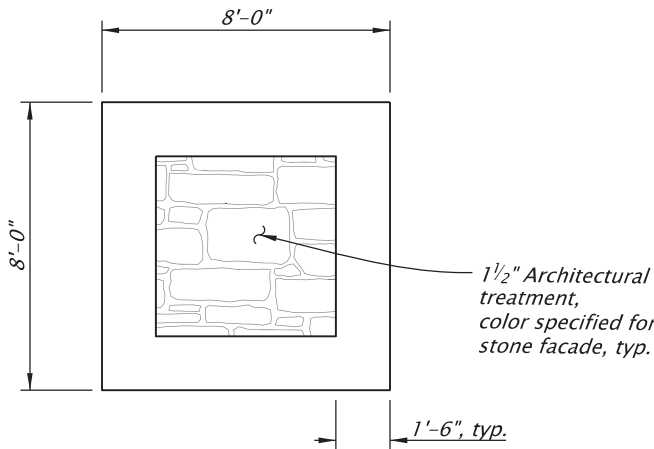
ELEVATION WINGWALL CAP FACE



ELEVATION WINGWALL WING FACE

NOTES;
Provide a Class 1 finish on exposed flat surfaces.
Provide a Class 2 finish on exposed textured surfaces.
Furnish concrete coating and patterning as shown and specified.

WINGWALL ARCHITECTURAL DETAILS
Scale: 3/16"=1'-0"

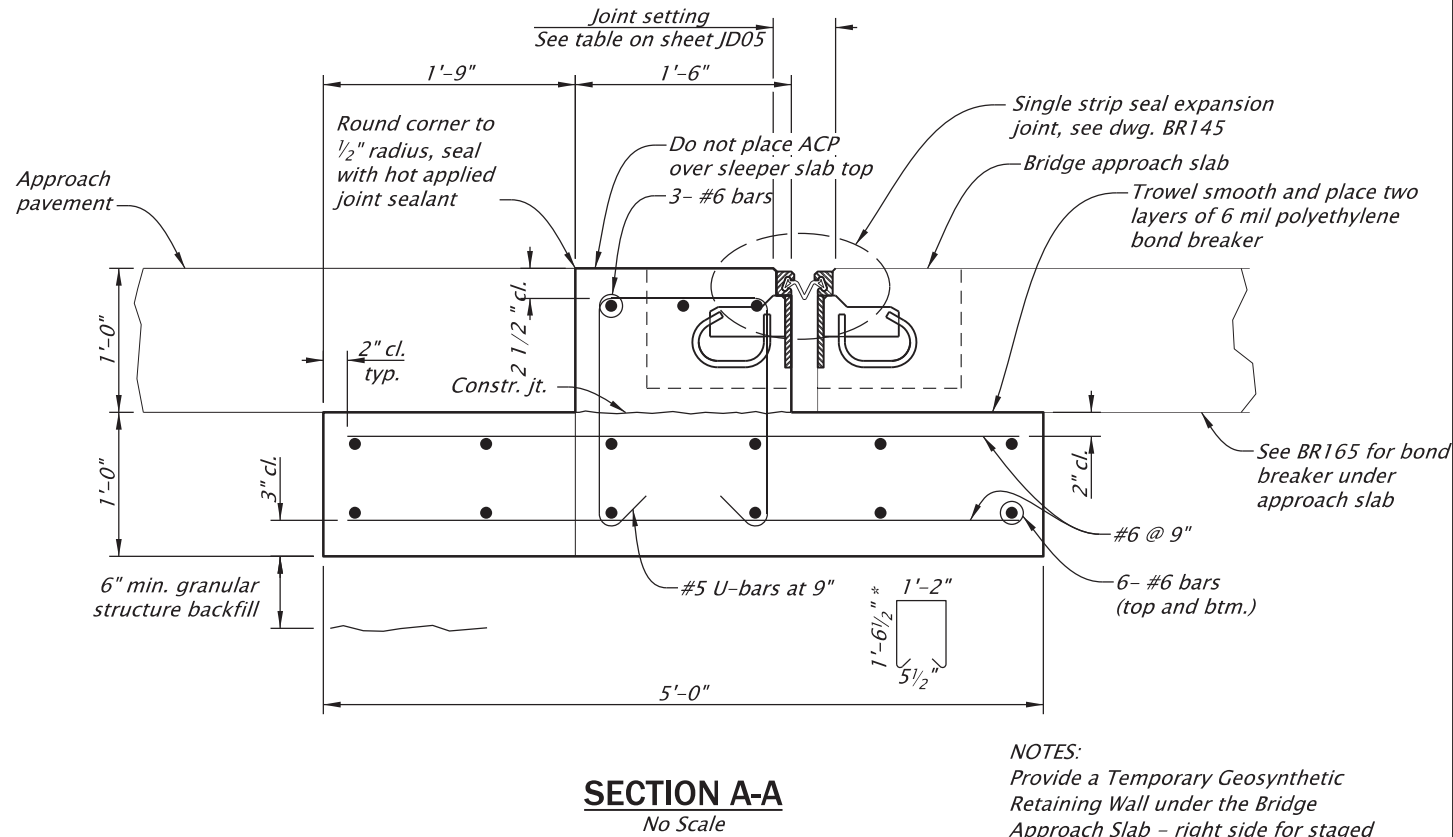
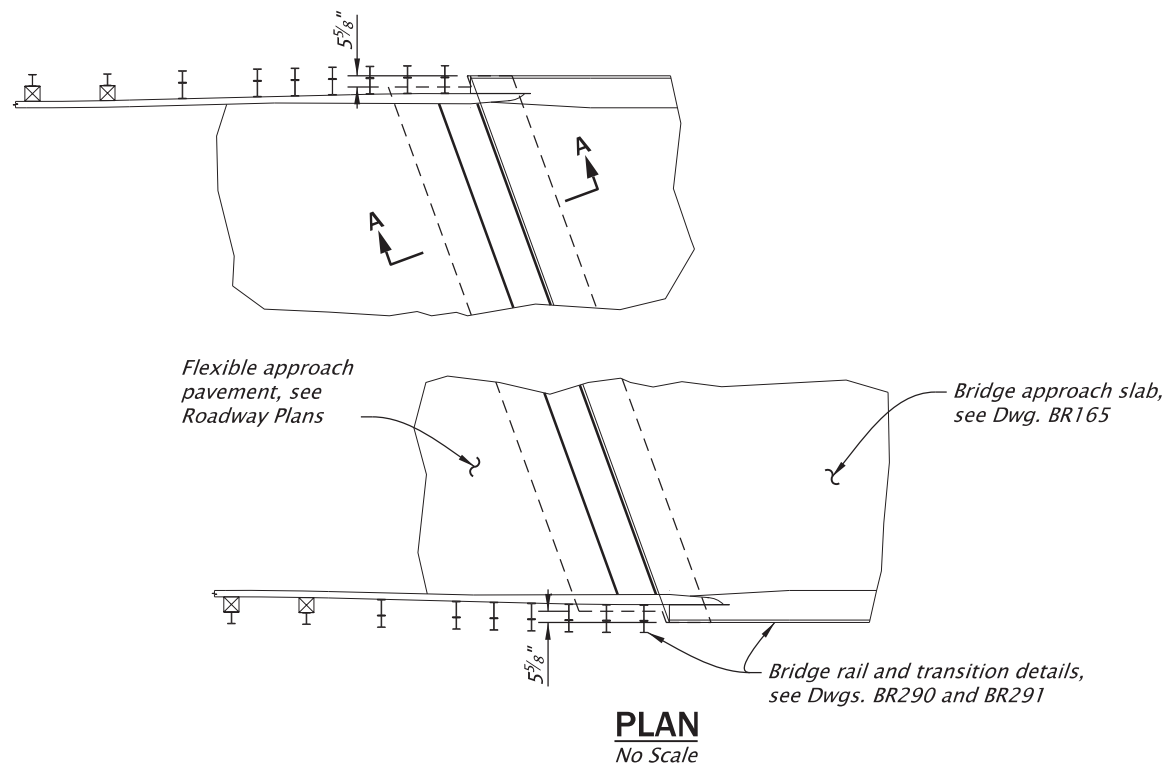


INTERIOR BENT CAP END ARCHITECTURAL DETAIL
Scale: 3/16"=1'-0"

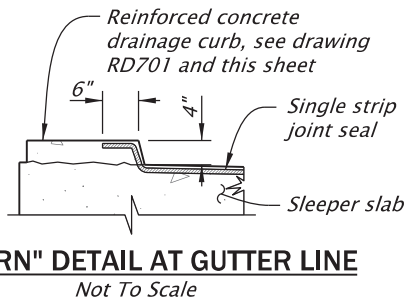
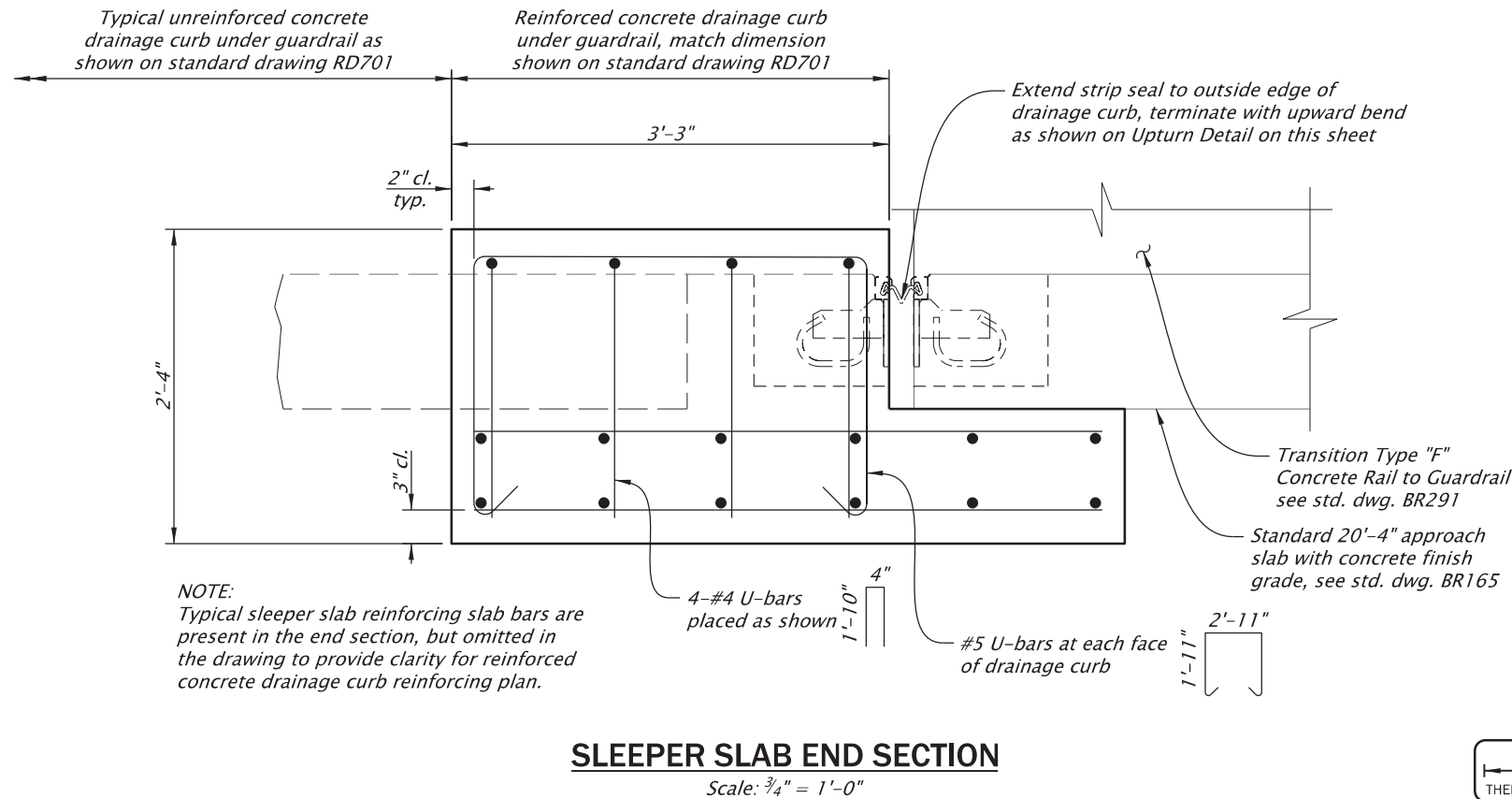
For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 80830 Digitally Signed 2026.09.16 07:35:34-07'00' OREGON JAN. 29, 2009 GEORGE F. BORNSTEDT RENEW: 12-31-2027	OREGON DEPARTMENT OF TRANSPORTATION		OREGON DEPARTMENT OF TRANSPORTATION
BDS DWG NO. 114535		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: George F. Bornstedt	Reviewer: Stephen T. Burgess	
COUNTY Hood River		CADD Tech: JIm Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		WINGWALL ARCHITECTURAL DETAILS		SHEET NO. JE10

IF THIS MEASURES
1 INCH
THEN DRAWING IS TO SCALE

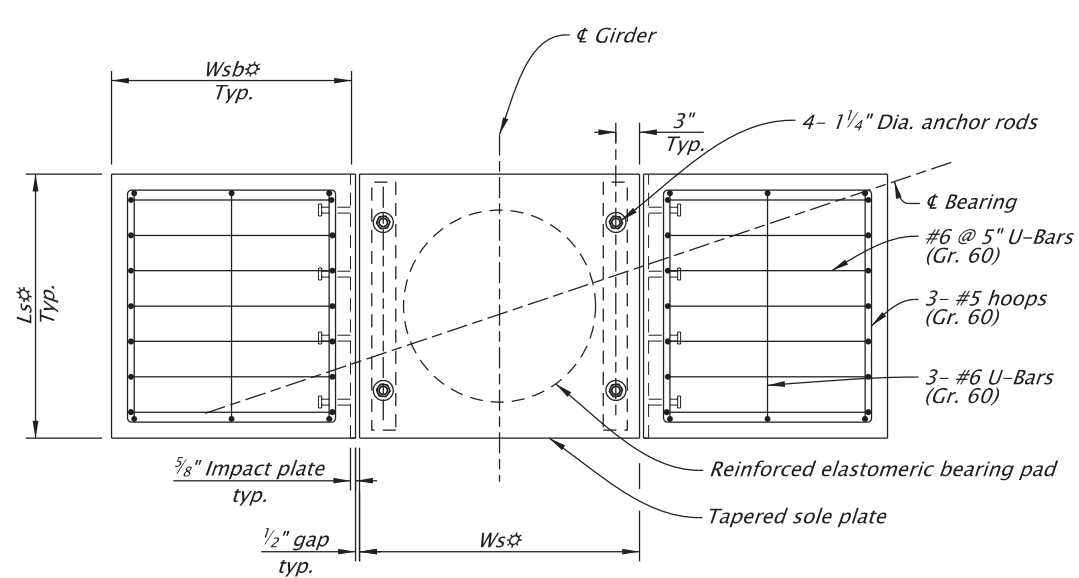


NOTES:
Provide a Temporary Geosynthetic Retaining Wall under the Bridge Approach Slab - right side for staged wingwall construction, typ., see sht. JA08 for excavation and backfill details.



For accompanied by drawings, see sht. JA01

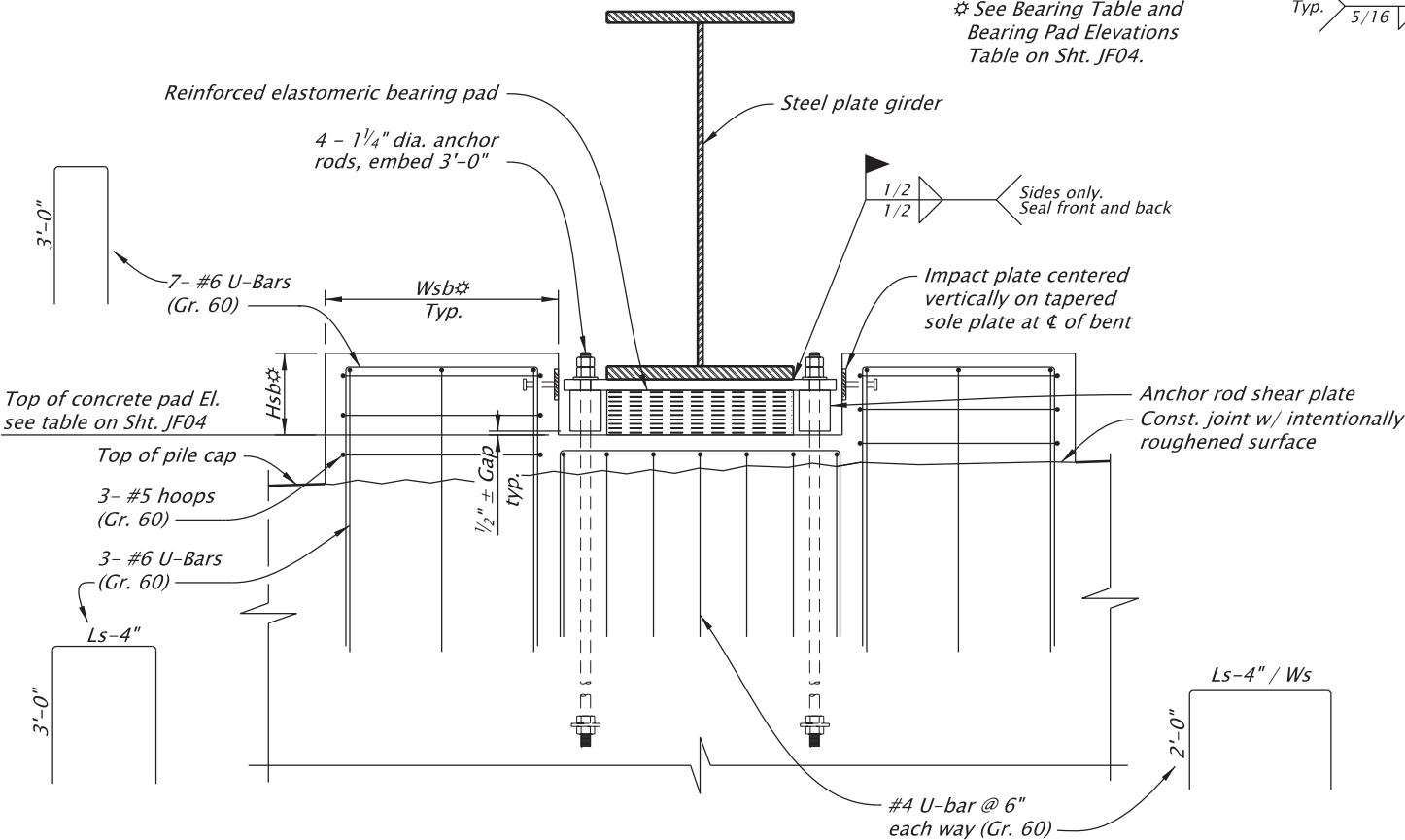
STRUCTURE NO. 24318	REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:18:54 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114536		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Desire Giraneza	Reviewer: Stephen T. Burgess	
COUNTY Hood River	RENEW: 06-30-2027	CADD Tech: Jlm Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		SLEEPER SLAB DETAILS		SHEET NO. JF01



BENT 3 BEARING PLAN

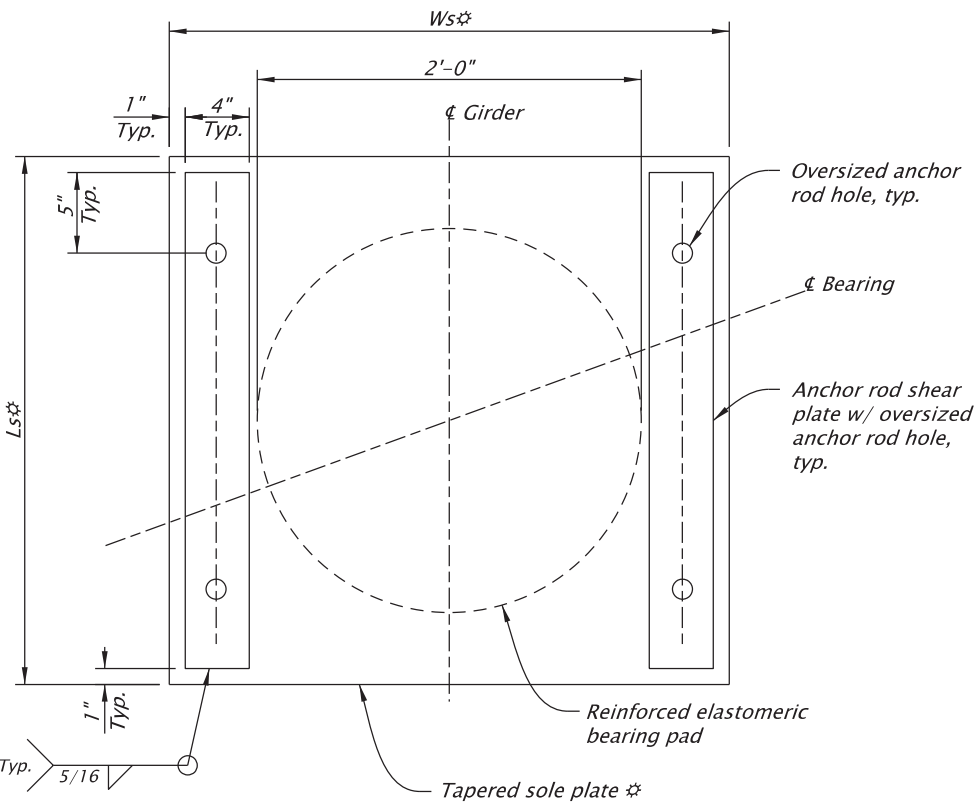
Scale: $\frac{1}{2}'' = 1'-0''$
(Bent 2 span 1 and Bent 4 span 4, similar)

NOTE:
✱ See Bearing Table and
Bearing Pad Elevations
Table on Sht. JF04.



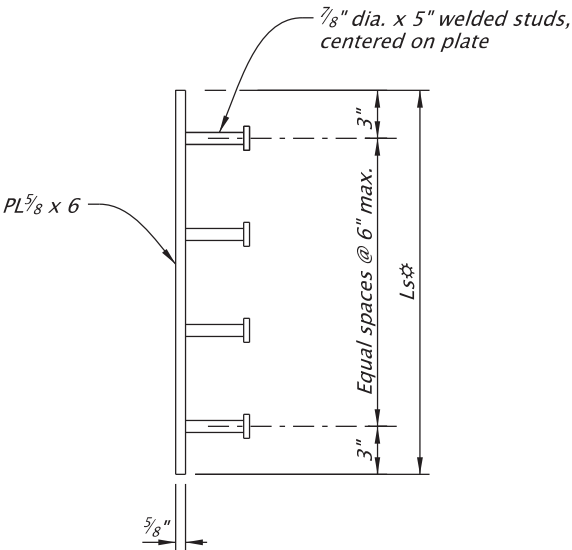
BENT 3 BEARING ELEVATION

Scale: $\frac{1}{2}'' = 1'-0''$
(Bent 2 span 1 and Bent 4 span 4, similar)



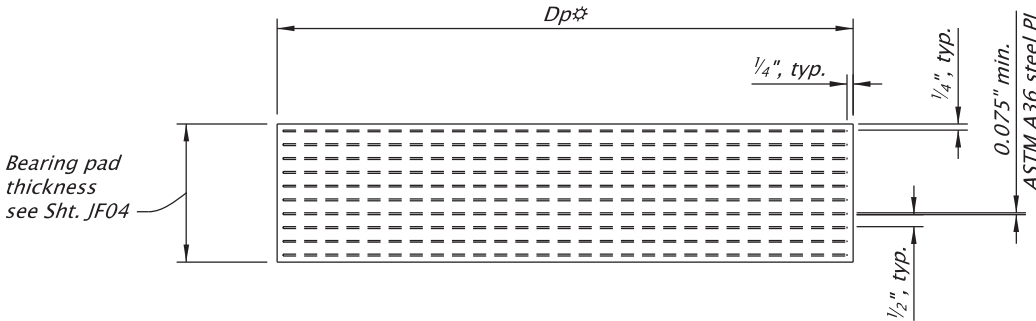
BEARING PLATE DETAIL

Scale: $1'' = 1'-0''$
(Bent 2 span 1 and Bent 4 span 4, similar)



IMPACT PLATE DETAIL

Scale: $\frac{1}{2}'' = 1'-0''$



BENT 3 REINFORCED ELASTOMERIC BEARING PAD

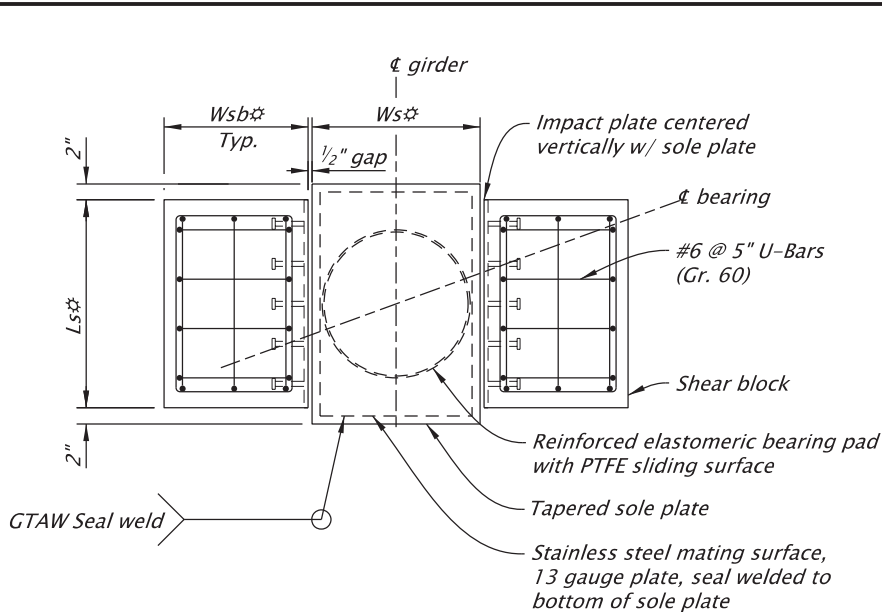
Scale: $1\frac{1}{2}'' = 1'-0''$
(Bent 2 span 1 and Bent 4 span 4, similar)

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114537
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026

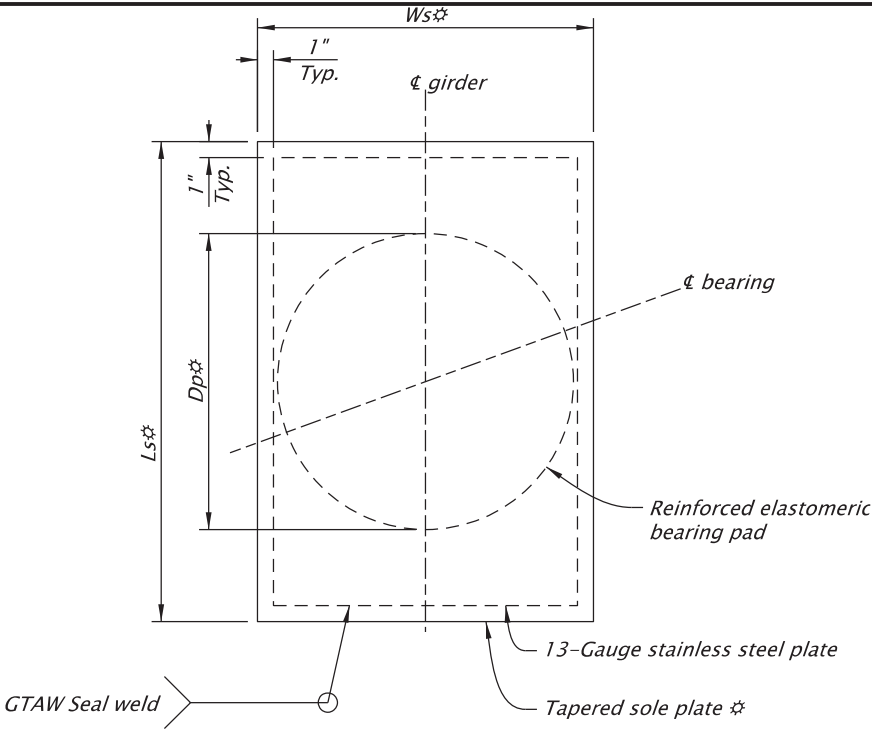
REGISTERED PROFESSIONAL
ENGINEER
99900PE
Digitally Signed 2026.09.16 08:19:44 -07'00'
OREGON
MAY 10, 2022
DESIRE GIRANEZA
RENEW: 06-30-2027

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
BEARING DETAILS - 1	
SHEET NO. JF02	



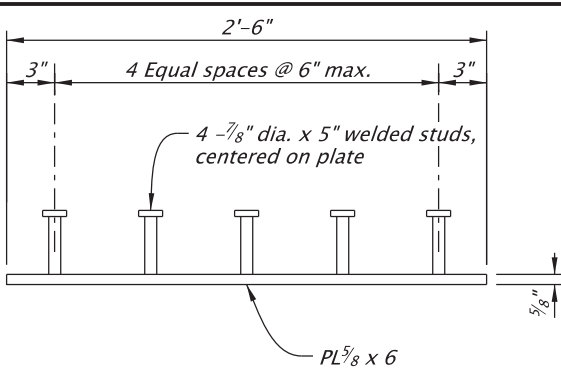
BENT 1 BEARING AND SHEAR KEY PLAN

Scale: 1/2"=1'-0"
(Bent 2 span 2, Bent 4 span 3, and Bent 5 similar)



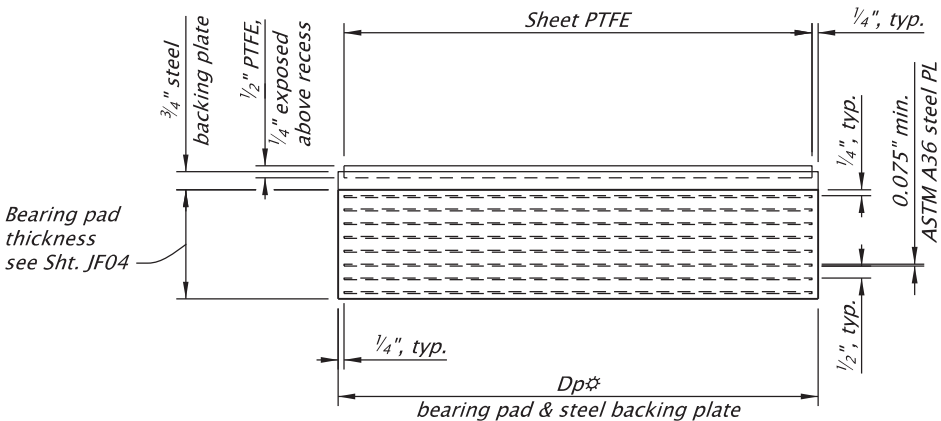
BEARING SOLE PLATE DETAIL

Scale: 1"=1'-0"
(Bent 2 span 2, Bent 4 span 3, and Bent 5 similar)



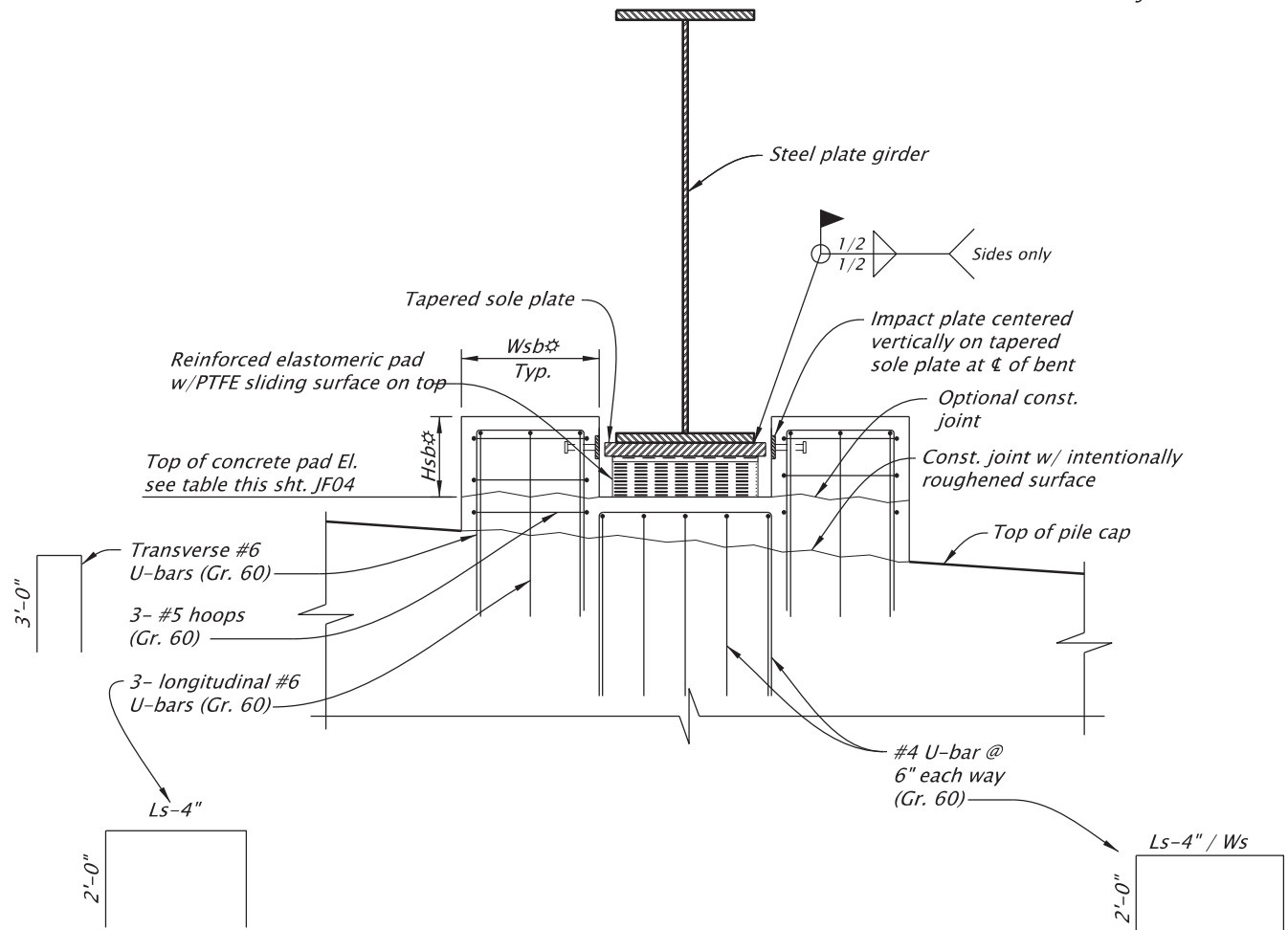
IMPACT PLATE DETAIL

Scale: 1"=1'-0"
(Bent 2 span 2, Bent 4 span 3, and Bent 5 similar)



REINFORCED ELASTOMERIC BEARING PAD

Scale: 1 1/2"=1'-0"
(Bent 2 span 2, Bent 4 span 3, and Bent 5 similar)



BENT 1 BEARING AND SHEAR KEY ELEVATION

Scale: 1/2"=1'-0"
(Bent 2 span 2, Bent 4 span 3, and Bent 5 similar)

NOTE:
☆ See Sheet Bearing Table
and Bearing Pad Elevations
Table on Sht. JF04.

BEARING NOTES:
Furnish unfilled or dimpled unlubricated sheet PTFE.

Furnish ASTM A240 Type 304 stainless steel mating surface plate. Seal weld to the bottom of sole plate shall conform to AWS D1.6 and filler metals shall conform to AWS A5.9.

Vulcanize bond steel reinforced elastomeric bearing pads to tapered sole plates at Bent 2 span 1, Bent 3 and Bent 4 span 4. Vulcanize bond PTFE steel backing plate to steel reinforced elastomeric bearing pads at Bent 1, Bent 2 span 2, Bent 4 span 3, and Bent 5.

Furnish ASTM A709 Grade 50W weathering structural steel for sole plates, PTFE backing plates, and anchor rod shear plates.

Coat sole plates and anchor rod shear plates after fabrication. Use a Shop Coating 3-Coat System or Weathering Steel Coating 2-Coat System from the ODOT QPL. Mask shop coating within 2" of the field weld to the girder bottom flange. After welds are accepted, coat masked areas and fields welds with a Maintenance Coating 3-Coat System or Weathering Steel Coating 2-Coat System from the ODOT QPL. Hot dip galvanize impact plates after fabrication.

Monitor and control sole plate temperature during field welding to avoid warping.

Furnish ASTM F1554 Grade 105 anchor rods. Hot dip galvanize all anchor rods, washers, and hardware.

Use a template to accurately locate anchor rods during concrete pour.

Adjust nuts to final position in the total dead load condition. Install lower nut in contact with the sole plate and then back off to a 1/4" gap. Install upper nut snug tight to prevent lower nut from loosening.

Hot dip galvanize all anchor bolts, washers, and impact plates after fabrication.

All bearings are designed in accordance with Method B of the AASHTO LRFD Bridge Design Specifications.

For accompanied by drawings, see sht. JA01

STRUCTURE NO.	24318
BDS DWG NO.	114538
CALC. BOOK	7841
HWY: 002 M.P.: 63.41	
COUNTY	Hood River
DATE	08/2026
REGISTERED PROFESSIONAL ENGINEER 99900PE Digitally Signed 2026.09.16 08:20:52 -07'00' OREGON MAY 10, 2022 DESIRE GIRANEZA	
RENEW: 06-30-2027	

OREGON DEPARTMENT OF TRANSPORTATION	
Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: Desire Giraneza	Reviewer: Stephen T. Burgess
CADD Tech: Jim Culpepper (DEA)	Checker: Joel Tubbs (DEA)
BEARING DETAILS - 2	
SHEET NO. JF03	

BEARING SCHEDULE															
Bent	Quantity	Type	Bearing Pad Size		Tapered Sole Plate Size				Design Load - Service I Limit State (kip)			Calculated Movements (in.)		Movement per 10°F Temp. Change	Bearing Testing (kip)
					Thickness (in.)		Ls (in.)	Ws (in.)	Vertical			47°F Temperature Rise	47°F Temperature Fall		
			Nominal Thickness,t (in.)	Diameter, Dp (in.)	Sta. Back	Sta Ahead			DC	DW	Live Load (w/o Impact)				
Bent 1	5	Non-guided	3.5	18	2.09	1.5	24	25	131.5	20	86	1.05	1.13	0.15	356.25
Bent 2 (Span 1)	5	Fixed	3.5	18	2.09	1.5	24	34	133.3	21	98	--	--	--	378.45
Bent 2 (Span 2)	5	Non-guided	5.5	23	2.21	1.5	29	27	187.8	26	194	1.8	1.9	0.25	611.7
Bent 3	5	Fixed	3.5	28	2.34	1.5	34	48	780	97	377	--	--	--	1881
Bent 4 (Span 3)	5	Non-guided	5.5	23	2.21	1.5	29	27	215	29	185	1.8	1.9	0.25	643.5
Bent 4 (Span 4)	5	Fixed	3.5	18	2.09	1.5	24	32	83.7	12	70	--	--	--	248.55
Bent 5	5	Non-guided	3	15	2.02	1.5	21	19	82.9	13	69	0.67	0.72	0.1	247.35

BEARING PAD ELEVATIONS							
Girder	Bent 1	Bent 2 (Span 1)	Bent 2 (Span 2)	Bent 3	Bent 4 (Span 3)	Bent 4 (Span 4)	Bent 5
A	139.38	133.04	132.64	127.27	120.81	121.01	121.75
B	139.10	132.76	132.35	126.60	120.09	120.29	121.03
C	138.82	132.48	132.07	125.92	119.37	119.57	120.31
D	138.54	132.19	131.79	125.23	118.65	118.85	119.59
E	138.25	131.91	131.55	124.52	117.93	112.79	118.86
Shear Block Height, Hsb(in)	9.25	8.00	11.50	8.00	11.50	8.00	8.50
Shear Block Width, Wsb (in)	18.00	18.00	30.00	30.00	30.00	18.00	18.00
Shear Block Length, Lsb (in)	24.00	24.00	34.00	34.00	34.00	24.00	24.00

For accompanied by drawings, see sht. JA01

STRUCTURE NO.
24318

BDS DWG NO.
114539

CALC. BOOK
7841

HWY: 002
M.P.: 63.41

COUNTY
Hood River

DATE
08/2026

REGISTERED PROFESSIONAL
ENGINEER
99900PE
Digitally Signed 2026.09.16 08:22:03 -07'00'

OREGON
MAY 10, 2022
DESIRE GIRANEZA

RENEWS: 06-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION

Hwy 2WB over RR_MP63.41
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

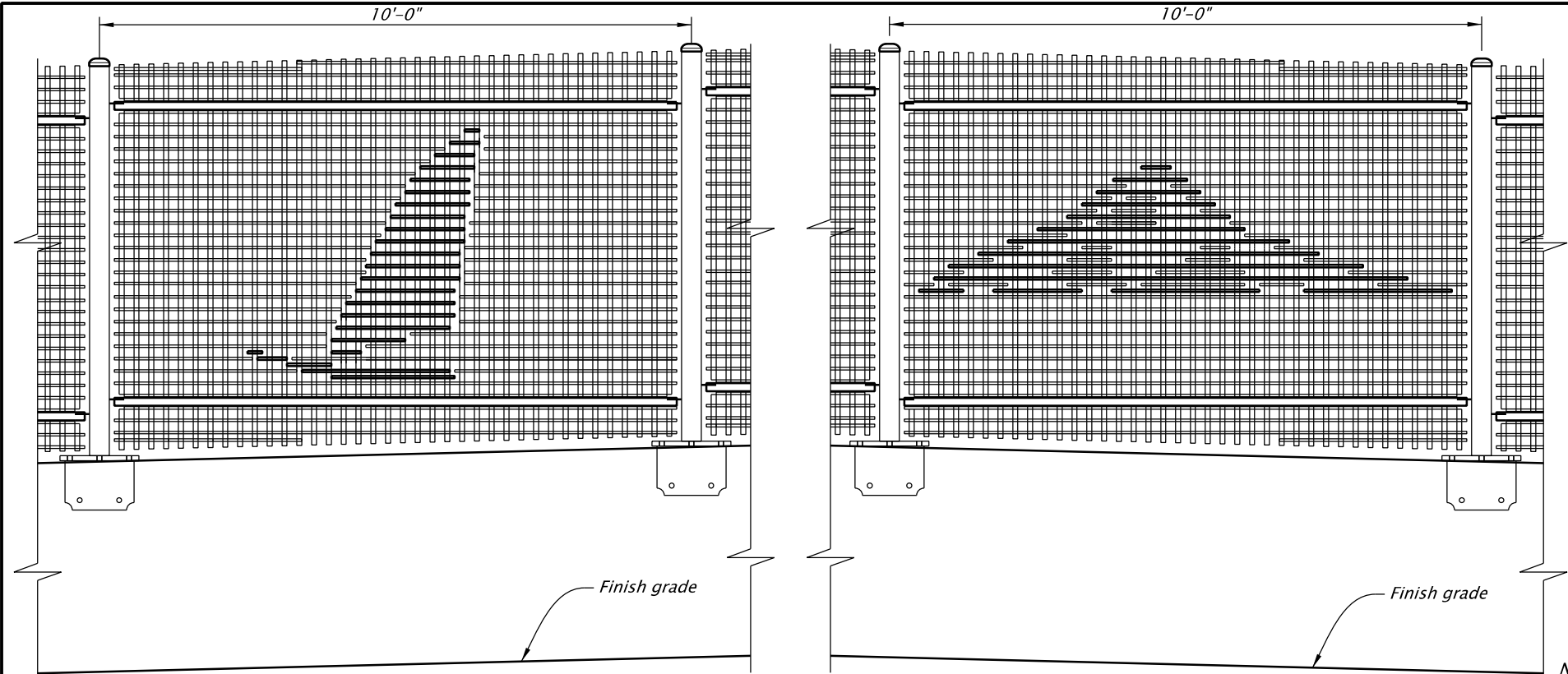
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: Desire Giraneza
CADD Tech: Jim Culpepper (DEA)

Reviewer: Stephen T. Burgess
Checker: Joel Tubbs (DEA)

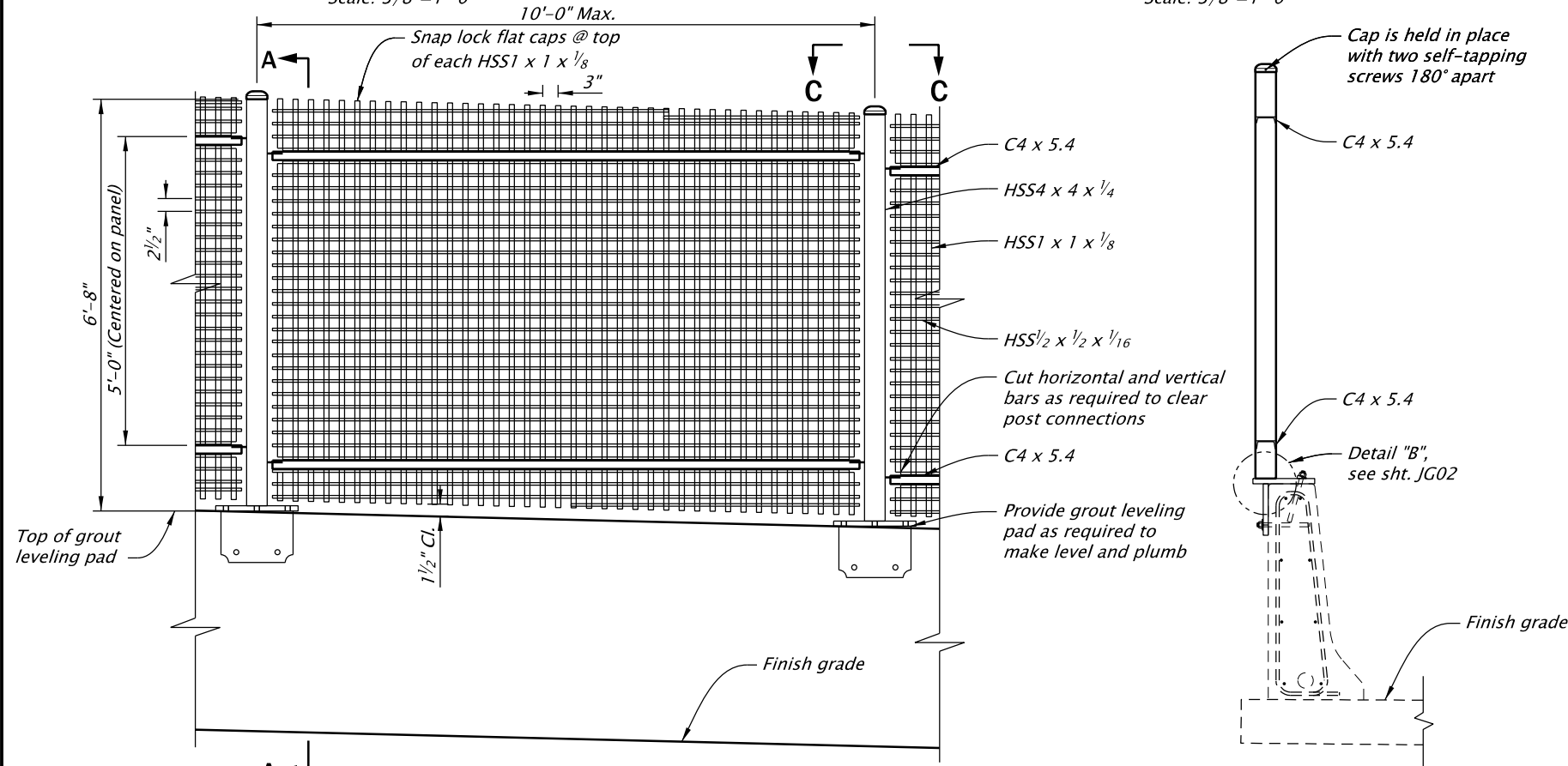
BEARING SCHEDULE & PAD ELEVATIONS

SHEET NO.
JF04

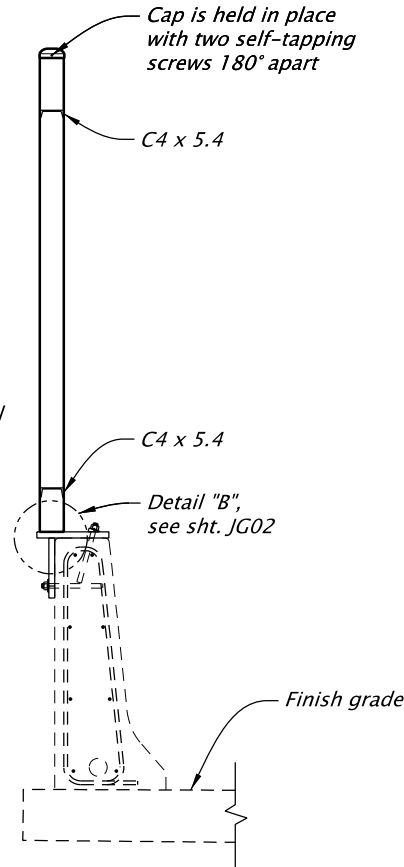


ORNAMENTAL PROTECTIVE SCREENING LEFT SIDE
(Graphic on alternating panels outside face of screening)
Scale: 3/8"=1'-0"

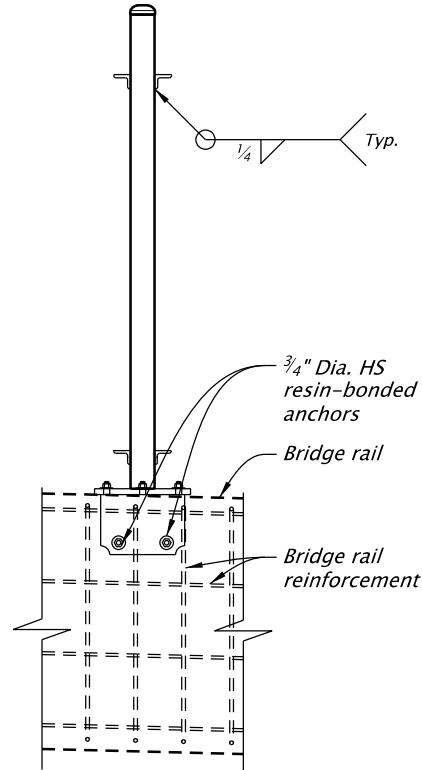
ORNAMENTAL PROTECTIVE SCREENING RIGHT SIDE
(Graphic on alternating panels outside face of screening)
Scale: 3/8"=1'-0"



ORNAMENTAL PROTECTIVE SCREENING
(Graphic on alternating panels outside face of screening)
Scale: 3/8"=1'-0"



SECTION A-A
Scale: 3/8"=1'-0"



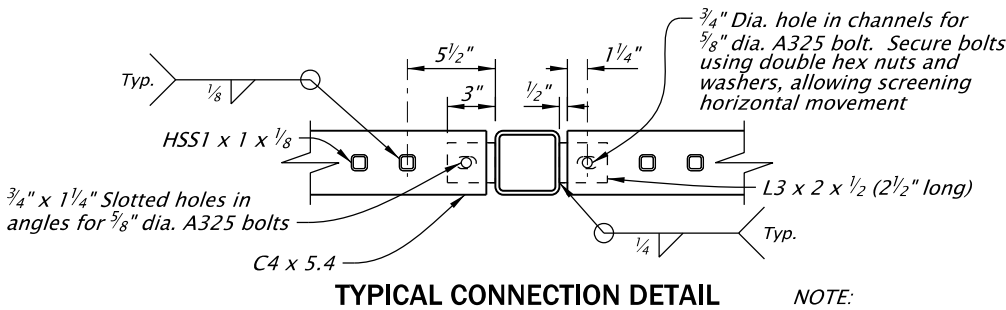
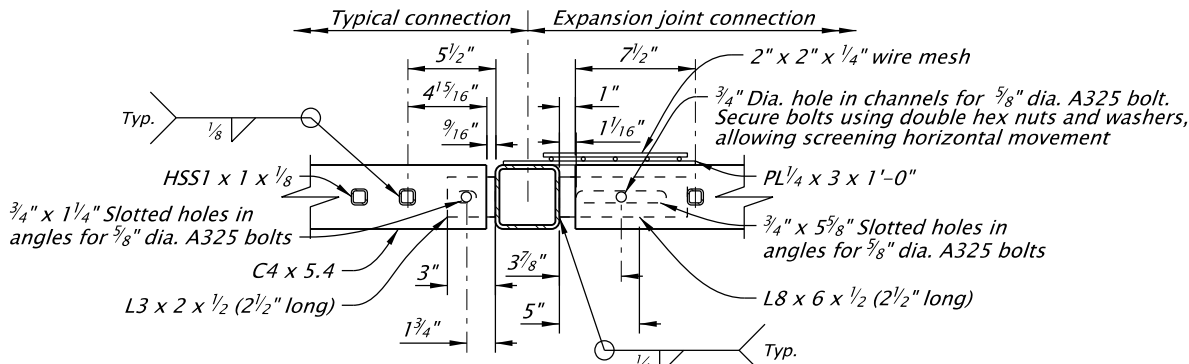
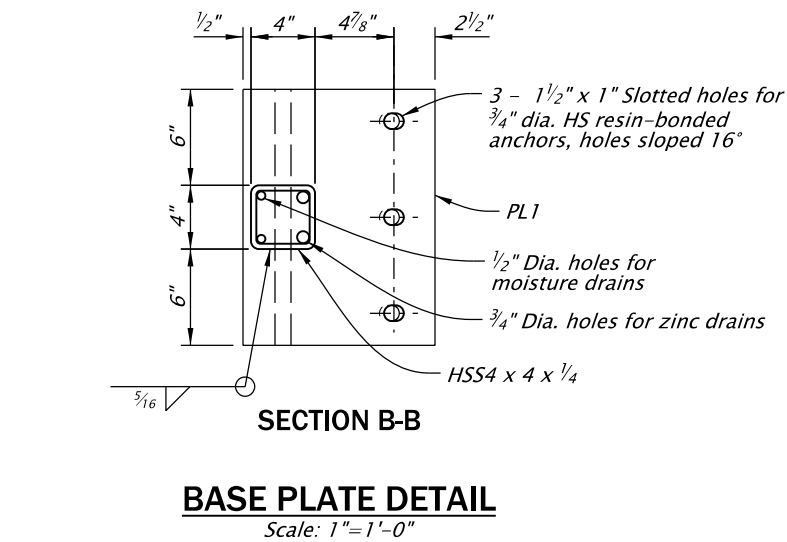
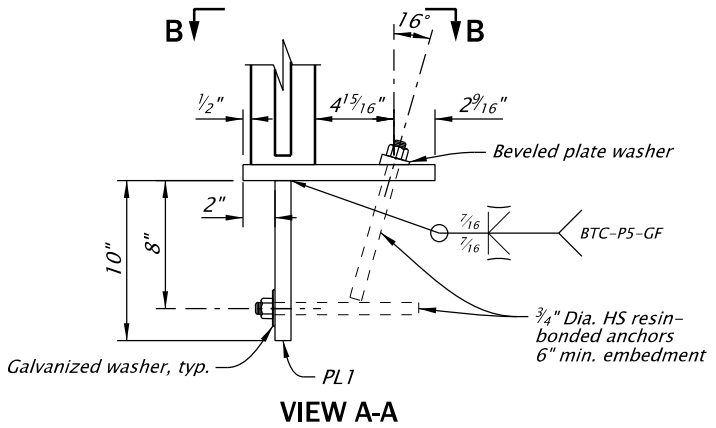
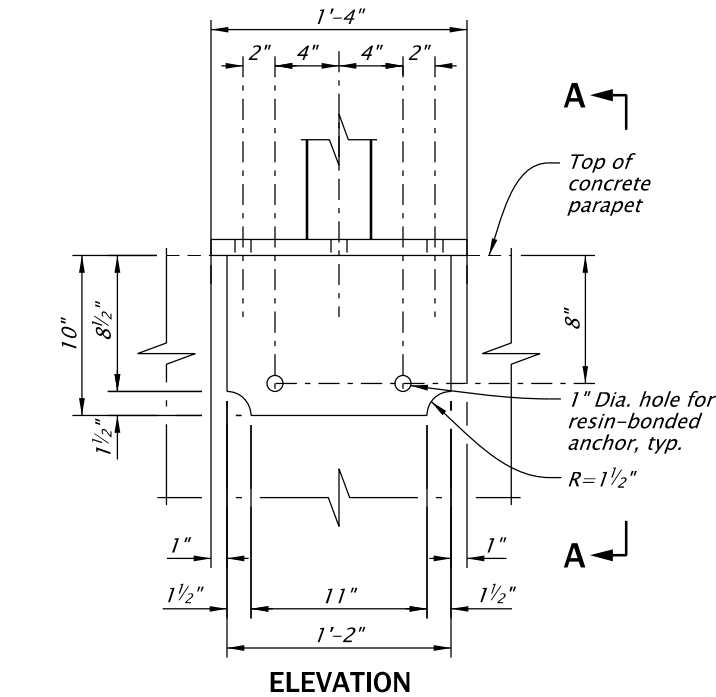
ELEVATION
Scale: 3/8"=1'-0"

- NOTES:**
Fabricate and install protective screening, as specified.
- Install protective screening to the horizontal and vertical alignment of the structure. Install posts and vertical members plumb in the transverse and longitudinal directions. Construct horizontal members parallel to the bridge deck in the longitudinal direction at the location of the screening. Protective screening panels to be fabricated as parallelograms to accommodate profile grade. Indicate on materials all grade increments for each panel.
- No horizontal or vertical splices of bars or tubes within a panel are permitted. 2" Maximum opening in screening.
- Stamp posts and panels for field identification.
- Completely cover all slotted holes with galvanized flat washers.
- Galvanize and Paint or powder coat all posts, wire mesh, channels, plates, caps, angles and other hardware as specified.
- Slope of screening panels may vary.
- Screening panels shall match the slope of the bridge ($\pm 1\%$ slope) while maintaining vertical alignment of $\frac{1}{2}$ " horizontal bars and 1" square tubing.
- Fabricate parallelogram panels in 0, 2, 4, 6, 8% step increments. See sht. JG02 for Screening Support Details.
- For screening at bridge expansion joints, see details sht. JG02.
- For post connection details, see sht. JG02.
- Provide 1" x 1" tube steel according to ASTM Specification A500, Grade B.
- Provide 1" x $\frac{1}{2}$ " tube steel according to ASTM Specification A500, Grade B.

USDOT 810122R
Railroad Milepoint 62.50
Lat./Long. 45.71300°, -121.52256°
Portland Subdivision via Graham Line

For accompanied by drawings, see sht. JA01

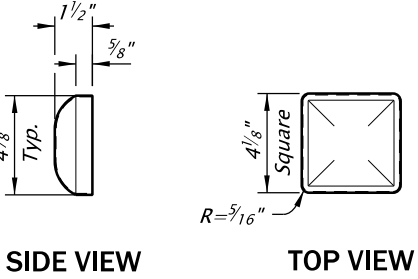
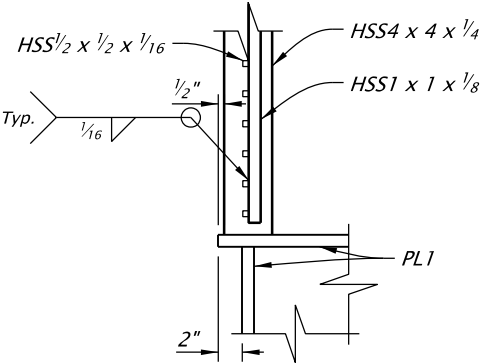
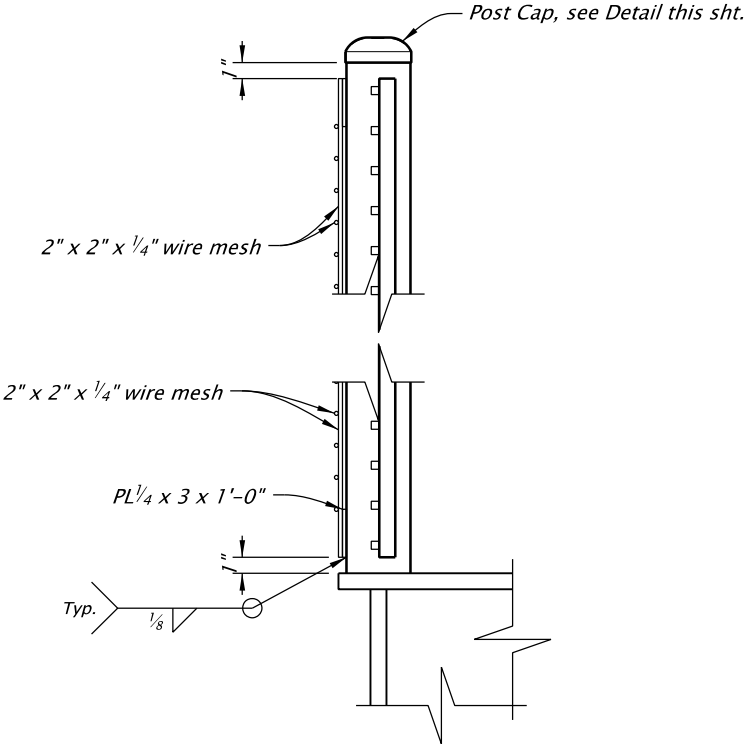
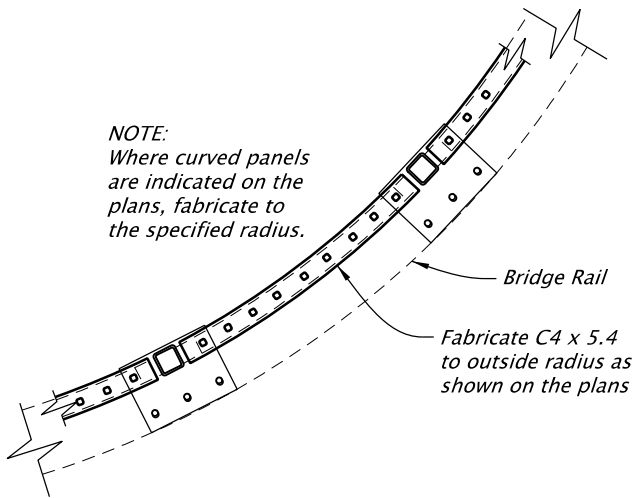
STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114540		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Stephen T. Burgess	Reviewer: George F. Bornstedt	
COUNTY Hood River	RENEW: 12-31-2027	CADD Tech: Jlm Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		ORNAMENTAL SCREENING DETAILS - 1		SHEET NO. JG01



SECTION C-C

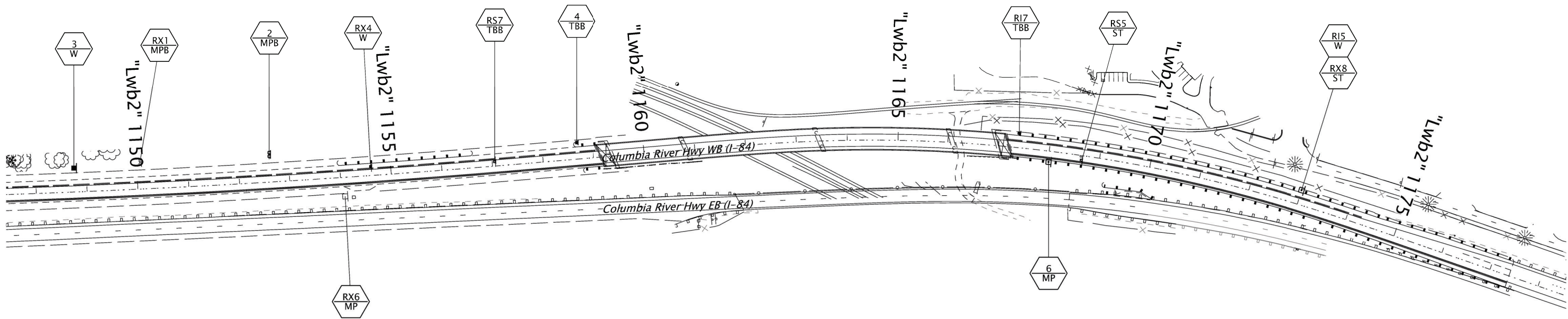
Scale: 1"=1'-0"

NOTE:
For section location
See sht. JG01.



For accompanied by drawings, see sht. JA01

STRUCTURE NO. 24318		OREGON DEPARTMENT OF TRANSPORTATION		
BDS DWG NO. 114540		Hwy 2WB over RR_MP63.41 I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT		
CALC. BOOK 7841		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY		
HWY: 002 M.P.: 63.41		Designer: Stephen T. Burgess	Reviewer: George F. Bornstedt	
COUNTY Hood River	RENEW: 12-31-2027	CADD Tech: JIm Culpepper (DEA)	Checker: Joel Tubbs (DEA)	
DATE 08/2026		ORNAMENTAL SCREENING DETAILS - 2		
		SHEET NO. JG02		



LEGEND

-  Install new sign (N) on new (M) sign support
-  Maintain and protect existing sign (N) and support
-  Remove and save existing sign (N) and remove (M) sign support
-  Reinstall existing sign (N) on new (M) sign support
-  Remove existing sign (N) and (M) sign support

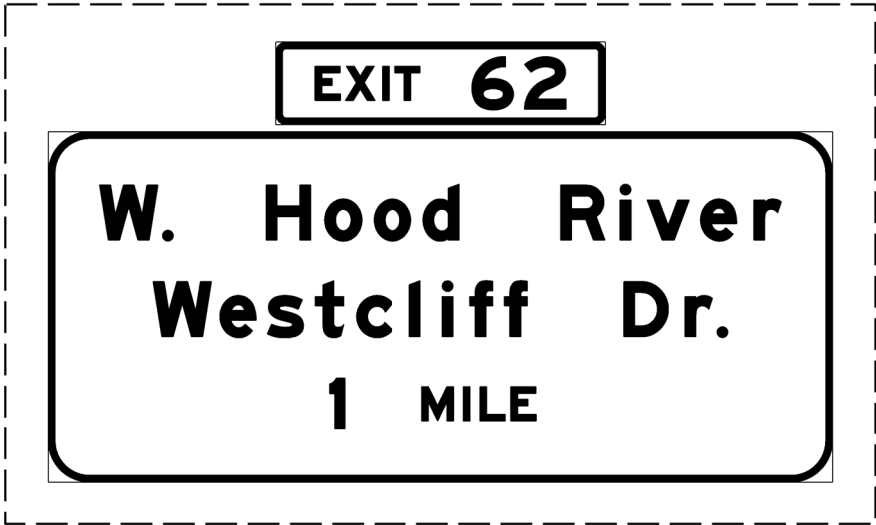
N = Sign Number
M = Material
Material options:
W = Wood Sign Post
MPB = Multi-Post Breakaway Sign Support
TBB = Triangular Base Breakaway Sign Support
ST = Perforated Steel Square Tube Sign Support
MP = Milepost Marker Post

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

ACCOMPANIED BY DWGS.:
TM200, TM201, TM220, TM221, TM222, TM225, TM231, TM232, TM600, TM601, TM602, TM635, TM670, TM671, TM675, and TM676.

 RENEWS: 6-30-2028	OREGON DEPARTMENT OF TRANSPORTATION				
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT				
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY				
HWY: 002 M.P.: 63.07-63.85	UNIT FILE CODE S-23657	DFI/TSSU NO. N/A	Designer: J.Seitz CADD Tech: J.Seitz	Reviewer: J.Hayes Checker: C.Mao	SHEET NO. LA01



Sign No.1

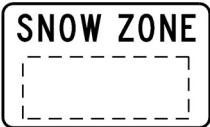


(OD417)



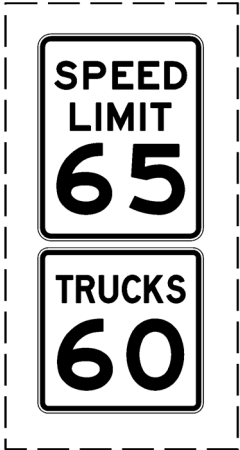
3a

Sign No.3

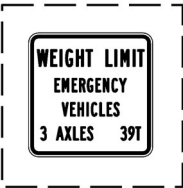


(OW15-15)

Sign No.4



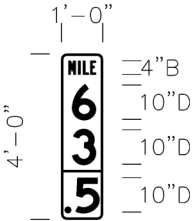
Sign No.7



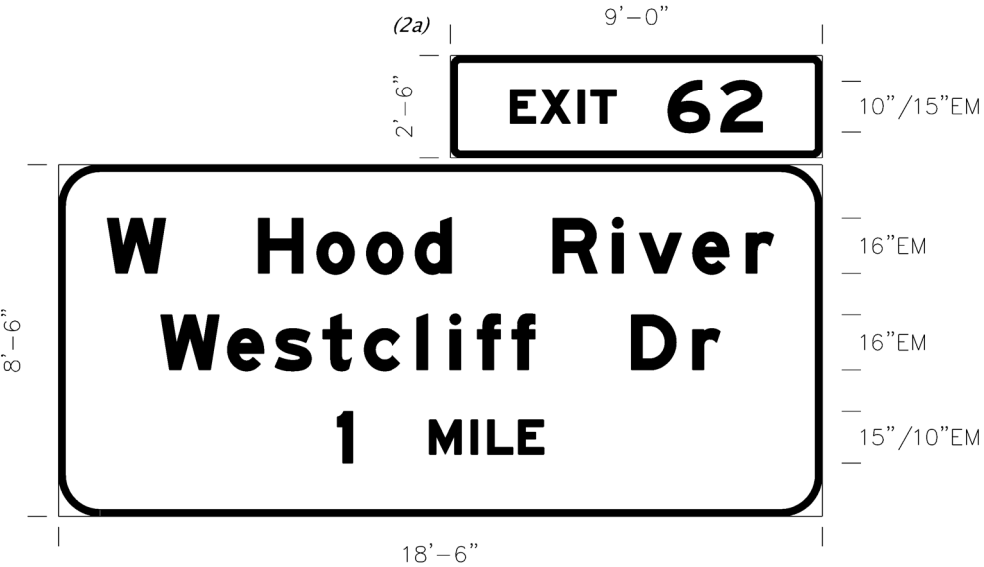
Sign No.8



Sign No.5



Sign No.6



Sign No.2

NOTE:
Signs shown with broken borders are existing signs.

HWY: 002 M.P.: 63.07-63.85 UNIT FILE CODE S-23658 DFI/TSSU NO. N/A	 RENEWS: 6-30-2028	OREGON DEPARTMENT OF TRANSPORTATION	
		I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT	
		COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY	
Designer: J.Seitz CADD Tech: J.Seitz		Reviewer: J.Hayes Checker: C.Mao	
SIGN DETAILS		SHEET NO. LB01	

SIGN & POST DATA TABLE

[illegible]

1/
BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
P=PURPLE
R=RED
RB=RED-BLUE
W=WHITE
Y=YELLOW
YG=FLUORESCENT YELLOW-GREEN

3/

NOTE: L,C,R ARE LOCATIONS
OF POSTS FACING THE SIGN.

L = LEFT POST

C = CENTER POST

R = RIGHT POST

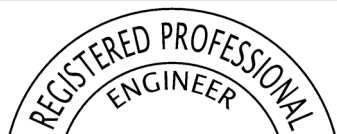
3/

DISTANCE FROM EDGE OF TRAVEL LANE,
FACE OF CURB, GUARDRAIL, OR BARRIER
TO THE CENTERLINE OF FOOTING. FOR
ADDITIONAL INFORMATION SEE STANDARD
DRAWINGS TM600, TM602, AND TM635

4/
NOTE: THE LOCATIONS SHOWN ARE APPROXIMATE
EXCEPT FOR SPEED ZONES, SCHOOL ZONES, OBJECT
MARKERS AND MILEPOST MARKERS. EXACT LOCATIONS
ARE TO BE DETERMINED BY THE ENGINEER

5/
MINIMUM DEPTH OF FOOTING FOR TRIANGULAR
BASE BREAKAWAY AND MULTI-POST BREAKAWAY
INSTALLATIONS IS FOR A 2' DIAMETER FOOTING.
FOR ADDITIONAL INFORMATION SEE STANDARD
DRAWINGS TM601 AND TM602.

MINIMUM DEPTH OF FOOTING FOR TRIANGULAR
BASE BREAKAWAY AND MULTI-POST BREAKAWAY
INSTALLATIONS IS FOR A 2' DIAMETER FOOTING.
FOR ADDITIONAL INFORMATION SEE STANDARD
DRAWINGS TM601 AND TM602.

	OREGON DEPARTMENT OF TRANSPORTATION			
	I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT			
	COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY			
	HWY: 002 M.P.: 63.07-63.85	UNIT FILE CODE S-23659		DFI/TSSU NO. N/A
RENEWS: 6-30-2028		SIGN & POST DATA TABLE		SHEET NO. LC01

GENERAL RUMBLE STRIP NOTES:

1. Install rumble strips on left and right shoulders as shown.
2. Omit rumble strips:

• on bridge decks

• on Portland cement concrete surfaces

• at interchange ramps as shown

• other locations as directed
3. Install rumble strips on right-side shoulders with a width of 6.5' or greater (7.5' or greater where adjacent to barrier or guardrail).
4. Install rumble strips on left-side shoulders with a width of 3.5' or greater (5.5' or greater where adjacent to guardrail or barrier).
5. Shoulder width is measured from the center of the edge line to the edge of pavement, or face of guardrail or barrier where present.
6. Drawing not to scale.

LEGEND

- |||||

 Gap Pattern
- |||||

 Continuous Pattern

L E G E N D

- W

 Inst. 4" white line
- Y

 Inst. 4" yellow line
- WB

 Inst. 4" white broken line
- WB
R-40

 Inst. white broken line supplementation reflectors with 4" white broken line
- 1

 Inst. right shoulder gap pattern rumble strips
- 2

 Inst. left shoulder continuous pattern rumble strips

GENERAL PAVEMENT MARKING NOTES:

1. Match points to existing striping and station callouts are approximate and shall be field verified.
2. Permanent striping (Spec.00850) on I-84 is:

- Longitudinal Pavement Markings (Spe.00865): (Method D) Methyl Methacrylate, Wet Weather, Grooved, Non-profiled

- Pavement Markers (Spec.00855): Mono-Directional White, Type 1AR, Recessed

- Rumble Strips (Spec.00857): Left shoulder continuous and right shoulder gap pattern
3. Install Delineators (Spec.00840, Spacing per TM570) on both sides of the WB highway:

- Type 1U, W-1 along right shoulder and Y-1 along left shoulder

- Type 5 , White along right concrete bridge rail and Yellow along left concrete bridge rail

ACCOMPANIED BY DWGS.:
TM500, TM502, TM515, TM517,
TM521, TM547, TM560, TM570,
TM571, and TM575



RENEWS: 6-30-2027

OREGON DEPARTMENT
OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

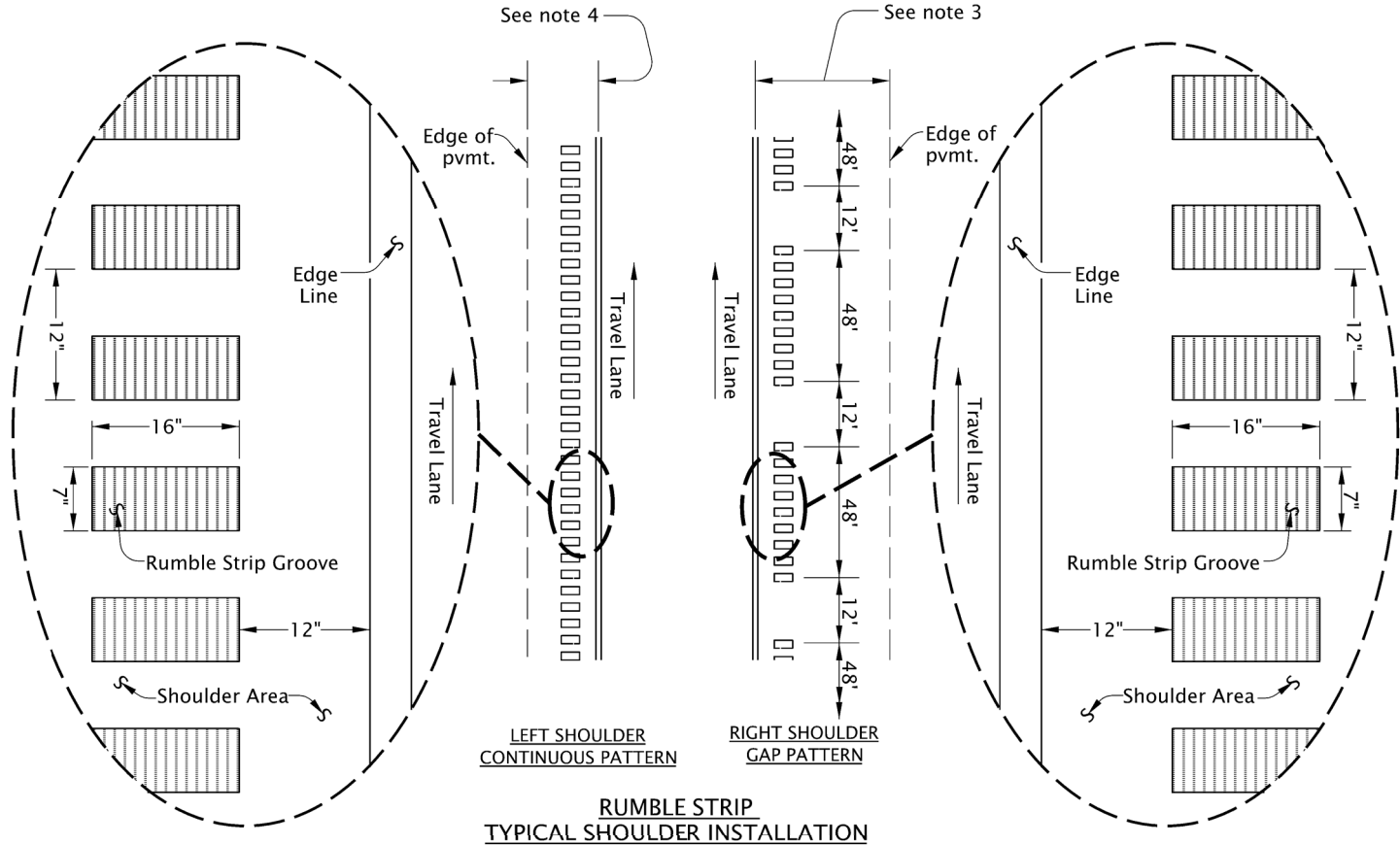
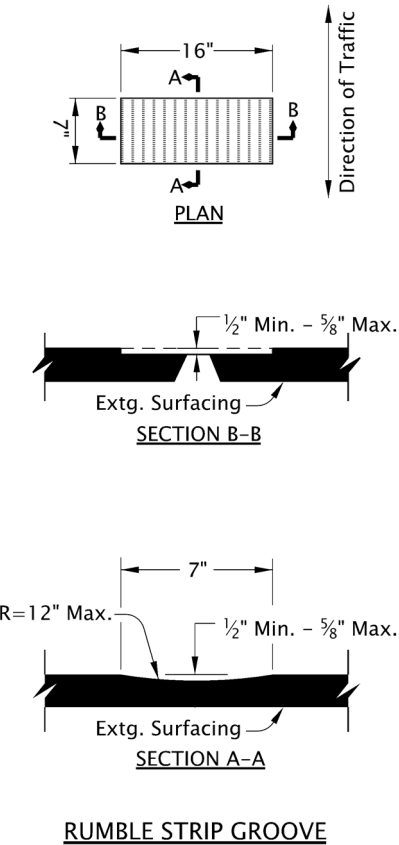
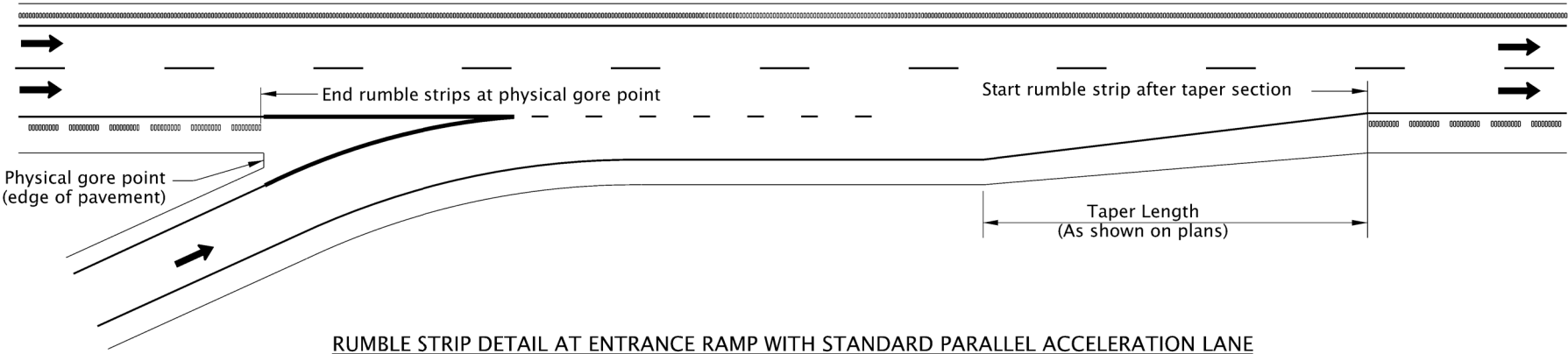
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

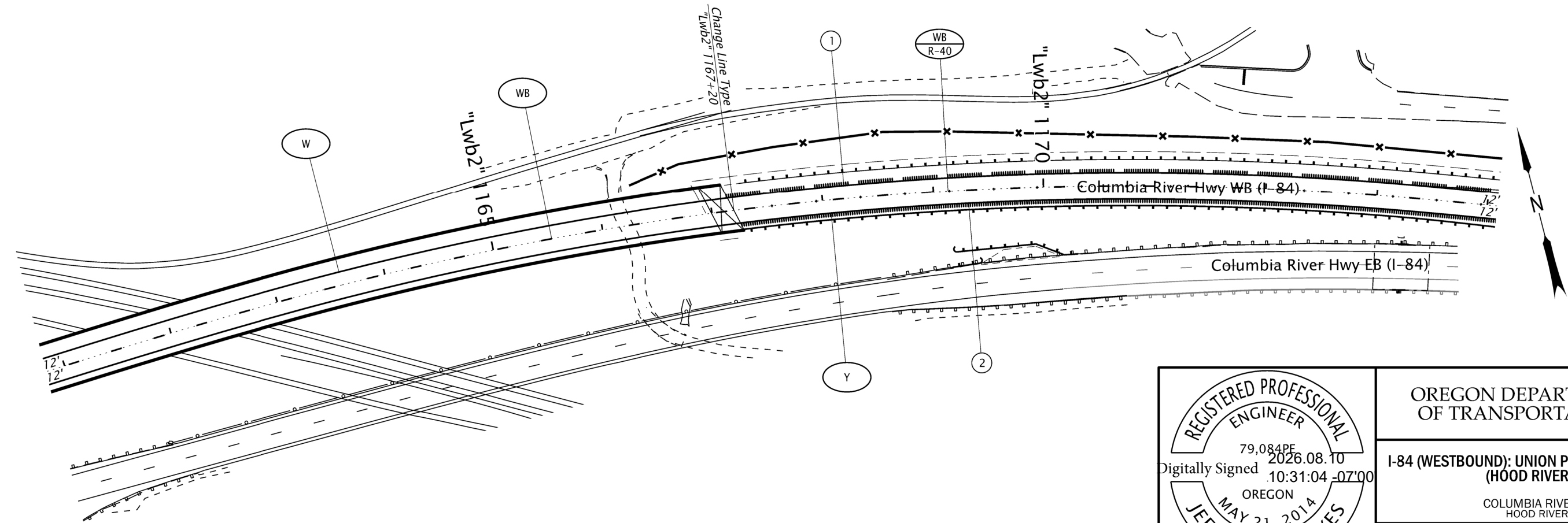
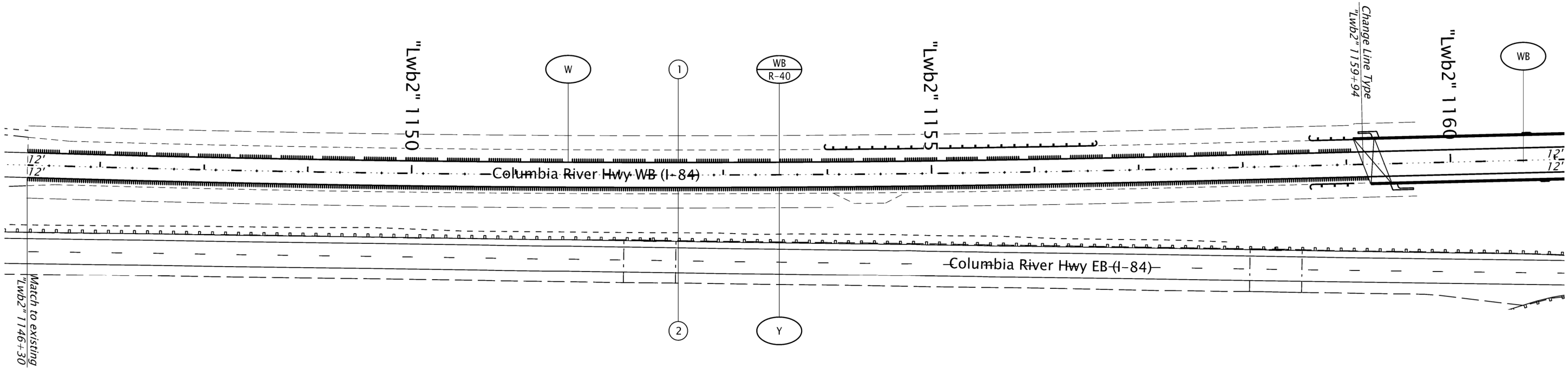
Designer: J.Seitz
CADD Tech: J.Seitz

Reviewer: J.Hayes
Checker: C.Mao

PAVEMENT MARKING DETAILS

SHEET NO.
QA01





* See Sheet QA01 for Pavement Marking Details



RENEWS: 6-30-2027

OREGON DEPARTMENT OF TRANSPORTATION



I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT

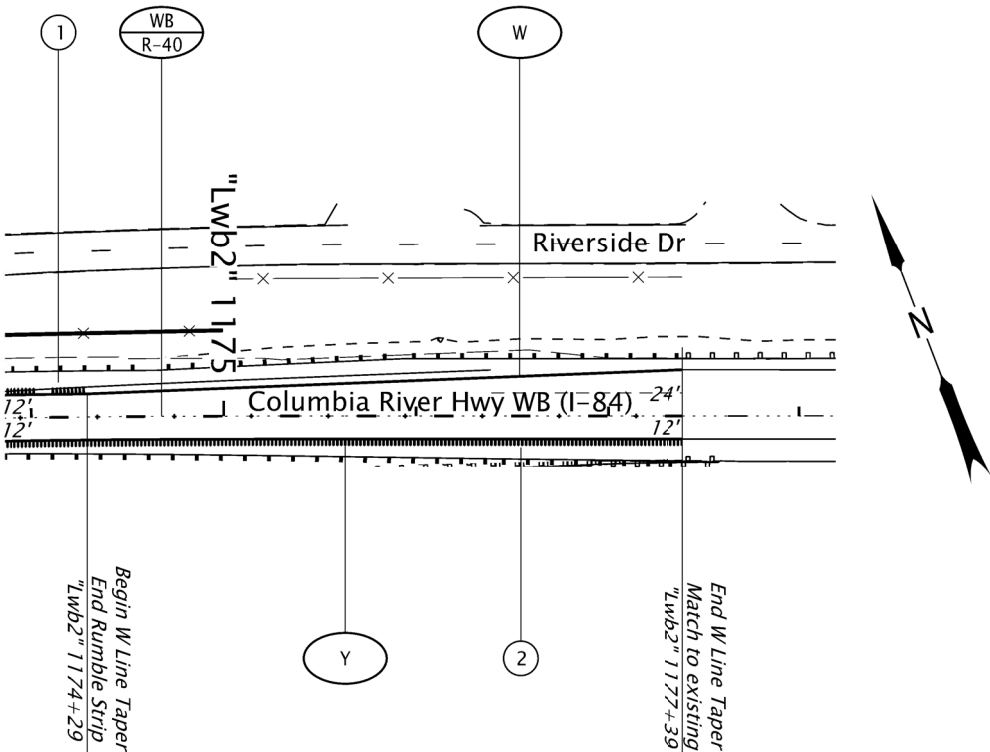
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: J.Seitz Reviewer: J.Hayes

CADD Tech: J.Seitz Checker: C.Mao

PAVEMENT MARKING PLAN

SHEET NO.
QB01



* See Sheet QA01 for Pavement Marking Details



RENEWS: 6-30-2027

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

OREGON DEPARTMENT
OF TRANSPORTATION



**I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE
(HOOD RIVER) PROJECT**

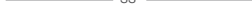
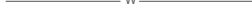
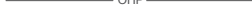
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

Designer: J.Seitz Reviewer: J.Hayes
CADD Tech: J.Seitz Checker: C.Mao

PAVEMENT MARKING PLAN

SHEET NO.
QB02

LEGEND

	EXISTING PROPERTY LINE
	EXISTING CONTOUR
	EXISTING EDGE OF PAVEMENT
	EXISTING WETLAND
	EXISTING FENCE
	EXISTING GUARDRAIL
	EXISTING RAILROAD TRACK
	EXISTING STORM SEWER
	EXISTING SANITARY SEWER
	EXISTING WATER
	EXISTING UNDERGROUND POWER
	EXISTING OVERHEAD POWER
	EXISTING UNDERGROUND TELECOMMUNICATIONS
	EXISTING DITCH
	EXISTING STORM DRAIN MANHOLE
	EXISTING CATCH BASIN
	EXISTING SANITARY SEWER MANHOLE
	EXISTING WATER VALVE
	EXISTING FIRE HYDRANT
	EXISTING UTILITY POLE
	EXISTING TELECOM PEDESTAL
	EXISTING MONITORING WELL
	EXISTING BRIDGE COLUMN
	EXISTING SIGN
	EXISTING MONUMENT
	EXISTING GRAVEL ROAD
	EXISTING TREE
	PROPOSED SANITARY SEWER, SIZE AS NOTED
	PROPOSED WATER LINE, SIZE AS NOTED
	PROPOSED THRUST BLOCK
	PROPOSED WATER LINE BEND, ANGLE AS NOTED
	PROPOSED COUPLING
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED ACCESS ROAD

NO.	REVISION	BY	DATE
DESIGNED BY: WW			
DRAWN BY: CK			
REV: JV			

LEGEND

wallis*engineering

PROJECT NO: 1596A

DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:
U01

REGISTERED PROFESSIONAL
ENGINEER
79235PE
2026.08.20
15:58:18-07'00'
OREGON
Dec. 21, 2011
WESLEY MARTIN WEGNER

EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



LEGEND

- - - - - LIMITS OF PIPE ABANDONMENT

ABANDONMENT NOTES

1. CONFIRM LIMITS OF ABANDONMENT WITH THE ENGINEER PRIOR TO STARTING ABANDONMENT WORK.

UTILITY
ABANDONMENT PLAN

wallis
*engineering

PROJECT NO:	DATE:
1596A	8/2026

**I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U02

REGISTERED PROFESSIONAL
ENGINEER
79235PE
OREGON
WESLEY MARTIN WEGNER

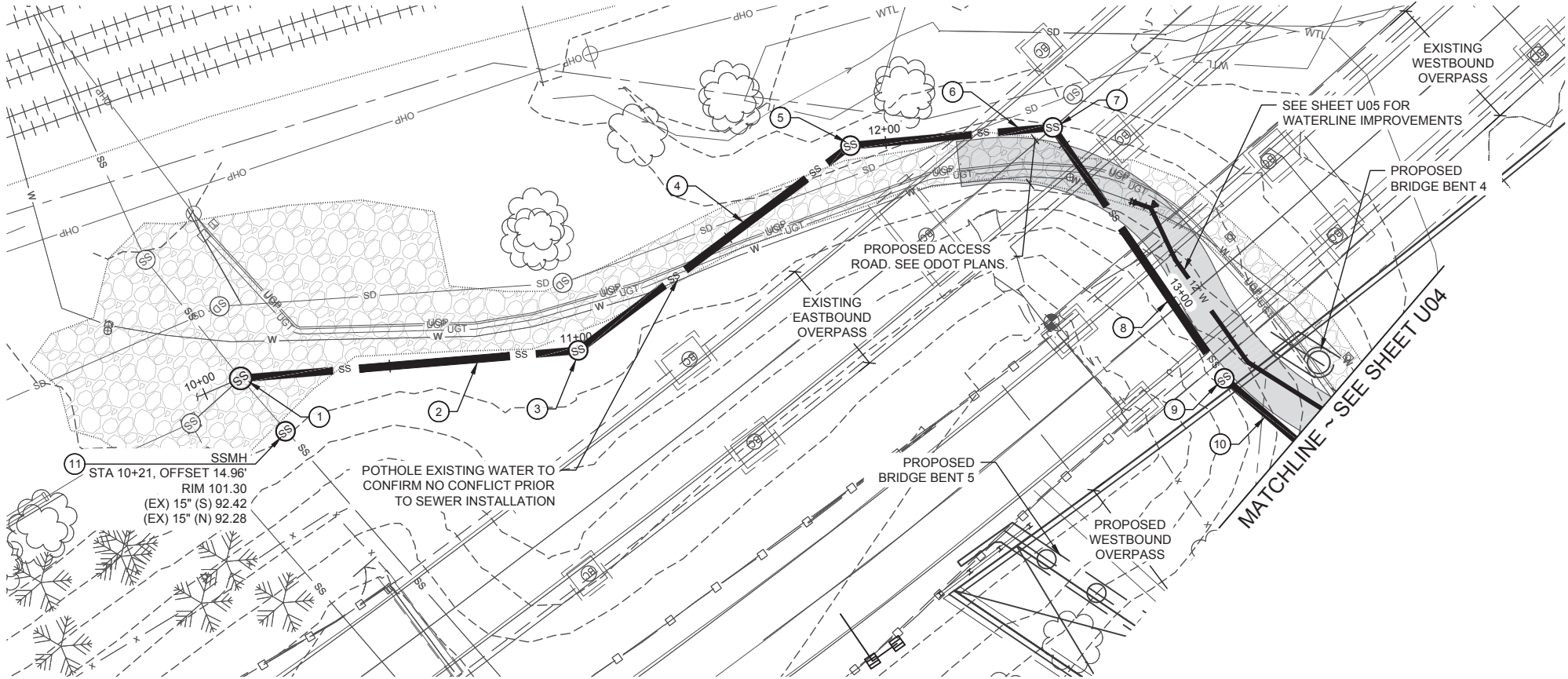
Dec. 21, 2011

EXPIRES: 06/30/2028

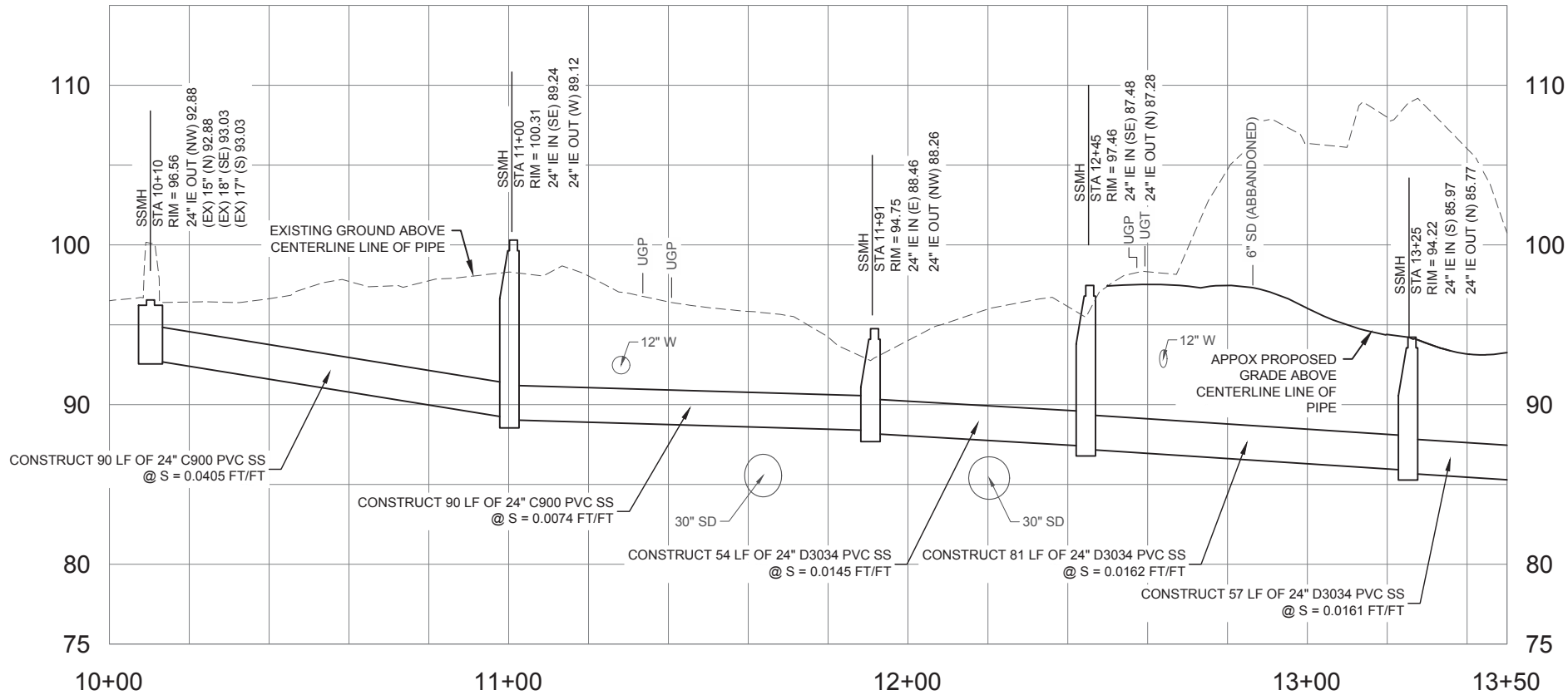
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

PLAN

P:\151596A 184 Waterline Relocation\500 DWG\501 Plan Sheets\Utility Plan & Profiles.dwg, 8/18/2026 1:28:00 PM, Chad Kays



PLAN



PROFILE

SCALE: 1" = 40' HORIZ
1" = 10' VERT



0 20 40
SCALE IN FEET

SEWER KEY NOTES

- 1 CONST. LARGE PRECAST MANHOLE, CONNECT TO EX. SEWER MAINS (SEE CITY OF HOOD RIVER STD DWG D-09 AND ODOT STD DWG RD346)
- 2 CONST. 24" C900 PVC SEWER MAIN - 90' (SEE CITY OF HOOD RIVER STD DWGS RD-02 AND RD-03)
- 3 CONST. MANHOLE (SEE CITY OF HOOD RIVER STD DWGS D-09, D-11, D-12, AND D-13)
- 4 CONST. 24" C900 PVC SEWER MAIN - 90'
- 5 CONST. MANHOLE
- 6 CONST. 24" D3034 PVC SEWER MAIN - 54'
- 7 CONST. MANHOLE
- 8 CONST. 24" D3034 PVC SEWER MAIN - 81'
- 9 CONST. MANHOLE
- 10 CONST. 24" D3034 PVC SEWER MAIN - 57'
- 11 CONST. MANHOLE, CONNECT TO EX. SEWER MAIN (SEE CITY OF HOOD RIVER STD DWGS D-09, D-11, D-12, AND D-13)

SANITARY SEWER
PLAN & PROFILE BEGIN
TO STA 13+50

wallis
*engineering

PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U03



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



SCALE: 1" = 40' HORIZ
1" = 10' VERT



- ① CONST. 24" D3034 PVC SEWER MAIN (SEE CITY OF HOOD RIVER STD DWGS RD-02 AND RD-03)
- ② CONST. MANHOLE (SEE CITY OF HOOD RIVER STD DWGS D-09, D-11, D-12, AND D-13)
- ③ CONST. 24" D3034 PVC SEWER MAIN - 108'
- ④ CONST. JACK AND BORE CROSSING OF RAILROAD (SEE DETAIL SHEET U16)
- ⑤ CONST. MANHOLE
- ⑥ CONST. 24" D3034 PVC SEWER MAIN - 93'
- ⑦ CONNECT TO EXTG. MANHOLE (SEE CITY OF HOOD RIVER STD DWG D-09)

SANITARY SEWER PLAN &
PROFILE STA 13+50 TO END

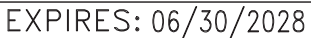
wallis
*engineering

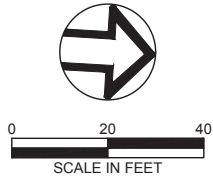
PROJECT NO:	1596A
DATE:	8/2026

**RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U04





1. RESTRAIN ALL JOINTS.

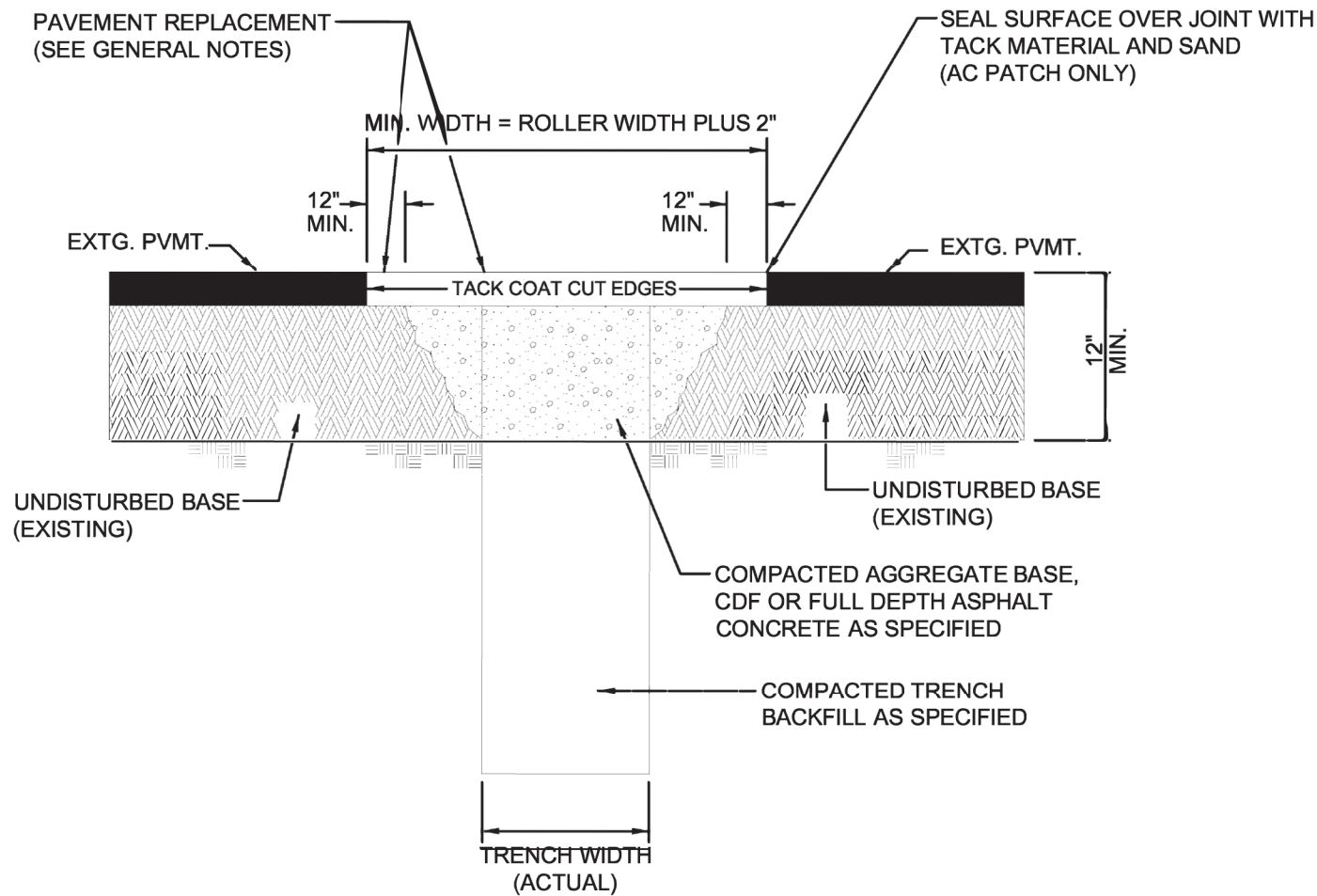
- 1 CONST. 12" APPROVED COUPLING
- 2 CONST. 12" DR 14 C900 PVC WATER MAIN - 4.5 LF (SEE CITY OF HOOD RIVER STD DWGS RD-02 AND RD-03)
- 3 CONST. 12" 45 MJ DI BEND WITH CONCRETE THRUST BLOCK (SEE CITY OF HOOD RIVER STANDARD DRAWING W-07)
- 4 CONST. 12" DR 14 C900 PVC WATER MAIN - 14 LF
- 5 CONST. 12" 11.25 MJ DI BEND
- 6 CONST. 12" DR 14 C900 PVC WATER MAIN - 32.5 LF
- 7 CONST. 12" 22.5 MJ BEND
- 8 CONST. 12" DR 14 C900 PVC WATER MAIN - 47.5 LF
- 9 CONST. 12" 22.5 MJ BEND WITH CONCRETE THRUST BLOCK (SEE CITY OF HOOD RIVER STANDARD DRAWING W-07)
- 10 CONST. 12" DR 14 C900 PVC WATER MAIN - 6.5 LF
- 11 CONST. 12" APPROVED COUPLING



wallis
*engineering

RAWING NO:

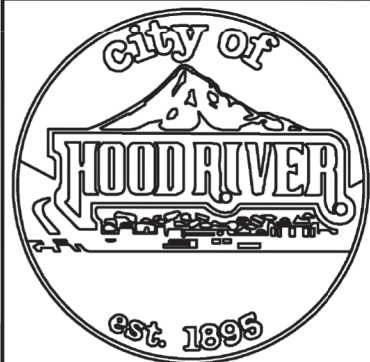
J05



GENERAL NOTES FOR ALL DETAILS:

1. ALL EXISTING AC OR PCC PAVEMENT SHALL BE SAWCUT PRIOR TO REPAVING.
2. CONCRETE PAVEMENT SHALL BE REPLACED WITH CONCRETE TO A MINIMUM THICKNESS OF 6" OR TO THE THICKNESS OF REMOVED PAVEMENT, WHICHEVER IS GREATER.
3. PLACE AC MIX MINIMUM THICKNESS OF 4" OR THE THICKNESS OF THE REMOVED PAVEMENT, WHICHEVER IS GREATER. COMPACT AS SPECIFIED.

CITY OF HOOD RIVER STANDARD DRAWINGS RD-02



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

STREET CUT DETAIL

2019

DATE REVISIONS



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS I

wallis
*engineering

PROJECT NO: 1596A
DATE: 8/2026

**I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U06



"A" (in)	"B" (in)	"C" (in)	"D" (in)
4	10	4	8
6	10	4	8
8	10	6	10
10	10	6	10
12	12	6	10
15	12	6	10
18	16	6	12
21	16	6	12
24	18	6	12
30	18	6	12
36	24	6	14
42	24	6	14
48	24	6	14
54	24	6	14
60	24	6	14
66	24	6	14
72	24	6	14

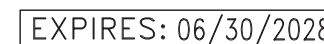
MULTIPLE INSTALLATIONS

DIAMETER	MIN. SPACE BETWEEN PIPES
UP TO 48"	24"
48" TO 72"	ONE HALF (1/2) DIA. OF PIPE

1. SURFACING OF PAVED AREAS SHALL COMPLY WITH STREET CUT STANDARD DRAWING.
2. FOR PIPE INSTALLATION IN IMBANKMENT AREAS WHERE THE TRENCH METHOD WILL NOT BE USED AND THE PIPE IS ≥ 36 " IN DIAMETER, INCREASE DIMENSION "B" TO NOMINAL PIPE DIAMETER.
3. PIPES OVER 72" DIAMETER ARE STRUCTURES, AND ARE NOT APPLICABLE TO THIS DRAWING.
4. DETECTABLE, COLOR CODED, 6" WIDE MARKING TAPE.

THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

DATE	REVISIONS



FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

wallis
*engineering

**1-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY**

DRAWING NO:

U07

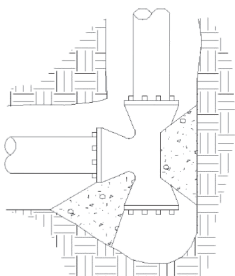
CONCRETE THRUST
BLOCKING (HORIZONTAL)

		THRUST (T) AT FITTINGS IN LBS				
PIPE DIA.	TABLE PRESSURE PSI	A	B	C	D	E
		TEE & DEAD ENDS	90 DEG BEND	45 DEG BEND	22.5 DEG BEND	11.25 DEG BEND
4"	250	3140	4440	2405	1225	615
6"	250	7070	9995	5410	2760	1385
8"	250	12565	17770	9620	4905	2465
10"	250	19635	27770	15030	7660	3850
12"	250	28275	39985	21640	11030	5545
14"	250	38485	54425	29455	15015	7545
16"	250	50265	71085	38470	19615	9855

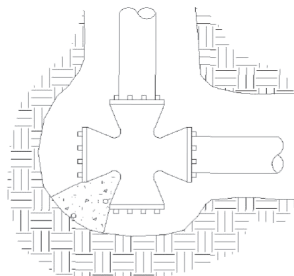
SOIL TYPE	SOIL BEARING CAPACITY (B) IN PSF
MUCK, PEAT, ECT.	0
SOFT CLAY	1000
SAND	2000
SAND AND GRAVEL	3000
SAND AND GRAVEL CEMENTED WITH CLAY	4000
HARD SHALE	10,000

CONCRETE BLOCKING FOR
CONVEX VERTICAL BENDS

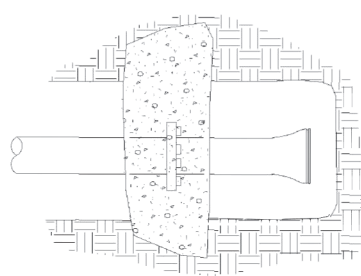
DIMENSION TABLE						
PIPE DIA. in.	TABLE PRESSURE PSI	BEND ANGLE (DEG)	CONCRETE VOLUME (cy)	CUBE SIZE (ft)	STIRRUP DIA. (in)	STIRRUP EMBM. (in)
4"	250	11.25	0.21	1.8	5/8	17
		22.5	0.43	2.3		
		45	0.77	2.8		
6"	250	11.25	0.48	2.4	5/8	17
		22.5	0.95	3.0		
		45	1.79	3.6		
8"	250	11.25	0.86	2.9	5/8	17
		22.5	1.65	3.5		
		45	3.22	4.4		
10"	250	11.25	1.39	3.3	5/8	17
		22.5	2.62	4.1		
		45	4.97	4.1		
12"	250	11.25	1.94	3.7	5/8	17
		22.5	3.91	4.7		
		45	6.89	5.7		
14"	250	11.25	2.62	4.1	5/8	17
		22.5	5.26	5.2		
		45	9.70	6.4		
16"	250	11.25	3.44	4.5	5/8	17
		22.5	6.89	5.7		
		45	12.63	7.0		



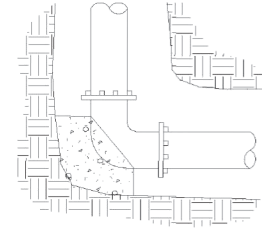
TEE



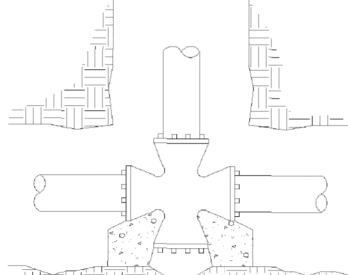
CROSS



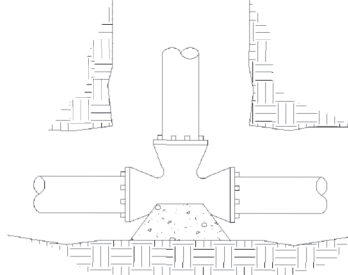
STRADDLE



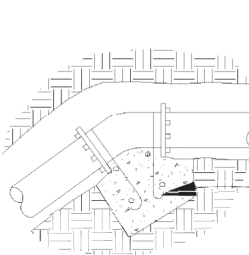
BEND



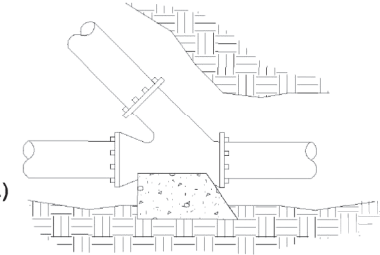
CROSS



TEE



CONVEX
VERTICAL BEND



WYE

DETERMINATION OF THRUST BLOCK BEARING AREA:

WHEN THRUST BLOCK BEARING AREA IS NOT SPECIFIED ON THE PLANS OR DETERMINED BY THE ENGINEER, USE THE FOLLOWING PROCEDURE TO DETERMINE REQUIRED BEARING AREA.

1. DETERMINE THRUST (T) FOR TYPE OF FITTING OR JOINT AND SIZE OF PIPE FROM TABLE.
2. DETERMINE DESIGN (TEST) PRESSURE FROM STANDARD SPECIFICATIONS OF SPECIAL PROVISIONS.
3. DETERMINE TABLE PRESSURE FROM TABLE.
4. DETERMINE SOIL BEARING CAPACITY (B) OF SOIL FROM TABLE.
5. DETERMINE REQUIRED BEARING AREA (A) IN SQ. FT. AS FOLLOWS:

$$A = \left(\frac{T}{B} \right) \left(\frac{\text{DESIGN (TEST) PRESSURE}}{\text{TABLE PRESSURE}} \right)$$

EXAMPLE: DESIGN (TEST) PRESSURE = 150 PSI FROM TABLE, T = 38485 LBS
PIPE = 14" FROM TABLE, B = 2000 PSF
FITTING = TEE
SOIL = SAND

$$A = \left(\frac{38485}{2000} \right) \left(\frac{150}{250} \right) = 11.55 \text{ sq ft}$$

GENERAL NOTES:

1. CONTRACTOR TO PROVIDE BLOCKING ADEQUATE TO WITHSTAND FULL TEST PRESSURE.
2. DRIVE THRUST BY SAFE BEARING LOAD TO DETERMINE REQUIRED BEARING AREA (A IN SQ.FT.) OF CONCRETE TO DISTRIBUTE LOAD.
3. ADJUST BEARING AREAS (A) FOR OTHER PRESSURE CONDITIONS. (SEE "DETERMINATION OF THRUST BLOCK BEARING AREA" EQUATION).
4. POUR CONCRETE BLOCKING AGAINST UNDISTURBED EARTH.
5. ALL CONCRETE TO BE 2900 PSI MINIMUM.
6. WRAP PIPE AND/OR FITTINGS WITH 2 LAYERS OF POLYETHYLENE FILM WHERE IN CONTACT WITH CONCRETE.
7. KEEP CONCRETE CLEAR OF ALL JOINTS AND ACCESSORIES.
8. STIRRUPS SHALL BE DEFORMED GALVANIZED COLD ROLLED STEEL AASHTO M31 (ASTM A615), GRADE 420. COAT WITH COAL TAR EPOXY AFTER INSTALLATION.

CITY OF HOOD RIVER STANDARD DRAWINGS W-07



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

THRUST BLOCKING

2019

DATE REVISIONS



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS III

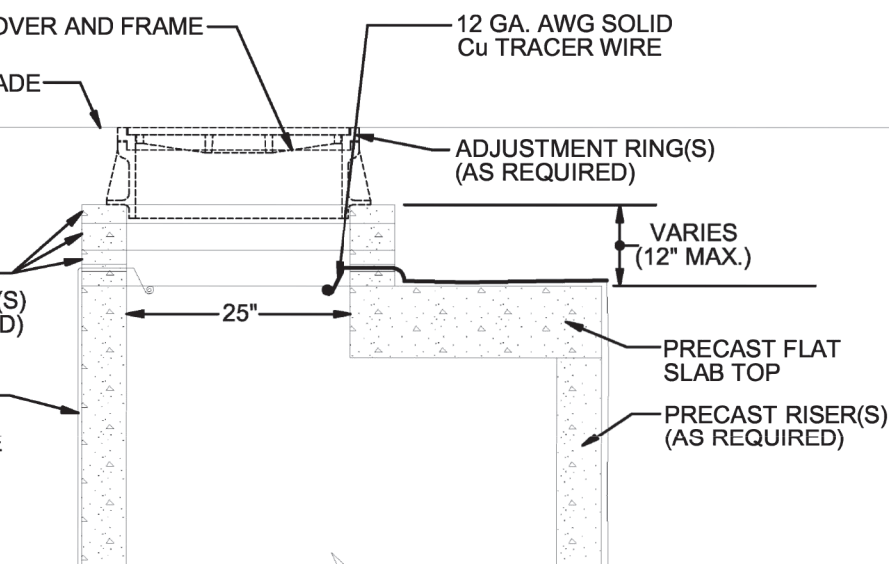
wallis
*engineering

PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

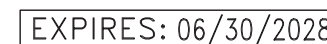
DRAWING NO:

U08



1. ALL PRECAST PRODUCTS SHALL CONFORM TO REQUIREMENTS OF ASTM C478.
2. STANDARD PRECAST MANHOLE SECTION DIAMETER SHALL BE 48".
3. ALL CONNECTING PIPES SHALL HAVE A TRACER WIRE, OR APPROVED ALTERNATE.
4. SEE STD. DWGS. FOR PIPE TO MANHOLE CONNECTIONS AND STANDARD MANHOLE DETAILS.
5. MAX. PIPE DIAMETER VARIES.
6. LOCATION, ELEVATION, DIAMETER, SLOPE, AND NUMBER OF PIPE(S) VARIES, SEE PROJECT PLANS.
7. THIS DETAIL LIMITED TO INTERIOR DROP OF 24".
8. CONCRETE INVERT AND BENCH SHALL HAVE A SMOOTH TROWEL FINISH.
9. STEPS WILL NOT BE ALLOWED IN MANHOLES

DATE	REVISIONS
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**1-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

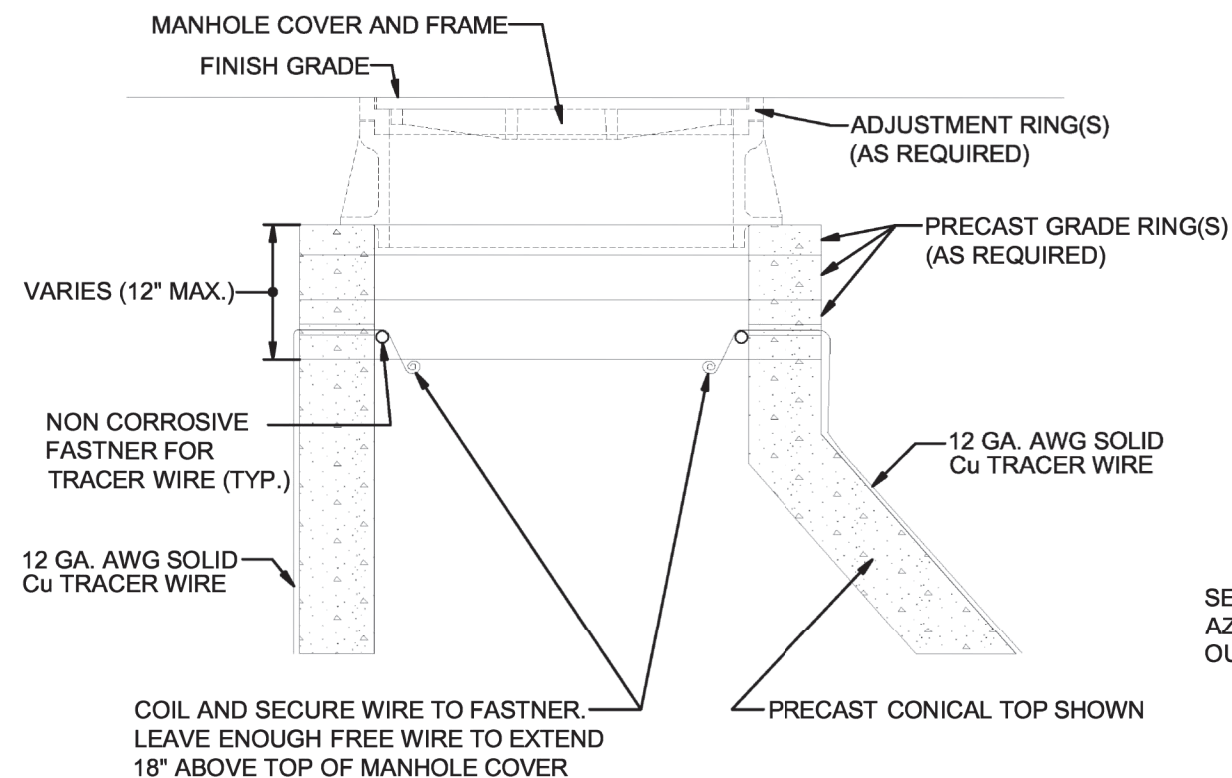
U09

DETAILS IV

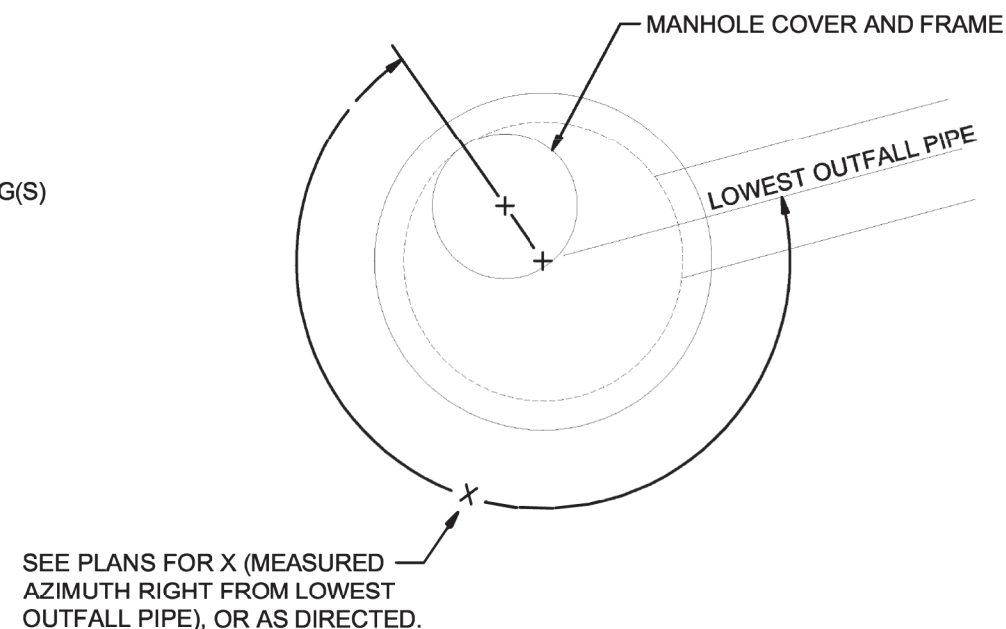
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*engineering

PROJECT NO:	DATE:
1596A	8/2026

DETAIL "A"
TRACER WIRE



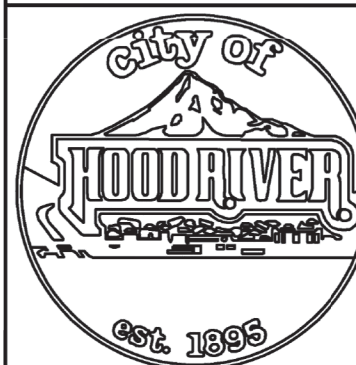
DETAIL "C"
PRECAST CONICAL TOP OR
PRECAST FLAT SLAB TOP ORIENTATION



NOTES FOR ALL DETAILS:

1. ALL PRECAST PRODUCTS SHALL CONFORM TO REQUIREMENTS OF ASTM C478.
2. STANDARD PRECAST MANHOLE SECTION DIAMETER SHALL BE 48".
3. SEE STD. DWG. FOR PIPE TO MANHOLE CONNECTION AND MANHOLE COVERS AND FRAMES.
4. ALL CONNECTING PIPES SHALL HAVE A TRACER WIRE, OR APPROVED ALTERNATE. PLACE TRACER WIRE DIRECTLY OVER PIPE CENTERLINE AND ON TOP OF THE PIPE.
5. SEE PROJECT PLANS FOR DETAILS NOT SHOWN.

CITY OF HOOD RIVER STANDARD DRAWINGS D-11



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

MANHOLE DETAILS

2019

DATE REVISIONS



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS V

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PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

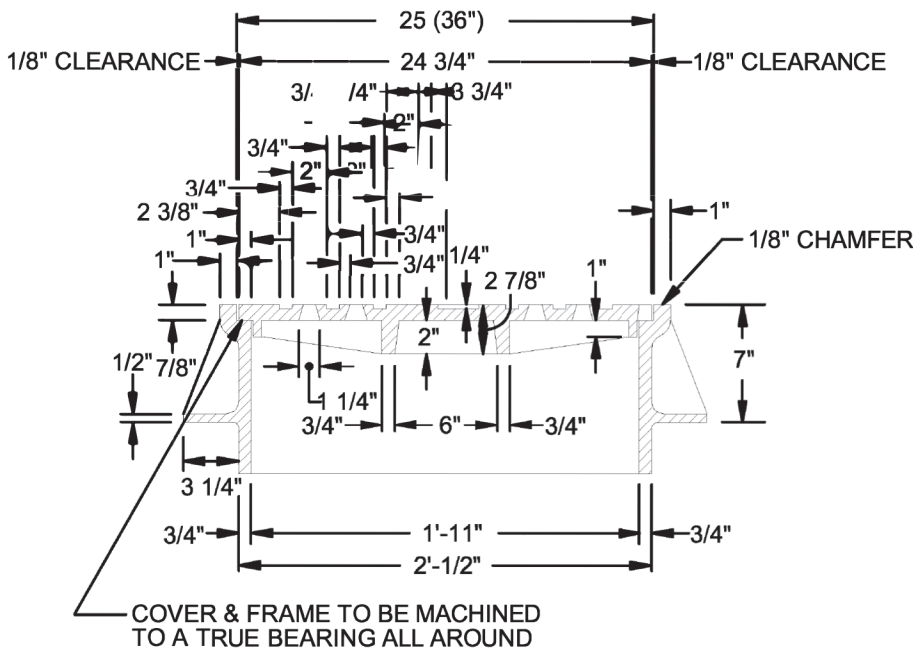
DRAWING NO:

U10

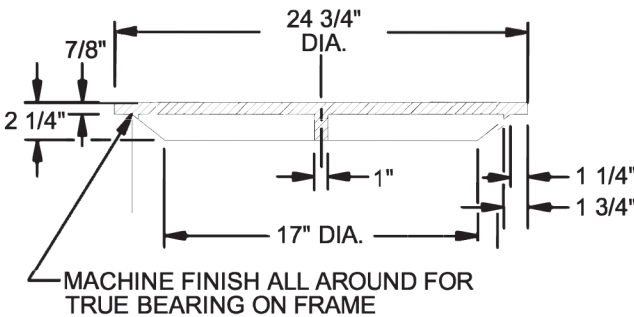
STANDARD MANHOLE COVER, FRAME, & GRATE

SECTION A-A

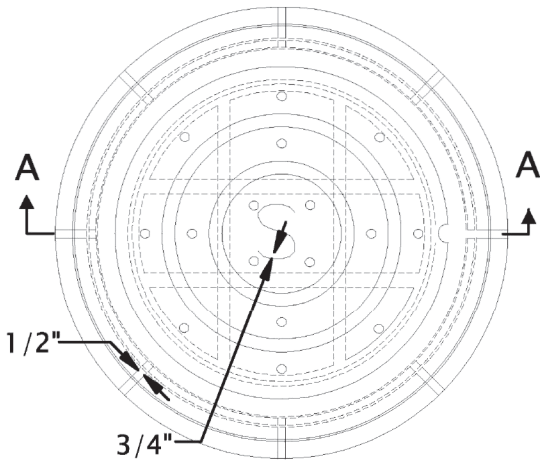
36" MIN. DIAMETER COVER IS REQUIRED FOR
MANHOLES WITH DEPTHS OF 20' OR GREATER.



SECTION B-B



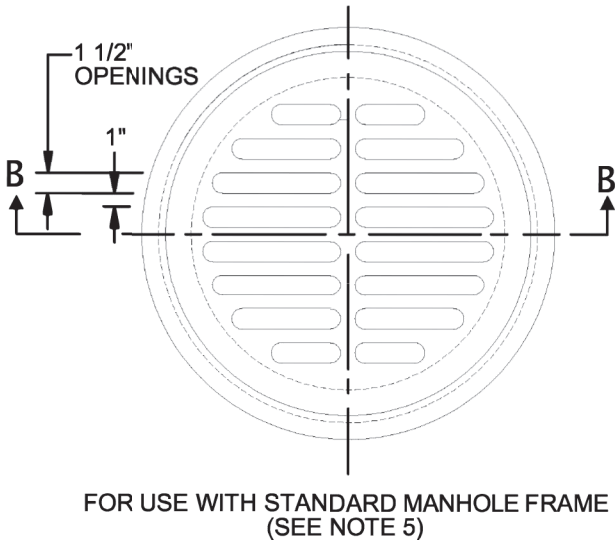
PLAN
MANHOLE COVER & FRAME



NOTE:

COAT OUTSIDE OF FRAME WITH ASPHALT
WHERE FRAME IS TO BE PLACED IN CONCRETE
PAVEMENT, CONCRETE GUTTER, OR WALK.

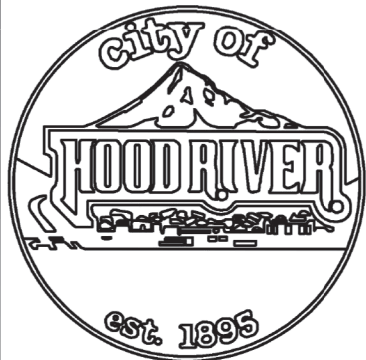
PLAN
MANHOLE GRATE



NOTES FOR ALL DETAILS:

- COVERS FOR SANITARY MANHOLES SHALL HAVE 2 HOLES MAXIMUM.
- WATERTIGHT COVERS REQUIRED IF LOCATED WHERE COVER MAY BE SUBMERGED. (NO HOLES).
- COVERS AND FRAMES SHALL BE STAMPED WITH MANUFACTURER'S INITIALS, HEAT NUMBER, AND POINT OF ORIGIN.
- SEE STD. DWG. FOR MANHOLE DETAILS.
- MANHOLE GRATE ALLOWED ONLY IN LOCATIONS NOT SUBJECT TO BICYCLE OR PEDESTRIAN USE.

CITY OF HOOD RIVER STANDARD DRAWINGS D-12



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN
ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES,
IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT
CONSULTING A REGISTERED PROFESSIONAL ENGINEER

MANHOLE COVERS
& FRAMES
1 OF 3
2019

DATE REVISIONS



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS VI

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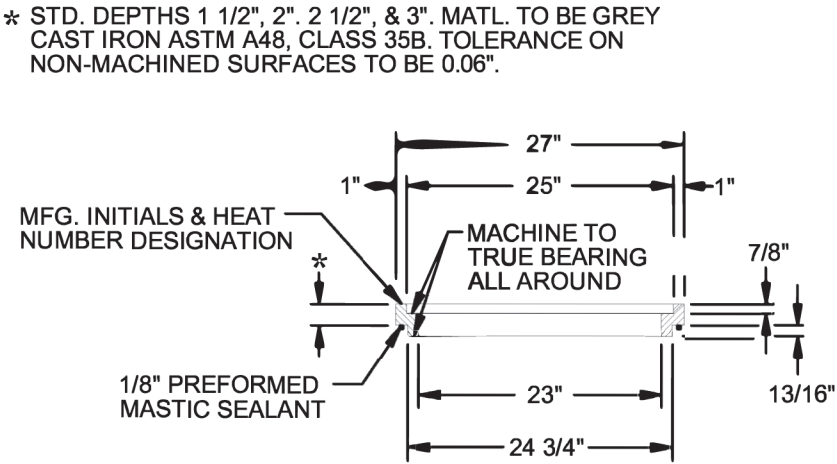
PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

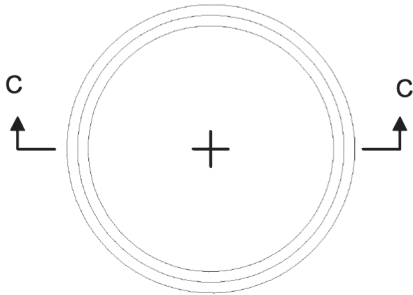
DRAWING NO:

U11

MANHOLE ADJUSTMENT RING
FOR USE WITH STANDARD MANHOLE FRAME



SECTION C-C

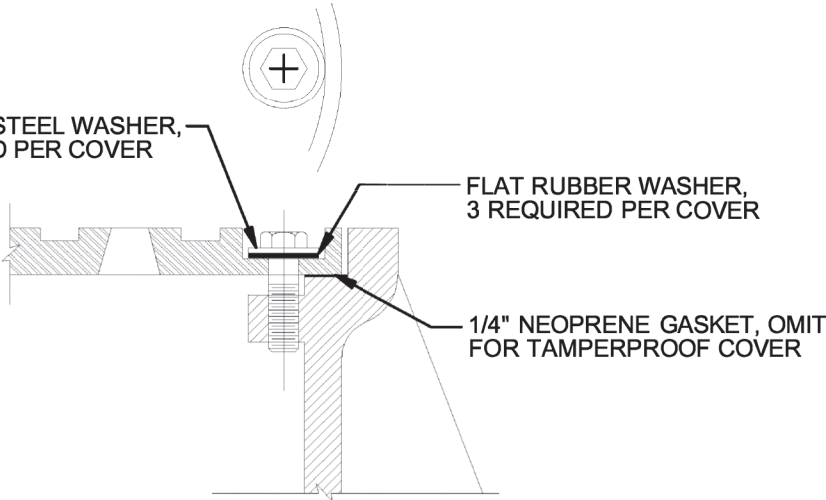


GENERAL NOTES:

- COVERS FOR SANITARY MANHOLES SHALL HAVE 2 HOLES MAXIMUM.
- WATERTIGHT COVERS REQUIRED IF LOCATED WHERE COVER MAY BE SUBMERGED. (NO HOLES).
- COVERS AND FRAMES SHALL BE STAMPED WITH MANUFACTURER'S INITIALS, HEAT NUMBER, AND POINT OF ORIGIN.
- MANHOLE GRATE ALLOWED ONLY IN LOCATIONS NOT SUBJECT TO BICYCLE OR PEDESTRIAN USE.

BOLT-DOWN DETAIL
(FOR TAMPERPROOF AND WATERTIGHT)

1 1/4" O.D. STAINLESS STEEL WASHER,
1/8" THICK, 3 REQUIRED PER COVER



NOTE:

3 REQUIRED, EQUALLY SPACED, 1/2" X 1/2" PENTAGONAL OR HEXAGONAL HEAD, BRONZE OR STAINLESS STEEL.

CITY OF HOOD RIVER STANDARD DRAWINGS D-12



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

MANHOLE COVERS
& FRAMES
2 OF 3
2019

DATE REVISIONS



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS VII

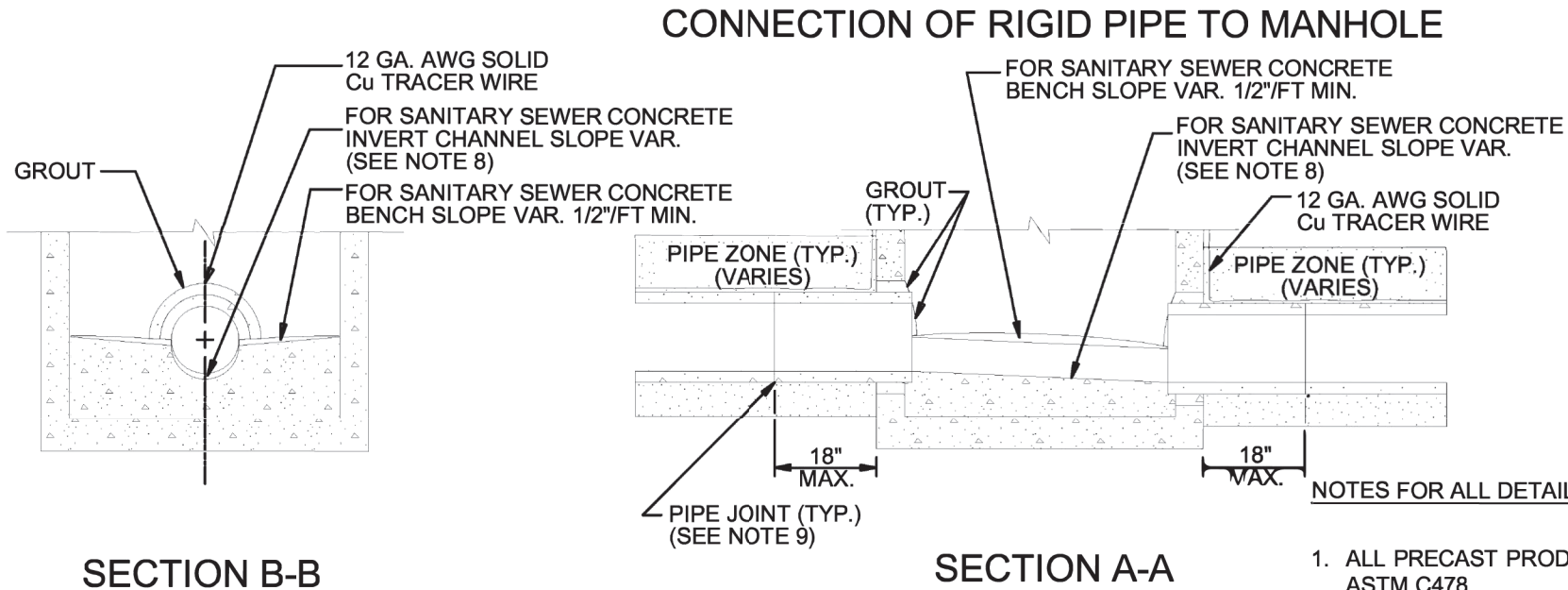
wallis
*engineering

PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U12



NOTES FOR ALL DETAILS:

1. ALL PRECAST PRODUCTS SHALL CONFORM TO REQUIREMENTS OF ASTM C478.
2. MANHOLE BASE SECTIONS MAY BE PRECAST OR CAST-IN-PLACE.
3. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
4. LOCATION, ELEVATION, DIAMETER, SLOPE, AND NUMBER OF PIPE(S) VARIES, SEE PROJECT PLANS.
5. MAX. PIPE DIAMETER VARIES.
6. MINIMUM DISTANCE BETWEEN HOLE PENETRATIONS INTO MANHOLES SHALL BE PER THE MANUFACTURERS MINIMUM RECOMMENDATIONS.
7. ALL CONNECTING PIPES SHALL HAVE A TRACER WIRE, OR APPROVED ALTERNATE.
8. INVERT CHANNELS SHALL BE CONSTRUCTED TO PROVIDE SMOOTH SLOPES AND RADII TO OUTLET PIPE. FOR ALL SANITARY MANHOLES.
9. WHEN RIGID PIPE IS USED, THE CONNECTING PIPE SHALL HAVE A FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE WALL. JOINT TYPE VARIES WITH MANUFACTURER.

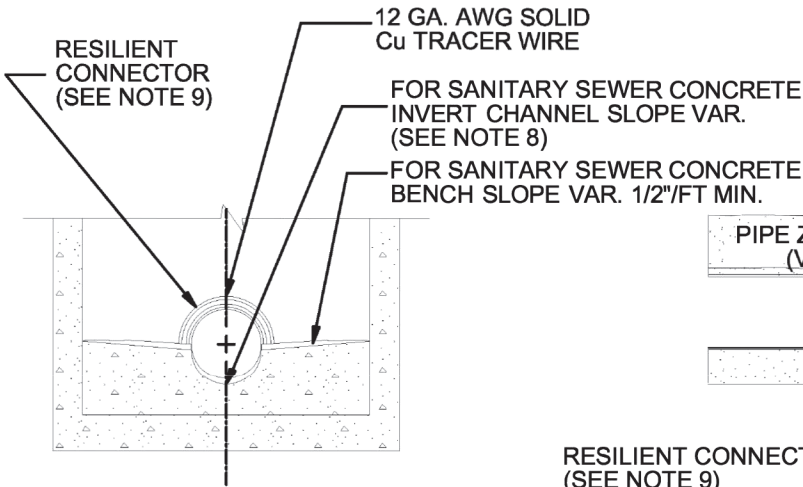
CITY OF HOOD RIVER STANDARD DRAWINGS D-13	
	THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER
	PIPE TO MANHOLE CONNECTION
	1 OF 2 2019
DATE	REVISIONS



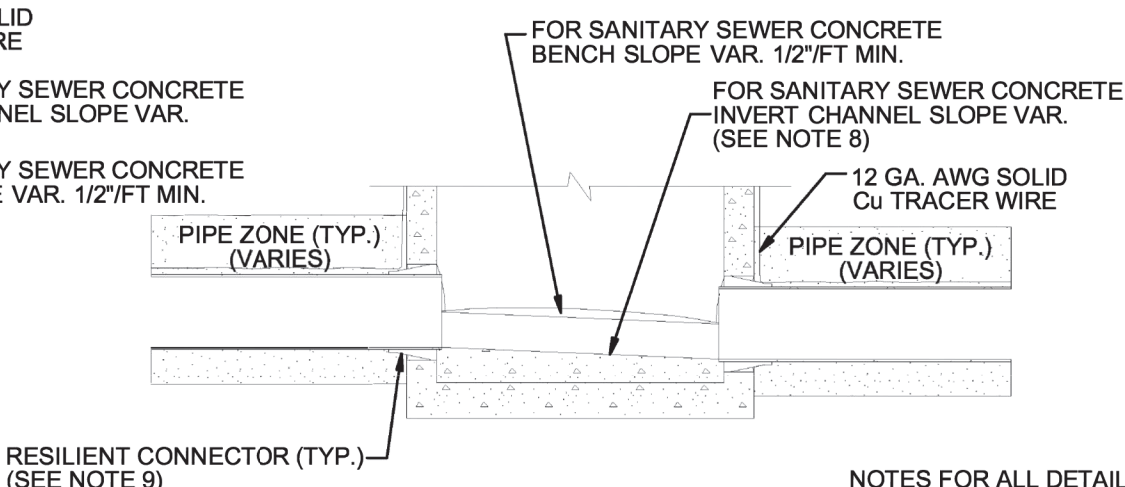
EXPIRES: 06/30/2028
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS VIII	DESIGNED BY: WW	DRAWN BY: CK	REV: JV
	ONE INCH AT FULL SCALE. IF NOT ONE INCH ADJUST SCALE ACCORDINGLY		
	1"		
	0		
PROJECT NO: 1596A DATE: 8/2026			
I-84 (WESTBOUND): UNION PACIFIC RAILROAD BRIDGE (HOOD RIVER) PROJECT COLUMBIA RIVER HIGHWAY HOOD RIVER COUNTY			
DRAWING NO: U13			

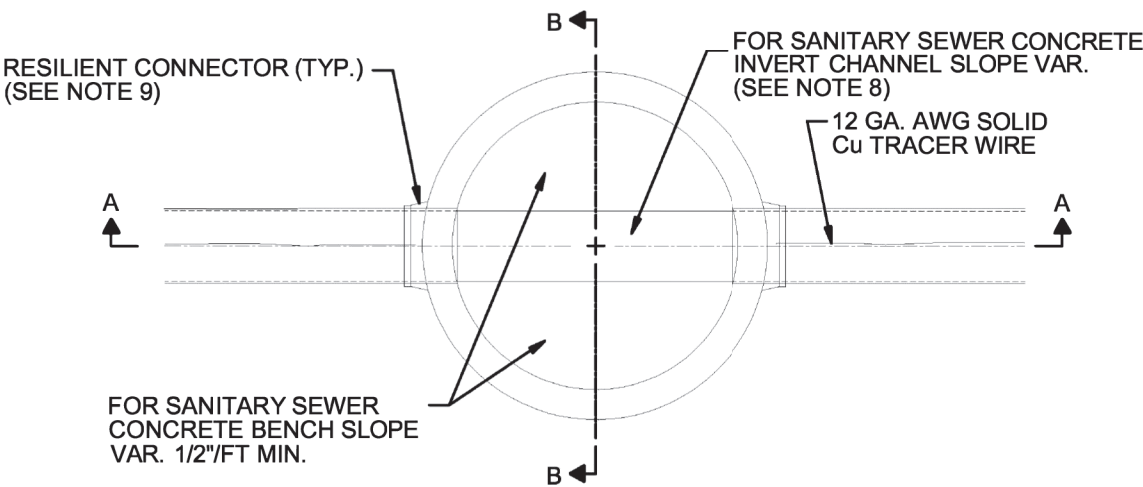
CONNECTION OF FLEXIBLE PIPE TO MANHOLE



SECTION B-B



SECTION A-A



PLAN

NOTES FOR ALL DETAILS:

1. ALL PRECAST PRODUCTS SHALL CONFORM TO REQUIREMENTS OF ASTM C478.
2. MANHOLE BASE SECTIONS MAY BE PRECAST OR CAST-IN-PLACE.
3. ALL CONCRETE SHALL BE COMMERCIAL GRADE CONCRETE.
4. LOCATION, ELEVATION, DIAMETER, SLOPE, AND NUMBER OF PIPE(S) VARIES, SEE PROJECT PLANS.
5. MAX. PIPE DIAMETER VARIES.
6. MINIMUM DISTANCE BETWEEN HOLE PENETRATIONS INTO MANHOLES SHALL BE PER THE MANUFACTURERS MINIMUM RECOMMENDATIONS.
7. ALL CONNECTING PIPES SHALL HAVE A TRACER WIRE, OR APPROVED ALTERNATE.
8. INVERT CHANNELS SHALL BE CONSTRUCTED TO PROVIDE SMOOTH SLOPES AND RADII TO OUTLET PIPE FOR ALL SANITARY MANHOLES.
9. WHEN FLEXIBLE PIPE IS USED, INSTALL RESILIENT CONNECTORS CONFORMING TO REQUIREMENTS OF ASTM C923 (I.E. KOR=N-SEAL BOOT).

CITY OF HOOD RIVER STANDARD DRAWINGS D-13



THE SELECTION AND USE OF THIS STANDARD DRAWING, WHILE DESIGNED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRINCIPLES AND PRACTICES, IS THE SOLE RESPONSIBILITY OF THE USER AND SHOULD NOT BE USED WITHOUT CONSULTING A REGISTERED PROFESSIONAL ENGINEER

PIPE TO MANHOLE
CONNECTION
2 OF 2
2019

DATE REVISIONS



EXPIRES: 06/30/2028
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

DETAILS IX

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PROJECT NO: 1596A
DATE: 8/2026

I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U14



EXPIRES: 06/30/2028

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AVAILABLE UPON REQUEST

Dia. of largest pipe in manhole (Inch)	* ϕ -max when $D_1 = D_0$	* Base Riser			Base X_0 $X_1 = X_0$ when $D_1 = D_0$ (Feet)	Base X_1 when $D_1 < D_0$		
		DR (Inch)	WR (Inch)	Top Thkn. (Inch)		$D_1 = (D_0 - 6")$ (Feet)	$D_1 = (D_0 - 12")$ (Feet)	$D_1 = (D_0 - 18")$ (Feet)
30"	75"	60"	6"	10"	2.42	2.63	2.75	2.89
36"	67"	72"	7"	10"	2.75	2.97	3.15	3.29
42"	60"	72"	7"	10"	2.75	2.97	3.15	3.29
48"	54"	84"	8"	10"	3.02	3.27	3.48	3.66
54"	49"	84"	8"	10"	3.02	3.27	3.48	3.66
60"	45"	96"	9"	12"	3.25	3.54	3.78	3.99
66"	42"	96"	9"	12"	3.25	3.54	3.78	3.99
72"	39"	108"	10"	12"	3.48	3.79	4.06	4.29
78"	36"	108"	10"	12"	3.48	3.79	4.06	4.29
84"	34"	120"	11"	12"	3.69	4.03	4.32	4.57
90"	32"	120"	11"	12"	3.69	4.03	4.32	4.57
96"	30"	126"	11½"	12"	3.79	4.15	4.45	4.71

* A special design using a larger Base Riser diameter D_R may be required to obtain specified 12" min. dimension when Θ angle exceeds Θ max.

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET

1. All concrete shall be Class 4000. All precast products shall conform to requirements of ASTM C478.
2. All reinforcing steel shall conform to ASTM Specification A706 or AASHTO M31 (ASTM A615), Grade 60. The following splice lengths shall be used (unless shown otherwise):

Bar Size	4	5	6
Uncoated	16"	20"	24"
3. All reinforcement shall be placed 2" clear of the nearest face of the concrete unless shown otherwise.
4. Eccentric reducing cones or eccentric reducing flat slabs designed in accordance with AASHTO M199 shall be placed on top of the base riser as required by the contract plans. Eccentric reducing flat slabs shall be designed to support a load of 120 lb/ft in addition to the dead load of the slab, the risers above the slab, and the earth overburden above the slab.
5. Base riser to be pre-cast unless otherwise shown on the plans.
6. Cast-in-Place concrete, shown thus: 
7. See Std. Dwg. RD336 for manhole steps details, and flat slab top orientation.
8. See Std. Dwg. RD336 for tracer wire details.
9. See Std. Dwg. RD336 for manhole steps.
10. Max. pipe diameter varies with pipe material.
11. See Std. Dwg. RD345 for pipe to manhole connections.
12. Location, elevation, diameter, slope, and number of pipe(s) varies, see project plans

Bar Size	4	5	6
Uncoated	16"	20"	24"

All materials shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

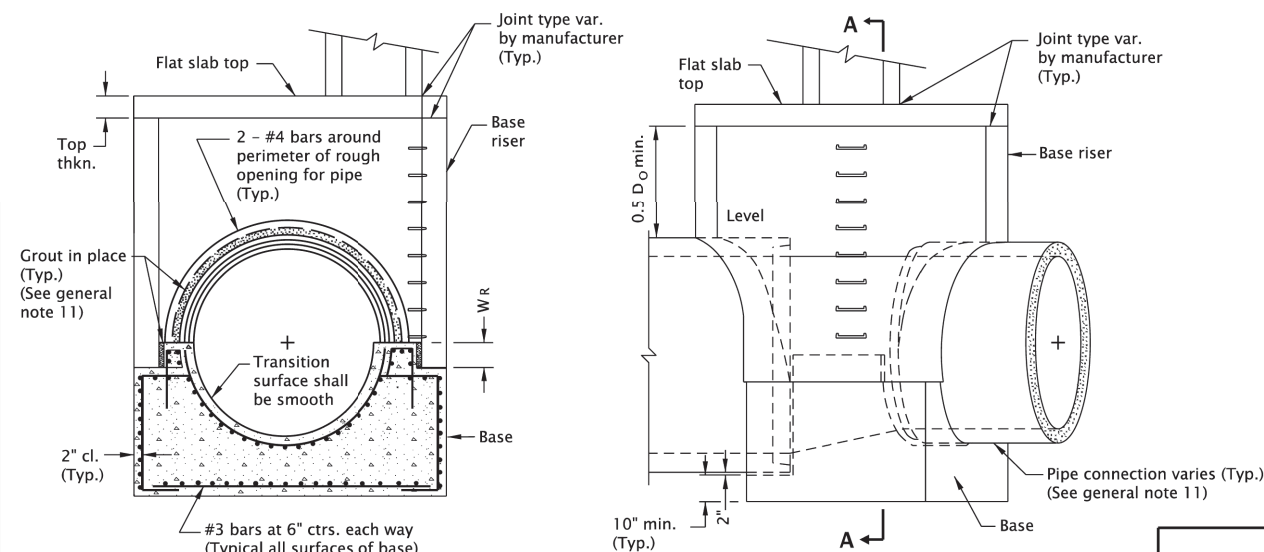
LARGE PRECAST MANHOLE

2024

REVISION	DESCRIPTION
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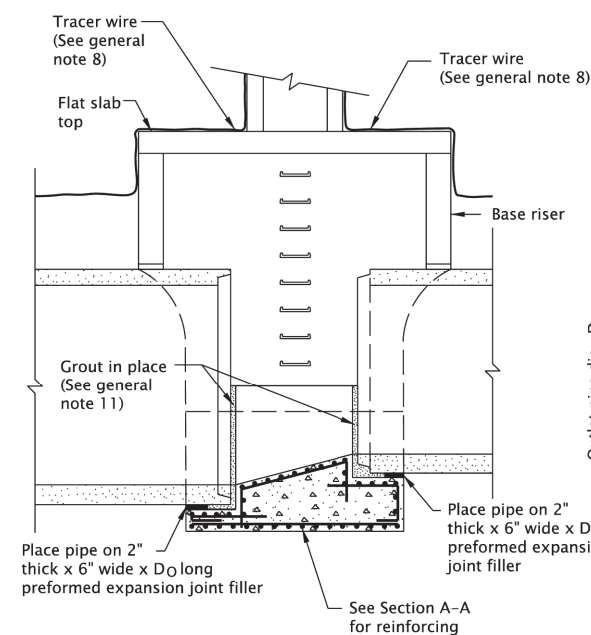
CALC. BOOK NO.	N/A	SDR DATE	25-JUL-2017	RD346
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Effective Date: June 1, 2026 – November 30, 2026

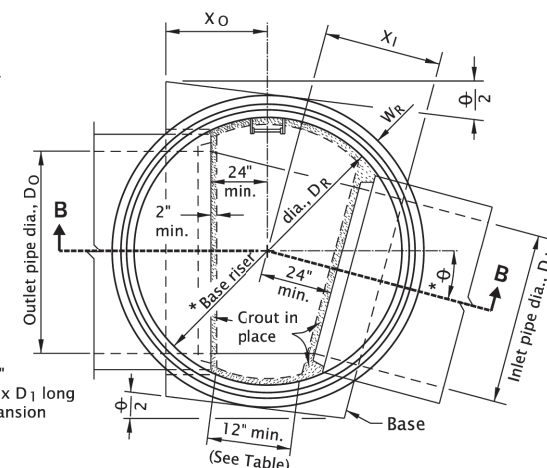


SECTION A-A

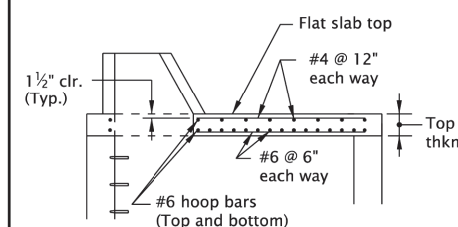
MANHOLE BASE ELEVATION



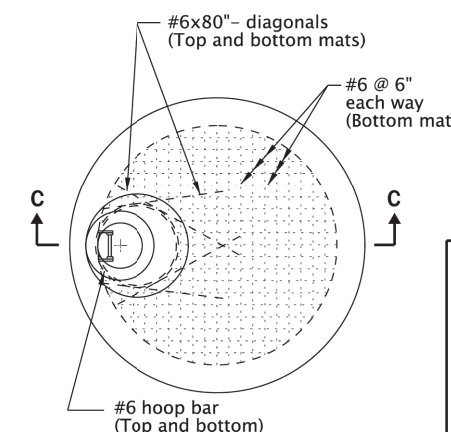
**DEVELOPED SECTION B-B
ALONG PIPE CENTERLINE**



MANHOLE BASE PLAN



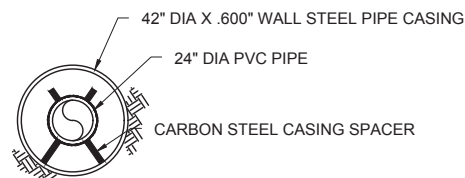
SECTION C-C



MANHOLE FLAT SLAB TOP PLAN

(Bottom reinf. mat shown)
(Manhole I.D. >4', <10' 6")

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.



- NOTES:**
1. STEEL CASING PIPE SHALL BE 42" MIN. DIA., MIN 0.600" WALL THICKNESS. CONFIGURATION SHOWN IS SCHEMATIC ONLY. CONTRACTOR IS RESPONSIBLE FOR INSTALLING CARRIER PIPE TO MAINTAIN GRAVITY SEWER GRADE.
 2. FILL ANNULAR SPACE BETWEEN CASING AND CARRIER PIPE WITH CLEAN SAND.
 3. MINIMIZE JACK AND BORE EXCAVATION LIMITS IN ORDER TO REDUCE SURFACE DISTURBANCE.

DETAILS XI

wallis
*engineering

PROJECT NO:	DATE:
1596A	8/2026

**I-84 (WESTBOUND): UNION PACIFIC
RAILROAD BRIDGE
(HOOD RIVER) PROJECT**
COLUMBIA RIVER HIGHWAY
HOOD RIVER COUNTY

DRAWING NO:

U16



EXPIRES: 06/30/2028

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

SHEET NUMBER	NOTE No. ON PLANS	DESIGN HEIGHT OF COVER (FEET)	PIPE										USE / INSTALLATION CRITERIA										TERMINAL TREATMENT		ALTERNATE MATERIALS																				APPURTENANCES					EXTENSION		REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																
			CIRCULAR OR ELLIPTICAL										PIPE - ARCH		CROSS - SECTIONAL DIMENSIONS										PIPE - ARCH		ALUMINUM										ALUMINIZED OR GALVANIZED IRON AND STEEL										RIGID		PLASTIC & IRON				MANHOLES					INLETS		EXTENSION																																																																																																																																																																																																																																																																																																																																																																																																								
													HELICAL	Riveted Welded or Lock Seam											LENGTH (FEET)	SPAN	RISE	CORNER RADII (Inches)	DRAIN (PERFORATED)	CULVERT (ROAD APPROACH)	CULVERT (CONDUIT)	CULVERT	IRRIGATION	SIPHON	STORM SEWER	SANITARY SEWER	OTHERS (SEE REMARKS)	WATERTIGHT JOINTS	SLOPE ANCHORS	IMPERFECT TRENCH	pH	RESISTIVITY (HUNDREDS)	LT. / RT.	SKEW NUMBER	PAVED END SLOPES	SIZE OF CORRUGATIONS										SIZE OF CORRUGATIONS										PRE-CAST CONCRETE REIN.	III	IV	V	CORRUGATED HDPE	SOLID WALL HDPE	REINFORCED HDPE	PVC - PSI STIFFNESS	POLYPROPYLENE, DOUBLE WALL	POLYPROPYLENE, TRIPLE WALL	DUCTILE IRON - PIPE CLASS	DEPTH, TOP OF COVER TO INVERT	DIAMETER OF LARGEST PIPE IN BASE	CONC.	TYPE	Number Required	(Feet)																																																																																																																																																																																																																																																																																																																																																																																		
			Not for Conc. Pipe Over 60" Dia.	No.	1 1/2" x 1/4"	2 2/3" x 1/2"	3" x 1"	SMOOTH WALL SPIRAL RIB 3/4" x 3/4" @ 7 1/2" O.C. Or 3/4" x 1" @ 11 1/2" O.C.	LOCK SEAM	1 1/2" x 1/4"	2 2/3" x 1/2"	3" x 1"	COATING		SMOOTH WALL SPIRAL RIB 3/4" x 3/4" @ 7 1/2" O.C. Or 3/4" x 1" @ 11 1/2" O.C.	LOCK SEAM	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION																						CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION		CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION																		CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS SECTION	CROSS 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