Appendix F. Stormwater Management Facility Design Calculations

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #1 (detention pond)

Water Quality

Manning's n	0.24	
Bottom width, ft	**10.0**	Minimum 10 ft (detention)
Side slope	4	Maximum 4
Bottom slope, ft/ft	0.0150	Minimum 1.5%, maximum 6%
Water depth, ft (WQ)	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Top width	12.7	
Area, ft^2	3.78	
Velocity, fps	0.074	
Design flow, cfs	0.28	
Bottom length, ft	**119.8**	Minimum 100 ft
Top length, ft	**130.5**	
Depth w/FB, ft	1.33	
Top width w/ FB, ft	**20.7**	
Hydraulic radius	0.35	
Max shear stress, lb/sf	0.312	
Residence time, min	26.5	Minimum 9 minutes
25-year v, fps	0.25	Max 3 ft/s
Water volume (detention), ft^3	399	

Detention

Manning's n	0.24
Bottom width, ft	10.0
Side slope	4
Bottom slope, ft/ft	0.015
Water depth, ft	1.7
Top width	23.6
XS Area, ft^2	28.56
Velocity, fps	0.029
Design flow, cfs	0.82
Bottom length, ft	**119.8**
Top length, ft	**141.4**
Depth w/FB, ft	2.70
Top width w/ FB, ft	**31.6**
Max shear stress	1.5912
Residence time, min	69.6
Storage volume	4620

T_c (pre-extg.)

Assume SCF in forest

$V=2.516*S^{0.5}$	
S, ft/ft	0.03
V, ft/s	0.436
L, ft	540
T_{SCF}, min	21

$V_s=V_i-Q_0*t$

t, hr	24.00
V_i, ft^3	14244.12
Q_0, cfs	0.12
V_s, ft^3	3876.12

WQF#1

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	New Project
Project Type	RoadProject
Location	
Stormwater Management Area	2135
Project Applicant	
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Extg Pavement	40,119	Impervious	ConventionalConcrete	B	BMP(1)
Grass	27,951	Grass	Grass	B	BMP(1)
Proposed Pavement	5,881	Forested	ConventionalConcrete	B	BMP(1)

LID Facility Sizing Details

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
BMP(1)	FCWQT	D1	5.00	2,135.0	4	4,104.3	3,419.6	Yes

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only
2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).
3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.
4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

WQF#1

Simple Pond Geometry Configuration

Pond ID: BMP(1)
Design: FlowControlAndTreatment

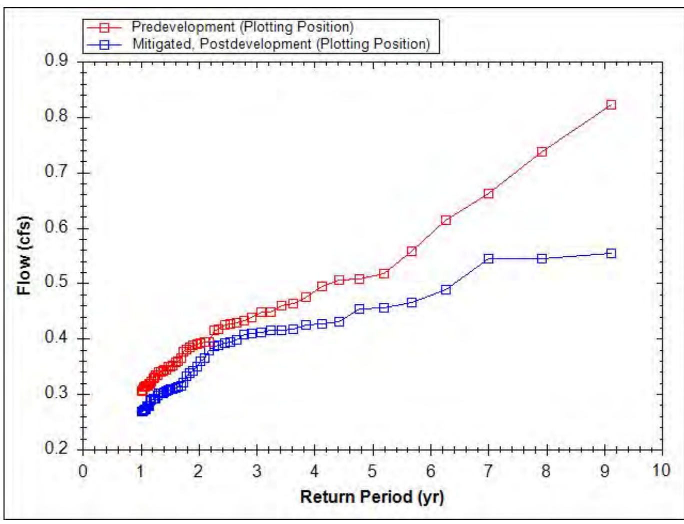
Shape Curve

Depth (ft)	Area (sq ft)
5.0	2,135.0

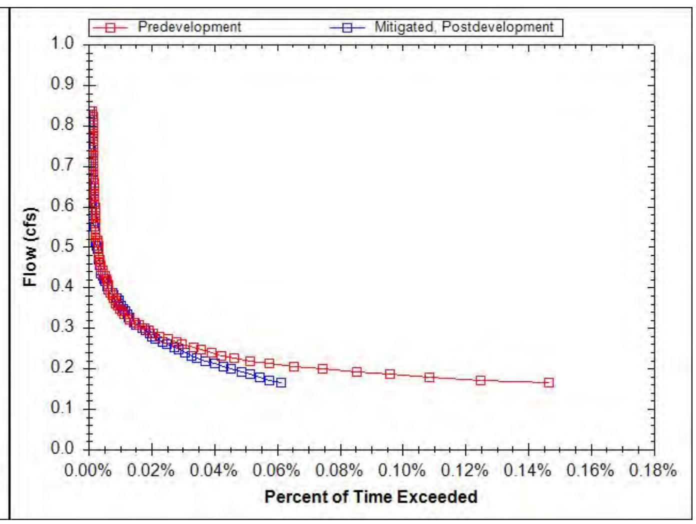
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	1.7
Upper Orifice Invert(ft)	3.4
Upper Orifice Dia (in)	4.5
Overflow Weir Invert(ft)	4.0
Overflow Weir Length (ft)	6.3

Flow Frequency Chart



Flow Duration Chart



ODOT I-205 CW/Abernethy Post-Construction SWMP
Stormwater Facility Design Calculations - WQF #2 (bioslope)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix C

Long term infiltration rate of ecology mix (inches/hour)	10
Length of Bioslope (feet)	1900
Width of bioslope (feet)	4.5
Converstion Factor	43200
Safety Factor	1
$Q_{infiltration}=(LTIR_{EM})(L_{BIO})(W_{BIO})/(C)(SF)$	
Assumed long Term infiltration Capacity $Q_{infiltration}$, cfs	1.98
Required Water Quality Design Flow, cfs	0.82

	Subbasin	SQFT	Acres	2-yr Peak Flow	Length of Bioslope	$Q_{infiltration}$	Start Sta	End Sta
33.144	2A	11037	0.253	0.14	333	0.35	66498.68	66832.09
79.684	2B	36575	0.840	0.47	459	0.48	66832.09	67291.52
73.329	2C	22512	0.517	0.29	307	0.32	67291.52	67598.29
71.757	2D	21599	0.496	0.28	301	0.31	67598.29	67898.86
67.115	2E	37920	0.871	0.49	565	0.59	67898.86	68463.8

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #3 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n	0.24	
Bottom width, ft	**8.4**	$B=nQ/(1.49*y^{1.67}*s^{0.5})$, Minimum 4 ft
Side slope	4	Maximum 4
Bottom slope, ft/ft	0.018	Minimum 1.5%, maximum 6%
Water depth, ft	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Top width	11.1	
XS Area, ft^2	3.26	
Velocity, fps	0.344	v=Q/A
Design flow, cfs	1.12	From HydroCAD output, WQ storm event
Bottom length, ft	**187.5**	L=v*t, Minimum 100 ft
Top length, ft	**198.2**	
Depth w/FB, ft	1.33	
Top width w/ FB, ft	**19.1**	
Max shear stress, lb/sf	0.372	
Residence time, min	9	Minimum t= 9 minutes
25-year v, fps	1.19	$v=Q_{25\text{-}yr}/A_{XS}$, Max 3 ft/s

WQF#3

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	WQF#3
Project Type	RoadProject
Location	
Stormwater Management Area	4639
Project Applicant	
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Existing Pavement Basin 3	71,961	Impervious	ConventionalConcrete	B	BMP(1)
New Pavement Basin 3	19,297	Forested	ConventionalConcrete	B	BMP(1)
OS-3 Basin	75,707	Impervious	ConventionalConcrete	B	BMP(1)

LID Facility Sizing Details

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
BMP(1)	FCWQT	D1	5.36	4,639.0	4	12,497.8	9,915.6	Yes

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

WQF#3

Simple Pond Geometry Configuration

Pond ID: BMP(1)
Design: FlowControlAndTreatment

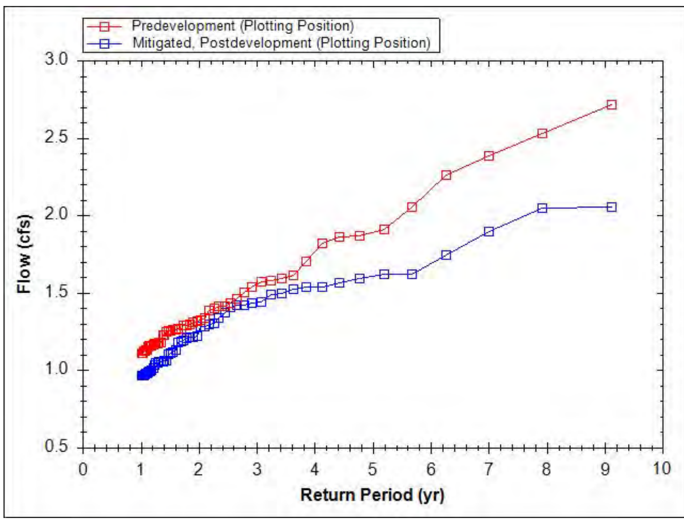
Shape Curve

Depth (ft)	Area (sq ft)
5.4	4,639.0

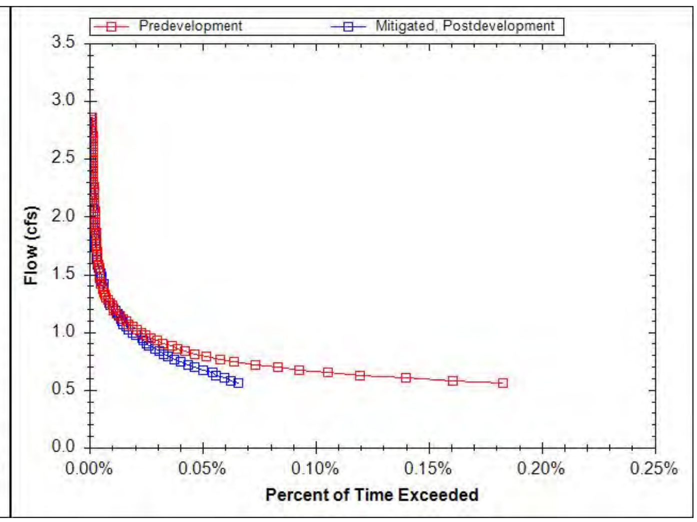
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	3.0
Upper Orifice Invert(ft)	3.6
Upper Orifice Dia (in)	8.2
Overflow Weir Invert(ft)	4.4
Overflow Weir Length (ft)	6.3

Flow Frequency Chart



Flow Duration Chart



ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #4 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24		
Bottom Width:	10	(ft)	
Side Slope:	4	(H)	
Bottom Slope:	0.5	(%)	
Depth of Water	0.33	Max Depth 4-6% is 3", 4" for less than 4%	
Area	3.74	sqft	
Wetted Perimeter	12.72	ft	
Hydraulic Radius	0.29	ft	
Velocity	0.19	fps	Max 3 fps
Flow, Q:	0.67	cfs	
Calculated Flow	0.72		
Designed Length	104.45	ft	Minimum = 100 feet + energy dissipator length
Actual Length	110	ft	
Max Shear Stress	0.10296	psf	
Permissible Shear Stress			
Residence time	9.5	minutes	
RT Check	OK		

Manning's n:	0.24	
Bottom Width:	10	(ft)
Side Slope:	4	(H)
Bottom Slope:	0.5	(%)
Depth of Water	0.33	
Area	3.74	sqft
Wetted Perimeter	12.72	ft
Hydraulic Radius	0.29	ft
Velocity	0.19	fps
Flow, Q:	0.71	cfs
Calculated Flow	0.72	
Designed Length	104.45	ft
Actual Length	110	ft
Max Shear Stress	0.10296	psf
Permissible Shear Stress		
Residence time	9.5	minutes
RT Check	OK	
Flow Check	OK	

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF#5 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24	
Bottom Width:	10	(ft)
Side Slope:	4	(H)
Bottom Slope:	0.5	(%)
Depth of Water	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Area	3.74	sqft
Wetted Perimeter	12.72	ft
Hydraulic Radius	0.29	ft
Velocity	0.19	fps
Flow, Q:	0.65	cfs
Calculated Flow	0.72	
Designed Length	104.45	ft
Actual Length	115	ft
Max Shear Stress	0.10296	psf
Permissible Shear Stress		
Residence time	9.9	minutes
RT Check	OK	
Flow Check	OK	

Manning's n:	0.24	
Bottom Width:	8	(ft)
Side Slope:	4	(H)
Bottom Slope:	0.5	(%)
Depth of Water	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Area	3.08	sqft
Wetted Perimeter	10.72	ft
Hydraulic Radius	0.29	ft
Velocity	0.19	fps
Flow, Q:	0.46	cfs
Calculated Flow	0.59	
Designed Length	102.84	ft
Actual Length	115	ft
Max Shear Stress	0.10296	psf
Permissible Shear Stress		
Residence time	10.1	minutes
RT Check	OK	
Flow Check	OK	

Stormwater Facility Design Calculations - WQF#6 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n	0.24	
Bottom width, ft	**30.0**	$B=nQ/(1.49*y^{1.67}*s^{0.5})$, Minimum 4 ft
Side slope	4	Maximum 4
Bottom slope, ft/ft	0.02	Minimum 1.5%, maximum 6%
Water depth, ft	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Top width	32.7	
XS Area, ft^2	10.46	
Velocity, fps	0.403	v=Q/A
Current design flow, cfs	4.21	
Full build out additional flow, cfs	1.29	
Total design flow, cfs	4.21	From HydroCAD output, WQ storm event
Bottom length, ft	**219.4**	L=v*t, Minimum 100 ft
Top length, ft	**230.1**	
Depth w/FB, ft	1.33	
Top width w/ FB, ft	**40.7**	
Max shear stress, lb/sf	0.416	
Residence time, min	9	Minimum t= 9 minutes
25-year v, fps	1.60	$v=Q_{25\text{-}yr}/A_{XS}$, Max 3 ft/s

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF#7 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24	
Bottom Width:	40	(ft)
Side Slope:	4	(H)
Bottom Slope:	1.5	(%)
Depth of Water	0.255	Max Depth 4-6% is 3", 4" for less than 4%
Area	10.4601	
Wetted Perimeter	42.10278	sqft
Hydraulic Radius	0.248442	ft
Velocity	0.299688	fps
Flow, Q:	3.11	cfs
Calculated Flow	3.1	
Designed Length	161.8317	ft
Actual Length	190	ft
Max Shear Stress	0.23868	psf
Permissible Shear Stress		
Residence time	10.6	minutes
RT Check	OK	
Flow Check	OK	

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #8 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24	
Bottom Width:	55	(ft)
Side Slope:	4	(H)
Bottom Slope:	1	(%)
Depth of Water	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Area	18.586	sqft
Wetted Perimeter	57.721	ft
Hydraulic Radius	0.322	ft
Velocity	0.291	fps
Flow, Q:	5.1	cfs
Calculated Flow	5.41	
Designed Length	157.0707	ft
Actual Length	160	ft
Max Shear Stress	0.20592	psf
Permissible Shear Stress		
Residence time	9.2	minutes
RT Check	OK	
Flow Check	OK	

WQF#9

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Jon Storm Parking Lot
Project Type	RoadProject
Location	
Stormwater Management Area	240
Project Applicant	
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Parking Lot	10,200	Grass	ConventionalConcrete	D	BMP

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
BMP	WaterQuality	Stormwater Planter - Infiltration	A1	153.0	240.0	0.0

Pond Sizing Details

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only
2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).
3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.
4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #10 (bioretention swale)

Water quality

Manning's n	0.24	
Bottom width, ft	**10.0**	Minimum 10 ft (detention)
Side slope	4	Maximum 4
Bottom slope, ft/ft	0.015	Minimum 1.5%, maximum 6%
Water depth, ft	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Top width	12.7	
XS Area, ft^2	3.78	
Velocity, fps	0.296	25-year v, fps 1.12 Max 3 ft/s
Design flow, cfs	1.12	
Bottom length, ft	**162.1**	Minimum 100 ft
Top length, ft	**172.8**	
Depth w/FB, ft	1.33	
Top width w/ FB, ft	**20.7**	
Max shear stress	0.312	lb/sf
Residence time, min	9	Minimum 9 minutes

Detention

Manning's n	0.24
Bottom width, ft	10.0
Side slope	4
Bottom slope, ft/ft	0.015
Water depth, ft	6.8
Top width	64.4
XS Area, ft^2	252.96
Velocity, fps	0.004
Design flow, cfs	1.12
Bottom length, ft	**162.1**
Top length, ft	**224.5**
Depth w/FB, ft	7.80
Top width w/ FB, ft	**72.4**
Max shear stress	6.3648
Residence time, min	610.2
Storage volume	54153

T_c (pre-extg.)

Assume SCF in forest, ~3% slope

$V=2.516*S^{0.5}$

S	0.03	ft/ft
V	0.436	ft/s
L	2500	ft
T_{SCF}	96	min

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #11 (biofiltration swale)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n	0.24	
Bottom width, ft	**11.9**	$B=nQ/(1.49*y^{1.67}*s^{0.5})$, Minimum 4 ft
Side slope	4	Maximum 4
Bottom slope, ft/ft	0.015	Minimum 1.5%, maximum 6%
Water depth, ft	0.33	Max Depth 4-6% is 3", 4" for less than 4%
Top width	14.5	
XS Area, ft^2	4.36	
Velocity, fps	0.326	v=Q/A
Design flow, cfs	1.42	From HydroCAD output, WQ storm event
Bottom length, ft	**177.8**	L=v*t, Minimum 100 ft
Top length, ft	**188.5**	
Depth w/FB, ft	1.33	
Top width w/ FB, ft	**22.5**	
Max shear stress, lb/sf	0.309	
Residence time, min	9	Minimum t= 9 minutes
25-year v, fps	1.12	$v=Q_{25\text{-}yr}/A_{XS}$, Max 3 ft/s

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #12 (bioretention pond)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24		
Bottom Width:	30	(ft)	
Side Slope:	4	(H)	
Bottom Slope:	1.5	(%)	
Depth of Water	0.33	Max Depth 4-6% is 3", 4" for less than 4%	
Area	10.44	sqft	
Wetted Perimeter	32.75	ft	
Hydraulic Radius	0.32	ft	
Velocity	0.35	fps	Max Velocity is 3 fps
Flow, Q:	1.24	cfs	
Calculated Flow	3.70		
Designed Length	191.1	ft	
Actual Length	220	ft	Minimum Length is 100 feet plus energy dissipator length
Max Shear Stress	0.312	psf	
Permissible Shear Stress			
Residence time	10.36	minutes	
RT Check	OK		
Flow Check	OK		

ODOT I-205 CW/Abernethy Post-Construction SWMP

Stormwater Facility Design Calculations - WQF #13 (bioretention pond)

Theory: ODOT Hydraulics Manual - Chapter 14, Appendix B

Manning's n:	0.24		
Bottom Width:	30	(ft)	
Side Slope:	4	(H)	
Bottom Slope:	1.5	(%)	
Depth of Water	0.21	Max Depth 4-6% is 3", 4" for less than 4%	
Area	6.42	sqft	
Wetted Perimeter	31.72	ft	
Hydraulic Radius	0.20	ft	
Velocity	0.26	fps	Max Velocity is 3 fps
Flow, Q:	1.10	cfs	
Calculated Flow	1.68		
Designed Length	141.2	ft	
Actual Length	150	ft	Minimum Length is 100 feet plus energy dissipator length
Max Shear Stress	0.195	psf	
Permissible Shear Stress			
Residence time	9.56	minutes	
RT Check	OK		
Flow Check	OK		

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 51S: Historic Basin 12 Runoff Area=4.925 ac 0.00% Impervious Runoff Depth=1.27"
Tc=60.0 min CN=77/0 Runoff=0.62 cfs 0.521 af

Subcatchment 52S: Historic Basin 13 Runoff Area=4.408 ac 0.00% Impervious Runoff Depth=1.27"
Tc=60.0 min CN=77/0 Runoff=0.56 cfs 0.466 af

Pond 36P: WQF #13 Peak Elev=152.49' Storage=0.367 af Inflow=3.23 cfs 1.119 af
Outflow=0.64 cfs 1.115 af

Pond 37P: WQF#12 Peak Elev=166.28' Storage=0.471 af Inflow=3.66 cfs 1.251 af
Outflow=0.61 cfs 1.235 af

Total Runoff Area = 9.333 ac Runoff Volume = 0.987 af Average Runoff Depth = 1.27"
100.00% Pervious = 9.333 ac 0.00% Impervious = 0.000 ac

Appendix G. Spread Analysis

I-205CW: Phase 1 - NE Leg
InRoads Report - Spread Calculations

Station	Structure Type	Previous Bypass	Bypass To	Drainage Area	Runoff Coef	Location	Storm Freq	ToC	Intensity	Runoff	Clogging	Longitudinal Slope	Transverse Slope	Gutter Flow	Roughness Coeff	Intercepted Flow	Bypass Flow	Spread	Allowable Spread	Depth
		(cfs)		(ac)				(min)	(in/h)	(cfs)	(%)	(%)	(%)	(cfs)		(cfs)	(cfs)	(ft)	(ft)	(ft)
"B2" 704+00.42	G-2	0.00	"B2" 705+77.05	0.20	0.90	On grade	10-year	5	2.25	0.40	30	0.65	10.43	0.40	0.016	0.40	0.00	1.97	8	0.21
"B2" 705+77.05	G-2	0.00	"B2" 707+66.43	0.12	0.90	On grade	10-year	5	2.25	0.25	30	0.35	2.57	0.25	0.016	0.22	0.03	4.49	8	0.12
"B2" 707+66.43	G-2	0.03	"B2" 709+51.44	0.11	0.90	On grade	10-year	5	2.25	0.22	30	1.18	5.29	0.25	0.016	0.25	0.00	2.26	4	0.12
"B2" 709+51.44	G-2	0.00	"B2" 711+46.87	0.13	0.90	On grade	10-year	5	2.25	0.26	30	2.75	11.88	0.27	0.016	0.27	0.00	1.19	4	0.14
"B2" 711+46.87	G-2	0.00	-	0.12	0.90	On grade	10-year	5	2.25	0.24	30	5.66	2.65	0.24	0.016	0.23	0.02	2.57	4	0.07
"A2" 705+01.91	G-2	0.00	"A2" 703+26.53	0.23	0.90	On grade	10-year	5	2.25	0.46	30	2.88	12.06	0.46	0.016	0.46	0.00	1.43	6	0.17
"A2" 703+26.53	G-2	0.00	"A2" 701+49.32	0.13	0.90	On grade	10-year	5	2.25	0.26	30	3.15	8.65	0.26	0.016	0.26	0.00	1.40	6	0.12
"A2" 701+49.32	G-2	0.00	-	0.13	0.90	On grade	10-year	5	2.25	0.26	30	4.92	2.78	0.26	0.016	0.24	0.02	2.62	6	0.07
"D2" 703+67.14	G-2	0.00	"D2" 700+94.21	0.52	0.90	On grade	10-year	5	2.25	1.05	30	5.68	12.07	1.05	0.016	0.97	0.08	1.72	6	0.21
"D2" 700+94.21	G-2	0.08	-	0.17	0.90	On grade	10-year	5	2.25	0.35	30	0.47	2.01	0.43	0.016	0.33	0.10	5.60	6	0.11
"C2" 701+39.47	G-2	0.00	"C2" 702+01.71	0.17	0.90	On grade	10-year	5	2.25	0.34	30	0.35	8.18	0.34	0.016	0.33	0.00	2.25	4	0.18
"C2" 702+01.71	G-2	0.00	"C2" 702+89.10	0.06	0.90	On grade	10-year	5	2.25	0.12	30	1.25	8.41	0.13	0.016	0.13	0.00	1.20	4	0.1
"C2" 702+89.10	G-2	0.00	-	0.06	0.90	On grade	10-year	5	2.25	0.13	30	2.85	8.22	0.13	0.016	0.13	0.00	1.14	4	0.09
"L" 704+98.85	G-2	0.00	"L" 701+99.46	0.56	0.90	On grade	10-year	5	2.25	1.12	30	0.63	2.89	1.12	0.016	0.79	0.33	6.53	7	0.19
"L" 701+99.46	G-2	0.33	"L" 699+22.67	0.41	0.90	On grade	10-year	5	2.25	0.83	30	0.18	4.63	1.16	0.016	0.97	0.19	6.21	7	0.29
"L" 699+22.67	G-2	0.19	"L" 695+74.21	0.47	0.90	On grade	10-year	5	2.25	0.95	30	0.34	6.14	1.14	0.016	0.98	0.15	4.60	9	0.28
"L" 695+74.21	G-2	0.15	"L" 693+98.26	0.56	0.90	On grade	10-year	5	2.25	1.12	30	0.50	7.88	1.28	0.016	1.14	0.14	3.82	7	0.3
"L" 693+98.26	G-2	0.14	"L" 690+48.91	0.29	0.90	On grade	10-year	5	2.25	0.58	30	1.37	7.44	0.72	0.016	0.68	0.04	2.64	7	0.2
"L" 690+48.91	G-2	0.04	"L" 688+78.02	0.53	0.90	On grade	10-year	5	2.25	1.07	30	2.04	4.47	1.11	0.016	0.90	0.21	3.96	7	0.18
"L" 688+78.02	G-2	0.21	"L" 687+36.94	0.28	0.90	On grade	10-year	5	2.25	0.56	30	2.95	1.82	0.77	0.016	0.59	0.18	4.56	7	
"L" 687+36.94	G-2	0.18	"L" 686+48.66	0.23	0.90	On grade	10-year	5	2.25	0.46	30	1.81	2.30	0.64	0.016	0.47	0.17	5.01	7	
"L" 686+46.66	G-2	0.17	"L" 685+82.29	0.14	0.90	On grade	10-year	5	2.25	0.28	30	1.45	1.36	0.45	0.016	0.29	0.16	6.36	7	0.14
"L" 685+82.29	G-2	0.16	"L" 685+43.24	0.10	0.90	On grade	10-year	5	2.25	0.21	30	1.47	0.79	0.37	0.016	0.21	0.16	8.09	7	0.09
"L" 685+43.24	G-2	0.16	"L" 684+98.63	0.04	0.90	On grade	10-year	5	2.25	0.09	30	1.37	0.65	0.25	0.016	0.14	0.11	8.23	7	0.05
"L" 684+98.63	G-2	0.11	-	0.05	0.90	On grade	10-year	5	2.25	0.11	30	1.28	0.35	0.22	0.016	0.10	0.12	11.56	7	0.04
"L" 703+08.01	G-2	0.00	"L" 700+07.18	0.39	0.90	On grade	10-year	5	2.25	0.80	30	0.25	3.31	0.80	0.016	0.63	0.16	5.80	12	0.19
"L" 700+07.18	G-2	0.16	"L" 699+24.36	0.39	0.90	On grade	10-year	5	2.25	0.8	30	0.40	5.36	0.96	0.016	0.82	0.14	4.20	12	0.23
"L" 699+24.36	G-2	0.10	"L" 696+74.25	0.11	0.90	On grade	10-year	5	2.25	0.22	30	0.21	5.89	0.32	0.016	0.30	0.01	3.20	12	0.19
"L" 696+74.25	G-2	0.01	"L" 696+18.15	0.46	0.90	On grade	10-year	5	2.25	0.93	30	0.36	8.31	0.94	0.016	0.87	0.07	3.51	6	0.29
"L" 696+18.15	G-2	0.07	"L" 693+94.84	0.09	0.90	On grade	10-year	5	2.25	0.18	30	0.30	8.03	0.25	0.016	0.25	0.00	2.26	6	0.18
"L" 693+94.84	G-2	0.00	"L" 690+47.07	0.30	0.90	On grade	10-year	5	2.25	0.61	30	0.73	6.77	0.61	0.016	0.58	0.04	2.97	10	0.20
"L" 690+47.07	G-2	0.12	"L" 688+92.74	0.45	0.90	On grade	10-year	5	2.25	0.91	30	1.88	4.45	1.03	0.016	0.84	0.19	3.93	12	0.17
"L" 688+92.74	G-2	0.17	"L" 685+99.03	0.19	0.90	On grade	10-year	5	2.25	0.39	30	1.35	3.90	0.56	0.016	0.48	0.08	3.61	12	0.14
"L" 685+99.03	G-2	0.04	-	0.37	0.90	On grade	10-year	5	2.25	0.75	30	1.36	4.63	0.78	0.016	0.67	0.11	3.68	12	0.17

G-2 structure dimensions are based on ODOT std. drg. RD364. Grate size is 2.67' by 2.25'.

I-205CW: Phase 1 - Hilltop to OR43
InRoads Report - Spread Calculations

Station	Structure Type	Previous Bypass	Bypass To	Drainage Area	Runoff Coef	Location	Storm Freq	ToC	Intensity	Runoff	Clogging	Longitudinal Slope	Transverse Slope	Gutter Flow	Roughness Coeff	Intercepted Flow	Bypass Flow	Spread	Allowable Spread	Depth
		(cfs)		(ac)				(min)	(in/h)	(cfs)	(%)	(%)	(%)	(cfs)		(cfs)	(cfs)	(ft)	(ft)	(ft)
"Ln" 791+33.97	G-2	0.00	"Ln" 790+01.30	0.51	0.90	On grade	10-year	5	2.25	1.03	30	0.79	1.78	1.03	0.016	0.62	0.41	8.21	12.00	0.15
"Ln" 790+01.30	G-2	0.41	"Ln" 788+26.84	0.17	0.90	On grade	10-year	5	2.25	0.34	30	1.04	1.34	0.75	0.016	0.43	0.32	8.23	12.00	0.11
"Ln" 788+26.84	G-2	0.32	"Ln" 788+16.53	0.24	0.90	On grade	10-year	5	2.25	0.49	30	1.37	0.74	0.80	0.016	0.35	0.45	11.63	12.00	0.09
"Ln" 788+16.53	G-2	0.45	"Ln" 783+66.59	0.00	0.00	On grade	10-year	5	2.25	0	30	1.39	0.70	0.45	0.016	0.23	0.23	9.72	12.00	0.07
"Ln" 783+66.59	G-2	0.23	"Ln" 782+13.41	0.77	0.90	On grade	10-year	5	2.25	1.56	30	2.44	3.38	1.78	0.016	1.19	0.59	5.46	6.00	0.18
"Ln" 782+13.41	G-2	0.59	"Lnc" 780+60.09	0.32	0.90	On grade	10-year	5	2.25	0.65	30	2.74	1.74	1.24	0.016	0.70	0.54	7.05	7.00	0.12
"Lnc" 780+60.09	G-2	0.54	"Lnc" 777+59.72	0.26	0.90	On grade	10-year	5	2.25	0.53	30	2.74	2.00	1.07	0.016	0.67	0.41	6.13	7.00	0.12
"Lnc" 777+59.72	G-2	0.41	"Lnc" 774+57.81	0.53	0.90	On grade	10-year	5	2.25	1.07	30	2.74	2.00	1.48	0.016	0.84	0.64	6.92	9.00	0.14
"Lnc" 774+57.81	G-2	0.64	"Lnc" 771+56.27	0.45	0.90	On grade	10-year	5	2.25	0.92	30	2.75	1.94	1.56	0.016	0.86	0.69	7.16	9.00	0.14
"Lnc" 771+56.27	G-2	0.69	"Lc2" 768+55.24	0.40	0.90	On grade	10-year	5	2.25	0.81	30	2.86	2.00	1.50	0.016	0.85	0.65	6.89	11.00	0.14
"Lc2" 768+55.24	G-2	0.65	"Lc2" 766+67.81	0.46	0.90	On grade	10-year	5	2.25	0.94	30	2.87	2.15	1.59	0.016	0.92	0.67	6.71	12.00	0.14
"Lc2" 766+67.81	G-2	0.67	"Lc2" 760+48.19	0.34	0.90	On grade	10-year	5	2.25	0.68	30	2.38	1.10	1.35	0.016	0.60	0.75	9.97	12.00	0.11
"Lc2" 760+48.19	G-2	0.75	"Lc2" 756+51.40	0.90	0.90	On grade	10-year	5	2.25	1.82	30	2.57	2.63	2.60	0.016	1.42	1.15	7.18	13.00	0.19
"Lc2" 756+51.40	G-2	1.17	"Lc2" 753+93.62	0.59	0.90	On grade	10-year	5	2.25	1.19	30	2.81	2.10	2.36	0.016	1.21	1.15	7.94	12.00	0.17
"Lc2" 753+93.62	G-2	1.15	"Lc2" 753+83.29	0.32	0.90	On grade	10-year	5	2.25	0.66	30	2.89	1.15	1.81	0.016	0.76	1.05	10.40	12.00	0.12
"Lc2" 753+83.29	G-2	1.05	"Lc2" 749+26.39	0.00	0.00	On grade	10-year	5	2.25	0	30	2.90	1.06	1.05	0.016	0.50	0.56	8.96	12.00	0.09
"Lc2" 749+26.39	G-2	0.56	"Lc2" 747+99.34	0.68	0.90	On grade	10-year	5	2.25	1.38	30	3.49	2.61	1.94	0.016	1.16	0.77	6.18	8.00	0.16
"Lc2" 747+99.34	G-2	0.77	"B4" 744+40.80	0.23	0.90	On grade	10-year	5	2.25	0.47	30	3.42	3.55	1.24	0.016	0.93	0.31	4.34	8.00	0.15
"Lc2" 744+40.37	G-2	0.00	"B4" 744+40.80	0.04	0.90	On grade	10-year	5	2.25	0.07	30	1.88	6.00	0.07	0.016	0.07	0	1.21	12	0.07
"B4" 744+40.80	G-2	0.28	"B4" 743+31.78	0.76	0.90	On grade	10-year	5	2.25	1.54	30	2.66	6.17	1.82	0.016	1.49	0.32	3.71	8	0.23
"B4" 743+31.78	G-2	0.32	"B4" 741+73.00	0.07	0.90	On grade	10-year	5	2.25	0.14	30	2.96	9.02	0.46	0.016	0.46	0	1.72	12	0.16
"B4" 741+73.00	G-2	0.00	"B4" 740+17.26	0.10	0.90	On grade	10-year	5	2.25	0.21	30	6.17	7.10	0.21	0.016	0.21	0	1.29	10	0.09
"B4" 740+17.26	G-2	0.00	"B4" 739+13.79	0.11	0.90	On grade	10-year	5	2.25	0.22	30	10.25	4.93	0.22	0.016	0.22	0	1.50	9	0.07
"B4" 739+13.79	G-2	0.00	"B4" 736+95.67	0.07	0.90	On grade	10-year	5	2.25	0.14	30	5.91	8.34	0.14	0.016	0.14	0	1.02	8	0.08
"B4" 736+95.67	G-2	0.00	"OR43" 13+49.43	0.13	0.90	On grade	10-year	5	2.25	0.27	30	7.83	6.03	0.27	0.016	0.27	0	1.51	8	0.09
"OR43" 13+39.72	G-2	0.07	"OR43" 13+49.43	0.21	0.90	On grade	10-year	5	2.25	0.43	30	0.95	2.24	0.5	0.016	0.38	0.12	5.21	6	0.11
"OR43" 13+61.62	G-2	0.00	"OR43" 13+49.43	0.24	0.90	On grade	10-year	5	2.25	0.49	30	0.39	2.22	0.49	0.016	0.38	0.11	6.17	6	0.14
"OR43" 12+62.73	G-2	0.00	"OR43" 13+49.43	0.12	0.90	On grade	10-year	5	2.25	0.24	30	1.85	1.20	0.24	0.016	0.18	0.07	5.19	6	0.06
"OR43" 13+49.43	G-2	0.23	N/A	0.00	0.00	Sump	25-year	5	2.64	0.00	50	0.00	2.23	0.23	0.016	0.23	0	2.76	6	0.07
"SNc" 13+67.01	G-2	0	"SNc" 15+91.70	0.09	0.9	On grade	10-year	5	2.25	0.19	30	8.56	1.90	0.19	0.016	0.17	0.01	2.66	8	0.05
"SNc" 15+91.70	G-2	0.01	-	0.14	0.9	On grade	10-year	5	2.25	0.28	30	6.24	1.59	0.30	0.016	0.24	0.06	3.75	8	0.06
"SNc" 13+85.05	G-2	0	"SNc" 16+42.55	0.11	0.9	On grade	10-year	5	2.25	0.22	30	8.17	1.96	0.22	0.016	0.20	0.02	2.79	8	0.05
"SNc" 16+42.55	G-2	0.02	-	0.16	0.9	On grade	10-year	5	2.25	0.31	30	4.97	2.21	0.33	0.016	0.28	0.05	3.33	8	0.07
"Ls" 792+31.61	G-2	0.00	"Ls" 789+49.56	0.57	0.90	On grade	10-year	5	2.25	1.16	30	0.78	2.13	1.16	0.016	0.73	0.43	7.68	12.00	0.16
"Ls" 789+49.56	G-2	0.43	"Ls" 786+96.91	0.41	0.90	On grade	10-year	5	2.25	0.83	30	1.54	2.05	1.26	0.016	0.75	0.51	7.15	12.00	0.15
"Ls" 786+96.91	G-2	0.51	"Ls" 784+59.81	0.34	0.90	On grade	10-year	5	2.25	0.68	30	2.01	2.03	1.20	0.016	0.72	0.48	6.71	12.00	0.14
"Ls" 784+59.81	G-2	0.48	"Ls" 782+17.89	0.34	0.90	On grade	10-year	5	2.25	0.69	30	2.48	1.72	1.16	0.016	0.66	0.50	7.08	12.00	0.12
"Ls" 782+17.89	G-2	0.50	"Lsc2" 779+44.19	0.33	0.90	On grade	10-year	5	2.25	0.67	30	2.89	2.20	1.17	0.016	0.74	0.43	5.91	12.00	0.13
"Lsc2" 779+44.19	G-2	0.43	"Lsc2" 776+67.90	0.40	0.90	On grade	10-year	5	2.25	0.81	30	2.99	2.00	1.25	0.016	0.75	0.50	6.36	12.00	0.13
"Lsc2" 776+67.90	G-2	0.50	"Lsc2" 773+93.32	0.35	0.90	On grade	10-year	5	2.25	0.72	30	2.92	1.94	1.21	0.016	0.72	0.49	6.46	12.00	0.13
"Lsc2" 773+93.32	G-2	0.49	"Lsc2" 771+42.83	0.40	0.90	On grade	10-year	5	2.25	0.82	30	2.86	2.11	1.31	0.016	0.79	0.52	6.33	12.00	0.13
"Lsc2" 771+42.83	G-2	0.52	"Lc2" 768+40.11	0.37	0.90	On grade	10-year	5	2.25	0.74	30	2.94	1.91	1.26	0.016	0.74	0.52	6.60	12.00	0.13
"Lc2" 768+40.11	G-2	0.52	"Lc2" 766+31.15	0.41	0.90	On grade	10-year	5	2.25	0.83	30	2.93	1.95	1.36	0.016	0.78	0.57	6.71	12.00	0.13
"Lc2" 766+31.15	G-2	0.57	"Lc2" 763+56.41	0.29	0.90	On grade	10-year	5	2.25	0.59	30	2.87	2.12	1.16	0.016	0.72	0.44	6.02	12.00	0.13
"Lc2" 763+56.41	G-2	0.44	"Lc2" 762+11.78	0.39	0.90	On grade	10-year	5	2.25	0.79	30	2.69	2.28	1.23	0.016	0.77	0.45	5.95	12.00	0.14
"Lc2" 762+11.78	G-2	0.45	"Lc2" 760+48.41	0.20	0.90	On grade	10-year	5	2.25	0.41	30	2.77	2.72	0.86	0.016	0.63	0.23	4.65	12.00	0.13
"Lc2" 760+48.41	G-2	0.23	"Lc2" 758+50.00	0.23	0.90	On grade	10-year	5	2.25	0.46	30	2.80	2.41	0.69	0.016	0.51	0.18	4.61	12.00	0.11
"Lc2" 758+50.00	G-2	0.28	"Lc2" 756+52.77	0.29	0.90	On grade	10-year	5	2.25	0.58	30	2.65	2.43	0.86	0.016	0.61	0.25	5.03	12.00	0.12
"Lc2" 756+52.77	G-2	0.25	"Lc2" 753+97.90	0.26	0.90	On grade	10-year	5	2.25	0.53	30	2.63	1.97	0.78	0.016	0.52	0.26	5.54	12.00	0.11
"Lc2" 753+97.90	G-2	0.26	"L" 750+46.08	0.43	0.90	On grade	10-year	5	2.25	0.88	30	2.51	1.23	1.14	0.016	0.56	0.58	8.62	8.00	0.11
"L" 750+46.08	G-2	0.58	"L" 747+42.91	0.15	0.90	On grade	10-year	5	2.25	0.31	30	2.41	1.96	0.88	0.016	0.57	0.31	5.90	8.00	0.12
"L" 747+39.13	G-2	0.31	"C4" 744+93.97	0.14	0.90	On grade	10-year	5	2.25	0.29	30	2.01	1.76	0.60	0.016	0.41	0.20	5.67	6.00	0.10
"C4" 744+93.97	G-2	0.20	"L" 742+95.52	0.12	0.90	On grade	10-year	5	2.25	0.24	30	1.66	0.65	0.44	0.016	0.22	0.23	9.69	12	0.06
"L" 742+95.52	G-2	0.23	"C4" 739+98.82	0.12	0.90	On grade	10-year	5	2.25	0.25	30	2.42	2.50	0.48	0.016	0.38	0.09	4.02	12	0.10
"C4" 739+98.82	G-2	0.09	"C4" 736+32.28	0.18	0.90	On grade	10-year	5	2.25	0.36	30	5.19	8.14	0.45	0.016	0.45	0	1.63	6	0.13
"C4" 736+32.28	G-2	0.00	"C4" 734+99.49	0.22	0.90	On grade	10-year	5	2.25	0.45	30	5.67	4.17	0.45	0.016	0.43	0.02	2.45	6	0.10
"C4" 734+99.49	G-2	0.02	"OR43" 7+11.01	0.08	0.90	On grade	10-year	5	2.25	0.16	30	2.88	1.04	0.18	0.016	0.13	0.05	4.65	6	0.05
"OR43" 7+11.01	G-2	0.05	"OR43" 7+59.10	0.15	0.90	On grade	10-year	5	2.25	0.30	30	0.56	2.15	0.35	0.016	0.28	0.07	5.14	8	0.11
"OR43" 10+02.36	G-2	0.00	"OR43" 9+35.10	0.21	0.90	On grade	10-year	5	2.25	0.43	30	1.71	3.21	0.43	0.016	0.37	0.06	3.52	8	0.11
"OR43" 9+35.10	G-2	0.06	"OR43" 8+41.86	0.10	0.90	On grade	10-year	5	2.25	0.20	30	1.88	3.09	0.26	0.016	0.24	0.02	2.96	8	0.09
"OR43" 8+41.86	G-2	0.01	"OR43" 7+59.10	0.16	0.90	On grade	10-year	5	2.25	0.33	30	1.26	2.84	0.34	0.016	0.29	0.05	3.69	8	0.10
"OR43" 7+59.10	G-2	0.11	N/A	0.25	0.90	Sump	25-year	5	2.64	0.59	50	0.00	2.28	0.70	0.016	0.70	0	5.76	8	0.13

Station		Previous Bypass	Bypass To	Drainage Area	Runoff Coef	Location	Storm Freq	ToC	Intensity	Runoff	Clogging	Longitudinal Slope	Transverse Slope	Gutter Flow	Roughness Coeff	Intercepted Flow	Bypass Flow	Spread	Allowable Spread	Depth
		(cfs)		(ac)				(min)	(in/h)	(cfs)	(%)	(%)	(%)	(cfs)		(cfs)	(cfs)	(ft)	(ft)	(ft)
"OR43" 5+29.79	G-2	0.00	N/A	0.14	0.90	Sump	25-year	5	2.64	0.33	50	0.00	2.68	0.33	0.016	0.33	0	2.94	8	0.08
"Lc2" 750+46.08	G-2	0.00	"Lc2" 747+79.20	0.35	0.90	On grade	10-year	5	2.25	0.71	30	3.06	1.84	0.71	0.016	0.48	0.24	5.42	12.00	0.10
"Lc2" 747+79.20	G-2	0.24	"Lc2" 744+45.59	0.32	0.90	On grade	10-year	5	2.25	0.65	30	2.12	4.73	0.89	0.016	0.76	0.13	3.50	12.00	0.17
"Lc2" 744+45.59	G-2	0.13	"Lc2" 741+98.86	0.44	0.90	On grade	10-year	5	2.25	0.89	30	1.29	5.87	1.02	0.016	0.89	0.13	3.53	14	0.21
"Lc2" 741+98.86	G-2	0.13	"L" 739+68.75_EXTG	0.35	0.90	On grade	10-year	5	2.25	0.71	30	0.47	6.05	0.84	0.016	0.75	0.09	3.89	11	0.24
"L" 739+68.75_EXTG	G-2	0.09	"L" 737+37.54_EXTG	0.33	0.90	On grade	10-year	5	2.25	0.66	30	0.64	6.01	0.75	0.016	0.68	0.07	3.54	9	0.21
"L" 737+37.54_EXTG	G-2	0.07	"L" 735+83.55	0.30	0.90	On grade	10-year	5	2.25	0.61	30	1.15	5.71	0.69	0.016	0.63	0.06	3.17	6	0.18
"L" 735+83.55	G-2	0.06	-	0.20	0.90	On grade	10-year	5	2.25	0.40	30	1.55	4.35	0.46	0.016	0.42	0.04	3.05	7	0.13
"OR43" 12+35.36	G-2	0.00	N/A	0.14	0.90	Sump	25-year	5	2.64	0.34	50	0.00	4.03	0.34	0.016	0.34	0	2.00	8	0.08
"OR43" 11+11.99	G-2	0.00	N/A	0.06	0.90	Sump	25-year	5	2.64	0.14	50	0.00	3.72	0.14	0.016	0.14	0	1.19	8	0.04
"E3" 739+15.44	G-2	0.00	-	0.28	0.90	On grade	10-year	5	2.25	0.56	30	6.58	10.61	0.56	0.016	0.55	0.01	1.43	9	0.15
"WA3" 741+97.36	G-2	0.00	-	0.16	0.90	On grade	10-year	5	2.25	0.32	30	9.74	1.61	0.32	0.016	0.26	0.06	3.52	6	0.06
"WA3" 741+96.02	G-2	0.00	-	0.21	0.90	On grade	10-year	5	2.25	0.42	30	9.78	1.41	0.42	0.016	0.31	0.11	4.23	6	0.06
"L" 741+97.14	G-2	0.00	"L" 739+69.26	0.37	0.90	On grade	10-year	5	2.25	0.74	30	0.53	7.06	0.74	0.016	0.69	0.06	3.30	12	0.23
"L" 739+69.26	G-2	0.06	"L" 737+34.33	0.32	0.90	On grade	10-year	5	2.25	0.65	30	0.27	6.48	0.71	0.016	0.65	0.06	3.88	12	0.25
"L" 737+34.33	G-2	0.06	"L" 735+77.22	0.29	0.90	On grade	10-year	5	2.25	0.59	30	0.97	5.47	0.64	0.016	0.58	0.06	3.28	12	0.18
"L" 735+77.22	G-2	0.06	-	0.31	0.90	On grade	10-year	5	2.25	0.62	30	1.06	5.01	0.68	0.016	0.60	0.08	3.48	12	0.17
"D2" 733+38.11	G-2	0.00	"D2" 733+64.02	0.35	0.90	On grade	10-year	5	2.25	0.72	30	2.64	2.71	0.72	0.016	0.55	0.17	4.39	6	0.12
"D2" 733+64.02	G-2	0.17	"D2" 733+92.05	0.02	0.90	On grade	10-year	5	2.25	0.05	30	1.34	24.38	0.22	0.016	0.22	0	0.81	6	0.2
"D2" 733+92.05	G-2	0.00	"D2" 733+94.54	0.11	0.90	On grade	10-year	5	2.25	0.22	30	0.88	0.87	0.22	0.016	0.15	0.07	6.99	8	0.06
"D2" 733+94.54	G-2	0.31	N/A	0.14	0.90	Sump	25-year	5	2.64	0.34	50	0.00	2.09	0.65	0.016	0.65	0	5.97	8	0.13

G-2 structure dimensions are based on ODOT std. drg. RD364. Grate size is 2.67' by 2.25'.

I-205CW: Phase 1 - SW Leg

InRoads Report - Spread Calculations

Station	Structure Type	Previous Bypass	Bypass To	Drainage Area	Runoff Coef	Location	Storm Freq	ToC	Intensity	Runoff	Clogging	Longitudinal Slope	Transverse Slope	Gutter Flow	Roughness Coeff	Intercepted Flow	Bypass Flow	Spread	Allowable Spread	Depth
		(cfs)		(ac)				(min)	(in/h)	(cfs)	(%)	(%)	(%)	(cfs)		(cfs)	(cfs)	(ft)	(ft)	(ft)
"Ln" 797+99.30	G-2	0.00	"Ln" 799+77.68	0.36	0.90	On grade	10-year	5	2.25	0.73	30	0.36	4.01	0.73	0.016	0.62	0.12	5.04	12	0.20
"Ln" 799+77.68	G-2	0.12	"Ln" 802+79.53	0.25	0.90	On grade	10-year	5	2.25	0.5	30	0.89	4.02	0.61	0.016	0.52	0.09	3.96	12	0.16
"Ln" 802+79.53	G-2	0.09	"Ln" 805+81.61	0.42	0.90	On grade	10-year	5	2.25	0.84	30	1.31	3.93	0.93	0.016	0.74	0.19	4.38	12	0.17
"Ln" 805+81.61	G-2	0.19	"Ln" 808+83.32	0.49	0.90	On grade	10-year	5	2.25	0.99	30	1.69	3.96	1.18	0.016	0.91	0.28	4.54	12	0.18
"Ln" 808+83.32	G-2	0.28	"Ln" 811+75.35	0.43	0.90	On grade	10-year	5	2.25	0.87	30	1.54	3.89	1.14	0.016	0.88	0.27	4.61	12	0.18
"Ln" 811+75.35	G-2	0.27	"Ln" 811+85.08	0.42	0.90	On grade	10-year	5	2.25	0.85	30	1.53	3.96	1.12	0.016	0.87	0.26	4.53	12	0.18
"Ln" 811+85.08	G-2	0.26	"Ln" 814+87.95	0.00	0.00	On grade	10-year	5	0	0	30	1.53	3.93	0.26	0.016	0.24	0.01	2.62	12	0.10
"Ln" 814+87.95	G-2	0.01	"Ln" 817+90.21	0.43	0.90	On grade	10-year	5	2.25	0.87	30	1.74	3.90	0.88	0.016	0.71	0.17	4.08	12	0.16
"Ln" 817+90.21	G-2	0.17	"Ln" 820+92.09	0.42	0.90	On grade	10-year	5	2.25	0.85	30	1.37	3.64	1.02	0.016	0.78	0.24	4.71	12	0.17
"Ln" 820+92.09	G-2	0.24	"Ln" 823+93.70	0.42	0.90	On grade	10-year	5	2.25	0.85	30	1.61	2.63	1.09	0.016	0.74	0.35	5.73	12	0.19
"Ln" 823+93.70	G-2	0.35	"Ln" 825+93.38	0.41	0.90	On grade	10-year	5	2.25	0.83	30	1.56	1.82	1.18	0.016	0.68	0.50	7.48	12	0.15
"Ln" 825+93.38	G-2	0.50	"Ln" 826+43.80	0.27	0.90	On grade	10-year	5	2.25	0.54	30	1.59	1.28	1.04	0.016	0.53	0.51	8.85	12	0.12
"Ln" 826+43.80	G-2	0.51	"Ln" 826+94.48	0.07	0.90	On grade	10-year	5	2.25	0.13	30	1.74	1.07	0.64	0.016	0.35	0.29	8.12	12	0.09
"Ln" 826+94.48	G-2	0.29	"Ln2" 830+30.43	0.06	0.90	On grade	10-year	5	2.25	0.12	30	1.91	0.61	0.41	0.016	0.20	0.21	9.60	12	0.06
"Ln2" 830+30.43	G-2	0.21	"Ln2" 833+06.36	0.46	0.90	On grade	10-year	5	2.25	0.94	30	2.54	1.77	1.15	0.016	0.66	0.49	6.89	13	0.12
"Ln2" 833+06.36	G-2	0.49	"Ln2" 836+62.06	0.42	0.90	On grade	10-year	5	2.25	0.86	30	2.40	3.29	1.35	0.016	0.95	0.39	5.00	12	0.17
"Ln2" 836+62.06	G-2	0.39	"Ln2" 838+75.93	0.51	0.90	On grade	10-year	5	2.25	1.04	30	2.37	4.43	1.43	0.016	1.11	0.32	4.27	8	0.19
"Ln2" 838+75.93	G-2	0.33	"Ln2" 841+27.32	0.33	0.90	On grade	10-year	5	2.25	0.67	30	2.22	3.87	1.01	0.016	0.80	0.21	4.11	9	0.16
"Ln2" 841+27.32	G-2	0.21	"Ln2" 843+27.33	0.41	0.90	On grade	10-year	5	2.25	0.83	30	1.90	3.09	1.04	0.016	0.75	0.28	4.94	9	0.15
"Ln2" 843+27.33	G-2	0.28	"Ln2" 845+91.45	0.32	0.90	On grade	10-year	5	2.25	0.65	30	1.74	4.27	0.93	0.016	0.76	0.17	3.94	9	0.17
"Ln2" 845+91.45	G-2	0.17	"A2" 847+43.18	0.49	0.90	On grade	10-year	5	2.25	0.99	30	1.65	4.39	1.16	0.016	0.92	0.24	4.24	8	0.19
"A2" 847+43.18	G-2	0.24	"A2" 848+03.87	0.22	0.90	On grade	10-year	5	2.25	0.44	30	2.11	3.08	0.68	0.016	0.54	0.14	4.14	8	0.13
"A2" 848+03.87	G-2	0.14	"A2" 848+80.88	0.04	0.90	On grade	10-year	5	2.25	0.07	30	2.49	1.98	0.21	0.016	0.19	0.03	3.43	8	0.07
"A2" 848+80.88	G-2	0.03	"A2" 851+81.63	0.05	0.90	On grade	10-year	5	2.25	0.09	30	2.43	0.75	0.12	0.016	0.09	0.03	5.10	8	0.04
"A2" 851+81.63	G-2	0.03	-	0.18	0.90	On grade	10-year	5	2.25	0.36	30	3.52	1.82	0.39	0.016	0.30	0.09	4.25	4	0.08
"Ln2" 852+00.03	G-2	0.00	"Ln2" 854+78.76	0.68	0.90	On grade	10-year	5	2.25	1.38	30	2.14	1.40	1.38	0.016	0.68	0.70	8.80	12	0.12
"Ln2" 854+78.76	G-2	0.70	"Ln2" 855+87.23	0.49	0.90	On grade	10-year	5	2.25	0.99	30	1.83	5.69	1.69	0.016	1.35	0.33	4.07	12	0.23
"Ln2" 855+87.23	G-2	0.33	"Ln2" 858+00.13	0.15	0.90	On grade	10-year	5	2.25	0.3	30	1.56	6.62	0.63	0.016	0.60	0.03	2.65	6	0.18
"Ln2" 858+00.13	G-2	0.03	"Ln2" 860+15.03	0.30	0.90	On grade	10-year	5	2.25	0.62	30	1.09	6.75	0.65	0.016	0.61	0.04	2.82	6	0.19
"Ln2" 860+15.03	G-2	0.04	-	0.26	0.90	On grade	10-year	5	2.25	0.54	30	0.97	6.76	0.57	0.016	0.54	0.03	2.75	6	0.19
"Ls" 800+49.62	G-2	0.00	"Ls" 803+45.57	0.49	0.90	On grade	10-year	5	2.25	0.99	30	0.62	5.04	0.99	0.016	0.83	0.16	4.41	12	0.22
"Ls" 803+45.57	G-2	0.16	"Ls" 806+00.75	0.41	0.90	On grade	10-year	5	2.25	0.83	30	1.33	5.05	0.99	0.016	0.84	0.16	3.82	12	0.19
"Ls" 806+00.75	G-2	0.16	"Ls" 808+28.16	0.36	0.90	On grade	10-year	5	2.25	0.72	30	1.63	5.07	0.88	0.016	0.76	0.12	3.50	12	0.18
"Ls" 808+28.16	G-2	0.12	"Ls" 811+02.95	0.32	0.90	On grade	10-year	5	2.25	0.64	30	1.47	5.06	0.76	0.016	0.67	0.09	3.38	12	0.17
"Ls" 811+02.95	G-2	0.09	"Ls" 814+22.78	0.38	0.90	On grade	10-year	5	2.25	0.78	30	2.01	4.75	0.87	0.016	0.74	0.12	3.49	20	0.17
"Ls" 814+22.78	G-2	0.12	"Ls" 816+86.77	0.50	0.90	On grade	10-year	5	2.25	1.02	30	1.98	4.83	1.14	0.016	0.94	0.20	3.84	20	0.19
"Ls" 816+86.77	G-2	0.20	"Ls" 819+90.29	0.42	0.90	On grade	10-year	5	2.25	0.84	30	2.00	4.70	1.04	0.016	0.87	0.18	3.77	20	0.18
"Ls" 819+90.29	G-2	0.18	"Ls" 822+92.01	0.47	0.90	On grade	10-year	5	2.25	0.95	30	2.09	4.46	1.13	0.016	0.91	0.22	3.98	20	0.18
"Ls" 822+92.01	G-2	0.22	"Ls" 825+92.20	0.44	0.90	On grade	10-year	5	2.25	0.89	30	1.91	2.94	1.11	0.016	0.78	0.33	5.22	12	0.15
"Ls" 825+92.20	G-2	0.33	"Ls2" 828+24.24	0.39	0.90	On grade	10-year	5	2.25	0.8	30	1.56	1.58	1.13	0.016	0.62	0.51	8.03	12	0.13
"Ls2" 828+24.24	G-2	0.51	"Ls2" 830+17.30	0.29	0.90	On grade	10-year	5	2.25	0.58	30	2.09	0.88	1.09	0.016	0.46	0.63	10.85	12	0.10
"Ls2" 830+17.30	G-2	0.63	"Ls2" 831+48.88	0.26	0.90	On grade	10-year	5	2.25	0.52	30	2.16	1.86	1.15	0.016	0.67	0.47	6.88	12	0.13
"Ls2" 831+48.88	G-2	0.47	"Ls2" 833+99.72	0.15	0.90	On grade	10-year	5	2.25	0.30	30	2.15	0.93	0.77	0.016	0.37	0.40	9.18	12	0.08
"Ls2" 833+99.72	G-2	0.40	"Ls2" 836+00.39	0.39	0.90	On grade	10-year	5	2.25	0.78	30	2.57	2.75	1.18	0.016	0.81	0.37	5.27	12	0.14
"Ls2" 836+00.39	G-2	0.37	"Ls2" 837+86.82	0.29	0.90	On grade	10-year	5	2.25	0.60	30	2.46	3.69	0.97	0.016	0.77	0.20	4.10	12	0.15
"Ls2" 837+86.82	G-2	0.2	"Ls2" 840+64.22	0.26	0.90	On grade	10-year	5	2.25	0.53	30	2.28	3.71	0.73	0.016	0.61	0.13	3.74	12	0.14
"Ls2" 840+64.22	G-2	0.13	"Ls2" 841+91.78	0.40	0.90	On grade	10-year	5	2.25	0.81	30	1.91	3.54	0.94	0.016	0.73	0.21	4.36	12	0.15
"Ls2" 841+91.78	G-2	0.21	"Ls2" 843+65.22	0.17	0.90	On grade	10-year	5	2.25	0.35	30	1.79	2.56	0.56	0.016	0.43	0.13	4.46	12	0.11
"Ls2" 843+65.22	G-2	0.13	"Ls2" 847+63.10	0.18	0.90	On grade	10-year	5	2.25	0.37	30	1.59	0.81	0.49	0.016	0.26	0.24	8.89	12	0.07
"Ls2" 846+63.83	G-2	0.00	"Ls2" 847+63.10	0.21	0.90	On grade	10-year	5	2.25	0.43	30	2.17	1.92	0.43	0.016	0.32	0.11	4.66	6	0.09
"Ls2" 847+63.10	G-2	0.34	"D2" 849+45.81	0.47	0.90	On grade	10-year	5	2.25	0.94	30	2.14	2.45	1.29	0.016	0.82	0.47	6.04	6	0.15
"D2" 849+45.81	G-2	0.47	"D2" 851+81.16	0.34	0.90	On grade	10-year	5	2.25	0.68	30	3.86	3.51	1.15	0.016	0.88	0.27	4.15	6	0.15
"D2" 851+81.16	G-2	0.27	-	0.14	0.90	On grade	10-year	5	2.25	0.29	30	3.22	7.32	0.55	0.016	0.55	0.01	2.06	6	0.15

G-2 structure dimensions are based on ODOT std. drg. RD364. Grate size is 2.67' by 2.25'.

Appendix H. Pipe Capacity Analysis

I-205 CW - Phase 1: NE Leg
Preliminary Design Conveyance Calculations

Station From	Station To	Hydrology												Pipe Design									Comments	
		Area (acres)	C	CA	F (for diversion MH)	sum CA	Tc to from STA (min)	Tc in pipe (min)	sum Tc (min)	I (in/hr)	Q (cfs)	Addt'l Inflow* (cfs)	Total Q (cfs)	Diameter (inch)	Slope	Manning's n	Capacity (cfs)	Velocity (fps)	Q/Qf	Length (feet)	Invert Elevation			
																					US	DS		
"L" 704+98.85	"L" 704+99.63	0.56	0.90	0.50		0.50	5.00	0.22	5.22	2.23	1.13		1.13	18	0.50%	0.013	7.44	4.21	0.15	56	74.66	74.38	ok	
"L" 704+99.63	"B2" 704+10.45	0.00	0.90	0.00		0.50	5.22	0.44	5.66	2.18	1.10		1.10	18	0.73%	0.013	9.00	5.09	0.12	134	74.18	73.20	ok	
"B2" 704+00.42	"B2" 704+10.45	0.20	0.90	0.18		0.18	5.00	0.14	5.14	2.25	0.40		0.40	18	0.53%	0.013	7.65	4.32	0.05	36	73.50	73.31	ok	
"B2" 704+10.45	"B2" 705+81.57	0.00	0.90	0.00		0.68	5.66	0.69	6.35	2.09	1.43		1.43	18	0.50%	0.013	7.42	4.19	0.19	173	73.00	72.14	ok	
"B2" 705+77.05	"B2" 705+81.57	0.12	0.90	0.11		0.11	5.00	0.06	5.06	2.26	0.24		0.24	18	2.79%	0.013	17.59	9.94	0.01	34	74.93	73.98	ok	
"B2" 705+81.57	"A2" 704+97.19	0.00	0.00	0.00		0.79	6.35	0.74	7.09	2.01	1.59		1.59	18	0.50%	0.013	7.44	4.21	0.21	186	71.94	71.01	ok	
"B2" 707+66.43	"A2" 704+97.19	0.11	0.90	0.10		0.10	5.00	0.10	5.10	2.26	0.22		0.22	12	0.55%	0.013	2.65	3.37	0.08	20	72.97	72.86	ok	
"A2" 704+97.19	"A2" 705+01.91	0.00	0.90	0.00		0.89	7.09	0.16	7.25	1.99	1.78		1.78	18	0.51%	0.013	7.53	4.26	0.24	41	70.81	70.60	ok	
"A2" 705+01.91	"A2" 703+26.53	0.23	0.90	0.21		1.10	7.25	0.23	7.48	1.98	2.17		2.17	18	3.21%	0.013	18.85	10.65	0.12	150	70.40	65.59	ok	
"B2" 709+51.44	"A2" 703+26.53	0.13	0.90	0.12		0.12	5.00	0.05	5.05	2.26	0.26		0.26	18	4.88%	0.013	23.25	13.14	0.01	41	68.09	66.09	ok	
"A2" 703+26.53	"A2" 701+84.25	0.13	0.90	0.12		1.33	7.48	0.21	7.69	1.96	2.61		2.61	18	3.27%	0.013	19.03	10.75	0.14	134	65.39	61.01	ok	
"A2" 701+84.25	"A2" 701+49.32	0.00	0.90	0.00	0.50	0.67	7.69	0.05	7.73	1.95	1.30		1.30	18	4.00%	0.013	21.05	11.90	0.06	33	60.81	59.49	ok	Diversion fraction TBD
"B2" 711+46.87	"A2" 701+49.32	0.12	0.90	0.11		0.11	5.00	0.07	5.07	2.26	0.24		0.24	18	2.03%	0.013	14.98	8.47	0.02	37	60.24	59.49	ok	
"A2" 701+49.32	Swale	0.13	0.90	0.12		0.89	7.73	0.05	7.79	1.95	1.74		1.74	18	2.63%	0.013	17.08	9.65	0.10	30	58.49	57.70	ok	
"A2" 701+84.25	"99E2" 115+34.87	0.00		0.00	0.50	0.67	7.69	0.20	7.89	1.95	1.30		1.30	18	4.01%	0.013	21.07	11.91	0.06	143	61.01	55.28	ok	Diversion fraction TBD
"99E2" 115+34.87	"99E2" 115+36.57	0.00		0.00		0.67	7.89	0.03	7.92	1.94	1.29		1.29	18	4.87%	0.013	23.22	13.13	0.06	23	55.08	53.96	ok	
"99E2" 113+74.42	"99E2" 113+86.99	2.59	0.90	2.33	0.50	1.17	10.00	0.03	10.03	1.77	2.06		2.06	18	4.10%	0.013	21.31	12.04	0.10	20	56.25	55.43	ok	Flow from bridge drop pipe, diversion TBD
"99E2" 113+74.42	"99E2" 113+91.64			0.00	0.50	1.17	10.03	0.06	10.09	1.77	2.06		2.06	18	1.00%	0.013	10.52	5.95	0.20	21	56.25	56.04	ok	Diversion fraction TBD
"99E2" 113+91.64	Swale			0.00		1.17	10.09	0.10	10.18	1.76	2.06		2.06	18	1.00%	0.013	10.52	5.95	0.20	35	55.84	55.49	ok	
"L" 699+22.67	"L" 699+11.58	0.47	0.90	0.42		0.42	5.00	0.09	5.09	2.26	0.96		0.96	12	4.52%	0.013	7.59	9.65	0.13	50	72.49	70.23	ok	Existing
"L" 699+11.58	"L" 699+24.36	0.00	0.90	0.00		0.42	5.09	0.07	5.16	2.25	0.95		0.95	12	0.50%	0.013	2.52	3.21	0.38	14	70.23	70.16	ok	
"L" 699+24.36	"L" 700+07.18	0.11	0.90	0.10		0.52	5.16	0.42	5.58	2.20	1.15		1.15	12	0.51%	0.013	2.54	3.23	0.45	81	70.16	69.75	ok	
"L" 700+07.18	"C2" 701+76.51	0.39	0.90	0.35		0.87	5.58	0.87	6.45	2.08	1.82		1.82	12	0.50%	0.013	2.52	3.20	0.72	167	69.75	68.92	ok	
"L" 701+99.46	"C2" 701+76.51	0.41	0.90	0.37		0.37	5.00	0.13	5.13	2.25	0.83		0.83	12	3.67%	0.013	6.83	8.69	0.12	66	73.15	70.73	ok	Existing
"L" 703+08.01	"C2" 701+76.51	0.39	0.90	0.35		0.35	5.00	0.66	5.66	2.18	0.77		0.77	12	0.52%	0.013	2.58	3.28	0.30	130	72.66	71.98	ok	
"C2" 701+76.51	"C2" 701+39.47	0.00	0.90	0.00		1.59	6.45	0.16	6.61	2.06	3.28		3.28	18	2.60%	0.013	16.96	9.58	0.19	94	68.92	66.48	ok	
"C2" 701+39.47	"C2" 702+01.71	0.17	0.90	0.15		1.75	6.61	0.24	6.85	2.03	3.55		3.55	18	0.49%	0.013	7.38	4.17	0.48	61	66.28	65.98	ok	
"C2" 702+01.71	"C2" 702+89.10	0.06	0.90	0.05		1.80	6.85	0.18	7.04	2.01	3.62		3.62	18	1.69%	0.013	13.70	7.74	0.26	85	65.78	64.34	ok	
"C2" 702+89.10	"C2" 702+90.61	0.06	0.90	0.05		1.85	7.04	0.16	7.19	2.00	3.71		3.71	18	0.49%	0.013	7.35	4.15	0.51	39	64.14	63.95	ok	
"C2" 702+90.61	"D2" 703+67.14	0.00	0.90	0.00		1.85	7.19	0.35	7.54	1.97	3.65		3.65	18	2.48%	0.013	16.59	9.38	0.22	196	63.74	58.87	ok	
"D2" 703+67.14	"D2" 701+29.99	0.52	0.90	0.47		2.32	7.54	0.24	7.79	1.95	4.54		4.54	18	5.13%	0.013	23.84	13.47	0.19	198	58.67	48.51	ok	
"D2" 701+29.99	"D2" 701+25.24	0.00	0.90	0.00	0.50	1.16	7.79	0.03	7.81	1.95	2.26		2.26	18	2.00%	0.013	14.88	8.41	0.15	13	48.51	48.25	ok	Diversion fraction TBD
"D2" 701+29.99	"D2" 700+96.07	0.00	0.90	0.00	0.50	1.16	7.79	0.05	7.84	1.95	2.26		2.26	18	3.50%	0.013	19.69	11.13	0.11	36	48.51	47.25	ok	Diversion fraction TBD
"D2" 700+94.21	"D2" 700+96.07	0.17	0.90	0.15		0.15	5.00	0.06	5.06	2.26	0.35		0.35	12	0.45%	0.013	2.41	3.06	0.14	11	47.30	47.25	ok	
"D2" 700+96.07	Swale	0.00	0.90	0.00		1.31	7.84	0.05	7.89	1.95	2.56		2.56	18	0.57%	0.013	7.96	4.50	0.32	14	47.25	47.17	ok	
"D2" 701+25.24	"99E2" 109+35.60		0.90	0.00		1.16	7.81	0.34	8.15	1.92	2.23		2.23	12	1.00%	0.013	3.57	4.54	0.62	92	43.33	42.41	ok	Existing
"99E2" 109+35.60	"99E2" 110+17.87	0.55	0.90	0.50		1.16	8.15	0.25	8.40	1.89	2.20		2.20	18	0.84%	0.013	9.67	5.46	0.23	83	40.14	39.44	ok	Estimated flow from existing inlets
"99E2" 111+68.75	"99E2" 111+70.20	2.67	0.90	2.41	0.50	1.20	10.00	0.11	10.11	1.76	2.12		2.12	18	0.48%	0.013	7.30	4.13	0.29	27	52.79	52.66	ok	Flow from bridge drop pipe, diversion TBD
"99E2" 111+70.20	Swale		0.90	0.00		1.20	10.11	0.05	10.16	1.76	2.12		2.12	18	3.30%	0.013	19.12	10.80	0.11	30	52.66	51.67	ok	
"99E2" 111+68.75	"99E2" 111+62.31		0.90	0.00	0.50	1.20	10.00	0.02	10.02	1.77	2.13		2.13	18	3.92%	0.013	20.85	11.78	0.10	13	52.79	52.28	ok	
"99E2" 110+18.98	"99E2" 110+17.87		0.90	0.00		2.52	10.02	0.06	10.08	1.77	4.45		4.45	18	3.96%	0.013	20.93	11.83	0.21	46	47.02	45.20	ok	
"99E2" 110+17.87	"99E2" 111+62.31		0.90	0.00		3.68	10.08	0.44	10.52	1.74	6.38		6.38	18	0.85%	0.013	9.69	5.48	0.66	145	39.44	38.21	ok	Existing
"99E2" 111+62.31	"99E2" 112+04.98		0.90	0.00		4.88	10.52	0.12	10.65	1.73	8.43		8.43	18	0.95%	0.013	10.28	5.81	0.82	43	38.21	37.80	ok	Existing
"99E2" 112+04.98	"99E2" 113+86.99		0.90	0.00		4.88	10.65	0.39	11.03	1.70	8.30		8.30	24	1.25%	0.013	25.36	8.06	0.33	187	37.78	35.44	ok	Existing
"99E2" 113+86.99	"99E2" 115+36.07		0.90	0.00		6.05	11.03	0.37	11.40	1.68	10.16		10.16	24	0.97%	0.013	22.30	7.09	0.46	157	35.39	33.87	ok	Existing
"99E2" 115+36.57	"99E2" 115+36.07		0.90	0.00		2.72	10.18	0.04	10.22	1.76	4.78		4.78	18	2.05%	0.013	15.08	8.52	0.32	19	53.76	53.37	ok	
"99E2" 115+36.07	"99E2" 115+95.64		0.90	0.00		8.77	11.40	0.15	11.55	1.68	14.69		14.69	24	1.00%	0.013	22.67	7.21	0.65	64	33.87	33.23	ok	Existing
"L" 695+74.21	"L" 695+66.12	0.56	0.90	0.50		0.50	5.00	0.07	5.07	2.26	1.14		1.14	18	7.73%	0.013	29.26	16.53	0.04	66	72.12	67.02	ok	
"L" 695+66.12	"L" 694+54.42	0.00	0.90	0.00		0.50	5.07	0.43	5.50	2.20	1.11		1.11	18	0.50%	0.013	7.41	4.19	0.15	109	66.98	66.44	ok	
"L" 694+54.42	"L" 693+94.84	0.00	0.90	0.00		0.50	5.50	0.20	5.70	2.17	1.09		1.09	18	0.64%	0.013	8.41	4.75	0.13	58	66.26	65.89	ok	
"L" 693+98.26	"L" 693+94.84	0.29	0.90	0.26		0.26	5.00	0.26	5.26	2.23	0.58		0.58	15	0.51%	0.013	4.61	3.76	0.13	59	66.12	65.82	ok	Existing
"L" 693+94.84	"L" 691+70.34	0.30	0.90	0.27		1.04	5.70	0.87	6.58	2.07	2.14		2.14	18	0.50%	0.013	7.44	4.21	0.29	220	65.71	64.61	ok	
"L" 684+98.63	"L" 685+99.03	0.05	0.90	0.05		0.05	5.00	0.65	5.65	2.18	0.10		0.10	12	0.46%	0.013	2.43	3.09	0.04	121	57.13	56.57	ok	Existing
"L" 685+43.24	"L" 685+82.29	0.04	0.90	0.04		0.04	5.00	0.20	5.20	2.25	0.08		0.08	12	0.51%	0.013	2.56	3.25	0.03	39	55.99	55.79	ok	
"L" 685+82.29	"L" 686+46.66	0.10	0.90	0.09		0.13	5.20	0.34	5.54	2.20	0.28		0.28	12	0.51%	0.013	2.54	3.23	0.11	65	55.67	55.34	ok	
"L" 688+78.02	"L" 687+36.94	0.28	0.90	0.25		0.25	5.00	0.36	5.36	2.22	0.56		0.56	12	2.09%	0.013	5.15	6.55	0.11	141	62.99	60.05	ok	
"L" 687+36.94	"L" 686+46.66	0.23	0.90	0.21		0.46	5.36	0.15	5.50	2.20	1.01		1.01	12	5.01%	0.013	7.99	10.16	0.13	89	60.05	55.59	ok	
"L" 686+46.66	"L" 685+99.03	0.14	0.90	0.13		0.71	5.54	0.43	5.96	2.14	1.52		1.52	12	0.51%	0.013	2.54	3.23	0.60	83	55.09	54.67	ok	Existing
"L" 685+99.03	"L" 686+60.59	0.37	0.90	0.33		1.09	5.96	0.33	6.29	2.11	2.29		2.29	12	0.49%	0.013	2.50	3.18	0.92	63	54.67	54.36	ok	
"L" 686+60.59	"L" 688+92.74	0.00	0.90	0.00		1.09	6.29	1.19	7.48	1.98	2.15		2.15	12	0.50%	0.013	2.53	3.22	0.85	230	54.36	53.20	ok	
"L" 688+92.74	"L" 690+47.07	0.19	0.90	0.17		1.26	7.48	0.79	8.27	1.91	2.41		2.41	12	0.50%	0.013	2.52	3.21	0.95	152	53.20	52.44	ok	
"L" 690+48.91	"L" 690+47.07	0.53	0.90	0.48		0.48	5.00	0.07	5.07	2.26	1.08		1.08	12	8.21%	0.013	10.23	13.00	0.11	58	66.01	61.25	ok	Existing
"L" 690+47.07	"L" 691+70.34	0.45	0.90	0.41		2.14	8.27	0.48	8.75	1.87	4.00		4.00	18	0.50%	0.013	7.41	4.19	0.54	121	51.92	51.32	ok	
"L" 691+70.34	"L" 691+62.42	0.00	0.90	0.00		3.18	8.75	0.05	8.80	1.86	5.90		5.90	18	15.31%	0.013	41.18	23.27	0.14	68	51.32	40.91	ok	
"L" 691+62.42	Outfall		0.90	0.00	0.50	1.59	8.80	0.32	9.12	1.83	2.91		2.91	18	5.29%	0.013	24.21	13.68	0.12	263	43.91	29.99	ok	Diversion fraction TBD
"L" 691+62.42	"L" 691+61.83		0.90	0.00	0.50	1.59	8.80	0.06	8.86	1.86	2.95		2.95	18	0.50%	0.013	7.44	4.21	0.40	14	40.71	40.64	ok	Diversion fraction TBD
"L" 691+61.83	Swale		0.90	0.00		1.59	8.86	0.03	8.88	1.86	2.95		2.95	18	1.36%	0.013	12.29	6.95	0.24	11	40.64	40.49	ok	

I-205 CW: Phase 1 - Hilltop to OR43
Preliminary Design Conveyance Calculations

Station From	Station To	Hydrology												Pipe Design									Comments	
		Area (acres)	C	CA	F (for diversion MH)	sum CA	Tc to from STA (min)	Tc in pipe (min)	sum Tc (min)	I (in/hr)	Q (cfs)	Addt'l Inflow* (cfs)	Total Q (cfs)	Diameter (inch)	Slope	Manning's n	Capacity (cfs)	Velocity (fps)	Q/Qf	Length (feet)	Invert Elevation US	Invert Elevation DS		
"Ls" 792+31.61	"Ls" 789+49.56	0.57	0.90	0.51		0.51	5.00	0.95	5.95	2.14	1.10		1.10	12	1.21%	0.013	3.92	4.99	0.28	283	281.51	278.09	ok	
"Ls" 789+49.56	"Ls" 789+49.28	0.41	0.90	0.37		0.88	5.95	0.04	5.99	2.14	1.89		1.89	12	1.43%	0.013	4.27	5.42	0.44	14	277.89	277.69	ok	
"Ls" 789+49.28	"Ls" 786+96.91	0.00	0.90	0.00		0.88	5.99	0.70	6.69	2.06	1.82		1.82	12	1.75%	0.013	4.72	6.00	0.38	252	277.49	273.09	ok	
"Ls" 786+96.91	"Ls" 784+59.81	0.34	0.90	0.31		1.19	6.69	0.59	7.28	1.99	2.37		2.37	12	2.19%	0.013	5.28	6.72	0.45	237	272.94	267.75	ok	
"Ls" 784+59.81	"Ls" 782+17.89	0.34	0.90	0.31		1.49	7.28	0.54	7.82	1.95	2.91		2.91	12	2.72%	0.013	5.89	7.48	0.49	242	267.61	261.03	ok	
"Ls" 782+17.89	Lsc2_779+44.19	0.33	0.90	0.30		1.79	7.82	0.60	8.41	1.89	3.39		3.39	12	2.94%	0.013	6.12	7.78	0.55	279	260.90	252.70	ok	
Lsc2_779+44.19	Lsc2_776+67.90	0.40	0.90	0.36		2.15	8.41	0.59	9.01	1.84	3.96		3.96	12	2.94%	0.013	6.12	7.78	0.65	277	252.57	244.43	ok	
Lsc2_776+67.90	Lsc2_773+93.32	0.35	0.90	0.32		2.47	9.01	0.59	9.60	1.81	4.45		4.45	12	2.94%	0.013	6.12	7.78	0.73	275	244.30	236.21	ok	
Lsc2_773+93.32	Lsc2_771+42.83	0.40	0.90	0.36		2.83	9.60	0.55	10.14	1.76	4.98		4.98	12	2.85%	0.013	6.02	7.66	0.83	251	236.08	228.93	ok	
Lsc2_771+42.83	"Lc2" 768+40.11	0.37	0.90	0.33		3.16	10.14	0.65	10.80	1.72	5.44		5.44	12	2.87%	0.013	6.05	7.69	0.90	302	228.80	220.13	ok	
"Lc2" 768+40.11	"Lc2" 766+31.15	0.41	0.90	0.37		3.53	10.80	0.34	11.14	1.70	5.98		5.98	18	2.88%	0.013	17.87	10.10	0.33	207	220.00	214.03	ok	
"Lc2" 766+31.15	"Lc2" 763+56.41	0.29	0.90	0.26		3.79	11.14	0.45	11.59	1.68	6.35		6.35	18	2.90%	0.013	17.93	10.13	0.35	272	213.90	206.01	ok	
"Lc2" 763+56.41	"Lc2" 762+11.78	0.39	0.90	0.35		4.14	11.59	0.24	11.83	1.66	6.87		6.87	18	2.79%	0.013	17.58	9.94	0.39	143	205.87	201.88	ok	
"Lc2" 762+11.78	"Lc2" 761+22.45	0.20	0.90	0.18		4.32	11.83	0.13	11.96	1.66	7.15		7.15	18	3.66%	0.013	20.13	11.38	0.36	91	201.78	198.45	ok	
"Lc2" 761+22.45	"Lc2" 760+48.66			0.00		4.32	60.00	0.09	60.09	0.58	2.51	27.1	29.61	24	3.08%	0.013	39.81	12.66	0.74	71	198.49	196.30	ok	Offsite Basin B
"Lc2" 760+48.19	"Lc2" 760+48.41	0.90	0.90	0.81		0.81	5.00	0.09	5.09	2.26	1.83		1.83	12	5.79%	0.013	8.59	10.92	0.21	61	200.42	196.89	ok	Verify upstream IE
"Lc2" 760+48.41	"Lc2" 760+48.66	0.23	0.90	0.21		1.02	5.09	0.01	5.10	2.26	2.30		2.30	12	14.14%	0.013	13.42	17.07	0.17	7	196.89	195.90	ok	
"Lc2" 760+48.66	"Lc2" 756+54.84	0.00	0.90	0.00		52.06	60.09	0.55	60.65	0.58	30.20		30.20	24	2.66%	0.013	36.98	11.75	0.82	389	195.90	185.55	ok	Existing; converted SBUH flow to rational
"Lc2" 758+50.00	Ditch	0.29	0.90	0.26		0.26	5.00	0.07	5.07	2.26	0.59		0.59	8	2.68%	0.013	1.98	5.67	0.30	25	192.17	191.50	ok	
"Lc2" 756+51.40	"Lc2" 756+52.77	0.56	0.90	0.50		0.50	5.00	0.16	5.16	2.25	1.13		1.13	12	2.27%	0.013	5.37	6.83	0.21	64	187.00	185.55	ok	Verify existing IE
"Lc2" 756+52.77	"Lc2" 756+54.84	0.26	0.90	0.23		0.74	5.16	0.01	5.16	2.25	1.66		1.66	12	5.00%	0.013	7.98	10.15	0.21	4	185.55	185.35	ok	Verify existing IE
"Lc2" 756+54.84	"Lc2" 753+92.91	0.00	0.90	0.00		52.80	60.65	0.38	61.03	0.58	30.62		30.62	24	2.46%	0.013	35.58	11.31	0.86	259	185.35	178.97	ok	
"Lc2" 753+83.29	"Lc2" 753+93.62	0.32	0.90	0.29		0.29	5.00	0.05	5.05	2.26	0.65		0.65	12	0.50%	0.013	2.52	3.21	0.26	10	182.03	181.98	ok	
"Lc2" 753+93.62	"Lc2" 753+97.90	0.00	0.90	0.00		0.29	5.05	0.11	5.17	2.25	0.65		0.65	12	4.90%	0.013	7.90	10.04	0.08	69	182.96	179.58	ok	Verify existing IE
"Lc2" 753+97.90	"Lc2" 753+92.91	0.43	0.90	0.39		0.68	5.17	0.06	5.23	2.23	1.51		1.51	12	0.25%	0.013	1.78	2.27	0.84	8	179.58	179.56	ok	Verify existing IE
"Lc2" 753+92.91	"Lc2" 750+45.82	0.00	0.90	0.00		53.47	61.03	0.51	61.54	0.58	31.02		31.02	24	2.46%	0.013	35.58	11.31	0.87	347	178.97	170.42	ok	
"Lc2" 750+46.08	"Lc2" 750+44.15	0.35	0.90	0.32		0.32	5.00	0.31	5.31	2.22	0.70		0.70	12	0.47%	0.013	2.46	3.13	0.28	59	171.49	171.21	ok	Verify existing IE
"Lc2" 750+44.15	"Lc2" 750+45.82	0.15	0.90	0.14		0.45	5.31	0.01	5.32	2.22	1.00		1.00	12	11.29%	0.013	11.99	15.25	0.08	7	171.21	170.42	ok	Verify existing IE
"Lc2" 750+45.82	"Lc2" 747+39.45	0.00	0.90	0.00		53.92	61.54	0.37	61.91	0.58	31.28		31.28	36	2.15%	0.013	98.00	13.85	0.32	308	170.32	163.70	ok	
"Lc2" 747+39.13	"Lc2" 747+39.45	0.14	0.90	0.13		0.13	5.00	0.01	5.01	2.26	0.28		0.28	8	27.29%	0.013	6.32	18.09	0.05	7	165.61	163.70	ok	Verify existing IE
"Lc2" 747+39.45	"L" 744+94.33_EXTG	0.00	0.90	0.00		54.05	61.91	0.30	62.21	0.58	31.35		31.35	36	2.10%	0.013	96.92	13.69	0.32	244	163.7	158.57	ok	
"C4" 744+91.18	"L" 744+94.33_EXTG	0.12	0.90	0.11		0.11	5.00	0.02	5.02	2.26	0.24		0.24	12	2.63%	0.013	5.78	7.35	0.04	8	163.71	163.5	ok	
"L" 742+95.62_EXTG	"L" 742+96.87_EXTG	0.12	0.90	0.11		0.11	20.00	0.01	20.01	1.29	0.14	8.38	8.52	18	8.29%	0.013	30.30	17.12	0.28	7	160.58	160.00	ok	Offsite Basin A
"L" 744+94.33_EXTG	"L" 742+96.87_EXTG		0.90	0.00		54.16	62.21	0.29	62.49	0.58	31.41		31.41	36	1.52%	0.013	82.47	11.65	0.38	201	157.60	154.54	ok	
"L" 742+96.87_EXTG	"L" 741+99.97		0.90	0.00	0.35	21.27	62.49	0.31	62.81	0.58	12.33		12.33	18	2.50%	0.013	16.64	9.40	0.74	176	154.40	150.00	ok	Converted SBUH flow to rational
"L" 742+96.87_EXTG	"C4" 739+98.82_EXTG		0.90	0.00	0.65	39.50	62.49	0.27	62.76	0.58	22.91		22.91	36	3.77%	0.013	129.80	18.34	0.18	297	154.44	143.24	ok	Converted SBUH flow to rational
"C4" 739+98.82_EXTG	"C4" 736+32.28_EXTG	0.18	0.90	0.16		39.66	62.76	0.28	63.04	0.58	23.00		23.00	36	5.20%	0.013	152.39	21.53	0.15	364	143.14	124.22	ok	
"C4" 736+32.28_EXTG	"OR43" 6+05.93	0.22	0.90	0.20		39.86	63.04	0.19	63.23	0.58	23.12		23.12	36	3.30%	0.013	121.38	17.15	0.19	195	124.14	117.71	ok	
"OR43" 6+00.95	"OR43" 6+05.93	0.11	0.90	0.10		0.10	5.00	0.07	5.07	2.26	0.22		0.22	12	0.54%	0.013	2.62	3.33	0.09	13	119.01	118.94	ok	
"OR43" 6+05.93	"OR43" 5+96.78		0.90	0.00		39.95	63.23	0.07	63.30	0.58	23.17		23.17	36	0.89%	0.013	62.91	8.89	0.37	35	117.51	117.20	ok	
"OR43" 5+30.45	"OR43" 5+40.27	0.07	0.90	0.06		0.06	5.00	0.02	5.02	2.26	0.14		0.14	12	3.09%	0.013	6.28	7.98	0.02	11	119.04	118.70	ok	
"OR43" 5+40.27	"OR43" 5+96.78	0.07	0.90	0.06		0.13	5.02	0.21	5.23	2.23	0.28		0.28	12	1.15%	0.013	3.82	4.86	0.07	61	118.70	118.00	ok	
"L" 742+00.34	"L" 741+97.14	0.35	0.90	0.32		0.32	5.00	0.09	5.09	2.26	0.71		0.71	12	7.56%	0.013	9.82	12.48	0.07	71	155.60	150.23	ok	
"L" 741+97.14	"L" 741+99.97	0.37	0.90	0.33		0.65	5.09	0.06	5.15	2.25	1.46		1.46	12	0.45%	0.013	2.41	3.06	0.61	11	150.05	150.00	ok	
"L" 741+99.97	"L" 741+50.10		0.90	0.00		21.91	62.81	0.16	62.96	0.58	12.71		12.71	24	0.50%	0.013	16.03	5.10	0.79	48	149.90	149.66	ok	
"L" 741+50.10	"B4" 741+73.00		0.90	0.00	0.92	20.23	62.96	0.05	63.01	0.58	11.73		11.73	24	11.59%	0.013	77.17	24.53	0.15	68	149.46	141.58	ok	
"L" 741+50.10	"L" 739+65.94		0.90	0.00	0.08	1.69	62.96	0.58	63.54	0.58	0.98		0.98	24	0.50%	0.013	16.03	5.10	0.06	178	149.50	148.61	ok	
"Lc2" 744+45.59	"Lc2" 744+40.37	0.44	0.90	0.40		0.40	5.00	0.10	5.10	2.26	0.89		0.89	12	5.69%	0.013	8.52	10.83	0.11	62	157.47	153.94	ok	
"Lc2" 744+40.37	"B4" 744+40.80	0.04	0.90	0.04		0.43	5.10	0.07	5.16	2.25	0.97		0.97	12	4.37%	0.013	7.46	9.49	0.13	38	153.94	152.28	ok	
"B4" 744+40.80	"B4" 744+39.54	0.76	0.90	0.68		1.12	5.16	0.05	5.21	2.23	2.49		2.49	12	1.20%	0.013	3.91	4.97	0.64	15	154.17	153.99	ok	
"WA3" 741+97.36	"WA3" 741+95.19	0.16	0.90	0.14		0.14	5.00	0.11	5.11	2.25	0.32		0.32	12	2.00%	0.013	5.05	6.42	0.06	44	166.01	165.13	ok	
"WA3" 741+95.19	"B4" 744+39.54	0.21	0.90	0.19		0.33	5.11	0.04	5.15	2.25	0.75		0.75	12	21.20%	0.013	16.43	20.89	0.05	46	165.13	155.38	ok	
"Ln" 791+33.97	Ditch	0.51	0.90	0.46		0.46	5.00	0.05	5.05	2.26	1.04		1.04	12	0.77%	0.013	3.13	3.98	0.33	13	275.20	275.10	ok	
"Ln" 790+01.30	Ditch	0.17	0.90	0.15		0.15	5.00	0.02	5.02	2.26	0.35		0.35	12	3.85%	0.013	7.00	8.90	0.05	13	273.60	273.10	ok	
"Ln" 788+26.84	"Ln" 788+16.53	0.24	0.90	0.22		0.22	5.00	0.03	5.03	2.26	0.49		0.49	12	1.20%	0.013	3.91	4.97	0.12	10	270.62	270.50	ok	
"Ln" 788+16.53	Ditch	0.00	0.90	0.00		0.22	5.03	0.05	5.08	2.26	0.49		0.49	12	0.92%	0.013	3.42	4.35	0.14	12	270.50	270.39	ok	
"Ln" 783+68.80	"Ln" 783+66.59	0.00	0.90	0.00		0.83	9.29	0.22	9.51	1.81	1.49		1.49	18	1.25%	0.013	11.77	6.65	0.13	88	261.19	260.09	ok	Ditch travel time added
"Ln" 783+66.59	"Ln" 783+65.66	0.77	0.90	0.69		1.52	9.51	0.04	9.55	1.81	2.75		2.75	18	0.83%	0.013	9.61	5.43	0.29	12	258.95	258.85	ok	
"Ln" 783+65.66	"Ln" 782+13.00	0.00	0.90	0.00		1.52	9.55	0.26	9.81	1.78	2.71		2.71	18	2.63%	0.013	17.08	9.65	0.16	153	258.85	254.82	ok	
"Ln" 782+13.41	"Ln" 782+13.00	0.32	0.90	0.29		0.29	5.00	0.02	5.02	2.26	0.65		0.65	12	4.92%	0.013	7.91	10.06	0.08	12	257.41	256.82	ok	
"Ln" 782+13.00	"Ln" 780+59.25	0.00	0.90	0.00		1.81	9.81	0.26	10.08	1.77	3.20		3.20	18	2.46%	0.013	16.51	9.33	0.19	148	254.62	250.98	ok	
"Lnc" 780+60.09	"Lnc" 780+59.25	0.26	0.90	0.23		0.23	5.00	0.02	5.02	2.26	0.53		0.53	12	6.67%	0.013	9.22	11.72	0.06	12	253.68	252.88	ok	
"Lnc" 780+59.25	"Lnc" 777+58.88	0.00	0.90	0.00		2.04	10.08	0.51	10.59	1.74	3.54		3.54	18	2.69%	0.013	17.26	9.76	0.21	300	250.78	242.71	ok	
"Lnc" 777+59.72	"Lnc" 777+58.88	0.53	0.90	0.48		0.48	5.00	0.01	5.01	2.26	1.08		1.08	12	24.36%	0.013	17.62	22.40	0.06	11	245.39	242.71	ok	
"Lnc" 777+58.88	"Lnc" 774+57.81	0.00	0.90	0.00		2.52	10.59	0.62	11.21	1.69	4.26		4.26	18	1.85%	0.013	14.33	8.10	0.30	301	242.51	236.93	ok	
"Lnc" 774+57.81	"Lnc" 771+56.27	0.45	0.90	0.41		2.93	11.21	0.52	11.73	1.67	4.87		4.87	18	2.68%	0.013	17.23	9.74	0.28	301	236.73	228.66	ok	
"Lnc" 771+56.27	"Lc2" 768+55.24	0.40	0.90	0.36		3.29	11.73	0.50	12.23	1.64	5.39		5.39	18	2.81%	0.013	17.64	9.97	0.31	301	228.46	220.00	ok	
"Lc2" 768+55.24	"Lc2" 766+67.81	0.46	0.90	0.41		3.70	12.23	0.35	12.58	1.63	6.01		6.01	18	2.35%	0.013	16.13	9.12	0.37	189	219.80	215.36	ok	

Station From	Station To	Hydrology												Pipe Design									Comments
		Area (acres)	C	CA	F (for diversion MH)	sum CA	Tc to from STA (min)	Tc in pipe (min)	sum Tc (min)	I (in/hr)	Q (cfs)	Addt'l Inflow* (cfs)	Total Q (cfs)	Diameter (inch)	Slope	Manning's n	Capacity (cfs)	Velocity (fps)	Q/Qf	Length (feet)	Invert Elevation US	Invert Elevation DS	
"Lc2" 766+67.81	Riprap pad	0.34	0.90	0.31		4.01	12.58	0.62	13.20	1.60	6.39		6.39	18	2.08%	0.013	15.19	8.59	0.42	321	215.16	208.47	ok
"L" 749+26.39	Riprap pad	0.68	0.90	0.61		0.61	5.00	0.05	5.05	2.26	1.38		1.38	12	1.00%	0.013	3.57	4.54	0.39	14	166.21	166.07	ok
"Lc2" 747+79.20	"L" 747+99.34	0.32	0.90	0.29		0.29	5.00	0.17	5.17	2.25	0.65		0.65	12	2.99%	0.013	6.17	7.84	0.10	81	164.15	161.73	ok
"L" 747+99.34	Riprap pad	0.23	0.90	0.21		0.50	5.17	0.06	5.24	2.23	1.11		1.11	12	0.94%	0.013	3.46	4.40	0.32	17	161.73	161.57	ok
"B4" 744+39.54_DITCH	"B4" 743+31.78	0.00	0.90	0.00		6.56	17.54	0.13	17.66	1.42	9.29		9.29	24	3.84%	0.013	44.42	14.12	0.21	106	154.02	149.95	ok
"B4" 743+31.78	"B4" 741+73.01	0.38	0.90	0.34		6.90	17.66	0.16	17.82	1.42	9.77		9.77	24	4.51%	0.013	48.16	15.31	0.20	148	143.68	137	ok
"B4" 741+73.00	"B4" 741+73.01	0.10	0.90	0.09		20.32	63.01	0.02	63.03	0.58	11.78		11.78	24	3.33%	0.013	41.39	13.16	0.28	15	139.5	139	ok
"B4" 741+73.01	"B4" 740+19.00		0.90	0.00		27.22	63.03	0.15	63.18	0.58	15.79		15.79	24	4.69%	0.013	49.09	15.61	0.32	145	137	130.2	ok
"B4" 740+19.01	"B4" 740+19.00	0.11	0.90	0.10		0.10	5.00	0.02	5.02	2.26	0.22		0.22	12	7.14%	0.013	9.54	12.13	0.02	14	132.2	131.2	ok
"B4" 740+19.00	"B4" 739+10.44		0.90	0.00		27.32	63.18	0.11	63.29	0.58	15.85		15.85	24	4.30%	0.013	46.99	14.94	0.34	101	130.20	125.86	ok
"B4" 739+13.79	"B4" 739+10.44	0.07	0.90	0.06		0.06	5.00	0.06	5.06	2.26	0.14		0.14	12	1.86%	0.013	4.86	6.18	0.03	21	129.05	128.66	ok
"B4" 739+10.44	"E3" 739+15.44		0.90	0.00		27.38	63.29	0.54	63.83	0.58	15.88		15.88	24	0.61%	0.013	17.70	5.63	0.90	182	126.41	125.3	ok
"E3" 739+15.44	"OR43" 12+64.91	0.28	0.90	0.25		27.63	63.83	0.17	64.00	0.58	16.03		16.03	24	1.46%	0.013	27.40	8.71	0.59	89	125.30	124.00	ok
"OR43" 12+64.91	"OR43" 12+35.36		0.90	0.00	0.00	0	64.00	0.06	64.07	0.58	0.00		0.00	24	3.04%	0.013	39.55	12.57	0.00	46	123.90	122.50	ok
"OR43" 12+64.91	"OR43" 12+49.77		0.90	0.00	1.00	27.63	64.00	0.05	64.05	0.58	16.03		16.03	24	0.95%	0.013	22.12	7.03	0.72	21	123.90	123.70	ok
"OR43" 12+49.77	"OR43" 12+35.14		0.90	0.00	0.00	0	64.05	0.07	64.13	0.58	0.00		0.00	12	0.63%	0.013	2.82	3.59	0.00	16	123.70	123.60	ok
"OR43" 12+49.77	"OR43" 12+15.17		0.90	0.00	1.00	27.63	64.05	0.12	64.18	0.58	16.03		16.03	24	0.96%	0.013	22.23	7.07	0.72	52	123.30	122.80	ok
"L" 739+68.75_EXTG	"L" 739+69.26	0.33	0.90	0.30		0.30	5.00	0.12	5.12	2.25	0.67		0.67	12	4.09%	0.013	7.22	9.18	0.09	66	154.16	151.46	ok
"L" 739+69.26	"L" 739+65.94	0.32	0.90	0.29		0.59	5.12	0.02	5.14	2.25	1.31		1.31	12	4.58%	0.013	7.64	9.72	0.17	12	151.55	151.00	ok
"L" 739+65.94	"L" 737+92.84		0.90	0.00		2.27	63.54	0.55	64.09	0.58	1.32		1.32	24	0.50%	0.013	16.03	5.10	0.08	168	148.54	147.70	ok
"L" 735+83.55	"L" 735+83.86	0.20	0.90	0.18		0.18	5.00	0.14	5.14	2.25	0.40		0.40	12	2.19%	0.013	5.29	6.72	0.08	57	150.26	149.01	ok
"L" 735+83.86	"L" 737+34.33	0.29	0.90	0.26		0.44	5.14	0.59	5.73	2.17	0.96		0.96	18	0.50%	0.013	7.44	4.21	0.13	148	149.01	148.27	ok
"L" 737+37.54_EXTG	"L" 737+34.33	0.30	0.90	0.27		0.27	5.00	0.13	5.13	2.25	0.61		0.61	12	2.64%	0.013	5.80	7.38	0.10	59	150.03	148.47	ok
"L" 737+34.33	"L" 737+92.84	0.29	0.90	0.26		0.71	5.73	0.23	5.96	2.14	1.52		1.52	18	0.50%	0.013	7.44	4.21	0.20	58	148.01	147.72	ok
"L" 737+92.84	Swale 8		0.90	0.00		2.98	64.09	0.15	64.25	0.58	1.73		1.73	21	0.48%	0.013	10.96	4.55	0.16	42	147.70	147.50	ok
"B4" 738+92.17_DITCH	"B4" 738+75.49_DITCH		0.90	0.00		2.98	64.25	0.03	64.28	0.58	1.73		1.73	18	2.63%	0.013	17.07	9.65	0.10	19	141.50	141.00	ok
"B4" 738+75.49_DITCH	"E3" 738+62.32_DITCH		0.90	0.00		2.98	64.28	0.02	64.30	0.58	1.73		1.73	18	5.26%	0.013	24.15	13.65	0.07	19	141.00	140.00	ok
"E3" 738+62.32_DITCH	"E3" 738+61.43		0.90	0.00		2.98	64.30	0.04	64.34	0.58	1.73		1.73	18	5.07%	0.013	23.70	13.39	0.07	29	138.47	137.00	ok
"E3" 738+61.43	"E3" 738+63.13		0.90	0.00		2.98	64.34	0.08	64.42	0.58	1.73		1.73	18	4.60%	0.013	22.58	12.76	0.08	63	131.90	129.00	ok
"E3" 738+63.13	"OR43" 12+15.17		0.90	0.00		2.98	64.42	0.10	64.53	0.58	1.73		1.73	18	5.47%	0.013	24.60	13.90	0.07	86	127.80	123.10	ok
"OR43" 12+15.17	"OR43" 8+90.34		0.90	0.00		30.62	64.53	0.42	64.95	0.58	17.76		17.76	24	1.58%	0.013	28.53	9.07	0.62	231	122.80	119.14	ok
"OR43" 12+35.14	Swale 7		0.90	0.00		0	64.13	0.02	64.15	0.58	0.00		0.00	12	4.55%	0.013	7.61	9.68	0.00	11	124.00	123.50	ok
"OR43" 9+50.68_DITCH	"OR43" 9+52.79_DITCH		0.90	0.00		0	64.15	0.06	64.21	0.58	0.00		0.00	18	0.47%	0.013	7.19	4.06	0.00	15	118.68	118.61	ok
"OR43" 9+52.79_DITCH	"OR43" 8+90.34		0.90	0.00		0	64.21	0.24	64.45	0.58	0.00		0.00	18	0.50%	0.013	7.44	4.21	0.00	60	118.61	118.31	ok
"OR43" 8+90.34	"OR43" 7+06.05		0.90	0.00		30.62	64.95	0.50	65.45	0.51	15.46		15.46	30	0.50%	0.013	29.15	5.93	0.53	179	118.31	117.41	ok
"OR43" 7+06.05	"OR43" 5+96.78		0.90	0.00		30.62	65.45	0.31	65.76	0.51	15.46		15.46	30	0.50%	0.013	29.20	5.94	0.53	109	117.41	116.86	ok
"OR43" 5+96.78	Outfall		0.90	0.00		70.70	65.76	0.05	65.81	0.51	35.70		35.70	36	8.38%	0.013	193.52	27.34	0.18	89	118.16	110.70	ok
"B4" 736+95.67	"OR43" 12+35.36	0.13	0.90	0.12		0.12	5.00	0.21	5.21	2.23	0.26		0.26	18	3.58%	0.013	19.91	11.25	0.01	142	127.58	122.50	ok
"OR43" 12+35.36	"OR43" 11+11.99	0.14	0.90	0.13		0.24	64.07	0.33	64.39	0.58	0.14		0.14	24	0.53%	0.013	16.56	5.27	0.01	103	122.3	121.75	ok
"OR43" 11+11.99	"OR43" 10+02.36	0.06	0.90	0.05		0.30	64.39	0.31	64.70	0.58	0.17		0.17	24	0.49%	0.013	15.94	5.07	0.01	93	121.75	121.29	ok
"OR43" 7+11.01	"OR43" 7+59.10	0.15	0.90	0.14		0.14	5.00	0.25	5.25	2.23	0.30		0.30	12	0.50%	0.013	2.52	3.21	0.12	48	118.98	118.74	ok
"OR43" 7+59.10	"OR43" 8+41.86	0.25	0.90	0.23		0.36	5.25	0.41	5.65	2.18	0.79		0.79	12	0.50%	0.013	2.52	3.21	0.31	78	118.74	118.35	ok
"OR43" 8+41.86	"OR43" 9+35.10	0.16	0.90	0.14		0.50	5.65	0.46	6.11	2.12	1.07		1.07	12	0.51%	0.013	2.54	3.23	0.42	89	118.35	117.90	ok
"OR43" 9+35.10	"OR43" 10+02.36	0.10	0.90	0.09		0.59	6.11	0.31	6.42	2.08	1.24		1.24	12	0.49%	0.013	2.50	3.18	0.49	59	117.90	117.61	ok
"OR43" 10+02.36	"OR43" 10+29.84	0.21	0.90	0.19		1.08	6.42	0.35	6.78	2.05	2.21		2.21	24	0.50%	0.013	16.03	5.10	0.14	108	117.61	117.07	ok
"OR43" 13+61.62	"OR43" 13+49.43	0.24	0.90	0.22		0.22	5.00	0.06	5.06	2.26	0.49		0.49	12	0.50%	0.013	2.52	3.21	0.19	12	120.20	120.14	ok
"OR43" 13+49.43	"OR43" 13+39.72		0.90	0.00		0.22	5.06	0.06	5.12	2.25	0.49		0.49	12	0.50%	0.013	2.52	3.21	0.19	12	120.14	120.08	ok
"OR43" 13+39.72	"OR43" 12+62.73	0.21	0.90	0.19		0.41	5.12	0.29	5.42	2.21	0.89		0.89	12	0.51%	0.013	2.55	3.24	0.35	57	120.08	119.79	ok
"OR43" 12+62.73	"OR43" 10+29.84	0.12	0.90	0.11		0.51	5.42	1.41	6.83	2.03	1.04		1.04	12	0.50%	0.013	2.52	3.20	0.41	271	119.79	118.44	ok
"D2" 733+38.11	"D2" 733+64.02	0.35	0.90	0.32		0.32	5.00	0.10	5.10	2.26	0.71		0.71	12	1.00%	0.013	3.57	4.54	0.20	26	120.08	119.82	ok
"D2" 733+64.02	"D2" 733+92.05	0.02	0.90	0.02		0.33	5.10	0.07	5.16	2.25	0.75		0.75	12	2.21%	0.013	5.31	6.75	0.14	28	119.82	119.2	ok
"D2" 733+92.05	"D2" 733+73.30	0.02	0.90	0.02		0.35	5.16	0.18	5.35	2.22	0.78		0.78	18	0.51%	0.013	7.52	4.25	0.10	47	119.20	118.96	ok
"OR43" 6+45.95_EXTG	"D2" 733+73.30	0.14	0.90	0.13		0.13	5.00	0.13	5.13	2.25	0.28		0.28	12	0.61%	0.013	2.78	3.54	0.10	28	119.37	119.20	ok
"D2" 733+73.30	"OR43" 7+02.39		0.90	0.00		0.48	5.35	0.26	5.61	2.18	1.04		1.04	18	0.50%	0.013	7.44	4.21	0.14	66	118.96	118.63	ok
"OR43" 7+02.39	"OR43" 9+31.77		0.90	0.00		0.48	5.61	0.95	6.56	2.07	0.99		0.99	18	0.50%	0.013	7.46	4.21	0.13	239	118.63	117.43	ok
"OR43" 9+31.77	"OR43" 10+29.84		0.90	0.00		0.48	6.56	0.44	6.99	2.02	0.96		0.96	18	0.50%	0.013	7.48	4.22	0.13	111	117.43	116.87	ok
"OR43" 10+29.84	"OR43" 10+26.64		0.90	0.00		2.07	6.99	0.09	7.08	2.01	4.16		4.16	24	1.43%	0.013	27.12	8.62	0.15	44	115.63	115.00	ok
"OR43" 10+26.64	Swale 6		0.90	0.00		2.07	7.08	0.06	7.13	2.00	4.14		4.14	24	0.56%	0.013	16.90	5.37	0.25	18	112.5	112.4	ok
"OR43" 8+90.90_DITCH	"OR43" 9+05.27_DITCH		0.90	0.00		2.07	7.13	0.05	7.19	2.00	4.14		4.14	24	0.90%	0.013	21.56	6.85	0.19	21	104.99	104.80	ok
"OR43" 9+05.27_DITCH	FREE_EXT		0.90	0.00		2.07	7.19	0.12	7.30	1.99	4.11		4.11	24	16.19%	0.013	91.22	29.00	0.05	203	101.32	68.45	ok

I-205 CW - SW Leg
Preliminary Design Conveyance Calculations

Station From	Station To	Hydrology: Area (acres)	C	CA	F (for diversion MH)	sum CA	Tc to from STA (min)	Tc in pipe (min)	sum Tc (min)	I (in/hr)	Q (cfs)	Addt'l Inflow (cfs)	Total Q (cfs)	Pipe Design: Diameter (inch)	Slope	Manning's n	Capacity (cfs)	Velocity (fps)	Q/Qf	Length (feet)	Invert Elevation US	Invert Elevation DS	Comments	
"Ln" 797+99.30	"Ln" 799+77.68	0.36	0.90	0.32		0.32	5.00	0.65	5.65	2.18	0.71		0.71	12	1.00%	0.013	3.57	4.54	0.20	177	274.5	272.73	ok	
"Ln" 799+77.68	"Ln" 802+79.53	0.25	0.90	0.23		0.55	5.65	1.05	6.70	2.05	1.12		1.12	12	1.10%	0.013	3.74	4.75	0.30	300	272.56	269.27	ok	
"Ln" 802+79.53	"Ln" 805+81.61	0.42	0.90	0.38		0.93	6.70	0.90	7.61	1.96	1.82		1.82	12	1.49%	0.013	4.35	5.53	0.42	300	269.1	264.64	ok	
"Ln" 805+81.61	"Ln" 808+83.32	0.49	0.90	0.44		1.37	7.61	0.90	8.51	1.89	2.58		2.58	12	1.49%	0.013	4.36	5.55	0.59	300	264.48	260.00	ok	
"Ln" 808+83.32	"Ln" 811+75.35	0.43	0.90	0.39		1.76	8.51	0.87	9.38	1.82	3.19		3.19	12	1.49%	0.013	4.36	5.55	0.73	290	259.84	255.51	ok	
"Ln" 811+75.35	"Ln" 811+85.08	0.00	0.90	0.00		1.76	9.38	0.02	9.40	1.81	3.18		3.18	12	2.70%	0.013	5.86	7.46	0.54	10	255.54	255.27	ok	
"Ls" 800+49.62	"Ls" 803+45.57	0.49	0.90	0.44		0.44	5.00	1.07	6.07	2.13	0.94		0.94	12	1.02%	0.013	3.60	4.58	0.26	293	280.7	277.72	ok	
"Ls" 803+45.57	"Ls" 806+00.75	0.41	0.90	0.37		0.81	6.07	0.77	6.83	2.03	1.65		1.65	12	1.48%	0.013	4.34	5.51	0.38	254	277.52	273.77	ok	
"Ls" 806+00.75	"Ls" 808+28.16	0.36	0.90	0.32		1.13	6.83	0.72	7.55	1.97	2.23		2.23	12	1.35%	0.013	4.14	5.26	0.54	226	273.57	270.53	ok	
"Ls" 808+28.16	"Ls" 811+02.95	0.32	0.90	0.29		1.42	7.55	0.71	8.26	1.91	2.72		2.72	12	1.98%	0.013	5.02	6.38	0.54	272	270.53	265.15	ok	
"Ls" 811+02.95	"Ln" 811+85.08	0.38	0.90	0.34		1.76	8.26	0.14	8.40	1.90	3.36		3.36	12	7.51%	0.013	9.78	12.44	0.34	104	264.95	257.14	ok	
"Ln" 811+85.08	MH1	0	0.90	0.00		3.52	9.40	0.27	9.67	1.80	6.33		6.33	18	0.49%	0.013	7.33	4.14	0.86	68	255.00	254.67	ok	
"Ls" 814+22.78	"Ls" 816+86.77	0.50	0.90	0.45		0.45	5.00	0.79	5.79	2.17	0.98		0.98	12	1.49%	0.013	4.35	5.54	0.22	262	260.70	256.80	ok	
"Ls" 816+86.77	"Ls" 819+90.29	0.42	0.90	0.38		0.83	5.79	0.88	6.66	2.06	1.70		1.70	12	1.59%	0.013	4.51	5.73	0.38	301	256.80	252.00	ok	
"Ls" 819+90.29	"Ls" 822+92.01	0.47	0.90	0.42		1.25	6.66	0.95	7.62	1.96	2.45		2.45	12	1.33%	0.013	4.12	5.24	0.60	300	252.00	248.00	ok	
"Ls" 822+92.01	"Ls" 825+92.20	0.44	0.90	0.40		1.65	7.62	0.84	8.46	1.89	3.12		3.12	12	1.71%	0.013	4.67	5.93	0.67	300	248.00	242.87	ok	
"Ls" 825+92.20	"Ln" 826+94.48	0.39	0.90	0.35		2.00	8.46	0.14	8.60	1.88	3.75		3.75	12	7.75%	0.013	9.93	12.63	0.38	106	242.67	234.46	ok	
"Ln" 814+87.95	"Ln" 817+90.21	0.43	0.90	0.39		0.39	5.00	0.92	5.92	2.14	0.83		0.83	12	1.43%	0.013	4.27	5.43	0.19	300	249.83	245.54	ok	
"Ln" 817+90.21	"Ln" 820+92.09	0.42	0.90	0.38		0.77	5.92	0.94	6.86	2.03	1.56		1.56	12	1.36%	0.013	4.17	5.30	0.37	300	245.34	241.25	ok	
"Ln" 820+92.09	"Ln" 823+93.70	0.42	0.90	0.38		1.14	6.86	0.93	7.80	1.95	2.23		2.23	12	1.40%	0.013	4.22	5.36	0.53	300	241.05	236.86	ok	
"Ln" 823+93.70	"Ln" 825+93.38	0.41	0.90	0.37		1.51	7.80	0.62	8.42	1.89	2.86		2.86	12	1.40%	0.013	4.22	5.36	0.68	199	236.66	233.88	ok	
"Ln" 825+93.38	"Ln" 826+43.80	0.27	0.90	0.24		1.76	8.42	0.17	8.58	1.89	3.31		3.31	12	1.18%	0.013	3.88	4.93	0.85	50	233.68	233.09	ok	
"Ln" 826+43.80	"Ln" 826+94.48	0.07	0.90	0.06		1.82	8.58	0.16	8.75	1.87	3.39		3.39	12	1.35%	0.013	4.15	5.28	0.82	51	232.89	232.20	ok	
"Ln" 826+94.48	"Ln" 827+40.96	0.06	0.90	0.05		3.87	8.75	0.24	8.98	1.85	7.16		7.16	18	0.69%	0.013	8.74	4.94	0.82	71	232.00	231.51	ok	
"Ln" 827+40.96	"Ln2" 830+30.43	0.00	0.90	0.00		3.87	8.98	0.55	9.54	1.81	6.99		6.99	18	2.13%	0.013	15.38	8.69	0.45	289	231.51	225.34	ok	
"Ln2" 830+30.43	"Ln2" 833+06.36	0.46	0.90	0.41		4.28	9.54	0.49	10.03	1.77	7.58		7.58	18	2.47%	0.013	16.53	9.34	0.46	276	225.34	218.53	ok	
"Ln2" 833+06.36	"Ln2" 836+62.86	0.42	0.90	0.38		4.66	10.03	0.56	10.59	1.74	8.09		8.09	18	3.14%	0.013	18.64	10.54	0.43	355	218.53	207.39	ok	
"Ln2" 836+62.06	"Ln2" 836+62.86	0.51	0.90	0.46		0.46	5.00	0.02	5.02	2.26	1.04		1.04	12	6.83%	0.013	9.33	11.86	0.11	12	208.71	207.89	ok	
"Ln2" 836+62.86	"Ln2" 838+74.55	0			0.50	2.56	10.59	0.40	11.00	1.71	4.37		4.37	18	2.21%	0.013	15.65	8.84	0.28	214	207.19	202.46	ok	
"Ln2" 838+74.55	"Ln2" 841+52.35	0				2.56	11.00	0.57	11.56	1.68	4.29		4.29	18	1.87%	0.013	14.40	8.14	0.30	276	202.46	197.29	ok	
"Ln2" 838+75.93	"Ln2" 841+27.32	0.33	0.90	0.30		0.30	5.00	0.64	5.64	2.18	0.65		0.65	12	2.06%	0.013	5.12	6.51	0.13	250	203.99	198.84	ok	
"Ln2" 841+27.32	"Ln2" 843+27.33	0.41	0.90	0.37		0.67	5.64	0.54	6.18	2.12	1.41		1.41	12	1.81%	0.013	4.81	6.11	0.29	199	198.68	195.07	ok	
"Ln2" 843+27.33	"Ln2" 845+91.45	0.32	0.90	0.29		0.95	6.18	0.72	6.90	2.02	1.93		1.93	12	1.79%	0.013	4.78	6.07	0.40	263	194.91	190.20	ok	
"Ln2" 845+91.45	"A2" 847+43.18	0.49	0.90	0.44		1.40	6.90	0.47	7.37	1.99	2.77		2.77	12	1.39%	0.013	4.21	5.35	0.66	151	190.00	187.90	ok	
"A2" 847+43.18	"A2" 848+03.87	0.22	0.90	0.20		1.59	7.37	0.14	7.52	1.97	3.14		3.14	12	2.40%	0.013	5.53	7.03	0.57	60	187.70	186.26	ok	
"A2" 848+03.87	"A2" 848+80.88	0.04	0.90	0.04		1.63	7.52	0.21	7.73	1.95	3.18		3.18	12	1.75%	0.013	4.73	6.01	0.67	77	186.06	184.71	ok	
"A2" 848+80.88	"A2" 851+81.63	0.05	0.90	0.05		1.67	7.73	0.67	8.40	1.90	3.19		3.19	12	2.74%	0.013	5.91	7.52	0.54	301	184.51	176.25	ok	
"A2" 851+81.63	"A2" 852+00.51	0.18	0.90	0.16		1.84	8.40	0.08	8.48	1.89	3.48		3.48	12	1.35%	0.013	4.14	5.27	0.84	26	176.25	175.90	ok	
"Ln2" 852+00.03	"A2" 852+00.51	0.68	0.90	0.61		0.61	5.00	0.19	5.19	2.25	1.38		1.38	12	3.99%	0.013	7.13	9.07	0.19	105	180.52	176.33	ok	
"A2" 852+00.51	Ditch	0	0.90	0.00		2.45	8.48	0.13	8.61	1.88	4.59		4.59	18	4.64%	0.013	22.66	12.81	0.20	99	175.9	171.31	ok	
"Ls2" 828+24.24	"Ls2" 830+17.30	0.29	0.90	0.26		0.26	5.00	0.48	5.48	2.21	0.58		0.58	12	2.19%	0.013	5.28	6.72	0.11	193	238.99	234.76	ok	
"Ls2" 830+17.30	"Ls2" 831+48.88	0.26	0.90	0.23		0.50	5.48	0.43	5.91	2.14	1.06		1.06	12	1.26%	0.013	4.00	5.09	0.27	132	234.56	232.90	ok	
"Ls2" 831+48.88	"Ls2" 831+68.26	0.15	0.90	0.14		0.37	5.91	0.13	6.04	2.13	0.79		0.79	12	2.59%	0.013	5.74	7.30	0.14	58	232.70	231.20	ok	
"Ls2" 831+68.26	"Ls2" 833+99.72		0.90	0.00		0.37	6.04	0.53	6.57	2.07	0.76		0.76	12	2.61%	0.013	5.76	7.33	0.13	231	231.20	225.18	ok	
"Ls2" 833+99.72	Ditch	0.39	0.90	0.35		0.72	6.57	0.06	6.63	2.06	1.48		1.48	12	3.84%	0.013	7.00	8.90	0.21	32	224.18	222.95	ok	
"Ls2" 836+00.39	Ditch	0.29	0.90	0.26		0.26	5.00	0.05	5.05	2.26	0.59		0.59	12	4.87%	0.013	7.87	10.01	0.07	30	220.11	218.65	ok	
"Ls2" 837+86.82	Ditch	0.26	0.90	0.23		0.23	5.00	0.07	5.07	2.26	0.53		0.53	12	2.14%	0.013	5.22	6.64	0.10	29	215.01	214.39	ok	
"Ls2" 840+63.09	"Ls2" 840+64.22		0.90	0.00		1.22	7.63	0.14	7.77	1.95	2.37		2.37	12	0.50%	0.013	2.53	3.22	0.94	27	203.74	203.60	ok	Estimated ditch t_t = 1 min
"Ls2" 840+64.22	"Ls2" 841+91.78	0.40	0.90	0.36		1.58	7.77	0.51	8.28	1.91	3.01		3.01	18	0.50%	0.013	7.41	4.19	0.41	128	203.60	202.97	ok	
"Ls2" 841+91.78	"Ls2" 843+65.22	0.17	0.90	0.15		1.73	8.28	0.68	8.96	1.85	3.20		3.20	18	0.51%	0.013	7.49	4.23	0.43	172	202.97	202.10	ok	
"Ls2" 843+65.22	"Ls2" 846+65.26	0.18	0.90	0.16		1.89	8.96	0.95	9.90	1.78	3.36		3.36	18	0.79%	0.013	9.33	5.28	0.36	300	202.1	199.74	ok	
"Ls2" 846+65.26	"Ls2" 846+63.83	0	0.90	0.00		1.89	9.90	0.21	10.11	1.76	3.33		3.33	18	1.08%	0.013	10.92	6.17	0.31	78	199.54	198.70	ok	
"Ls2" 846+63.83	"Ls2" 847+63.10	0.21	0.90	0.19		2.08	10.11	0.19	10.30	1.75	3.64		3.64	18	2.27%	0.013	15.86	8.96	0.23	100	198.70	196.43	ok	
"Ls2" 847+63.10	"D2" 849+45.81	0.47	0.90	0.42		2.50	10.30	0.32	10.62	1.73	4.32		4.32	18	2.51%	0.013	16.68	9.43	0.26	180	196.43	191.91	ok	
"D2" 849+45.81	"D2" 851+81.16	0.34	0.90	0.31		2.81	10.62	0.37	10.99	1.71	4.79		4.79	18	3.16%	0.013	18.72	10.58	0.26	234	191.91	184.51	ok	
"D2" 851+81.16	Ditch	0.14	0.90	0.13		2.93	10.99	0.12	11.11	1.70	4.97		4.97	18	0.58%	0.013	7.99	4.51	0.62	33	184.51	184.32	ok	

Appendix I. Operation and Maintenance Manuals

Table 1: General Maintenance			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Annual Visual Inspection and Maintenance	Routine inspection	**Facilities should be inspected annually prior to fall rains**. If appropriate, also inspect the facility after the first significant rain event following dry spell (e.g. the first 24-hour rainfall greater then 0.5 inches after summer)	Identify existing and potential operational problems. Repair damaged components that are critical to the operation of the feature (e.g. flow control valves, liners, underdrains, and pipes) as soon as practical. Schedule routine maintenance such as mowing, sump cleanout, lube moving parts, repairs, etc. If the facility is problematic, schedule additional inspections or maintenance. Repair or replace facility field markers according to Technical Bulletin GE10-01(B). A marked facility has an O&M Plan.
	Maintenance of ancillary structures, if present Examples include • Flow splitter manhole • Diversion manhole • Catch basin • Shut-off valve assembly • Pretreatment or primary treatment manhole • Large detention pipe • Vault • Outfall	Damage or problems are observed or anticipated during the annual inspection.	Grease moving parts to ensure proper operation. Remove sediment from sumps, vaults, catch basins, and structures to prevent the release of oil or sediment. Annual cleaning is recommended. The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual Repair or replace damaged orifice assembly/riser pipe. Restore to design standards. Be aware of possible confined space requirements. Repair or replace damaged gates, locks, chains, etc that are used to secure valves and access points to prevent vandalism
General	Temporary erosion control hampers maintenance	Erosion control remains from project construction (contractor did not remove)	Contact contractor to complete work OR remove temporary erosion control that is not specified in the O&M Plan.

Table 1: General Maintenance			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Spilled material has entered the pond or structures	Oil, fuel, or other pollutants are evident following a spill event or accident.	Utilize valves or other features, if present, to contain the spilled material. Remove and properly manage spilled material and contaminated soil. Contact Region HazMat or spill response company for spill cleanup assistance where appropriate. Contact a Region Hydraulic Engineer for technical assistance with pond restoration, if necessary.
	Litter (trash and debris)	Trash poses a hazard, inhibits function, or is aesthetically unacceptable (e.g. evidence of dumping).	Remove problematic trash and debris as soon as practical. There should be no evidence of dumping. Remove non-problematic trash in accordance with District litter practices.
	Insects	Insects interfere with maintenance activities.	Implement vector control in accordance with County Health and District practices.
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.	Mow access, berms, bottom, and side-slopes of the facility as noted in the District Integrated Vegetation Management (IVM) Plan. Remove vegetation in or around grates that obstruct (or could obstruct) flow. Avoid mowing or removing vegetation that does not need to be controlled. Avoid removing vegetation too low to the ground. NOTE: Removing vegetation too near to the ground may result in scalping of the soil, unwanted damaged to vegetation, or growth of unwanted plant species. Heavy equipment is allowed within aboveground water quality and detention facilities unless access restrictions are listed in the O&M Manual.

Table 1: General Maintenance

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
	Noxious weed growth	Control of noxious weeds is required by law or prescribed in the District IVM Plan	Remove noxious weeds in accordance with the District IVM Plan. Follow Environmental Protection Agency (EPA) label and ODOT policies on herbicide usage.
General	Hazard trees	Trees are found to be weakened, unsound, undermined, leaning, or exposed and may fall across the highway	Remove hazard trees as soon as practical. Where appropriate, consult an ODOT Forester for help identifying or removing hazard trees.
	Tree growth	Tree growth restricts access, obstructs function, jeopardizes infrastructure, or interferes with maintenance actions.	Prune or remove as needed to maintain access, function, and tree health. Manage potentially problematic woody material before the trees reach 6 inches diameter at breast height (DBH). Consult an ODOT Forester for the removal or management of trees greater than 6 inches DBH. Obtain permits where appropriate. Refer to the District IVM Plan for the management of smaller trees. Avoid removing trees that will not interfere with the operation or maintenance of the facility.

Table 2: Maintenance of Stormwater Ponds

Stormwater ponds should retain water and slowly release by either infiltration or outflow.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth in **dry ponds** (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. Collected water should drain.	Dry ponds need vegetation on the bottom and sides. Vegetation management typically occurs around and within the facility. Mow access, berms, bottom, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan. (typically annually) Heavy equipment is allowed on dry pond bottoms unless access restrictions are listed in the O&M Manual.
	Vegetation growth in **wet ponds** (mowing and brushing) NOTE: Wet ponds are not typical.	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. Water may be stored year-round without draining.	Wet ponds need vegetation on the bottom and sides. Vegetation management typically occurs around the facility. Mow access and berms as noted in the District Integrated Vegetation Management (IVM) Plan. Ponds bottoms are intended to capture and store water. Vegetation removal from pond bottoms is infrequent.
	Sediment accumulation in pre-treatment features (e.g. forebays, basins, or fully exposed impermeable liners) NOTE: Exposed liners are not typical.	Sediment affects flow. Sediment jeopardizes infrastructure.	Remove sediment from ponds and pipe ends as needed to ensure adequate drainage into treatment pond (grassy or wet pond). Use methods that minimize disturbance to surrounding vegetation. Heavy equipment is allowed on dry pond bottoms unless access restrictions are listed in the O&M Manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.

Table 2: Maintenance of Stormwater Ponds Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Storage areas	Sediment accumulation along bottom of grassy ponds	Sediment inhibits the flow of water through the grass (>12 inches deep). Sediment inhibits grass growth.	Where practical use a Vactor® truck to remove sediment from grassy areas. When Vactoring® is not practical, follow ditch cleaning practices. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed. Stormwater should infiltrate or flow toward outlet once inflow has ceased. Refer to the general section of this table for side-slope mowing and other routine maintenance actions.
	Sediment accumulation in wet ponds or channels. NOTE: Currently there is limited use of wet ponds to treat stormwater.	Capacity has noticeably decreased (examples below) • low and medium flows go through the bypass, • the ordinary high water level has increased, • flooding occurs when the outflows are not blocked, • pond bottom is level with outlets.	Remove sediment build-up from pipe ends as needed to ensure flow. Use methods that minimize disturbance to surrounding vegetation. Remove sediment to restore designed shape and depth. In high ADT areas, pond dredging may be required every 5 to 10 years to restore the capacity. Cease sediment removal when riprap or liner is encountered. Reseed if necessary to control erosion.
	Erosion	Side slopes show evidence of erosion greater than 4 inches deep and the potential for continued erosion is evident.	Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure) Schedule non-urgent repairs with routine work. Stabilize slope using appropriate erosion control and repair methods. Repair the cause of the erosion where possible. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.

Table 2: Maintenance of Stormwater Ponds

Stormwater ponds should retain water and slowly release by either infiltration or outflow.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
Storage areas	Beaver dams	Dam inhibits function or jeopardizes the infrastructure.	Dispose of dam debris offsite or outside of the riparian area. Coordinate the removal or relocation of beaver with Oregon Department of Fish and Wildlife (ODFW). Consider installing deterrents where appropriate.
	Flooding	Water is flowing over or is approaching the top of the pond	Check storm drain pipes and structures for blockage. Ensure valves are open. Remove obstructions to restore flow. Evaluate and remove excessive sediment from pond storage areas. Contact the Region Hydraulic Engineer to evaluate the source of flooding or provide design modifications.
Treatment Components	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of pond bottom.	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed. Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix along pond bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.

Table 2: Maintenance of Stormwater Ponds

Stormwater ponds should retain water and slowly release by either infiltration or outflow.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
Treatment Components	Impermeable liner damage NOTE: Liners (if installed) are typically below the grass surface and may not be visible.	Liner is damaged (e.g. during sediment removal or by motoring public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	Repair or replace the liner with similar material. In many cases, rigid plastic liners may be repaired by welding a similar material over the damaged portion or using a non-toxic, waterproof epoxy. If necessary, contact a Region Hydraulics Engineer for technical assistance regarding permanent repair.
Berms and Dikes	Settlement	Any part of the berm has settled 4 inches or lower. Note: Settlement may indicate potential problems with the facility.	Repair berm to design height with similar materials. Contact a Region Hydraulics and Geotechnical Engineer as needed to evaluate the source of the settlement and determine repair options.
	Flow-through	Water is flowing through the pond berm.	Correct cause of flow through (e.g. eliminate burrowing rodents) Install erosion control measures where appropriate. Repair berm with similar materials. If necessary, contact a Region Geotechnical Engineer to evaluate the condition.
	Sloughing	Ongoing erosion is observed with potential for erosion to continue.	Where possible correct the cause of the erosion. Install or replace energy dissipaters where appropriate. Install erosion control measures where appropriate Repair berm with similar materials. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.

Table 2: Maintenance of Stormwater Ponds

Stormwater ponds should retain water and slowly release by either infiltration or outflow.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
Structures and piping Includes • flow splitters • vaults • inlets • bypasses • valves • catch basins • gates	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices and pipes as necessary with similar components. Divert flows when needed.
	Obstruction or blockage	Water does not flow in, through, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves. Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
Outfalls	Insufficient rock armoring at outlets • along channel side slopes and bottom • pipe outlet • along the length of spillway	Minimal layer of rock exists Rock missing along armored area Flow channelization or high flows exposed native soil around the rock armored area	Install erosion control measures Repair or replace rock armoring to original design standard Repair, re-grade, and reseed eroded areas adjacent to rock armoring. Contact a Region Hydraulics Engineer for technical assistance if rock armoring problems continue or a highway structure is at risk

Table 3: Maintenance of Water Quality or Biofiltration Swales

Swales should provide even sheet flow that moves water from the inlet to the outlet.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. **Swales should be mowed annually.**	Mow access, berms, swale, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Swale Components	Sediment accumulation in pre-treatment areas or ancillary structures (e.g. manholes)	Sediment affects flow. Sediment jeopardizes infrastructure.	Remove sediment that prevents adequate drainage into swale. Use methods that minimize disturbance to surrounding vegetation. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Sediment accumulation along swale bottom	Sediment inhibits the flow of water through the grass (e.g. water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed. Stormwater should infiltrate or flow toward outlet once inflow has ceased.

Table 3: Maintenance of Water Quality or Biofiltration Swales

Swales should provide even sheet flow that moves water from the inlet to the outlet.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
Swale Components	Erosion	Side slopes show evidence of erosion greater than 2 inches deep and the potential for continued erosion is evident.	Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure) Schedule non-urgent repairs with routine work. Stabilize slope using appropriate erosion control and repair methods. Repair the cause of the erosion where possible. If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of swale. NOTE: A single incident (e.g. vehicle accident) typically effects less than 10 percent of the area and is unlikely to trigger a repair.	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed. Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix along swale bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.

Table 3: Maintenance of Water Quality or Biofiltration Swales Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
Swale Components	Impermeable liner damage NOTE: Liners may not be visible. If present, liners are typically below the grass surface along the bottom of the swale Fabric wrapped around underdrains is not a liner.	Liner is damaged (e.g. during sediment removal or by motoring public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	Repair or replace the liner with similar material. Replace top soil and grass as appropriate. Features with liners, typically have maintenance option limitations; check the O&M Manual. If necessary, contact a Region Hydraulics Engineer for technical assistance.
	Obstruction or blockage of pipes	Water does not flow in, through, or out of the swale.	Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
	Flow spreader is uneven or clogged	Water does not flow evenly across the structure	Clean sump or forebay as needed to maintain capacity. Clean or repair spreader as needed to provide a uniform flow and prevent erosion. Level portions of the flow spreader that have settled.

Table 5: Bioslopes Bioslopes should provide even sheet flow that moves water from edge of pavement.			
Maintenance Component	**Defect or Problem**	**Condition When Maintenance is Needed**	**Recommended Maintenance to Correct Problem**
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity. **Slopes should be mowed annually.**	Mow as noted in the District Integrated Vegetation Management (IVM) Plan. The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Bioslope Components	Sediment accumulation	Sediment inhibits the flow of water to the bioslope (e.g. water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual. Restore slope and geometry to design standards, if necessary. Reseed grass cover where needed.
	Ecology mix is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace ecology mix. Contact a Region Hydraulics Engineer for required material specifications. Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Ecology mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications. Install new drainage geotextile over new granular drain backfill material. Replace amended soil mix.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of the strip	Repair and reseed as appropriate to restore coverage. Install erosion control measures as needed.

Table 7: Detention Tank (or Large Diameter Pipe)

Detention tanks should temporarily hold water and slowly release through the outlet.

Detention tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
Components	Sediment accumulation	Sediment exceeds (or could exceed) the capacity of the sump. Sediment is observed at the outlet.	Remove sediment from sump and bottom of tank floor. **Annual cleaning is recommended.** The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual. Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices and pipes as necessary with similar components. Divert flows when needed.
	Obstruction or blockage	Water does not flow in, through, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves. Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary). Jet rodders may be used to clean piping unless specifically prohibited in the O&M plan.
	Structure or access is hidden	Site condition conceal the location of the facility	Mark facilities that may become hidden
	Clogged air vent	Pressure or a vacuum is created within the tank.	Clean air vents as needed to ensure air flows into and out of the tank.

Attachment H. Compiled Permits

DSL Removal-Fill Permit #62035-RF

Department of State Lands
775 Summer Street, Suite 100
Salem, OR 97301-1279
☎ 503-986-5200

Permit No.:	**62035-RF**
Permit Type:	**Removal/Fill**
Waters:	**Wetland/Willamette River/ Abernethy Creek/ McLoughlin Creek**
County:	**Clackamas**
Expiration Date:	**July 15, 2020**

ODOT

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE REFERENCED APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

1. This permit does not authorize trespass on the lands of others. The permit holder must obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action, which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. Employees of the Department of State Lands (DSL) and all duly authorized representatives of the Director must be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
6. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
7. In issuing this permit, DSL makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390, and related administrative rules.
8. Permittee must defend and hold harmless the State of Oregon, and its officers, agents and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.
9. Authorization from the U.S. Army Corps of Engineers may also be required.

NOTICE: If removal is from state-owned submerged and submersible land, the permittee must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 to 274.940 if you want a transfer of title; public rights to such filled lands are not extinguished by issuance of this permit. This permit does not relieve the permittee of an obligation to secure appropriate leases from DSL, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact Department of State Lands, 503-986-5200.

Kirk Jarvie, Southern Operations Manager
Aquatic Resource Management
Oregon Department of State Lands

Kirk Jarvie
Digitally signed by Kirk Jarvie
Date: 2019.07.15 14:49:49 -07'00'

Authorized Signature

ATTACHMENT A

Permit Holder: ODOT

Project Name: I-205: I-5 – OR 213, Phase I Sec. Abernethy

Special Conditions for Removal/Fill Permit No. 62035-RF

READ AND BECOME FAMILIAR WITH CONDITIONS OF YOUR PERMIT.

The project site may be inspected by the Department of State Lands (DSL) as part of our monitoring program. A copy of this permit must be available at the work site whenever authorized operations are being conducted.

1. **Responsible Party:** By proceeding under this permit, ODOT agrees to comply with and fulfill all terms and conditions of this permit, unless the permit is officially transferred to another party as approved by DSL. In the event information in the application conflicts with these permit conditions, the permit conditions prevail.

2. **Authorization to Conduct Removal and/or Fill:** This permit authorizes removal and fill of material in T2S R2E Sections 29/30, many tax lots, in Clackamas County, as referenced in the application, map and drawings (See Attachment B for project location), complete on June 6, 2019 and summarized as follows:

Summary of Authorized Wetland Impacts

Wetland #	Permanent			Temporary		
	Acres	Removal (cy)	Fill (cy)	Acres	Removal (cy)	Fill (cy)
Wetland 37	**--**	**--**	**--**	**0.003**	**9**	**9**

Summary of Authorized Waterway Impacts

Waterway Name	Permanent			Temporary		
	Linear Ft.	Removal (cy)	Fill (cy)	Linear Ft.	Removal (cy)	Fill (cy)
Willamette River	30	40,185	28,696	120	4,305	4,305
Abernathy Creek	30	4,405	3,284	175	420	420
McLoughlin Creek	340	899	784	340	2,437	2,552
Total:	**400**	**45,489**	**32,764**	**635**	**7,162**	**7,277**

*These volumes include removal and fill activities necessary to complete the required restoration and mitigation.

3. **Work Period in Jurisdictional Areas:** Fill or removal activities below the ordinary high water elevation of Abernathy Creek must be conducted between July 1 and October 31; other than for the activities noted below, fill or removal activities below the ordinary high water elevation of Willamette River must be conducted between July 1 and October 31; drilled shaft oscillation work in the Willamette River behind the constructed coffer dams may occur between July 1 and December 31; use of the barge in the Willamette may occur year round. Extensions to these periods may only occur if coordinated with Oregon Department of Fish and Wildlife and approved

in writing by DSL. If fish eggs are observed within the project area, work must cease, and DSL contacted immediately.

4. **Changes to the Project or Inconsistent Requirements from Other Permits:** It is the permittee's responsibility to ensure that all state, federal and local permits are consistent and compatible with the final approved project plans and the project as executed. Any changes made in project design, implementation or operating conditions to comply with conditions imposed by other permits resulting in removal-fill activity must be approved by DSL prior to implementation.

5. **DSL May Halt or Modify:** DSL retains the authority to temporarily halt or modify the project or require rectification in case of unforeseen adverse effects to aquatic resources or permit non-compliance.

6. **DSL May Modify Conditions Upon Permit Renewal:** DSL retains the authority to modify conditions upon renewal, as appropriate, pursuant to the applicable rules in effect at the time of the request for renewal or to protect waters of this state.

Pre-Construction

7. **Local Government Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a Development permit and Site Plan and Design Review, Variance and Natural Resource Review application required from Oregon City and a development permit from West Linn.

8. **DSL Proprietary Authorization Required Before Beginning Work:** Prior to the start of work within state-owned submerged and submersible lands, the permittee must obtain an easement from the Department of State Lands.

9. **Stormwater Management Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a National Pollution Discharge Elimination System (NPDES) permit from the Oregon Department of Environmental Quality (DEQ), if one is required by DEQ.

10. **Authorization to Use Property for Linear Projects**: For linear facility projects, the removal-fill activity cannot occur until the person obtains:

    a. The landowner's consent;
    b. A right, title or interest with respect to the property, that is sufficient to undertake the removal or fill activity; or
    c. A court order or judgment authorizing the use of the property

11. **Pre-construction Resource Area Fencing or Flagging:** Prior to any site grading, the boundaries of the avoided wetlands, waterways, and riparian areas adjacent to the project site must be surrounded by noticeable construction fencing or flagging. The marked areas must be maintained during construction of the project and be removed immediately upon project completion.

General Construction Conditions

12. **Water Quality Certification:** The Department of Environmental Quality (DEQ) may evaluate this project for a Clean Water Act Section 401 Water Quality Certification (WQC). If the evaluation results in issuance of a Section 401 WQC, that turbidity condition will govern any allowable turbidity exceedance and monitoring requirements.

13. **Erosion Control Methods:** The following erosion control measures (and others as appropriate) must be installed prior to construction and maintained during and after construction as appropriate, to prevent erosion and minimize movement of soil into waters of this state.

    a. All exposed soils must be stabilized during and after construction to prevent erosion and sedimentation.
    b. Filter bags, sediment fences, sediment traps or catch basins, leave strips or berms, or other measures must be used to prevent movement of soil into waterways and wetlands.
    c. To prevent erosion, use of compost berms, impervious materials or other equally effective methods, must be used to protect soil stockpiled during rain events or when the stockpile site is not moved or reshaped for more than 48 hours.
    d. Unless part of the authorized permanent fill, all construction access points through, and staging areas in, riparian and wetland areas must use removable pads or mats to prevent soil compaction. However, in some wetland areas under dry summer conditions, this requirement may be waived upon approval by DSL. At project completion, disturbed areas with soil exposed by construction activities must be stabilized by mulching and native vegetative plantings/seeding. Sterile grass may be used instead of native vegetation for temporary sediment control. If soils are to remain exposed more than seven days after completion of the work, they must be covered with erosion control pads, mats or similar erosion control devices until vegetative stabilization is installed.
    e. Where vegetation is used for erosion control on slopes steeper than 2:1, a tackified seed mulch must be used so the seed does not wash away before germination and rooting.
    f. Dredged or other excavated material must be placed on upland areas having stable slopes and must be prevented from eroding back into waterways and wetlands.
    g. Erosion control measures must be inspected and maintained as necessary to ensure their continued effectiveness until soils become stabilized.
    h. All erosion control structures must be removed when the project is complete, and soils are stabilized and vegetated.

14. **Fuels, Hazardous, Toxic, and Waste Material Handling:** Petroleum products, chemicals, fresh cement, sandblasted material and chipped paint, wood treated with leachable preservatives or other deleterious waste materials must not be allowed to enter waters of this state. Machinery and equipment staging, cleaning, maintenance, refueling, and fuel storage must be at least 150 feet from OHW or HMT and wetlands to prevent contaminates from entering waters of the state. Refueling is to be confined to a designated area to prevent spillage into waters of this state. Barges must have containment system to effectively prevent petroleum products or other deleterious material from entering waters of this state. Project-related spills into waters of this state or onto land with a potential to enter waters of this state must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311.

15. **Archaeological Resources:** If any archaeological resources, artifacts or human remains are encountered during construction, all construction activity must immediately cease. The State Historic Preservation Office must be contacted at 503-986-0674. You may be contacted by a Tribal representative if it is determined by an affected Tribe that the project could affect Tribal cultural or archeological resources.

16. **Construction Corridor:** There must be no removal of vegetation or heavy equipment operating or traversing outside the designated construction corridor or footprint (Figures 5-3A through 5-18).

17. **Hazards to Recreation, Navigation or Fishing:** The activity must be timed so as not to unreasonably interfere with or create a hazard to recreational or commercial navigation or fishing.

18. **Operation of Equipment in the Water:** Heavy equipment may be positioned below ordinary high water or highest measured tide if the area is isolated from the waterway and aquatic organism salvage is completed. All machinery operated below ordinary high water (OHW) or highest measured tide (HMT) elevation must use vegetable-based hydraulic fluids, be steam cleaned and inspected for leaks prior to each use, and be diapered to prevent leakage of fuels, oils, or other fluids below OHW or HMT elevation. Any equipment found to be leaking fluids must be immediately removed from and kept out of OHW or HMT until repaired.

19. **Work Area Isolation:** The work area must be isolated from the water during construction by using a coffer dam or similar structure. All structures and materials used to isolate the work area must be removed immediately following construction and water flow returned to pre-construction conditions.

20. **Fish Salvage Required:** Fish must be salvaged from the isolation area. Permits from NOAA Fisheries and Oregon Department of Fish and Wildlife, Fish Research are required to salvage fish. Fish salvage permit information may be obtained by contacting ODFW Fish Research at 503-947-6254 or Fish.Research@state.or.us.

21. **Fish Passage Required:** The project must meet Oregon Department of Fish and Wildlife requirements for fish passage.

22. **Raising or Redirecting Water:** The project must not cause water to rise or be redirected and result in damage to structures or property on the project site as well as adjacent, nearby, upstream, and downstream of the project site.

Pilings

23. **Method of Piling Placement:** Pilings must be placed by means of vibratory hammer. An impact hammer is allowed only as necessary for proofing the pile.

24. **Sound Reduction:** To reduce sound impacts to fish from an impact hammer, a fully-confined bubble curtain will be used if installation requires impact proofing.

25. **Method of Piling Removal:** Removal of pile must be conducted by means of vibratory removal and pulling. Piles that cannot be extracted by this method must be cut off 3 feet below the stream bed.

26. **Leachable Preservatives Prohibited:** There must be no wood products treated with creosote or other leachable preservatives in the new structure.

27. **Waste Pilings Disposal:** Old piling and other waste material must be disposed of in a disposal facility approved for this purpose. There must be no temporary storage of piling or other waste material below top of bank or in any wetland, Federal Emergency Management Administration designated floodway, or an area historically subject to landslides.

Site Rectification

28. **Abernathy Creek Rectification and Improvements:** The existing riprap and streambed must be reconfigured to create a low flow channel; fish rocks and large woody material must be added to provide fish passage and stabilize the channel. The large wood must be incorporated in the form and manner described in the application and Figures 5-14 and 5-15.

29. **McLoughlin Creek and Wetland 37 Rectification and Improvements:** The final completed contours of the wetland and stream will be restored and planted as described in the application. The slope of the McLoughlin Creek channel must be the same or flatter the pre-construction conditions; the width must be equal to or greater than pre-construction conditions.

30. **Trenching in Wetland 37:** During trenching or excavation, the top layer of soil must be separated from the rest of the excavated material and put back on top when the trench or pit is back-filled. If the native underlying soils are not used as bedding material and a coarser, non-native soil or other material is used, preventative measures such as clay or concrete plugs must be used so that underground hydraulic piping does not dewater the site and adjacent wetlands.

31. **Pre-construction Elevations Must Be Restored Within the Same Construction Season:** Construction activities within areas identified as temporary impact must not exceed two construction seasons and rectification of temporary impacts must be completed within 24 months of the initiation of impacts. However, if the temporary impact only requires one construction season, re-establishment of pre-construction contours must be completed within that same construction season, before the onset of fall rains.

32. **Planting in Soils and Riprap Required:** Disturbed areas above OHW must be planted and seeded immediately following establishment of final contours. Planting of native woody vegetation must be completed during the time of year that provides the optimal chances of survival immediately following construction (Figure FA13 [Abernathy Creek], FA14 and FA15 [McLoughlin Creek and Wetland 37]).

33. **Woody Vegetation Planting Required:** Planting of native woody vegetation must be completed before the next growing season after re-establishment of the pre-construction contours (Figure FA13 [Abernathy Creek], FA14 and FA15 [McLoughlin Creek and Wetland 37]).

Monitoring and Reporting Requirements

34. **Post-Construction Report Required:** A post-construction report demonstrating as-built conditions and discussing any variation from the approved plan must be provided to DSL with the first monitoring report. The post-construction report must include:

a. A scaled drawing, accurate to 1-foot elevation, clearly showing the following:
   1. Finished contours of the site.
   2. The riprap removal area pre- and post-project contours
   3. The streambed as reconfigured, including low flow channel, fish rocks, and large woody material
   4. Photo point locations.
b. Photos from fixed photo points. This should clearly show the site conditions
c. A narrative that describes any deviation from the plan.

35. **Annual Monitoring Reports Required:** Monitoring is required until DSL has officially released the site from further monitoring. The permittee must monitor the site to determine whether the site is meeting performance standards for a minimum period of 3 growing seasons after completion of all the initial plantings. Annual monitoring reports are required and are due by December 31. Failure to submit the required monitoring report by the due date may result in an extension of the monitoring period or enforcement action.

36. **Extension of the Monitoring Period:** The monitoring period may be extended, at the discretion of DSL, for failure of the site to meet performance standards for the final two consecutive years without corrective or remedial actions (such as irrigation, significant weed/invasive plants treatment or replanting) or when needed to evaluate corrective or remedial actions.

37. **Contents of the Annual Monitoring Report:** The annual monitoring report must include the following information:

a. Completed Monitoring Report Cover Sheet, which includes permit number, permit holder name, monitoring date, report year, performance standards, and a determination of whether the site is meeting performance standards.
b. Site location map(s) that clearly shows the site boundaries.
c. Site Plan that clearly shows at least the following.
   1. The area seeded, with the square foot area listed.
   2. The area planted with trees and shrubs, with the square foot area listed.
   3. Permanent monitoring plot locations that correspond to the data collected and fixed photo-points. These points should be overlaid on the as-built map.
d. A brief narrative that describes maintenance activities and recommendations to meet success criteria. This includes when irrigation occurred and when the above ground portion of the irrigation system was or will be removed from the site.
e. Data collected to support the conclusions related to the status of the site relative to the performance standards listed in this permit (include summary/analysis in the report and raw data in the appendix). Data should be submitted using the DSL Mitigation Monitoring Vegetation Spreadsheet or presented in a similar format as described in DSL's Routine Monitoring Guidance for Vegetation.
f. Photos from fixed photo points (include in the appendix).
g. Other information necessary or required to document compliance with the performance standards listed in this permit.

38. **Corrective Action May Be Required:** DSL retains the authority require corrective action in the event the performance standards are not accomplished at any time within the monitoring period.

Performance Standards for Wetland 37 Rectification

39. **Establishment of Permanent Monitoring Locations Required:** Permanent plot locations must be established during the first annual monitoring in sufficient number and locations to be representative of the site. The permanent plot locations must be clearly marked on the ground.

40. **Wetland 37 Acreage Required:** The proposed impacts at Wetland 37 will have a minimum 0.003 acres as determined by hydrology data collected during spring of a year when precipitation has been near normal, vegetation has been established, and irrigation has been removed for at least two years.

41. **Native Species Cover:** The cover of native species, as defined in the USDA Plants Database, in the herbaceous stratum is at least 60%.

42. **Invasive Species Cover:** The cover of invasive species is no more than 20%. A plant species should automatically be labeled as invasive if it appears on the current Oregon Department of Agriculture noxious weed list.

Performance Standards for McLoughlin and Abernethy Creeks Rectification

43. **Woody Vegetation:** The density of woody vegetation is at least 1 live native shrubs or tree every 6 linear feet on each disturbed waterway bank. Native species volunteering on the site may be included, dead plants do not count, and the standard must be achieved for 2 years without irrigation.

Monitoring and Reporting Schedule

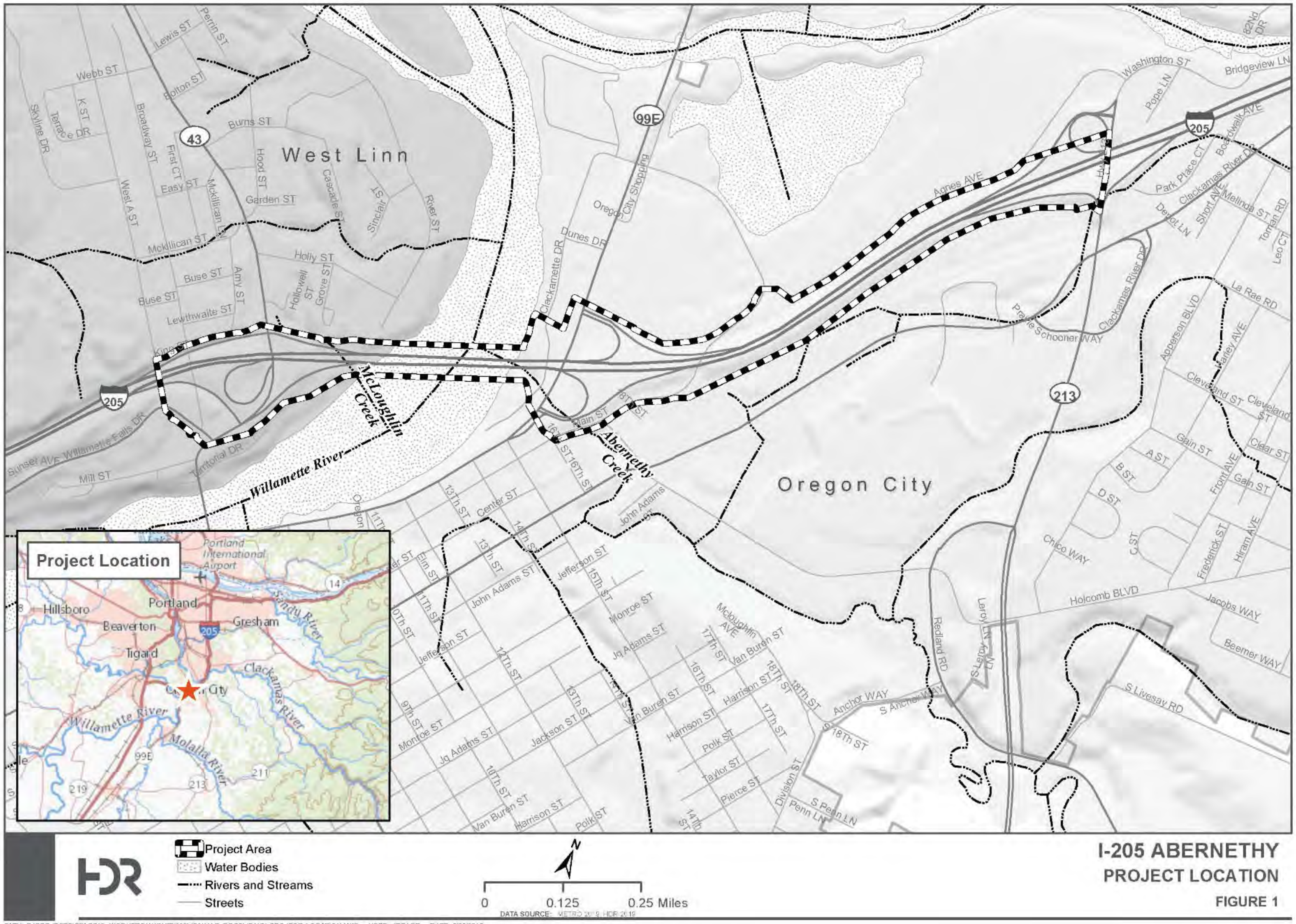
Report	Requirements	Schedule
Post-Construction and First Annual Report	Post-construction report Establishment of permanent monitoring locations Vegetation performance standards Demonstration that wetland hydrology has been accomplished	After one growing season of all proposed plantings
Second Annual Report	Vegetation performance standards	After two growing seasons
Third Annual Report (or final report if the monitoring period has been extended)	Vegetation performance standards Actual acreage achieved by HGM and Cowardin class[1].	After three or final monitoring season

ATTACHMENT B

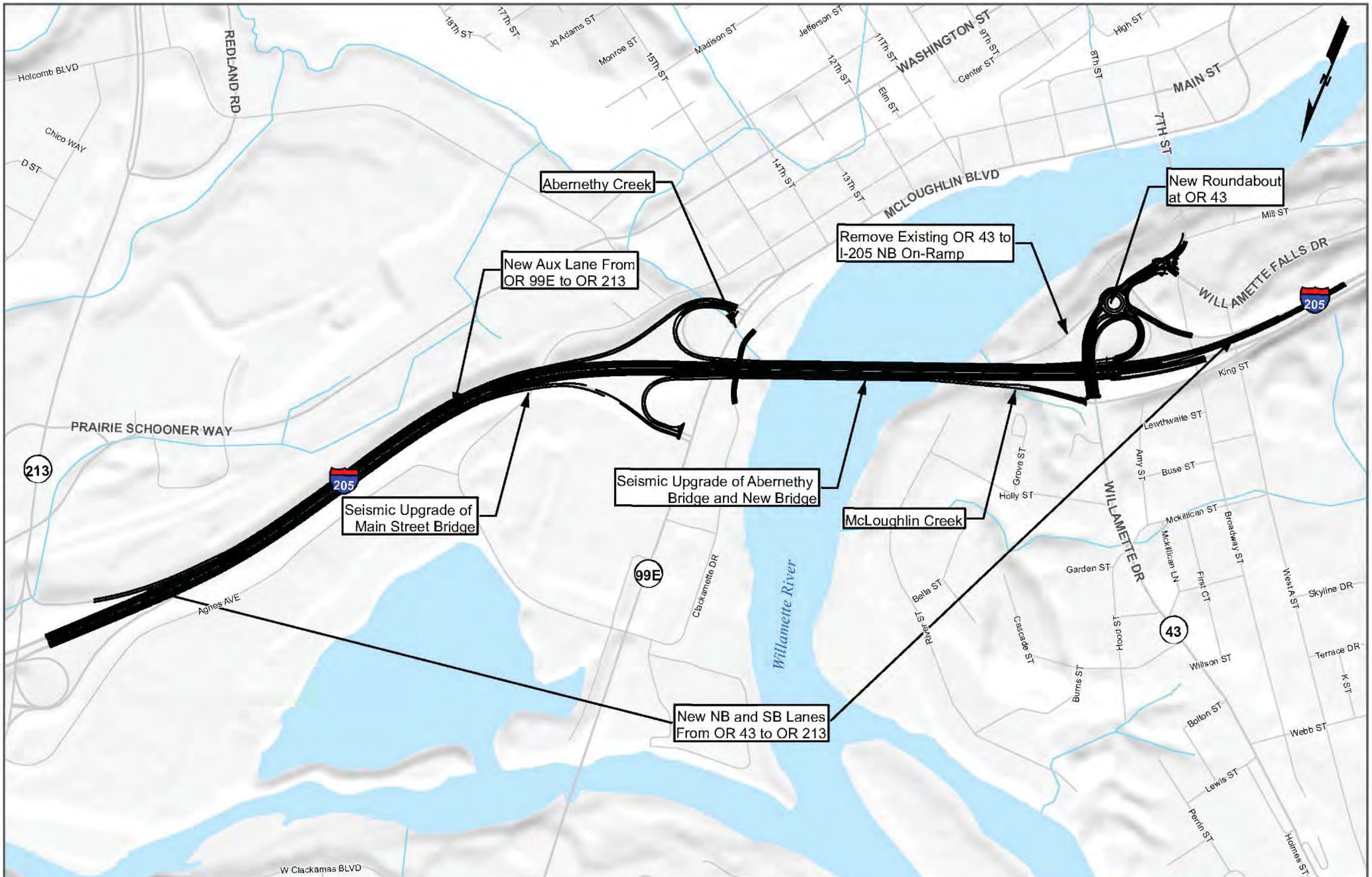
Permit Holder: ODOT

Project Name: I-205: I-5 – OR 213, Phase I Sec. Abernethy

Maps and Drawings for Removal/Fill Permit No. 62035-RF



I-205 ABERNETHY
PROJECT LOCATION
FIGURE 1



I-205 ABERNETHY
PROJECT ELEMENTS
FIGURE 5 - 1

PATH: C:\PROJECTS\STAGING_WORKFROMHOME\205\JPA\MAP_DOCS\JPA\F5 IMPACTS_SHEET_5_1.MXD - USER: JBEARD - DATE: 4/17/2019

DEQ 401 Water Quality Certification

Oregon
Kate Brown, Governor

Department of Environmental Quality
Northwest Region Portland Office/Water Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100
(503) 229-5263
FAX (503) 229-6957
TTY 711

November 26, 2019

Denis Reich, Environmental Manager
Oregon Department of Transportation (ODOT), Region 1
123 NW Flanders Street
Portland, OR 97209-4012

RE: NWP-2016-00458-4; I-205: I-5 – OR 213, Phase I Sec. Abernethy 401 Water Quality Certification

The Oregon Department of Environmental Quality (DEQ) has reviewed the U.S. Army Corps of Engineers (USACE) permit application #NWP-2016-458-4 (Department of State Lands [DSL] #62035), pursuant to a request for a Clean Water Act Section 401 Water Quality Certification (WQC) received on July 30, 2019. DEQ's 401 Water Quality Certification circulated with the Corps' public notice, and DEQ received no water quality comments.

According the Joint Permit Application, The Oregon Department of Transportation (the "Applicant") proposes to impact the Willamette River, McLoughlin Creek, Abernethy Creek, and a wetland adjacent to McLoughlin Creek, by excavating 52,660 cubic yards (cy) of earthen material and discharging 40,050 cy of fill material. The purpose of the project is to seismically retrofit and widen the Abernethy and Main Street Bridges, and create auxiliary lanes proximal to these bridges. The project is located in wetlands adjacent, and tributaries that discharge to the Willamette River at river mile 25, West Linn, Clackamas County, Oregon (Sections 29 and 30, Township 2S/ Range 2E).

Project Description: The proposed project work will impact 1.85 acres of waterbodies in order to seismically retrofit and widen the Abernethy and Main Street Bridges. The Applicant will construct five new in-water support piers adjacent to existing piers. The existing piers will then be cut to a depth of approximately 5 feet below existing ground. Riprap will be removed from the existing pier sites as well, to a depth of 5-feet below ground surface and 10-feet in diameter around each removed in-water pier. Approximately 33,375 to 50,733 square feet of riprap is expected to be removed from the Willamette River to allow for pile and drilled shaft installation. The Applicant will also widen the bridge, adding northbound and southbound lanes to I-205 between the OR 43 Interchange and the OR 99 Interchange, and an auxiliary lane on I-205 between OR 99 and OR 213. The purpose of this project is to reduce congestion and provide necessary seismic upgrades to the structural supports to the Abernethy and Main Street Bridges. In addition, Abernathy Creek will be re-aligned and riprap will be removed to accommodate the Pier 3 drilled shaft. A temporary work bridge will be required for work within the Willamette River, and is expected to remain in place for up to 4 years. Construction activities will result in a total of 21 acres of ground disturbance.

The project will create 31.336-acres of impervious surface. As mitigation for this loss, the Applicant has proposed compensatory wetland mitigation through on-site permittee responsible mitigation, including riparian bank work along Abernethy Creek, the realignment of Abernethy

Creek with improved fish passage and enhancements, the realignment of McLoughlin Creek, and the restoration of a wetland identified as Wetland 37.

Status of Affected Waters of the State: The Willamette River is classified as water quality limited under the Federal Clean Water Act and is listed on the Section 303(d) List of impaired water bodies for the parameters of aldrin, biological criteria, chlordane, chlorophyll a, copper, cyanide, DDE 4,4, DDT 4,4, dieldrin, hexachlorobenzene, iron, lead, pentachlorophenol, PCBs, and PAHs; and has Environmental Protection Agency Total Maximum Daily Loads (TMDLs) developed for the parameters of temperature, dioxin, mercury, and *E.coli*.

The above listed parameters impair the following beneficial uses in the Willamette River: public domestic water supply, private domestic water supply, industrial water supply, irrigation, livestock watering, fish and aquatic life, and wildlife and hunting. Additional beneficial uses include: fishing, boating, water contact recreation, and aesthetic quality, hydropower, commercial navigation and transportation.

Certification Decision: Based on the information provided by the Applicant and the USACE, DEQ is reasonably assured that implementation of the project will be consistent with applicable provisions of Sections 301, 302, 303, 306 and 307 of the federal Clean Water Act, state water quality standards set forth in Oregon Administrative Rules Chapter 340 Division 41 and other requirements of state law, provided the following conditions are strictly adhered to by the Applicant.

401 WQC GENERAL CONDITIONS

1) **Responsible parties:** This 401 WQC applies to the Applicant. The Applicant is responsible for the work of its contractors and subcontractors, as well as any other entity that performs work related to this Water Quality Certification.

2) **Work Authorized:** Work authorized by this 401 Water Quality Certification is limited to the work described in the Joint Permit Application signed on May 9, 2019 and additional application materials (hereafter "the permit application materials"), unless otherwise authorized by DEQ. If the project is operated in a manner that's not consistent with the project description in the permit application materials, the Applicant is not in compliance with this 401 Water Quality Certification and may be subject to enforcement.

3) **Duration of Certificate:** This 401 Water Quality Certification for impacts to waters, including dredge and fill activities, is valid until closure of the in-water timing window (see Condition 2) of the fifth year from the date of issuance of the USACE 404 permit. A new or modified 401 certification must be requested before any modification of the US Army Corps of Engineers 404 permit. Post construction stormwater facilities must be maintained for the life of the facility.

4) **401 WQC on Site:** A copy of this 401 Water Quality Certification letter must be kept on the job site and readily available for reference by the Applicant and its contractors and subcontractors, as well as by DEQ, USACE, National Marine Fisheries Service, Oregon Department of Fish and Wildlife and other state and local government inspectors.

5) **Modification:** Any approved modifications to this certification will incur a Tier 1 fee of $985 at a minimum. Complex modifications may be charged a higher fee.

6) **Notification:** The Applicant must notify DEQ of any change in ownership or control of this project within 30 days, and obtain DEQ review and approval before undertaking any change to the project that may potentially affect water quality.

7) **Project Changes:** DEQ may modify or revoke this certification, in accordance with Oregon Administrative Rules 340-048-0050, if the project changes or project activities are having an adverse impact on state water quality or beneficial uses, or if the Applicant violates any of the conditions of this certification.

8) **Access:** The Applicant and its contractors must allow DEQ access to the project site with or without prior notice, including staging areas, and mitigation sites to monitor compliance with these certification conditions, including:
   a. Access to any records, logs, and reports that must be kept under the conditions of this certification
   b. To inspect best management practices, monitoring or equipment or methods
   c. To collect samples or monitor any discharge of pollutants.

9) Failure of any person or entity to comply with this order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce its terms.

CONSTRUCTION SPECIFIC CONDITIONS

10) **Erosion Control**: During construction, erosion control measures must be implemented to prevent soil from entering waters of the state. The Applicant is required to develop and implement an effective erosion and sediment control plan. Refer to DEQ's Oregon Sediment and Erosion Control Manual, January, 2013 at: https://www.oregon.gov/deq/FilterPermitsDocs/ErosionSedimentControl.pdf
Any project that disturbs more than one acre is required to obtain a National Pollutant Discharge Elimination System 1200-C construction stormwater general permit from DEQ. Contact DEQ for more information (Contact information can be found at: https://www.oregon.gov/deq/wq/wqpermits/Pages/Stormwater-Construction.aspx

In addition, the Applicant must do the following, unless otherwise authorized by DEQ:

   a. Maintain an adequate supply of materials necessary to control erosion at the construction site
   b. Deploy compost berms, impervious materials, or other effective methods during rain or when stockpiles are not moved or reshaped for more than 48 hours. Erosion of stockpiles is prohibited
   c. Inspect erosion control measures daily and maintain erosion control measures as often as necessary to ensure the continued effectiveness of measures. Erosion control measures must remain in place until all exposed soil is stabilized;
      i. If monitoring or inspection shows that the erosion and sediment controls are ineffective, the Applicant must act immediately to make repairs, install replacements, or install additional controls as necessary.
      ii. If sediment has reached a third of the exposed height of a sediment or erosion control, the Applicant must remove the sediment to its original contour.
   d. Use removable pads or mats to prevent soil compaction at all construction access points through, and staging areas in, riparian or wetland areas to prevent soil compaction, unless otherwise authorized by DEQ.

e. Flag or fence off wetlands not specifically authorized to be impacted to protect from disturbance and/or erosion.
f. Place dredged or other excavated material on upland areas with stable slopes to prevent materials from eroding back into waterways or wetlands.
g. Place clean aggregate at all construction entrances, and utilize other best management practices, including, but not limited to truck or wheel washes, when earth-moving equipment is leaving the site and traveling on paved surfaces. Vehicles are prohibited from tracking sediment off site.
h. This certification *does not* authorize the placement of best management practices into waters of the state unless specifically outlined in the application and authorized by DEQ.
i. Upon completion of construction activities, stormwater facilities must be inspected and tested to ensure they are working and adequately prepared for post-construction stormwater treatment.

11) **Deleterious waste materials**: The Applicant is prohibited from placing biologically harmful materials and construction debris including, but not limited to: petroleum products, chemicals, cement cured less than 24 hours, welding slag and grindings, concrete saw cutting by-products, sandblasted materials, chipped paint, tires, wire, steel posts, and asphalt and waste concrete where such materials could enter waters of the state, including wetlands (wetlands are waters of the state).

The Applicant must:

a. Cure concrete, cement, or grout for at least 24 hours before any contact with flowing waters;
b. Use only clean fill, free of waste and polluted substances
c. Employ all practicable controls to prevent discharges of spills of harmful materials to surface or groundwater
d. Maintain at the project construction site, and deploy as necessary, an adequate supply of materials needed to contain deleterious materials during a weather event
e. Remove all foreign materials, refuse, and waste from the project area
f. Employ general good housekeeping practices at all times

12) **Spill Prevention:** The Applicant must have a spill prevention and control plan. The Applicant must fuel, operate, maintain and store vehicles and equipment, and must store construction materials, in areas that will not disturb habitat directly or result in potential discharges. In general, reasonable precautions and controls must be used to prevent any discharges of petroleum products or other harmful or toxic materials from entering the water as a result of any in-water activities. In addition, the following specific requirements apply:

a. Vehicle and motorized equipment staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area 150 feet or more from any waters of the state. DEQ may approve in writing exceptions to this distance if all practical prevention measures are employed and this distance is not possible because of any of the following site conditions:
    i. Physical constraints that make this distance not feasible (e.g., steep slopes, rock outcroppings)
    ii. Natural resource features would be degraded as a result of this setback

iii. Equal or greater spill containment and effect avoidance is provided even if staging area is less than 150 feet away from waters of the state

b. If staging areas are within 150 feet of any waters of the state, as allowed under subsection (a)(iii) of this condition, full containment of potential contaminants must be provided to prevent soil and water contamination, as appropriate
c. All vehicles operated within 150 feet of any waters of the state must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected in the vehicle-staging area must be repaired before the vehicle resumes operation
d. Before operations begin and as often as necessary during operation, equipment must be steam cleaned (or undergo an approved equivalent cleaning) until all visible oil, grease, mud, and other visible contaminants are removed if the equipment will be used below the bank of a waterbody
e. All stationary power equipment (e.g., generators, cranes, stationary drilling equipment) operated within 150 feet of any waters of the state must be covered by an absorbent mat to prevent leaks, unless other suitable containment is provided to prevent potential spills from entering any waters of the state
f. An adequate supply of materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials) needed to contain spills must be maintained at the project construction site and deployed as necessary
g. All equipment operated in state waters must use bio-degradable hydraulic fluid
h. A maintenance log documenting equipment maintenance inspections and actions must be kept on-site and available upon request

13) **Spill & Incident Reporting**:

a. In the event that petroleum products, chemicals, or any other harmful materials are discharged into state waters, or onto land with a potential to enter state waters, the Applicant must promptly report the discharge to the Oregon Emergency Response System (800-452-0311). The Applicant must immediately begin containment and complete cleanup as soon as possible.
b. If the project operations cause a water quality problem which results in distressed or dying fish, the Applicant must immediately:
    - Cease operations
    - Take appropriate corrective measures to prevent further environmental damage
    - Note condition of fish (dead, dying, decaying, erratic, or unusual behavior)
    - Note the number, species, and size of fish in each condition
    - Note the location of fish relative to operations
    - Note the presence of any apparently healthy fish in the area at the same time
    - Collect fish specimens and water samples
    - Notify DEQ, Oregon Department of Fish and Wildlife, National Marine Fisheries Service and U.S. Fish and Wildlife Service as appropriate (reporting of listed fish mortality to National Marine Fisheries Service is required).

14) **Vegetation Protection and Restoration:**

a. The Applicant must protect riparian, wetland, and shoreline vegetation in the authorized project area (as defined in the permit application materials) from disturbance through one or more of the following:
   i. Minimization of project and impact footprint
   ii. Designation of staging areas and access points in open, upland areas
   iii. Fencing and other barriers demarcating construction areas
   iv. Use of alternative equipment (e.g., spider hoe or crane)

b. If authorized work results in vegetative disturbance and the disturbance has not been accounted for in planned mitigation actions, the Applicant must successfully reestablish vegetation to a degree of function equivalent or better than before the disturbance. The standard for success is 80 percent cover for native plant species. The vegetation must be reestablished by the completion of authorized work and include:
   i. Restoring damaged streambanks to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (e.g., a natural rock wall)
   ii. Replanting or reseeding each area requiring revegetation before the end of the first planting season following construction
   iii. Planting disturbed areas with native plants and trees in all cases except where the use of non-native plant materials may be essential for erosion control
   iv. The use of invasive species to re-establish vegetation is prohibited
   v. Herbicides, pesticides and fertilizers must be applied per manufacturer's instructions, and only if neccesary for vegetation establishment. If chemical treatment is necessary, the Applicant is responsible for ensuring that pesticide application laws, including with the National Pollutant Discharge Eliminations System 2300-A general permit are met. Please review the information on the following website for more information: https://www.oregon.gov/deq/wq/wqpermits/Pages/Pesticide.aspx

      Additionally:

      1. Unless otherwise approved in writing by DEQ, applying surface fertilizer within stormwater treatment facilities or within 50 feet of any stream channel is prohibited.
      2. Other than spot application to cut stems, no herbicides are allowed within stormwater treatment facilites or within 150 feet of waters of the state. Mechanical, hand, or other methods may be used to control weeds and unwanted vegetation within stormwater treatment facilites or within 150 feet of waters of the state; and
      3. No pesticides may be used within stormwater treatment facilities or within 150 feet of waters of the state.
   vi. Install wildlife-friendly fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons
   vii. Minimize soil compaction, especially in areas that are designated for replanting. If soils are compacted, Loosen and aerate compacted soil in staging areas and work construction areas prior to replanting. Leave

topsoil when possible. Chip materials from clear and grub operation and spread on soil surface, unless cleared areas contained invasive species.

15) Maintain existing vegetative buffers to a minimum of 50 feet during construction and post-construction to protect riparian areas and wetlands, unless described in the application and authorized in writing by DEQ.

16) **Previously Contaminated Soil and Groundwater:** If any contaminated soil or groundwater is encountered, it must be handled and disposed of in accordance with the soil and groundwater management plan for the site, as well as local, state and federal regulations. The Applicant must notify the Environmental Cleanup Section of DEQ at 800-452-4011 Ex.6258.

17) **Notification to DEQ:** The Applicant must provide pre-construction notification to DEQ one week before construction starts. Contact information can be found at the end of the certification.

SPECIFIC CONDITIONS FOR IN-STREAM WORK

18) **Fish Protection/ Oregon Department of Fish and Wildlife Timing:** The Applicant must perform in-water work only within the Oregon Department of Fish and Wildlife preferred time window as specified in the *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources* (please follow the link: https://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_Work2008.pdf) or as authorized otherwise under a Department of State Lands removal/fill permit. Exceptions to the timing window must be recommended by Oregon Department of Fish and Wildlife and/or the National Marine Fisheries Services as appropriate.

19) **Aquatic Life Movements:** Any activity that may disrupt the movement of aquatic life living in the water body, including those species that normally migrate through the area, is prohibited. The Applicant must provide unobstructed fish passage at all times during any authorized activity. Exceptions must be reviewed and recommended by Oregon Department of Fish Wildlife and/or the National Marine Fisheries Service as appropriate.

20) **Isolation of In-Water Work Areas:** The Applicant must isolate in-water work areas from the active flowing stream, unless otherwise authorized as part of the approved application, or authorized by DEQ.

21) **Cessation of Work:** The Applicant must cease project operations under high-flow conditions that will result in inundation of the project area. Only efforts to avoid or minimize turbidity or other resource damage as a result of inundation of the exposed project area are allowed during high-flow conditions.

22) **Turbidity**: The Applicant must implement best management practices to minimize turbidity during in-water work. Any activity that causes turbidity to exceed 10 percent above natural stream turbidity is prohibited except as specifically noted below:

    a. **Monitoring**: Turbidity monitoring must be conducted and recorded as described below. Monitoring must occur at two-hour intervals each day when in-water work is being conducted. A properly calibrated turbidimeter is required. Visual gauging may be acceptable with prior written approval from DEQ; however, *turbidity that is visible over background is prohibited.*

i. **Representative Background Point**: The Applicant must take and record a turbidity measurement every two hours during in-water work at an undisturbed area 100 feet up-current from the in-water disturbance, in order to establish background turbidity levels. The background turbidity, location, date, tidal stage (if applicable) and time must be recorded immediately prior to monitoring down-current at the compliance point described below.

ii. **Compliance Point**: The Applicant must monitor every two hours, 100 feet downcurrent from the disturbance, at approximately mid-depth of the waterbody and within any visible plume. The turbidity, location, date, tidal stage (if applicable) and time must be recorded for each measurement.

b. **Compliance**: The Applicant must compare turbidity monitoring results from the compliance points to the representative background levels taken during each two hour monitoring interval. Pursuant to Oregon Administrative Rules 340-041-0036, short-term exceedances are allowed as followed:

MONITORING WITH A TURBIDIMETER		
ALLOWABLE EXCEEDANCE TURBIDITY LEVEL	ACTION REQUIRED AT 1ST MONITORING INTERVAL	ACTION REQUIRED AT 2ND MONITORING INTERVAL
0 to 5 NTU above background	Continue to monitor every 2 hours	Continue to monitor every 2 hours
6 to 29 NTU above background	Modify BMPs & continue to monitor every 2 hours	Stop work after 4 hours at 6-29 NTU above background
30 to 49 NTU above background	Modify BMPs & continue to monitor every 2 hours	Stop work after 2 confirmed hours at 30-49 NTU above background
50 NTU or more above background	Stop work	Stop work immediately and inform DEQ

If an exceedance occurs at: 50 NTU or more over background; 30 NTU over background for two hours; or 5-29 NTU over background for four hours, the activity must stop immediately and the Applicant must inform DEQ.

c. **Reporting**: The Applicant must record all turbidity monitoring required by subsections (a) and (b) above in daily logs. The daily logs must include calibration documentation; background NTUs; compliance point NTUs; comparison of the points in NTUs; location; date; time; and tidal stage (if applicable) for each reading. Additionally, a narrative must be prepared discussing all exceedances with subsequent monitoring, actions taken, and the effectiveness of the actions. Applicant must make available copies of daily logs for turbidity monitoring to DEQ, USACE, National Marine Fisheries Service, U.S. Fish and Wildlife Service, and Oregon Department of Fish and Wildlife upon request. An example turbidity log is attached to this certification.

If turbidity monitoring cannot be conducted due to dry conditions, the Applicant must provide photo documentation with a date and time stamp.

d. **Best Management Practices to Minimize In-stream Turbidity:** The Applicant must implement the following best management practices, unless accepted in writing by DEQ:
   i. Sequence/Phasing of work – The Applicant must schedule work activities to minimize in-water disturbance and duration of in-water disturbances.
   ii. Bucket control - All in-stream digging passes by excavation machinery and placement of fill in-stream using a bucket must be completed to minimize turbidity. All practical techniques such as employing an experienced equipment operator, not dumping partial or full buckets of material back into the wetted stream, adjusting the volume, speed, or both of the load, or using a closed-lipped environmental bucket must be implemented.
   iii. The Applicant must limit the number and location of stream-crossing events. Establish temporary crossing sites as necessary at the least sensitive areas and amend these crossing sites with clean gravel or other temporary methods as appropriate, to discharge sediments to the waterbody.
   iv. Machinery may not be driven into the flowing channel, unless authorized in writing by DEQ.
   v. Excavated material must be placed so that it is isolated from the water's edge or wetlands, and not placed where it could re-enter waters of the state uncontrolled.
   vi. Containment measures such as silt curtains, geotextile fabric, and silt fences must be in place and properly maintained in order to minimize in-stream sediment suspension and resulting turbidity.

SPECIFIC CONDITIONS FOR POST CONSTRUCTION STORMWATER MANAGEMENT

23) **Post Construction Stormwater Management:** The Applicant must implement and comply with the terms of the approved post construction stormwater management plan, which describes best management practices to prevent or treat pollution in stormwater anticipated to be generated by the project, in order to comply with state water quality standards. The Applicant must implement best management practices as proposed in the stormwater management plan, including operation and maintenance, dated October 1, 2019. If proposed stormwater facilities change due to site conditions, the Applicant must receive approval in writing from DEQ to make changes.

Stormwater Facility Description: The Appplicant will implement nine water quality treatment facilities (WQF) to adequately treat stormwater runoff generated by this project.

WQF #1 is a vegetated bioinfiltration swale/detention basin that discharges to Abernathy Creek.
WQF #2 is a bioslope that discharges to an existing roadside ditch before conveyance to the Clackamas River.
WQF #3 is a bioinfiltration swale that discharges to the Clackamas River.
WQF #4 is a bioinfiltration swale that discharges to the Willamette River.
WQF #5 is a bioinfiltration swale that discharges to the Willamette river.
WQF #6 is a bioinfiltration swale that discharges upland of an unnamed creek.
WQF #7 and #8 are bioinfiltration swales that discharges to a proposed riprap pad underneath the Abernathy Bridge before entering the Willamette River.

WQF #9 is a stormwater planter that discharges into the Willamette River.

Stormwater facilities designed to infiltrate runoff must be delineated with orange construction fencing to avoid compaction until completion of the project.

Within 30 days of project completion, the Applicant must submit a copy of the "as-builts" or red-lined construction drawings showing all stormwater management facilities.

24) **Stormwater Management & System Maintenance:** The Applicant is required to implement effective operation and maintenance practices for the lifetime of the proposed facility. These include but are not limited to:

a. Maintenance techniques and frequency for each system component must follow appropriate recommendations in accepted manuals.
b. Long-term operation and maintenance of stormwater treatment facilities will be the responsibility of ODOT, unless and until an agreement transferring that responsibility to another entity is submitted to DEQ.

25) **Corrective Action May Be Required:** DEQ retains the authority to require corrective action in the event the stormwater management facilities are not built or performing as described in the plan.

If the Applicant is dissatisfied with the conditions contained in this certification, a contested case hearing may be requested in accordance with Oregon Administrative Rule 340-048-0045. Such requests must be made in writing to the DEQ Office of Compliance and Enforcement at 700 NE Multnomah St, Suite 600, Portland Oregon 97232 within 20 days of the mailing of this certification.

DEQ hereby certifies this project, with the above conditions, in accordance with the Clean Water Act and state rules. If you have any questions, please contact Noosheen Pouya at Pouya.Noosheen@DEQ.state.or.us, by phone at (503)229-5785, or at the address on this letterhead.

Sincerely,

Steve Mrazik
Water Quality Manager
Northwest Region

ec: Melody White, USACE
Melinda Butterfield, DSL
Cory Gieseke, HDR

USACE Permit # NWP-2016-458-2

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT
P.O. BOX 2946
PORTLAND, OR 97208-2946

December 18, 2019

Regulatory Branch
Corps No. NWP-2016-458-2

Denis Reich
ODOT Region 1
123 NW Flanders Street
Portland OR 97209
Denis.A.Reich@odot.state.or.us

Dear Mr. Reich:

Enclosed is your fully executed Department of the Army Permit. Please carefully read the permit and its conditions. This permit is based on the project description and construction methods provided in your permit application. If you propose changes to the project, you must submit revised plans to this office and receive our approval of the revisions prior to performing the work.

The time limit to complete the authorized work is in General Condition 1. If the work cannot be completed prior to the time limit, you may apply for a time extension. We recommend you apply for a time extension at least 90 days before the time limit is reached.

Failure to comply with all terms and conditions of this permit could result in a violation of Section 404 of the Clean Water Act. You must also obtain all local, State, and other Federal permits that apply to this project.

We would like to hear about your experience working with the Portland District Regulatory Branch. Please complete a customer service survey form at the following address: http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

If you have any questions, please contact me at the letterhead address, by telephone at (503) 808-4387, or email Carrie.L.Bond@usace.army.mil.

Sincerely,

Kristen Hafer
Policy and Compliance Section Chief

Enclosures

cc:
Oregon Department of Transportation (Sargent)
Oregon Department of State Lands (Klassen)
Oregon Department of Environmental Quality (401applications@deq.state.or.us)
HDR, Inc. (Brian Bauman, Brian.Bauman@hdrinc.com)

DEPARTMENT OF THE ARMY PERMIT

Permittee: Oregon Department of Transportation, Region 1
123 NW Flanders Street
Portland, Oregon 97209

Permit No: NWP-2016-458-2

Issuing Office: U.S. Army Corps of Engineers, Portland District

NOTE: The term "you" and its derivatives as used in this permit means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the U.S. Army Corps of Engineers (Corps) having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

The project would result in construction related activities below the ordinary high water mark (OHWM) in a total of 1.8 acres of tributaries and wetlands to seismically retrofit and widen two bridges while reducing traffic congestion in the project area with additional through lanes. The I-205 Abernethy Bridge across the Willamette River and the I-205 Bridge over Main Street would be seismically retrofitted to withstand the Cascadia Seismic Event. Additionally, the project would add a northbound and southbound travel lane to I-205 between the OR 43 interchange and OR 99 interchange, and an I-205 northbound auxiliary lane between OR 99 and OR 213. The Abernethy Bridge would be widened to include an additional through-lane and wider shoulder in both northbound and southbound lanes (additional 16 feet of roadway width in both directions). The widening would be supported by larger in-water support piers upstream and downstream of current piers.

Willamette River: The applicant would construct new drill shafts and columns that would result in permanent fill of 0.146 acre below the OWHM of the Willamette River. Each pier will consist of two, 12-foot diameter drilled shafts. Prior to drilling, a casing will be placed to contain sediment generated during drilling activities; the casings would affect 0.18 acre below the OHWM of the Willamette River. When drilled shafts and columns are constructed, a 30-square-foot coffer dam would be placed around each structure, and sediments within each coffer dam will be removed.

Each pile footing cap for the bridge has existing riprap in place. Construction of the new drilled shafts may require the removal of the riprap. Riprap would be removed using a clamshell bucket and placing the removed material in uplands. Removal activities would affect up to 1.16 acres of the Willamette River around the existing piers.

Construction of the new piers would require a temporary work bridge to be constructed. The temporary bridge would remain in place for 4 years and would require the installation of 740, 24-inch-diameter steel piles installed and removed with the use of a vibratory hammer.

Upon completion of the new piers, the existing piers would be removed. Removal activities include removing the columns to five feet below the existing substrate and leaving the footings in place. Any remaining existing riprap would also be removed to five feet below the existing ground surface within a ten-foot diameter around each pier. This would result in the removal of 0.14 acre of pier material and an additional 1.16 acres of riprap, as described above.

Abernethy Creek: Pier three is located within the Abernethy Creek channel. Construction of the new pier and channel grading activities would result in a total discharge of fill material into 0.48 acre below the OHWM of Abernethy Creek. The applicant would remove the existing rip-rap and 0.25 acres of soil to reconstruct and grade the new stream channel. The reconstructed stream channel would become a low flow channel and will include rocks with large wood to stabilize the channel. A temporary work bridge with steel piles would be constructed and in place for 4 years within Abernethy Creek .

McLoughlin Creek and adjacent wetland: The proposed project would place permanent foundations below the OWHM of the creek for the required footing expansions for Pier 10. The permanent discharge of fill would be placed below the OHWM in 53 square feet of the creek. McLoughlin Creek would be temporarily piped for 340 linear feet to avoid and minimize sedimentation during pier construction. A diversion pipe to redirect flow during construction will be placed in Wetland 37 (W-37). A 145 square foot temporary construction pad for the crane will also be placed in W-37 for the duration of the construction period. W-37 will be restored to preconstruction conditions following the completion of construction activities and removal of the temporary fills. Sandbag barriers would be placed upstream and downstream of McLoughlin Creek. The diversion pipe and sandbags constitute a temporary discharge of 28 cubic yards of fill material over 2 square feet below the OHWM. Pier C3-3 would be removed and re-installed in the creek resulting in 1489 square feet of fill below the OWHM.

In-water work window (IWW) extensions were requested for the following activities:
1) Use of a barge all year long.
2) To complete drilled shafts - July 1 to December 31, 2020 (extending preferred IWW of October 31 to December 31)
3) Drilled shaft construction below the OHWM of the Willamette River but outside and above the actively flowing channel – any time during the year. Outside of the preferred IWW will occur within an isolation structure.

Purpose: To reduce congestion and provide seismic upgrades to the structural supports of the Abernethy and Main Street Bridges.

Project Location: The project is located in the Willamette River, McLoughlin Creek, Abernethy Creek, and Wetland-37 (W-37) at I-205 from the OR 43 interchange north to the OR 213 interchange, near West Linn in Clackamas County, Oregon at Latitude/Longitude 45.3644, -122.6045.

Drawings: Twenty (20) drawings/maps (Attachment 1)

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 18, 2024. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition No. 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions (Attachment 2).

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

a. Upon starting the activities authorized by this permit, Permittee shall notify the U.S. Army Corps of Engineers, Portland District, Regulatory Branch that the work has started. Notification shall be provided by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: NWP-2016-458-2, ODOT Clackamas County.

b. Permittee shall complete and sign the enclosed Compliance Certification (Attachment 3). Permittee shall submit the completed certification to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch within 30 days of completion of the authorized activity. The completed certification shall be provided by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: NWP-2016-458-2, ODOT Clackamas County. If you are submitting files larger than 10 MB, contact your county Regulatory Project Manager for instructions.

c. All in-water work shall be performed during the in-water work period of July 1 to December 31, to minimize impacts to aquatic species. Exceptions to this time period requires specific approval from the Corps and the National Marine Fisheries Service.

d. This Corps permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a biological opinion under ESA Section 7, with “incidental take” provisions with which you must comply). The Federal Highway Administration (FHWA) is the lead federal agency for ESA consultation for this project. The FHWA, or its designee, has determined the proposed project meets the requirements of the programmatic opinion prepared by the National Marine Fisheries Service (NMFS), titled *Endangered Species Act Programmatic Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response Federal-Aid Highway Program in the State of Oregon* dated November 28, 2012 (NMFS Reference Number 2011/02095) which contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with the “incidental take” that is also specified in the opinions. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the referenced opinion, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. It is your responsibility to obtain a copy of the terms and conditions from the lead federal agency. The NMFS is the appropriate authority to determine compliance with the terms and conditions its opinion, and with the ESA.

e. Permittee shall dispose of excavated materials at a suitable upland location, and materials shall be adequately stabilized to minimize increases in turbidity levels and indirect impacts to wetlands and other aquatic systems. The material shall be placed in a location and manner that prevents its discharge into waterways or wetlands. In the event of spills, affected material shall be taken to an appropriate upland location (and properly disposed of in accordance with any state standards or requirements).

f. Permittee shall ensure all appropriate sediment and erosion control devices are installed and in proper working order prior to construction. Devices shall remain in place until the area is stabilized and construction is complete. If necessary, sediment and erosion control may be left in place after construction is complete to facilitate stabilization. However, upon stabilization all devices shall be removed from the area and disposed of in and upland location.

g. Permittee shall isolate and confine the worksite from the active channel to minimize turbidity and prevent pollutants from entering the waterbody, except in the Willamette River.

h. Permittee shall take the necessary precautions to prevent any petroleum products, chemicals, or deleterious or toxic materials from entering waterways during construction.

i. Heavy equipment shall be clean and free of leaks when operated in or near the active channel. All vehicles shall be stored and fueled a minimum of 150 feet from any waterbody unless there is secondary containment.

j. All practicable erosion control devices shall be installed and maintained in good working order throughout construction to prevent the unauthorized discharge of material into a wetland or tributary and minimize increases in turbidity resulting from the work. The devices shall be installed in a manner to maximize their effectiveness, e.g., sediment fences shall generally be buried or similarly secured. These controls shall be maintained until permanent erosion controls are in-place or are no longer necessary.

k. Permittee shall inspect the erosion control devices on a frequency basis to confirm that they are in proper working order. Any maintenance necessary shall be implemented immediately prior to the continuation of construction activities.

l. Immediately upon completion of the work in wetlands, permittee shall fully remove the temporary fill, restore the grade and re-vegetate the project area, including the specific area to prevent degradation of the aquatic habitat/resource.

m. Permittee shall fully implement the Restoration Plan included in

Attachment 4.

n. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the U.S Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this Authorization:

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

	12-18-19
(PERMITTEE SIGNATURE)	**(DATE)**
DENIS REICH	ODOT REGION 1 ENVIRONMENTAL MANAGER
(PRINTED NAME)	**(TITLE)**

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

FOR THE COMMANDER, AARON L. DORF, COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER:

	18 December 2019
(DISTRICT COMMANDER)	**(DATE)**

William D. Abadie
Chief, Regulatory Branch

When the structures or work authorized by this permit are still in existence at the time the property is transferred , the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign below.

PERMIT TRANSFEREE:

______________________________ ______________________

Transferee Signature **DATE**

____

Name (Please print)

____

Address

____

City, State, and Zip Code

Attachment I. ODFW Fish Passage

From: MURTAGH Tom
To: WHITE Benjamin; MURTAGH Tom; BAKI Pete
Cc: THOMPSON Josie E; SIMMONS Devin
Subject: RE: Stafford to Abernathy
Date: Monday, October 9, 2017 5:48:02 PM

Hi Ben, Finally getting back with fish presence information in regards to the list of culverts that will be affected by the proposed I-205 highway widening project between Stafford Road and the Abernethy Bridge. From the list and subsequent site visits, I identified three culverts where fish passage will need to be addressed; 1) Abernethy Creek culvert (No. 4 on list), and 2) Athey Creek culvert (No. 5 on list), and 3) No 10 or 11 on the Excel list, needs to be confirmed. Native migratory fish associated with the Abernethy Creek culvert (No. 1), located on the east side of the Willamette River, include ESA listed winter steelhead, coho salmon and chinook, and State Vulnerable Pacific lamprey, as well as cutthroat trout. This culvert conveys Abernethy Creek under Highway 99E and some smaller collector roads, so it is uncertain how any proposed bridge work conducted on I-205 above Highway 99E and the culvert crossing will trigger the State Fish Passage Law, or if the current culvert meets fish passage criteria as it functions today. For Athey Creek (No. 2), the only native migratory fish of concern are resident cutthroat trout. It is unknown if these fish are present today in the reach above the culvert. More evaluation of this small watershed and discussion will be needed prior to determining the appropriate approach to addressing fish passage, as there is a small barrier dam downstream that is assumed to be a full barrier. It is also unknown if the Borland Road culvert just upstream from the dam is fish passable, as well. There is approximately . miles of viable fish habitat upstream of the highway culvert. Fritchie Creek is the stream conveyed under I-205 by either culvert No. 10 or No. 11 (couldn't verify). Resident cutthroat trout are the NMF of concern at this location. There is approximately .25 miles of viable habitat upstream of the Highway crossing.

Native migratory fish and the State Fish Passage Law will not have to be addressed for all other culverts on the Excel spread sheet given gradient, hydrology, size of the stream, and lack of fish. Thanks for coordinating and please don't hesitate to contact me for further discussion or clarification. A site visit may be useful. ODFW looks forward to assisting ODOT as this large project moves forward.

Tom Murtagh
District Fish Biologist
ODFW – Clackamas
W – 971.673.6044
C – 971.678.4871

From: WHITE Benjamin [mailto:Benjamin.WHITE@odot.state.or.us]
Sent: Monday, September 18, 2017 8:47 AM
To: MURTAGH Tom; BAKI Pete
Cc: THOMPSON Josie E; SIMMONS Devin
Subject: RE: Stafford to Abernathy

Hey Tom,

I had a feeling you would be hearing something about this soon. Last week I received the information to request a fish presence determinations for the waterways and now that I've wrapped up all the IWW extension work I'm moving on to this. They would like a determination on the list of crossings with culverts over 24in within the project area. We have had them prepare a map of all drainages and a spreadsheet of the known presence information they were able to find (not much). Due to topography I have a feeling many of these are not fish bearing but we have had surprises recently so not making any assumptions. Note the map is missing Mclean Creek which is under the west end of the I-205 bridge.

I also see there are a couple of drainages on the east side. Will I need to reach out to Todd as well?

Pete, it ok. I figured you would be stuck in only culvert agreement work, especially with the planned expansion. I look forward to meeting you soon though!

Let me know what else you will need and whether we need to get out and look at these! We'd prefer to squeeze something in sooner rather than later with the consultant if at all possible.

Thanks so much Tom!

Ben White
ODOT Region 1 Biologist
123 NW Flanders
Portland, OR 97209

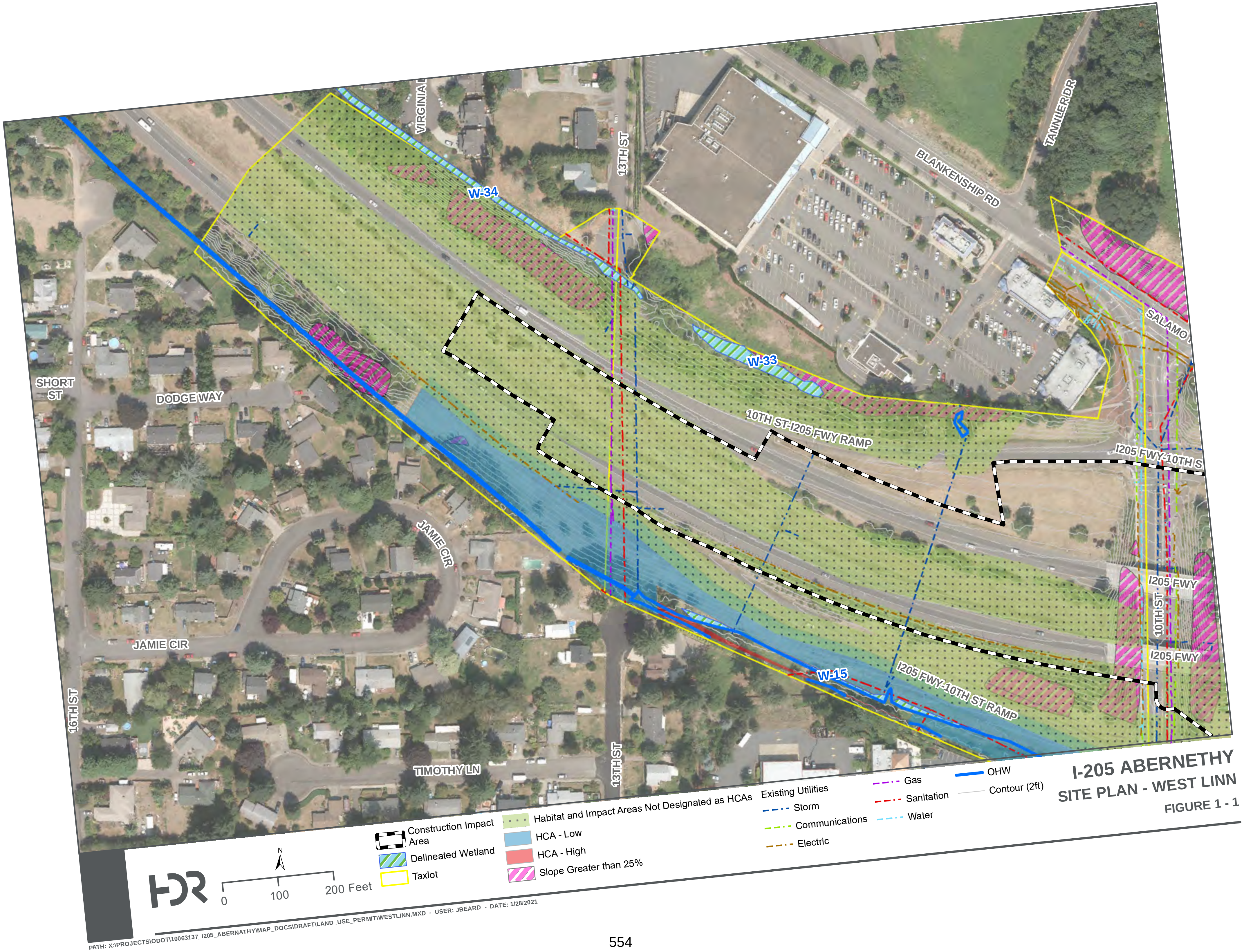
503-731-8517

From: Tom Murtagh [mailto:tom.murtagh@state.or.us]
Sent: Thursday, September 14, 2017 9:38 AM
To: WHITE Benjamin; BAKI Pete
Cc: THOMPSON Josie E
Subject: Stafford to Abernathy

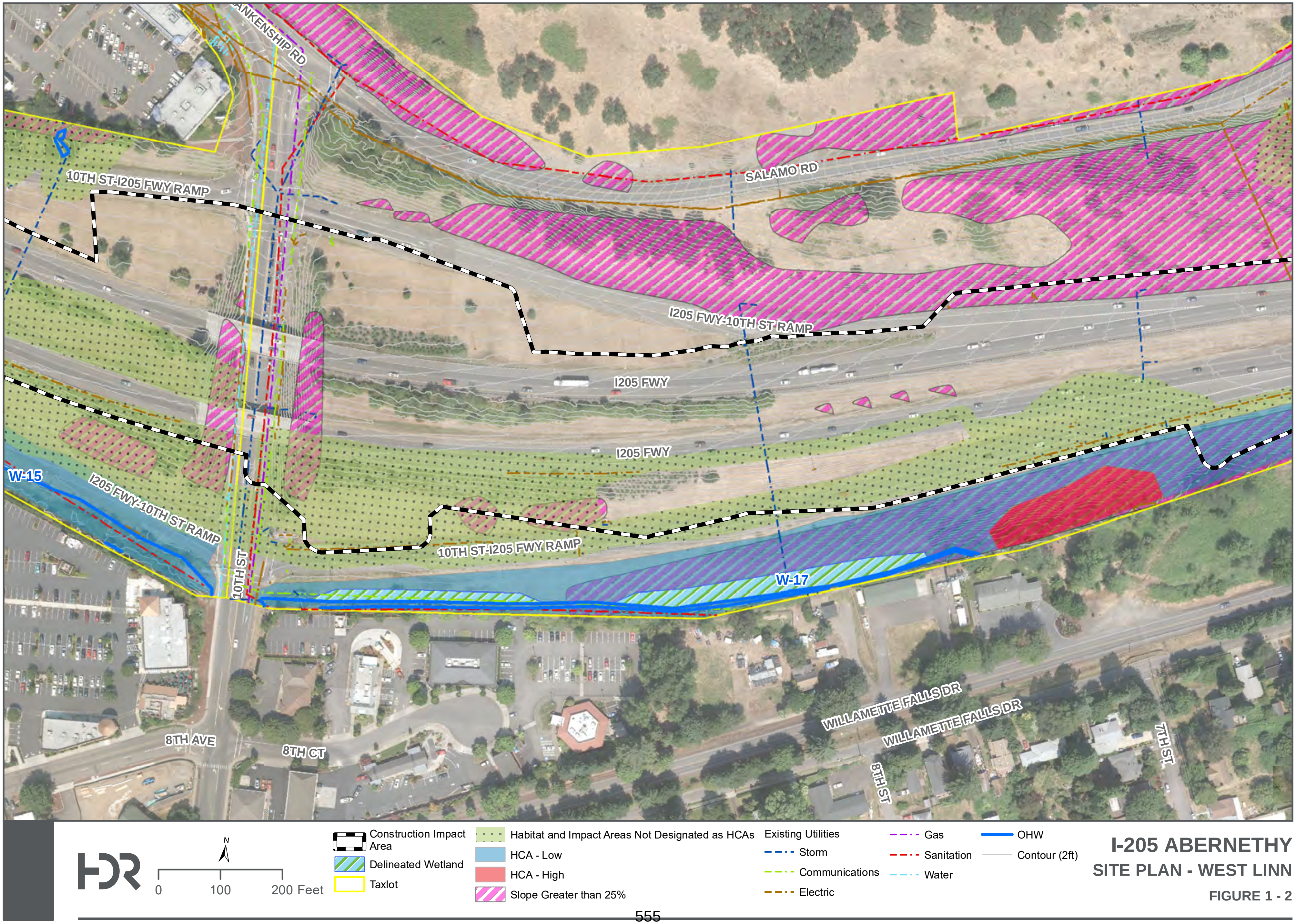
Hey Ben – just got wind that ODOT is moving on the I-205 highway widening project between Stafford Road and the Abernathy Bridge. There will be some resource concerns, both fish and wildlife, so let me know when you want to engage on this. Note that Pete Baki (included) is the new ODFW/ODOT Liaison and I assume that he will be involved as well, but not sure when his start date is. Thanks. Tom.

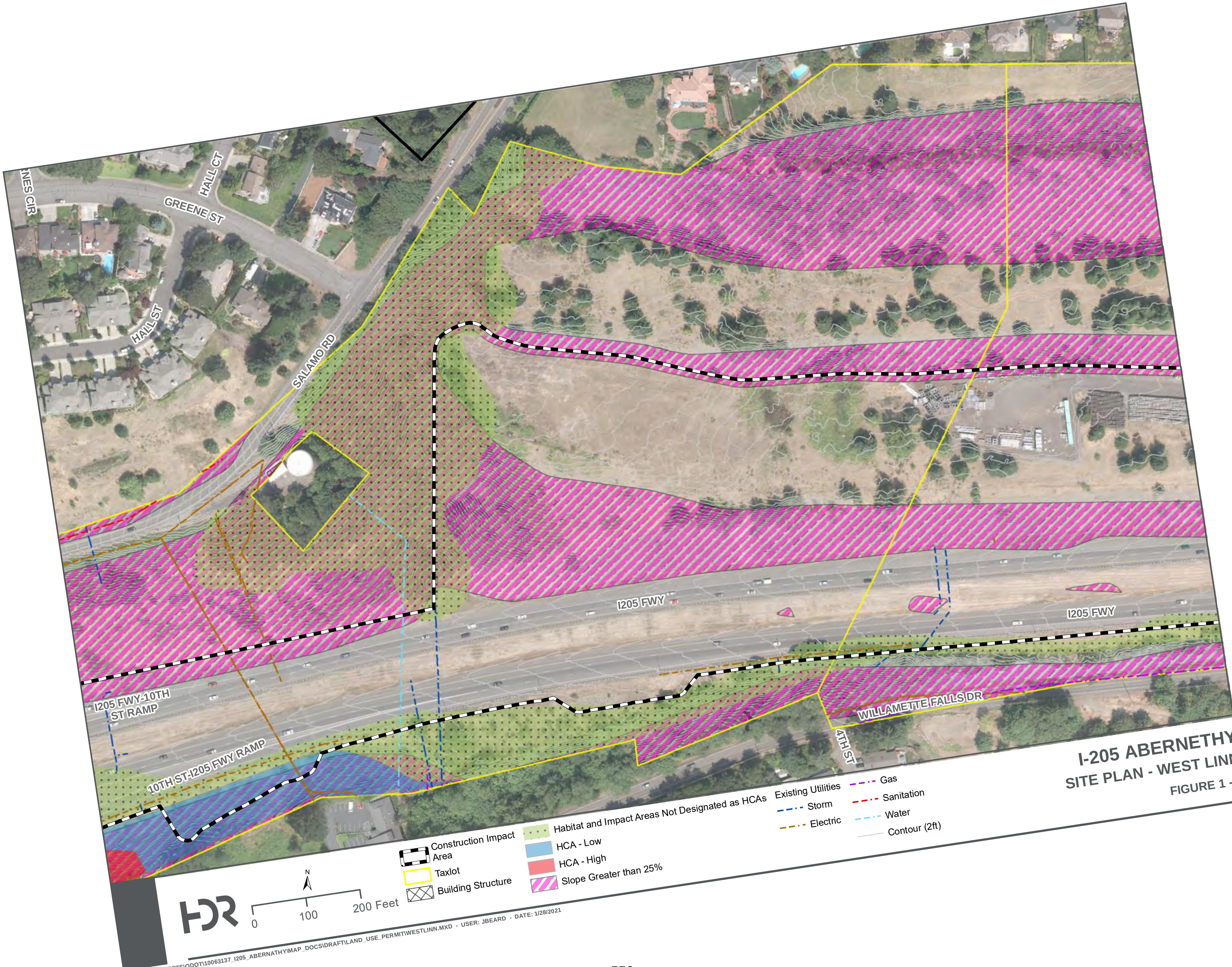
Tom Murtagh
District Fish Biologist
ODFW – Clackamas
W – 971.673.6044
C – 971.678.4871

Attachment J. Ch. 28 Site Plan



VIRGINIA L
13TH ST
TANNLER DR
BLANKENSHIP RD
W-34
W-33
W-15
SALAMO
SHORT ST
DODGE WAY
10TH ST-I205 FWY RAMP
I205 FWY-10TH S
JAMIE CIR
I205 FWY
10TH ST
I205 FWY-10TH ST RAMP
16TH ST
TIMOTHY LN
I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 1
Construction Impact Area
Delineated Wetland
Taxlot
Habitat and Impact Areas Not Designated as HCAs
HCA - Low
HCA - High
Slope Greater than 25%
Existing Utilities
Storm
Communications
Electric
Gas
Sanitation
Water
OHW
Contour (2ft)
N
0
100
200 Feet
PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNETHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021


BLANKENSHIP RD
10TH ST-I205 FWY RAMP
SALAMO RD
I205 FWY-10TH ST RAMP
I205 FWY
I205 FWY
W-15
I205 FWY-10TH ST RAMP
10TH ST
10TH ST-I205 FWY RAMP
W-17
WILLAMETTE FALLS DR
WILLAMETTE FALLS DR
8TH AVE
8TH CT
8TH ST
7TH ST
HDR
N
0 100 200 Feet
Construction Impact Area
Delineated Wetland
Taxlot
Habitat and Impact Areas Not Designated as HCAs
HCA - Low
HCA - High
Slope Greater than 25%
Existing Utilities
Storm
Communications
Electric
Gas
Sanitation
Water
OHW
Contour (2ft)
I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 2
PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021



NES CIR
HALL CT
GREENE ST
HALL ST
SALAMO RD
I205 FWY
I205 FWY
I205 FWY-10TH ST RAMP
10TH ST-I205 FWY RAMP
WILLAMETTE FALLS DR
4TH ST
I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 3
Construction Impact Area
Taxlot
Building Structure
Habitat and Impact Areas Not Designated as HCAs
HCA - Low
HCA - High
Slope Greater than 25%
Existing Utilities
Storm
Electric
Gas
Sanitation
Water
Contour (2ft)
0
100
200 Feet
N
PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021

556

N

0 100 200 Feet

Construction Impact Area
Delineated Wetland
Taxlot
Building Structure
Habitat and Impact Areas Not Designated as HCAs
Slope Greater than 25%
Existing Utilities
Storm
Electric
Gas
OHW
Contour (2ft)

I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 4

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021

Construction Impact Area
Delineated Wetland
Taxlot
Habitat and Impact Areas Not Designated as HCAs
HCA - Low
HCA - High
Slope Greater than 25%

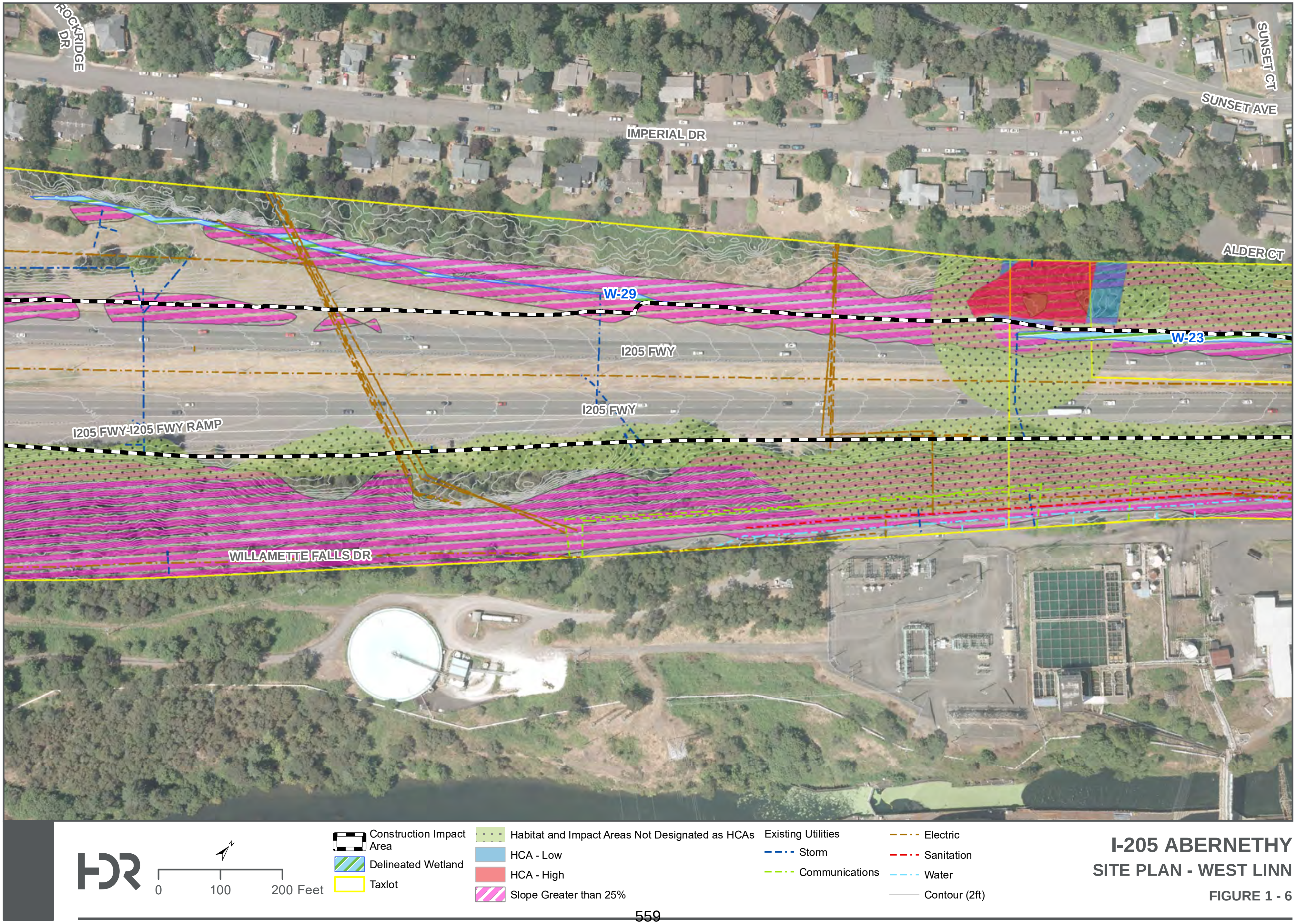
Existing Utilities
Storm
Communications
Electric
Gas
Sanitation
Water
OHW
Contour (2ft)

0 100 200 Feet

I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 5

558

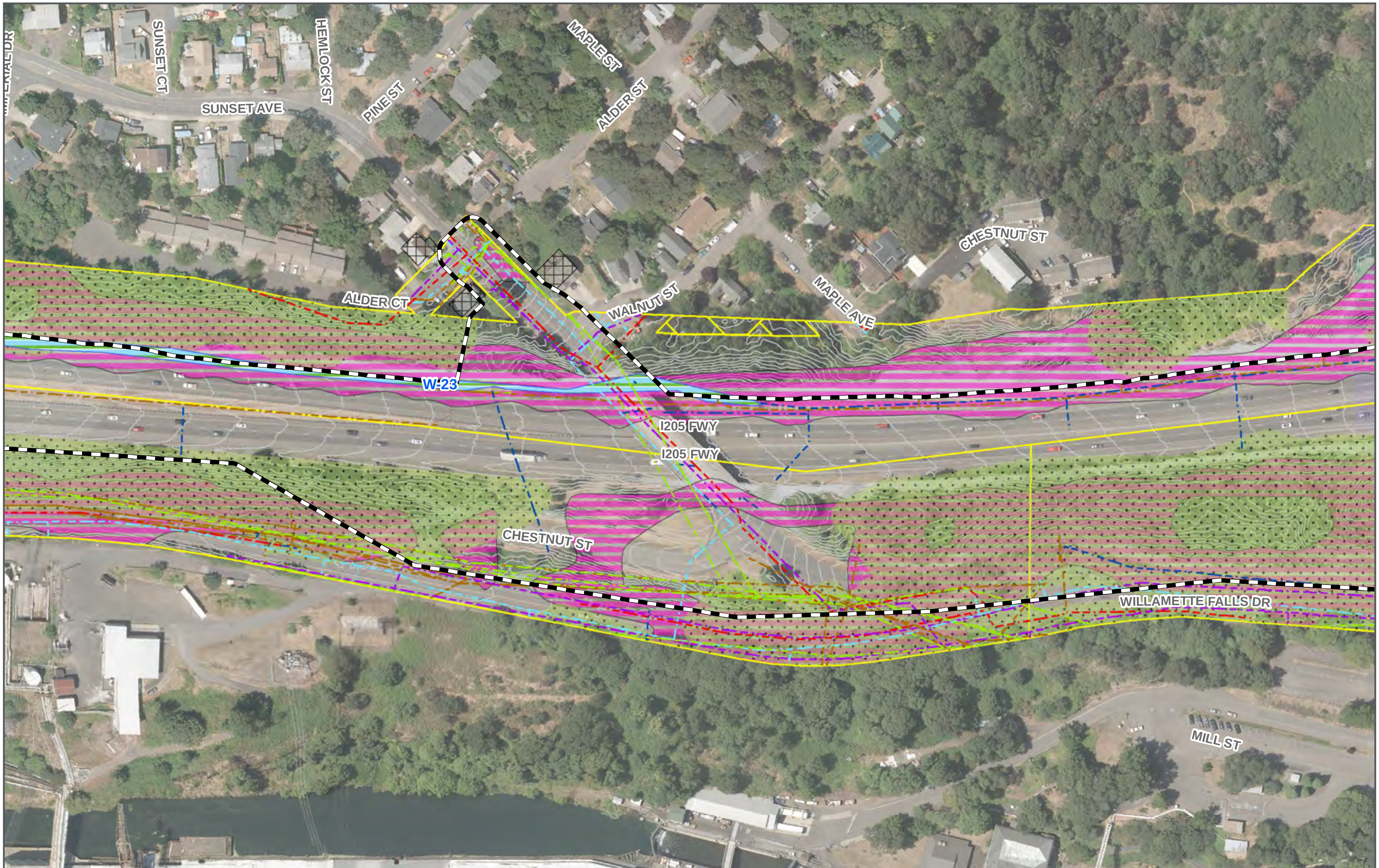
PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021



I-205 ABERNETHY
SITE PLAN - WEST LINN
FIGURE 1 - 6

559

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021



0 100 200 Feet

Construction Impact Area
Delineated Wetland
Taxlot
Building Structure
Habitat and Impact Areas Not Designated as HCAs
Slope Greater than 25%

Existing Utilities
Storm
Communications
Electric
Gas
Sanitation
Water
Contour (2ft)

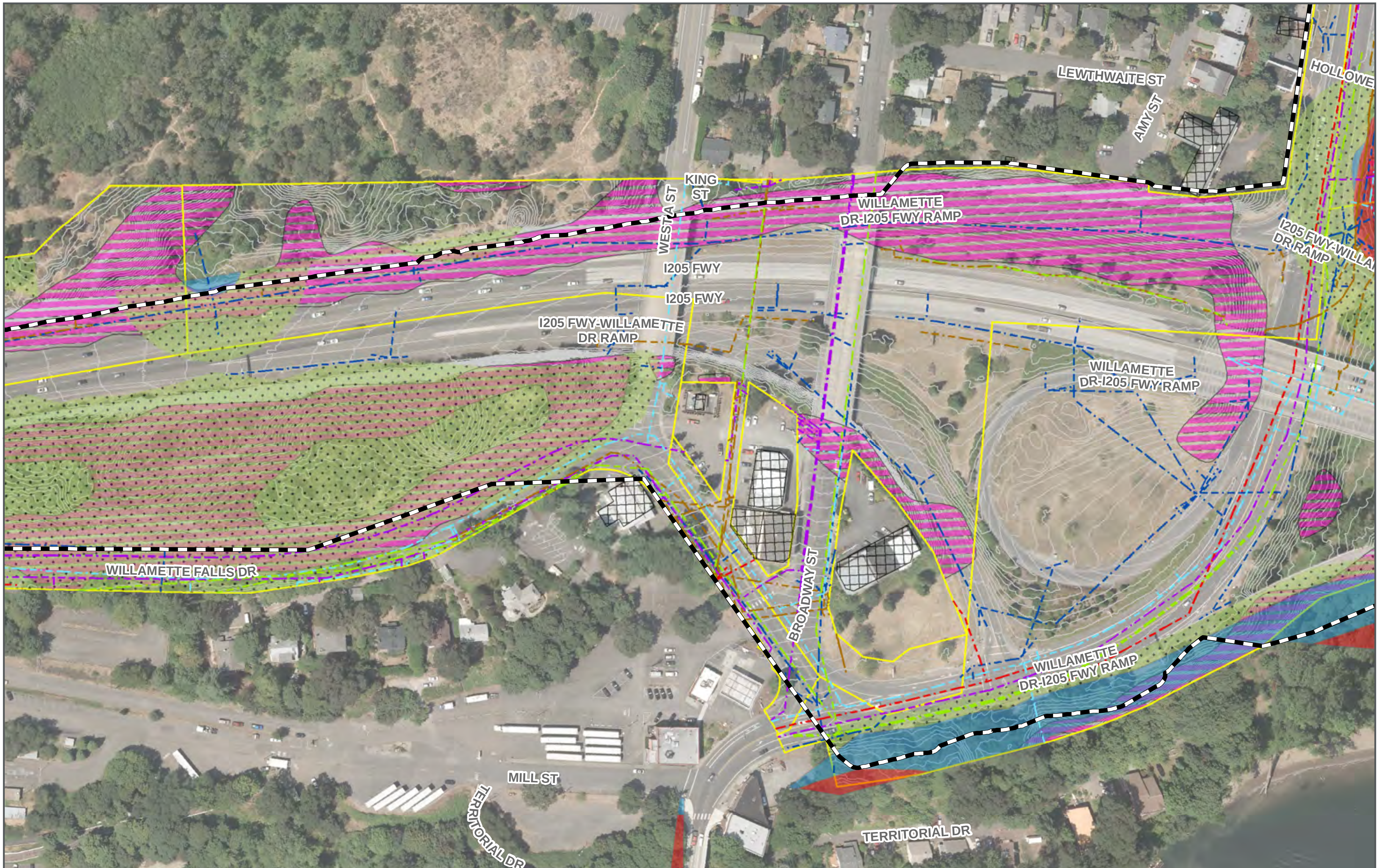
I-205 ABERNETHY

SITE PLAN - WEST LINN

FIGURE 1 - 7

560

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021



HDR

0 100 200 Feet

Construction Impact Area

Taxlot

Building Structure

Habitat and Impact Areas Not Designated as HCAs

HCA - Low

HCA - High

Slope Greater than 25%

Existing Utilities

Storm

Communications

Electric

Gas

Sanitation

Water

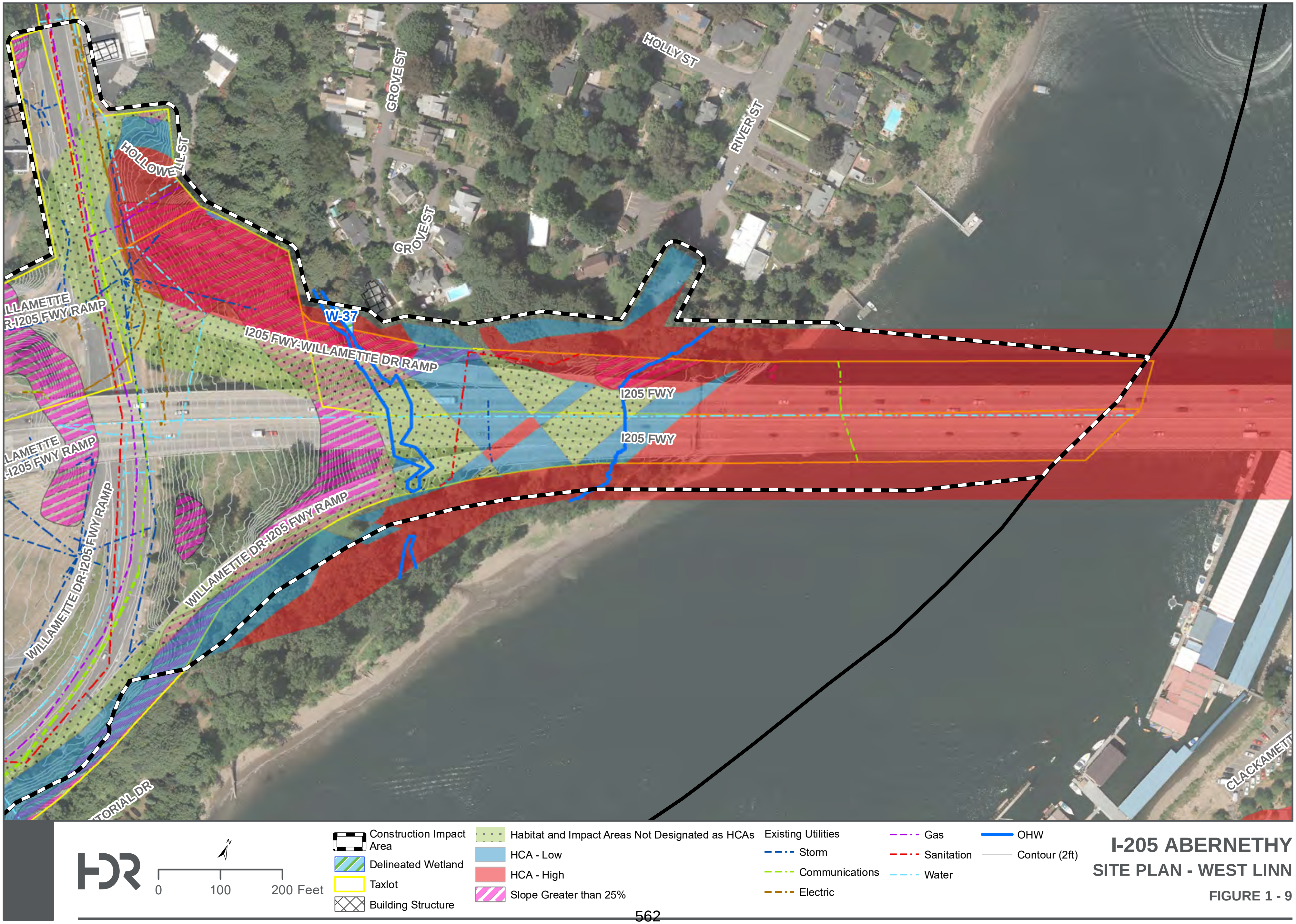
Contour (2ft)

I-205 ABERNETHY

SITE PLAN - WEST LINN

FIGURE 1 - 8

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNETHY\MAP_DOCS\DRAFT\LAND_USE_PERMIT\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021



562

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Attachment K. Mitigation Plan

HCA & WRA Mitigation Plan

Date:	Monday, February 08, 2021
Project:	ODOT | K19786 I-205 Improvements: Stafford Road to OR 213
To:	Allen Hendy, ODOT – PM
From:	Stephanie Serpico, HDR – PM
Subject:	West Linn Land Use Application – Mitigation Plan

Mitigation Required

Disturbance is proposed in multiple Habitat Conservation Areas (HCAs) and Water Resource Areas (WRAs) within the project area, requiring mitigation consistent with Community Development Code (CDC) Chapter 31.200.

Mitigation Plan Requirements

As outlined in CDC 32.090.E, the following items are required in the mitigation plan:

List of all parties responsible for work on development site

The Oregon Department of Transportation (ODOT) is the party responsible for work on the development site.

Map showing where specific adverse impacts will occur and where mitigation will occur

See Attachment T for a map of proposed impacts to WRAs, Attachment O for a map of proposed impacts to HCAs, and Attachment L for the Revegetation Plan, which shows where mitigation will occur. See Table 1 for proposed impacts and mitigation WRAs and Table 2 for proposed impacts and mitigation in HCAs. In total, 17,918 square feet of WRA is proposed to be permanently impacted. Following the mitigation and revegetation standards of Chapter 32, 17,918 square feet of mitigation is required as the proposed impacts are not to previously developed areas (PDAs), requiring a 1:1 mitigation ratio. Based on density requirements outlined in 32.100.A.3.a, 17,918 square feet of disturbance requires 178 trees and 896 shrubs to be planted. Temporarily impacted areas will be restored and revegetated. On-site mitigation is proposed by restoring and enhancing existing WRAs on-site.

Table 1. Proposed disturbance and mitigation in WRAs

WRA #	PDA disturbance (sq. ft.)	Non-PDA disturbance (sq. ft.)	Mitigation required
1			
2	0	0	None
3	0	6,432	6,432 sq. ft., 64 trees, 322 shrubs
4	0	0	None
5	0	948	948 sq. ft., 9 trees, 47 shrubs
6	0	10,538	10,538 sq. ft., 105 trees, 527 shrubs
Total	**0**	**17,918**	**17,918 sq. ft., 178 trees, 896 shrubs**

Proposed temporary impacts to HCAs will be restored and revegetated as with the WRAs. Permanent impacts to HCAs total 22,126 square feet, requiring planting of 221 trees and 1,106 shrubs.

Table 2. Proposed disturbance and mitigation in HCAs

HCA #	Permanent disturbance (sq. ft.)	Mitigation required
1	10,726	10,726 sq. ft., 107 trees, 536 shrubs
2	0	0
3	0	0
4	11,400	11,400 sq. ft, 114 trees, 570 shrubs
Total	**22,126**	**22,126 sq. ft., 221 trees, 1,106 shrubs**

Impacted areas of HCAs that overlap with WRAs were counted as WRA impacts as to not double count (only non-overlapping HCAs with impacts were counted). WRA 5 and HCA 4 are both located underneath the Abernethy Bridge and overlap with the proposed mitigation area in compliance with the Department of State Lands (DSL) and U.S. Army Corps of Engineers (USACE) Joint Permit Application mitigation requirements. See Attachment L for the Landscaping/Revegetation Plan. It should be noted that additional area under the bridge is proposed to be landscaped and reseeded as part of the project in addition to the proposed mitigation. Only the areas highlighted in orange on Sheets FA15 and FA16 in Attachment L are the areas proposed for HCA and WRA mitigation in compliance with CDC Chapters 28 and 32.

Disturbance areas were calculated using ArcMap with the proposed project design overlaid with the WRAs (Attachment T) and HCAs (Attachment O). Some of the WRAs in the project area overlap with existing roadway, which are exempt from WRA permit requirements per CDC 32.040.B.1. Areas determined by the applicant to be exempt are shown in Attachment T, and neither temporary nor permanent impacts were calculated in those areas. Permanent impacts were from proposed excavation and fill associated with widening I-205, installation of stormwater facilities, and installation of drilled shafts associated with the Abernethy Bridge seismic retrofit. Temporary impacts include staging of materials, excavation and fill that will be restored at grade and revegetated, and access roads. In HCAs that overlap with existing roadways, an HCA Map Amendment was created (Attachment W), which documents the areas that do not provide any habitat elements typical of HCA designations. Impacts from the project were not calculated in these areas.

Mitigation for all HCA and WRA permanent disturbance is proposed to be located under and adjacent to the Abernethy Bridge. The total disturbance of permanent impacts to WRAs and HCAs requires 40,044 square feet of mitigation, including 399 trees and 2,002 shrubs to be planted. The total proposed mitigation area is 190,732 square feet, with 704 trees and 2,067 shrubs (see Attachment L, Landscaping Plan).

A revegetation plan for the areas to be mitigated that meets the standards of CDC 32.100
The proposed landscaping plan (Attachment L) meets most of the standards listed in CDC 32.100.

1. All trees, shrubs, and ground cover proposed for planting are native plants selected from the Portland Plant List. The revegetation plan meets this standard.
2. Plant size: Bareroot material is proposed to plant most of the mitigated areas. Bareroot shrubs are equivalent to one-gallon containers. The revegetation plan meets this standard.
3. Plant coverage: Trees are proposed to be planted at a rate of 5 trees and 25 shrubs per 500 square feet of disturbance. Proposed mitigation amounts, including trees and shrubs, are included above in Tables 1 and 2. Trees are proposed to be planted at an average of 15 feet on center. Shrubs will be installed 5 feet on center, in groups of 3 to 9 plants per species. Shrub groups will be spaced no closer than 15 feet apart and no closer than 5 feet to an adjacent tree. Planting at a more open density will yield a healthier, more self-sustaining ecosystem. Overplanting will require removals or result in tree-fall as species crowd each other out. The revegetation plan does not meet this standard; however, to make up for the lower density plantings, the applicant proposes additional mitigation area, trees, and shrubs that will exceed the required amounts based on disturbance. Overall, the amount of proposed mitigation is equal to 190,732 square feet, including 704 trees and 2,067 shrubs.
4. Plant diversity: Proposed shrubs consist of 11 different species and trees consist of 18 species (see Sheet FA03 in Attachment L, Landscaping Plan). The revegetation plan meets this standard.
5. Invasive vegetation: The revegetation plan meets this standard as invasive vegetation and noxious weeds will be removed within the mitigation area prior to planting.

6. Tree and shrub survival: Proposed density in mitigation areas is 80% survival rate after 3 years. Mulching and irrigation will be applied to ensure 80% survival after 3 years of monitoring. The applicant will also provide weed control throughout the maintenance period, and planting is proposed to occur during the planting season
7. Monitoring and reporting: The applicant will provide a 3-year monitoring and maintenance plan, including a report to be submitted at the end of the third year documenting 80% survival of mitigation areas, including native volunteers. ODOT will be responsible for monitoring and maintaining the mitigation areas.

Implementation schedule (timeline for construction, mitigation, mitigation maintenance, monitoring, reporting)

Construction will begin in Fall of 2022 and continue until Fall of 2025. Restoration will be implemented Fall of 2025 and continue through Spring of 2026. Monitoring and maintenance will begin in Spring 2026 and continue through 2031.

Assurances shall be established to rectify mitigation actions not successful within the first 3 years. This may include bonding or other surety.

The State of Oregon, acting though the Department of Transportation, shall include contractual obligations with the selected contractor to fulfill the mitigation criteria as presented. Mitigation plantings will be monitored for success consistent with the Stream and Water Restoration Plan. Through the issuance of permits from both DSL and USACE, ODOT is legally obligated to 5 years of mitigation monitoring and success criteria found within the Stream and Water Restoration Plan. See Attachment Z for the DSL and USACE permits.

A monitoring report will be submitted to the City's planning division, documenting plant survival rates of shrubs and trees on the mitigation sites after the third year of monitoring and maintenance. The report will also include photographs of the mitigation sites. ODOT will conduct active maintenance to reduce non-native vegetation coverage. Routine maintenance may include limited spot herbicide treatments, mulching undesirable trees and shrubs, and replanting and/or reseeding with native species. Site maintenance will occur on an as-need basis. Informal hydrology and natural resource observations will be included along with an assessment of performance standards. If performance standards are not met, then remedial actions will be proposed in the monitoring report.

Attachment L. HCA Map Amendment Narrative

HCA Map Errors and Amendment

Date:	Monday, February 08, 2021
Project:	ODOT | K19786 I-205: I-5 to OR 213, Phase 1
To:	Allen Hendy, ODOT – PM
From:	Stephanie Serpico, HDR – PM
Subject:	West Linn Land Use Application – HCA Map Amendment

HCA Map Errors

Habitat Conservation Areas (HCAs) are mapped by Metro and combine regionally significant riparian and upland wildlife habitat, which supports riparian functions and wildlife values. As outlined in Metro Code Chapter 3.01.1310, the purposes of Metro's HCA program are "to 1) conserve, protect, and restore a continuous ecologically viable streamside corridor system, from the streams' headwaters to their confluence with other streams and rivers, and with their floodplains in a manner that is integrated with upland wildlife habitat and with the surrounding urban landscape; and 2) to control and prevent water pollution for the protection of the public health and safety, and to maintain and improve water quality throughout the region." As stated in West Linn CDC Chapter 28.070.A, "it is inevitable, given the large area that Metro's HCA Map covers, that there may be some errors." This document outlines the HCA map errors in the proposed project area and serves as an application to amend the HCA map.

HCAs in Project Area

HCAs in the project area were mapped by Metro in 2004 based on a three-step process as outlined in Metro Code Chapter 3.07.1340.d.3. The process includes determining boundaries of riparian habitat areas, determining the urban development value of the property, and cross-referencing the habitat classes with the urban development value. There are four separate HCAs in the project area, all of which are partially mapped in error. Figures 1-4 of Appendix A show each HCA in the project area.

HCA 1

HCA 1 is located both east and west of 10th Street and overlaps two wetlands and a stream on the shoulder of I-205 northbound (NB). There are areas of moderate and low HCA designations present. Portions of the HCA overlap with existing roadway (I-205 NB), the median between the I-205 on ramp and I-205 NB, and existing roadway on 10th Street.

HCA 1 appears to have been established to protect the functions and values associated with a small manipulated jurisdictional stream and adjoining degraded wetland. The stream is an intermittent stream, five feet in width at its widest point located south of 10th street on-ramp to I-205 NB. Beginning west of 10th Street the stream flows into and out of several culverts, eventually discharging into the Willamette River further downstream. The wetland is immediately adjacent to the stream (to the north), and is dominated by invasive plant species, including Himalayan blackberry and reed canary grass. Functions provided by the stream and wetland include water quality treatment of stormwater runoff and low-quality habitat for macroinvertebrates, birds, and wildlife.

Portions of HCA 1 fall entirely within the engineered roadway prism of I-205 and 10th Street and are surrounded on both sides by existing roadway, disrupting habitat connectivity. The applicant proposes to remove the sections that overlap with the existing engineered roadway prism. The roadway prism is engineered to support traffic. While the prism does provide a minor functional value to a natural system that is directly adjacent to the roadway prism, those beneficial functions would be limited to water quality treatment for stormwater entering the degraded and altered water resources for which HCA 1 appears to have been established. The area of moderate HCA 1 found between the I-205 northbound mainline and the 10th Street on-ramp to I-205 provides no functional benefit to the degraded jurisdictional feature. Stormwater runoff from the proposed additional impervious surfaces adjacent to HCA 1 will be treated to current design standards using bioretention ponds. Two bioretention ponds are proposed to be located east of 10th Street, in between I-205 NB and I-205 SB (See Attachment P, Water Quality Facilities). The proposed stormwater facilities are designed to control runoff, protect against erosion, and provide high quality treatment of runoff before it discharges into water features downstream.

Not only do these erroneously-mapped areas not provide wildlife values consistent with the intent of HCAs, it would be inappropriate to encourage wildlife use in such close proximity to a major freeway, as it would add a substantial safety concern for both wildlife and road users. Given these areas, HCA 1 does not provide riparian benefits, floodplain connection, wildlife habitats, or improvements to the quality of water within a jurisdictional feature. These areas are mapped in error and the applicant requests those areas shown as “HCA Map Amendment (removal)” on Figure 1 (Appendix A) be removed from HCA 1.

HCA 2

HCA 2 is located north of I-205 southbound (SB), east of the ODOT maintenance yard. It consists of low, moderate, and high designations. Gravel roads cross through the entire HCA. It appears HCA 2 was mapped to protect and enhance water quality of Tanner Creek. Tanner Creek enters a culvert north of the I-205 SB shoulder, just south of a row of houses on Imperial Drive (Appendix

A, Figure 2). The culvert extends below both lanes of I-205 and daylights south of Willamette Falls Drive. There is a short daylighted portion north of the culvert inlet, approximately 80 feet long. The creek is between 3 to 6 feet wide at its widest point. Tanner Creek is perennial, and provides moderate habitat for birds, wildlife, and macroinvertebrates. Dominant vegetation surrounding the daylighted portion of the stream includes native vegetation such as sitka willow, but also invasive vegetation such as reed canarygrass. The limited area of the creek not within a culvert provides water quality functions and macroinvertebrate production. The stream does not support fish.

Because the stream is contained in an underground culvert, HCA 2 does not provide any riparian functions or wildlife values to Tanner Creek within the project area. The culvert disrupts habitat connectivity in the area. A portion of HCA 2 also overlaps with the existing lanes of I-205 SB and NB. These portions of HCA 2 are not providing any functions or benefits to Tanner Creek or its surrounding riparian area as they are contained within engineered facilities. For these reasons, the applicant proposes an HCA map amendment to remove the area downstream of the culvert inlet that overlaps with existing developed facilities and engineered roadways.

HCA 3

HCA 3 is located north of I-205 SB, west of the Sunset Avenue Bridge overcrossing of I-205, and consists of both moderate and high HCA designations. It is associated with Sunset Creek, which is piped underneath I-205 in a stormwater pipe. Sunset Creek is daylighted for a short distance north of the project area, south of Imperial Drive, where it enters a stormwater pipe approximately 100 feet south that crosses underneath I-205. The creek daylights again south of I-205 NB for a short distance and enters another pipe north of Willamette Falls Drive (Figure 3). Similar to Tanner Creek described in HCA 2 above, Sunset Creek is providing water quality and habitat functions but is limited to the daylighted portion of the stream. Most of Sunset Creek is contained within the stormwater pipe, which prevents any riparian benefits intended by HCA mapping.

Part of the “moderate” designated HCA overlaps with the existing I-205 roadway and is mapped in error. The applicant proposes to amend the HCA map and remove the portion that overlaps with I-205 and the stormwater pipe, since this area is not providing any habitat functions or values to Sunset Creek.

HCA 4

HCA 4 is located southeast of OR43 across from the I-205 NB on-ramp (Appendix A Figure 4). It consists of both moderate and high designations and is associated with the Willamette River. The Willamette River provides many moderate to high functions related to water quality, aquatic habitat and riparian habitat. Some of these functions include fish and wildlife habitat (including

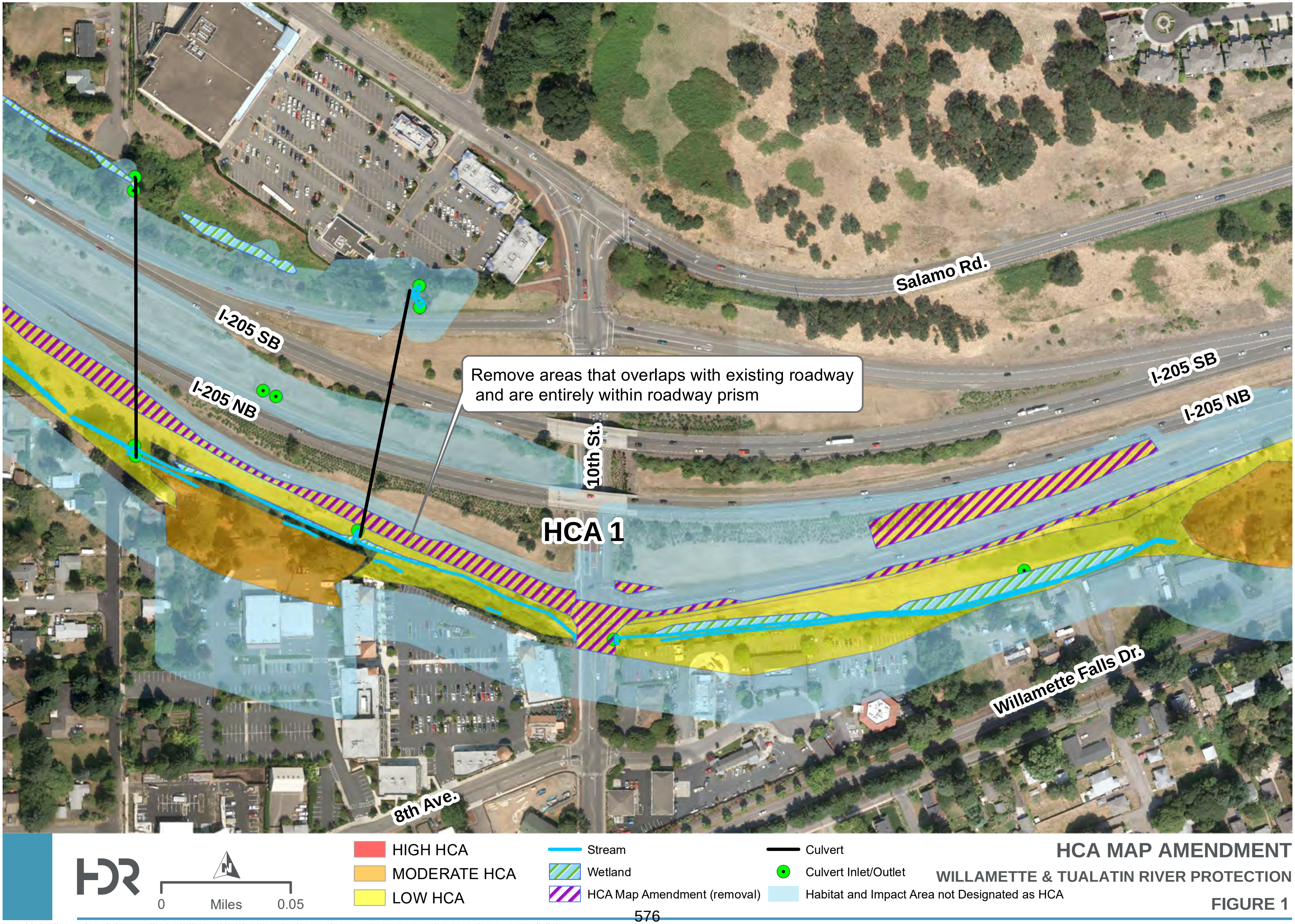
ESA-listed aquatic species), low water flow moderation, substrate mobility, and nutrient cycling. HCA 4 extends from the Willamette River up to the roadway of OR-43.

The majority of HCA 4 appears to be mapped correctly except for an area of moderate HCA that overlaps with the existing roadway on OR-43. HCA 4 was mapped to protect the water quality and riparian habitat associated with the Willamette River; however, a portion has been previously disturbed during the construction of OR-43. The natural vegetation has been replaced with grasses that are easy to mow and maintain. The existing roadway does not provide suitable habitat for wildlife. The full boundary of the original HCA was mapped in error, and the applicant proposes an amendment to remove the portion that overlaps with existing roadway as it is not providing riparian habitat functions or values originally intended with HCA designations.

Additional Documentation

In addition to the figures below showing the HCA mapping errors within the project area, HDR completed a wetland delineation and received concurrence from the Oregon Department of State Lands in 2019. The wetland delineation confirmed the boundaries of the jurisdictional waters the HCAs were established to protect. See Attachment X for DSL Concurrence and Wetland Delineation Report.

Appendix A. Figures



576

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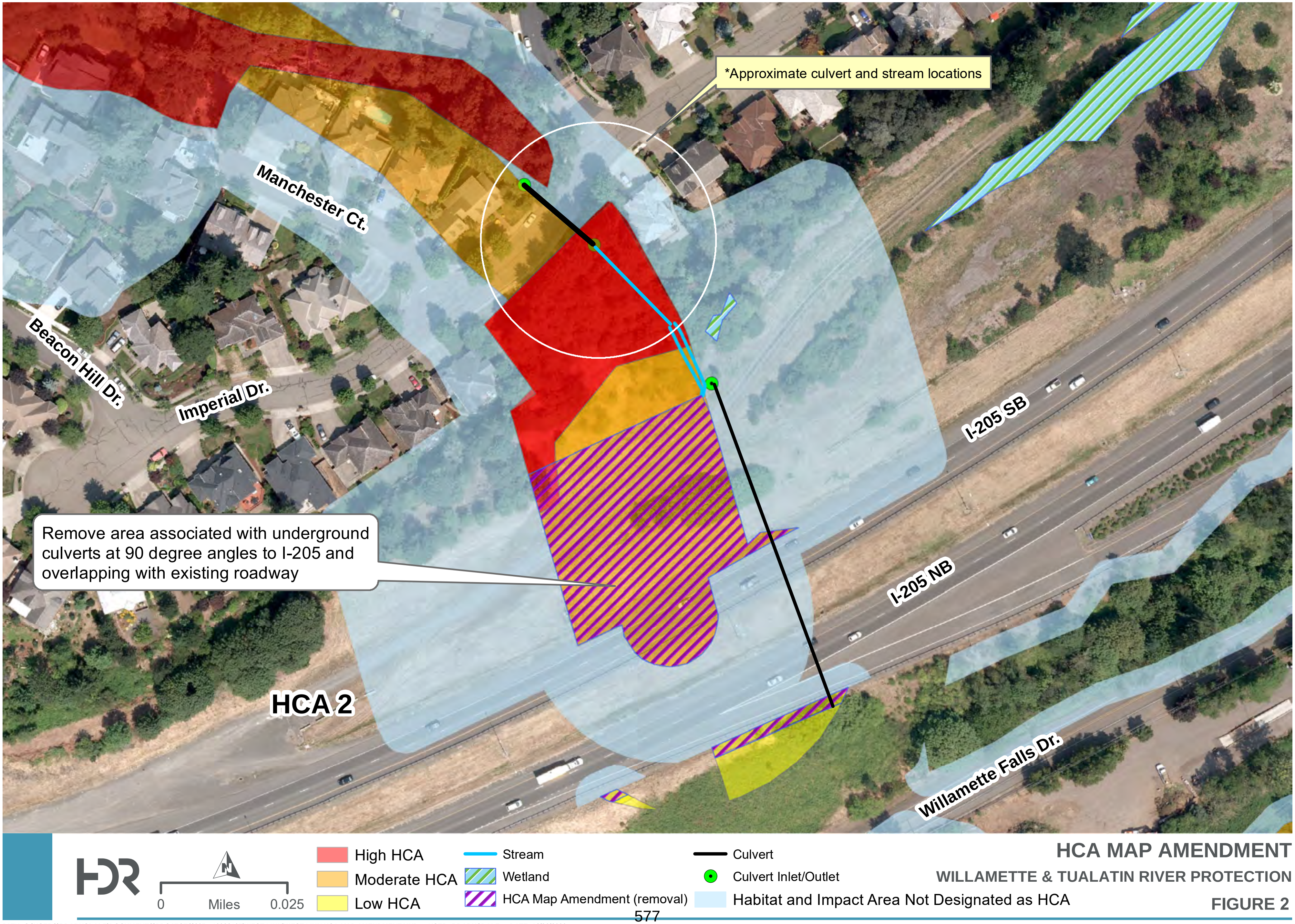

HCA MAP AMENDMENT

WILLAMETTE & TUALATIN RIVER PROTECTION

FIGURE 2

577

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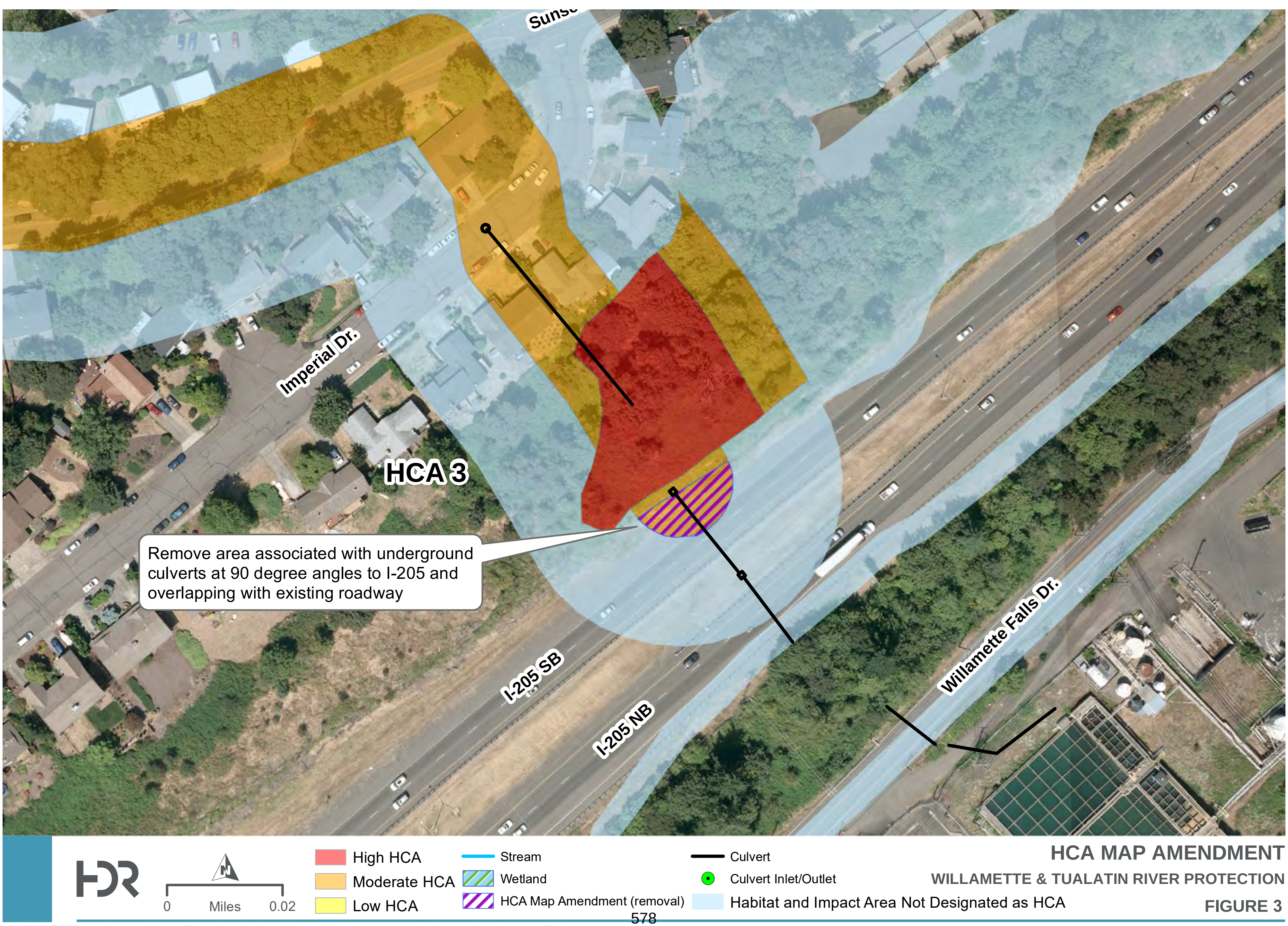

578

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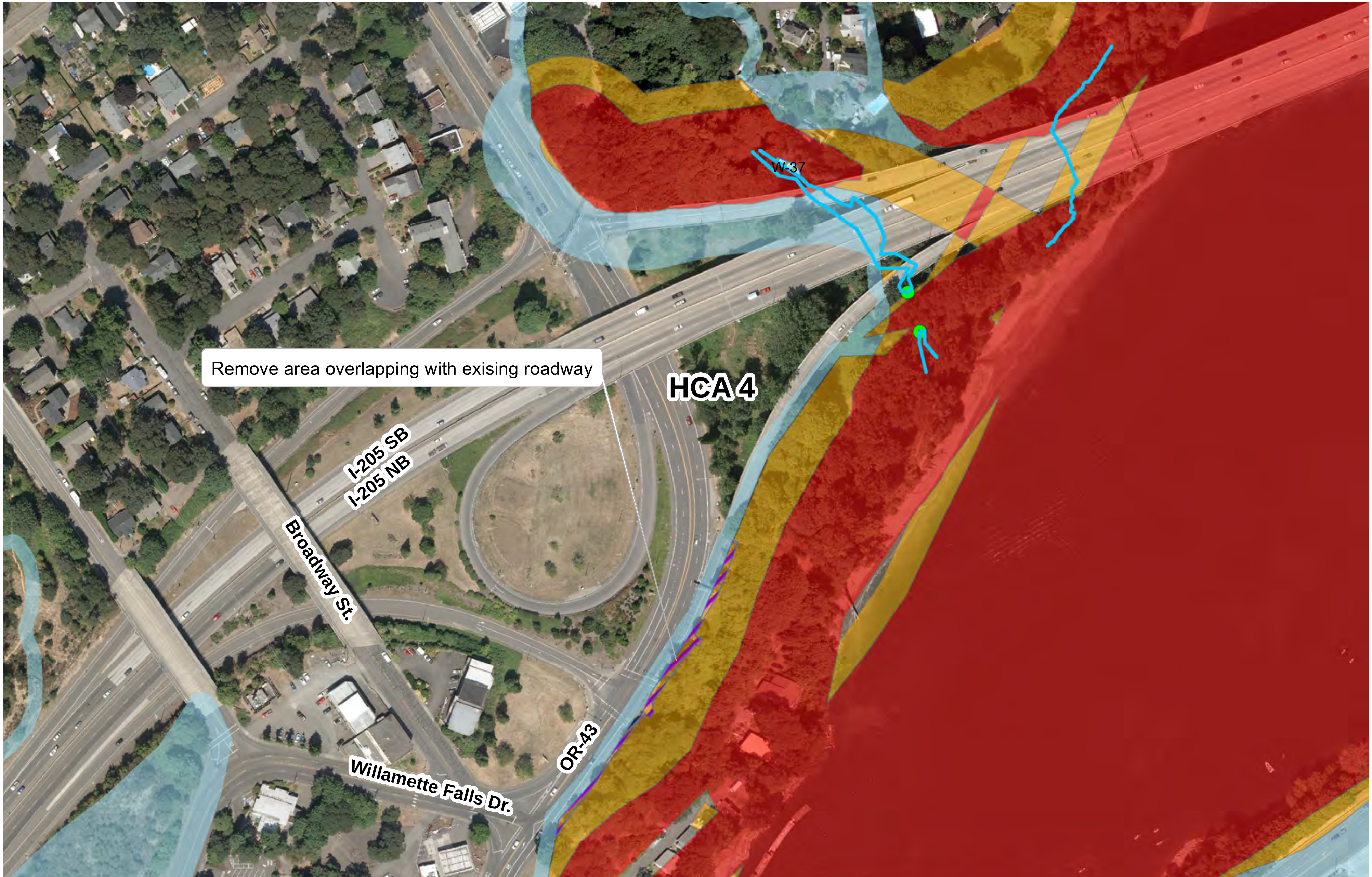


HDR

0 Miles 0.045

High HCA
Moderate HCA
Low HCA
Stream
Wetland
HCA Map Amendment (removal)
Culvert
Culvert Inlet/Outlet
Habitat and Impact Area not Designated as HCA

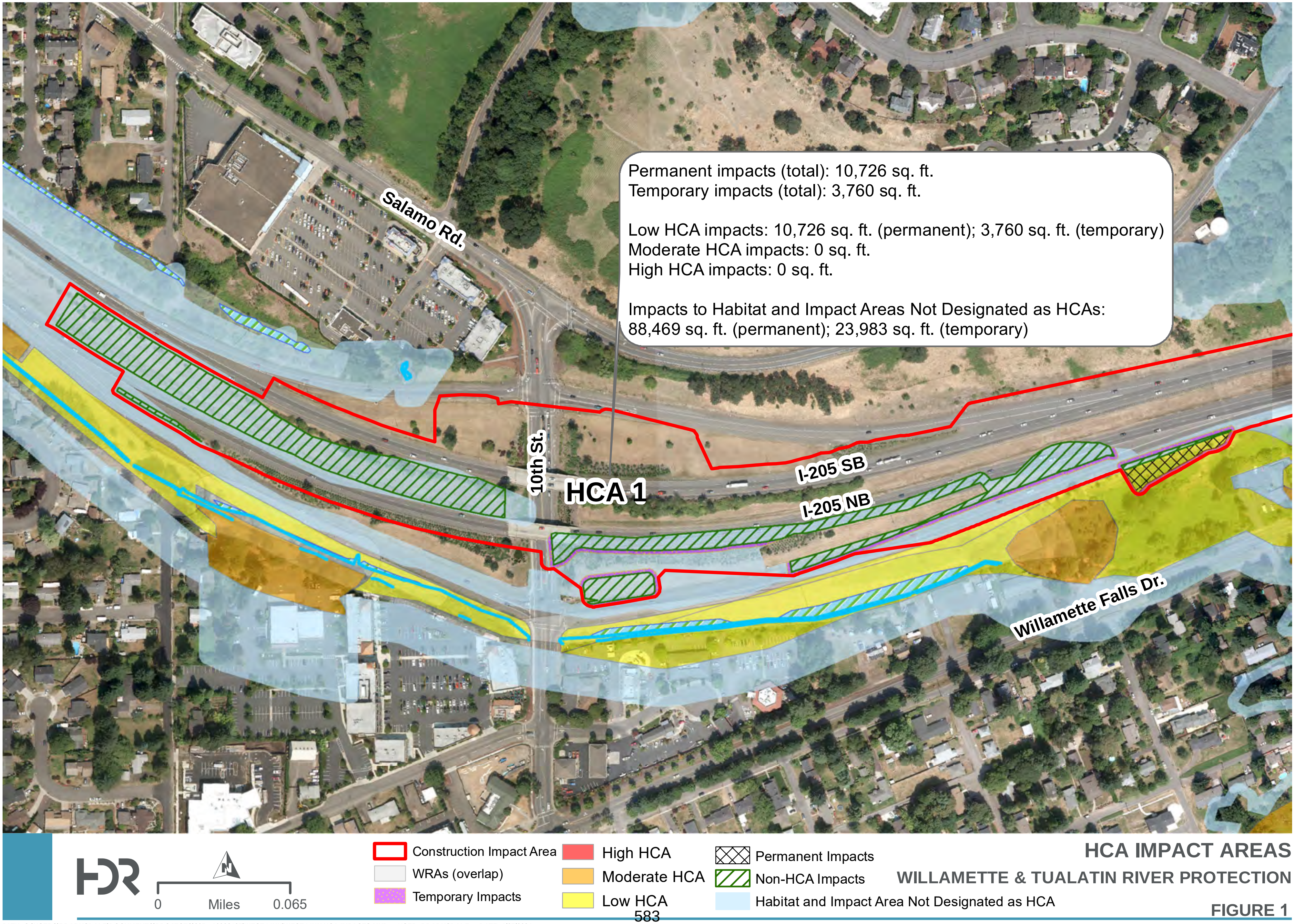
HCA MAP AMENDMENT

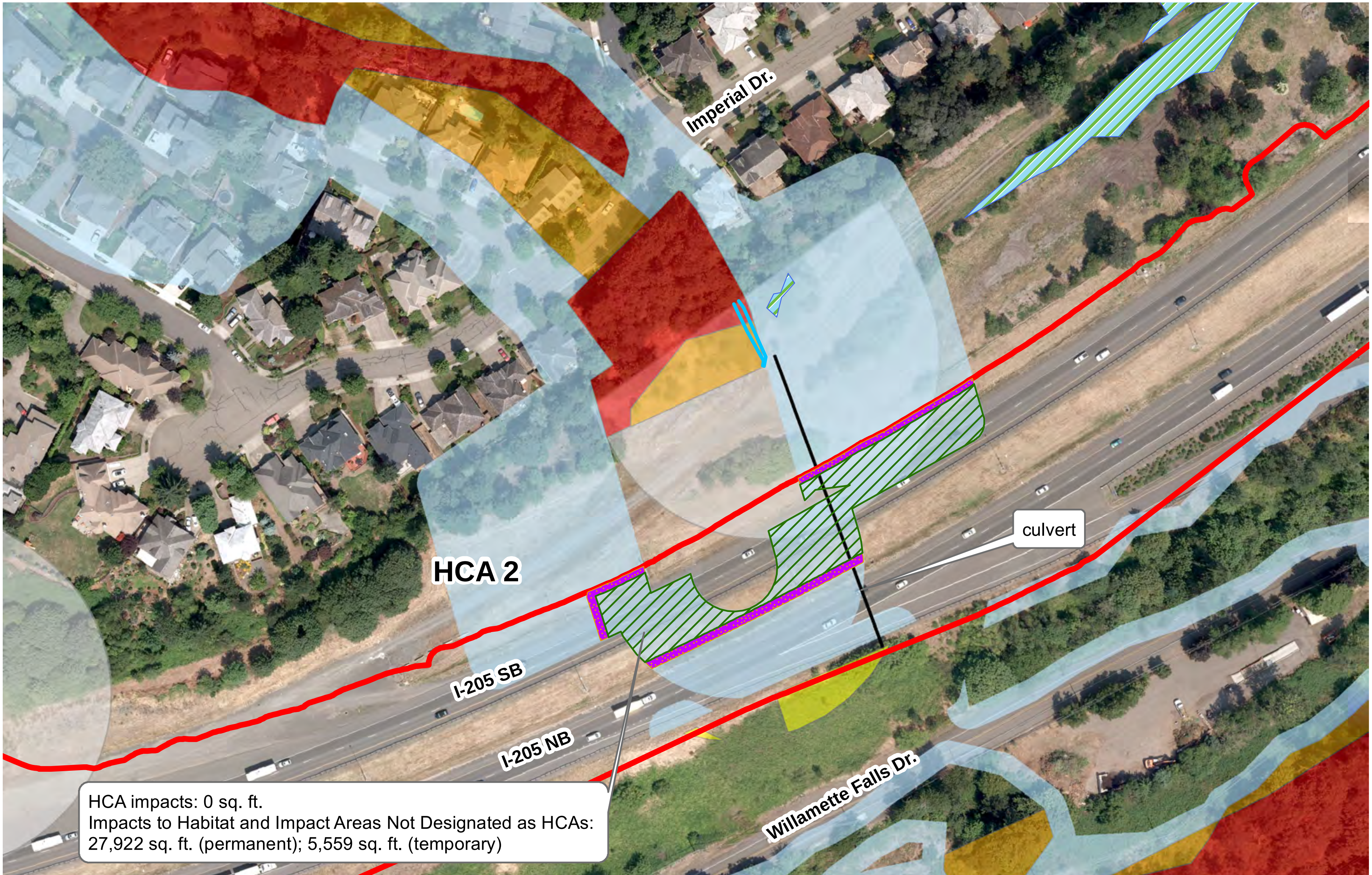
WILLAMETTE & TUALATIN RIVER PROTECTION

FIGURE 4

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN HCA MAP AMENDMENT.MXD - USER: RBARKSDALE - DATE: 1/25/2021

Attachment M. HCA Impacts


Permanent impacts (total): 10,726 sq. ft.
Temporary impacts (total): 3,760 sq. ft.
Low HCA impacts: 10,726 sq. ft. (permanent); 3,760 sq. ft. (temporary)
Moderate HCA impacts: 0 sq. ft.
High HCA impacts: 0 sq. ft.
Impacts to Habitat and Impact Areas Not Designated as HCAs:
88,469 sq. ft. (permanent); 23,983 sq. ft. (temporary)
Salamo Rd.
10th St.
HCA 1
I-205 SB
I-205 NB
Willamette Falls Dr.
Construction Impact Area
WRAs (overlap)
Temporary Impacts
High HCA
Moderate HCA
Low HCA
Permanent Impacts
Non-HCA Impacts
Habitat and Impact Area Not Designated as HCA
0
Miles
0.065
HCA IMPACT AREAS
WILLAMETTE & TUALATIN RIVER PROTECTION
FIGURE 1
PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN HCA IMPACTS.MXD - USER: RBARKSDALE - DATE: 1/27/2021



HDR

0 Miles 0.03

- Construction Impact Area
- WRAs (overlap)
- Temporary Impacts
- High HCA
- Moderate HCA
- Low HCA
- Permanent Impacts
- Non-HCA Impacts
- Habitat and Impact Area Not Designated as HCA

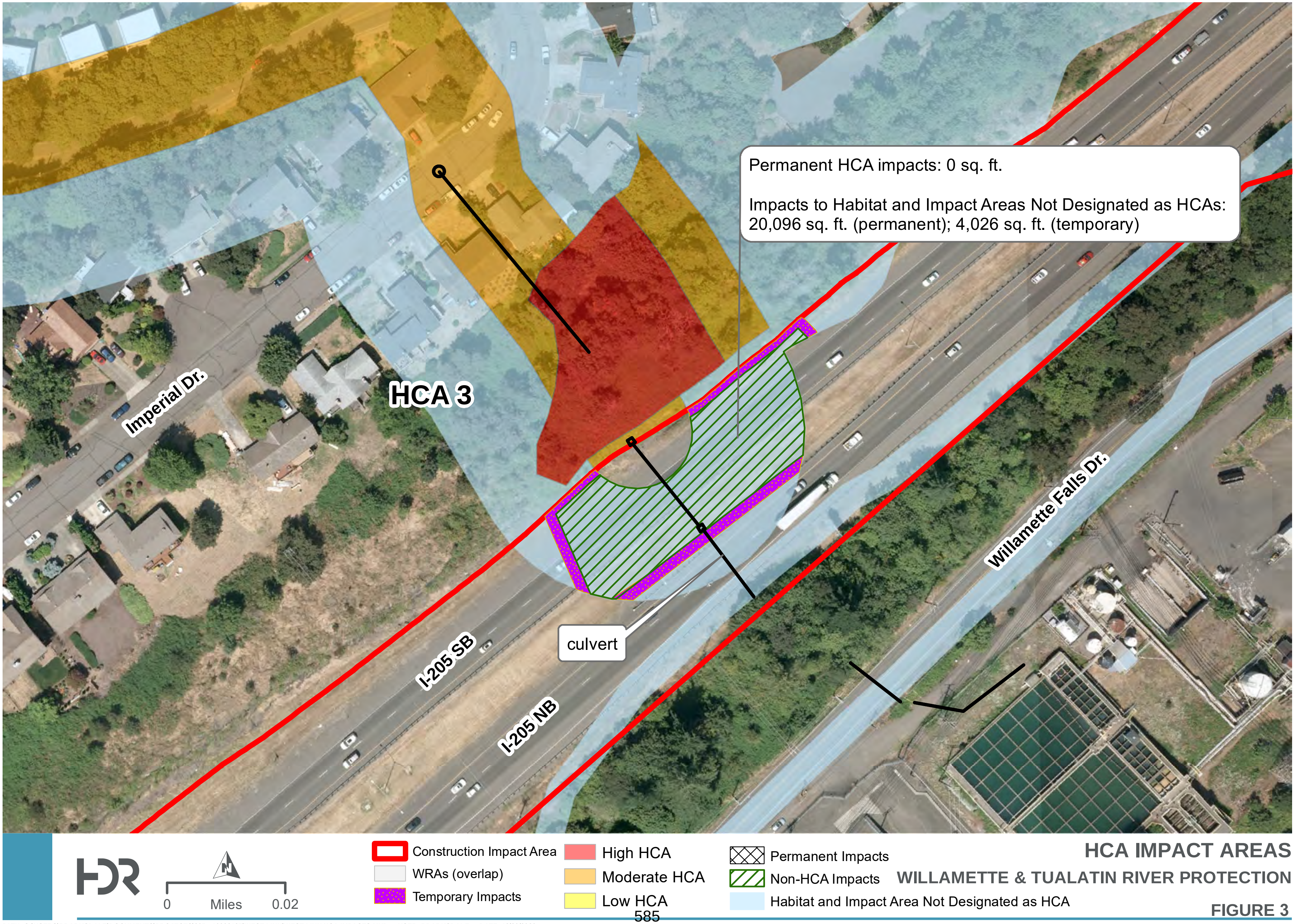
HCA IMPACT AREAS

WILLAMETTE & TUALATIN RIVER PROTECTION

FIGURE 2

584

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN HCA IMPACTS.MXD - USER: RBARKSDALE - DATE: 12/30/2020



HCA IMPACT AREAS

WILLAMETTE & TUALATIN RIVER PROTECTION

FIGURE 3

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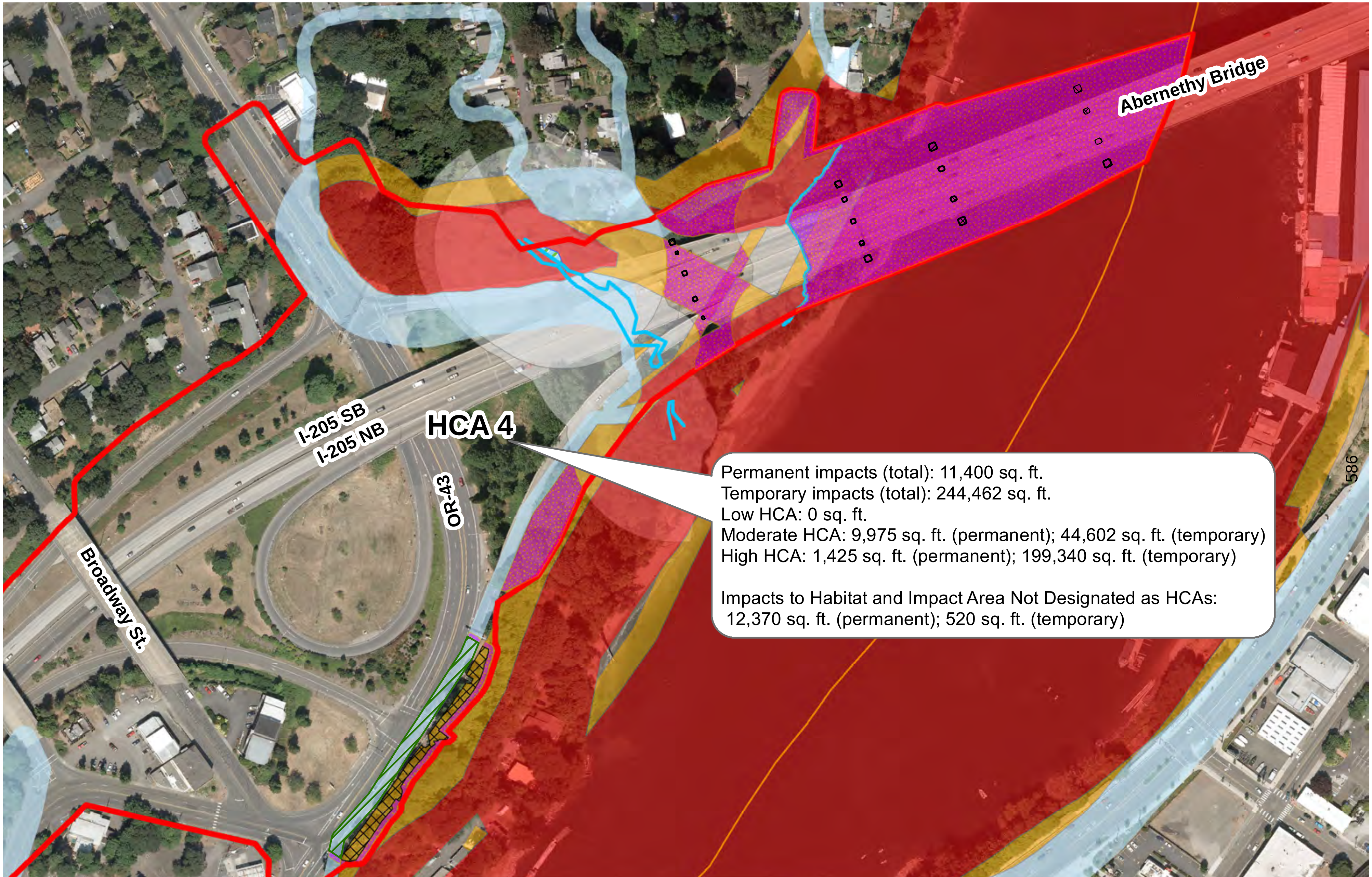


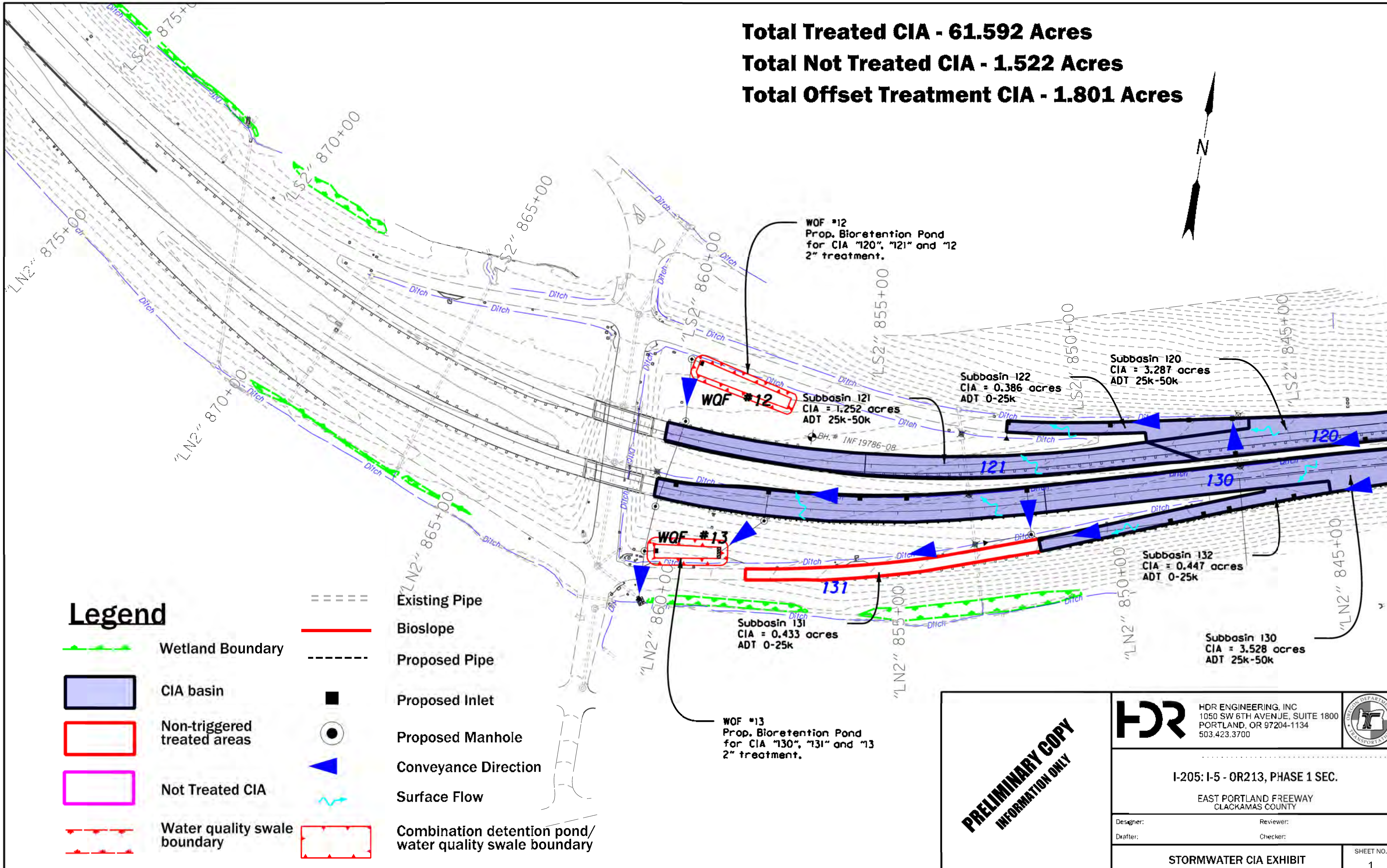
HCA IMPACT AREAS

WILLAMETTE & TUALATIN RIVER PROTECTION

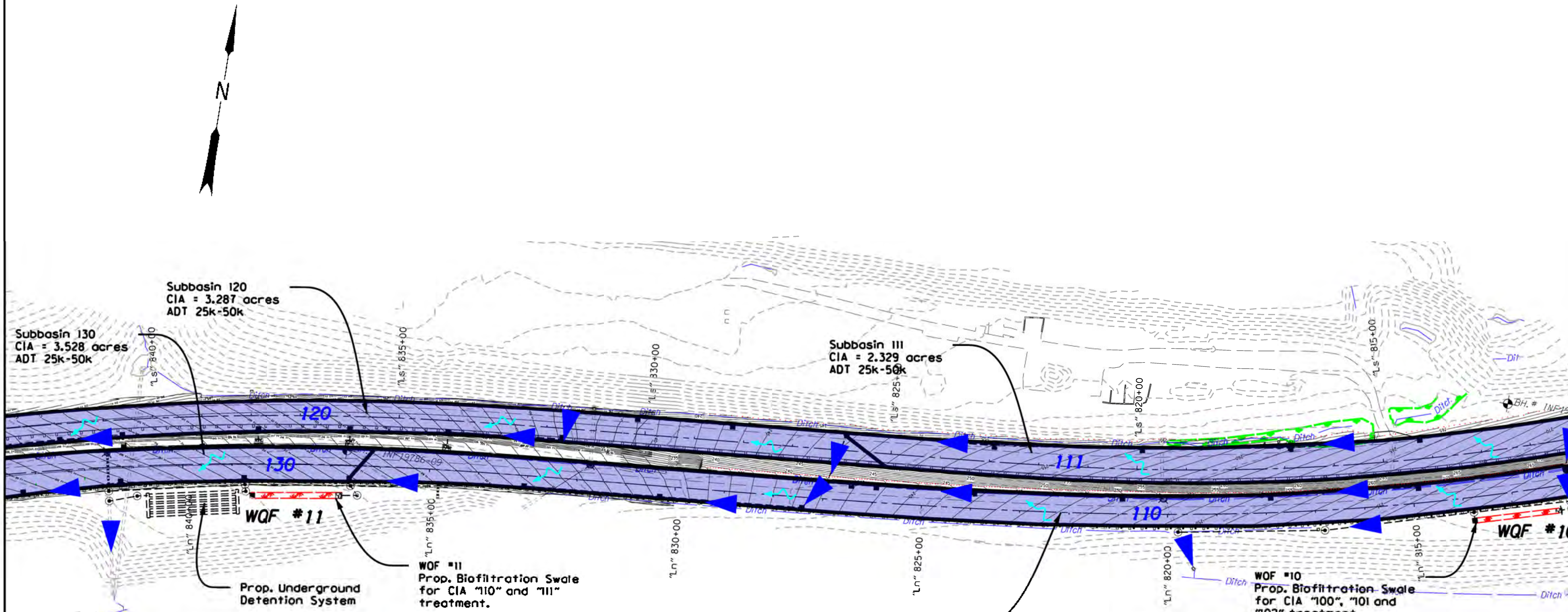
FIGURE 4

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN HCA IMPACTS.MXD - USER: RBARKSDALE - DATE: 12/30/2020

Attachment N. Water Quality Facilities



FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST



Legend

Wetland Boundary	Existing Pipe
CIA basin	Bioslope
Non-triggered treated areas	Proposed Pipe
Not Treated CIA	Proposed Inlet
Water quality swale boundary	Proposed Manhole
	Conveyance Direction
	Surface Flow
	Combination detention pond/ water quality swale boundary

Total Treated CIA - 61.592 Acres

Total Not Treated CIA - 1.522 Acres

Total Offset Treatment CIA - 1.801 Acres

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PORTLAND, OR 97204-1134
503.423.3700

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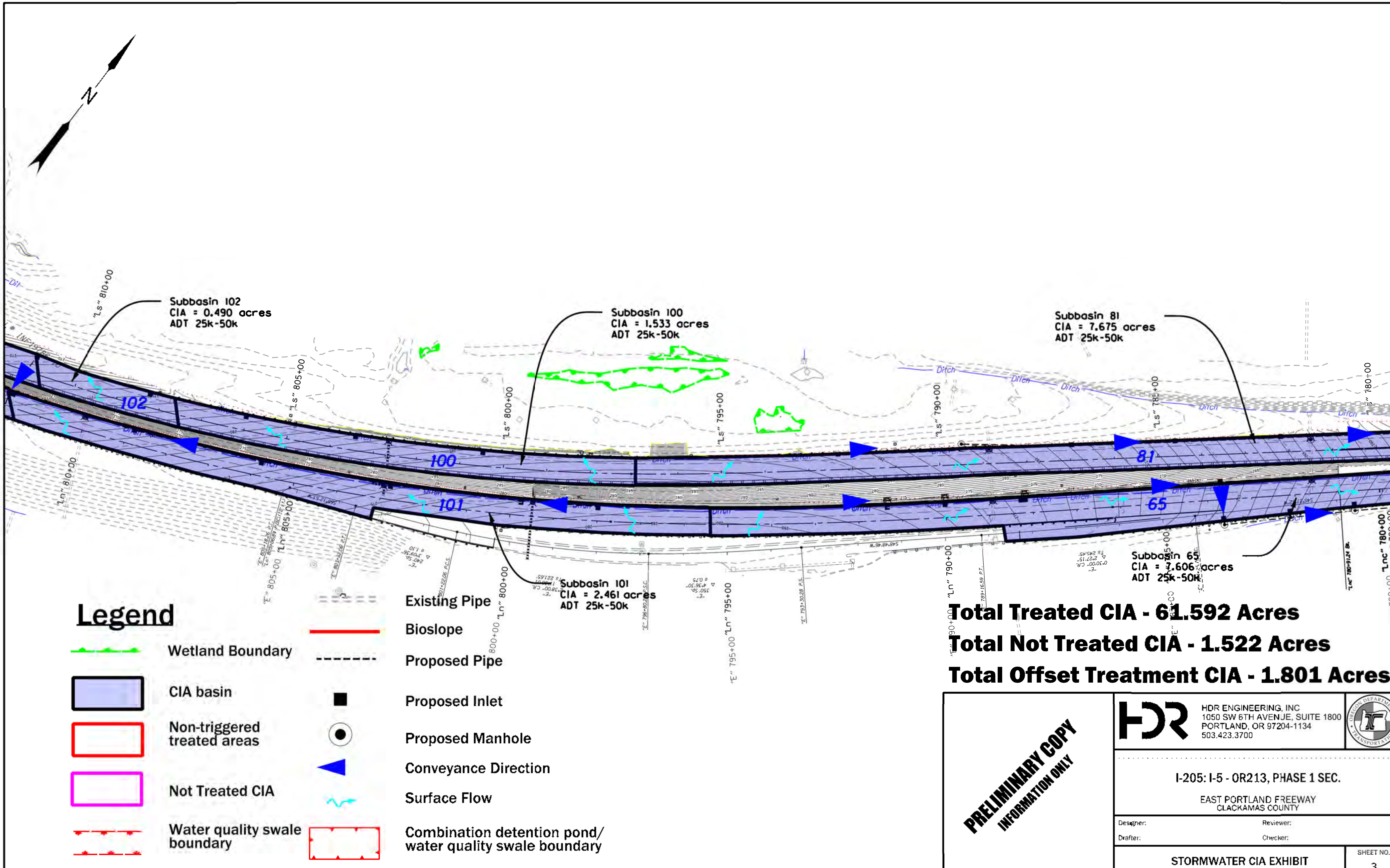
CLACKAMAS COUNTY

Designer:
Reviewer:
Drafter:
Checker:

STORMWATER CIA EXHIBIT

SHEET NO.
2

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST



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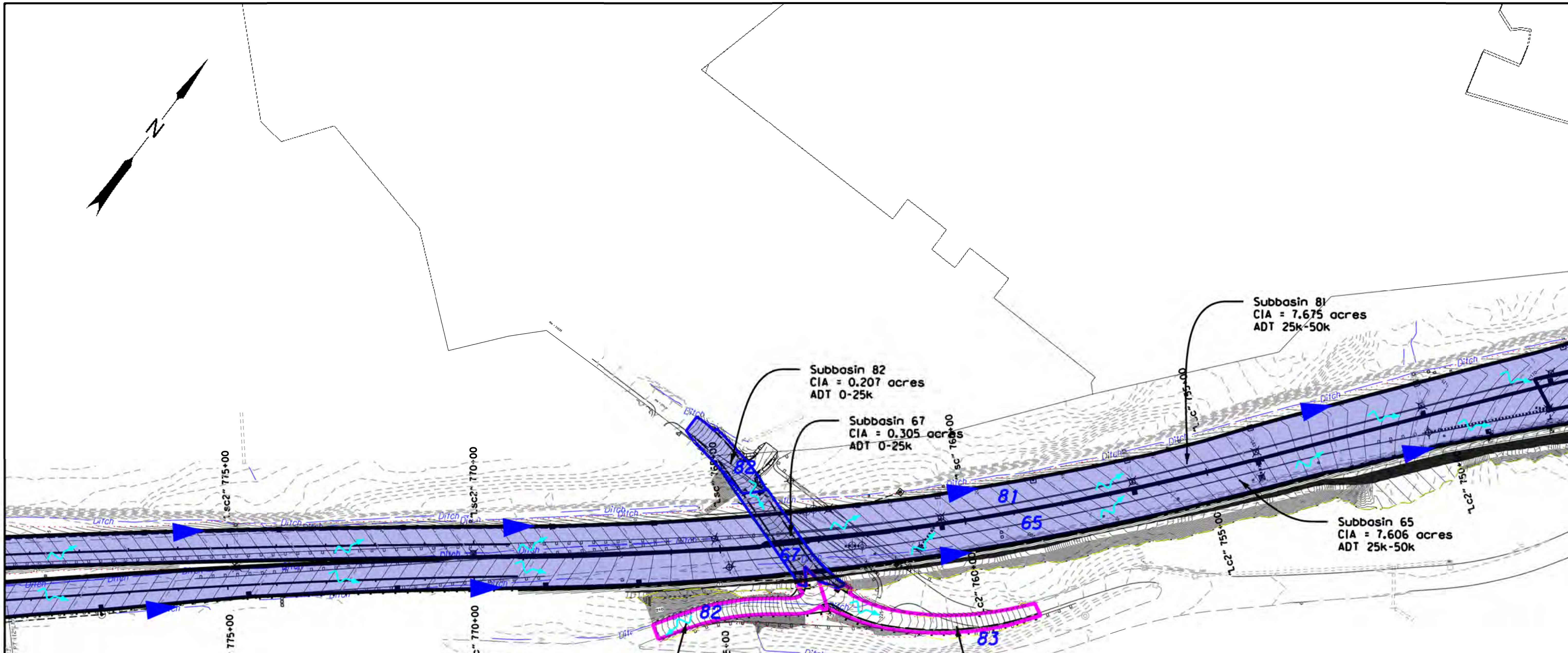

Legend

	Wetland Boundary		Existing Pipe
	CIA basin		Bioslope
	Non-triggered treated areas		Proposed Pipe
	Not Treated CIA		Proposed Inlet
	Water quality swale boundary		Proposed Manhole
			Conveyance Direction
			Surface Flow
			Combination detention pond/ water quality swale boundary

Total Treated CIA - 61.592 Acres

Total Not Treated CIA - 1.522 Acres

Total Offset Treatment CIA - 1.801 Acres

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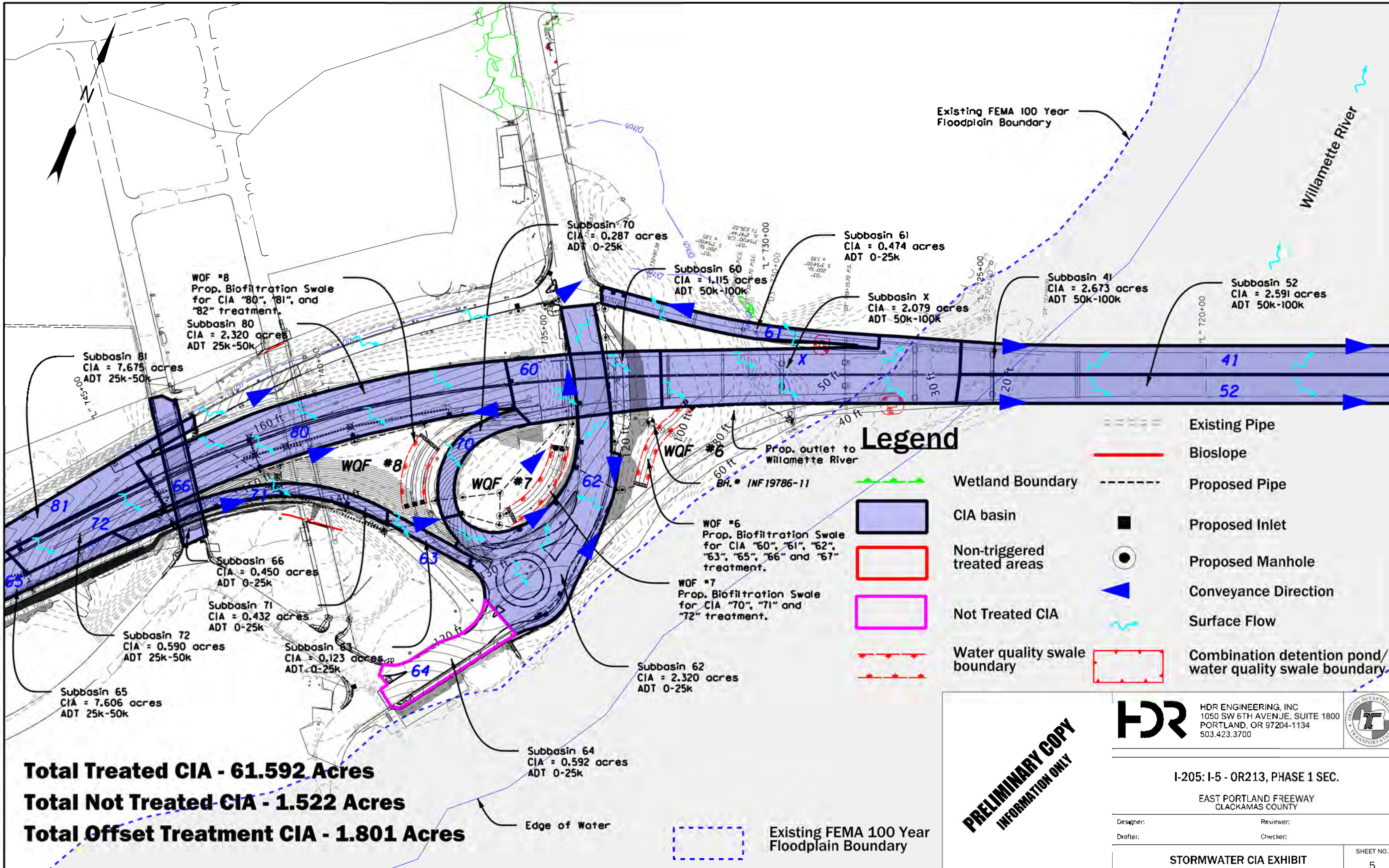

Existing FEMA 100 Year Floodplain Boundary
Willamette River
Subbasin 70
CIA = 0.287 acres
ADT 0-25k
Subbasin 61
CIA = 0.474 acres
ADT 0-25k
Subbasin 60
CIA = 1.115 acres
ADT 50k-100k
Subbasin X
CIA = 2.079 acres
ADT 50k-100k
Subbasin 41
CIA = 2.673 acres
ADT 50k-100k
Subbasin 52
CIA = 2.591 acres
ADT 50k-100k
WQF #8
Prop. Biofiltration Swale for CIA "80", "81", and "82" treatment.
Subbasin 80
CIA = 2.320 acres
ADT 25k-50k
Subbasin 81
CIA = 7.675 acres
ADT 25k-50k
Prop. outlet to Willamette River
BH.# INF 19786-11
WQF #6
Prop. Biofiltration Swale for CIA "60", "61", "62", "63", "65", "66" and "67" treatment.
WQF #7
Prop. Biofiltration Swale for CIA "70", "71" and "72" treatment.
Subbasin 66
CIA = 0.450 acres
ADT 0-25k
Subbasin 71
CIA = 0.432 acres
ADT 0-25k
Subbasin 72
CIA = 0.590 acres
ADT 25k-50k
Subbasin 63
CIA = 0.123 acres
ADT 0-25k
Subbasin 65
CIA = 7.606 acres
ADT 25k-50k
Subbasin 62
CIA = 2.320 acres
ADT 0-25k
Subbasin 64
CIA = 0.592 acres
ADT 0-25k
Edge of Water
Total Treated CIA - 61.592 Acres
Total Not Treated CIA - 1.522 Acres
Total Offset Treatment CIA - 1.801 Acres
Legend
Wetland Boundary
CIA basin
Non-triggered treated areas
Not Treated CIA
Water quality swale boundary
Existing Pipe
Bioslope
Proposed Pipe
Proposed Inlet
Proposed Manhole
Conveyance Direction
Surface Flow
Combination detention pond/ water quality swale boundary
Existing FEMA 100 Year Floodplain Boundary
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STORMWATER CIA EXHIBIT
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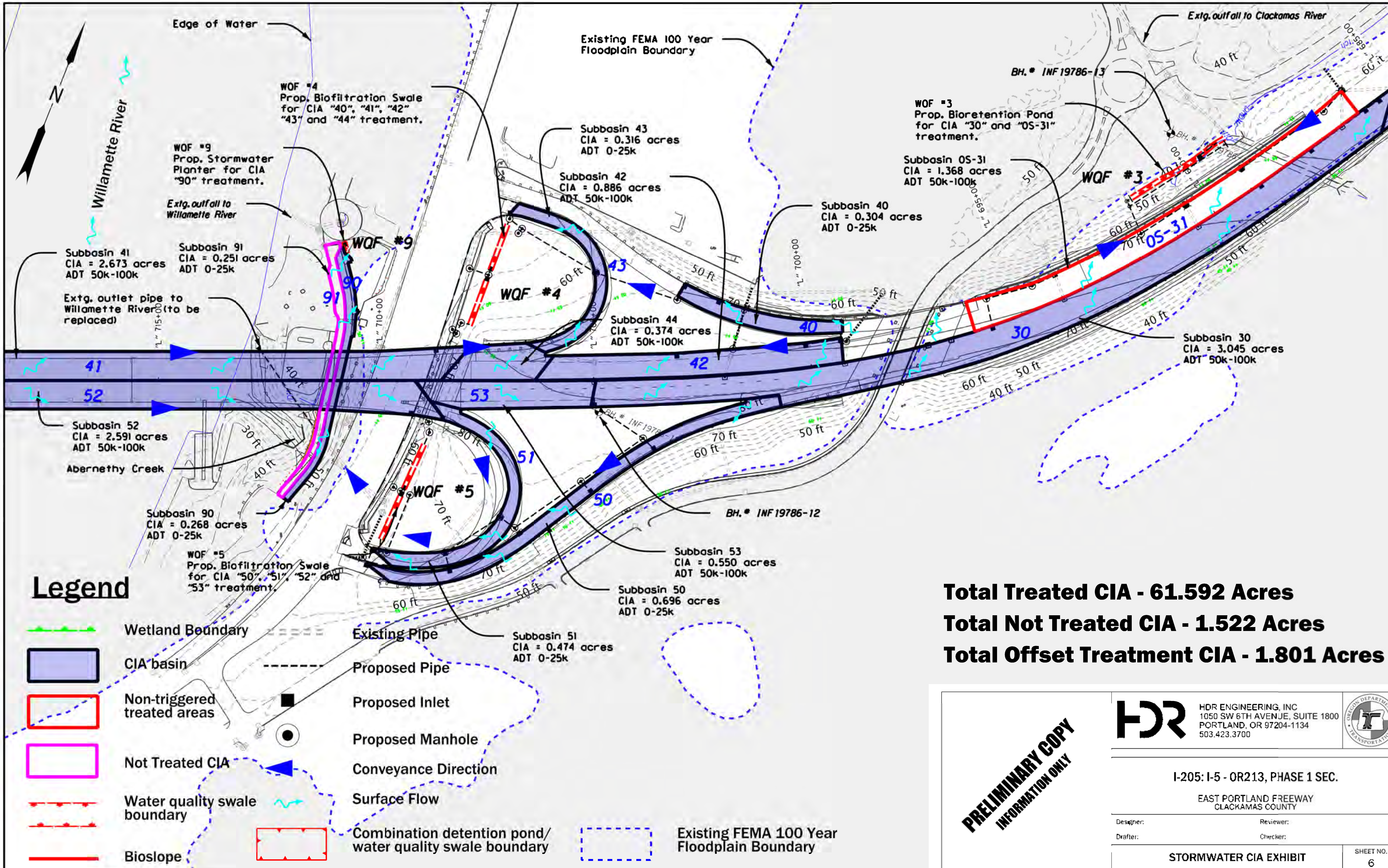
5


Edge of Water
N
Willamette River
WQF #4
Prop. Biofiltration Swale
for CIA "40", "41", "42"
"43" and "44" treatment.
WQF #9
Prop. Stormwater
Planter for CIA
"90" treatment.
Extg. outfall to
Willamette River
Existing FEMA 100 Year
Floodplain Boundary
Subbasin 43
CIA = 0.316 acres
ADT 0-25k
Subbasin 42
CIA = 0.886 acres
ADT 50k-100k
Subbasin 40
CIA = 0.304 acres
ADT 0-25k
Subbasin OS-31
CIA = 1.368 acres
ADT 50k-100k
WQF #3
Prop. Bioretention Pond
for CIA "30" and "OS-31"
treatment.
BH.# INF19786-13
Extg. outfall to Clackamas River
Subbasin 41
CIA = 2.673 acres
ADT 50k-100k
Subbasin 91
CIA = 0.251 acres
ADT 0-25k
Extg. outlet pipe to
Willamette River (to be
replaced)
Subbasin 44
CIA = 0.374 acres
ADT 50k-100k
Subbasin 30
CIA = 3.045 acres
ADT 50k-100k
Subbasin 52
CIA = 2.591 acres
ADT 50k-100k
Abernethy Creek
Subbasin 90
CIA = 0.268 acres
ADT 0-25k
WQF #5
Prop. Biofiltration Swale
for CIA "50", "51", "52" and
"53" treatment.
BH.# INF19786-12
Subbasin 53
CIA = 0.550 acres
ADT 50k-100k
Subbasin 50
CIA = 0.696 acres
ADT 0-25k
Subbasin 51
CIA = 0.474 acres
ADT 0-25k
41
52
91
90
43
42
53
40
30
OS-31
51
50
Total Treated CIA - 61.592 Acres
Total Not Treated CIA - 1.522 Acres
Total Offset Treatment CIA - 1.801 Acres
Legend
Wetland Boundary
CIA basin
Non-triggered treated areas
Not Treated CIA
Water quality swale boundary
Bioslope
Existing Pipe
Proposed Pipe
Proposed Inlet
Proposed Manhole
Conveyance Direction
Surface Flow
Combination detention pond/ water quality swale boundary
Existing FEMA 100 Year Floodplain Boundary
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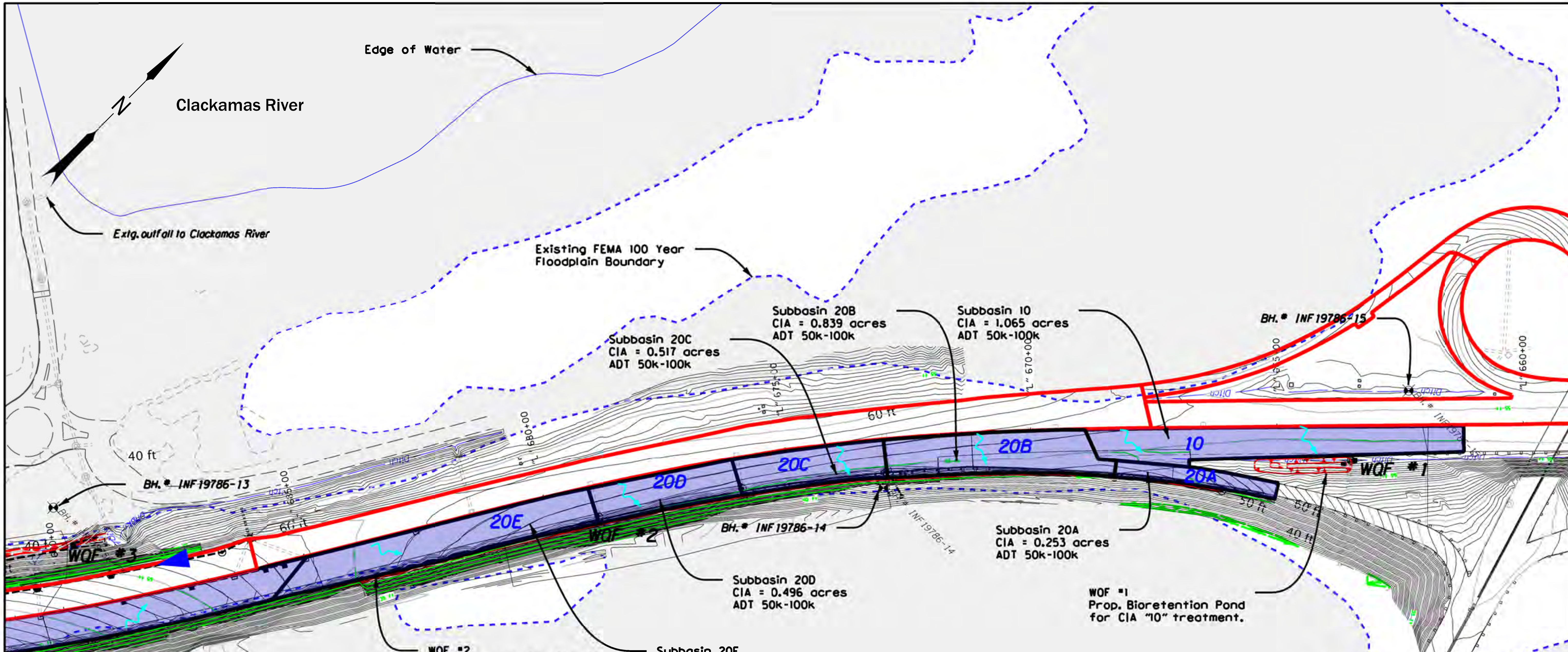

Legend

	Wetland Boundary		Existing Pipe
	CIA basin		Proposed Pipe
	Non-triggered treated areas		Proposed Inlet
			Proposed Manhole
	Not Treated CIA		Conveyance Direction
	Water quality swale boundary		Surface Flow
	Bioslope		Combination detention pond/ water quality swale boundary
			Existing FEMA 100 Year Floodplain Boundary

Total Treated CIA - 61.592 Acres

Total Not Treated CIA - 1.522 Acres

Total Offset Treatment CIA - 1.801 Acres

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CLACKAMAS COUNTY

Designer: Reviewer:
Drafter: Checker:

STORMWATER CIA EXHIBIT

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Rotation: 44.768° Scale: 1"=200'

Attachment O. Geotech Report

SHANNON & WILSON
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

November 30, 2020

Michael Bertram
HDR, Inc.
1001 SW 5th Avenue, #1800
Portland, Oregon 97204

RE: DRAFT GEOTECHNICAL HAZARD ASSESSMENT OF PROPOSED CONSTRUCTION AREA
I-205: STAFFORD ROAD TO OR99E WIDENING PHASE 1 (K#19786)
CLACKAMAS COUNTY, OREGON

Dear Mr. Bertram:

This letter presents Shannon & Wilson, Inc.'s assessment of the geologic hazards that are expected to be encountered within the City of West Linn along the proposed construction area currently being considered by Oregon Department of Transportation (ODOT) as part of the I-205: Stafford Road to OR99E Widening Project, Phase 1. HDR, Inc. (HDR) is the lead consultant for this project and contracted Shannon & Wilson to perform geotechnical services in accordance with Amendment No. 4 (B35005), dated November 1, 2018.

This letter summarizes the typical geology along the project alignment and known geologic hazards within the project area. The evaluations provided in this letter are based on a preliminary review of the geologic hazard maps and our field exploration program for the project. The proposed project area is shown on Figure 1, Vicinity Map. The maps, designated Figure 2, Sheets 1 through 11, are included with this letter. The maps include the City of West Linn's Habitat Conservation Areas and Water Resource Areas, provided by. HDR on November 27, 2020. The approximate locations of relevant geotechnical borings are also shown on Figure 2, for reference.

Based on our review of existing information, our field exploration program, and our engineering analyses and judgement, the proposed work will not cause slope failure or increased erosion/sedimentation and will not adversely impact surface or modify groundwater flow or hydrologic conditions.

Shannon & Wilson has prepared three reports that discuss the design for the impacted bridges and construction considerations for these structures in West Linn and have been provided to ODOT for review:

- Draft Geotechnical Engineering Report, I-205: Stafford Road to OR99E Widening, Abernethy Bridge (Key #19786), Clackamas County, Oregon, dated August 2020;
- Draft Geotechnical Engineering Report, I-205: Stafford Road to OR99E Widening, West A Street Bridge #09704 (Key #19786), Clackamas County, Oregon, dated July 2020; and
- Draft Geotechnical Engineering Report, I-205: Stafford Road to OR99E Widening, Sunset Avenue Bridge #09724 (Key #19786), Clackamas County, Oregon, dated July 2020.

Shannon & Wilson also prepared a report to discuss the design for retaining walls and embankment fill and a report addressing the rock cut; both identify construction considerations for the designs:

- Draft Geotechnical Report, I-205: Stafford Road to OR99E Widening, Retaining Walls and Embankment Fill (Key #19786 and 21401), Clackamas County, Oregon, dated July 2020; and
- Draft Geotechnical Report, I-205: Stafford Road to OR99E Widening, Rock Cut, Clackamas County, Oregon, dated May 2020.

These reports will be referred to in the letter as the *I-205 60% Design Reports*.

GEOLOGY AND SEISMIC SETTING

Regional Geology

The project area is located in the Portland Basin. The most prevalent basement rock of the Portland Basin is a sequence of lava flows of the Columbia River Basalt Group (CRBG), which flowed into the area between about 17 million and 6 million years ago (Beeson and others, 1991). Columbia River Basalt Group flows also underlie the hillsides that border the I-205 alignment north and west of the Willamette River (Madin, 2009; Schlicker and Finlayson, 1979).

The Columbia, Willamette, and Clackamas Rivers converge within the Portland Basin and, with their tributaries, have contributed to an extensive sedimentary fill that overlies the basement rock formations. These basin-fill sediments range in age from approximately 6 million years to the present. Late Miocene to Pliocene-age (6 million- to 2.6-million-year-old) sedimentary units (greater than 2.6 million years old) within the project area include the Troutdale Formation (Mudstone and Siltstone Member).

Toward the end of the Pleistocene, a tremendous load of sediment was deposited in the Portland Basin, Tualatin Basin, and Willamette Valley by a series of catastrophic glacial outburst floods. During the late stages of the last great ice age, between about 18,000 and 15,000 years ago, a lobe of the continental ice sheet repeatedly crossed and dammed the Clark Fork River in western Montana, which then formed an immense glacial lake called Lake Missoula (Allen and others, 2009). Periodically, the ice dam was breached and flood waters from Lake Missoula flowed southwest across portions of eastern Washington and into the Columbia River drainage. Forty or more repetitive outburst floods have been documented (Allen and others, 2009). These repeated floods are collectively referred to as the Missoula Floods.

Missoula flood waters were channeled through the Columbia River Gorge and then spread out over the Portland Basin. Missoula flood waters scoured off thick soil deposits along high energy channels that connected the Portland Basin with the Tualatin Basin and Willamette Valley. One of these channels is located along the Willamette River between Oregon City and West Linn (Allen and others, 2009).

The Missoula Flood deposits are divided into three facies: Fine-Grained Facies, Coarse-Grained Facies, and Channel Facies (Beeson and others 1989, 1991; Madin 1990). Only the Fine-Grained Facies of the Missoula flood deposits, consisting of layered silt and sand beds, have been mapped in the project area (Madin, 2009).

During and after the Missoula Floods, rivers, streams, and wind have moved and deposited surficial sediment throughout the Portland and Tualatin Basins. In more recent times, humans have changed the landscape, grading cuts and fills for development.

Seismic Setting

Shallow crustal earthquakes within the North American Plate have historically occurred in a diffuse pattern within Pacific Northwest, typically within the upper 4 to 19 miles of the continental crust. Mabey and others (1993) concluded from their analysis of local geologic features that a crustal earthquake of up to Mw 6.5 could occur virtually anywhere in the Portland area. Based on their fault model, Wong and others (2000) determined that an earthquake of up to Mw 6.8 is possible on the Portland Hills Fault, which is mapped within 2.4 miles of the project area. The largest known crustal earthquake in the Pacific Northwest is the 1872 North Cascades earthquake at approximate Mw 6.5 to 7.0. Other examples include the 1993 Mw 5.6 Scotts Mill earthquake and the 1993 Mw 6.0 Klamath Falls earthquake.

Shallow crustal faults and folds throughout Oregon and Washington have been located and characterized by the United States Geological Survey (USGS). The USGS provides approximate fault locations and a detailed summary of available fault information in the USGS Quaternary Fault and Fold Database. The database defines four categories of faults, Class A through D, based on evidence of tectonic movement known or presumed to be associated with large earthquakes during Quaternary time (within the last 2.6 million years). For Class A faults, geologic evidence demonstrates that a tectonic fault exists and that it has likely been active within the Quaternary period. For Class B faults, there is equivocal geologic evidence of Quaternary tectonic deformation, or the fault may not extend deep enough to be considered a source of significant earthquakes. Class C and D faults lack convincing geologic evidence of Quaternary tectonic deformation or have been studied carefully enough to determine that they are not likely to generate significant earthquakes.

Potential Seismic Hazards

According to the USGS Quaternary Fault and Fold database (USGS, 2017), there are surface traces of four Class A features within approximately 6 miles of the project site:

- The Oatfield Fault, USGS Fault No. 875, is located approximately 1.28 miles from the project site with a Slip Rate Category < 0.2mm/yr and most recent deformation occurring < 1.6 Ma;
- The Portland Hills Fault, USGS Fault No. 877, is located approximately 2.0 miles from the project site with a Slip Rate Category < 0.2mm/yr and most recent deformation occurring < 1.6 Ma;
- The Damascus-Tickle Creek Fault Zone, USGS Fault No. 879, is located approximately 4.0 miles from the project site with a Slip Rate Category < 0.2mm/yr and most recent deformation occurring < 750 ka; and
- The Canby-Molalla Fault, USGS Fault No. 716, is located approximately 5.1 miles from the project site with a Slip Rate Category < 0.2mm/year and most recent deformation occurring < 15 ka.

The Cascadia Subduction Zone itself is mapped approximately 137 miles west of the project area, with an average slip rate of approximately 40 millimeters (~1.5 inches) per year and the most recent deformation occurring about 300 years ago (Personius and Nelson, 2006).

The northwest-trending Bolton Fault, which parallels the West Linn hillside north of the Abernethy Bridge, is mapped along Highway 43 beneath the Abernethy Bridge. Although some researchers consider the Bolton Fault potentially active, it is considered a Class B Fault by the USGS, since no unequivocal Quaternary-age displacement has been identified (Personius, 2002e). Due to the uncertainty of the fault classification and contradictory published material on the Bolton Fault, special consideration has been made to evaluate the effects of seismic activity from this source.

SUBSURFACE CONDITIONS

Geotechnical Units

The construction for the current phase of this project will take place in West Linn from the Abernethy Bridge to just north of 10th Street.

We grouped the materials encountered in our field explorations within this area into 14 geotechnical units. Our interpretation of the subsurface conditions is based on the explorations, historic borehole data, and regional geologic information from published sources. The geotechnical units are as follows (USCS group symbols are provided in parentheses for respective soil types):

- **Fill:** highly variable mixture of loose to very dense gravel and sand with variable amounts of stiff to very stiff silt and clay, and cobbles and boulders (GP, GM, GC, GP-GM, GW-GC, SM, SP-SM, SC); lesser layers of clay (CH, CL) and silt (ML); cobbles are common; trace to few organics and wood debris; includes roadway pavement sections and topsoil;
- **Rip Rap Fill:** angular boulder and cobble fill placed around the base of Abernethy Bridge Piers 3 through 8 according to as-built drawings; unit not definitively observed in borings;
- **Fine-Grained Alluvium:** very soft to very hard / very loose to very dense Silt to Sandy Silt (ML); lesser amounts of Clayey Silt (MH), Silty Clay (CL), Clay (CH), and Organic clayey Silt (OH) with varying amounts of sand; contains interbeds of Sand with some Silt (SP-SM), Silty Sand (SM), and Clayey Sand (SC); includes trace organics and scattered thin gravel lenses;
- **Sand Alluvium:** very loose to very dense Sand to Silty Sand (SP, SP-SM, SM) and lesser amounts of medium stiff to stiff Silt to Sandy Silt (ML); minor amounts of Silty Gravel (GM), trace gravel in some intervals and scattered thin gravely lenses; unit includes trace organics and wood debris;
- **Gravel Alluvium:** loose to very dense Gravel with varying amounts of silt, sand, cobbles, and boulders (GP, GP-GM, GM); contains interbeds of Gravelly Sand with some silt (SP-SM, SW-SM), Silty Sand (SM), Clayey Sand with trace gravel (SC), Silt with some sand to Gravelly Silt with some sand (ML), and Silty Clay with some sand (CL); some weakly cemented layers; trace organics (wood); some open gravel and cobble zones with little matrix material;

- **Matrix-Supported Colluvium:** medium dense to very dense Silty Gravel with some sand to Sandy Silty Gravel (GM); lesser amounts of soft to very hard Gravelly Clay with some sand (CH) and Silt with some sand and some gravel to Gravelly Silt with some sand (ML); cobbles and possible boulders;
- **Clast-Supported Colluvium:** very dense Gravel to Gravel with trace sand and trace silt (GP), Sandy Gravel with trace to some silt (GP, GP-GM), and Silty Gravel with some sand to Sandy silty Gravel (GM); cobbles and boulders;
- **Missoula Flood Deposits - Fine**: loose to medium dense / medium stiff to very stiff Silty Sand, Sandy Silt, Silt, and Silty Clay with variable amounts of sand (SM, ML, CL);
- **Missoula Flood Deposits - Coarse**: very dense Sandy clayey Gravel with cobbles (GC);
- **Decomposed Columbia River Basalt Group (Decomposed Basalt):** stiff to very hard mixtures of Silt and Clay with variable amounts of sand and gravel (MH, ML, CH, CL); very dense Clayey Silty Sand (SM), Silty Sand with trace to some Gravel (SM), Sandy Gravel with some Silt (GP-GM), and Clayey Gravel with some Sand (GC); lesser amounts of loose to very dense Silty Sand (SM) and Clayey Sand (SC); visible decomposed relict rock structure, including joint surfaces, interflow breccia, and phenocrysts; multi-colored;
- **Weathered Columbia River Basalt Group (Weathered Basalt):** extremely soft to medium hard (R0-R3), moderately weathered to predominantly decomposed basalt; some zones remold under finger pressure to soil such as Clayey Sand with trace gravel (SC);
- **Fault Breccia:** extremely soft to soft (R0 to R2), moderately weathered to predominantly decomposed basalt; brecciated, sheared, and altered; slickensides and fault gouge are common; multi-colored;
- **Vantage:** sedimentary interbed consisting of Sandy Mudstone; slightly weathered to decomposed; intact rock strength from extremely soft to medium hard (R0 to R3). The unit is thin (approximately 0.5 to 2.5 feet thick) and difficult to sample; and
- **Columbia River Basalt Group (Basalt):** very soft to very hard (R1 to R5), fresh to slightly weathered (occasionally moderately weathered) basalt; flow contact zones are commonly more weathered and softer; basalt flow tops are vesicular, oxidized, and often overlain by a thin basalt breccia; flow bottoms also show vesicular texture, but the zone of vesicularity is thinner than at the flow top.

Groundwater

The geotechnical borings performed by Shannon & Wilson for this project were drilled using mud rotary and rock coring drilling techniques, which make it difficult to discern depth to groundwater, if it is encountered, due to the use of drilling fluid in the boreholes.

Groundwater measurements made near the west end of Abernethy Bridge indicate the groundwater table ranges from elevation 16.2 feet to elevation 27.4 feet in that area.

Based on measurements and observations at the rock cut location, we expect a layer of perched water to be present on top of the Vantage layer year-round. This layer of perched water could be at least 10 feet thick, particularly near the southwest end of the cut, where the Vantage layer is below the ground surface along both I-205 and Willamette Falls Drive.

Groundwater levels at the project site should be expected to vary with topography, seasonally, and with changes in precipitation. Zones of perched water are likely to be encountered on top of fine-grained sedimentary layers, bedrock, or sedimentary interbeds within the bedrock such as the Vantage layer. Locally, groundwater highs typically occur in the late fall to spring and groundwater lows typically occur in the late summer and early fall.

KEY GEOTECHNICAL ISSUES

The key geotechnical issues addressed for the project construction in our I-205 60% Design Reports are outlined below:

Earthquake-Induced Geologic Hazards

Based on the on our investigation, we evaluated the potential for earthquake-induced geologic hazards, including liquefaction and associated effects such as lateral spreading, liquefaction-induced settlement, slope instability, and ground surface fault rupture. Figure 2 includes relative earthquake hazard map zones provided with DOGAMI publication IMS-1 and used in the West Linn Natural Hazards Mitigation Plan. These generalized zones are intended to factor together the hazards of ground motion amplification, liquefaction, and slope instability (Mabey, 1997). During our investigation we evaluated the slope stability of the riverbank at the Abernethy Bridge site and concluded that during a seismic event lateral spreading could occur in the direction of the Willamette River. Shannon & Wilson has recommended ground improvement and provided seismic mitigation alternatives near the Abernethy Bridge site to control slope stability along the riverbank.

Most faults that are located near the project site have not shown evidence of activity in the Quaternary period (within the last 1.8 million years) and it is our opinion that the risk of fault rupture along these faults is relatively low. The mapped trace of the Class B Bolton Fault is within the project area. However, we consider the potential for fault rupture low as the recurrence interval for movement of the Bolton Fault appears to be on the order of several hundreds of thousands of years, much longer than the return period for the "Life-Safety" seismic design criteria.

Other than lateral spreading of the Willamette River riverbank at the Abernethy Bridge, the primary seismic hazard at this site is ground shaking.

Unstable Slopes (Static)

DOGAMI mapping indicates the slopes in this area north of around Sunset Avenue generally have moderate to high susceptibility for slope failure; however, Shannon & Wilson evaluated the static slope stability specific to the areas that will be impacted by construction and does not have concerns about this geological hazard during construction. This area does have seismic hazards along the Willamette River. Please refer to the Earthquake-Induced Geologic Hazards Section above for seismic slope instability. Within the project alignment, seismic mitigation solutions are developed for this project.

There is a historically active landslide on the north side of I-205 between Salamo Road and Beacon Hill Drive, in the City of West Linn. The approximate extents of the landslide area, as mapped by Burns (2009) and shown in the Statewide Landslide Information Database for Oregon (SLIDO, release 4.2), are shown on Figure 1 and Figure 2. Based on review of ODOT files, we understand that slide activity was first observed in 1969, as construction of I-205 was in progress. Subsequent studies in the late 1960s and early 1970s determined that the movement was occurring along a fine-grained sedimentary layer between two basalt flows. Initial attempts to stabilize the slide included excavation of unloading trenches. Some material from the area was used as borrow for other parts of the I-205 project under construction around that time. After continued movement, the landslide was ultimately mitigated with a 2,000-foot-long rock buttress and other earthwork, which was completed in 1972.

Our design of the bridges, retaining walls, and rock cut through this area have factored in the slope instability concerns and we have provided construction considerations in the areas where the design is impacted. Project areas that exist within the area of unstable slopes are addressed in the I-205 60% Design Reports.

SUMMARY OF GEOTECHNICAL DESIGN RECOMMENDATIONS

Based on our field investigation, Shannon & Wilson provided design recommendations in the I-205 60% Design Reports for the following structures:

- Abernethy Bridge
- Wall A4 (OR43)
- West A Street Bridge
- Rock Cut
- Sunset Avenue Bridge
- Wall B1 (Barrier with Backfill)

The sections below describe our overall design recommendations at each feature.

Abernethy Bridge

Foundation recommendations for the retrofit/widening and seismic mitigation design were selected for each pier based on the results of field exploration, identified geologic hazards, in situ testing, and laboratory testing program in conjunction with relations presented in the AASHTO LRFD Bridge Design Specifications (BDS) and our engineering judgment and experience. The retrofit and widening strategy described in this section is the result of an interactive design process which included analysis of several superstructure, foundation, and ground improvement alternatives. This process is ongoing, and the recommendations provided in this section are subject to change.

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Exhibit 1: Summary of Proposed Foundations for Retrofit and Widening by Pier and Abutment

Location	Drilled Shafts for Widening	Drilled Shafts for Pier Replacement	Spread Footings for Widening	Notes
Pier 5		X		12-foot-diameter shafts
Pier 6		X		12-foot-diameter shafts
Pier 7		X		10-foot-diameter shafts
Pier 8		X		Dual 8-foot-diameter shafts (4 total)
Pier 9	X			Incorporates A3-1 to south and new 8-foot-diameter shaft for widening to north
Pier 10				Micropile retrofit
Pier 11	X			6-foot-diameter shafts
Pier 12	X			7-foot-diameter shafts
Pier 13	X			7-foot-diameter shafts
Pier 14			X	18-foot square footings
Abutment 2			X	Extend continuous footing
Pier C3-1				Existing Pier removed
Pier C3-2		X		8-foot-diameter shafts
Pier C3-3		X		8-foot-diameter shafts
Pier C3-4				Uses existing driven pile foundations
Pier C3-5				Uses existing driven pile foundations
Abutment 4				Uses existing driven pile foundations

Pier 14 and Abutment 2 will be supported by spread footings founded on bedrock. We understand that one new footing will be constructed on each side of the existing bridge at Pier 14, and the existing continuous footing at Abutment 2 will be widened 30 feet on the NB side of I-205 and 16 feet on the SB side. Exhibit 2 illustrates our understanding of the general design concept proposed by the design team. In general, the spread footings will be founded in the weathered basalt bedrock. In order to construct a level footing on rock, some rock excavation will be required.

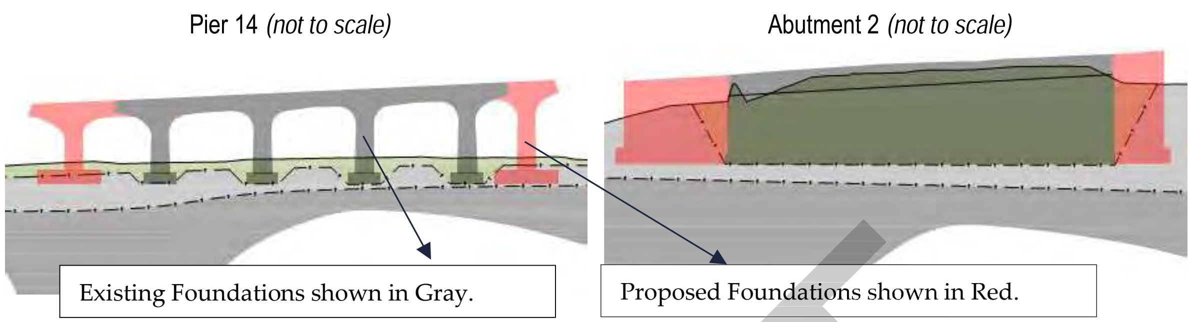

Exhibit 2: Illustrations of Proposed Spread Footing Foundations for Retrofit and Widening. See Figure 2 for locations of the piers.

At Pier 10, the design team plans to increase uplift and compressive resistance by installing micropiles around the perimeter of the existing pile cap then enlarging the pile cap to incorporate the micropiles. Exhibit 3 illustrates our understanding of the general design concept proposed by the design team.

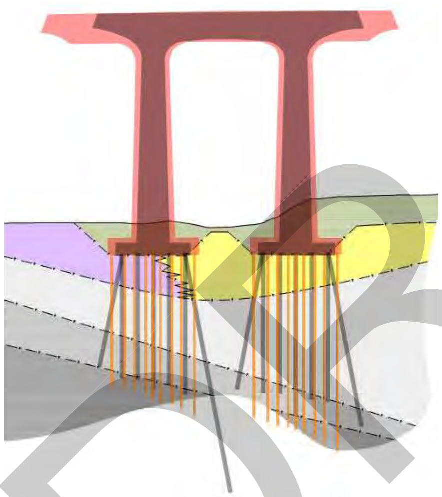

Exhibit 3: Illustration of Proposed Micropile Foundations for Retrofit at Pier 10. See Figure 2 For locations of the piers.

The majority of the proposed new foundations consist of 6- to 12-foot-diameter drilled shafts that are bearing in rock. Exhibit 4 presents a summary of drilled shaft diameters, lengths, and tip elevations at each pier location. The shaft lengths and tip elevations are preliminary, and generally correspond to the base of shaft embedded 2 feet into intact Basalt. Exhibit 5 illustrates the drilled shaft layout proposed by the design team for widening and retrofit at Piers 5 through 13. See Figure 2 for the locations of the piers along the Abernethy Bridge structure.

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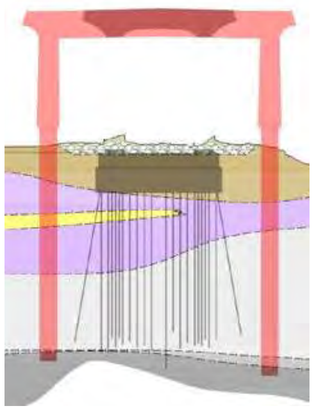
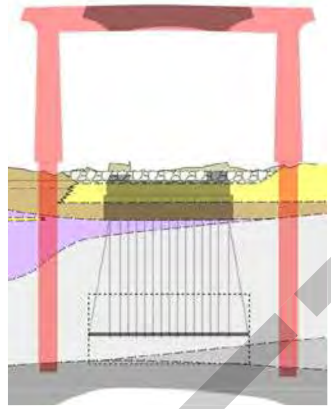
Exhibit 4: Summary of Drilled Shaft Dimensions by Pier

Location	Diameter	Length	Tip Elevation (NAVD 88)
Pier 5 Left	12 ft	162.5	-158
Pier 5 Right	12 ft	171.5	-167
Pier 6 Left	12 ft	134.5	-130
Pier 6 Right	12 ft	137.5	-133
Pier 7 Left	10 ft	131	-120
Pier 7 Right	10 ft	137	-115
Pier 8 Left 1	8 ft	124.5	-93
Pier 8 Left 2	8 ft	124.5	-93
Pier 8 Right 1	8 ft	134	-92
Pier 8 Right 2	8 ft	134	-92
Pier 9 Right	8 ft	135	-86
Pier 11 Left	6 ft	49	33
Pier 11 Right	6 ft	42	40
Pier 12 Left	7 ft	35	65
Pier 12 Right	7 ft	49	49
Pier 13 Left	7 ft	30	92
Pier 13 Right	7 ft	15	103
Pier C3-2 Left	8 ft	115	-64
Pier C3-2 Right	8 ft	118	-63
Pier C3-3 Left	8 ft	86.5	-24
Pier C3-3 Right	8 ft	97	-48

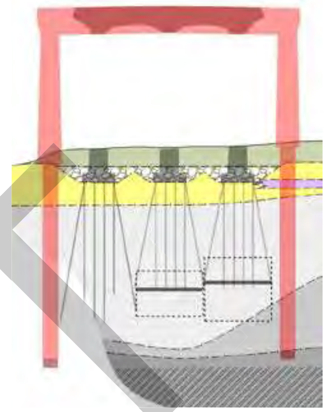
Exhibit 5: Illustrations of Proposed Drilled Shaft Foundations for Retrofit and Widening at Piers 5 through 13. See Figure 2 for locations of the piers.



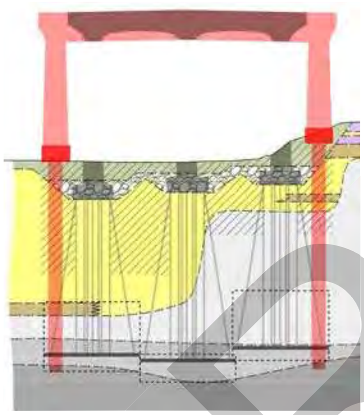
Pier 5 *(not to scale)*



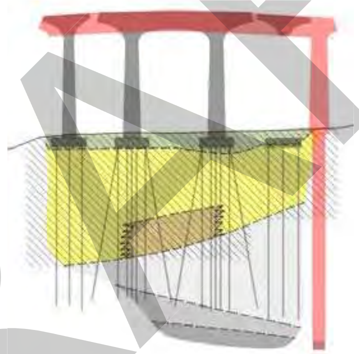
Pier 6 *(not to scale)*



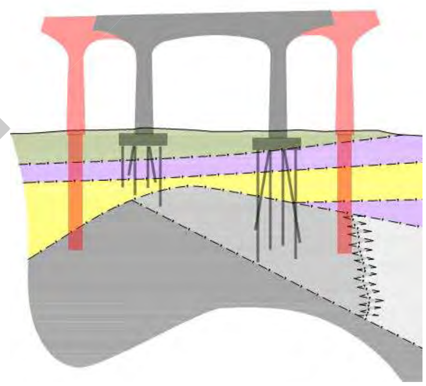
Pier 7 *(not to scale)*



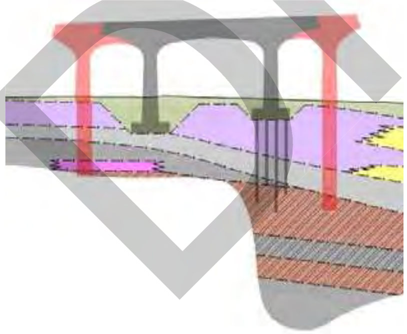
Pier 8 *(not to scale)*



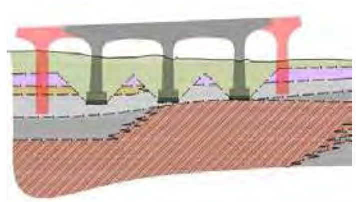
Pier 9 *(not to scale)*



Pier 11 *(not to scale)*



Pier 12 *(not to scale)*



Pier 13 *(not to scale)*

Ground Improvement

The results of the seismic hazard evaluation indicate that seismic hazard ground improvement mitigation at the west river bank in West Linn will be needed to achieve the required performance criteria of the foundations located at the riverbank and river channel due to lateral spreading, and flow failure. To mitigate these hazards, we considered a variety of ground improvement alternatives such as jet grouting, stone columns, and cement deep soil mixing. Ground improvement is planned at Pier 8 and between Piers 8 and 9. These ground improvement methods contribute to improving performance of the slope by reinforcing the lateral spreading zones to alter the properties of the soil and reduce ground slope lateral movement during the design seismic events. The existing Piers 8 and 9 are supported by pile groups including battered piles. The existing battered piles could be potential obstructions for stone column and deep soil mixing ground improvement. In addition, a layer of riprap was placed around Pier 8 during the original bridge construction. Penetrating through the riprap layer will be difficult with deep soil mixing. In our opinion, construction of an improved soil mass (combination of cement deep soil mixing and jet grouting) is the preferred technical approach and method for seismic mitigation at the west riverbank. The ground improvement will be constructed to maintain slope stability at this location.

Wall A4 (OR43)

To accommodate roadway realignment, a retaining wall is proposed along the slope beyond the southeast extents of OR43, as shown on the Geologic Hazard Map, Figure 2. We understand the new roadway alignment will include a roundabout and a multiuse path. An MSE wall is the preferred design alternative for the proposed retaining wall. The wall will be approximately 156 feet long with a maximum exposed wall height of 9.5 feet. The backslope behind the MSE wall is approximately level and the maximum slope of the existing ground in front of the wall is approximately 1.8H:1V (Horizontal:Vertical). Retaining Wall A4 is in a Habitat Conservation Area, as shown in the Geologic Hazard Map, Figure 2. The wall will be constructed to maintain slope stability at this location.

West A Street Bridge

We understand the existing bridge is currently proposed to be replaced by a two-span structure located along the same alignment as the existing bridge with the interior bent located in the new median area between the northbound and southbound lanes of I-205. The new bridge will be constructed in two stages to maintain one lane of travel across the existing bridge during construction.

The proposed south abutment (Bent 1) will be located immediately south of (behind) the existing south abutment to allow for the new I-205 widening. Hard-rock excavation may be

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required to accommodate the I-205 widening in front of Bent 1. The Bent 1 abutment wall and foundations will be combined into the same system by using drilled-in soldier piles socketed into rock to support the bridge and installing lagging between the piles and a full height permanent concrete fascia to form the abutment wall. Hard-rock excavation may also be required for the new spread footings at Bents 2 and 3.

Roadway Rock Cut Widening

The proposed rock cut area is located along the northbound (southeast) side of I-205 and the northbound Exit 8 off-ramp to Highway 43, as shown on Figure 2. This portion of I-205 and the northbound Exit 8 off-ramp are in an existing through cut in basalt bedrock. The existing rock cut on the southeast side of I-205 is up to about 70 feet in height with most of the slope inclined at about 76 degrees or 0.25 horizontal to 1 vertical (0.25H:1V); some portions of the slope that contain weathered rock or colluvial soils have flatter slopes. Willamette Falls Drive parallels most of the existing rock cut to the southeast forming an isolated, northeast-trending topographic ridge between I-205 and Willamette Falls Drive that is bounded by West A Street on the northeast end and Sunset Avenue on the southwest end.

The proposed cut is approximately 2,565 feet in length, beginning at the Broadway Street Bridge (I-205 MP 8.69) and extending about 525 feet southwest of the Sunset Avenue Bridge to approximately I-205 MP 8.38. Both the Sunset Avenue and West A Street Bridges are within the extents of the proposed cut.

The general design criteria for the proposed rock cut slope, based on the ODOT GDM, are: 1) that the slope be at the steepest inclination that satisfies stability considerations and 2) that the base of the slope includes a catchment area sufficient to provide 90 percent retention of all rockfall (including rollout) and 99 percent retention of free-falling rocks.

Sunset Avenue Bridge

We understand the existing bridge is currently proposed to be replaced by a two-span structure located along a new alignment immediately south of the existing bridge. The proposed west abutment (new Bent 1) will be located immediately south of the existing west abutment; the proposed interior bent (new Bent 2) will be located in the new I-205 median area; and the proposed east abutment (new Bent 3) will be located approximately 120 feet southwest of the existing east abutment centerline. Refer to Figure 2 for the proposed bridge bent locations.

Spread footings are anticipated to be used as foundation support at the abutments, while drilled shaft foundations are anticipated at the interior bent. Drilled shafts also remain feasible foundation design options at Bents 1 and 3.

Wall B1 (Barrier with Backfill)

A concrete barrier with backfill is the preferred design alternative for the proposed retaining wall along the median between the northbound and southbound I-205 travel lanes to provide a narrower median and accommodate roadway widening. The barrier will be an ODOT standard 42-inch concrete barrier and will be pinned to the underlying pavement. We understand that the proposed median slope behind the barrier is up to 1.8H:1V, with a minimum 4-foot-wide horizontal bench of material directly behind the barrier. The maximum height of the horizontal bench of barrier backfill is less than 4 feet. The exposed wall height of less than 4 feet and minimum 4-foot-wide flat bench behind the wall qualifies it as a minor retaining wall in accordance with the ODOT GDM Section 15.2.1.1 (ODOT, 2018). Although the barrier will be pinned to the underlying pavement instead of being embedded the minimum required 2 feet for retaining walls, and use of a pinned median barrier is not an approved permanent retaining wall system according to the ODOT GDM (ODOT, 2018), we understand a design deviation is not being required because the barrier qualifies as a minor retaining wall.

The proposed backfilled concrete barrier extends from south of Sunset Avenue to just east of 10th Street for approximately 3,188 feet, as shown on Figure 2 (Sheets 8 through 10).

LIMITATIONS

The analyses, conclusions, and recommendations contained in this report are based on site conditions as they reportedly exist, and further assume that the information included on the drawings is representative of the subsurface conditions throughout the site; that is, the subsurface conditions everywhere are not significantly different from those inferred from the drawings. For previous explorations, we did not review soil samples and cannot confirm that these previous explorations are representative of the site conditions. The analysis, conclusions, and recommendations contained in this report are also based on the available as-constructed structure information.

Our evaluations were performed for preliminary design purposes and should not be relied upon for final design or construction. Additional explorations are required to develop final design recommendations for this project.

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Within the limitations of scope, schedule, and budget, the analyses, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice in this area at the time this report was prepared. We make no other warranty, either express or implied. These conclusions and recommendations were based on our understanding of the project as described in this report and the site conditions interpreted from the drawings.

This report was prepared for the exclusive use of West Linn and **HDR, Inc.,** and their design team in the design of the I-205: Stafford Rd to OR99E Corridor Widening project. Our report, conclusions, and interpretations should not be construed as a warranty of subsurface conditions, such as those interpreted from the drawings, and discussions of subsurface conditions included in this report.

The scope of our present work did not include environmental assessments or evaluations regarding the presence or absence of wetlands, or hazardous or toxic substances in the soil, surface water, groundwater, or air, on or below or around this site, or for the evaluation or disposal of contaminated soils or groundwater should any be encountered. Please read the Important Information section at the back of this report to reduce your project risks.

Sincerely,

SHANNON & WILSON

Aimee Holmes, PE, CEG	Risheng "Park" Piao, PE, GE
Senior Engineer/Engineering Geologist	Vice President | Geotechnical Engineer

AEH:RPP/las

Enc. Figure 1 – Vicinity Map
Figure 2 – Geologic Hazard Map
Important Information about your Geotechnical/Environmental Report

REFERENCES

Allen, J.E., Burns, M., and Burns, S., 2009, Cataclysms on the Columbia: The Great Missoula Floods (2nd ed.): Portland, Oregon, Ooligan Press, 204 p.

Beeson, M.H., Tolan, T.L., and Madin, I.P., 1991, Geologic Map of the Portland Quadrangle, Multnomah and Washington Counties, Oregon, and Clark County, Washington: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-75, scale 1:24,000.

Beeson, M.H., Tolan, T.L., and Madin, I.P., 1989, Geologic Map of the Lake Oswego Quadrangle, Clackamas, Multnomah, and Washington Counties, Oregon: Oregon Department of Geology and Mineral Industries, Geological Map Series GMS-59, scale 1:24,000.Burns, W.J., Mickelson, K.A., and Madin, I.P., 2016, Landslide Susceptibility Overview Map of Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report O-16-02, scale 1:500,000.

Burns, W. J., 2009, Landslide inventory maps for the Canby quadrangle, Clackamas, Marion, and Washington Counties: Oregon Department of Geology and Mineral Industries Interpretive Map 29, scale 1:8,000.

Mabey, M.A., Madin, I.P., Youd, T.L., and Jones, C.F., 1993, Earthquake hazard maps of the Portland Quadrangle, Multnomah and Washington Counties, Oregon, and Clark County, Washington: Oregon Department of Geology and Mineral Industries Geologic Map Series GMS-79.

Mabey, M.A., and others, 1997, Relative earthquake hazard map of the Portland Metro Region, Clackamas, Multnomah, and Washington Counties, Oregon: Oregon Department of Geology and Mineral Industries Interpretive Map Series IMS-1.

Madin, I.P., 2009, Geologic Map of the Oregon City 7.5 Minute Quadrangle, Clackamas County, Oregon: State of Oregon Department of Geology and Mineral Industries Geologic Map Series GMS-119, 46 p, 1 plate, scale 1:24,000.

Madin, I.P., 1990, Earthquake Hazard and Geology maps of the Portland Metropolitan Area, Oregon: U.S. Geological Survey Open File Report 0-90-2

ODOT, 2018, Geotechnical Design Manual: Salem, Oregon, available: https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/Geotech-Manual.aspx.

SHANNON & WILSON

Personius, S.F., compiler, 2002c, Fault number 716, Canby-Molalla fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2017 01:59 PM.

Personius, S.F., compiler, 2002f, Fault number 875, Oatfield fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2017 12:09 PM.

Personius, S.F., compiler, 2002i, Fault number 879, Damascus-Tickle Creek fault zone, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2017 01:47 PM.

Personius, S.F., compiler, 2002e, Fault number 874, Bolton fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/17/2017 01:59 PM.

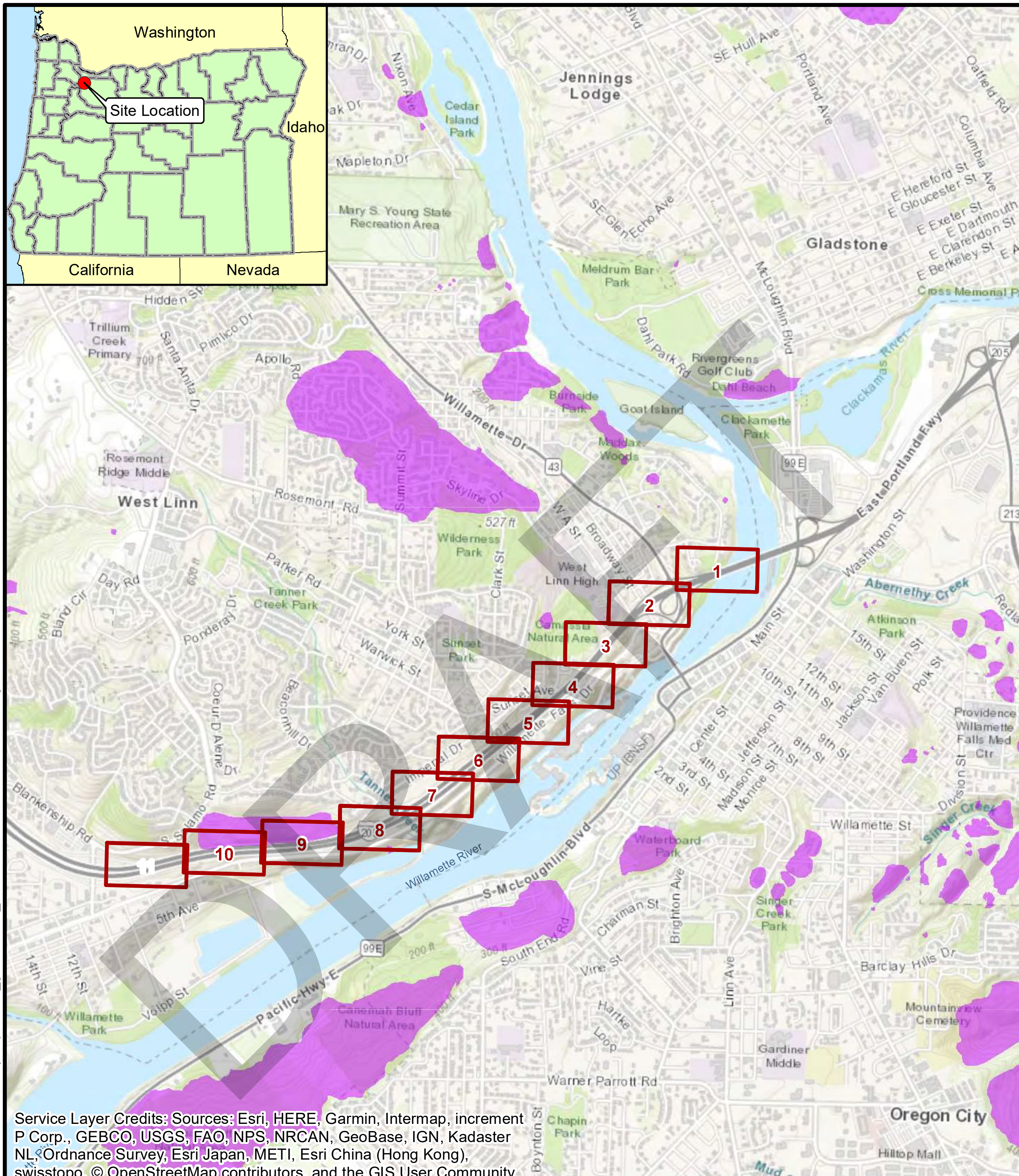
Personius, S.F., and Haller, K.M., compilers, 2017, Fault number 877, Portland Hills fault, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults, accessed 12/14/2017 01:15 PM.

Personius, S.F., and Nelson, A.R., compilers, 2006, Fault number 781, Cascadia megathrust, in Quaternary fault and fold database of the United States: U.S. Geological Survey website, https://earthquakes.usgs.gov/hazards/qfaults.

Schlicker, H.G., and Finlayson, C.T., 1979, Geology and Geologic Hazards of Northwestern Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries Bulletin 99, 79p.

United States Geological Survey, 2017, Quaternary fault and fold database of the United States: U.S. Geological Survey website, http://earthquake.usgs.gov/hazards/qfaults/map/#qfaults, accessed 07/01/2019.

Wong, I., Silva, W., Bott, J., Wright, D., Thomas, P., Gregor, N., Li, S., Mabey, M., Sojourner, A., and Wang, Y., 2000, Earthquake scenario and probabilistic ground shaking maps for the Portland, Oregon, metropolitan area: Oregon Department of Geology and Mineral Industries Interpretive Map Series IMS-16.



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0 0.25 0.5 1

Scale in Miles

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LEGEND

Figure 2 Sheets

Landslide Deposit

NOTES

1. Mapped landslide deposits provided with DOGAMI publication SLIDO-4.2.

I-205: Stafford Road to OR99E Widening
West Linn Geologic Hazards
Clackamas County, Oregon

VICINITY MAP

November 2020 24-1-04165-012

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FIG. 1

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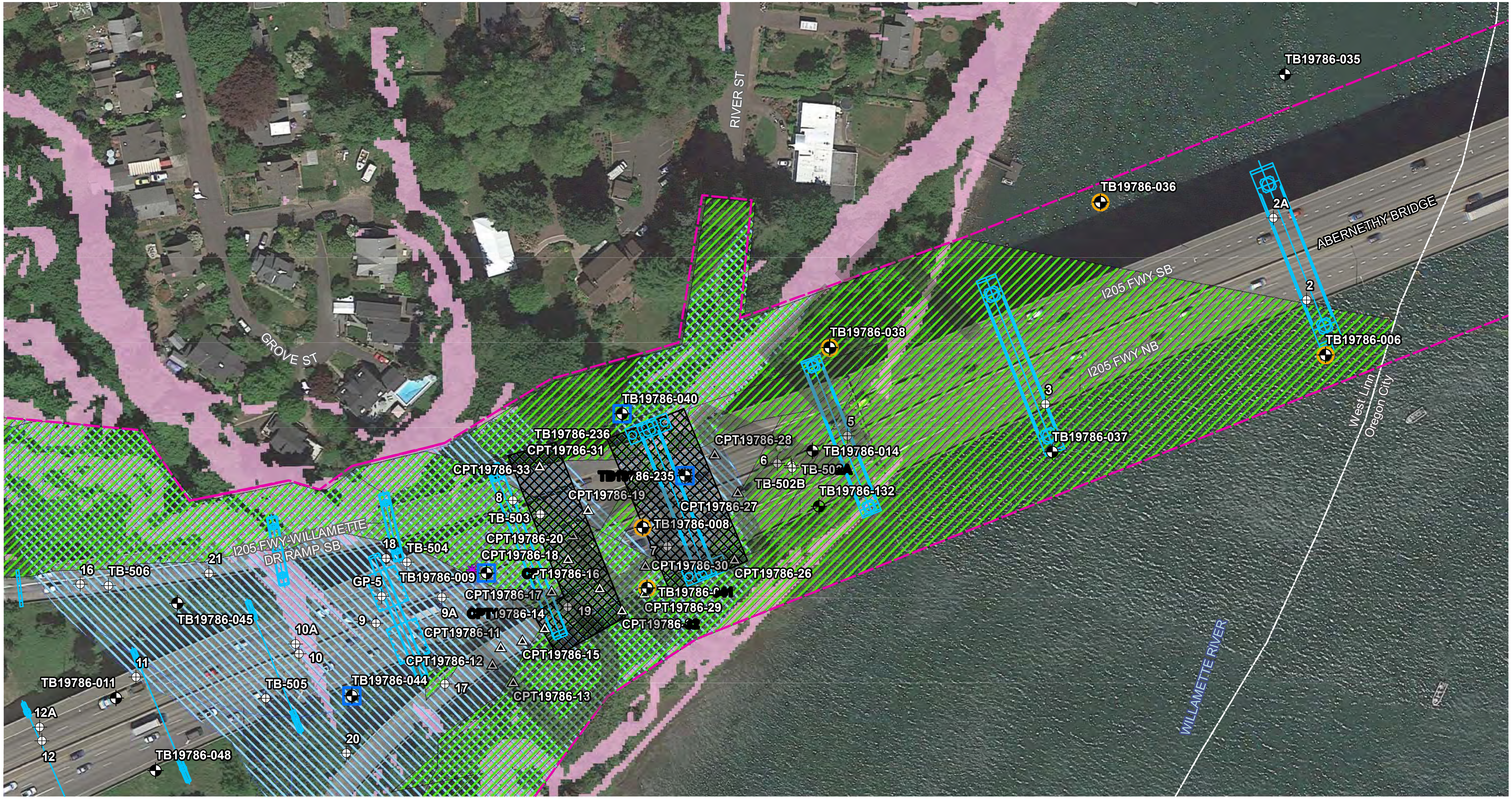

LEGEND

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- Infiltration Test (Shannon & Wilson, 2017)
- Vibrating Wire Piezometer
- Shear Wave Velocity Profile
- Borehole Televiewer
- Downhole Camera
- Seismic Refraction Profile
- Electrical Resistivity Profile
- Area of Potential Impact (API)
- Proposed Bridge Features
- Proposed Retaining Wall or Barrier with Backfill
- Approximate Proposed Toe of Rock Cut
- Proposed Ground Improvement Zone
- Landslide or Unstable Slope
- Landslide Deposit
- Habitat Conservation Area
- Water Resource Area
- Slopes > 25%

0 50 100 200

Scale in Feet

NOTES

1. Proposed Phase 1 features as of November 2020.
2. 25% slope areas derived from 2014 LiDAR.
3. Existing landslide location provided with DOGAMI publication SLIDO-4.2.
4. Earthquake hazard zones provided with DOGAMI publication IMS-1.
5. Habitat conservation and water resource areas provided by HDR on November 27, 2020.

I-205: Stafford Road to OR99E Widening
West Linn Geologic Hazards
Clackamas County, Oregon

GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

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FIG. 2
Sheet 1 of 11

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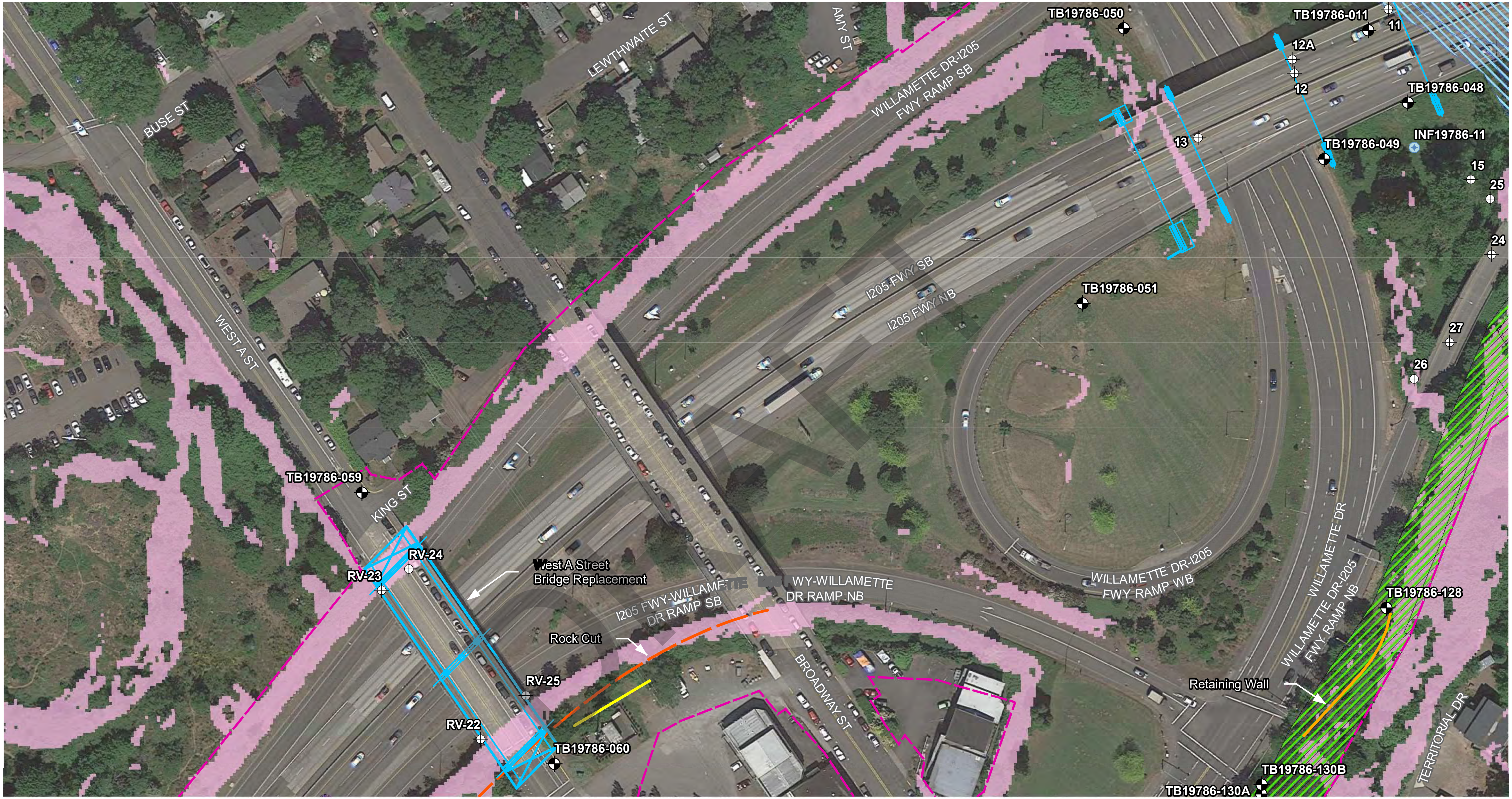

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I-205: Stafford Road to OR99E Widening
West Linn Geologic Hazards
Clackamas County, Oregon

GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 2 of 11

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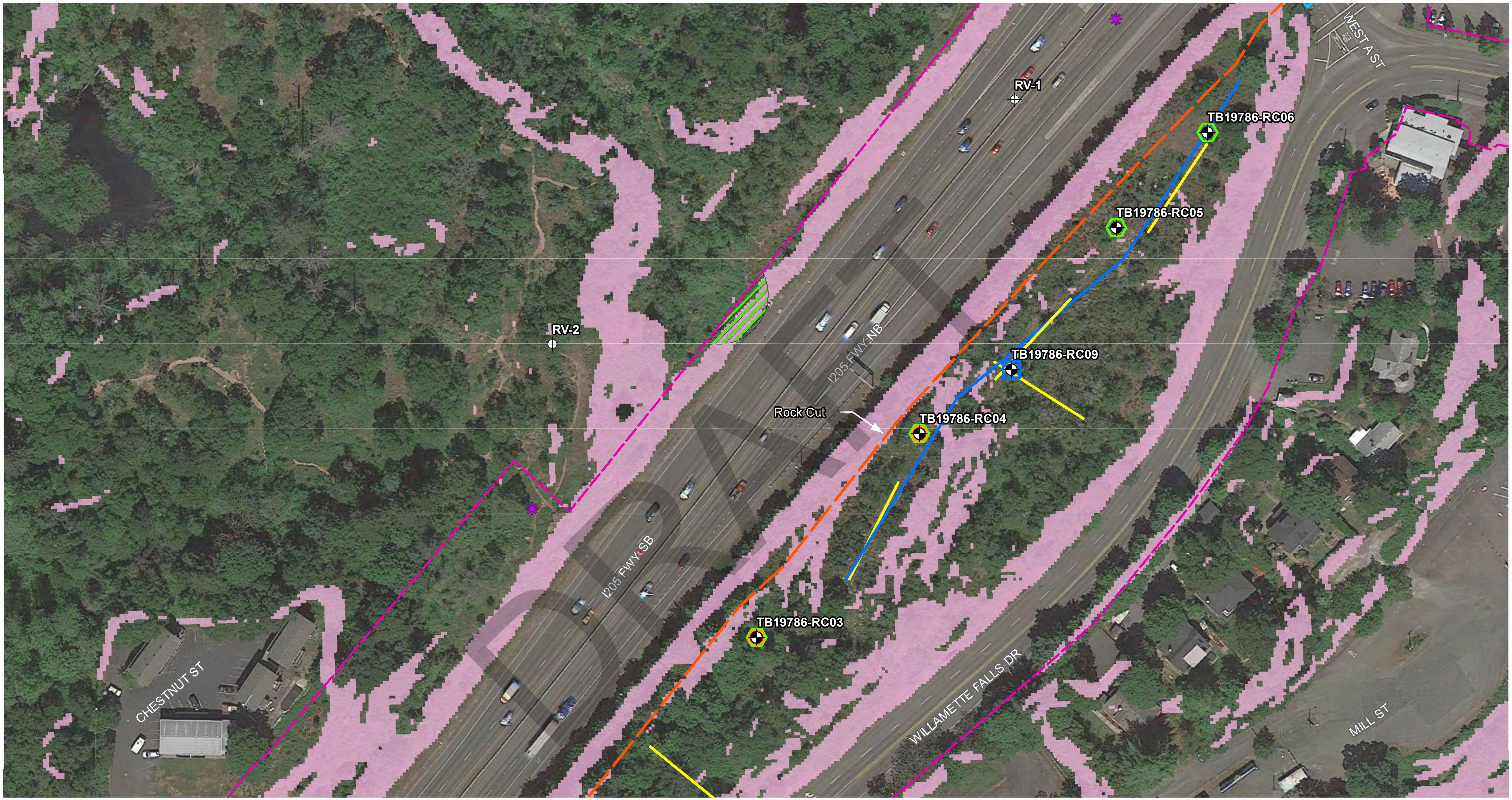

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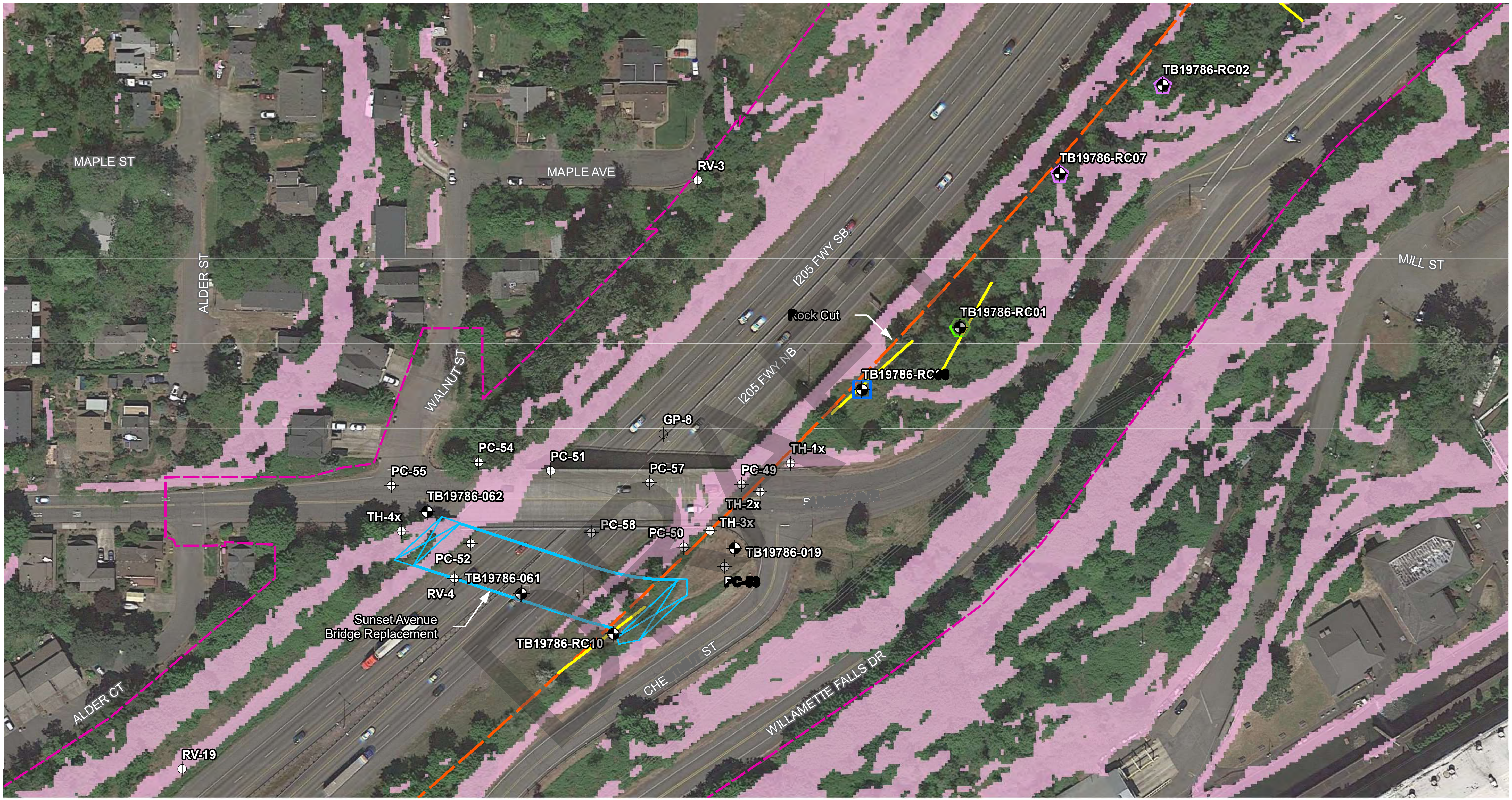
GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 3 of 11

Filename: T:\Projects\24-14165_I-205 Stafford\Avmxd\WL_geohazards_10.6.mxd Date: 11/30/2020 Login: AEH



LEGEND

- Boring (Shannon & Wilson, 2017-2020)
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- Borehole Televiewer
- Downhole Camera
- Seismic Refraction Profile
- Electrical Resistivity Profile
- Area of Potential Impact (API)
- Proposed Bridge Features
- Proposed Retaining Wall or Barrier with Backfill
- Approximate Proposed Toe of Rock Cut
- Proposed Ground Improvement Zone
- Landslide or Unstable Slope
- Landslide Deposit
- Habitat Conservation Area
- Water Resource Area
- Slopes > 25%

0 50 100 200

Scale in Feet

NOTES

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I-205: Stafford Road to OR99E Widening
West Linn Geologic Hazards
Clackamas County, Oregon

GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 4 of 11

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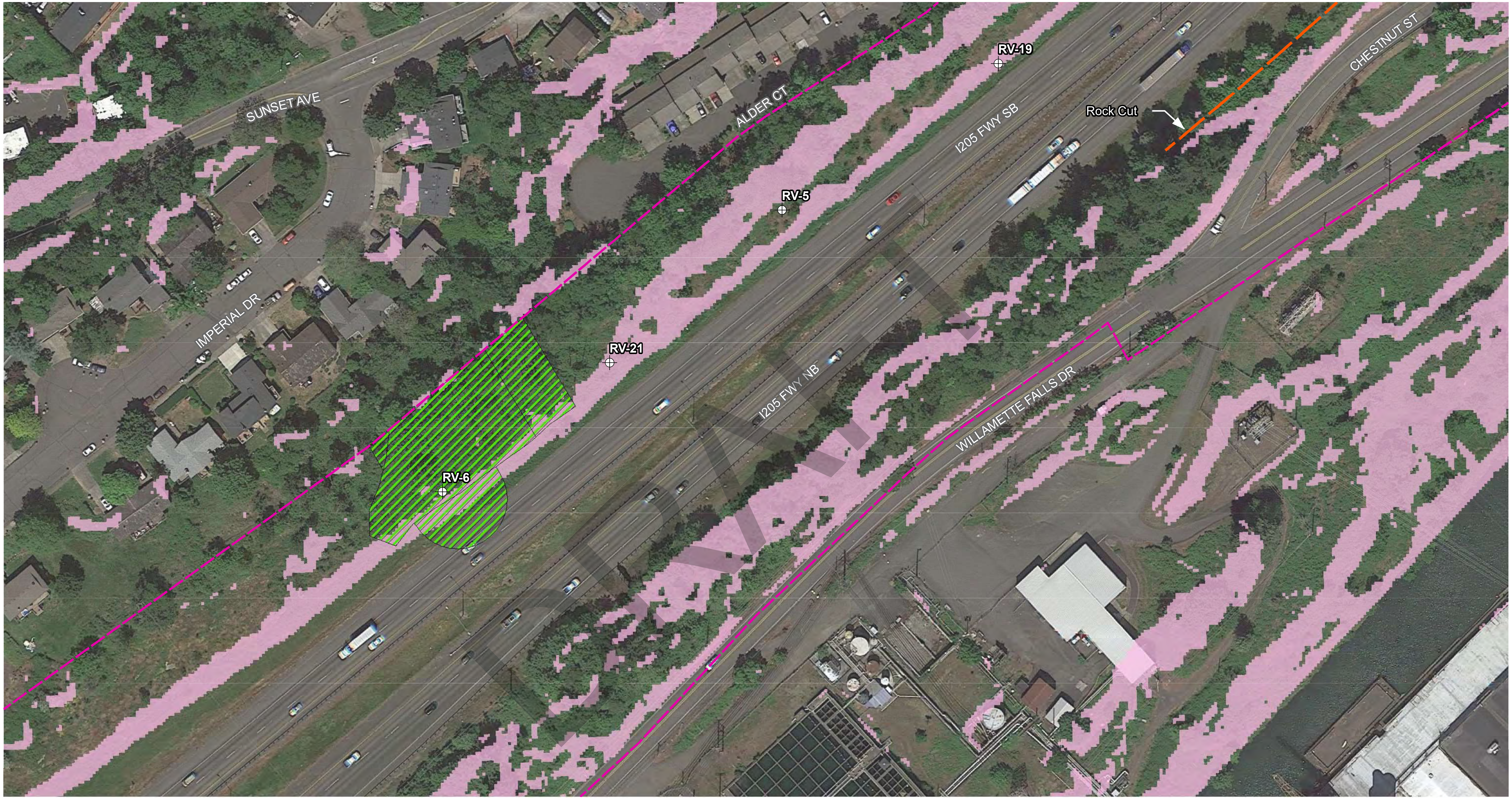

LEGEND

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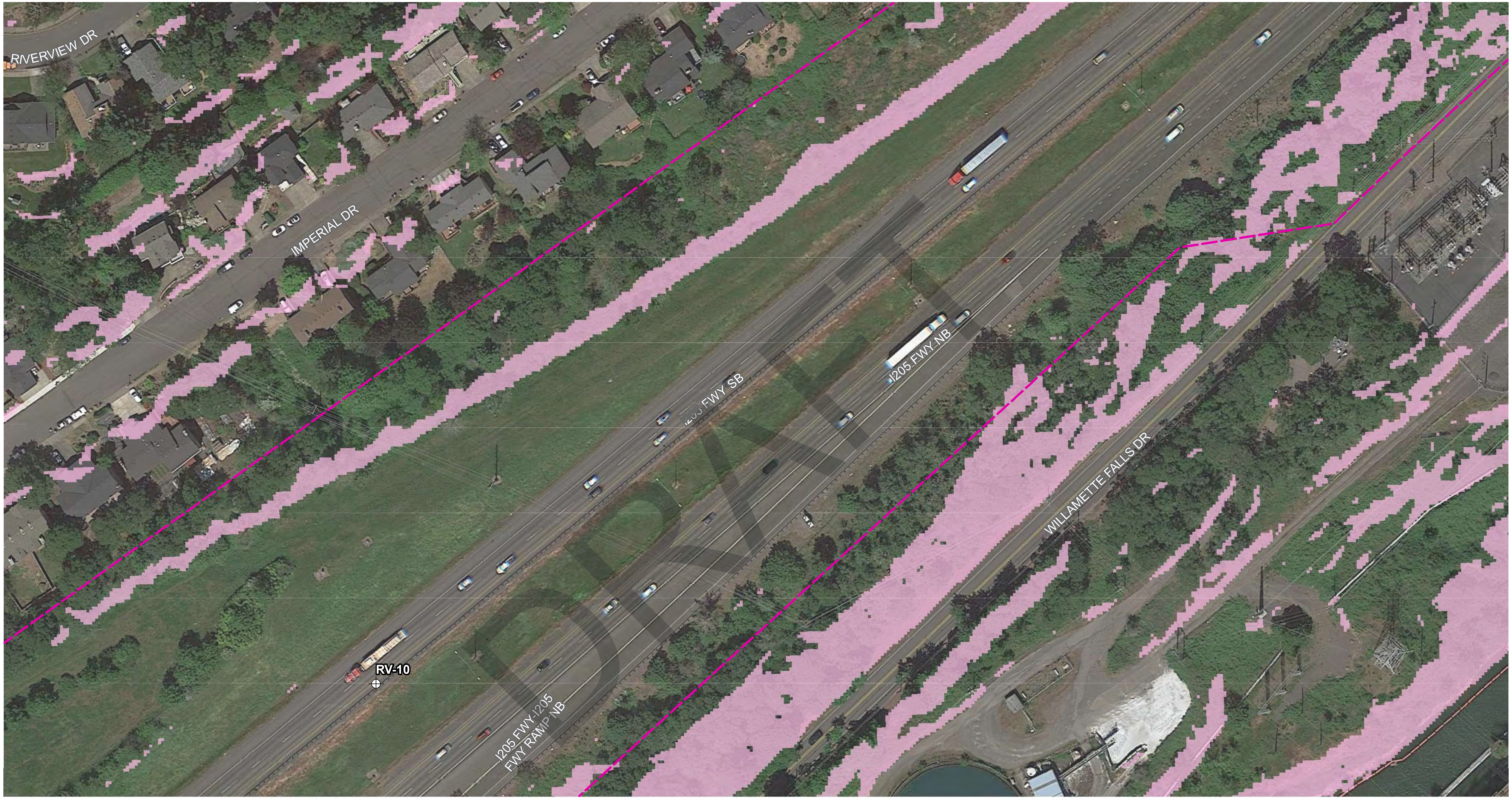
GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 5 of 11

Filename: T:\Projects\24-14165_I-205 Stafford\Avmxd\WL_geohazards_10.6.mxd Date: 11/30/2020 Login: AEH



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I-205: Stafford Road to OR99E Widening
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GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 6 of 11

Filename: T:\Projects\24-14165_I-205 Stafford\Avmxd\WL_geohazards_10.6.mxd Date: 11/30/2020 Login: AEH

LEGEND

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GEOLOGIC HAZARD MAP

November 2020 24-1-04165-012

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 7 of 11

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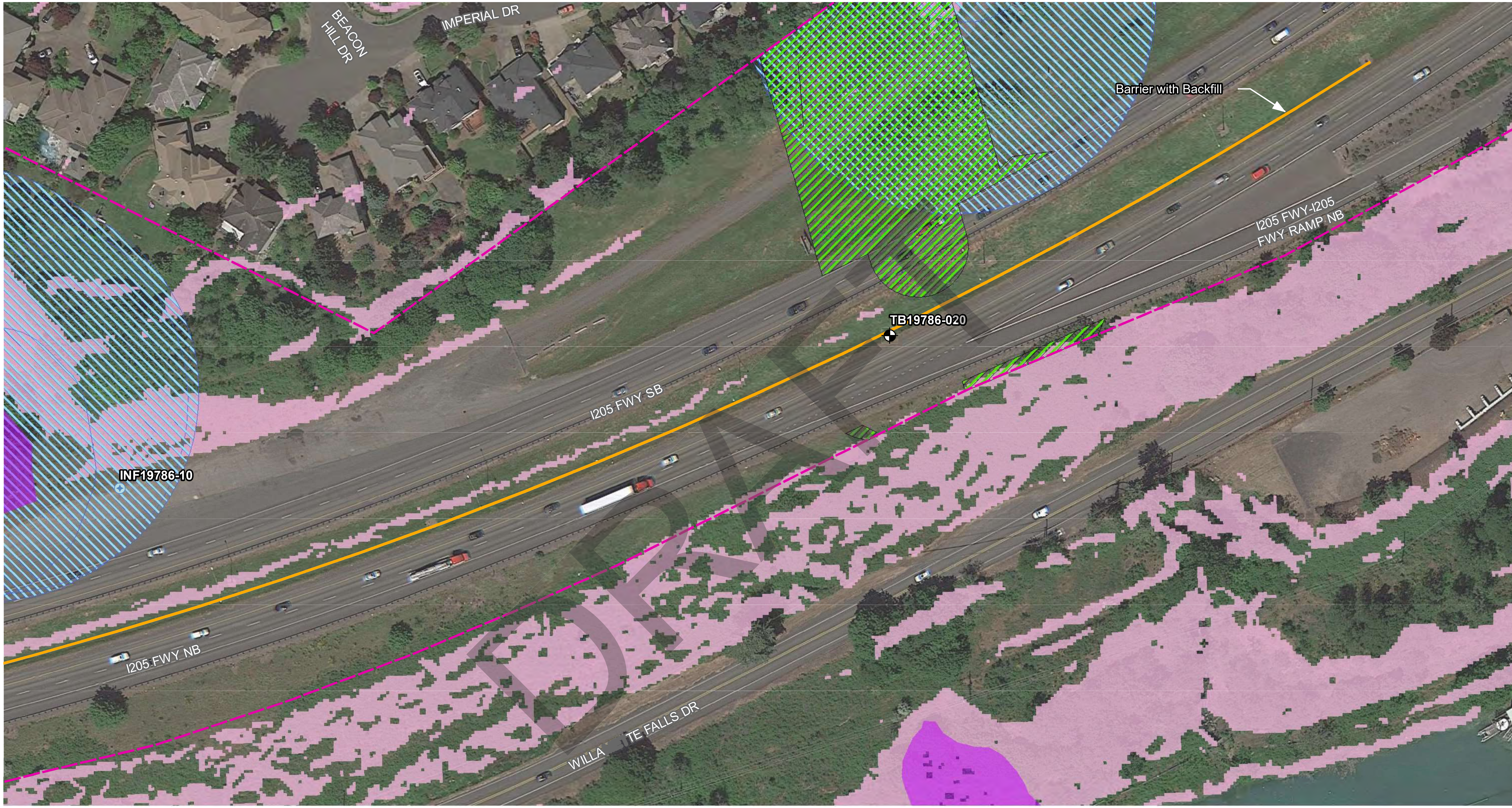

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FIG. 2
Sheet 8 of 11

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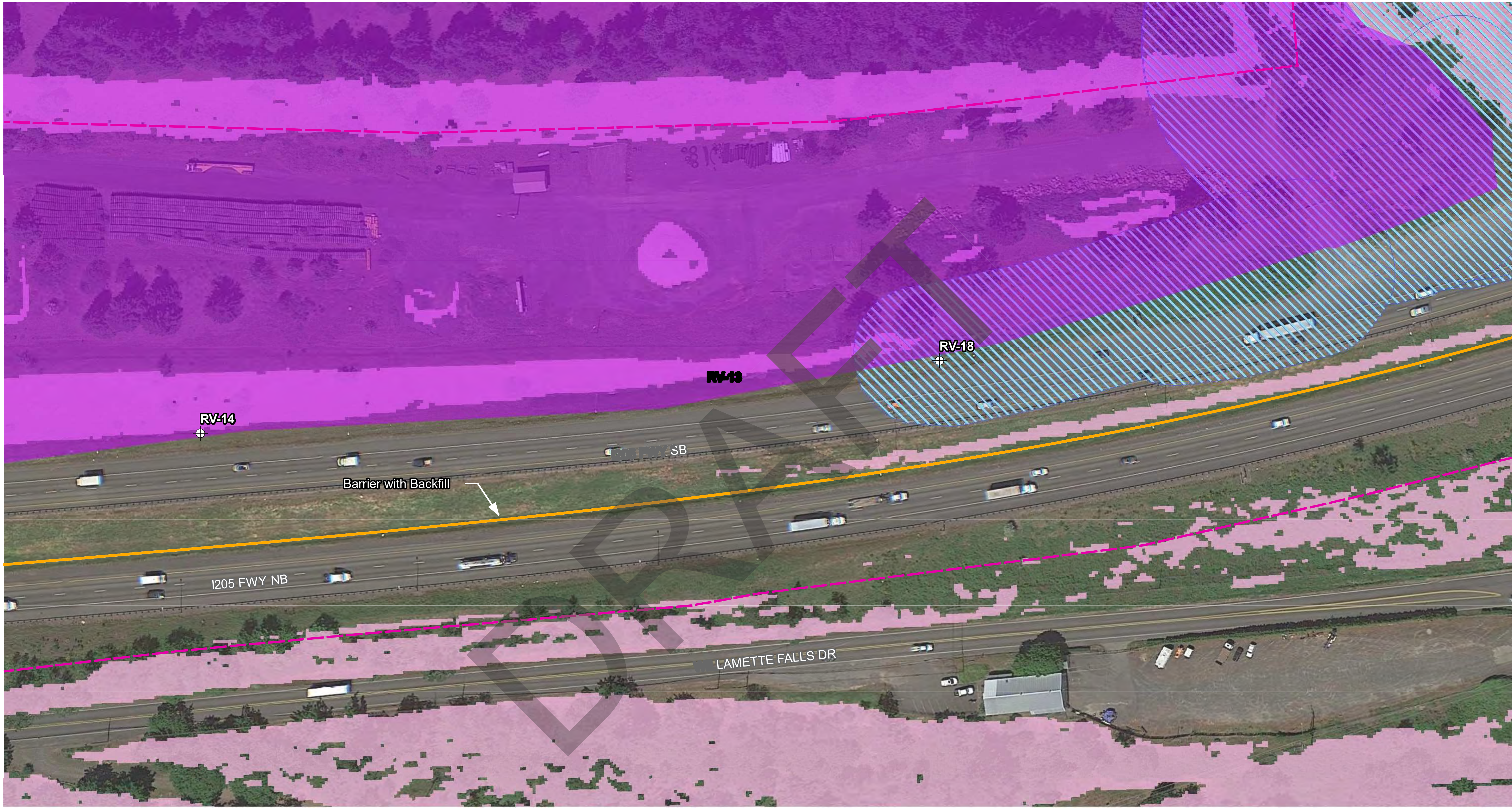

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 9 of 11

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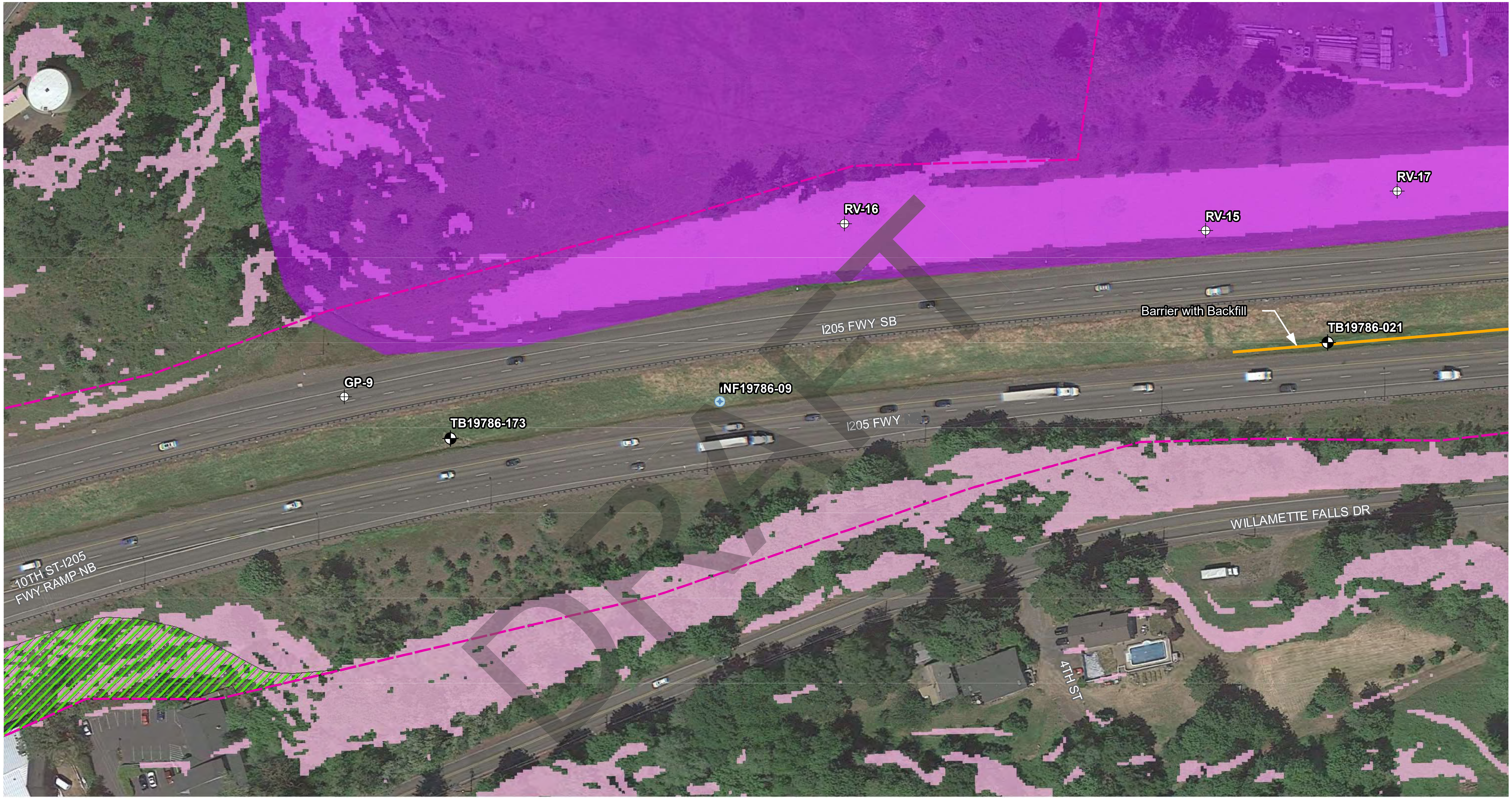

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GEOLOGIC HAZARD MAP

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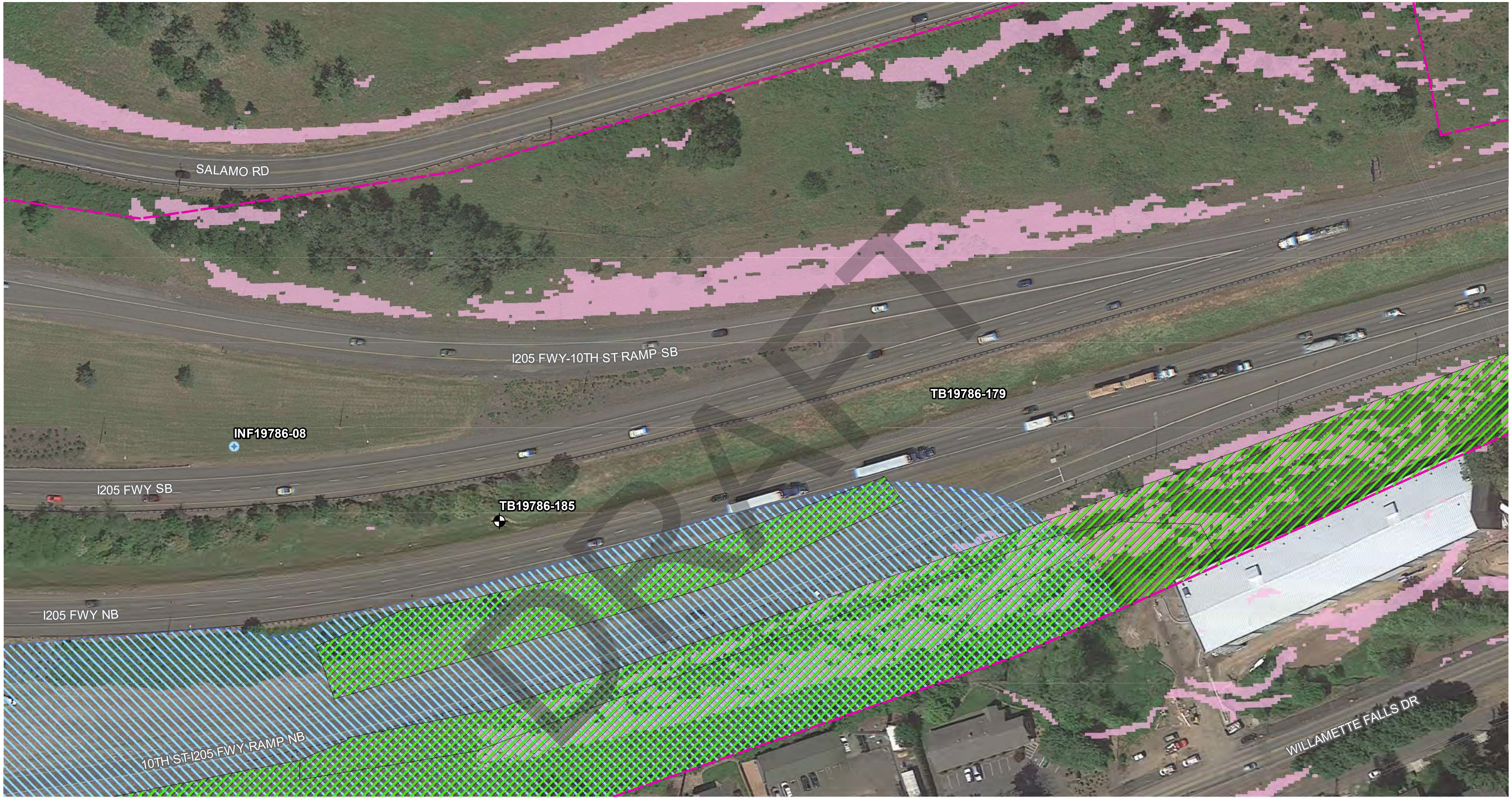
SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 10 of 11

Filename: T:\Projects\24-14165_I-205 Stafford\Avmxd\WL_geohazards_10.6.mxd Date: 11/30/2020 Login: AEH

628



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SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 2
Sheet 11 of 11

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

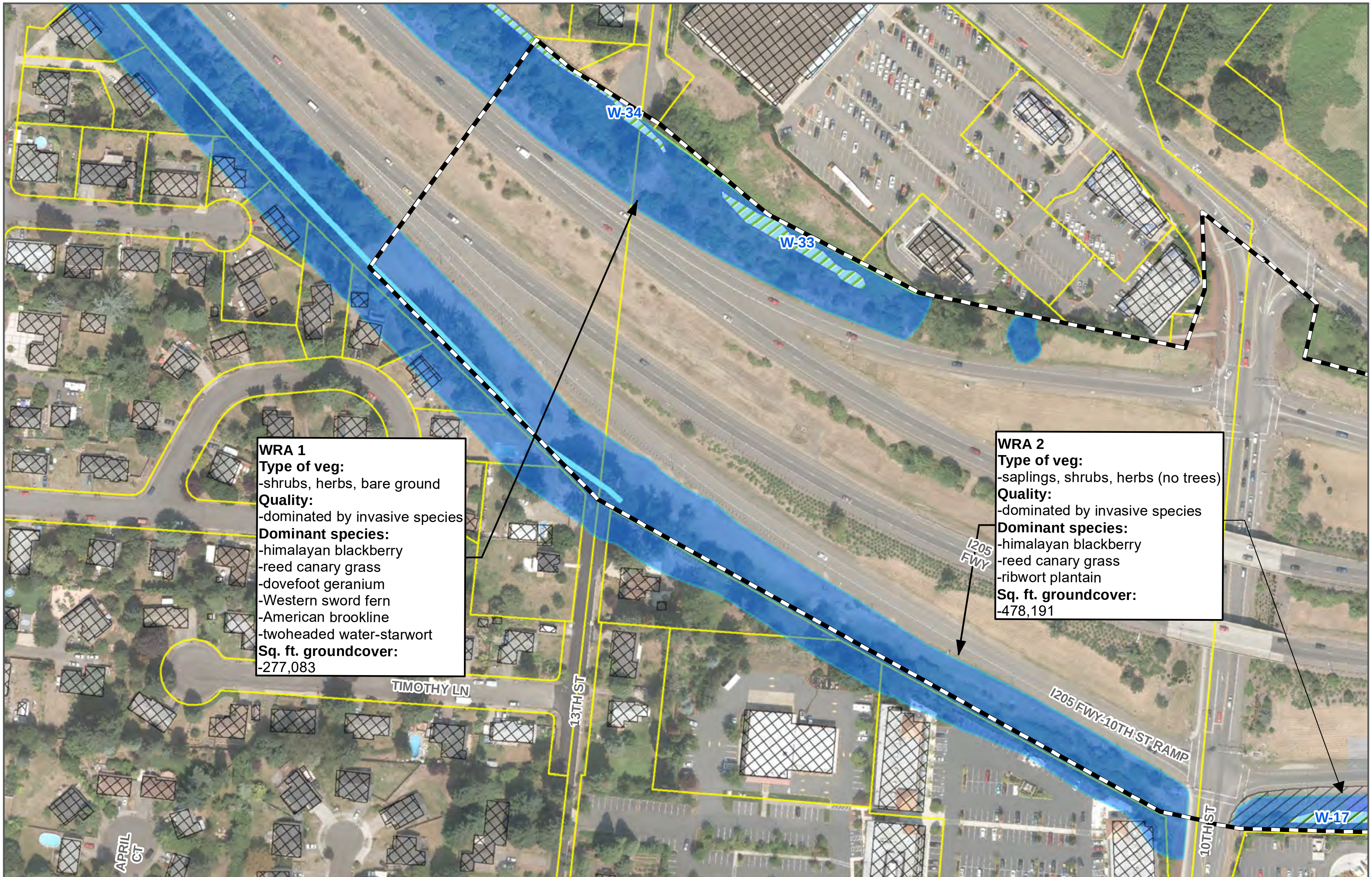
To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

Attachment P. WRA Site Plan



I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 1

635

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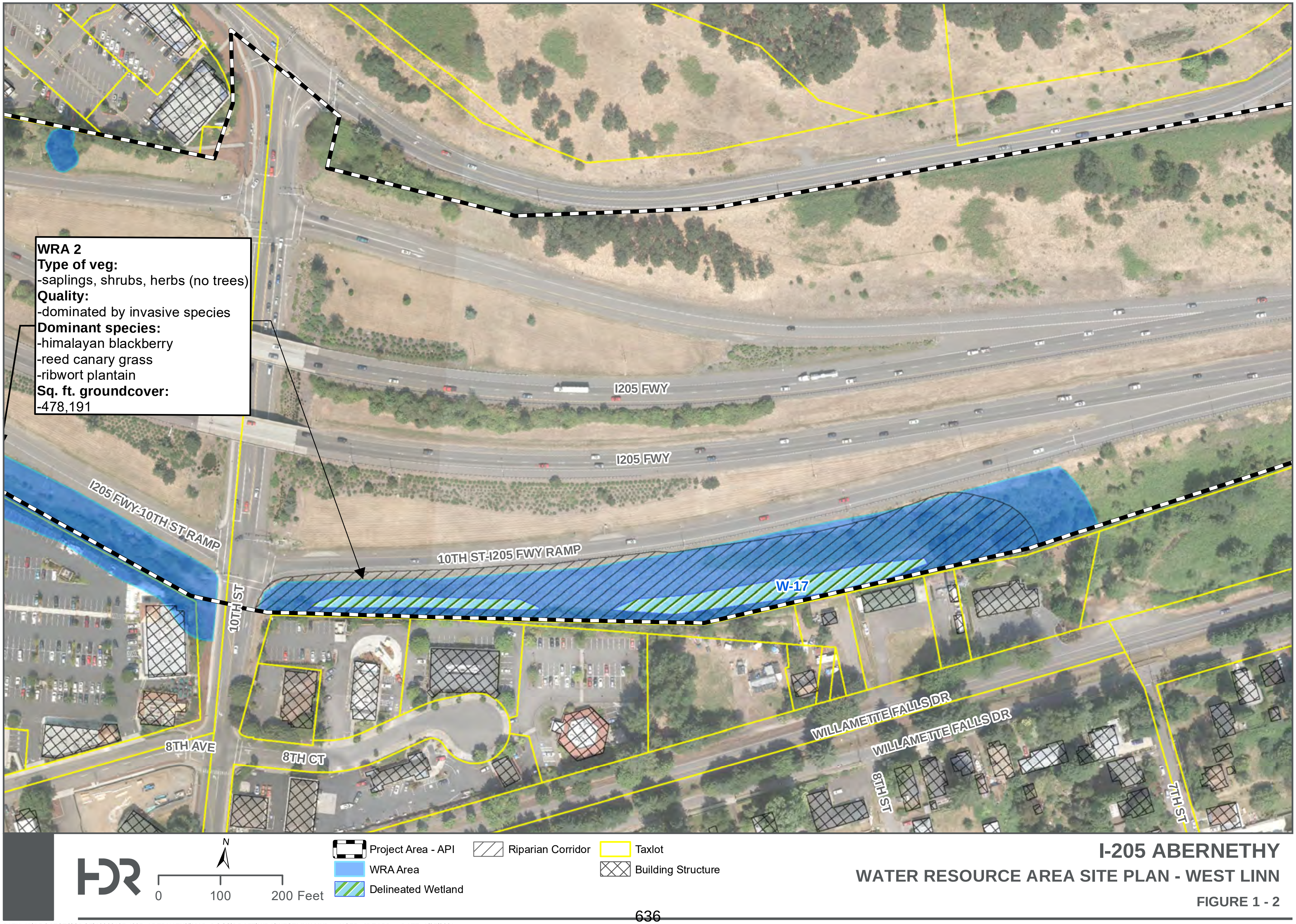

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 2

636

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021

HDR

N

0 100 200 Feet

Project Area - API

Taxlot

Building Structure

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 3

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 4

638

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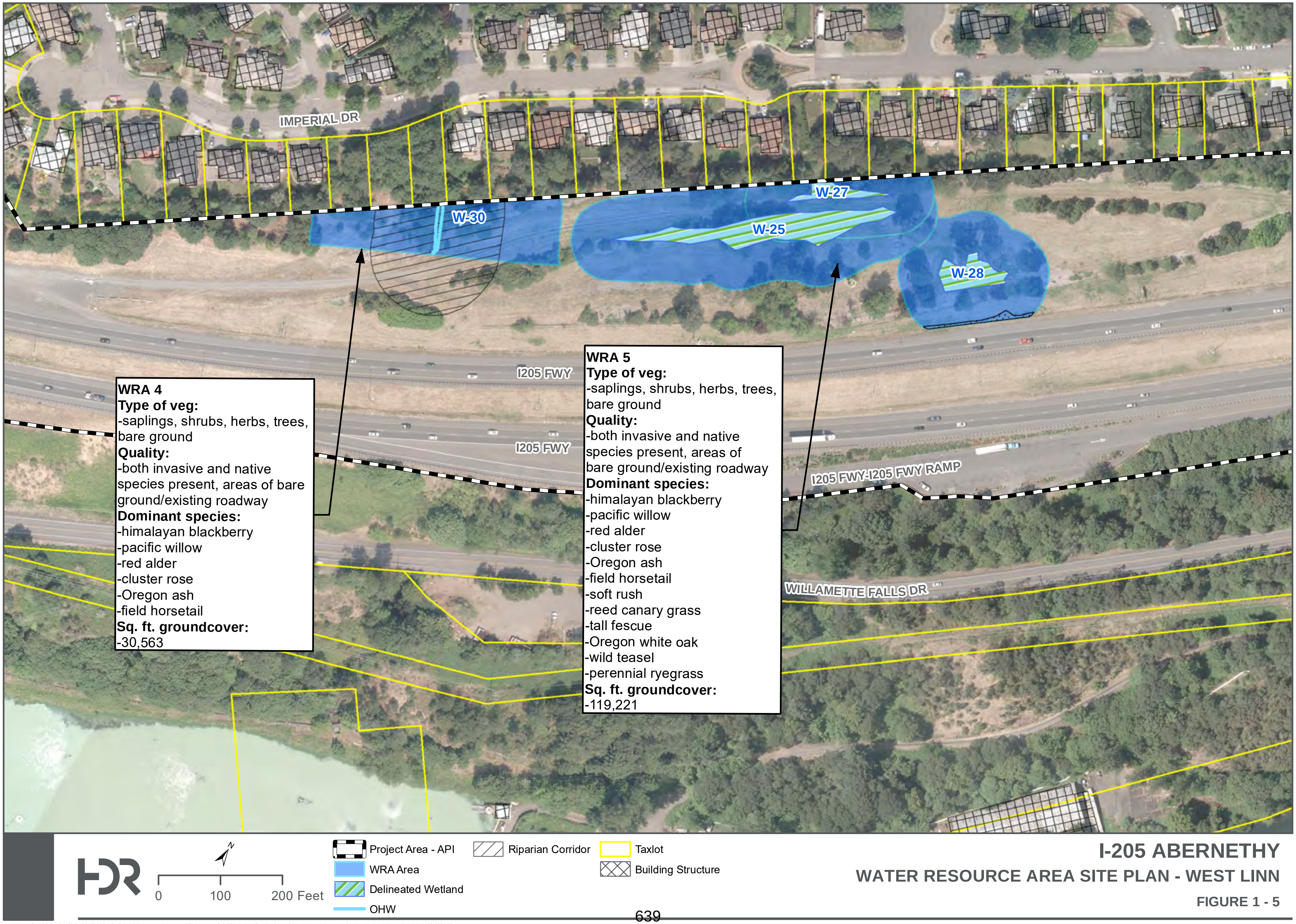


I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 5

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/28/2021

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 6

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021

Project Area - API
Taxlot
Building Structure

0 100 200 Feet

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 7

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021

HDR

0 100 200 Feet

Project Area - API

Taxlot

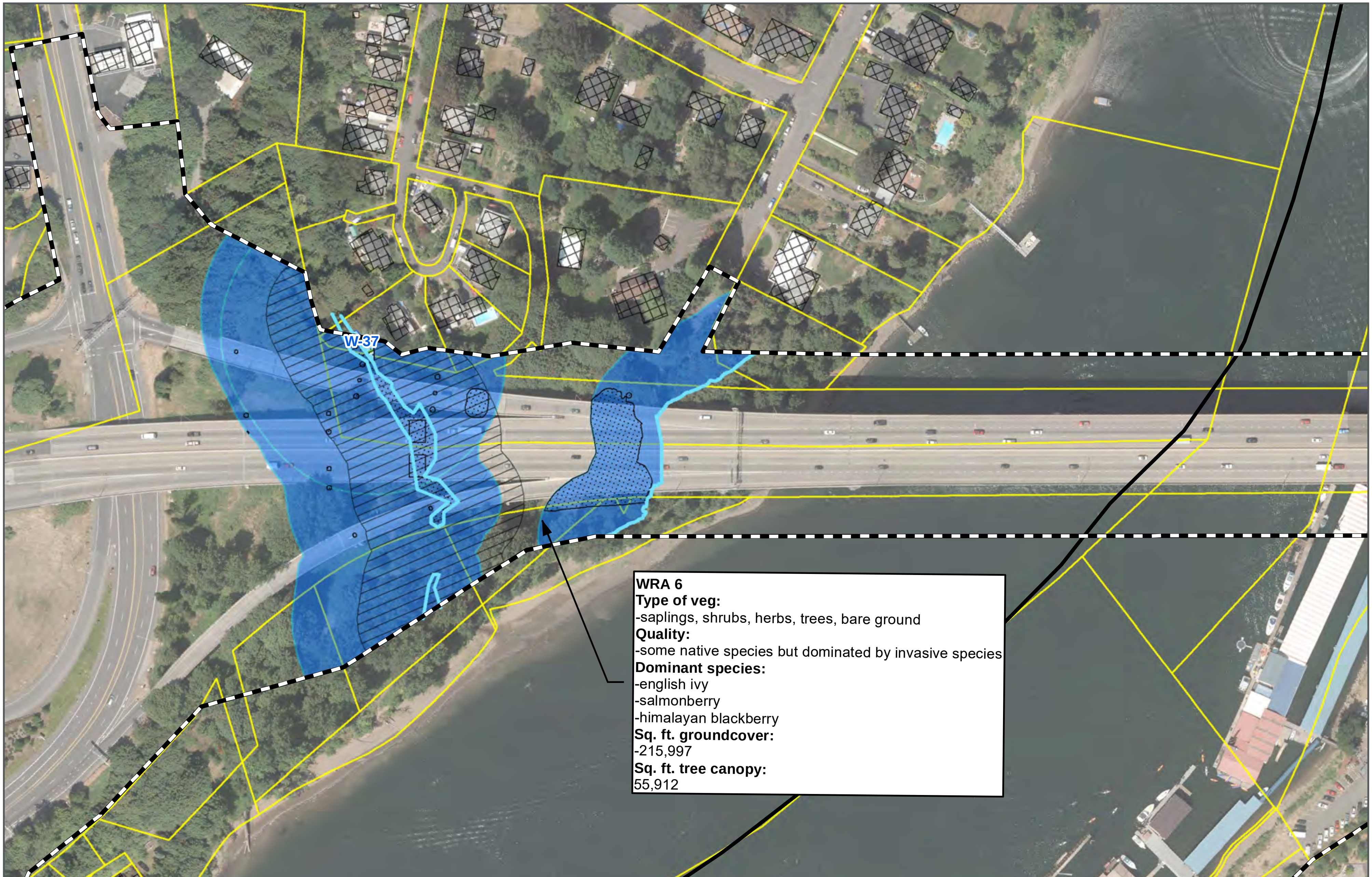
Building Structure

I-205 ABERNETHY

WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 8

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNETHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021



HDR

0 100 200 Feet

Project Area - API
WRA Area
Delineated Wetland
OHW
Riparian Corridor
Taxlot
Building Structure

I-205 ABERNETHY

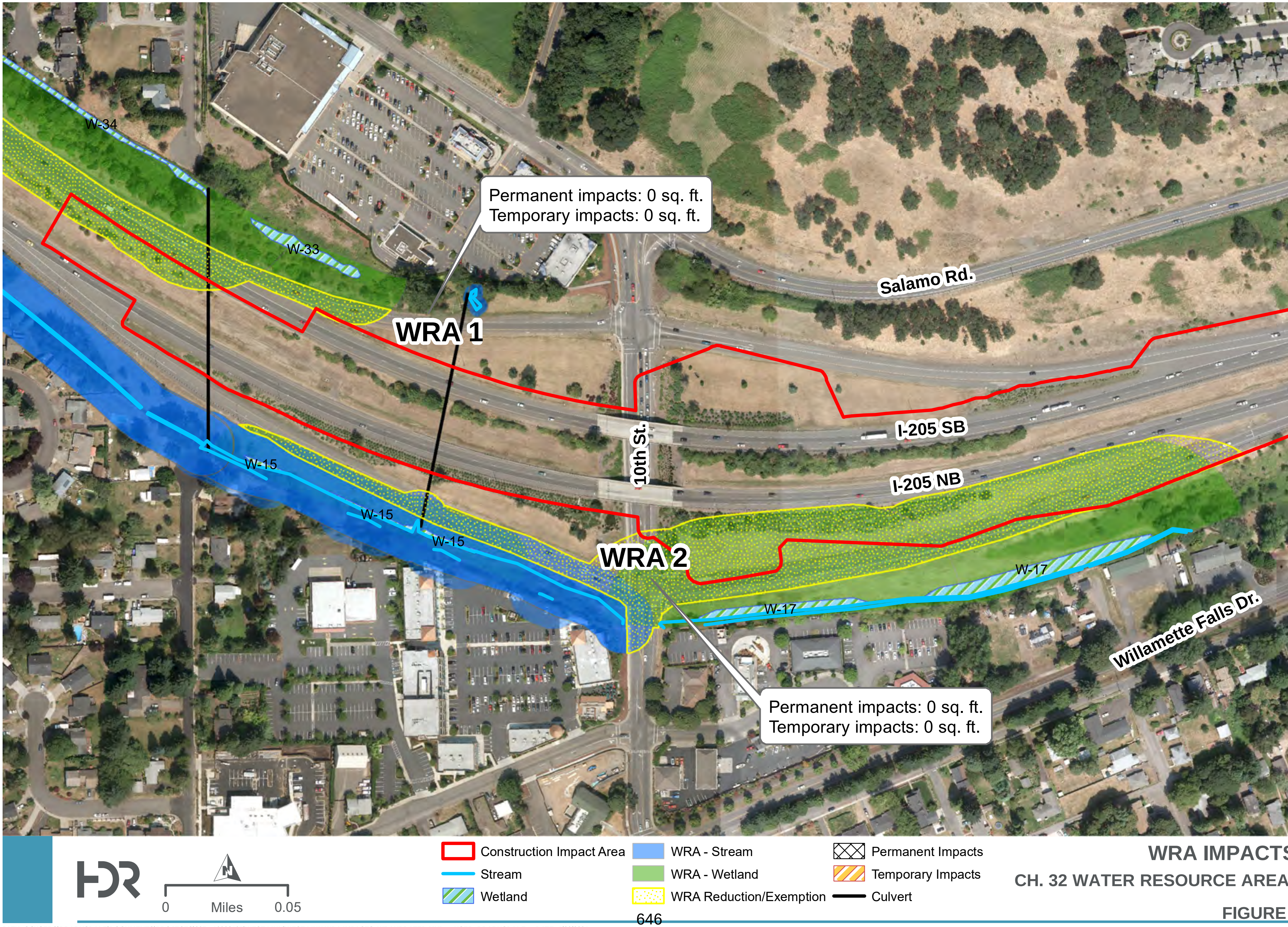
WATER RESOURCE AREA SITE PLAN - WEST LINN

FIGURE 1 - 9

643

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\DRAFT\WRA\WESTLINN.MXD - USER: JBEARD - DATE: 1/27/2021

Attachment Q. WRA Impacts



HDR

WRA IMPACTS

CH. 32 WATER RESOURCE AREAS

FIGURE 1

646

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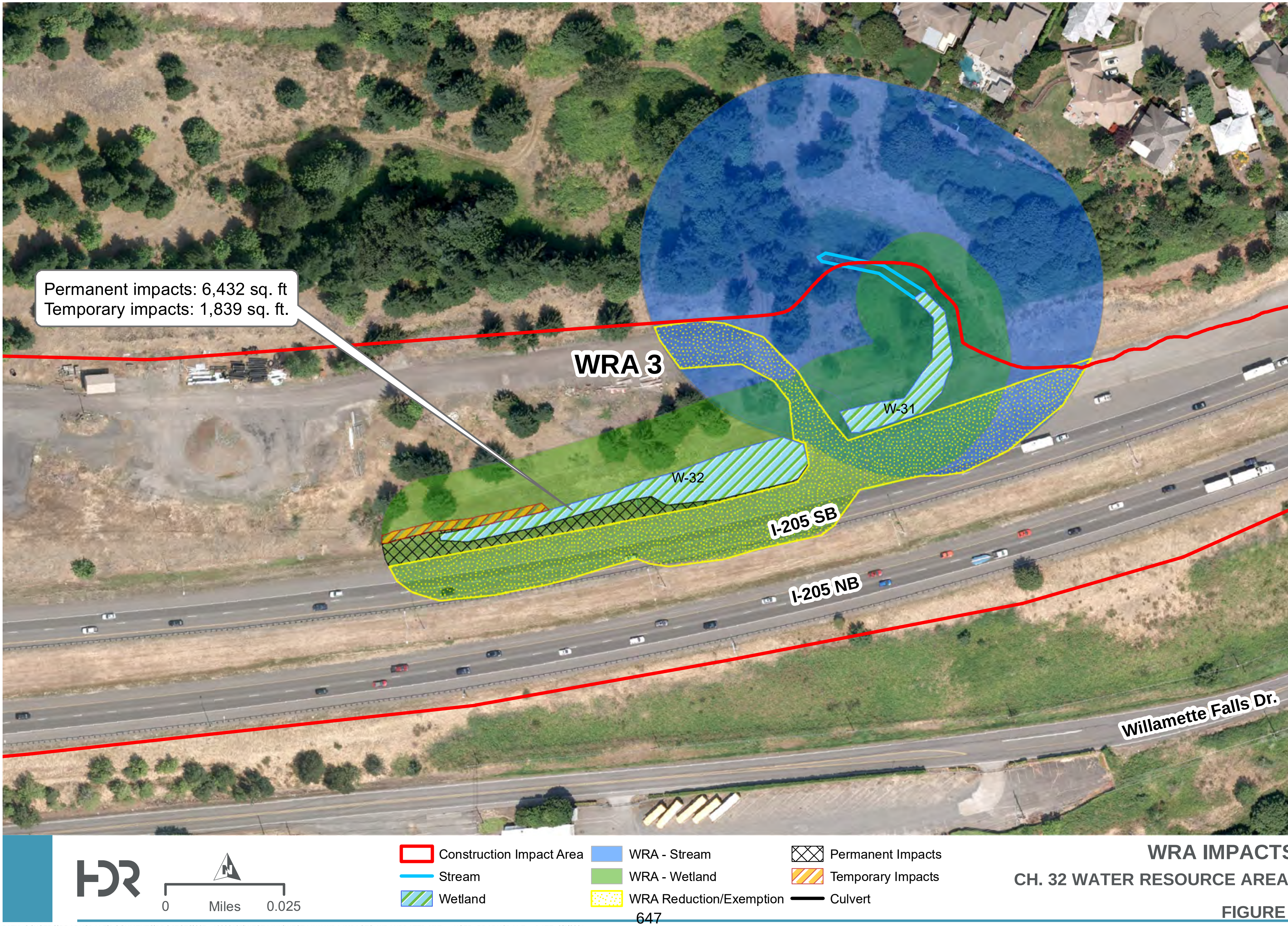

WRA IMPACTS

CH. 32 WATER RESOURCE AREAS

FIGURE 2

647

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Construction Impact Area
Stream
Wetland
WRA - Stream
WRA - Wetland
WRA Reduction/Exemption
Permanent Impacts
Temporary Impacts
Culvert

0 Miles 0.025

WRA IMPACTS

CH. 32 WATER RESOURCE AREAS

FIGURE 3

648

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WRA IMPACTS

CH. 32 WATER RESOURCE AREAS

FIGURE 4

649

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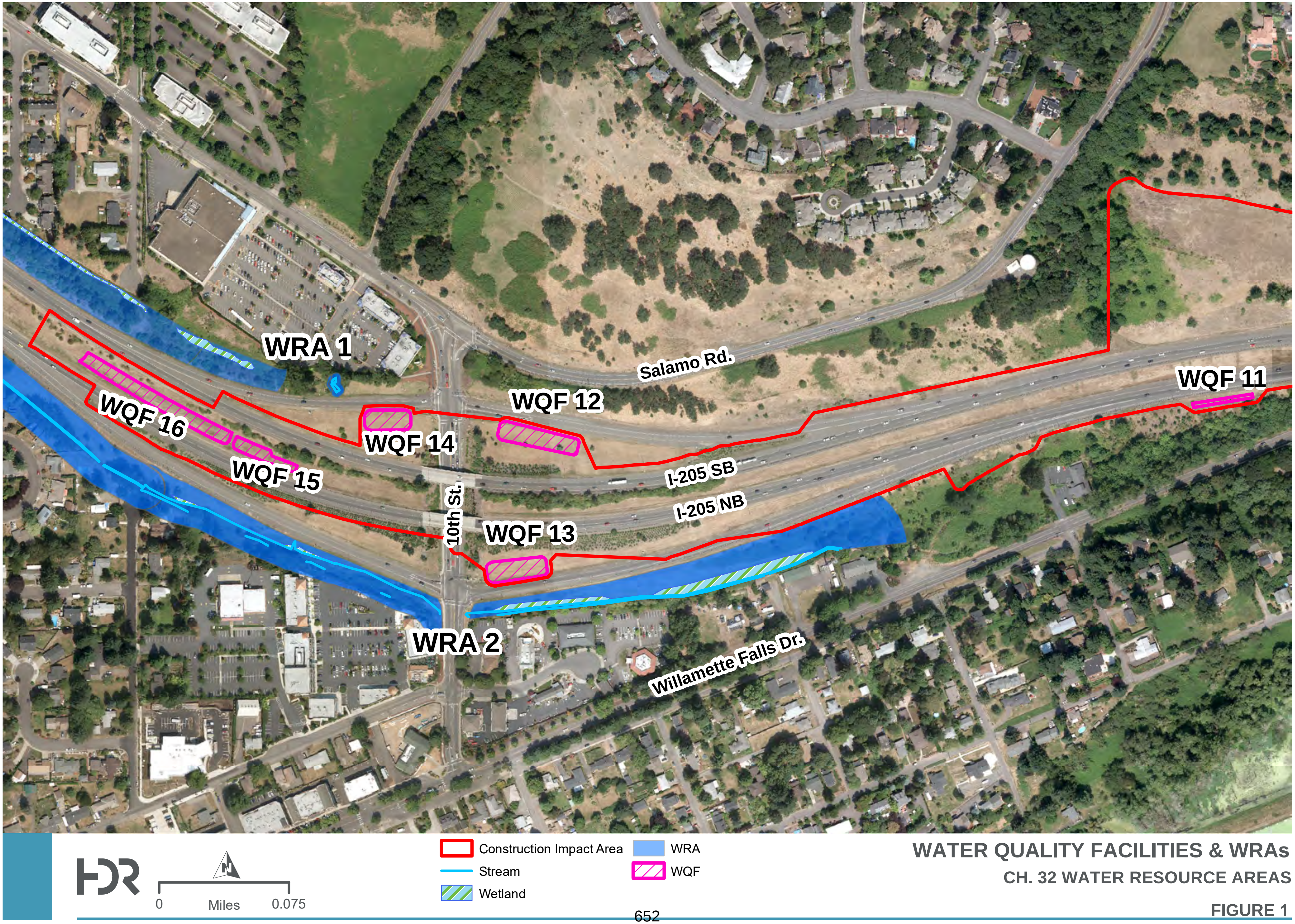
Attachment R. Water Quality Facilities & WRAs



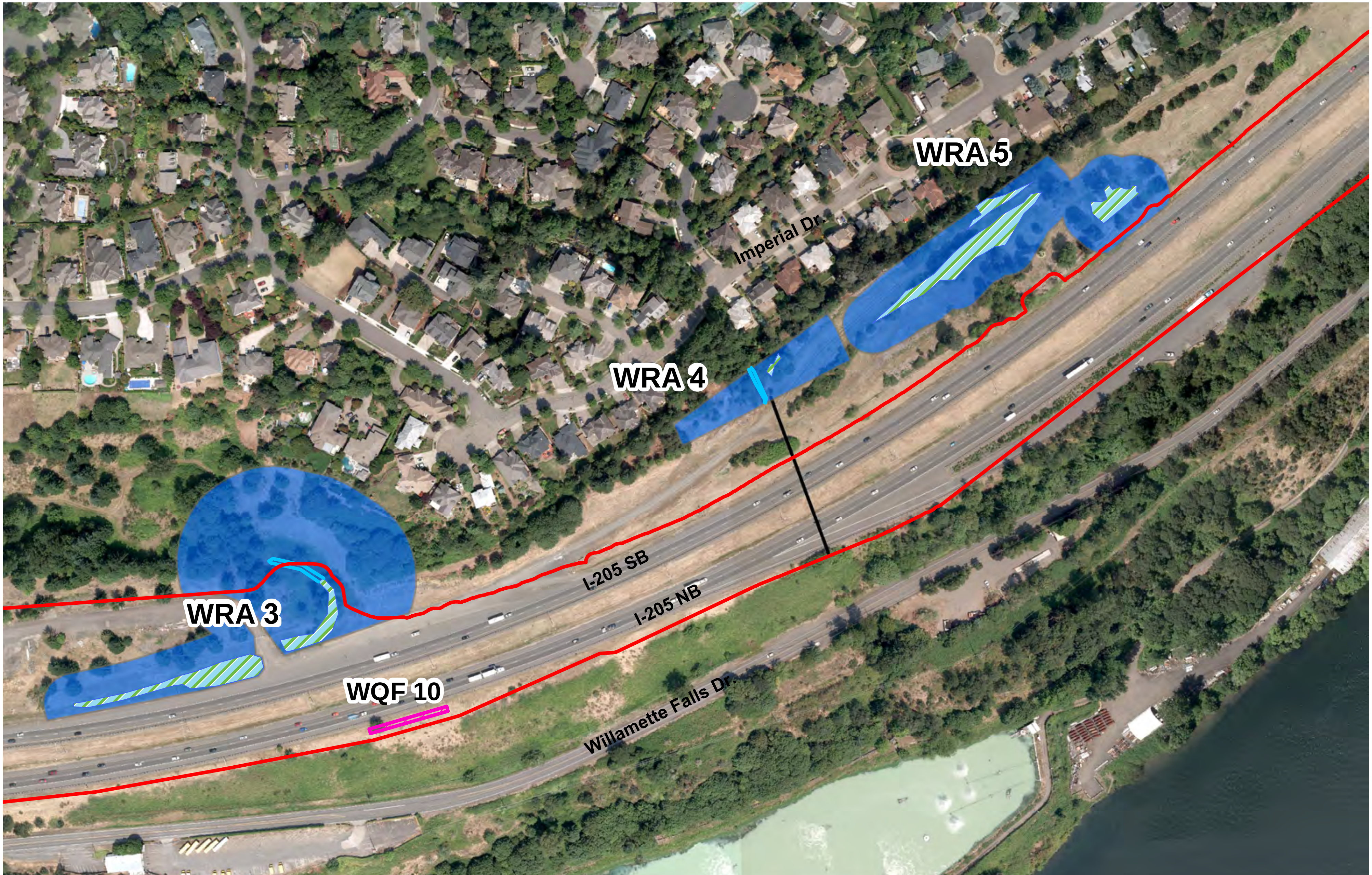
WATER QUALITY FACILITIES & WRAs

CH. 32 WATER RESOURCE AREAS

FIGURE 1

652

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WQF&WRA.MXD - USER: RBARKSDALE - DATE: 1/27/2021



HDR

0 Miles 0.055

Construction Impact Area
Stream
Wetland
WRA
WQF
Culvert

WATER QUALITY FACILITIES & WRAs

CH. 32 WATER RESOURCE AREAS

FIGURE 2

653

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN WRA TEMPLATE.MXD - USER: RBARKSDALE - DATE: 12/15/2020

Construction Impact Area
Stream
Wetland
WRA
WQF

HDR

0 Miles 0.035

WATER QUALITY FACILITIES & WRAs
CH. 32 WATER RESOURCE AREAS
FIGURE 3

654

PATH: C:\USERS\RBARKSDALE\DOCUMENTS\PROJECTS\205 - 10063137\WEST LINN\WEST LINN WRA IMPACTS.MXD - USER: RBARKSDALE - DATE: 1/26/2021

Attachment S. DSL Concurrence and Wetland Delineation

Oregon
Kate Brown, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

February 21, 2019

ODOT
Attn: Stephen Hay
123 NE Flanders Street
Portland, Oregon 97209

Re: WD # 2018-0209 Wetland Delineation Report for K19786 I-205 Corridor Widening; Clackamas County; T2S R1W Sec. 25; T2S R1E Sec. 27, 28, 29, 30, 34, 35, and 36; T2S R2E Sec. 16, 20, 29, 30, and 31, in ROW and Many Tax Lots

Dear Stephen:

The Department of State Lands has reviewed the wetland delineation report prepared by HDR Engineering, Inc. for the site referenced above. Please see the attached maps for site location information. Based upon the information presented in the report, a site visit on June 28, 2018, and revised report submitted on February 12, 2019, we concur with the wetland and waterway boundaries as mapped in Figures 5-1 through 5-39 of the report.

Within the study area 43 wetlands, 18 waterways, and 18 ditches were identified (see attached table of features). Thirty-three wetlands (Wetlands 1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 15, 17, 19, 22, 24, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, and 43 (totaling approximately 5.92 acres)); 16 waterways (Willamette and Tualatin Rivers; Tanner, McLoughlin, Wilson, Abernathy, and Athey Creeks; Streams 1, 3, 5, 6, 7, 9, 11, 12, and 13); and 4 ditches (Ditches 3, 4, 12, and 17) are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway. (See attached tables)

However, Willamette River and Abernathy Creek are essential salmonid streams; therefore, fill or removal of any amount of material within the OHWL may require a state permit. Eight wetlands (Wetlands 6, 14, 16, 18, 20, 23, 29 and 40) are exempt stormwater features per OAR 141-085-0515(7); 2 wetlands (Wetlands 2 and 21) are exempt created wetlands per 141-085-0515(6); 2 waterways (Streams 4 and 10) are ephemeral and are exempt per OAR 141-085-0515(3), 14 ditches (Ditch 1, 2, 5, 6, 7, 8, 10, 11, 14, 15, 18, 19, 20 and ditch to Athey Creek) were not constructed in wetland or are roadside ditches and are exempt per OAR 141-085-0515(8) and (10); therefore, are not subject to current state Removal-Fill requirements.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will determine jurisdiction for purposes of the Clean Water Act.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

This area of Willamette River is a state-owned waterway; any activity encroaching within the submerged and submersible land may require a lease, registration, or easement to occupy state-owned land. Please contact Justin Russell at (503) 986-5219 for more information.

Thank you for having the site evaluated. Please phone me at 503-986-5244 if you have any questions.

Sincerely,

Approved by

Russell W. Klassen
ODSL-ODOT Liaison
Aquatic Resource Coordinator

Peter Ryan
Aquatic Resource Specialist

Enclosures

ec: Natalie Edwards, Corps of Engineers
Brad Livingston, ODOT
Ken Sargent, ODOT
Leandra Cleveland, HDR Engineering, Inc.

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at https://apps.oregon.gov/DSL/EPS/program?key=4.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.** A single PDF of the completed cover from and report may be e-mailed to **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information

☒ Applicant ☒ Owner Name, Firm and Address:
Stephen Hay
ODOT Region 1
123 NW Flanders Street, Portland, OR 97209

Business phone # (503) 731-8306
Mobile phone # (optional)
E-mail: stephen.hay@odot.state.or.us

☒ Authorized Legal Agent, Name and Address (if different):
Ken Sargent
ODOT Region 1
123 NW Flanders Street, Portland, OR 97209

Business phone # (503) 731-8427
Mobile phone # (optional)
E-mail: kenneth.w.sargent@odot.state.or.us

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Stephen Hay **Signature:** ______
Date: 03/27/2018 Special instructions regarding site access: _____

Project and Site Information

Project Name: K19786 I-205 Corridor Widening

Latitude: see attached Longitude:
decimal degree - centroid of site or start & end points of linear project

Proposed Use: Widening I-205 between roughly Stafford Rd and OR213.

Tax Map # See attached
Tax Lot(s)
Tax Map #
Tax Lot(s)
Township Range Section QQ
Use separate sheet for additional tax and location information

Project Street Address (or other descriptive location):
I-205 between Stafford Rd and OR213 interchanges.

City: West Linn, Oregon City County: Clackamas

Waterway: Willamette River River Mile: 26

Wetland Delineation Information

Wetland Consultant Name, Firm and Address:
Leandra Cleveland, HDR Engineering, Inc.
1001 SW 5th Avenue Suite 1800
Portland, OR 97204

Phone # (360) 901-1410
Mobile phone # (if applicable)
E-mail: leandra.cleveland@hdrinc.com

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.
Consultant Signature: LhL Cll Date: 01/08/2018

Primary Contact for report review and site access is ☐ Consultant ☒ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☐ Yes ☐ No Study Area size: 506 Total Wetland Acreage: 10

Check Applicable Boxes Below

☐ R-F permit application submitted
☐ Mitigation bank site
☐ Industrial Land Certification Program Site
☐ Wetland restoration/enhancement project (not mitigation)
☐ Previous delineation/application on parcel
If known, previous DSL # _____

☐ Fee payment submitted **$** _____
☐ Fee ($100) for resubmittal of rejected report
☐ Request for Reissuance. See eligibility criteria. (no fee)
DSL # _____ Expiration date _____
☐ LWI shows wetlands or waters on parcel
Wetland ID code _____

For Office Use Only

DSL Reviewer: ______ Fee Paid Date: ____ / ____ / ____ DSL WD # ______

Date Delineation Received: ___/ ___/ ___ Scanned: ☐ Electronic: ☐ DSL App.# ______

Wetland Delineation Report Cover Form Additional Information

Project:

K19786 how I-205: Stafford Rd to OR 213 Corridor Widening and Abernethy Bridge Seismic Retrofit / Widening

Latitude and Longitude:

West end of Project: 45.369107, -122.754285

East end of Project: 45.379477, -122.581428

Township Range Section:

Township 2 South, Range 1 West, Section 25

Township 2 South, Range 1 East, Section 27, 28, 29, 30, 34, 35, 36

Township 2 South, Range 2 East, Section 20, 29, 30, 31

Tax Map#	Tax Lots
21E30B	Roads
21E30A	Roads
21E29B	Roads
21E29A	Roads
21E28	Roads
21E28C	Roads
21E28D	Roads
21E28DA	Roads
21E28DD	Roads
21E27C	00200, Roads
21E27B	Roads
21E27D	Roads
21E34A	Roads
21E34AC	Roads
21E34AD	Roads
21E34DA	Roads
21E35CB	Roads
21E35CC	Roads
21E35C	Roads
21E35D	Roads
21E36	Roads
22E31	Roads
22E31BB	05200, Roads
22E30CD	Roads
22E31BA	Roads
22E30DB	Roads
22E30	Roads
22E29CB	00300, 00500, Roads
22E30DD	00401, Roads
22E29	01510, 02100, 02300, Roads
22E20	Roads
22E20DC	01600, Roads
22E20DD	Roads
22E20DA	Roads
22E20S1	Roads

Table 1. Wetland Features Identified in the Study Area

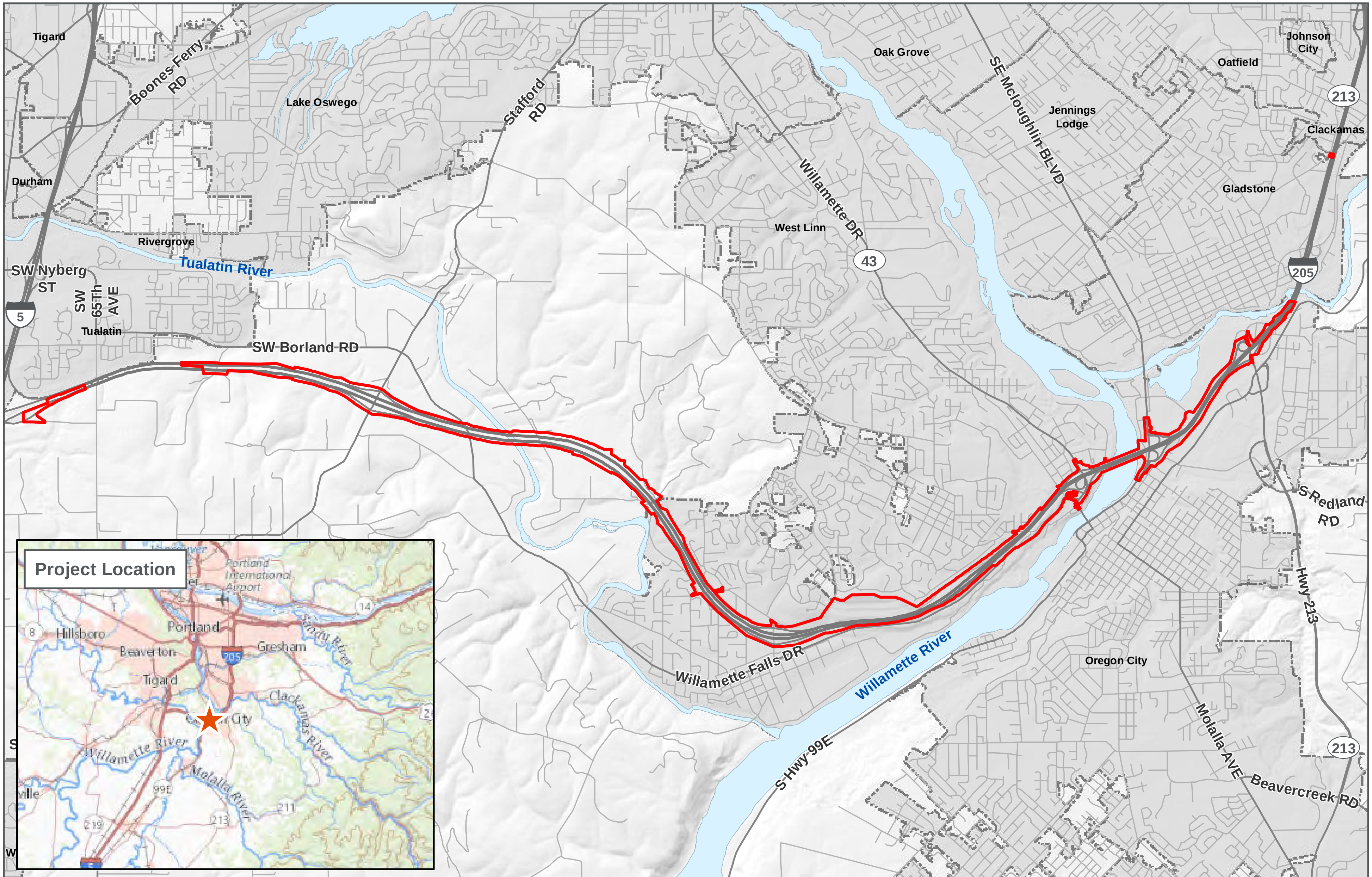
Wetland ID	Size (acres)	Cowardin	HGM	Stormwater Feature or Wetland	DSL Jurisdiction	Figure Number	Photo Number	Latitude and longitude
W-1	0.09	PEM	slope	Wetland	Yes	5-6	P-W1	45.37081528 -122.7102356
W-2	0.03	PEM	depressional	Created Wetland	No	5-3	P-W2	45.37326813 -122.7217026
W-3	0.04	PEM	slope	Wetland	Yes	5-8	P-W3	45.37048340 -122.7093582
W-4	0.03	PEM	depressional	Wetland	Yes	5-9	P-W4	45.37014389 -122.7055283
W-5	0.01	PEM	depressional	Wetland	Yes	5-8	P-WW5 / D3	45.36986160 -122.7086182
W-6	00.01	PEM	depressional	Stormwater feature	No	5-13	P-W6	45.36697006 -122.6915894
W-7	0.68	PEM	depressional	Wetland	Yes	5-9	P-W7	45.36888504 -122.7055435
W-8	0.08	PEM	depressional	Wetland	Yes	5-14	P-W8	45.36697006 -122.6915894
W-9	0.01	PFO	slope	Wetland	Yes	5-17	P-W9	45.36888504 -122.7055435
W-10	0.06	PFO/PSS	depressional	Wetland	Yes	5-14	P-W10	45.36615753 -122.6879883
W-11	0.02	PFO	riverine	Wetland	Yes	5-20	P-W11	45.35829926 -122.6673508
W-12	0.01	PEM	depressional	Wetland	Yes	5-15	P-W12	45.36610794 -122.6811752
W-13	0.04	PFO	Riverine	Wetland	Yes	5-21	P-W13	45.35651779 -122.6655655
W-14	0.18	PEM	depressional	Stormwater feature	No	5-24	P-W14	45.34877396 -122.6563721
W-15	0.07	PEM	riverine	Wetland	Yes	5-24 5-25	P-WW15	45.34706497 -122.6534348
W-16	0.22	PEM	depressional	Stormwater feature	No	5-25	P-W16	45.34766769 -122.6532898
W-17	0.48	PEM	riverine	Wetland	Yes	5-26	P-W17	45.34689713 -122.6484833
W-18	0.29	PEM	depressional	Stormwater feature	No	5-26	P-W18	45.34745026 -122.6501160
W-19	2.40	PEM	depressional	Wetland	Yes	5-39	PW-19	45.37318802 -122.5884171
W-20	0.06	PEM	depressional	Stormwater feature	No	5-18	P-W20	45.36209869 -122.6704788
W-21	0.13	PEM/PSS	depressional	Created Wetland	No	5-38	P-W21	45.36985016 -122.5925140
W-22	0.52	PEM/PFO	depressional	Wetland	Yes	5-17	P-W22	45.36362839 -122.6730270
W-23	0.83	PSS	depressional	Stormwater feature	No	5-33 5-34	P-W23	45.35669327 -122.6194000
W-24	0.03	PSS	depressional	Wetland	Yes	5-17	P-W24	45.36421585 -122.6739273
W-25	0.31	PFO/PEM	depressional	Wetland	Yes	5-30	P-W25	45.35209274 -122.6284561
W-26	0.95	PSS	depressional	Wetland	Yes	5-16	P-W26	45.36549377 -122.6781616
W-27	0.06	PSS/PFO	depressional	Wetland	Yes	5-30	P-W27	45.35237503 -122.6282501
W-28	0.10	PEM	depressional	Wetland	Yes	5-30	P-W28	45.35238266 -122.6272507
W-29	0.14	PEM/PSS	depressional	Stormwater feature	No	5-31 5-32	P-W29	45.35374451 -122.6251602
W-30	0.01	PFO	depressional	Wetland	Yes	5-30	P-W30	45.35142136 -122.6301041
W-31	0.11	PFO	depressional	Wetland	Yes	5-29	P-W1	45.34978485 -122.6340866
W-32	0.25	PEM	depressional	Stormwater feature	Yes	5-29	P-W32	45.34956741 -122.6349640
W-33	0.11	PEM	depressional	Wetland	Yes	5-24	P-W33	45.34879303 -122.6546402
W-34	0.42	PFO/PSS	depressional	Wetland	Yes	5-23 5-24	P-W34	45.35037231 -122.6578064
W-35	0.77	PFO	depressional	Wetland	Yes	5-17	P-W35	45.36416626 -122.6726685
W-36	0.04	PFO/PSS	depressional	Wetland	Yes	5-19	P-W36	45.36116409 -122.6677246
W-37	0.01	PFO	riverine	Wetland	Yes	5-36	none	45.36369324 -122.6085815
W-38	0.13	PFO/PSS	depressional	Wetland	Yes	5-19	P-W38	45.35955048 -122.6664200
W-39	0.01	PFO	depressional	Wetland	Yes	5-15	P-W39	45.36672974 -122.6806870

W-40	0.35	PEM	depressional	Stormwater feature	No	5-10	P-W40	45.36967087 -122.7018661
W-41	0.01	PFO/PSS	depressional	Wetland	Yes	5-7	P-W41	45.37165070 -122.7081223
W-42	0.03	PSS/EM	depressional	Wetland	Yes	5-15	P-W42	45.3661500 -122.689390
W-43	0.36	PFO/EM	depressional	Wetland	Yes	5-15	P-W43	45.3667400 -122.681250

Table 2. Waterways Identified in the Study Area

Waterway Reach ID	Flow Regime	Width @ Widest Point (feet)	DSL Jurisd-iction	Figure Number	Photo Number	Latitude and longitude
Willamette River	Perennial	1,500	Yes	5-36, 5-37	P-11	45.36377335 -122.6067429
Tualatin River	Perennial	200	Yes	5-14	P-5	45.36661148 -122.6881561
Abernethy Creek	Perennial	50	Yes	5-37	P-12	45.36493301 -122.6015396
Athey Creek	Perennial	30	Yes	5-6	P-3	45.37218857 -122.7103195
Tanner Creek	Perennial	6.5	Yes	5-30	P-9	45.35130692 -122.6302185
McLoughlin Creek	Intermittent	10	Yes	5-36	P-10	45.36351395 -122.6080933
Stream 1	Intermittent	14	Yes	5-12 and 5-13	P-S1	45.36784363 -122.6934586
Stream 2 (Wilson Creek)	Intermittent	3	Yes	5-14	none	45.36707687 -122.6876221
Stream 3	Intermittent	2.5	Yes	5-17	P-S3	45.36375427 -122.6750259
Stream 4	Ephemeral	6	No	5-25	P-S4	45.34849548 -122.6532593
Stream 5	Intermittent	45	Yes	5-19, 5-20	P-S5a P-S5b	45.35834503 -122.6673508
Stream 6	Intermittent	6	Yes	5-19	P-W36	-45.36115646 -122.6677628
Stream 7	Intermittent	10	Yes	5-21	P-S7a P-S7b	45.35720062 -122.6644516
Stream 9	Intermittent	5	Yes	5-24, 5-25, 5-26	P-S9	45.34718323 -122.6536942
Stream 10	Ephemeral	15	No	5-7	P-W41	45.37166214 -122.7081451
Stream 11	Intermittent	3	Yes	5-22, 5-23, 5-24, 5-25, 5-26, 5-27	P-D9	45.35359192 -122.6618881
Stream 12	Intermittent	3	Yes	5-29	P-S12	45.35024900 -122.6340720
Stream 13	Intermittent	5	Yes	5-2	P-S13	45.37286500 -122.7274740
Ditch 1	Ephemeral	1.5	No	5-5	P-D1	45.37159729 -122.7130966

Ditch 2 and 2b	Ephemeral	6.5	No	5-3, 5-4, 5-5, 5-6, 5-7, 5-8	P-D2	45.37285233 -122.7176285
Ditch 3	Intermittent	3	Yes	5-8	P-WW5/D3	45.36985779 -122.7085280
Ditch 4	Intermittent	5	Yes	5-17	P-D4a	45.36325073 -122.6735229
Ditch 5	Ephemeral	1.5	No	5-9	P-D5A	45.36874008 -122.7043457
Ditch 6	Ephemeral	6	No	5-15	P-D6	45.36585236 -122.6806793
Ditch 7	Ephemeral	4	No	5-18	P-D7	45.36110687 -122.6701584
Ditch 8	Ephemeral	5	No	5-12	P-D8	45.36803055 -122.6976318
Ditch 10	Ephemeral	5	No	5-34, 5-35	P-D10	45.35934067 -122.6156006
Ditch 11	Ephemeral	1	No	5-20	P-D11	45.35982895 -122.6689148
Ditch 12	Intermittent	4	Yes	5-24	none	45.34905243 -122.6553574
Ditch 14	Ephemeral	5	No	5-28	P-D14	45.34898376 -122.6420517
Ditch 15	Intermittent	65	No	5-38	P-D15	45.36874771 -122.5946960
Ditch 17	Ephemeral	8	Yes	5-15	P-D17	45.36658478 -122.6808243
Ditch 18	Ephemeral	2	No	5-3	P-D18	45.37366486 -122.7209549
Ditch 19	Ephemeral	4	No	5-2	P-D19	45.37360382 -122.7272568
Ditch 20	Intermittent	8	No	5-22	P-D20	45.35247803 -122.6608505
Ditch to Athey Creek	Intermittent	2	No	5-6	P-2	45.37108231 -122.7113495



Legend

Area of Potential Impact (API)

DATA SOURCE: METRO 2018, HDR 2018

0 0.5 1 Miles

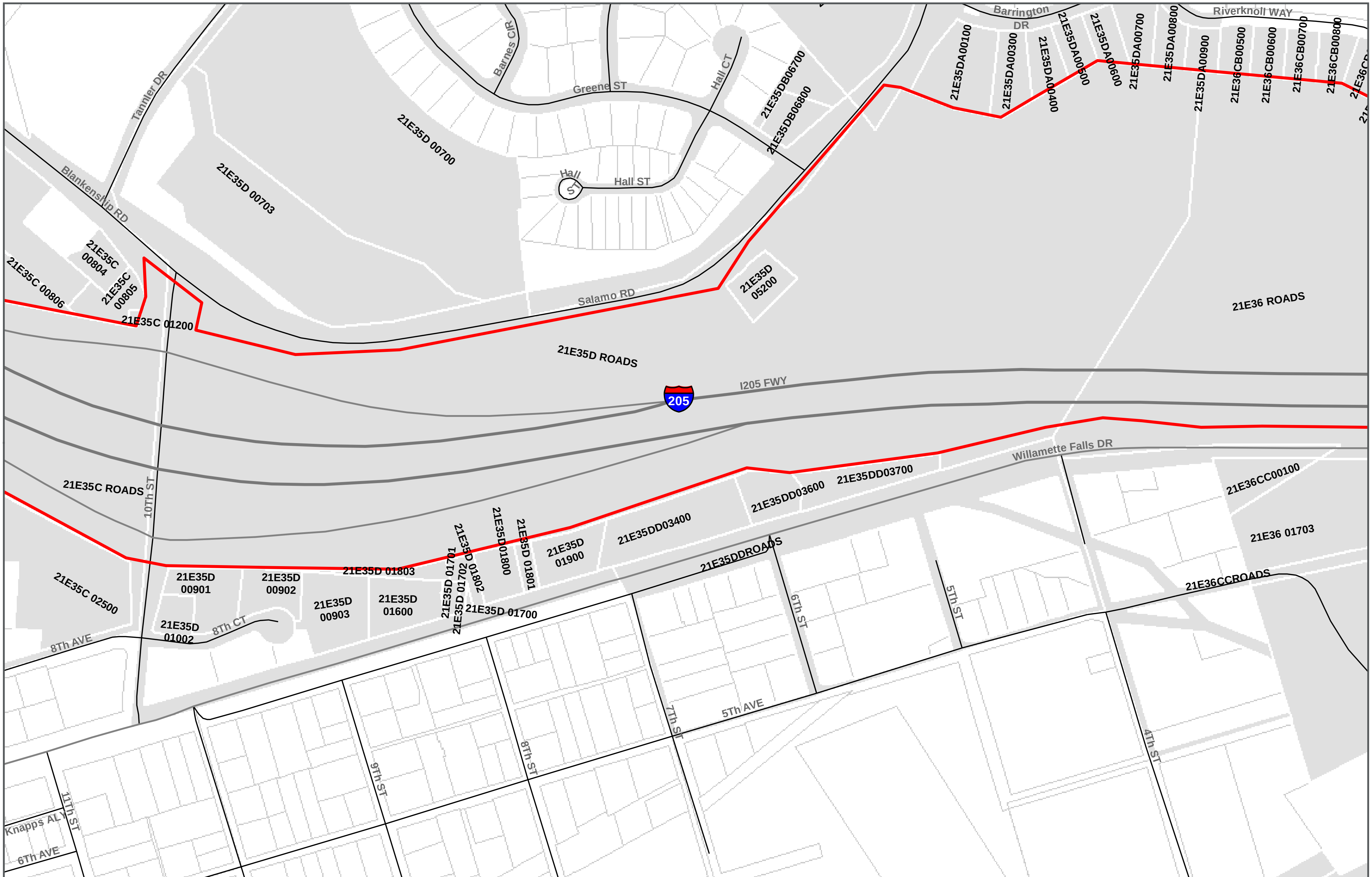
666

I-205 ABERNETHY

PROJECT LOCATION

FIGURE 1

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\F1 PROJECT_LOCATION.MXD - USER: LLSMITH - DATE: 1/9/2019



Legend

Area of Potential Impact (API)

Tax Lots with in 100 feet to API

DATA SOURCE: METRO 2018, HDR 2018

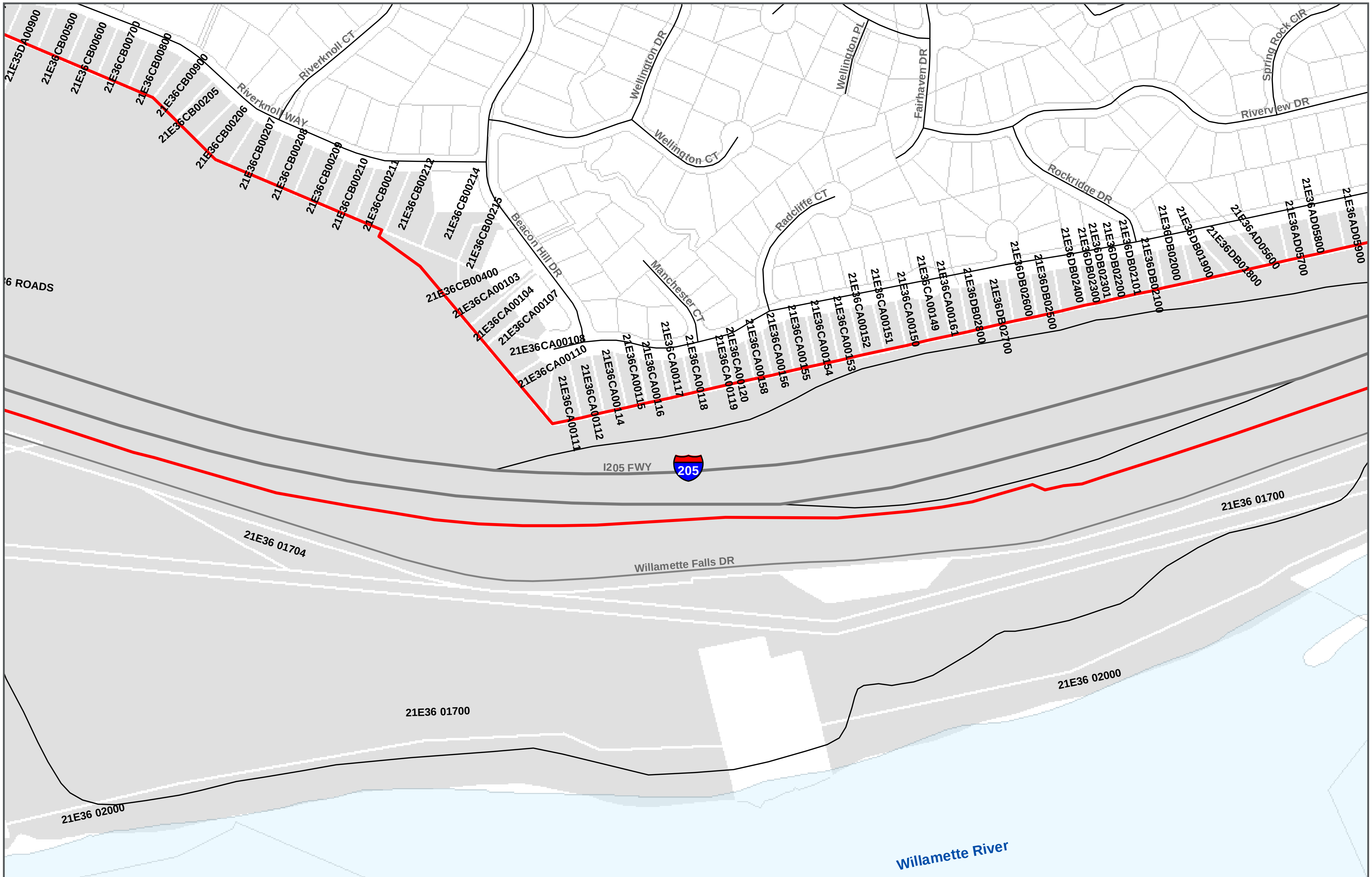
I-205 ABERNETHY

TAX LOTS

FIGURE 2-8

667

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\F2 TAXLOTS.MXD - USER: LLSMITH - DATE: 1/9/2019



Legend

Area of Potential Impact (API)

Tax Lots with in 100 feet to API

DATA SOURCE: METRO 2018, HDR 2018

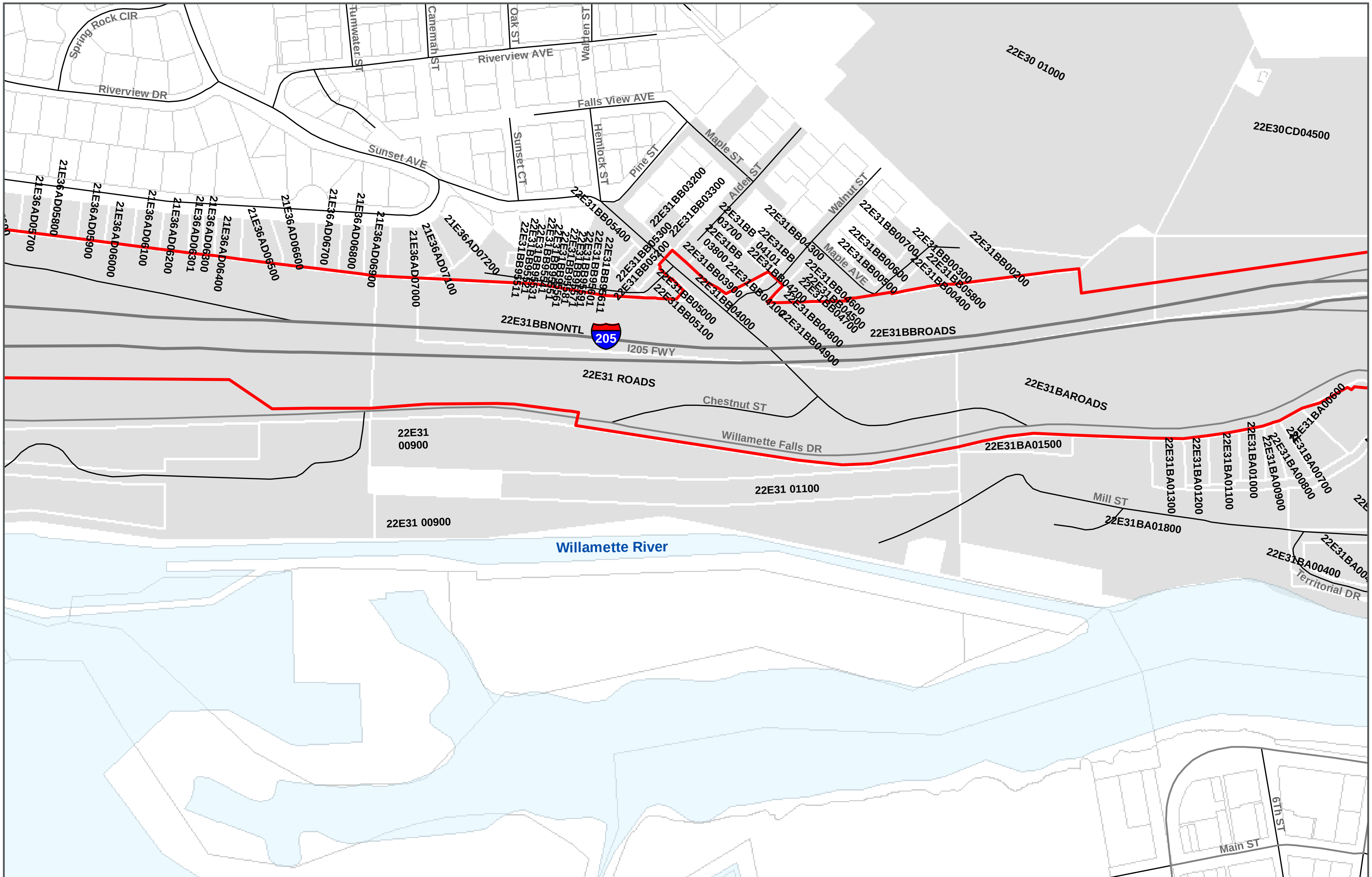
0 250 500 Feet

I-205 ABERNETHY

TAX LOTS

FIGURE 2-9

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\F2 TAXLOTS.MXD - USER: LLSMITH - DATE: 1/9/2019



Legend

Area of Potential Impact (API)

Tax Lots with in 100 feet to API

DATA SOURCE: METRO 2018, HDR 2018

0 250 500 Feet

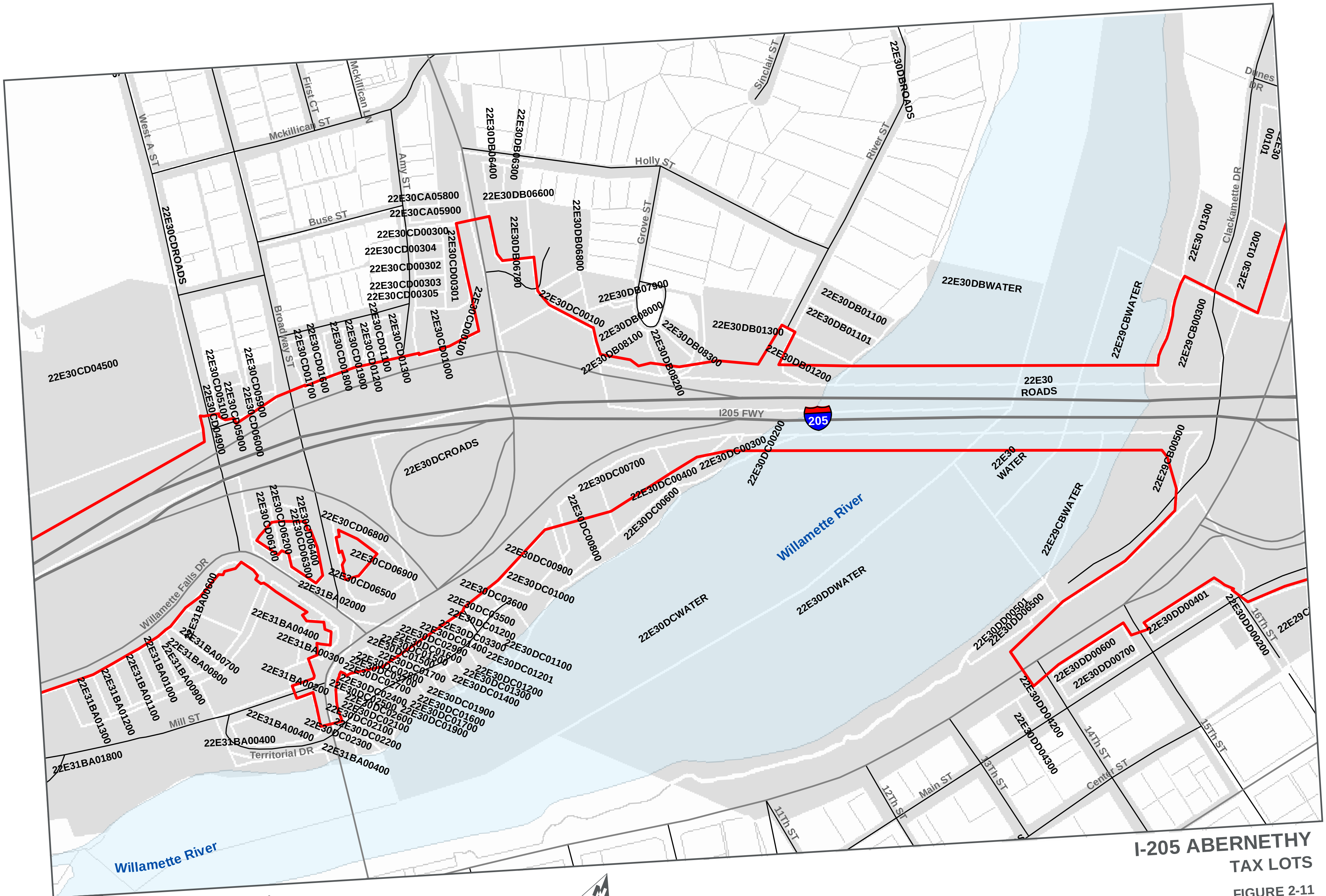
I-205 ABERNETHY

TAX LOTS

FIGURE 2-10

669

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\F2 TAXLOTS.MXD - USER: LLSMITH - DATE: 1/9/2019



I-205 ABERNETHY
TAX LOTS
FIGURE 2-11

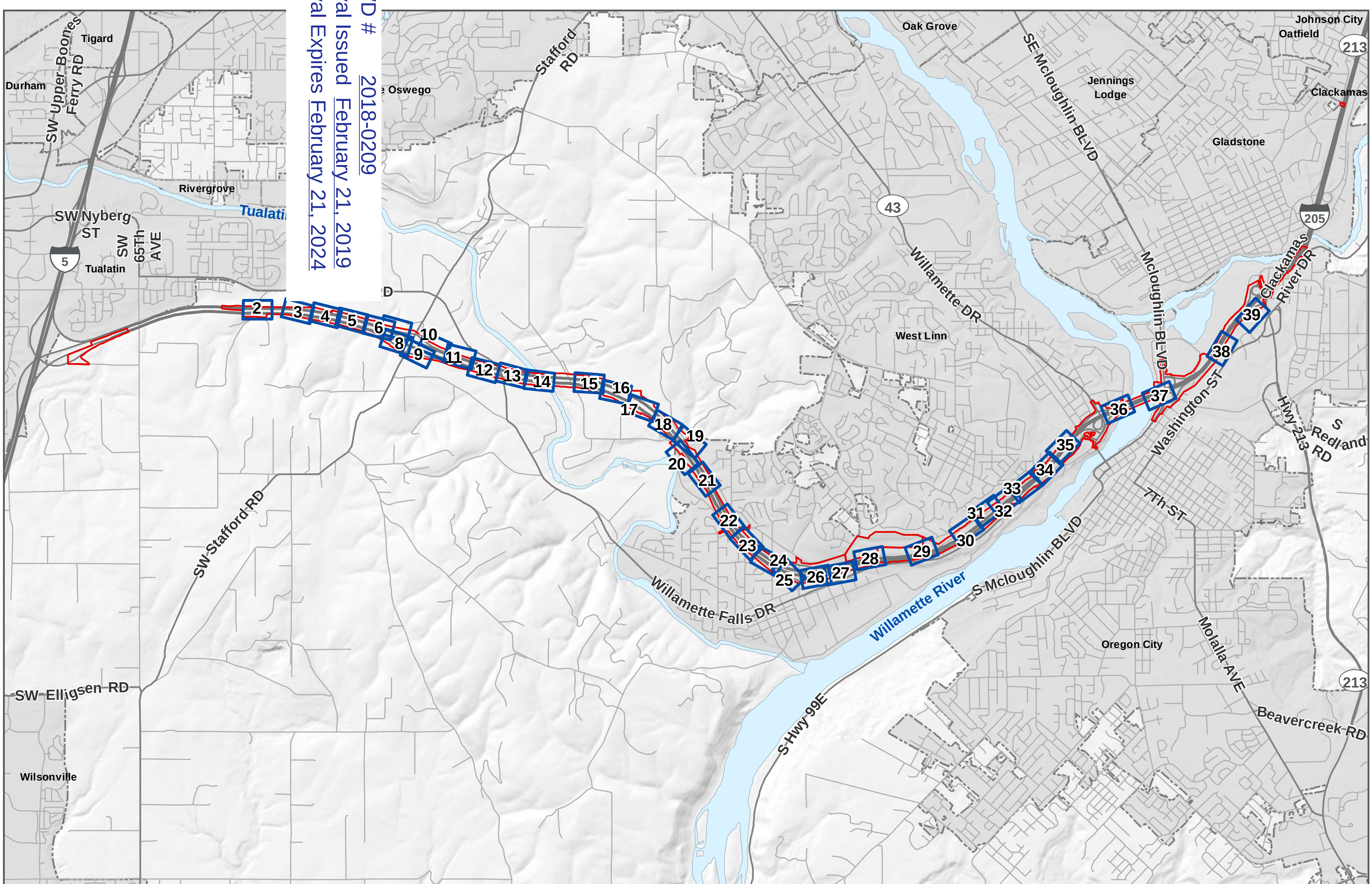
Legend
- Area of Potential Impact (API)
- Tax Lots with in 100 feet to API

DATA SOURCE: METRO 2018, HDR 2018

0 250 500 Feet

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\F2 TAXLOTS.MXD - USER: LLSMITH - DATE: 1/9/2019

DSL WD # 2018-0209
Approval Issued February 21, 2019
Approval Expires February 21, 2024



Area of Potential Impact (API)

Sheet Location

DATA SOURCE: METRO 2018, HDR 2018

N

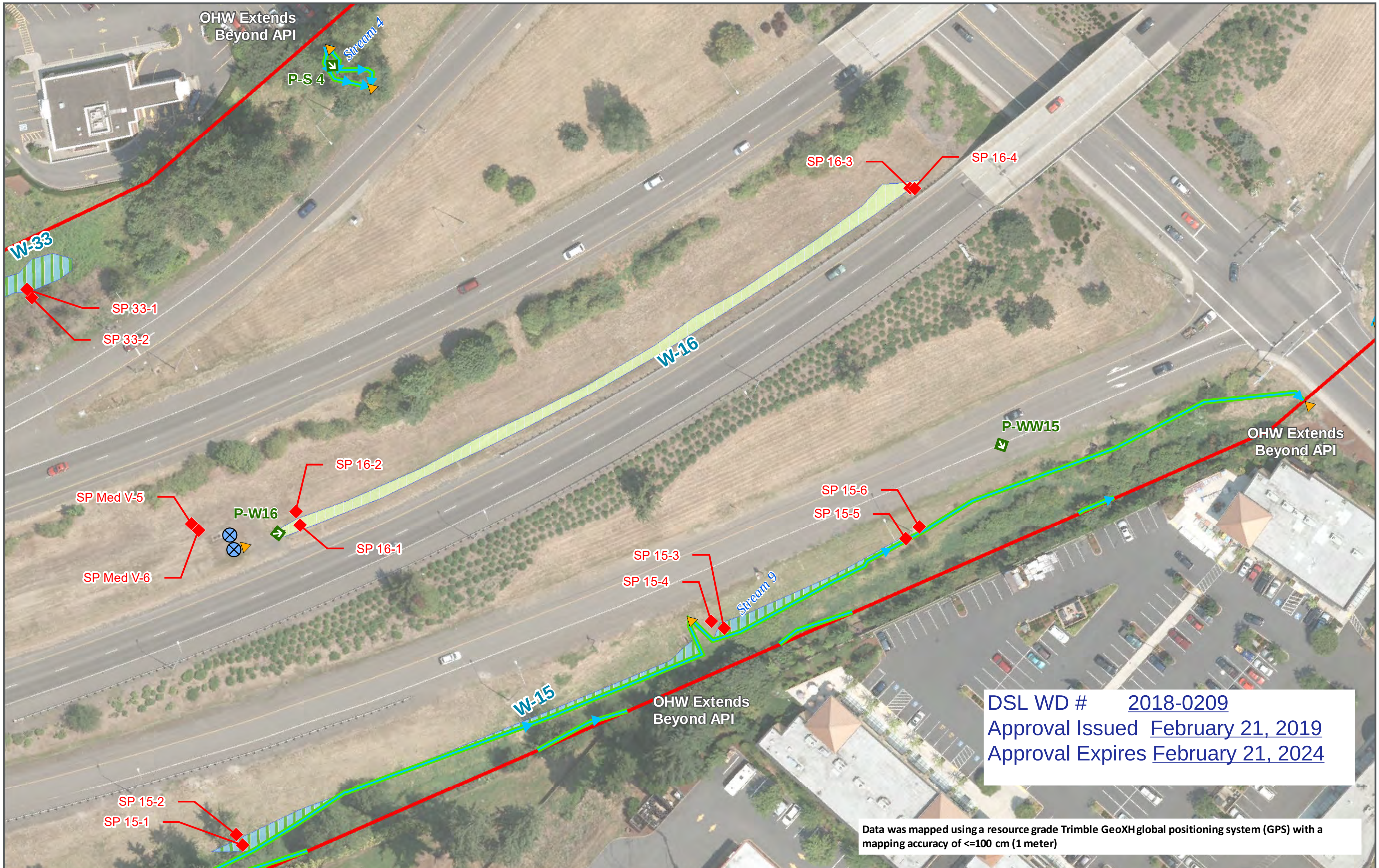
0 0.5 1 Miles

I-205 ABERNETHY

WETLANDS AND WATERBODIES INDEX

FIGURE 5-1

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNETHY\MAP_DOCS\FINAL\WETLAND_EXTENT_SHEET.MXD - USER: LLSMITH - DATE: 12/3/2018



HDR

Photo Point
Sample Plots
Storm Drain
Culvert

Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*

API
<all other values>
Stormwater Facility - Not Regulated*

Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-25

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_INSETS\WETLAND_SURVEY_ADJUSTED_FIGURE25.MXD - USER: LLSMITH - DATE: 12/12/2018

2018-0209
sued February 21, 2019
xpires February 21, 2024

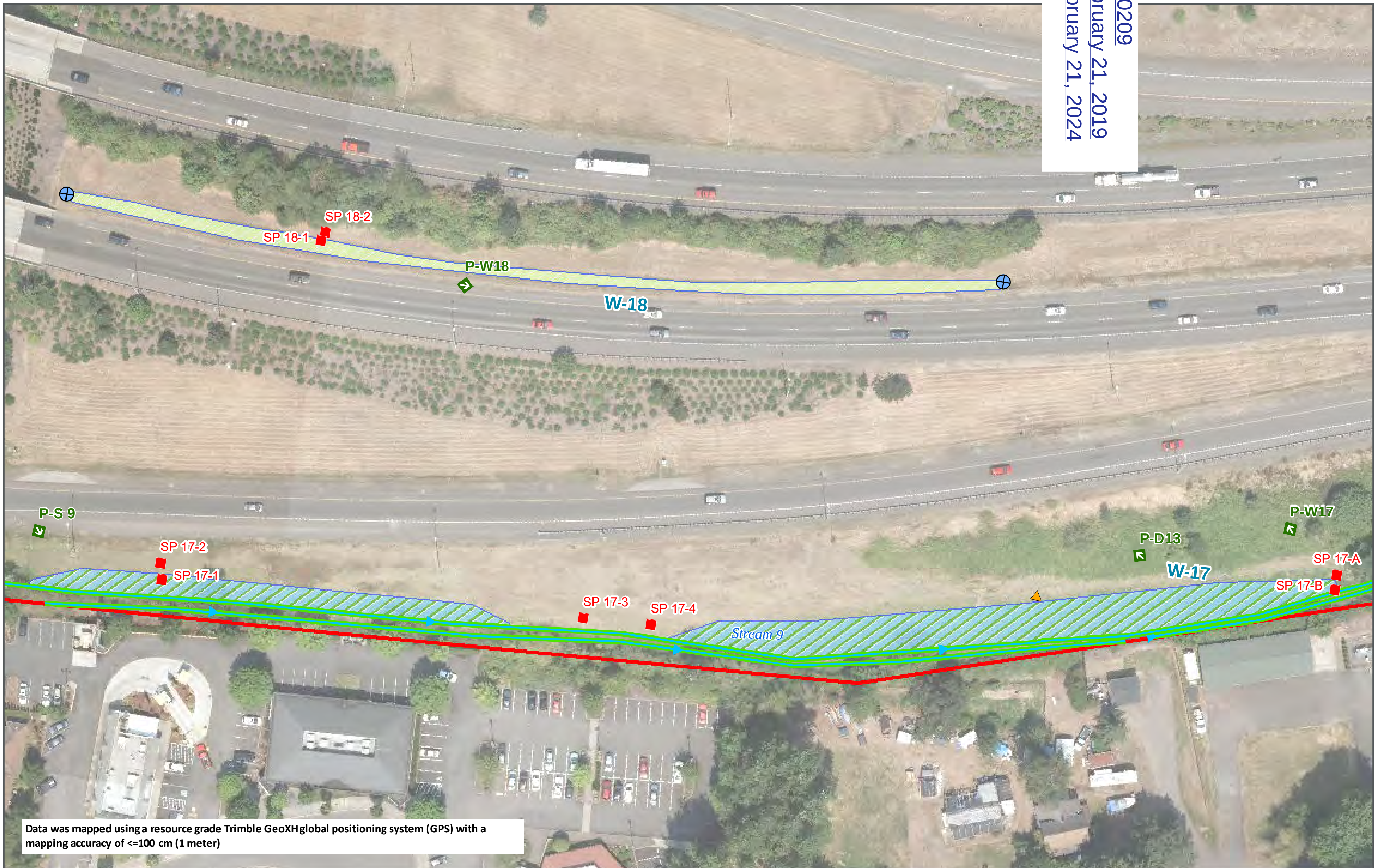


Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

HDR

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES

FIGURE 5-26

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY

WETLANDS AND WATERBODIES

FIGURE 5-27

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNETHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

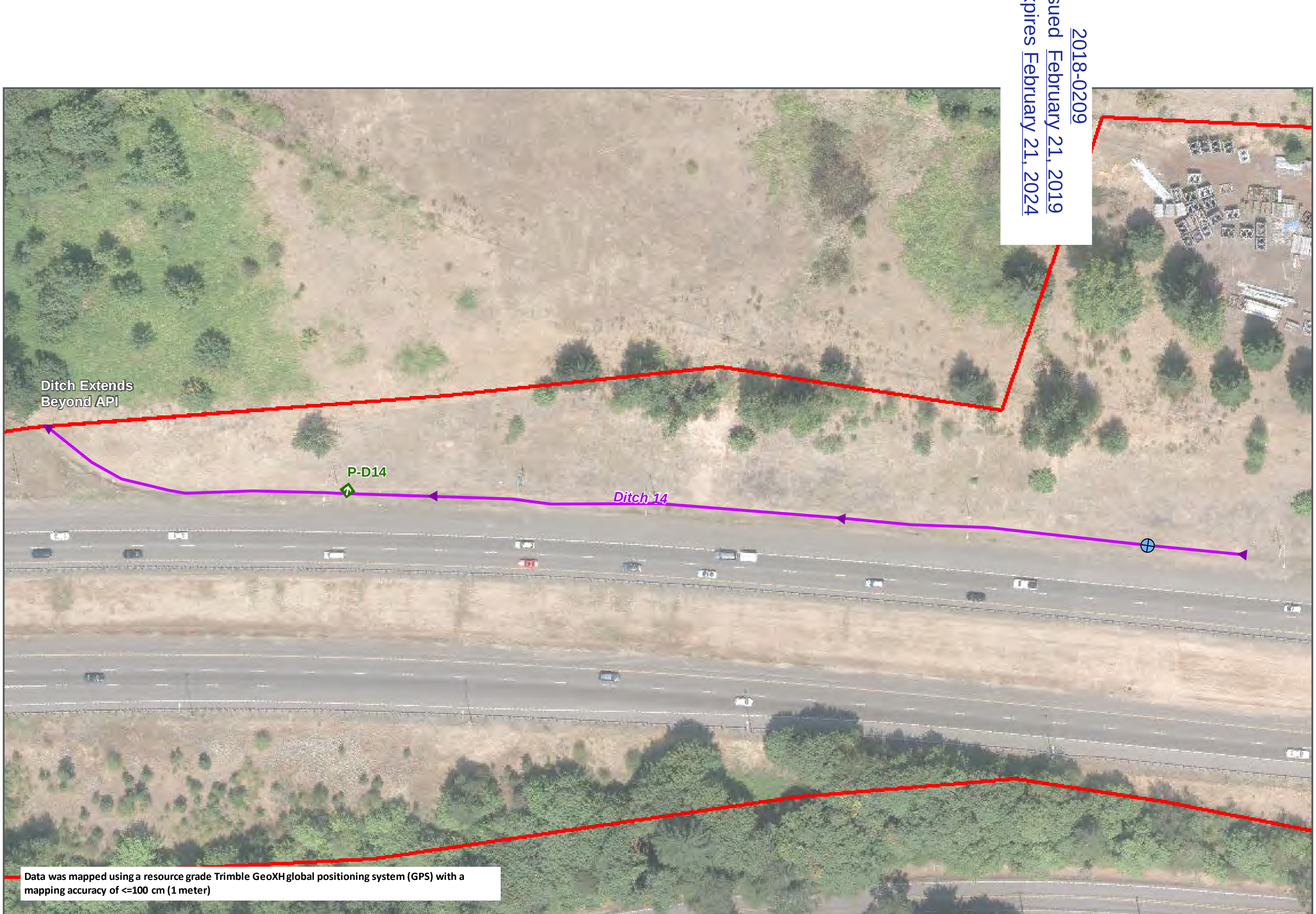


Photo Point
Sample Plots
Storm Drain
Culvert

Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*

API
Stormwater Facility - Not Regulated*

Wetland, Not Regulated*
Wetland - Regulated*

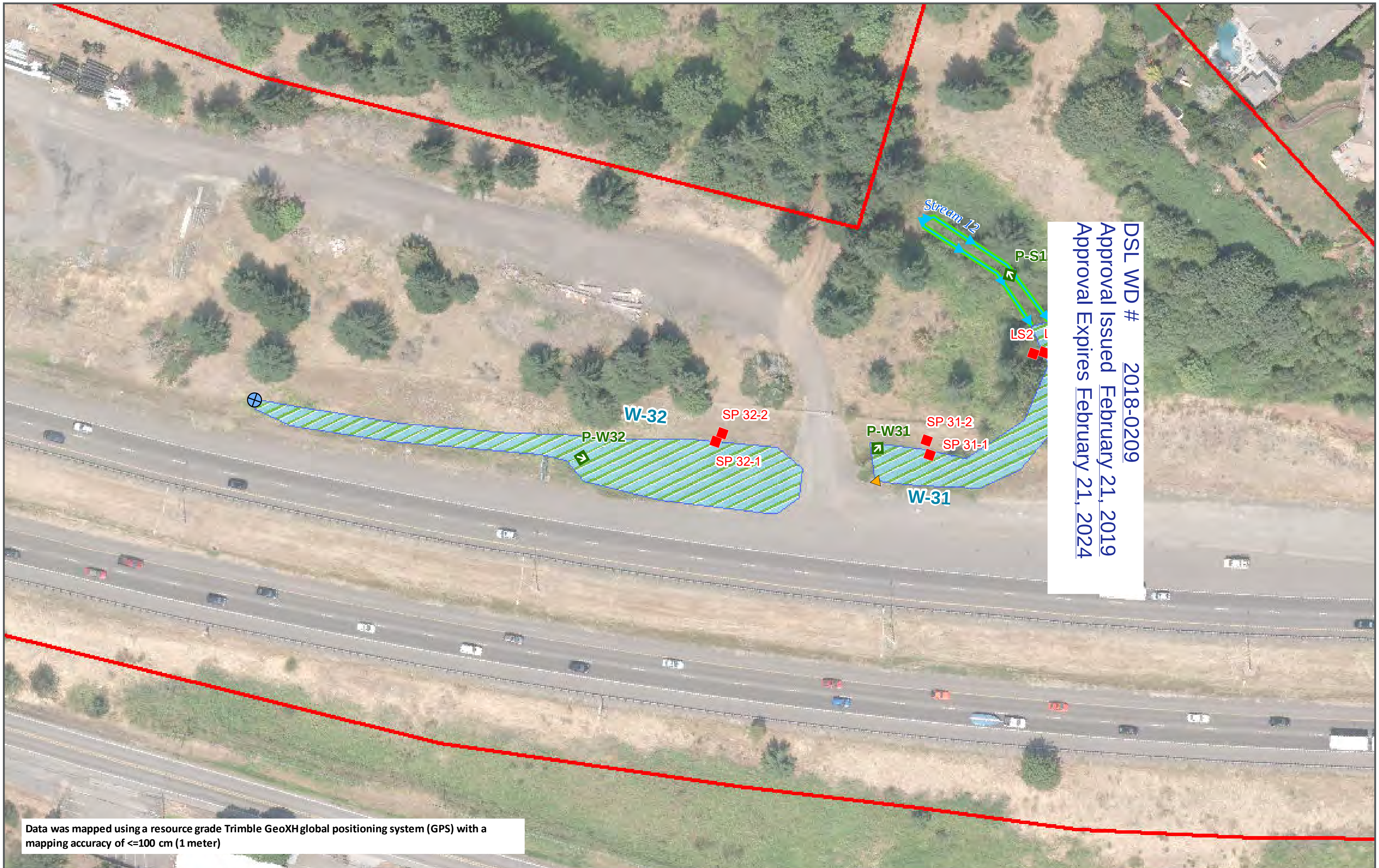
0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-28

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019



DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY

WETLANDS AND WATERBODIES

FIGURE 5-29

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

2018-0209
ssued February 21, 2019
xpires February 21, 2024

Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-30

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

2018-0209
ued February 21, 2019
pires February 21, 2024

Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-31

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

2018-0209
sued February 21, 2019
pires February 21, 2024

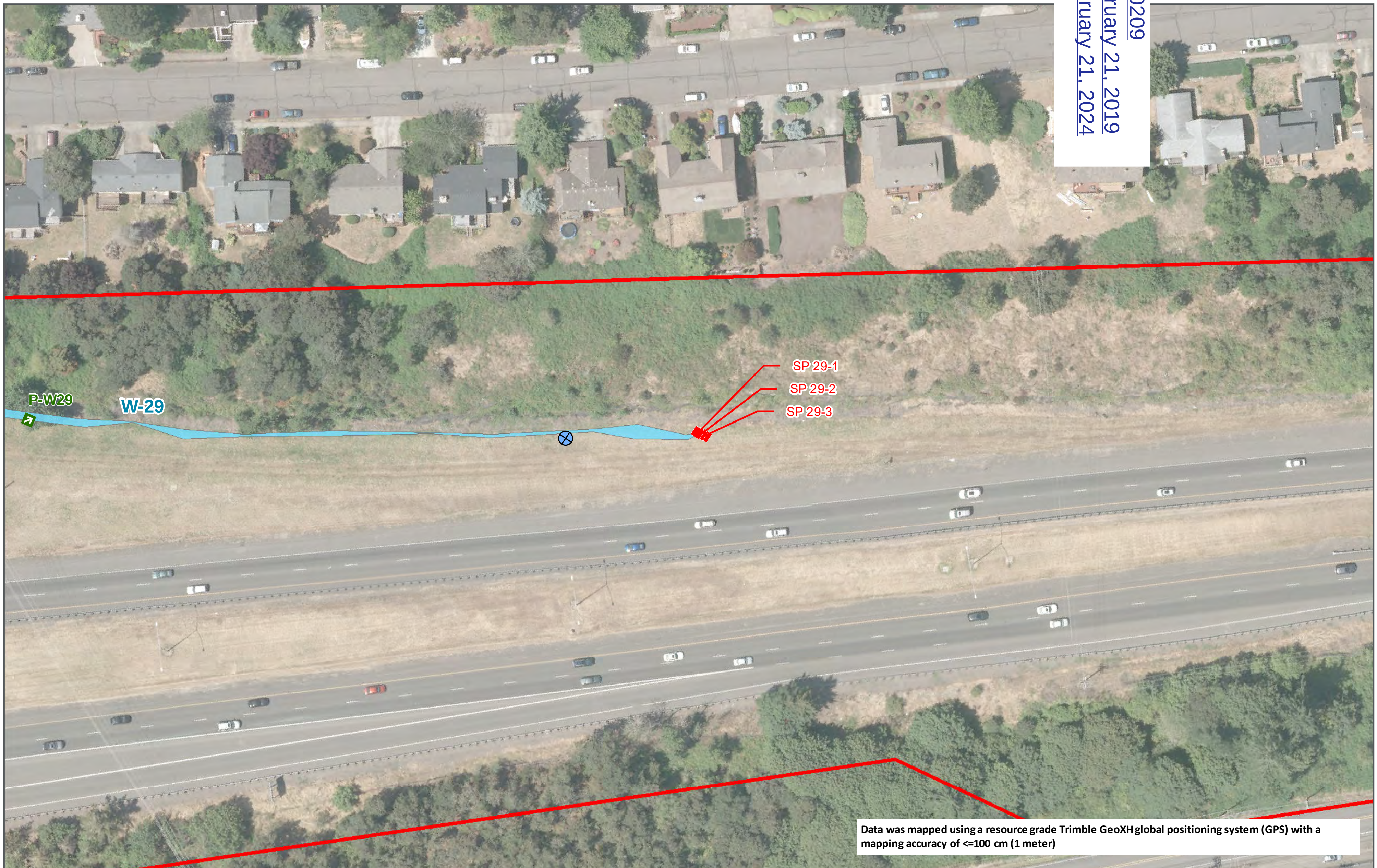


Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
<all other values>
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-32

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_INSETS\WETLAND_SURVEY_ADJUSTED_FIGURE32.MXD - USER: LLSMITH - DATE: 12/12/2018

Data was mapped using a resource grade T l positioning system (GPS) with a mapping accuracy of <=100 cm (1 meter)

2018-0209
sued February 21, 2019
xpires February 21, 2024

Photo Point
Sample Plo
Storm Drair
Culvert
High Water - Not Regulated*
High Water - Regulated*
: Regulated*
gulated*
API
Stormwater Facility - Not Regulated*
Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered prelimi until concurrence is received by the USACE and DSL.

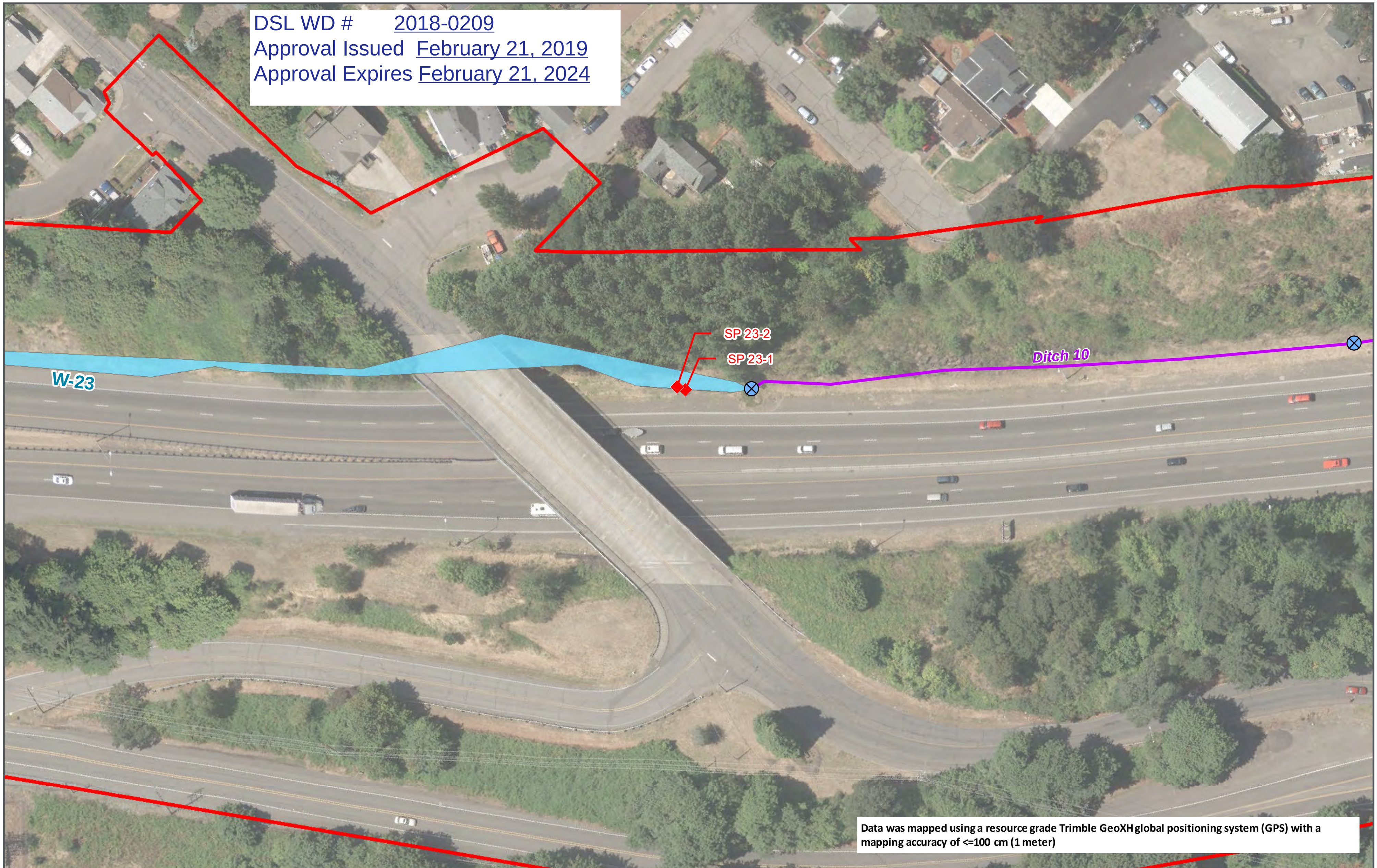
DATA SOURCE: US DR 2018

I-205 ABERNETHY

WETLANDS AND WATERBODIES

FIGURE 5-33

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_D VEY.MXD - USER: LLSMITH - DATE: 1/8/2019



HDR

Photo Point
Sample Plots
Storm Drain
Culvert

Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*

API
<all other values>
Stormwater Facility - Not Regulated*

Wetland, Not Regulated*
Wetland - Regulated*

0 50 100 Feet

DATA SOURCE: USFWS, METRO 2018, HDR 2018

*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-34

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_INSETS\WETLAND_SURVEY_ADJUSTED_FIGURE34.MXD - USER: LLSMITH - DATE: 12/12/2018

681

FDR

DATA SOURCE: USFWS, METRO 2018, HDR 2018

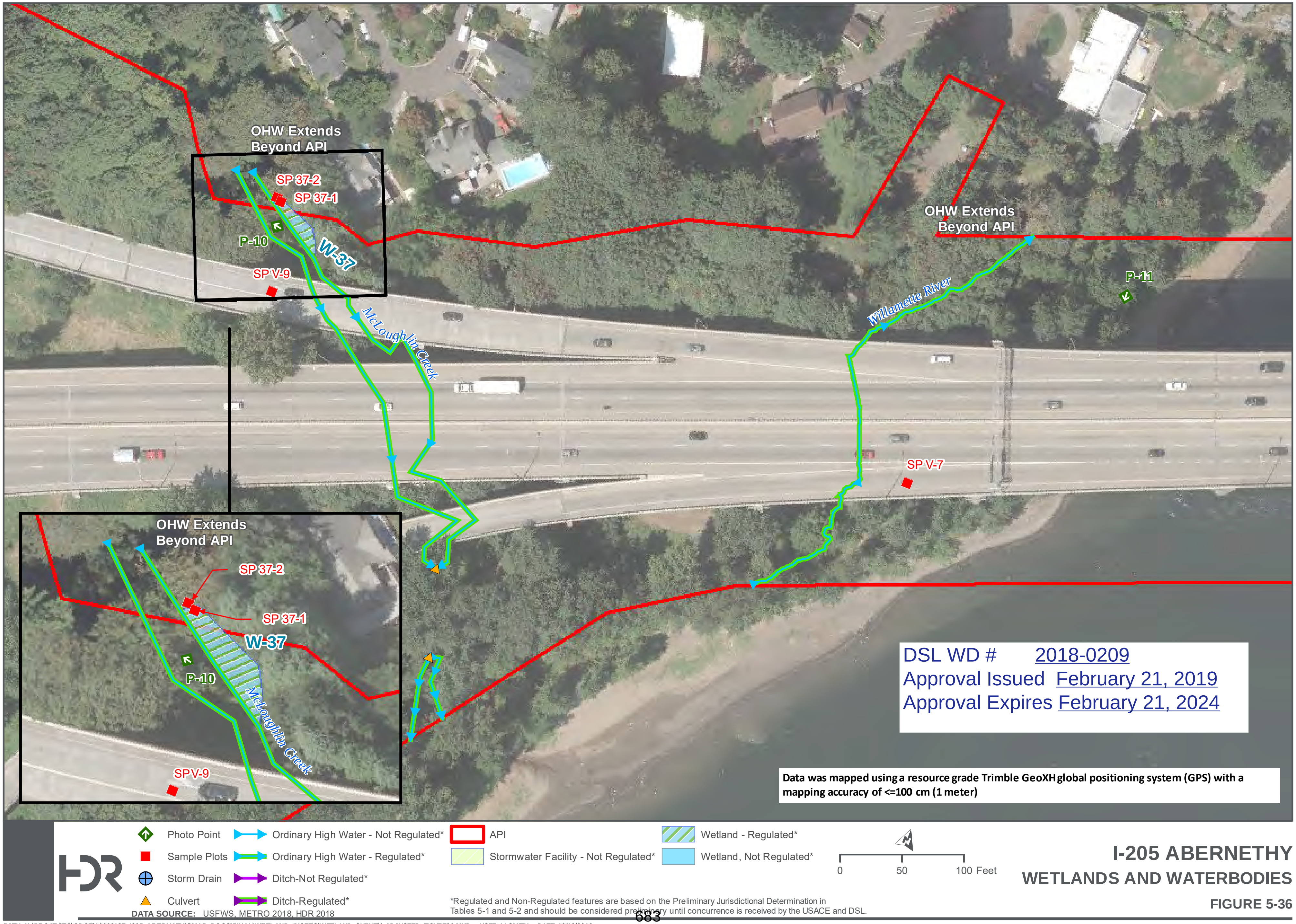
*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.

I-205 ABERNETHY
WETLANDS AND WATERBODIES

FIGURE 5-35

PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_SURVEY.MXD - USER: LLSMITH - DATE: 1/8/2019

2018-0209
Issued February 21, 2019
Expires February 21, 2024


OHW Extends Beyond API
SP 37-2
SP 37-1
P-10
W-37
SP V-9
McLoughlin Creek
Willamette River
OHW Extends Beyond API
P-11
SP V-7
DSL WD # 2018-0209
Approval Issued February 21, 2019
Approval Expires February 21, 2024
Data was mapped using a resource grade Trimble GeoXH global positioning system (GPS) with a mapping accuracy of <=100 cm (1 meter)
Photo Point
Sample Plots
Storm Drain
Culvert
Ordinary High Water - Not Regulated*
Ordinary High Water - Regulated*
Ditch-Not Regulated*
Ditch-Regulated*
API
Stormwater Facility - Not Regulated*
Wetland - Regulated*
Wetland, Not Regulated*
0
50
100 Feet
HDR
I-205 ABERNETHY
WETLANDS AND WATERBODIES
FIGURE 5-36
DATA SOURCE: USFWS, METRO 2018, HDR 2018
*Regulated and Non-Regulated features are based on the Preliminary Jurisdictional Determination in Tables 5-1 and 5-2 and should be considered preliminary until concurrence is received by the USACE and DSL.
PATH: X:\PROJECTS\ODOT\10063137_I205_ABERNATHY\MAP_DOCS\FINAL\WETLAND_INSETS\WETLAND_SURVEY_ADJUSTED_FIGURE36.MXD - USER: LLSMITH - DATE: 12/12/2018

Attachment T. Tree Removal Plan

I-205 ABERNETHY
TREE IMPACTS
FIGURE 5-19

DATA SOURCE: HDR 2019

PATH: C:\PROJECTS\STAGING_WORKFROMHOME\I205\JPA\MAP_DOCS\JPA\F5 IMPACTS_SHEET_5_19.MXD - USER: JBEARD - DATE: 4/17/2019

Attachment U. NMFS Consultation

October 19, 2018

FAHP Review and Verification– ODOT R1 I-205: Stafford Road to OR 213, On-site SW Treatment Deficit, increase in artificial fill, IWW extension, un-vegetated riprap above OHW, stream channel modification, 170900120104 - Willamette River-Oswego Creek and 170900100504 - Saum Creek-Lower Tualatin River, Clackamas County (KN#19786) (NMFS#2011-02095)

To: Cindy.Callahan@dot.gov

Cc: FAHP_ESA@odot.state.or.us , emily.cline@dot.gov , mike.morrow@dot.gov , tom.loynes@noaa.gov, jennifer.mcdonald@noaa.gov , Stephen.HAY@odot.state.or.us , Thomas.m.loynes@odot.state.or.us , devin.l.simmons@odot.state.or.us , Benjamin.WHITE@odot.state.or.us , mary.e.young@odot.state.or.us , brian.bauman@hdrinc.com , Thomas.Hamstra@odot.state.or.us ,

Ms. Callahan:

I read the notification form submitted to NMFS on Oct 19, 2018, requesting that NMFS review and verify the action named above as consistent with the Federal-Aid Highway Program biological opinion issued to the Federal Highway Administration on Nov 28, 2012 (the FAHP opinion), for project elements related to an onsite stormwater treatment deficit, increase in artificial fill, IWW extension, un-vegetated riprap above OHW, and a stream channel modification.

Based on information included on the form and from discussion with Tom Loynes, ODOT liaison for NMFS, including these facts:

- The proposed action will discharge post-construction runoff into the Willamette River; which is occupied by ESA-listed species and their designated critical habitat.
- Contributing impervious area (CIA) for the proposed project is 121.379 ac, including a net addition of 31.336 acres of net new impervious surface.
- Due to site constraints 120.226 acres will be treated onsite and 1.943 acres of CIA will be treated off-site for a total of 122.269 acres. This gives an overtreatment of 1.026 acres to be used on future projects that are constrained.
- Based in information provided with the notification:
  - The proposed project will generate 528,727 cf of post-construction stormwater runoff (PCR) estimated via the rational method.
    - PCR = contributing impervious area (CIA) x design storm (DS)
    - CIA = 121,379 ac (~5,287.269 sq ft) of impervious surface
    - DS = 50% of 2-yr, 24-hr storm = 1.22 in (0.10 ft)
    - PCR = 5,287.269 sq ft x 0.10 ft = ~528,727 cf
    - This project will over-treat and have an opportunistic credit of 1.026 acres post project.

        - A future Regional Stormwater Treatment facility will be created using one of the existing BMP's on this project. Once the value of the credits created is developed, a project change form will be submitted to document this.
- Flow control is not required because the receiving water is the Willamette Rover, a "large water body."
- At each of the existing internal bents some artificial fill will remain in the channel post project. However, FHWA agreed to remove 5 feet of depth of existing riprap around the footings before cutting off the bents. Also, FHWA is likely to remove additional fill and, if so, will report this on the project completion form.
- A stream channel modification will be necessary in Abernathy Creek to allow the channel to flow around a drilled shaft. During high flows this area is a backwater. This modification will allow for ample room for the channel to flow around the new shaft.
- An in-water work extension (IWWE) has been requested to use a barge all year long. The barge will only use spuds when necessary outside of the normal IWWE work period of Jul 1 to Oct 31.
- FHWA is proposing to oscillate drilled shafts from Jul 1 through Dec 31, 2018
- NOAA is verifying that this is consistent with the FAHP programmatic, with the following condition – FHWA work with NOAA to develop and carry out a monitoring plan to collect data on the underwater noise produced during the oscillation and drilling activity. This data will be used to better understand the impacts of sound caused by this type of activity. The final monitoring plan will be submitted to NOAA before the project will be offered for bid.
- Todd Alsbury approved this IWWE for ODFW based on the following considerations:
    - Year-round Barge Use
        - The published ODFW timing guidelines for the Willamette River below Willamette Falls include Jul 1-Oct 31.
        - Per the FAHP, anchoring barges outside of this window require approval from NMFS.
        - Year-round use is required to support all phases of the project.
        - The barges would use spud anchors and if needed push then to depth after deployment (drop) by jacking against the barge's weight.
        - This activity is unlikely to result in direct take, and indirect take is not expected due to: (1) The majority of the crossing is deep swift water habitat; (2) Fish that may be present in the more favorable habitat along the west-bank around Pier #6 may respond to the initial anchor set through avoidance. However, this behavior is not likely to affect their fitness of those individuals, or expose them to increased predation by piscivorous fish or birds.
    - ESA Species Likely to be Present: UWR adult and juvenile Chinook salmon, UWR steelhead, and LCR coho salmon (all coho are considered to be ESA-listed until they pass over Willamette Falls).
        - Juvenile rearing is assumed to be year-round but in low abundance due to limited suitable habitat only being present along the west-bank.
        - Juvenile presence is assumed to be year-round and brief except for fall Chinook which should be absent from mid-Sep to mid-Nov.

        - Juvenile coho will be present year around and adult coho will be present from late Aug through Nov.
        - Adult coho returning to the Clackamas may bypass the river early in the season, but are unlikely to hold in or around the bridge work area.
        - Adult coho will hold below the mouth of the Clackamas, approximately 0.5 miles downstream from work area, until fall rains encourage movement upstream.
    - Drilled Shaft Casing Oscillation. Extending the end of the window from 10/31 to 12/31 is required to complete installation of the drilled shaft outer casings via oscillation. Per request by ODFW, the construction of southern pier of Bent #3 (Abernethy Creek) will not occur during this period to avoid conflicts with upstream migrating adults and juveniles likely entering Abernethy Creek. Oscillation is not likely to affect fish beyond the immediate vicinity of installation. Oscillation does not generate injurious levels of sound and their placement and advancement is expected to have effects similar to what is described for spud placement. Note: Construction includes oscillation, drilling, and rebar installation.
        - ESA Species Likely to be Present: Adult LCR coho, juvenile UWR Chinook, juvenile and adult LCR Chinook Fall-Run, and juvenile and adult LCR and UWR steelhead. Juvenile UWR Chinook and Steelhead are considered to be present year-round. Juvenile and adult coho are likely to be present. There is low risk to these fish due to scheduled drilling of Bent #3 which is nearest to Abernethy Creek after adult fish have left the area. Adult coho waiting to enter Abernethy will hold until fall rains encourage, and allows, movement through the long culvert at the mouth of Abernethy Creek.
- All other relevant design criteria for construction practices will be used.

Therefore, I verify this proposed action as consistent with the FAHP opinion.

Please note that FAHP opinion requires FHWA to submit a project completion report for this action within 60-days of end of construction to verify the number and type of stormwater management practices installed, inspected and maintained by ODOT, as described in the FAHP opinion in section 2(b) at p.120-121, to ensure that this stormwater mitigation is effective.

Reinitiation of consultation on this action is required and shall be requested by the FHWA where discretionary Federal involvement or control over the action has been retained or is authorized by law and (a) the amount or extent of taking specified in the Incidental Take Statement is exceeded, (b) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (c) the identified action is subsequently modified in a manner that has an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

Please direct questions regarding this email to Tom Loynes, ODOT liaison with NMFS in the Willamette Branch, at 503-231-2243.

Marc Liverman
Willamette Branch Chief
West Coast Region
NOAA Fisheries

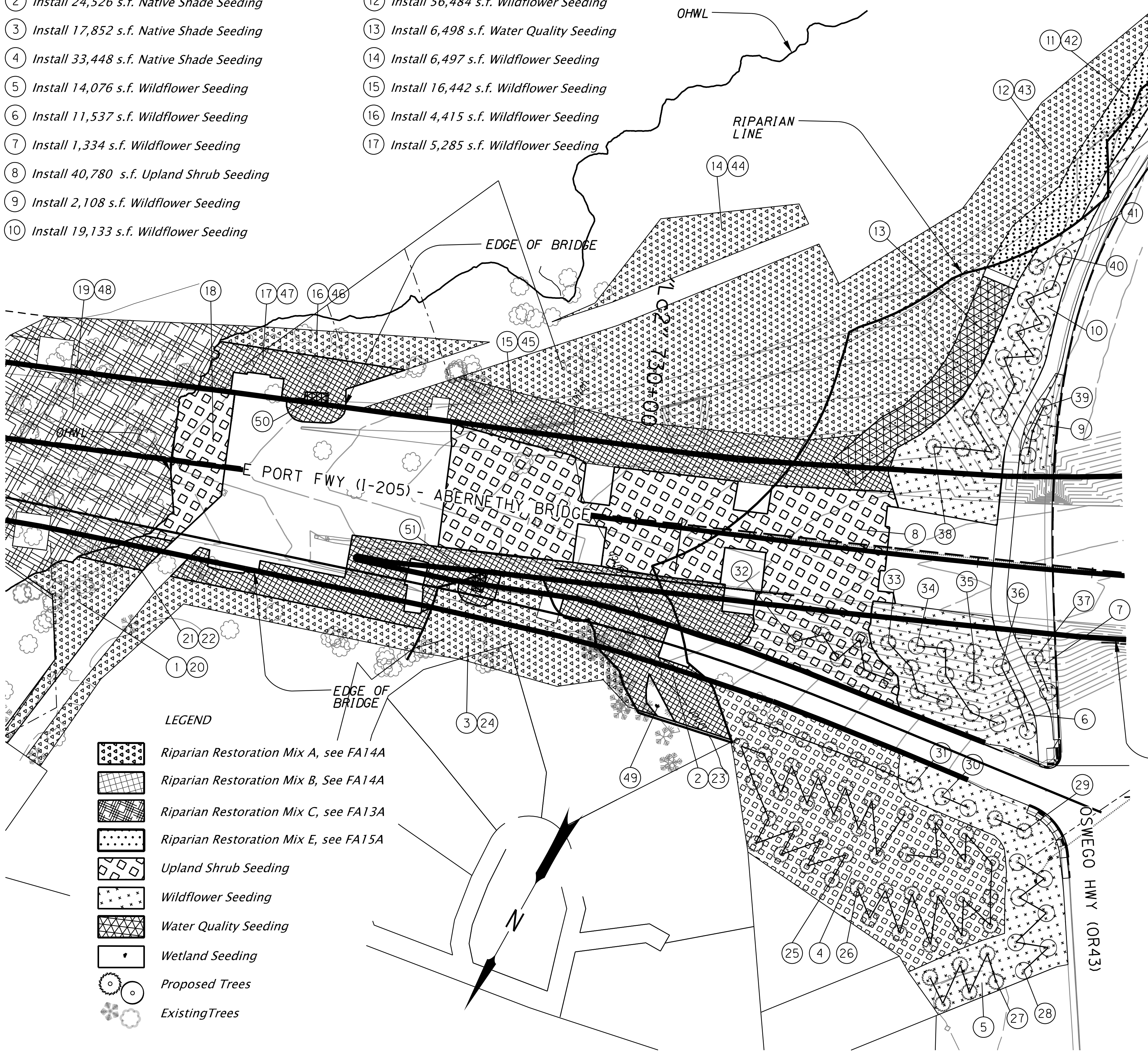
Attachment V. McLoughlin Creek Sheets

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

??V-???

1. Install 5,280 s.f. Native Shade Seeding
2. Install 24,526 s.f. Native Shade Seeding
3. Install 17,852 s.f. Native Shade Seeding
4. Install 33,448 s.f. Native Shade Seeding
5. Install 14,076 s.f. Wildflower Seeding
6. Install 11,537 s.f. Wildflower Seeding
7. Install 1,334 s.f. Wildflower Seeding
8. Install 40,780 s.f. Upland Shrub Seeding
9. Install 2,108 s.f. Wildflower Seeding
10. Install 19,133 s.f. Wildflower Seeding
11. Install 10,169 s.f. Wildflower Seeding
12. Install 56,484 s.f. Wildflower Seeding
13. Install 6,498 s.f. Water Quality Seeding
14. Install 6,497 s.f. Wildflower Seeding
15. Install 16,442 s.f. Wildflower Seeding
16. Install 4,415 s.f. Wildflower Seeding
17. Install 5,285 s.f. Wildflower Seeding
18. Install 5,401 s.f. Upland Shrub Seeding
19. Total area on FA14 and FA15, shown on FA14, note 8
20. Install 5,280 s.f. Riparian Restoration Mix A
21. Install 1,227 s.f. Native Shade Seeding
22. Install 1,227 s.f. Riparian Restoration Mix B
23. Install 24,526 s.f. Riparian Restoration Mix A
24. Install 17,852 s.f. Riparian Restoration Mix B
25. Install 21 TPSME
26. Install 17 TPIPO
27. Install 6 TPSME
28. Install 7 TQUGA
29. Install 2 TPSME
30. Install 2 TCONU
31. Install 7 TPIPO
32. Install 6 TPSME
33. Install 4 TCADE
34. Install 5 TCONU
35. Install 2 TCADE
36. Install 3 TQUGA
37. Install 2 TQUGA
38. Install 5 TPIPO
39. Install 3 TQUGA
40. Install 9 TQUGA
41. Install 1 TARME
42. Install 10,169 s.f. Riparian Restoration Mix E
43. Install 56,484 s.f. Riparian Restoration Mix A
44. Install 6,497 s.f. Riparian Restoration Mix A
45. Install 16,442 s.f. Riparian Restoration Mix B
46. Install 4,415 s.f. Riparian Restoration Mix A
47. Install 5,285 s.f. Riparian Restoration Mix B
48. Total area on FA14 and FA15, shown on FA14, note 15
49. Install 410 s.f. Wetland Seeding
50. Install 200 s.f. Water Quality Seeding
51. Install 199 s.f. Water Quality Seeding



PRELIMINARY COPY
INFORMATION ONLY

NNA Landscape Architecture
NNA Landscape Architecture
1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

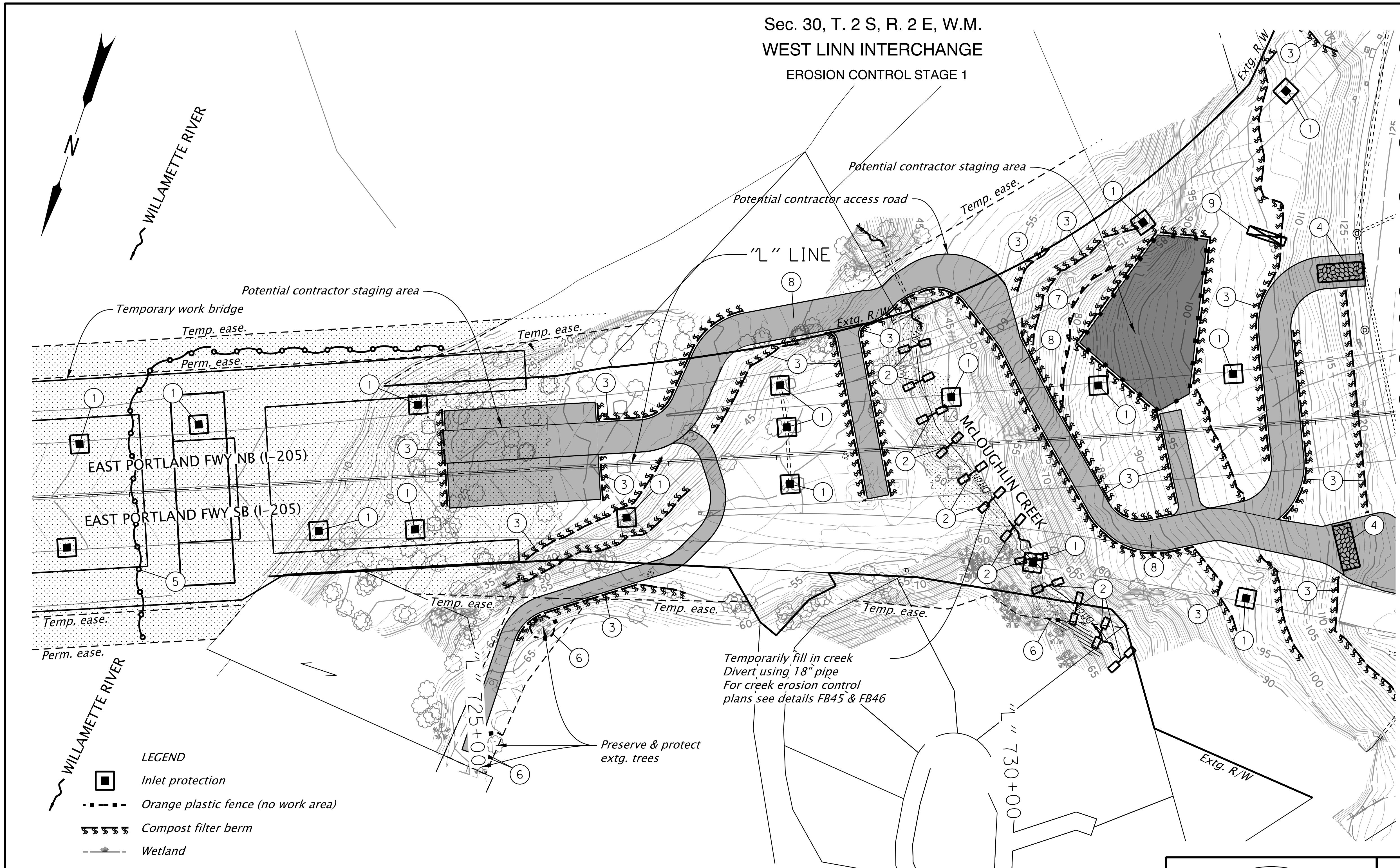
ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA15

NNA_Roadside_Devel :: FA15-FA15A 7/31/2020 9:15:58 AM Jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 209.2943° Scale: 1"=100'



Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. Floating turbidity barrier required for rip rap removal and cofferdam installation and removal.
5. Contractor staging area shall contain concrete washout facility and temporary water management dewatering treatment.
6. Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON JULY 14, 2011 JASON M. RAHM
EXPIRES: DEC. 31, 2020

PRELIMINARY COPY INFORMATION ONLY

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB11

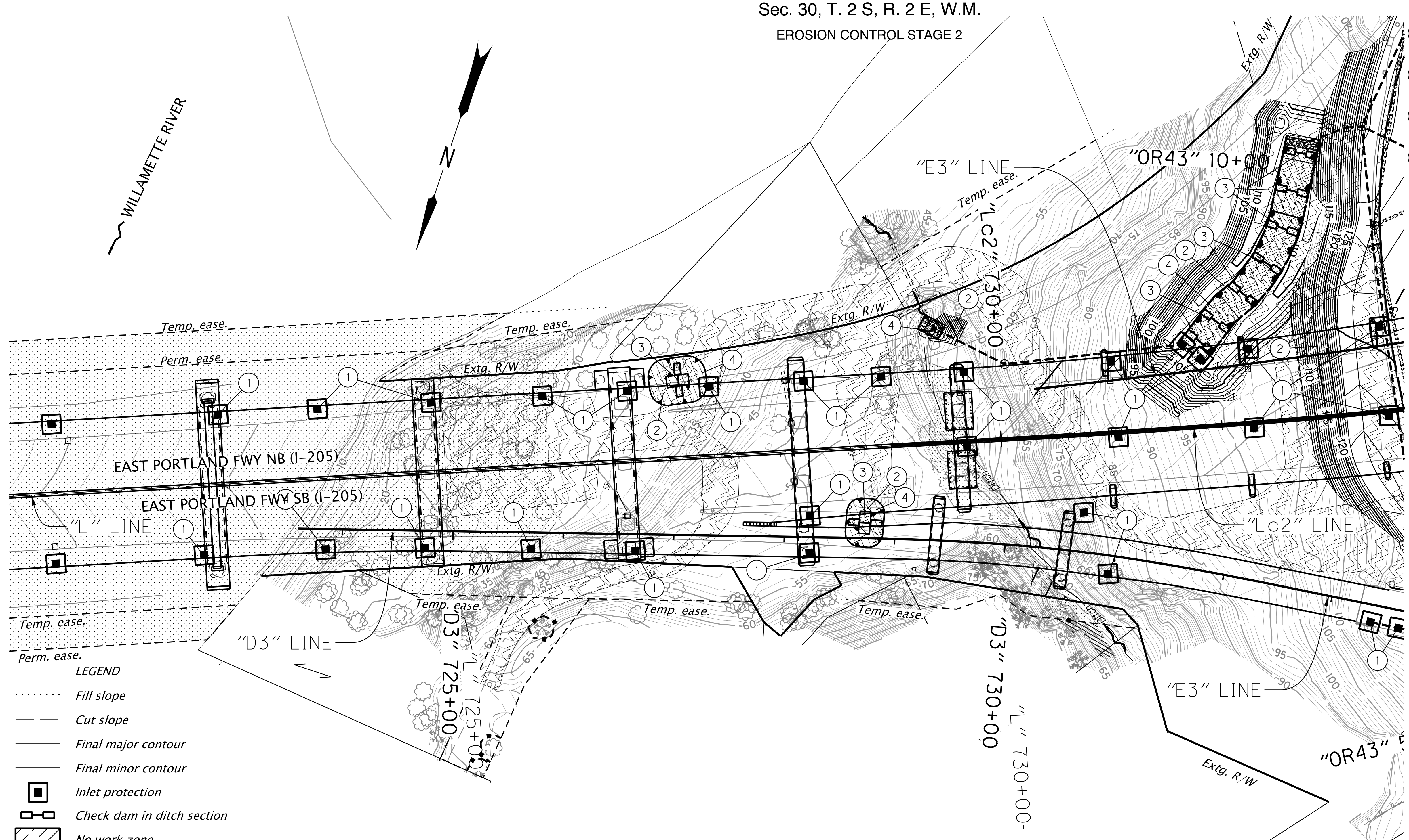
ESCP Stage 1 - HDR :: FB11 7/15/2020 8:21:11 PM CDONOVAN

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



1. Const. inlet protection, (Type 3) - 29 (See drg. no. RD1010)
2. Install compost erosion blanket - 7,189 sq. yd. (For details, see sht. FB01)
3. Const. check dam, (Type 6) - 9 (See drg. no. RD1006)
4. Install matting - 1,156 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- Check dam in ditch section
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Matting, Type F
- Ordinary High Water
- Wetland
- Compost blanket
- Flow direction
- Regulated Work Access
- No Work Access

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON JUNE 14, 2011 JASON M. RAHM

PRELIMINARY COPY INFORMATION ONLY

EXPIRES: DEC. 31, 2020

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

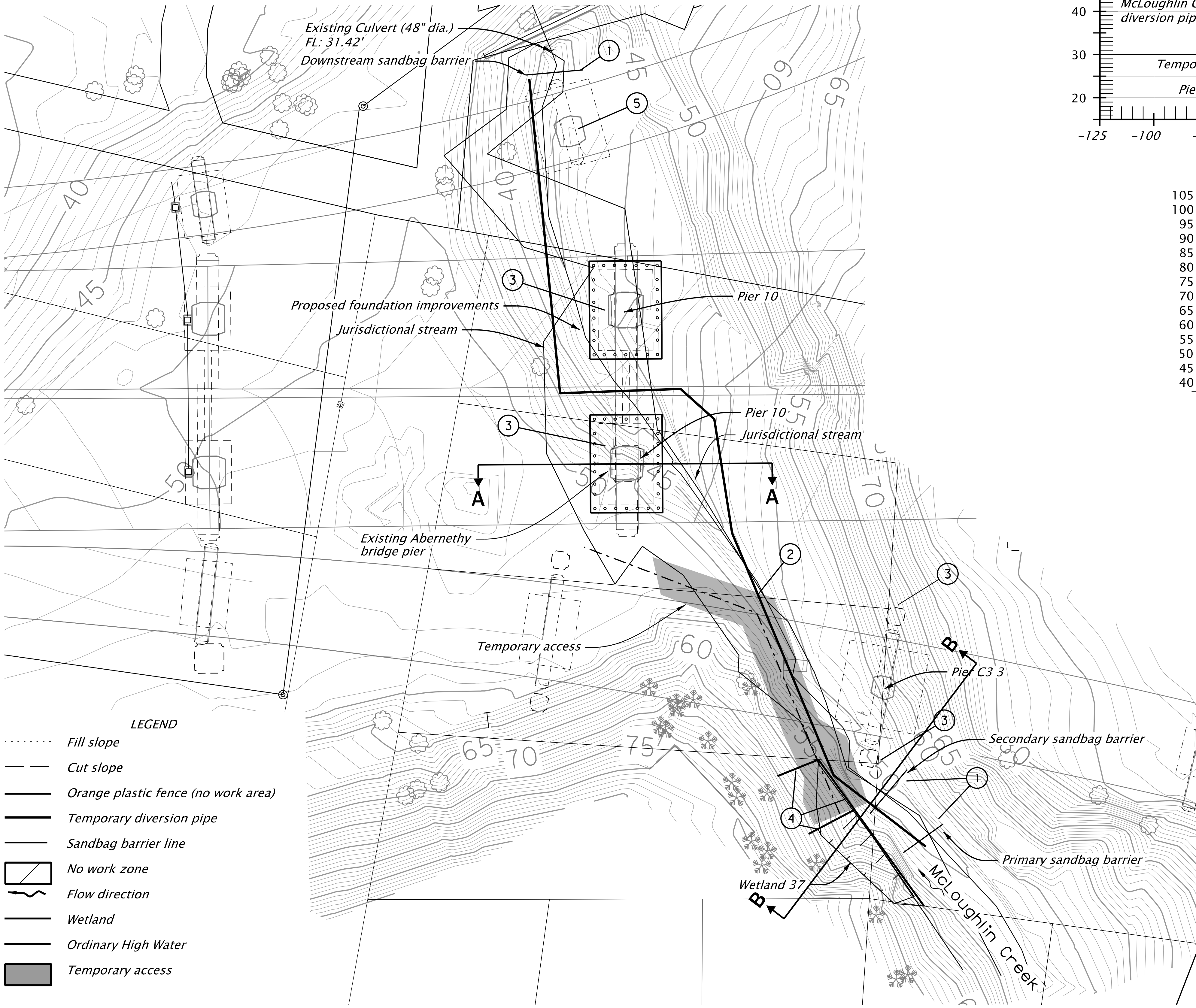
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

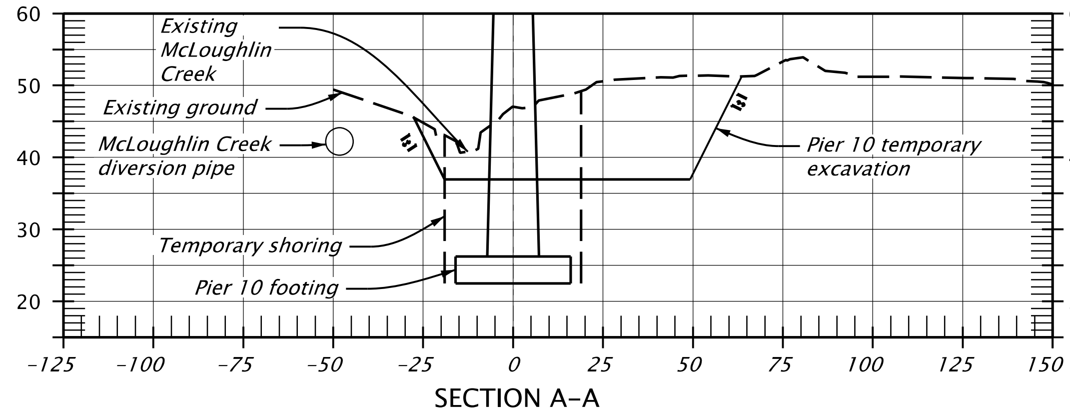
Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

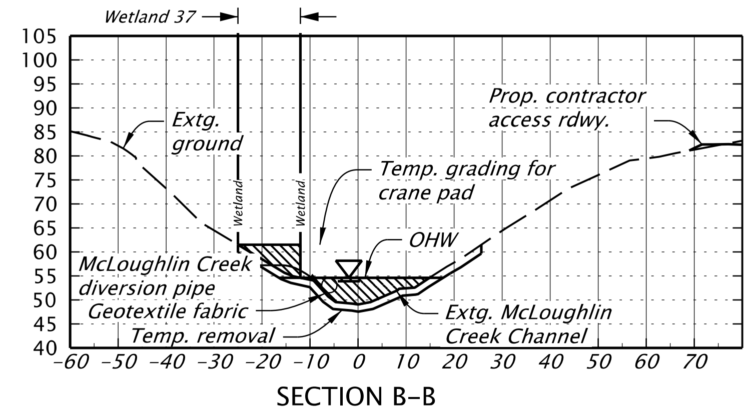
SHEET NO. FB29

McLoughlin Creek - Phase 1
Construct temporary dike
(In-water-work activities)
Construct shaft





SECTION A–A



SECTION B–B

Note:

For additional erosion control details not shown, see FB27.

Creek work below OHW cannot exceed 18 months. Install and remove temporary water diversion during in-water work window.

1. *Install temporary BMPs and flow diversion*
2. *Install temporary diversion pipe (18" dia.)*
3. *Construct shaft*
4. *Install orange plastic fence (no work area)*
5. *Remove existing pile cap and bridge column*

LEGEND

- *Fill slope*
- *Cut slope*
- *Orange plastic fence (no work area)*
- *Temporary diversion pipe*
- *Sandbag barrier line*
- *No work zone*
- *Flow direction*
- *Wetland*
- *Ordinary High Water*
- *Temporary access*

REGISTERED PROFESSIONAL ENGINEER 77915PE OREGON JULY 14, 2011 JASON M. RAHM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: DEC. 31, 2020

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

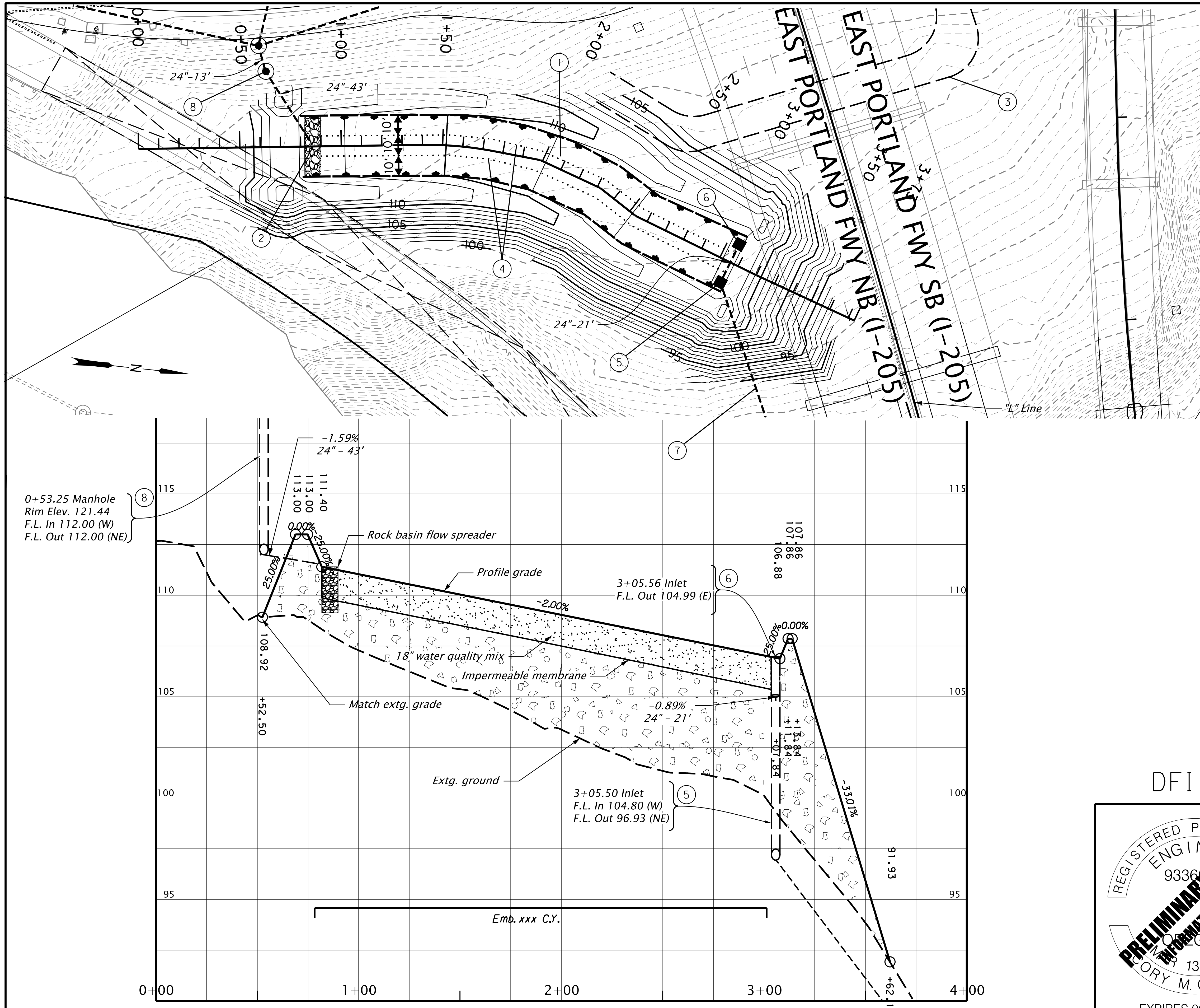
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB44



1. Sta. 0+80.76 to Sta. 3+07.72 = Sta. "OR43" 10+12.40, 104.31' Lt. to Sta. "OR43" 8+77.47, 208.62' Lt.
   Construct biofiltration swale
   Inst. field facility marker (Type S2) - 2
   (For details, see sht. HA16)
2. Sta. 0+86.13
   Construct rock basin flow spreader
   Inst. 24" storm sew. pipe - 43'
   5' Depth
   (For details, see sht. HA16)
3. Const. maintenance access road
   Exc. - xx cu. yd.
   Agg. base - xx ton
   Subgrade geotextile - sq. yd.
   (For details, see sht. HA17)
4. Construct biofiltration swale divider
   (For details, see sht. HAxx)
5. Sta. 3+05.56, 10.11' Lt.
   Const. type "D" inlet
   Inst. 24" storm sew. pipe - 21'
   5' Depth
6. Sta. 3+05.50, 10.87' Rt.
   Const. type "D" inlet
7. See sht. HA07 for outfall details
8. Sta. 0+53.25, 37.24' Rt.
   Const. pollution control manhole
   Inst. 24" storm sew. pipe - 13'
   10' Depth

DFI no. ######

REGISTERED PROFESSIONAL ENGINEER
93360PE
OREGON
MAY 13, 2018
CORY M. GIESEKE
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INFORMATION ONLY
EXPIRES 06/30/2021

HDR ENGINEERING, INC
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

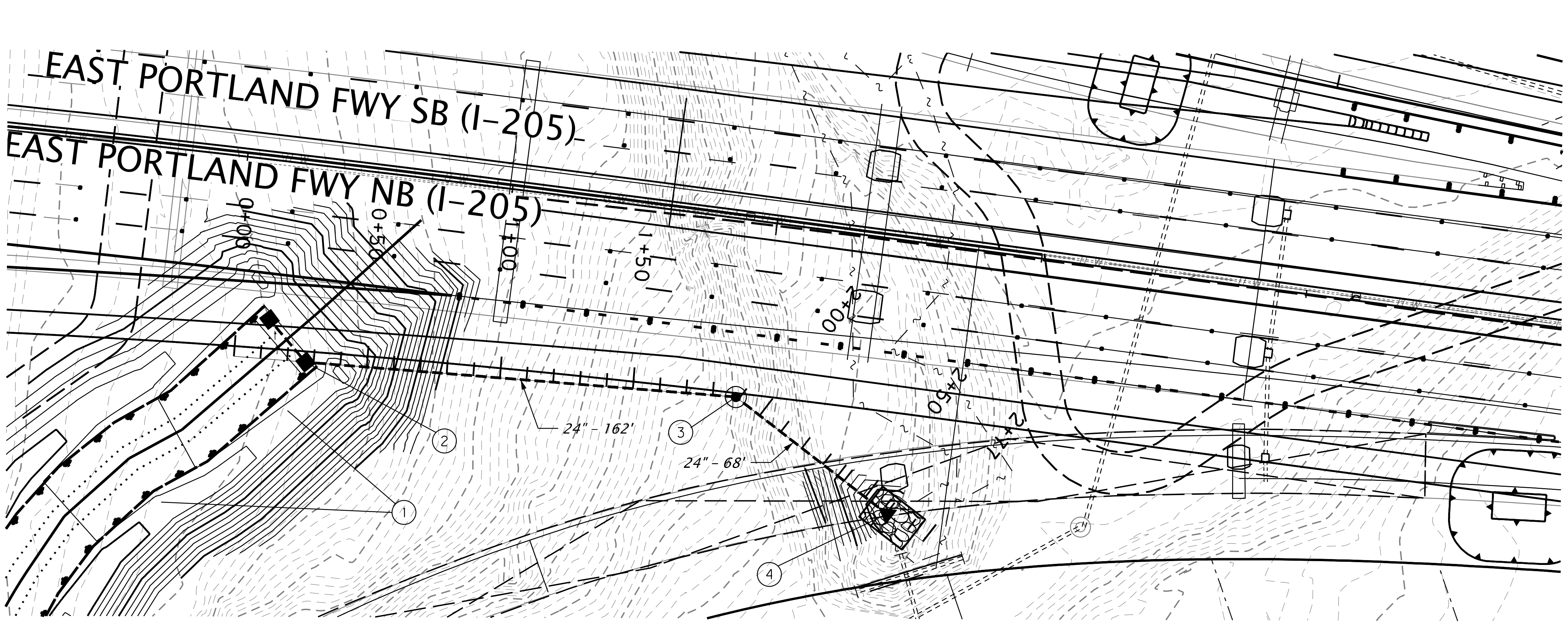
Designer: Cory Gieseke
Reviewer: Karen Tatman
Drafter: Morgan Tholl
Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE

SHEET NO. HA06

700

Rotation: 96.0998° Scale: 1"=50'
Vertical Scale: 1:10

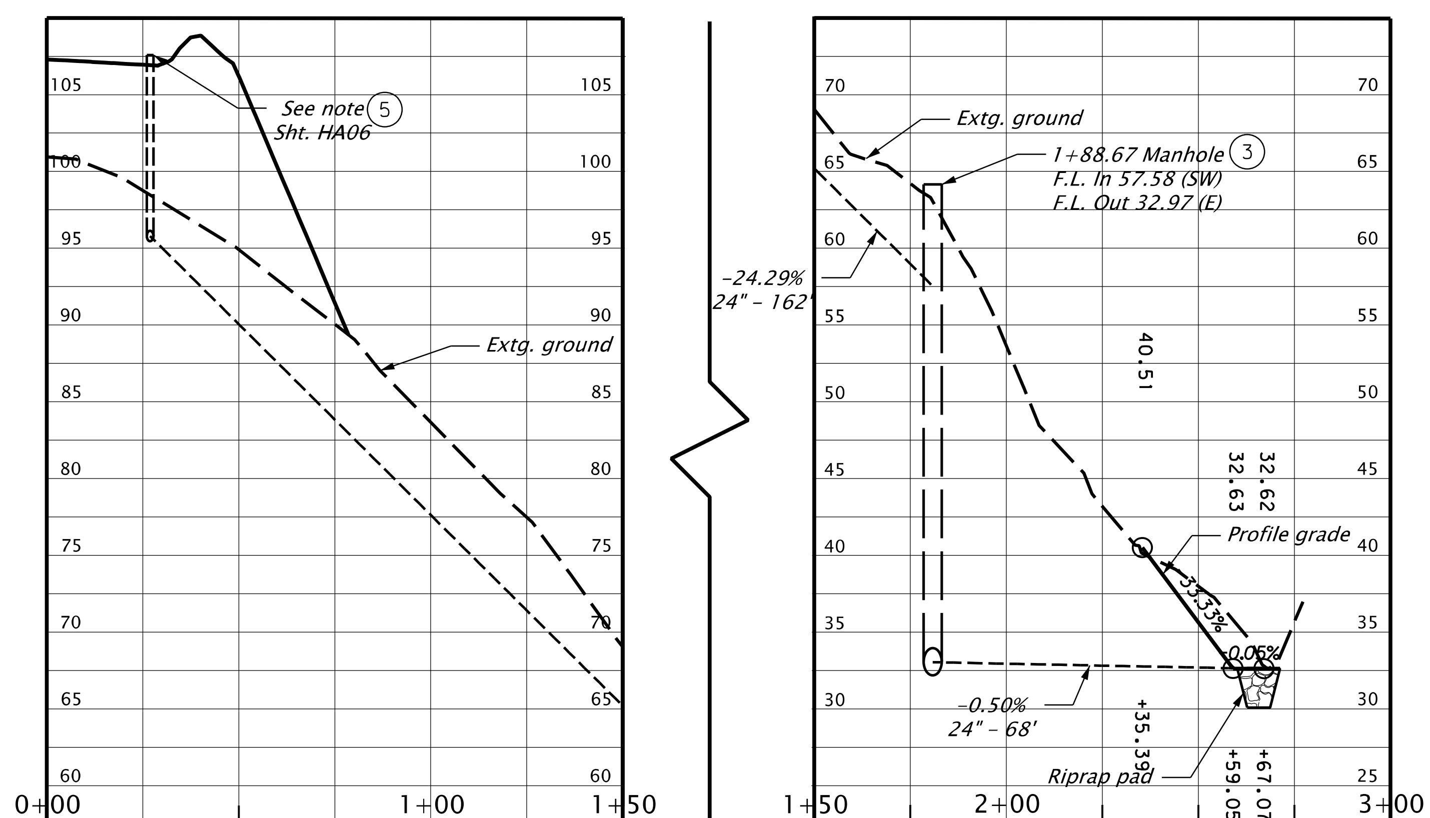


1. See sht. HA06, note 1

2. See sht. HA06, note 5

3. Sta. 1+88.67
   Const. outside drop manhole
   Inst. 24" storm sew. pipe - 162'
   20' Depth

4. Sta. 2+50.00
   Construct riprap pad
   Loose riprap (class 50) - 5.0 tons
   Inst. 24" storm sew. pipe w/ sloped end section- 68'
   5' Depth



REGISTERED PROFESSIONAL ENGINEER
93366PE
OREGON
MAY 13, 2018
CORY M. GIESEKE
EXPIRES 06/30/2021

PRELIMINARY COPY
INFORMATION ONLY

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Reviewer:
Drafter: Checker:

WATER QUALITY PLAN & PROFILE

SHEET NO. HA07

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 29.332° Scale: 1"=50'
Vertical Scale: 1:4

Attachment W. Landscaping Plan

GENERAL NOTES:

1. Plant all trees beyond "clear zone"; verify with engineer prior to planting. Engineer shall approve all work outside designated work limits prior to construction. Do not plant trees within 20' of a bridge/viaduct or within 10' of a trail, waterline, or stormwater line.

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 vehicular driver sight-lines and visiblity of traffic control signs or other appurtenances. Verify location changes with Engineer.

5. All dimensions shown on details are minimum dimensions.

6. See Plant Schedule FA02, FA03 for plants and landscape material.

7. Plan is schematic. Planting may be adjusted to fit site conditions with prior Agency approval.

8. Lay out plant material in groups as indicated in plant and material schedule, details and plan sheets.

9. Stake all planting areas for review and approval by Engineer prior to planting.

10. Do not install plant material without prior inspection and approval as required by 01040.19(d).

11. Comply with Oregon Standard Specifications for Construction and Special Provisions for construction applicable to this project.

12. Thoroughly water all plants achieving saturation of soil backfill, within 24-hours of installation regardless of rainfall events.

13. Verify field conditions prior to construction with any adjustments to the plans made as directed by the Engineer.

14. Protect all trees and land areas marked for protection. Do not damage natural (non-invasive) vegetation.

15. Comply with erosion control measures per Section 00280 and all applicable permits during construction.

16. Where discrepancies between the Plant Schedule and the plans exist, plans shall prevail.

17. See Special Provision 01030.13(f) for seed mixes

18. Prepare all planting and seeding areas per Method B, see 01040.48(b) in the Oregon Standard Specifications for Construction.

19. Include Mycorrhizal innoculates for all seeding and individual plant installations. Apply per manufacturer's recommendation.

20. Flag all planted tree species with color-coded identification flags.

Mitigation and Restoration Permitting Requirements

	Area (square feet)	Plant Totals	
	TOTAL (COMBINED)	TREES	SHRUBS
West Linn Land Use HCA + WRA*	40,044	399	2,002

*DSL Restoration Tree and Shrub Quantities are applied for these requirements on FA15 and FA16

Mitigation and Restoration Permitting Requirements

	Area (square feet)				Plant Totals	
	FA14*	FA15	FA16	TOTAL	TREES	SHRUBS
DSL Permit Requirements	25,956	42,555	148,187	209,929	1,004	2,031

*DSL Restoration Numbers for FA14 are on Oregon City side of Abernethy Bridge

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT GENERAL NOTES

SHEET NO.
FA01

ROADSIDE DEVELOPMENT PLANT SCHEDULE

Plant and Material Schedule

Trees

Key	Botanical Name	Common Name	Size	Spacing	Root Type	Percent Mix	Plant Condition	FA09	FA10	FA11	FA12	FA13	FA14	FA15	FA16	FA17	FA18	FA19	FA20	FA21	FA22	FA23	FA24	FA25	FA26	FA27	TOTAL
TARME	*Arbutus menziesii*	Madrone	1/2" Calip.	As Shown	Container	N/A	Single trunk	-	-	-	3	5	-	-	1	-	-	-	-	-	-	-	-	-	-	-	9
TCADE	*Calocedrus decurrens*	Incense Cedar	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	-	-	6	-	-	8	-	-	-	-	-	-	-	-	14
TCONU	*Cornus nuttallii*	Pacific Dogwood	1" Calip.	As Shown	Container	N/A	Single trunk	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	7
TPIPO	*Pinus ponderosa 'Willamette Valley'*	Willamette Ponderosa Pine	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	-	30	99	69	16	-	29	24	-	-	-	-	-	-	-	-	-	30	297
TPSME	*Pseudotsuga menziesii*	Douglas Fir	4' Height	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	35
TQUCH	*Quercus chrysolepis*	Canyon Live Oak	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	9	24
TQUGA	*Quercus garryana*	Oregon White Oak	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	2	51	13	-	24	12	-	6	-	-	-	-	-	-	-	56	164
TULAM	*Ulmus americana 'Valley Forge'*	Valley Forge American Elm	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	7
TUMCA	*Umbellularia californica*	Oregon Myrtle	1" Calip.	As Shown	Container or B&B	N/A	Single trunk	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Groundcovers																											
	Mahonia repens	Low Oregongrape	18" Height	2' O.C.	#1 Container	N/A	N/A	-	-	-	-	2,327	158	-	-	-	-	-	-	-	-	-	-	-	-	-	2,485
	Juniperus sabina 'Tamariscifolia'	Tamarix Juniper	18-24" Height	4' O.C.	2 Gal.	N/A	N/A	-	-	-	-	2,250	-	-	-	283	955	-	-	-	-	-	-	-	-	543	4,031

Soundwall Screening Sun Mix

	Key			Size	Spacing	Root Type	Percent Mix	Plant Condition	FA13	TOTAL
Sun Shrubs		*Arctostaphylos manzanita*	Common Manzanita	18" Height	5' O.C.	#1 Container	10%	N/A	639	639
		Arctostaphylos viscida	Whiteleaf Manzanita	18" Height	5' O.C.	#1 Container	10%	N/A	639	639
		Ceanothus thyrsiflorus 'Oregon Mist'	Oregon Mist California Lilac	18" Height	5' O.C.	#1 Container	25%	N/A	1,599	1,599
		Ceanothus velutinus	Snowbrush	18" Height	5' O.C.	#1 Container	10%	N/A	639	639
		Cercocarpus ledifolius	Curl-leaf Mountain Mahogany	18" Height	5' O.C.	#1 Container	20%	N/A	1,280	1,280
		Garrya fremontii	Fremont Silktassel	18" Height	5' O.C.	#1 Container	25%	N/A	1,599	1,599

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT GENERAL NOTES

SHEET NO. FA02

ROADSIDE DEVELOPMENT PLANT SCHEDULE

City of Oregon NROD Mitigation Trees and Shrubs

Key			Size	Spacing	Root Type	Percent Mix	Plant Condition	FA09	FA11	TOTAL
NROD Trees & Shrubs	*Arbutus menziesii*	Pacific Madrone	1/2" Calip.	13.5' O.C.	Bareroot	20%		84	40	124
	Pinus ponderosa var. willamettensis	Ponderosa Pine	18" Height	13.5' O.C.	Bareroot	30%		127	60	187
	Quercus garryana	Oregon White Oak	1/2" Calip.	13.5' O.C.	Bareroot	30%		127	60	187
	Rhamnus purshiana	Cascara	1/2" Calip.	13.5' O.C.	Bareroot	10%		42	20	62
	Salix scouleriana	Scouler's Willow	1/2" Calip.	13.5' O.C.	Bareroot	10%		42	20	62
	Arctostaphylos columbiana	Hairy Manzanita	12" Height	6' O.C.	Bareroot	20%		366	174	540
	Berberis (Mahonia) aquifolium	Tall Oregongrape	12" Height	6' O.C.	Bareroot	30%		549	261	810
	Ceanothus velutinus	Snowbrush	12" Height	6' O.C.	Bareroot	20%		366	174	540
	Corylus cornuta var. Californica	Western Hazelnut	12" Height	6' O.C.	Bareroot	15%		274	130	404
	Ribes lobbii	Gummy Gooseberry	12" Height	6' O.C.	Bareroot	15%		274	130	404
NROD Shrubs	*Berberis (Mahonia) aquifolium*	Tall Oregongrape	12" Min.	6' O.C.	Bareroot	20%		-	118	118
	Cornus sericea	Redtwig Dogwood	12" Min.	6' O.C.	Bareroot	10%		-	177	177
	Ribes sanguineum	Redflowering Currant	12" Min.	6' O.C.	Bareroot	15%		-	118	118
	Rubus parviflorus	Thimbleberry	12" Min.	6' O.C.	Bareroot	15%		-	89	89
	Spirea douglasii	Douglas Spirea	12" Min.	6' O.C.	Bareroot	15%		-	89	89
	Symphoricarpos albus	Snowberry	12" Min.	6' O.C.	Bareroot	25%		-	148	148

SUMMARY

	HCA/WRA REQ'D	PROVIDED
trees	399	704
shrubs	2002	2067

TOTAL AREA 190,732 sf

Upland Riparian Restoration Mix

Key			Size	Spacing	Root Type	Percent Mix	Plant Condition	FA14	FA15	FA16	TOTAL
MIX A: Trees	*Acer macrophyllum*	Bigleaf Maple	1/2" Calip.	30' Min.	Bareroot	8%		-	-	38	38
	Arbutus menziesii	Pacific Madrone	1/2" Calip.	15'-20' Min.	Container	15%		-	-	71	71
	Calocedrus decurrens	Incense Cedar	18" Height	30' Min.	Bareroot	8%		-	-	38	38
	Corylus cornuta var. californica	Western Hazelnut	1/2" Calip.	15'-20' Min.	Bareroot	15%		-	-	71	71
	Cornus nuttallii	Western Dogwood	1/2" Calip.	15'-20' Min.	Bareroot	5%		-	-	24	24
	Quercus garryana	Oregon White Oak	1/2" Calip.	15'-20' Min.	Bareroot	26%		-	-	124	124
	Pseudotsuga menziesii	Douglas Fir	18" Height	30' Min.	Bareroot	8%		-	-	38	38
	Rhamnus purshiana	Cascara	1/2" Calip.	15'-20' Min.	Bareroot	15%		-	-	71	71
MIX A & B: Shrubs	*Berberis (Mahonia) aquifolium*	Tall Oregongrape	12" Height	5' Min.	Bareroot	25%		-	-	374	374
	Oemleria cerasiformis	Osoberry	12" Height	5' Min.	Bareroot	10%		-	-	150	150
	Rubus parviflorus	Thimbleberry	12" Height	5' Min.	Bareroot	15%		-	-	225	225
	Sambucus racemosa	Red Elderberry	12" Height	5' Min.	Bareroot	10%		-	-	150	150
	Spiraea douglasii	Western Spirea	12" Height	5' Min.	Bareroot	15%		-	-	225	225
	Symphoricarpos albus	Snowberry	12" Height	5' Min.	Bareroot	25%		-	-	374	374

475 trees

1498 shrubs

Lowland Riparian Restoration Mix

Key			Size	Spacing	Root Type	Percent Mix	Plant Condition	FA14	FA15	FA16	TOTAL
MIX C: Trees	*Abies grandis*	Grand Fir	18" Height	30' Min.	Bareroot	10%		8	21	-	29
	Acer macrophyllum	Bigleaf Maple	1/2" Calip.	30' Min.	Bareroot	10%		8	21	-	29
	Alnus rubra	Red Alder	1/2" Calip.	15'-20' Min.	Bareroot	26%		22	54	-	76
	Fraxinus latifolia	Oregon Ash	1/2" Calip.	30' Min.	Bareroot	6%		5	13	-	18
	Prunus emarginata	Bitter Cherry	1/2" Calip.	15'-20' Min.	Bareroot	15%		13	31	-	44
	Rhamnus purshiana	Cascara	1/2" Calip.	15'-20' Min.	Bareroot	10%		8	21	-	29
	Salix lucida	Shining Willow	1/2" Calip.	15'-20' Min.	Bareroot	15%		13	31	-	44
	Thuja plicata	Western Redcedar	18" Height	30' Min.	Bareroot	8%		7	17	-	24
MIX C & D: Shrubs	*Cornus sericea*	Redtwig Dogwood	12" Height	5' Min.	Bareroot	25%		46	115	-	161
	Physocarpus capitatus	Pacific Ninebark	12" Height	5' Min.	Bareroot	10%		18	46	-	64
	Rubus spectabilis	Salmonberry	12" Height	5' Min.	Bareroot	15%		28	69	-	97
	Sambucus racemosa	Red Elderberry	12" Height	5' Min.	Bareroot	10%		18	46	-	64
	Spiraea douglasii	Western Spirea	12" Height	5' Min.	Bareroot	15%		28	69	-	97
	Symphoricarpos albus	Snowberry	12" Height	5' Min.	Bareroot	25%		46	115	-	161

209 trees

460 shrubs

Roadside Riparian Restoration Mix

Key			Size	Spacing	Root Type	Percent Mix	Plant Condition	FA14	FA15	FA16	TOTAL
MIX E: Trees & Shrubs	*Pinus ponderosa var. willamettensis*	Willamette Ponderosa Pine	3'-4' Height	25'	#5 Container	50%		2	-	10	12
	Quercus garryana	Oregon White Oak	1/2" caliper	25'	Bareroot	40%		2	-	8	10
	Arbutus menziesii	Pacific Madrone	1'-2' Height	25'	#1 Container	10%		-	-	2	2
	Berberis (Mahonia) aquifolium	Tall Oregon Grape	12" Height	5' Min.	#1 Container	60%		14	-	66	80
	Ceanothus velutinus	Snowbrush	12" Height	5' Min.	#1 Container	10%		2	-	11	13
	Ribes sanguineum	Redflowering Currant	12" Height	5' Min.	#1 Container	15%		3	-	16	19
	Symphoricarpos albus	Snowberry	12" Height	5' Min.	#1 Container	15%		3	-	16	19

20 trees

109 shrubs

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT GENERAL NOTES

SHEET NO. FA03

ROADSIDE DEVELOPMENT PLANT SCHEDULE

Seed Mix* **See Special Provisions 01030.13(f) for Seed Mix** **Area (square feet)**

Key		FA09	FA10	FA11	FA12	FA13	FA14	FA15	FA16	FA17	FA18	FA19	FA20	FA21	FA22	FA23	FA24	FA25	FA26	FA27	TOTAL
	Permanent Seeding	4,348	-	-	-	229,089	10,968	-	-	201,702	-	203,716	13,860	36,248	993	244,107	-	69,324	-	123,150	1,137,505
	Water Quality Seeding	1,276	-	-	2,224	3,889	440	-	6,897	16,882	-	-	-	-	-	-	-	-	-	11,204	42,812
Varies	Riparian Seeding	-	-	-	-	-	23,824	42,555	-	-	-	-	-	-	-	-	-	-	-	-	66,379
	Wildflower Seeding	85,667	-	81,555	40,653	28,877	30,686	-	150,022	6,082	-	-	-	-	-	4,981	-	97,124	-	119,720	645,367
Varies	Native Shade Seeding	-	-	-	-	-	-	-	81,106	-	-	-	-	-	-	-	-	-	-	-	81,106
	Wetland Seeding	-	-	-	-	-	-	-	410	-	-	-	-	-	-	-	-	-	-	-	410
	Upland Shrub Seeding	-	-	-	-	-	7,672	-	46,181	-	-	-	-	-	-	-	-	-	-	-	53,853

*** Verify compost erosion blanket is installed prior to applying seed**

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 2 SEC.

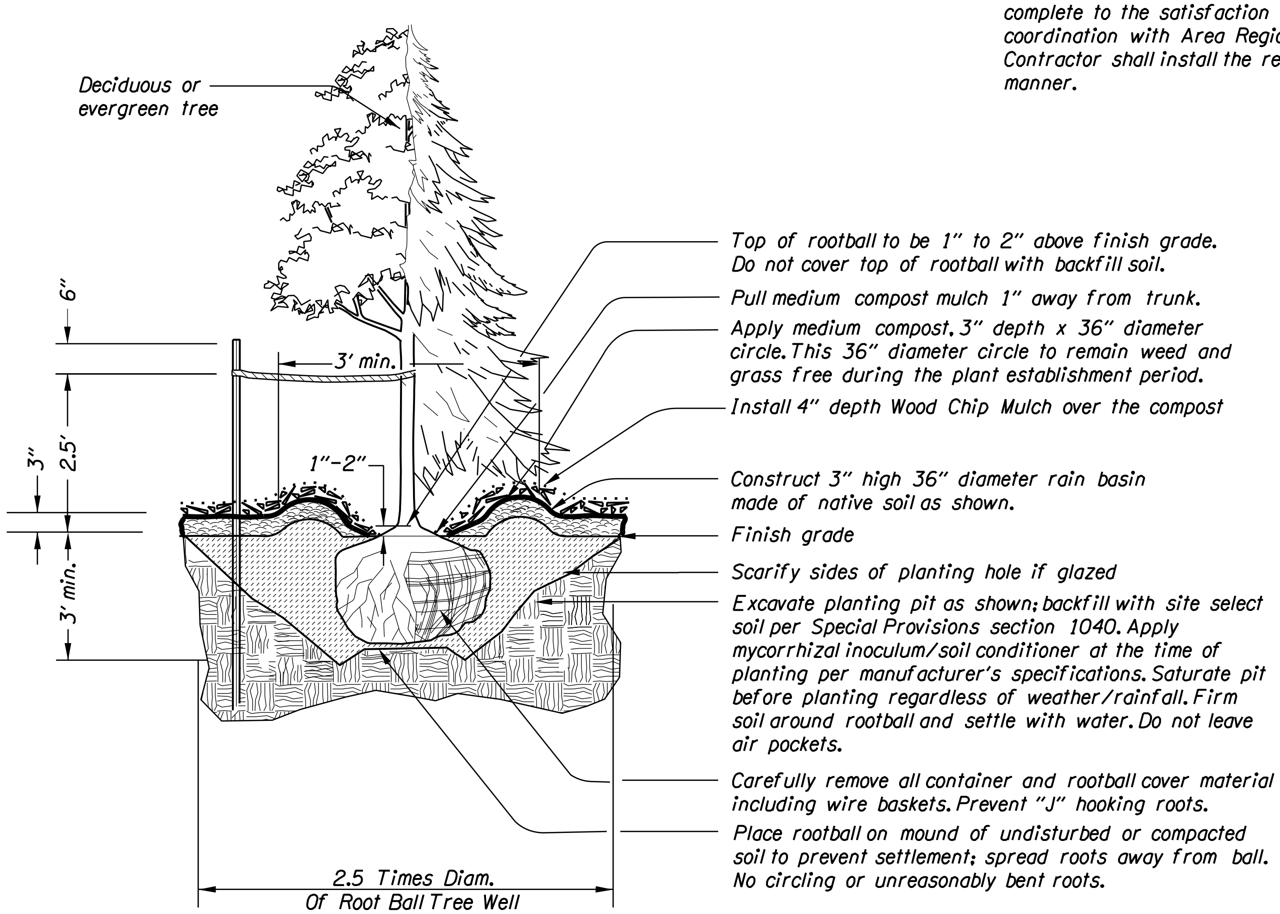
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

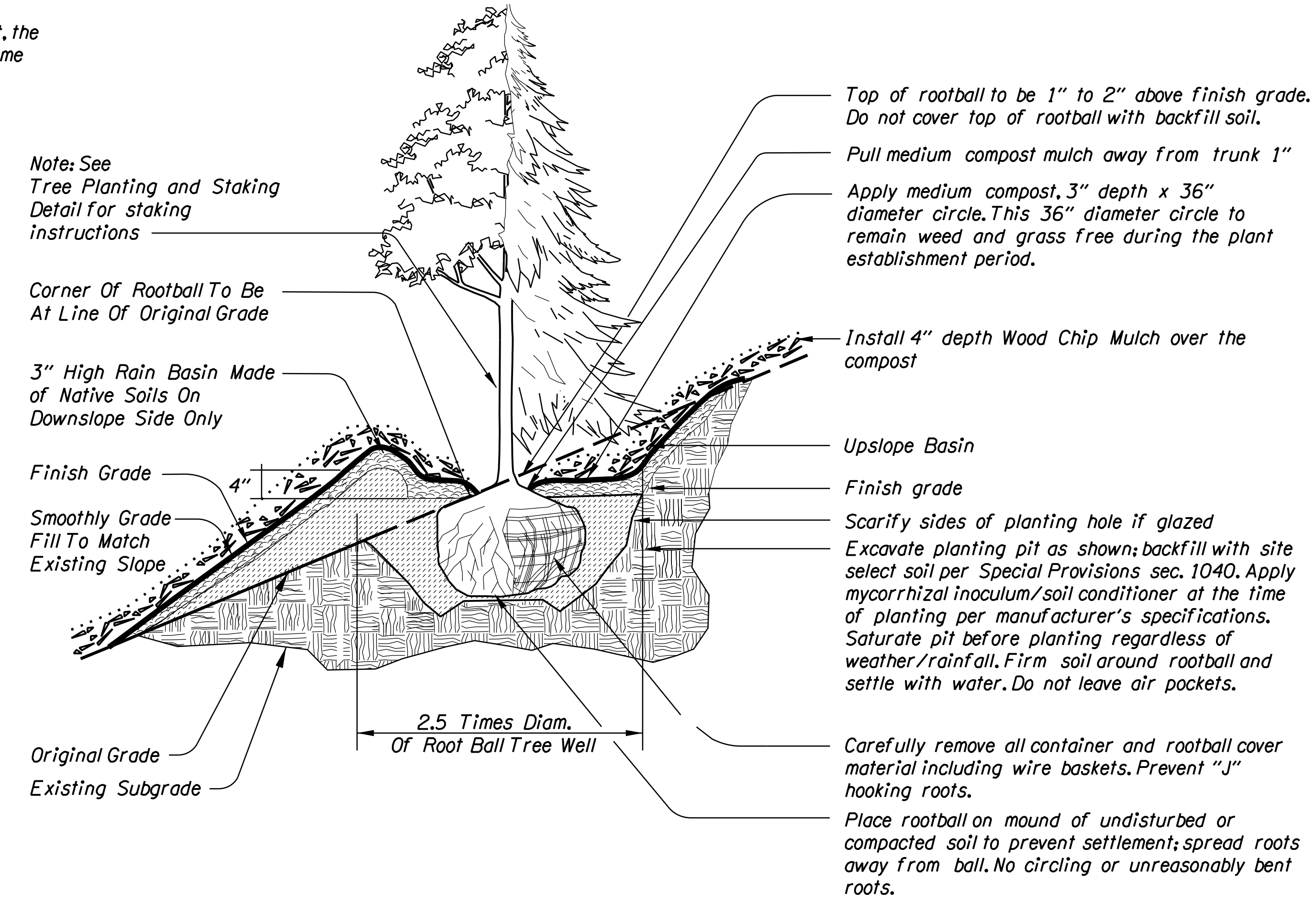
Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT GENERAL NOTES | SHEET NO. FA04

NOTE:

After tree location staking is complete and prior to planting any trees, Contractor shall construct two typical tree planting and staking installations per details and specifications, with Engineer and ODOT Area Regional Landscape Architect present. When the installations are complete to the satisfaction of the Engineer in coordination with Area Regional Landscape Architect, the Contractor shall install the remaining trees in the same manner.





TREE PLANTING and STAKING
On Terrain Flatter Than 5H:1V

Not To Scale

TREE PLANTING and STAKING on SLOPES
On slopes 5H:1V or steeper

Not To Scale

TREE STAKING NOTES:

1) Tree ties to be either:

Rigid guy system. Galvanized wire to be approximately 1/8" thickness and 24" length with a plastic sleeve over the portion that contacts the tree. The wire tie is to go through the wood stake and be securely fastened.

Plastic chain type, approximately 1" width by 1/8" thickness where two stakes are required. Cross ties between stakes and wrap tie around tree. Fasten securely to stake.

2) Furnish tree stakes on all tree plantings.

Stakes to be construction grade, rough sawn or finished Douglas Fir or Pine. Stain with approved green penetrating oil. Stake Size is to be 1½"x1½" by following lengths:

Trees 36" and shorter - Use one - 6' (approximate) stake
Trees taller than 36" - Use one - 8' (approximate) stake

Drive stakes vertically and at least 24" into undisturbed soil. Do not drive stakes through root ball. Locate stakes to best resist prevailing winds.

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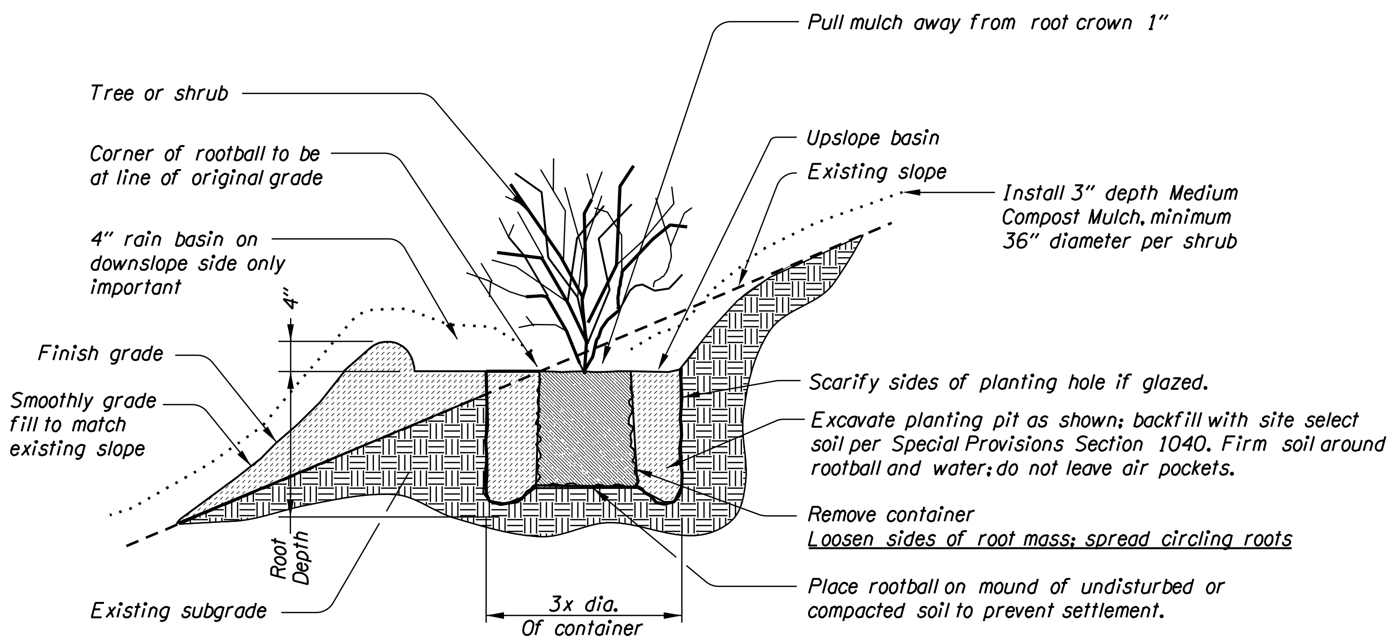
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT SITE DETAILS

SHEET NO.
FA05

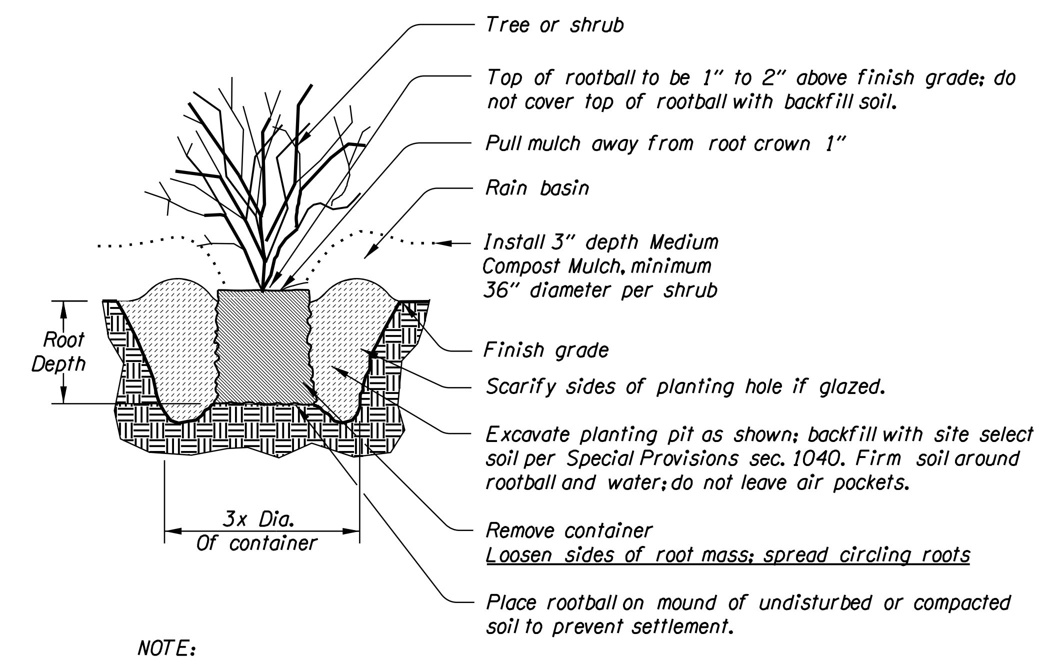


NOTE:
1) 3" Medium Compost layer to be uniform and completely cover planting holes.

2) Apply Mychorrhizae per specifications.

SLOPE PLANTING FOR #1 & #2 CONTAINERS

Not To Scale



NOTE:
1) 3" Medium Compost layer to be uniform and completely cover planting holes.

2) Apply Mycorrhizae per specifications.

GENERAL PLANTING FOR #1 & #2 CONTAINERS

Not To Scale

GENERAL NOTES:
1) All dimensions shown on details are minimum dimensions.

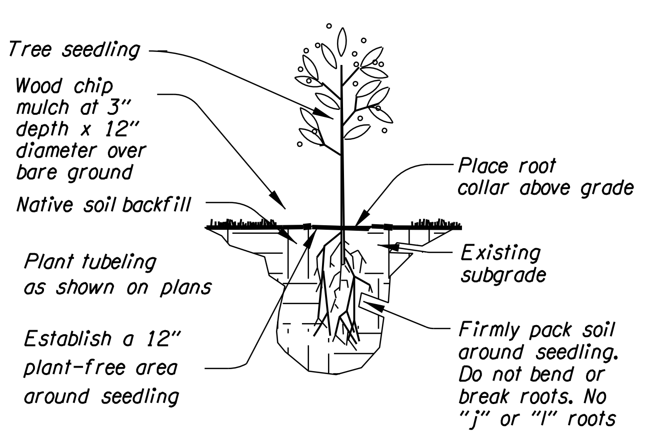
2) Comply with "American Standard for Nursery Stock" for plant quality minimum standards such as size of root ball or caliper of trunk.

3) Comply with plant list or special provisions and identify plant material that may need to be ordered early or contract-grown.

4) Excavate all plant wells per detail at 3x diameter of rootball or container & backfill with site select topsoil free of noxious weeds plant material including roots & sprigs.

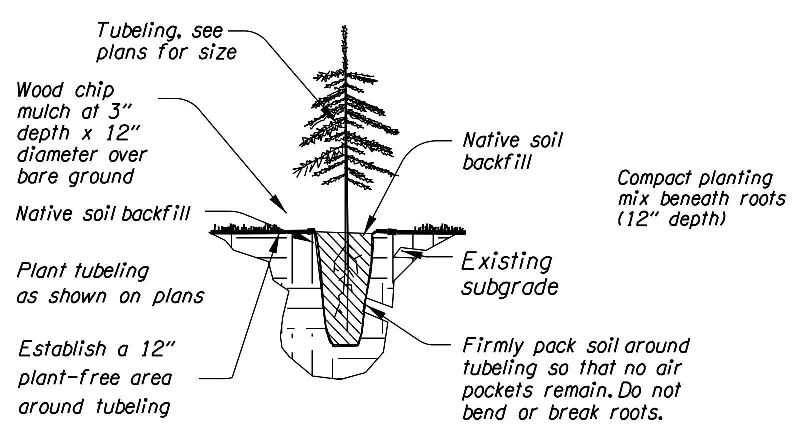
5) After shrub location staking is complete and prior to planting any shrubs, Contractor shall construct a typical shrub planting per detail and specifications with Engineer and ODOT Area Regional Landscape Architect present. When the installation is complete to the satisfaction of the Engineer in coordination with Area Regional Landscape Architect, the Contractor shall install the remaining shrubs in the same manner.

6) Apply Mycorrhizae per specifications.



SEEDLING PLANTING

Not To Scale



TUBELING PLANTING

Not To Scale

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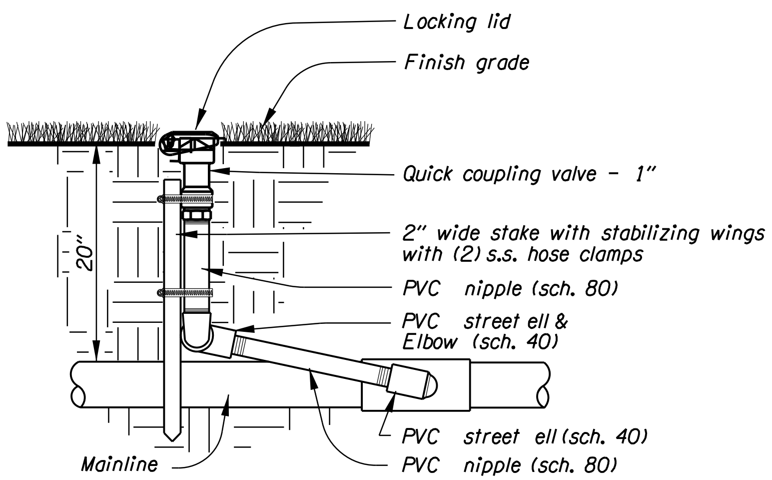
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT SITE DETAILS

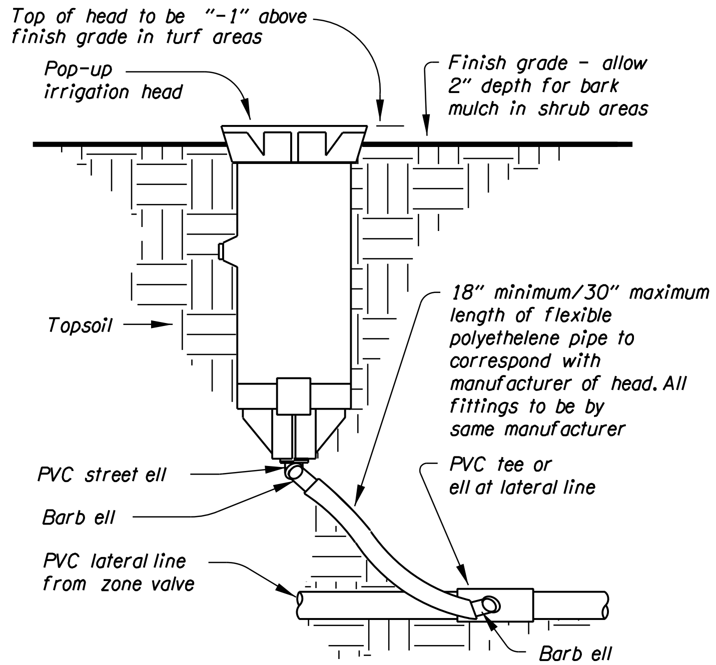
SHEET NO.
FA06

??V-???



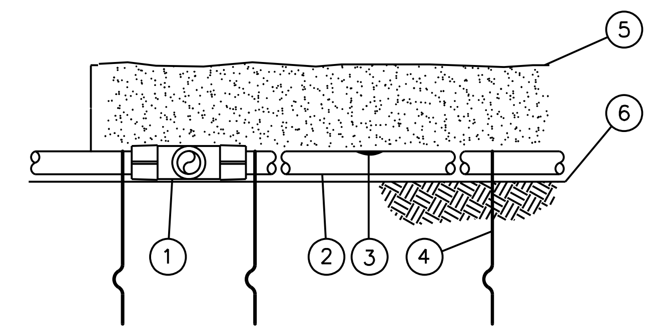
QUICK COUPLING VALVE

Not To Scale



SPRINKLER HEAD AND JOINTS

Not To Scale



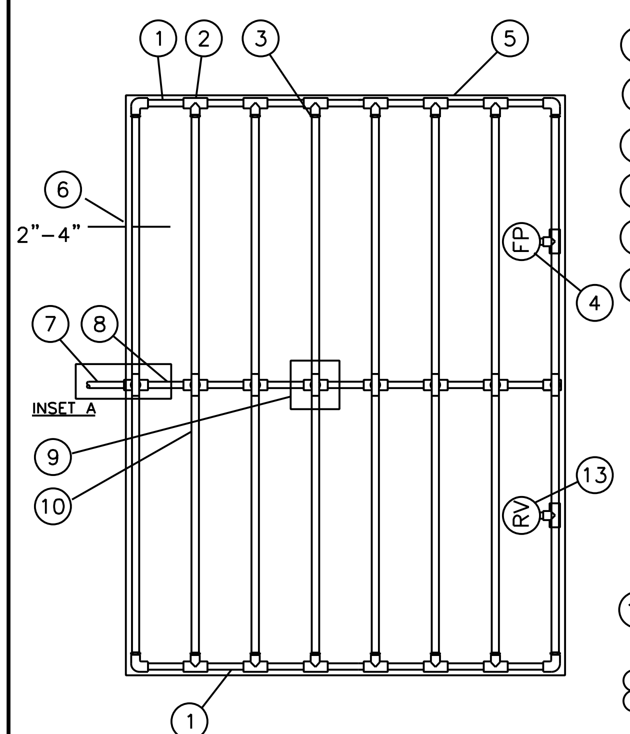
1. Compression Fitting
2. On-Surface Dripline
3. Inline Drip Emitter Outlet
4. Tie-Down Stake
5. Mulch
6. Finish Grade

DRIPLINE AT GRADE

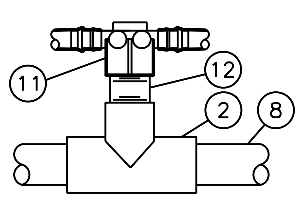
Not To Scale

NOTES:
1) Place tie-down stakes every 3' in sand, 4' in loam, and 5' in clay.

2) At fittings where there is a change of direction, such as tees or elbows, use tie-down stakes on each leg of the change of direction.



1. PVC exhaust header
2. PVC SCH 40 TEE or EL (Typical)
3. Barb x Male Fitting
4. Flush Point (Typical)
5. Perimeter of Area
6. Perimeter Dripline to Pipe to be installed 2"-4" from Perimeter of Area
7. PVC Supply Pipe from Existing Valve
8. PVC Supply Manifold
9. Connection from Supply Manifold to Dripline (Typical) - see Inset A
10. On-Surface Dripline
11. Barb x Female Fitting
12. ¾" PVC Nipple, length as necessary
13. At ends of area, add air relief valve



INSET A

NOTE:
1) Provide Low Volume (Drip) Tubing with emitters spaced at 18" and providing a flow rate of 0.9 gallons/hour and spaced at 24", or approved equal.

2) Modify detail to meet the specific requirements of the selected equipment brand's manufacturer and the specific shape and size of the plant bed to be irrigated.

LOW VOLUME (DRIP) TUBING

Not To Scale

NOTE:
Irrigation details are placeholders for 60%

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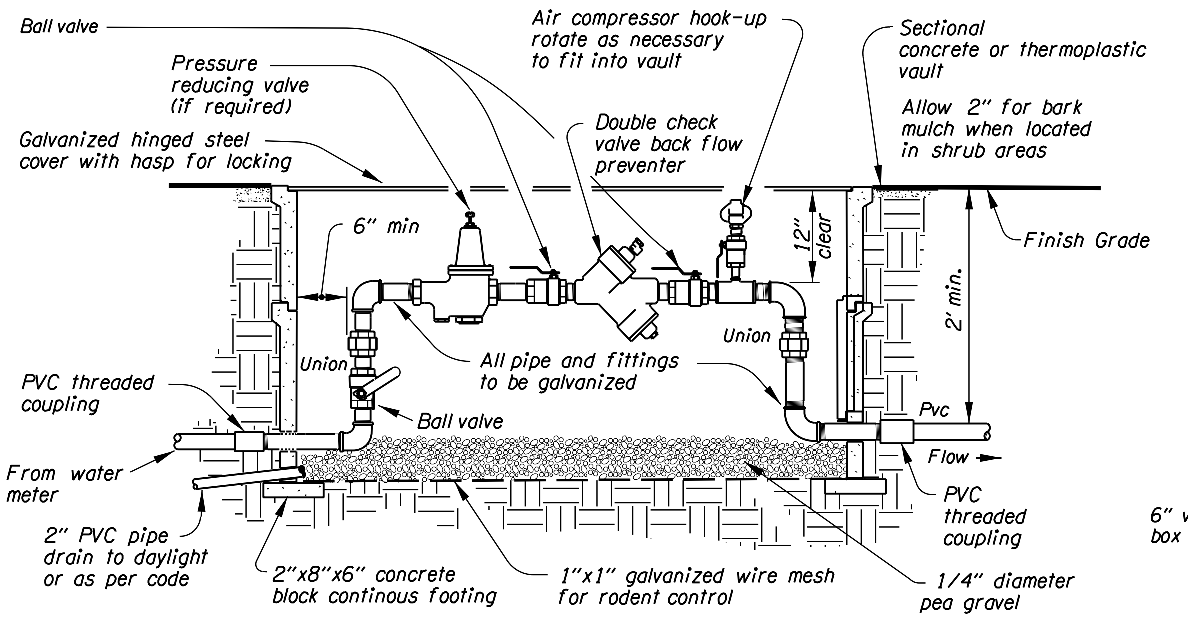
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

ROADSIDE DEVELOPMENT SITE DETAILS

SHEET NO.
FA07



BACKFLOW PREVENTION ASSEMBLY

Not To Scale

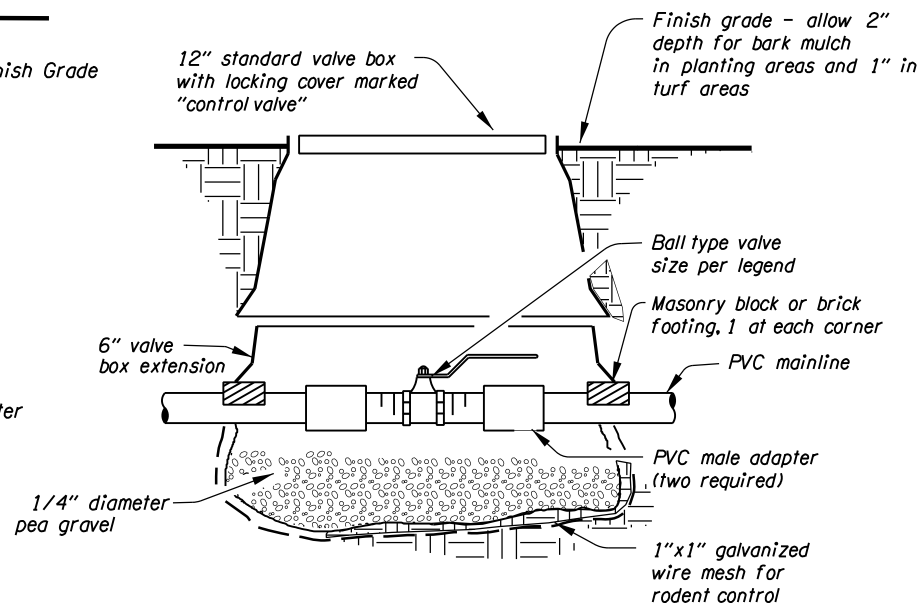
NOTES:

1) Install backflow prevention assembly in accordance with "accepted procedure and practice in cross connection control manual"

2) Comply with local jurisdiction requirements. These may vary from those shown on drawings, verify compliance.

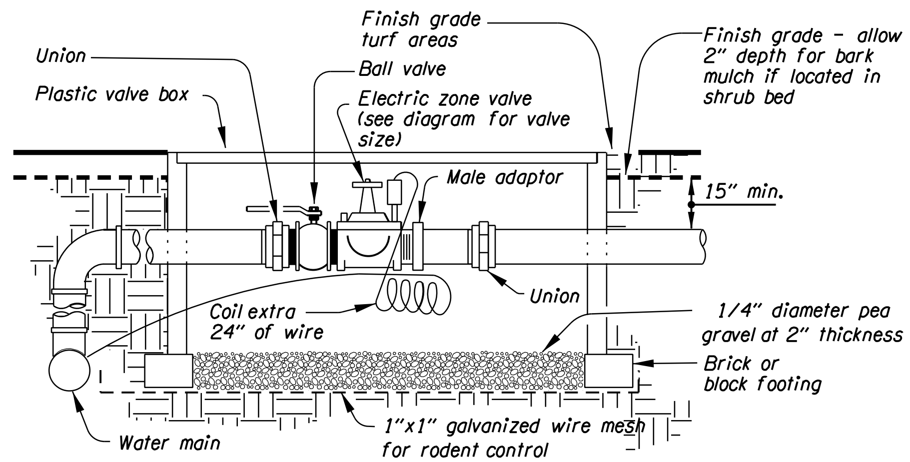
3) Provide 6" access clearance for devices 2" and smaller.

4) Size of double check valve shown on plans or specifications.



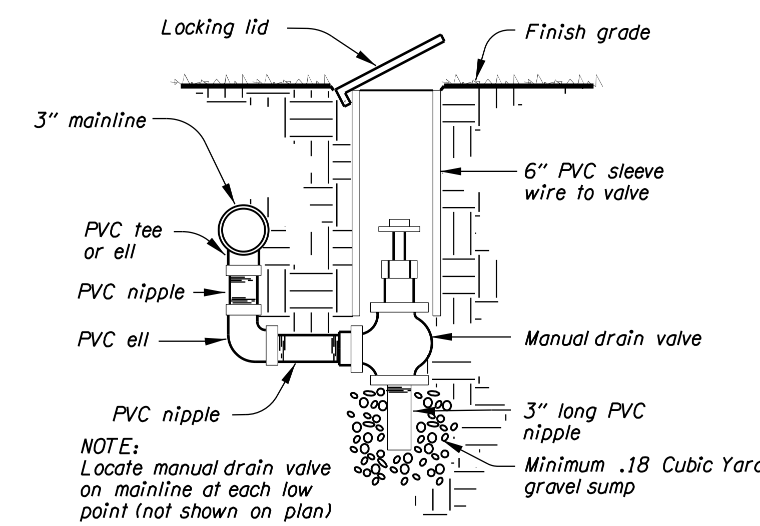
ISOLATION VALVE & BOX

Not To Scale



ELECTRIC ZONE VALVE

Not To Scale



NOTE:
Locate manual drain valve on mainline at each low point (not shown on plan)

MANUAL DRAIN VALVE

Not To Scale

NOTE:
Irrigation details are placeholders for 60%

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

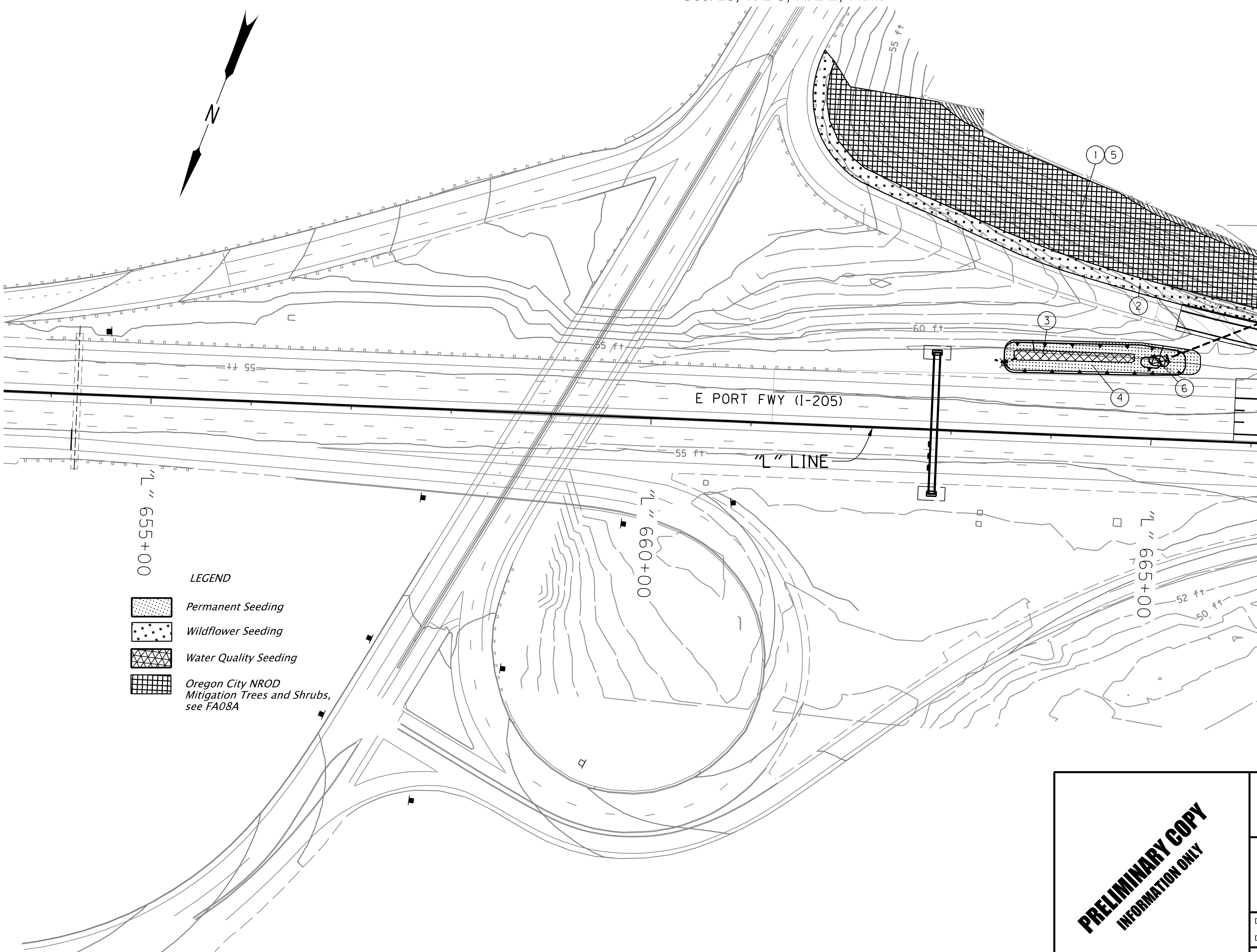
ROADSIDE DEVELOPMENT SITE DETAILS

SHEET NO. FA08

Sec. 29, T. 2 S, R. 2 E, W.M.

??V–???

1. Install 66,961 s.f. Wildflower Seeding
2. Install 18,701 s.f. Wildflower Seeding
3. Install 1,100 s.f. Water Quality Seeding
4. Install 4,348 s.f. Permanent Seeding
5. Install 66,961 s.f. NROD Mitigation Trees and Shrubs
6. Install 176 s.f. Water Quality Seeding



LEGEND

- Permanent Seeding
- Wildflower Seeding
- Water Quality Seeding
- Oregon City NROD Mitigation Trees and Shrubs, see FA08A

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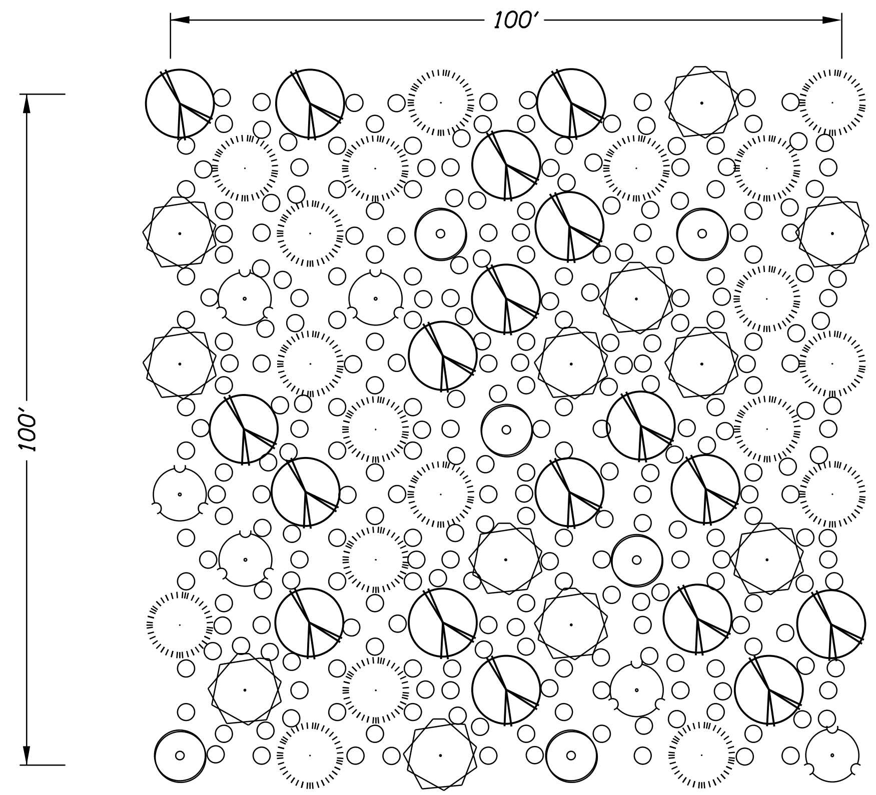
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA09



NROD Mitigation Planting Trees and Shrubs

Key	Tree	Approximate Planting Density	Planting Percentage
	Large, Slow-Growing Trees		
	Arbutus menziezii	13 stems / 10,000 s.f.	20%
	Pinus ponderosa	18 stems / 10,000 s.f.	30%
	Quercus garryana	18 stems / 10,000 s.f.	30%
	Small Trees		
	Rhamnus purshiana	6 stems / 10,000 s.f.	10%
	Salix scouleriana	6 stems / 10,000 s.f.	10%
	Shrubs*		
	Arctostaphylos columbiana	55 stems / 10,000 s.f.	20%
	Berberis (Mahonia) aquifolium	82 stems / 10,000 s.f.	30%
	Ceanothus velutinus	55 stems / 10,000 s.f.	20%
	Corylus cornuta var. Californica	41 stems / 10,000 s.f.	15%
	Ribes lobbii	41 stems / 10,000 s.f.	15%

* Groupings required

NOTE:
Total quantity of species per sheet shown on FA03.

LEGEND

Large, Slow-Growing Trees
- *Arbutus menziezii (TARME), 20%*
- *Pinus ponderosa (TPIPO), 30%*
- *Quercus garryana (TQUGA), 30%*

Small Trees
- *Rhamnus purshiana (TRHPU), 10%*
- *Salix scouleriana (TSASC), 10%*

Shrubs
- *Assorted Species*

DETAIL: NROD MITIGATION TREES AND SHRUBS

Not To Scale

TREE PLANTING NOTES

1) Install trees at an overall density of 61 trees/10,000 s.f.

2) Install trees at an average of 13.75' O.C. with triangular spacing

3) Install shrubs at an overall density of 273 shrubs/10,000 s.f.

4) Concentrate TQUGA in areas with most southern and western sun exposure.

5) Install trees in groups of up to 4 specimens per species.

6) Install shrubs at an average of 6'.5 O.C. with triangular spacing, no closer than 3' O.C.. Install shrubs in groups of up to 4 specimens per species. Install shrubs 5' minimum from adjacent tree stems.

7) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

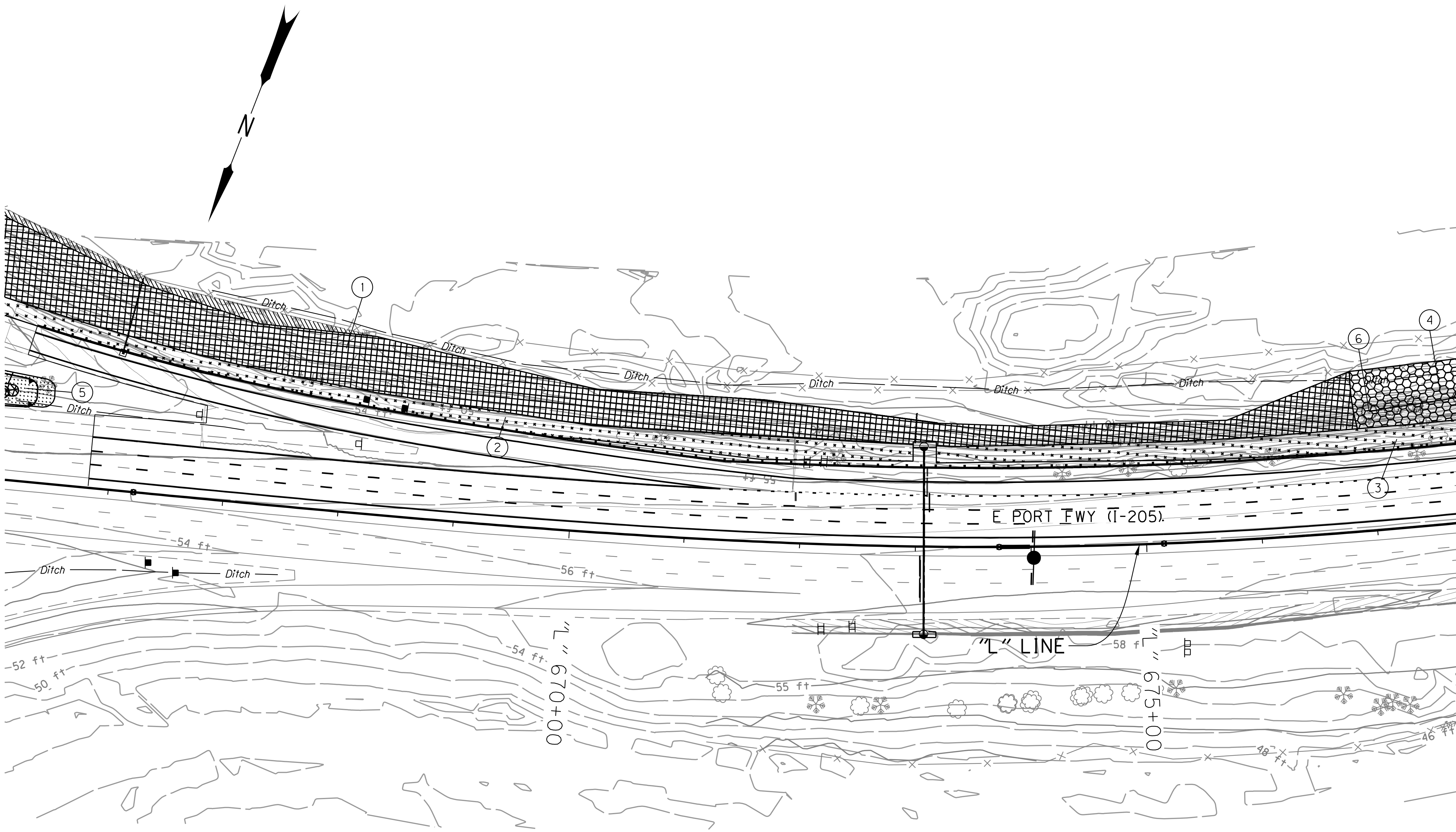
Designer: David Goodyke — Reviewer: Ben Ngan
Drafter: David Goodyke — Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA09A

??V–???

1. Total area on FA09 and FA10, shown on FA09, notes 1 & 5
2. Total area on FA09 and FA10, shown on FA09, note 2
3. Total area on FA10and FA11, shown on FA11, note 2
4. Total area on FA10 and FA11, shown on FA11, notes 1 & 4
5. Total area on FA09 and FA10, shown on FA09, note 4
6. Install 4 TPIPO



LEGEND

- Permanent Seeding
- Wildflower Seeding
- Oregon City NROD Mitigation Shrubs
- Oregon City NROD Mitigation Trees and Shrubs
- ExistingTrees

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA10

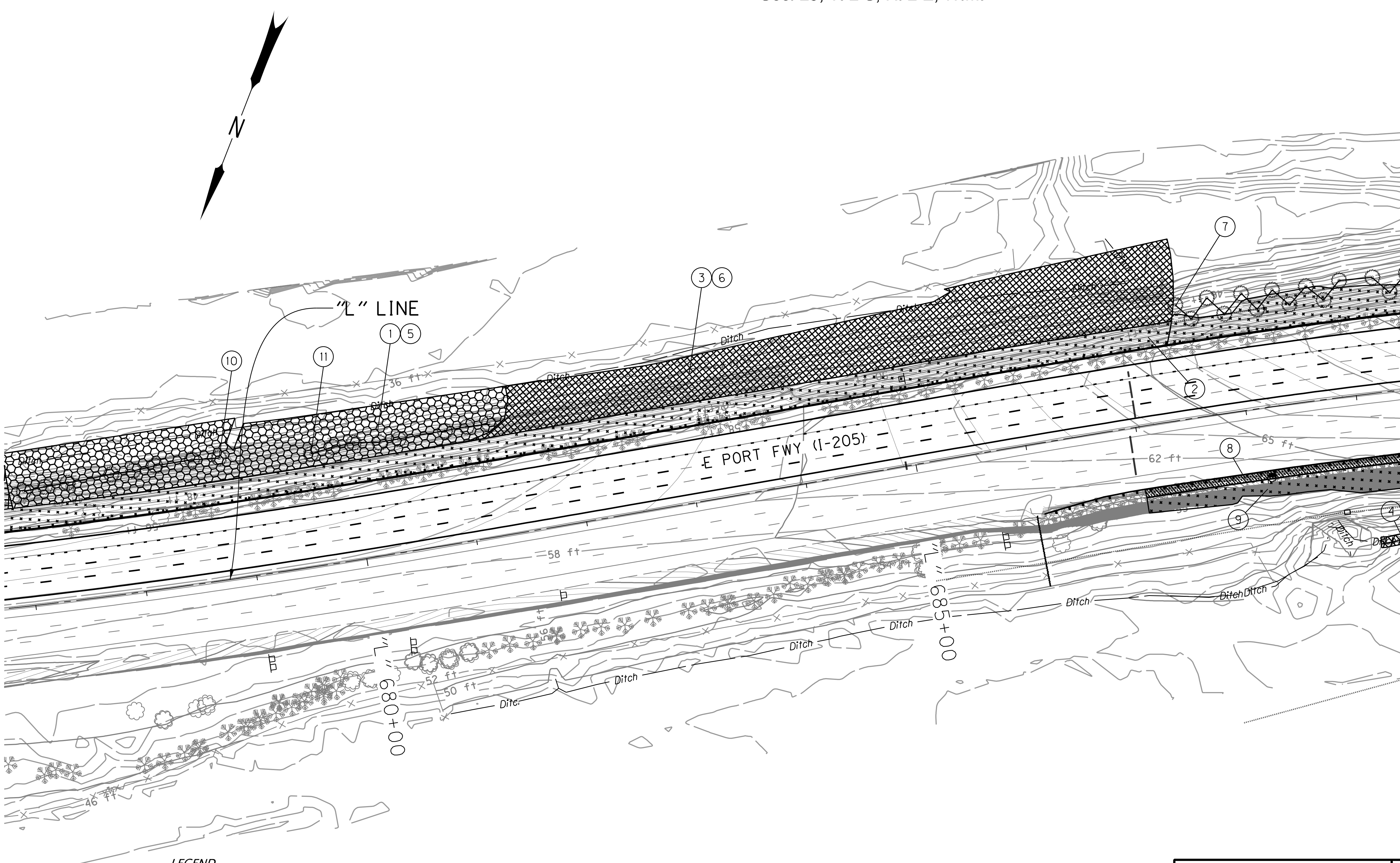
NNA_Roadside_Devel :: FA10 2/2/2021 9:41:06 AM jane

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Rotation: 230.7962° Scale: 1"=100'

Sec. 29, T. 2 S, R. 2 E, W.M.

??V–???



1. Install 21,615 s.f. Wildflower Seeding
2. Install 28,106 s.f. Wildflower Seeding
3. Install 31,834 s.f. Wildflower Seeding
4. Total quantity for area on FA11 and FA12, shown on FA12, note 1
5. Install 21,615 s.f. NROD Mitigation Shrubs
6. Install 31,834 s.f. NROD Mitigation Trees and Shrubs
7. Install 14 TPIPO
8. Total quantity for area on FA11 and FA12, shown on FA12, note 11
9. Total quantity for area on FA11 and FA12, shown on FA12, note 2
10. Install 8 TPIPO
11. Install 8 TPIPO

LEGEND

- Water Quality Seeding
- Wildflower Seeding
- Soundwall Screening Planting
- Oregon City NROD Mitigation Shrubs, see FA10A
- Oregon City NROD Mitigation Trees and Shrubs, see FA08A
- ExistingTrees

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

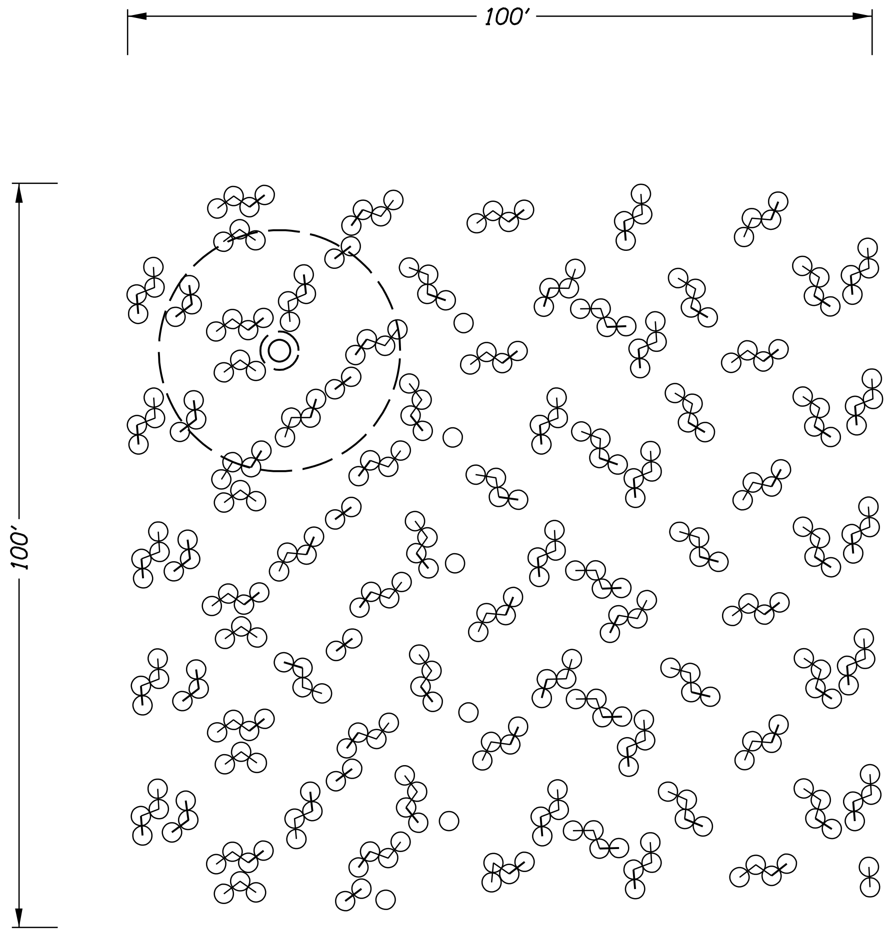
ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA11

NNA_Roadside_Devel :: FA11-FA11A 2/2/2021 9:41:11 AM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 228.87° Scale: 1"=100'



NROD Mitigation Planting Shrubs

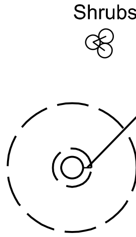
Key	Shrubs*	Approximate Planting Density	Planting Percentage
	Berberis (Mahonia) aquifolium	55 stems / 10,000 s.f.	20%
	Cornus sericea	27 stems / 10,000 s.f.	10%
	Ribes sanguineum	41 stems / 10,000 s.f.	15%
	Rubus parviflorus	41 stems / 10,000 s.f.	15%
	Spirea douglasii	41 stems / 10,000 s.f.	15%
	Symphoricarpos albus	68 stems / 10,000 s.f.	25%

* Groupings required

NOTE:
Total quantity of species per sheet shown on FA03.

LEGEND

Shrubs



DETAIL: NROD MITIGATION SHRUBS

Not To Scale

TREE PLANTING NOTES

1) Install shrubs at an overall density of 273 shrubs/10,000 s.f.

2) Install shrubs at an average of 6'.5 O.C. with triangular spacing, no closer than 3' O.C.. Install shrubs in groups of up to 4 specimens per species. Install shrubs 5' minimum from adjacent tree stems.

3) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

4) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

5) In areas where existing trees are to be preserved, maintain a 5' distance from the adjacent trees trunks to the edge of shrubs.

6) Adjust planting locations as necessary to avoid disturbing mature tree roots over 2" diameter.

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CLACKAMAS COUNTY

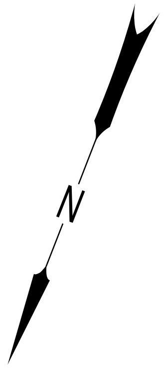
Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA11A

Sec. 29, T. 2 S, R. 2 E, W.M.

??V–???



1 *Install 2,224 s.f. Water Quality Seeding*

2 *Install 3,328 s.f. Wildflower Seeding*

3 *Total area on FA12and FA13, shown on FA13, note 1*

4 *Total area on FA12 and FA13, shown on FA13, note 2*

5 *Total area on FA12 and FA13, shown on FA13, note 33*

6 *Install 37 TPIPO*

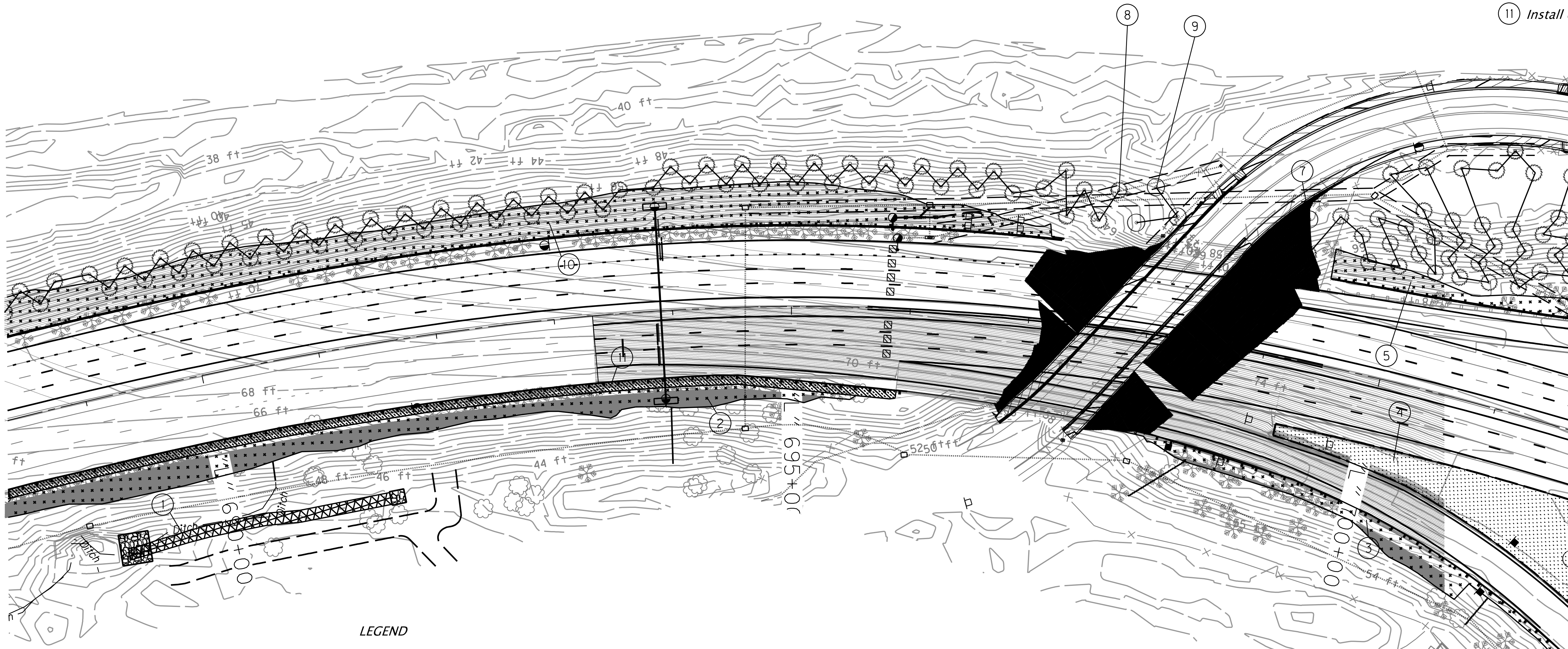
7 *Install 2 TQUGA*

8 *Install 62 TPIPO*

9 *Install 3 TARME*

10 *Install 27,258 s.f. Wildflower Seeding*

11 *Install 6,395 s.f. Soundwall Screening Planting*



LEGEND

Permanent Seeding

Water Quality Seeding

Wildflower Seeding

Soundwall Screening Planting, see FA11A

Proposed Trees

ExistingTrees

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

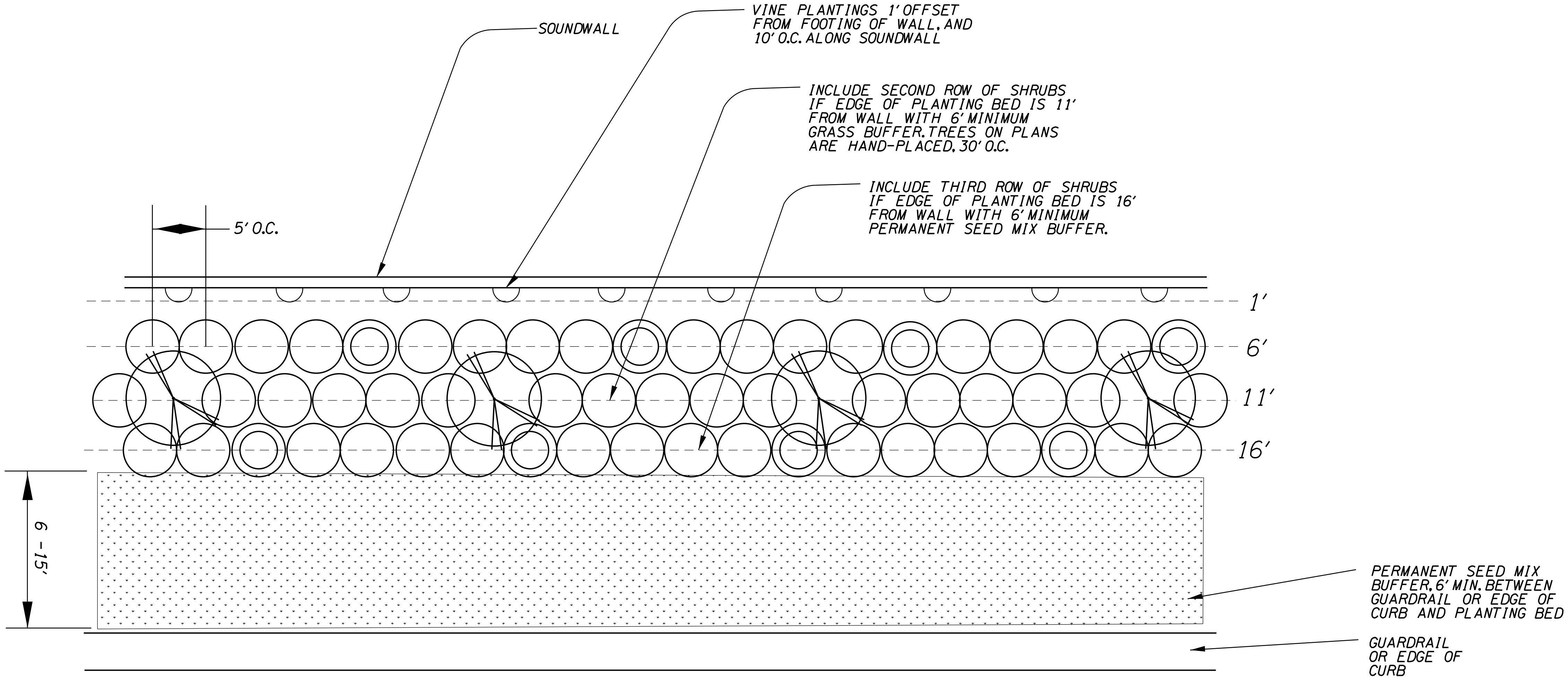
SHEET NO. FA12

NNA_Roadside_Devel :: FA12-FA12A 2/2/2021 9:41:19 AM jane

717

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 222.7112° Scale: 1"=100'



NOTE:
Total quantity of species per sheet shown on FA02.

LEGEND

Trees

Hand-placed trees

Shrubs

Arbutus unedo 'Compacta'

Juniperus sabinana 'Tamariscifolia'

Vines

Parthenocissus tricuspidata

Soundwall Screening Shrub Mix

Key	Row	Species	Spacing	Planting Percentage
	Face of Wall	*Parthenocissus Tricuspidata*	10' O.C.	100%
	First	*Arbutus unedo 'Compacta'*	20' O.C.	20%
		Juniperus sabina 'Tamariscifolia'	5' O.C.	80%
	Second*	*Juniperus sabina 'Tamariscifolia'*	5' O.C.	100%
	Third	*Arbutus unedo 'Compacta'*	20' O.C.	20%
		Juniperus sabina 'Tamariscifolia'	5' O.C.	80%

* With room for hand-placed trees, see plans
Hatch appears on FA11 and FA12

DETAIL: SOUNDWALL SCREENING PLANTING

Not To Scale

PLANTING NOTES

1) Soundwall planting beds will have either one, two, or three rows of shrubs, depending on available width. A 6' minimum permanent seed mix shall be maintained between plant bed and shoulder or guard rail.

2) Tree locations shown on plans, place trees within the second row of shrubs, as far from the shrubs as space allows.

3) Plant shrubs a minimum of 6' from the wall. Plant Juniperus shrubs 5' on-center using triangular spacing. Arbutus unedo 'Compacta' should be planted 20' O.C. in the first and third rows.

4) Vines shall be planted 1' from the base of the soundwall, and 10' O.C.

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

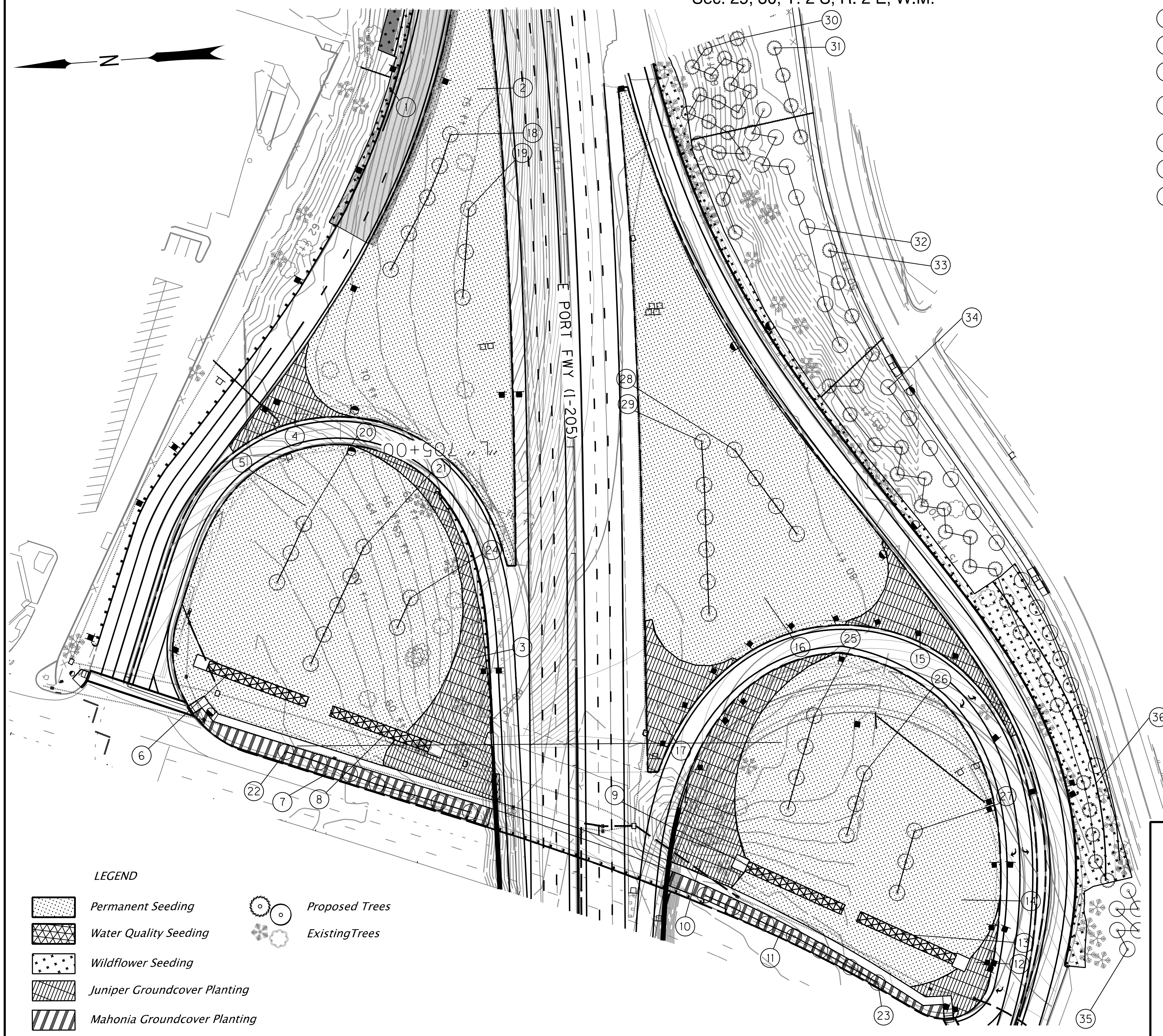
Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA12A

Sec. 29, 30, T. 2 S, R. 2 E, W.M.

??V−???



1. Install 5,884 s.f. Wildflower Seeding
2. Install 54,675 s.f. Permanent Seeding
3. Install 790 Groundcover Plants
4. Install 219 Groundcover Plants
5. Install 58,388 s.f. Permanent Seeding
6. Install 971 s.f. Water Quality Seeding
7. Install 1,382 Groundcover Plants
8. Install 968 s.f. Water Quality Seeding
9. Install 974 s.f. Water Quality Seeding
10. Install 366 Groundcover Plants
11. Install 945 Groundcover Plants
12. Install 175 Groundcover Plants
13. Install 976 s.f. Water Quality Seeding
14. Install 55,677 s.f. Permanent Seeding
15. Install 366 Groundcover Plants
16. Install 60,349 s.f. Permanent Seeding
17. Install 334 Groundcover Plants
18. Install 5 TPIPO
19. Install 3 TQUGA
20. Install 3 TPIPO
21. Install 5 TQUGA
22. Install 7 TQUGA
23. Install 7 TQUGA
24. Install 2 TARME
25. Install 4 TPIPO
26. Install 3 TQUGA
27. Install 3 TARME
28. Install 4 TQUGA
29. Install 6 TPIPO
30. Install 21 TPIPO
31. Install 4 TPIPO
32. Install 9 TQUGA
33. Install 27 TPIPO
34. Install 13 TQUGA
35. Install 6 TUMCA
36. Install 22,993 s.f. Wildflower Seeding

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INFORMATION ONLY

NNA Landscape Architecture
NNA Landscape Architecture
1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

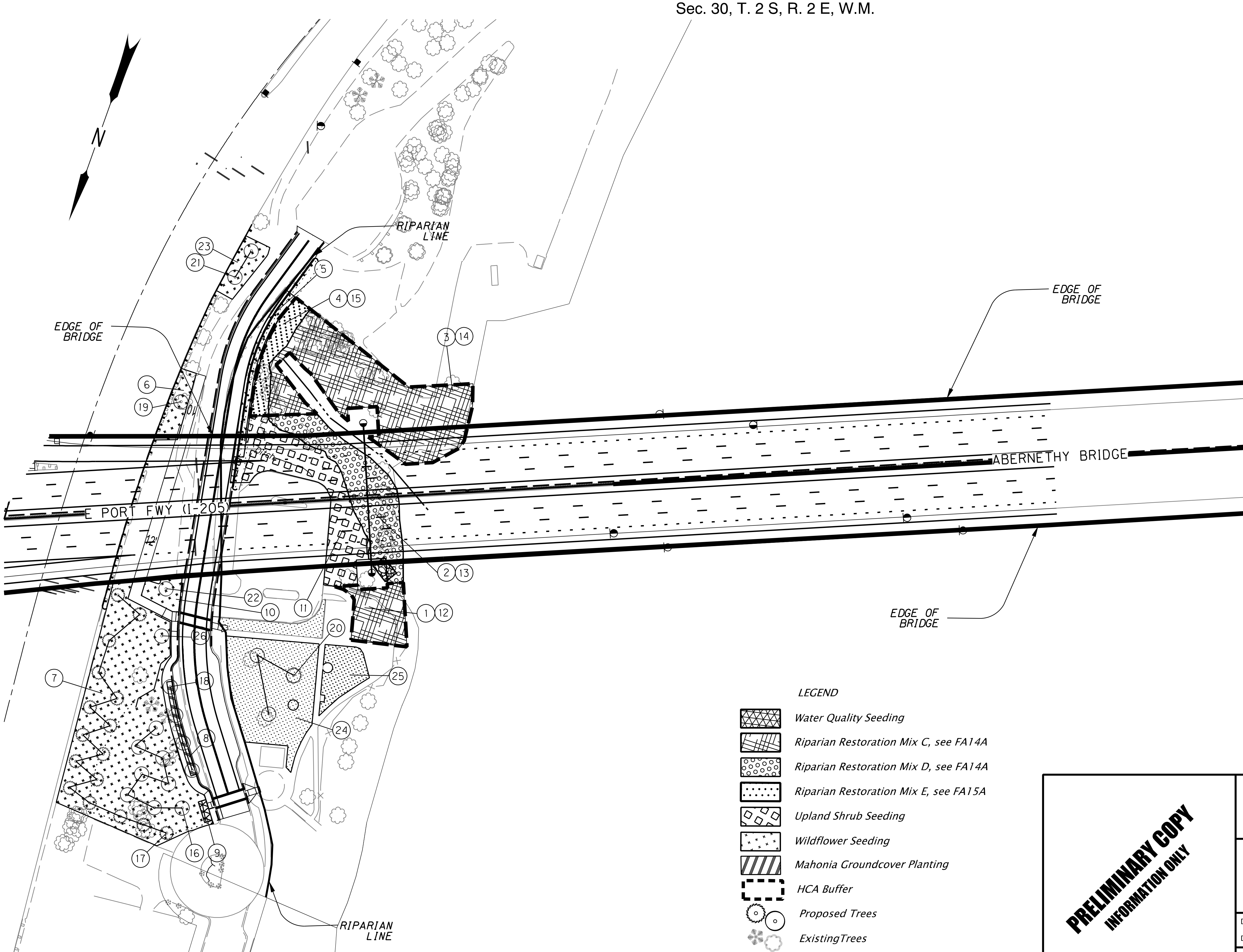
Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA13

Sec. 30, T. 2 S, R. 2 E, W.M.

??V-???



1. Install 3,144 s.f. Riparian Seeding
2. Install 6,769 s.f. Riparian Seeding
3. Install 13,911 s.f. Riparian Seeding
4. Install 2,132 s.f. Wildflower Seeding
5. Install 1,796 s.f. Wildflower Seeding, between sidewalk and road
6. Install 1,468 s.f. Wildflower Seeding
7. Install 22,721 s.f. Wildflower Seeding
8. Install 158 Groundcover Plants, between sidewalk and road
9. Install 440 s.f. Water Quality Seeding
10. Install 1,014 s.f. Wildflower Seeding
11. Install 7,672 s.f. Upland Shrub Seeding
12. Install 3,144 s.f. Riparian Restoration Mix C
13. Install 6,769 s.f. Riparian Restoration Mix D
14. Install 13,911 s.f. Riparian Restoration Mix C
15. Install 2,132 s.f. Riparian Restoration Mix E
16. Install 8 TQUGA
17. Install 16 TPIPO
18. Install 4 TULAM
19. Install 1 TQUGA
20. Install 3 TULAM
21. Install 2 TQUGA
22. Install 1 TQUGA
23. Install 1,555 s.f. Wildflower Seeding
24. Install 8,885 s.f. Permanent Seeding
25. Install 2,083 s.f. Permanent Seeding
26. Install 1 TQUGA

LEGEND

- *Water Quality Seeding*
- *Riparian Restoration Mix C, see FA14A*
- *Riparian Restoration Mix D, see FA14A*
- *Riparian Restoration Mix E, see FA15A*
- *Upland Shrub Seeding*
- *Wildflower Seeding*
- *Mahonia Groundcover Planting*
- *HCA Buffer*
- *Proposed Trees*
- *ExistingTrees*

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503.239.0600

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

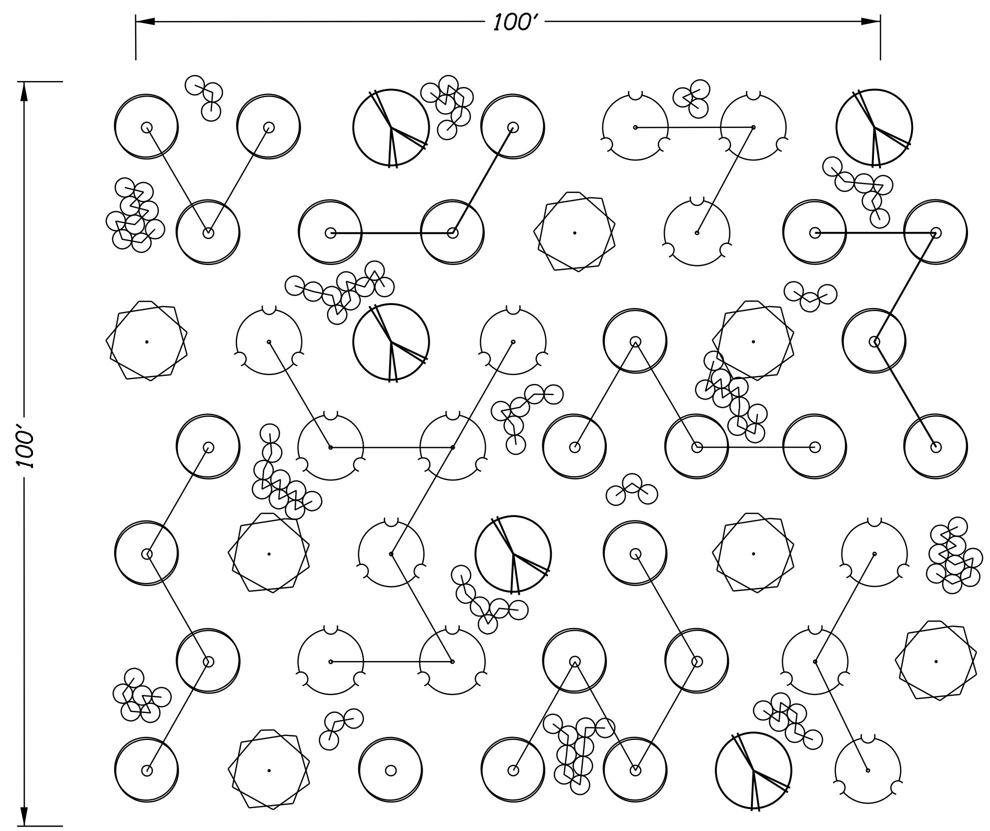
ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA14

NNA_Roadside_Devel :: FA14-FA14A 2/2/2021 9:41:45 AM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 275.7836° Scale: 1"=100'



LEGEND

Large, Slow-Growing Trees	Small Trees	Fast-Growing Trees
Acer macrophyllum (TACMA), 10%	Fraxinus latifolia (TFRLA), 6%	Alnus rubra (TALRU), 26%
Abies grandis (TABGR), 10%	Prunus emarginata (TPREM), 15%	
Thuja plicata (TTHPL), 8%	Salix lucida ssp. Lasiandra(TSALU), 15%	Shrubs: Lowland Shrubs
	Rhamnus purshiana (TRHPU), 10%	

NOTE:
Total quantity of species per sheet shown on FA03.

Riparian Restoration Mix C: Lowland Trees and Shrubs

Key	Tree	Approximate Planting Density	Planting Percentage
	Large, Slow-Growing Trees		
	Abies grandis	5 stems / 10,000 s.f.	10%
	Acer macrophyllum	4 stems / 10,000 s.f.	10%
	Thuja plicata	4 stems / 10,000 s.f.	8%
	Small Trees		
	Fraxinus latifolia	3 stems / 10,000 s.f.	6%
	Prunus emarginata	7 stems / 10,000 s.f.	15%
	Salix lucida ssp.lasiandra	7 stems / 10,000 s.f.	15%
	Rhamnus purshiana	6 stems / 10,000 s.f.	10%
	Fast-Growing Trees (13)*		
	Alnus rubra	13 stems / 10,000 s.f.	26%

Riparian Restoration Mix C and D: Lowland Shrubs

Key	Shrubs*	Approximate Planting Density	Planting Percentage
	Cornus sericea	27 stems / 10,000 s.f.	25%
	Physocarpus capitatus	11 stems / 10,000 s.f.	10%
	Rubus spectabilis	16 stems / 10,000 s.f.	15%
	Sambucus racemosa	11 stems / 10,000 s.f.	10%
	Spirea douglasii	16 stems / 10,000 s.f.	15%
	Symphoricarpos albus	27 stems / 10,000 s.f.	25%

* Groupings required

DETAIL: LOWLAND TREES AND PLANTING MIX C AND D

Not To Scale

TREE PLANTING NOTES

1) Install trees at an overall density of 49 trees/10,000 s.f.

2) Install trees at an average of 15' O.C. with triangular spacing, 49 trees/10,000 s.f. Large, Slow-Growing Trees must be planted at minimum 30' O.C. from one another. Fast-Growing and Small Trees shall be installed at a 10 - 20' O.C. average spacing from others.

3) Install Fast-Growing Trees in groups of 2 - 7

4) Install Small Trees in groups of 2 - 5

5) Install shrubs at an overall density of 108 shrubs/10,000 s.f.

6) Install shrubs 5' O.C. in groups of three to nine plants per species. Space shrub groups no closer than 15' apart and no closer than 5' to adjacent tree stems.

7) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

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Portland, OR 97214
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I-205: I-5 - OR213, PHASE 1 SEC.

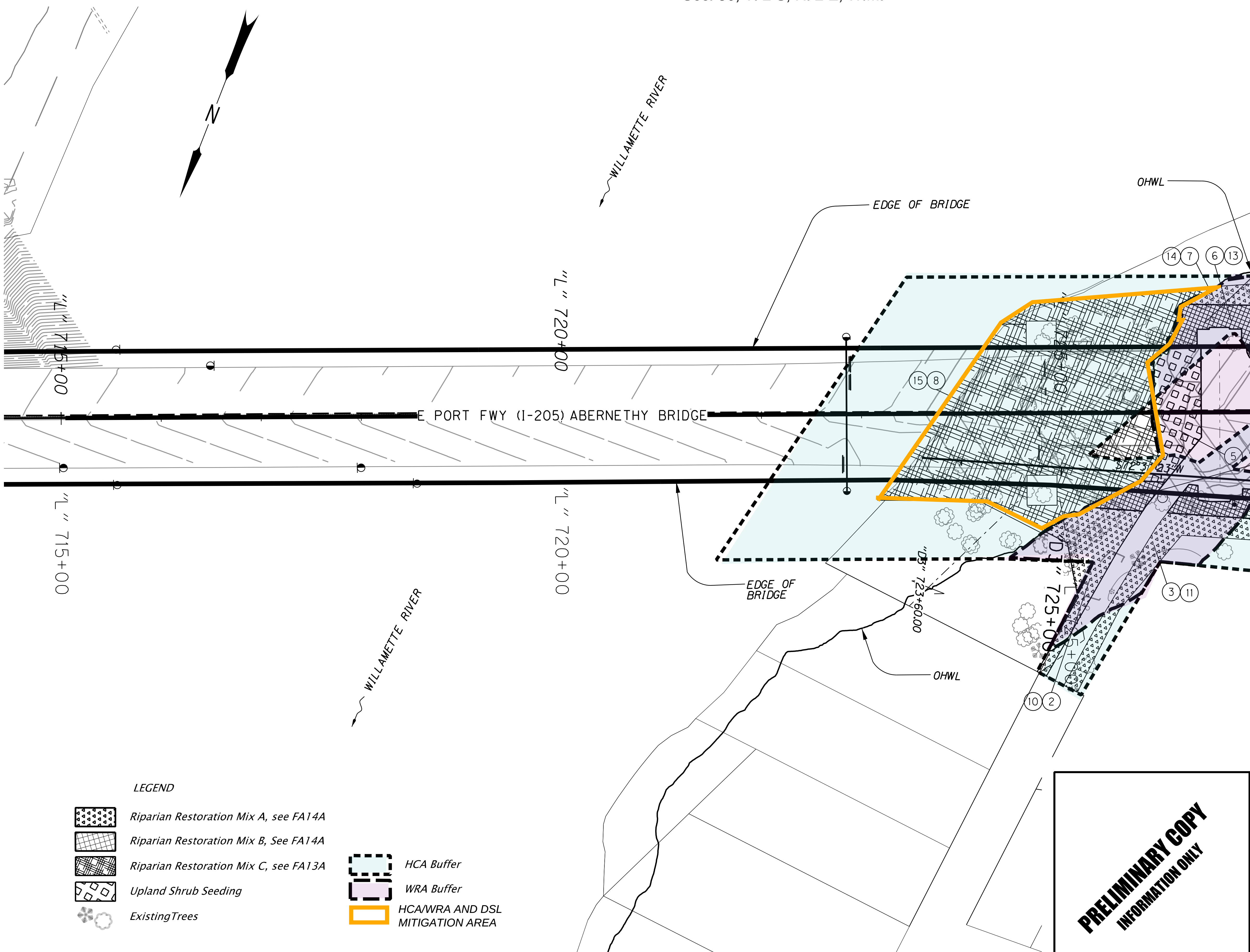
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Name
Drafter: David Goodyke	Checker: Name

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA14A

Sec. 30, T. 2 S, R. 2 E, W.M.



1. Total area on FA15 and FA16, shown on FA16, note 21
2. Total area on FA15 and FA16, shown on FA16, note 1
3. Total area on FA15 and FA16, shown on FA16, note 2
4. Total area on FA15 and FA16, shown on FA17, note 3
5. Total area on FA15 and FA16, shown on FA16, note 18
6. Total area on FA15 and FA16, shown on FA16, note 17
7. Total area on FA15 and FA16, shown on FA16, note 16
8. Install 42,555 s.f. Riparian Seeding
9. Total area on FA15 and FA16, shown on FA16, note 22
10. Total area on FA15 and FA16, shown on FA16, note 20
11. Total area on FA15 and FA16, shown on FA16, note 23
12. Total area on FA15 and FA16, shown on FA16, note 24
13. Total area on FA15 and FA16, shown on FA16, note 47
14. Total area on FA15 and FA16, shown on FA16, note 46
15. Install 42,555 s.f. Riparian Restoration Mix C

LEGEND

- Riparian Restoration Mix A, see FA14A
- Riparian Restoration Mix B, See FA14A
- Riparian Restoration Mix C, see FA13A
- Upland Shrub Seeding
- ExistingTrees
- HCA Buffer
- WRA Buffer
- HCA/WRA AND DSL MITIGATION AREA

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1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

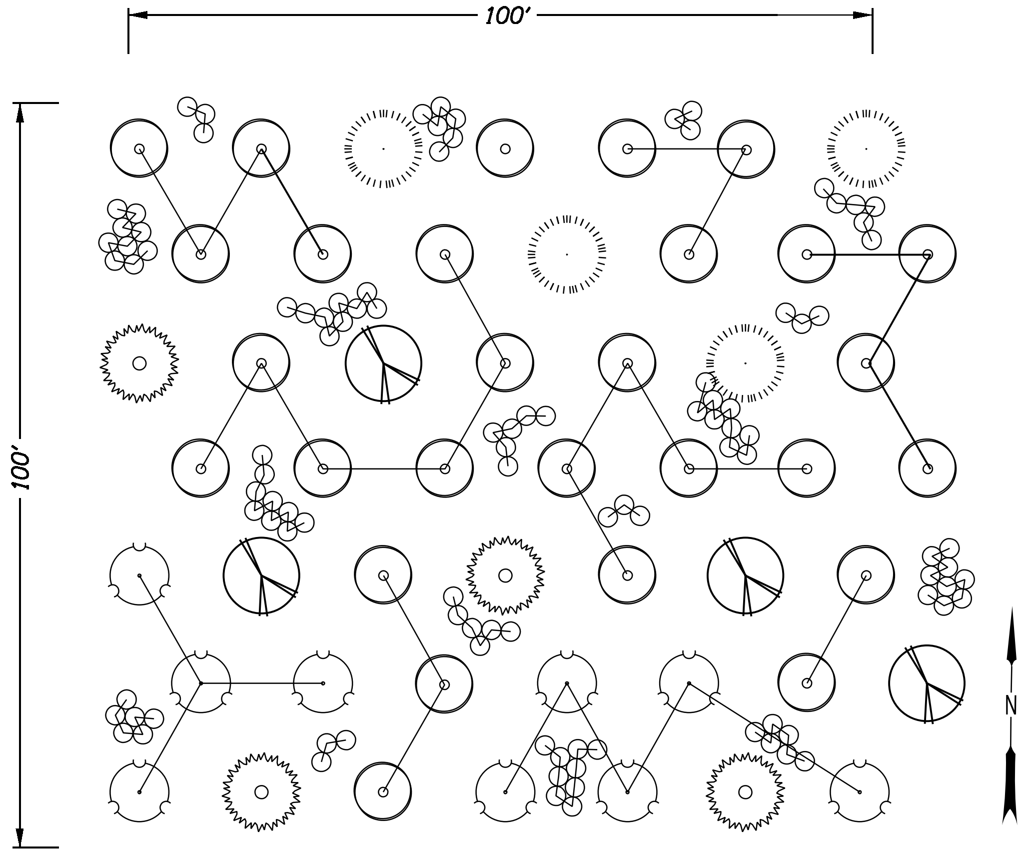
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA15



LEGEND

Large, Slow-Growing Trees	Small Trees	Shrubs
Acer macrophyllum (TACMA), 8%	*Arbutus menziesii (TARME), 15%*	*Assorted Species*
Calocedrus decurrens (TCADE), 8%	*Corylus cornuta ssp. californica (TCOCO), 15%*	
Pseudotsuga menziesii (TPSME), 8%	*Cornus nuttallii (TCONU), 15%*	
Quercus garryana (TQUGA), 26%	*Rhamnus purshiana (TRHPU), 15%*	

NOTE:
Total quantity of species per sheet shown on FA03.

DETAIL: UPLAND TREES AND PLANTING MIX A AND B

Not To Scale

Riparian Restoration Mix A: Upland Trees and Shrubs

Key	Tree	Approximate Planting Density	Planting Percentage
	Large, Slow-Growing Trees		
	Acer macrophyllum	4 stems / 10,000 s.f.	8%
	Calocedrus decurrens	4 stems / 10,000 s.f.	8%
	Quercus garryana	13 stems / 10,000 s.f.	26%
	Pseudotsuga menziesii	4 stems / 10,000 s.f.	8%
	Small Trees		
	Arbutus menziesii	7 stems / 10,000 s.f.	15%
	Corylus cornuta ssp. californica	7 stems / 10,000 s.f.	15%
	Cornus nuttallii	3 stems / 10,000 s.f.	5%
	Rhamnus purshiana	7 stems / 10,000 s.f.	15%

Riparian Restoration Mix A and B: Upland Shrubs

Key	Shrubs*	Approximate Planting Density	Planting Percentage
	Mahonia aquifolium	27 stems / 10,000 s.f.	25%
	Omeleria ceracisformis	11 stems / 10,000 s.f.	10%
	Rubus parviflorus	16 stems / 10,000 s.f.	15%
	Sambucus racemosa	11 stems / 10,000 s.f.	10%
	Spirea douglasii	16 stems / 10,000 s.f.	15%
	Symphoricarpos albus	27 stems / 10,000 s.f.	25%

* Groupings required

TREE PLANTING NOTES

1) Install trees at an overall density of 49 trees/10,000 s.f.

2) Install trees at an average of 15' O.C. with triangular spacing, 49 trees/10,000 s.f. Large, Slow-Growing Trees must be planted at minimum 30' O.C. from one another. Fast-Growing and Small Trees shall be installed at a 10 - 20' O.C. average spacing from others.

3) Concentrate TQUGA in areas with most southern and western sun exposure.

4) Concentrate TPSME North and East of TQUGA.

5) Install Small Trees in groups of 2 - 5.

6) Install shrubs at an overall density of 108 shrubs/10,000 s.f.

7) Install shrubs 5' O.C. in groups of three to nine plants per species. Space shrub groups no closer than 15' apart and no closer than 5' to adjacent tree stems.

8) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

9) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

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Portland, OR 97214
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION

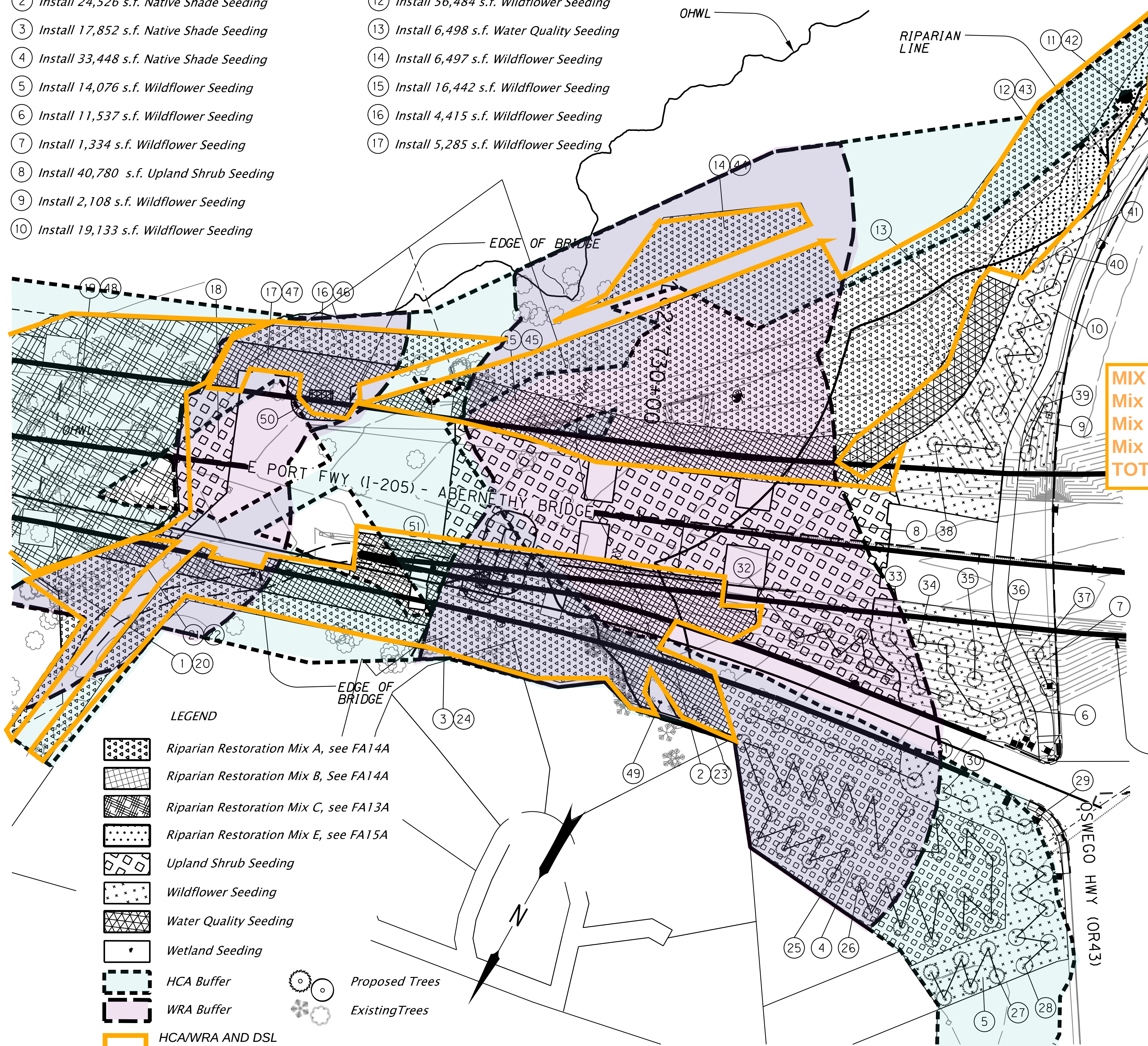
SHEET NO. FA15A

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

??V-???

1. Install 5,280 s.f. Native Shade Seeding
2. Install 24,526 s.f. Native Shade Seeding
3. Install 17,852 s.f. Native Shade Seeding
4. Install 33,448 s.f. Native Shade Seeding
5. Install 14,076 s.f. Wildflower Seeding
6. Install 11,537 s.f. Wildflower Seeding
7. Install 1,334 s.f. Wildflower Seeding
8. Install 40,780 s.f. Upland Shrub Seeding
9. Install 2,108 s.f. Wildflower Seeding
10. Install 19,133 s.f. Wildflower Seeding
11. Install 10,169 s.f. Wildflower Seeding
12. Install 56,484 s.f. Wildflower Seeding
13. Install 6,498 s.f. Water Quality Seeding
14. Install 6,497 s.f. Wildflower Seeding
15. Install 16,442 s.f. Wildflower Seeding
16. Install 4,415 s.f. Wildflower Seeding
17. Install 5,285 s.f. Wildflower Seeding
18. Install 5,401 s.f. Upland Shrub Seeding
19. Total area on FA15 and FA16, shown on FA15, note 8
20. Install 5,280 s.f. Riparian Restoration Mix A
21. Install 1,227 s.f. Native Shade Seeding
22. Install 1,227 s.f. Riparian Restoration Mix B
23. Install 24,526 s.f. Riparian Restoration Mix A
24. Install 17,852 s.f. Riparian Restoration Mix B
25. Install 21 TPSME
26. Install 17 TPIPO
27. Install 6 TPSME
28. Install 7 TQUGA
29. Install 2 TPSME
30. Install 2 TCONU
31. Install 7 TPIPO
32. Install 6 TPSME
33. Install 4 TCADE
34. Install 5 TCONU
35. Install 2 TCADE
36. Install 3 TQUGA
37. Install 2 TQUGA
38. Install 5 TPIPO
39. Install 3 TQUGA
40. Install 9 TQUGA
41. Install 1 TARME
42. Install 10,169 s.f. Riparian Restoration Mix E
43. Install 56,484 s.f. Riparian Restoration Mix A
44. Install 6,497 s.f. Riparian Restoration Mix A
45. Install 16,442 s.f. Riparian Restoration Mix B
46. Install 4,415 s.f. Riparian Restoration Mix A
47. Install 5,285 s.f. Riparian Restoration Mix B
48. Total area on FA15 and FA16, shown on FA15, note 15
49. Install 410 s.f. Wetland Seeding
50. Install 200 s.f. Water Quality Seeding
51. Install 199 s.f. Water Quality Seeding



MIX A (tree & shrub):	97,202 sf
Mix B (shrub):	40,806 sf
Mix C (tree & shrub):	42,555 sf
Mix E (tree & shrub):	10,169 sf
TOTAL:	190,732 sf

42,555 SF

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1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

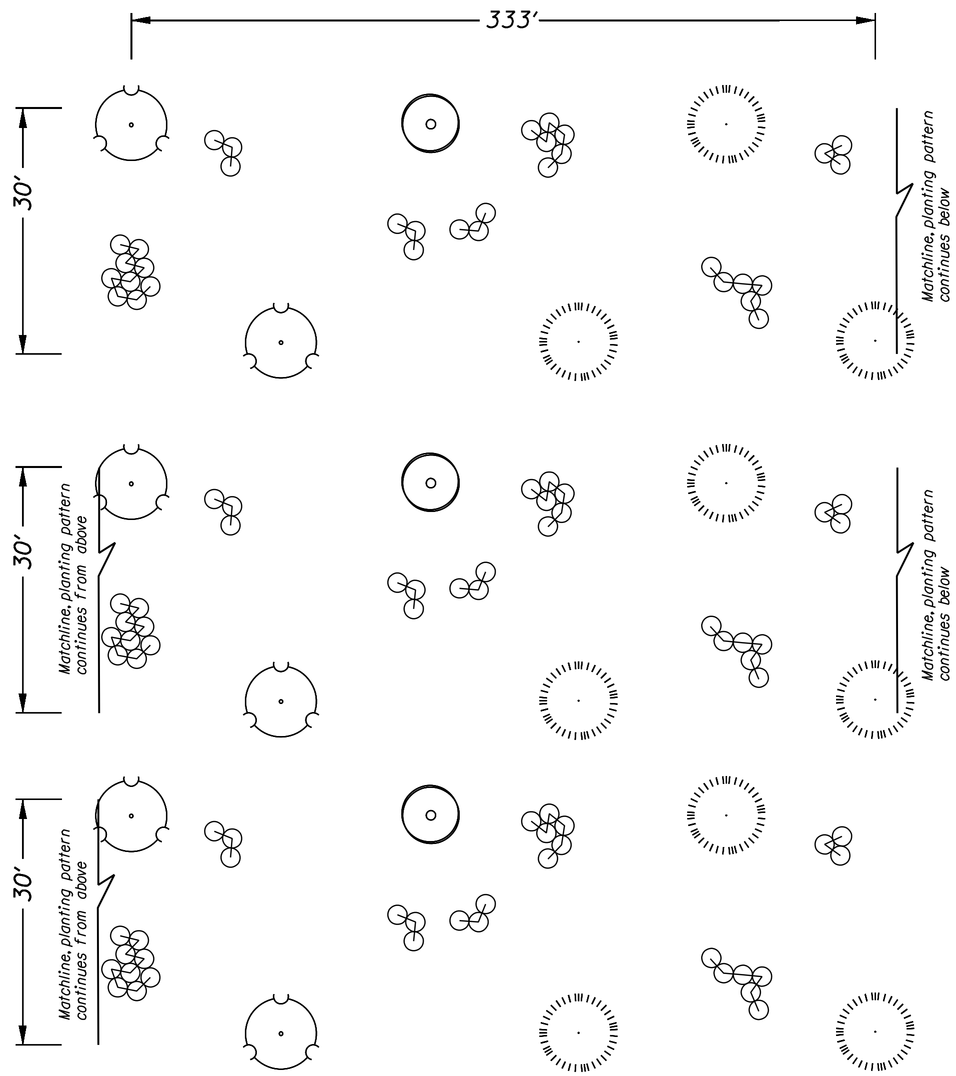
SHEET NO.
FA16

NNA_Roadside_Devel :: FA16-FA16A 2/2/2021 9:42:11 AM jane

724

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Rotation: 209.2943° Scale: 1"=100'



LEGEND

Large, Slow-Growing Trees

- *Arbutus menziesii (TARME), 10%*
- *Pinus ponderosa (TPIPO), 50%*
- *Quercus garryana (TQUGA), 40%*

Shrubs

- *Upland Shrubs*

Riparian Restoration Mix E: Upland Trees and Shrubs

Key	Tree	Approximate Planting Density	Planting Percentage
	Large, Slow-Growing Trees		
	Arbutus menziesii	2 stems / 10,000 s.f.	10%
	Quercus garryana	8 stems / 10,000 s.f.	40%
	Pinus ponderosa var. willamettensis	10 stems / 10,000 s.f.	50%
	Riparian Restoration Mix E: Upland Shrubs	Approximate Planting Density	Planting Percentage
	Shrubs*		
	Ceanothus velutinus	11 stems / 10,000 s.f.	10%
	Mahonia aquifolium	65 stems / 10,000 s.f.	60%
	Ribes sanguineum	16 stems / 10,000 s.f.	15%
	Symphoricarpos albus	16 stems / 10,000 s.f.	15%

* Groupings required

NOTE:
Total quantity of species per sheet shown on FA03.

DETAIL: UPLAND TREES AND PLANTING MIX E

Not To Scale

TREE PLANTING NOTES

1) Install trees at an overall density of 20 trees/10,000 s.f.

2) Install trees at an average of 25' O.C. with triangular spacing.

3) Concentrate TQUGA in areas with most southern and western sun exposure.

4) Concentrate TPIPO North and East of TQUGA.

5) Install shrubs 5' O.C. in groups of three to nine plants per species. Space shrub groups no closer than 15' apart and no closer than 5' to adjacent tree stems.

6) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

7) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2022

NNA Landscape Architecture
1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Karen Ngan
Drafter: David Goodyke | Checker: Christian Higgins

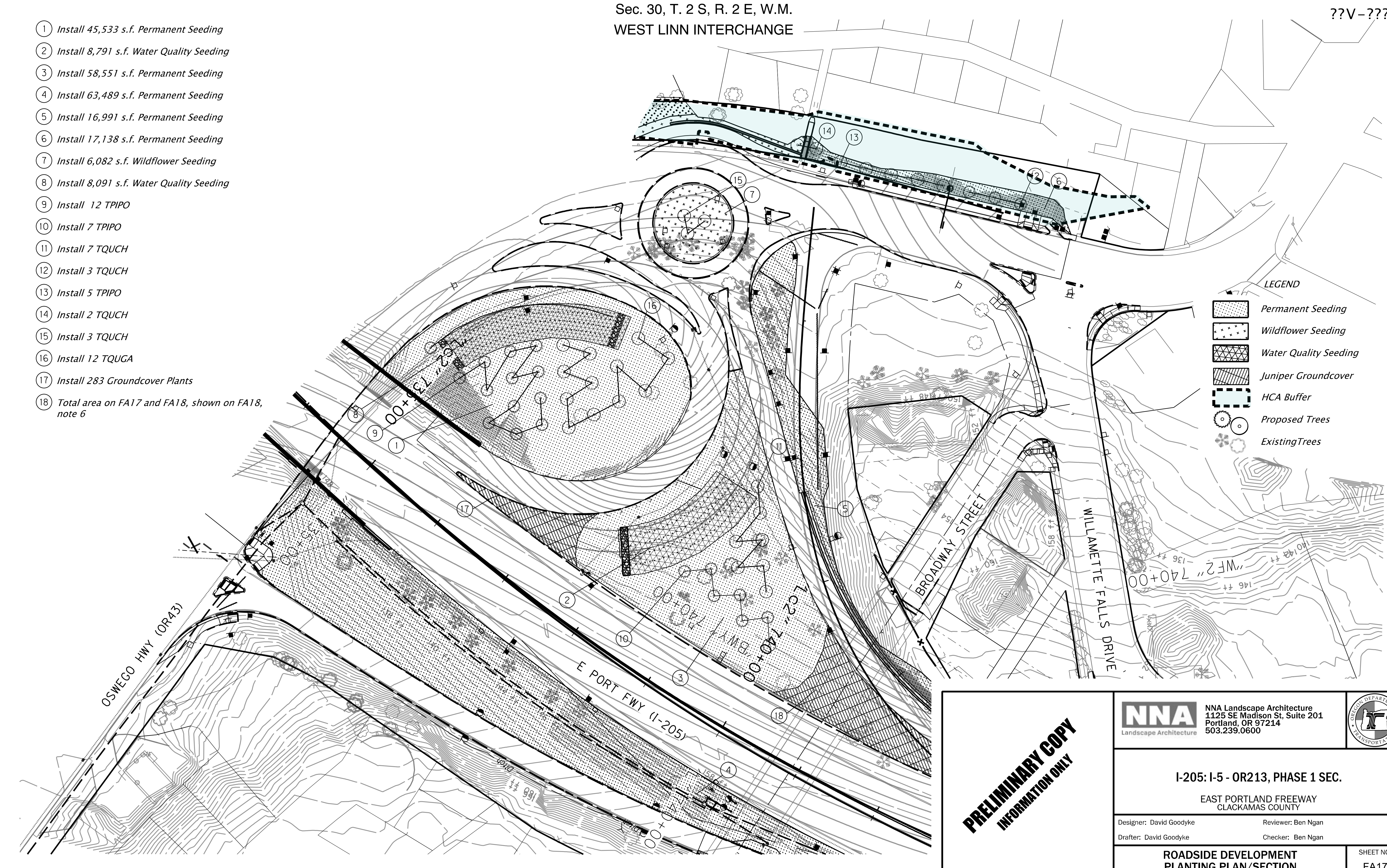
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION

SHEET NO. FA16A

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

1. Install 45,533 s.f. Permanent Seeding
2. Install 8,791 s.f. Water Quality Seeding
3. Install 58,551 s.f. Permanent Seeding
4. Install 63,489 s.f. Permanent Seeding
5. Install 16,991 s.f. Permanent Seeding
6. Install 17,138 s.f. Permanent Seeding
7. Install 6,082 s.f. Wildflower Seeding
8. Install 8,091 s.f. Water Quality Seeding
9. Install 12 TPIPO
10. Install 7 TPIPO
11. Install 7 TQUCH
12. Install 3 TQUCH
13. Install 5 TPIPO
14. Install 2 TQUCH
15. Install 3 TQUCH
16. Install 12 TQUGA
17. Install 283 Groundcover Plants
18. Total area on FA17 and FA18, shown on FA18, note 6



LEGEND

- Permanent Seeding
- Wildflower Seeding
- Water Quality Seeding
- Juniper Groundcover
- HCA Buffer
- Proposed Trees
- ExistingTrees

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1125 SE Madison St, Suite 201
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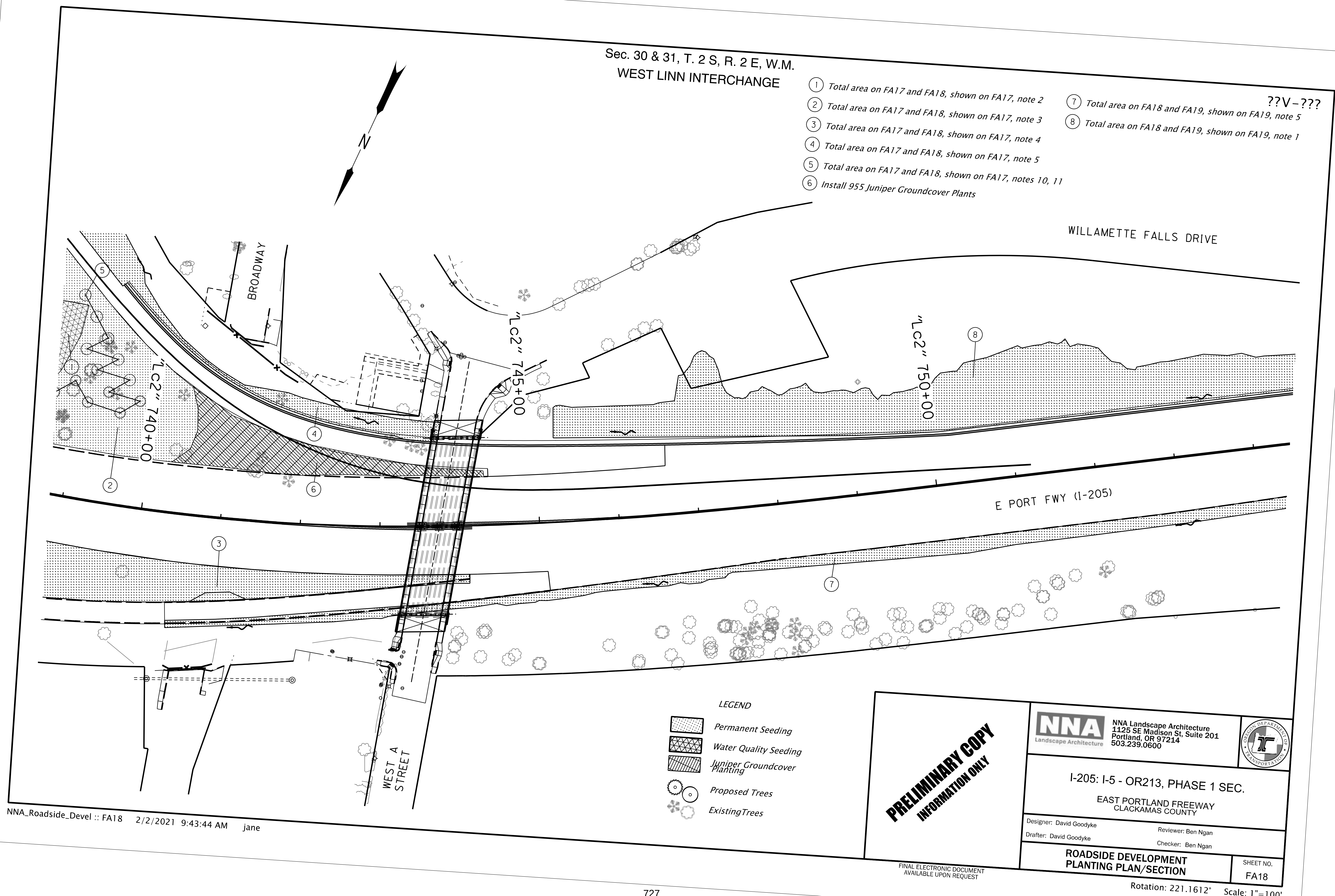
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA17


Sec. 30 & 31, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
N
1 Total area on FA17 and FA18, shown on FA17, note 2
2 Total area on FA17 and FA18, shown on FA17, note 3
3 Total area on FA17 and FA18, shown on FA17, note 4
4 Total area on FA17 and FA18, shown on FA17, note 5
5 Total area on FA17 and FA18, shown on FA17, notes 10, 11
6 Install 955 Juniper Groundcover Plants
7 Total area on FA18 and FA19, shown on FA19, note 5
8 Total area on FA18 and FA19, shown on FA19, note 1
??V-???
WILLAMETTE FALLS DRIVE
BROADWAY
"Lc2" 740+00
"Lc2" 745+00
"Lc2" 750+00
E PORT FWY (I-205)
WEST A STREET
LEGEND
Permanent Seeding
Water Quality Seeding
Juniper Groundcover Planting
Proposed Trees
ExistingTrees
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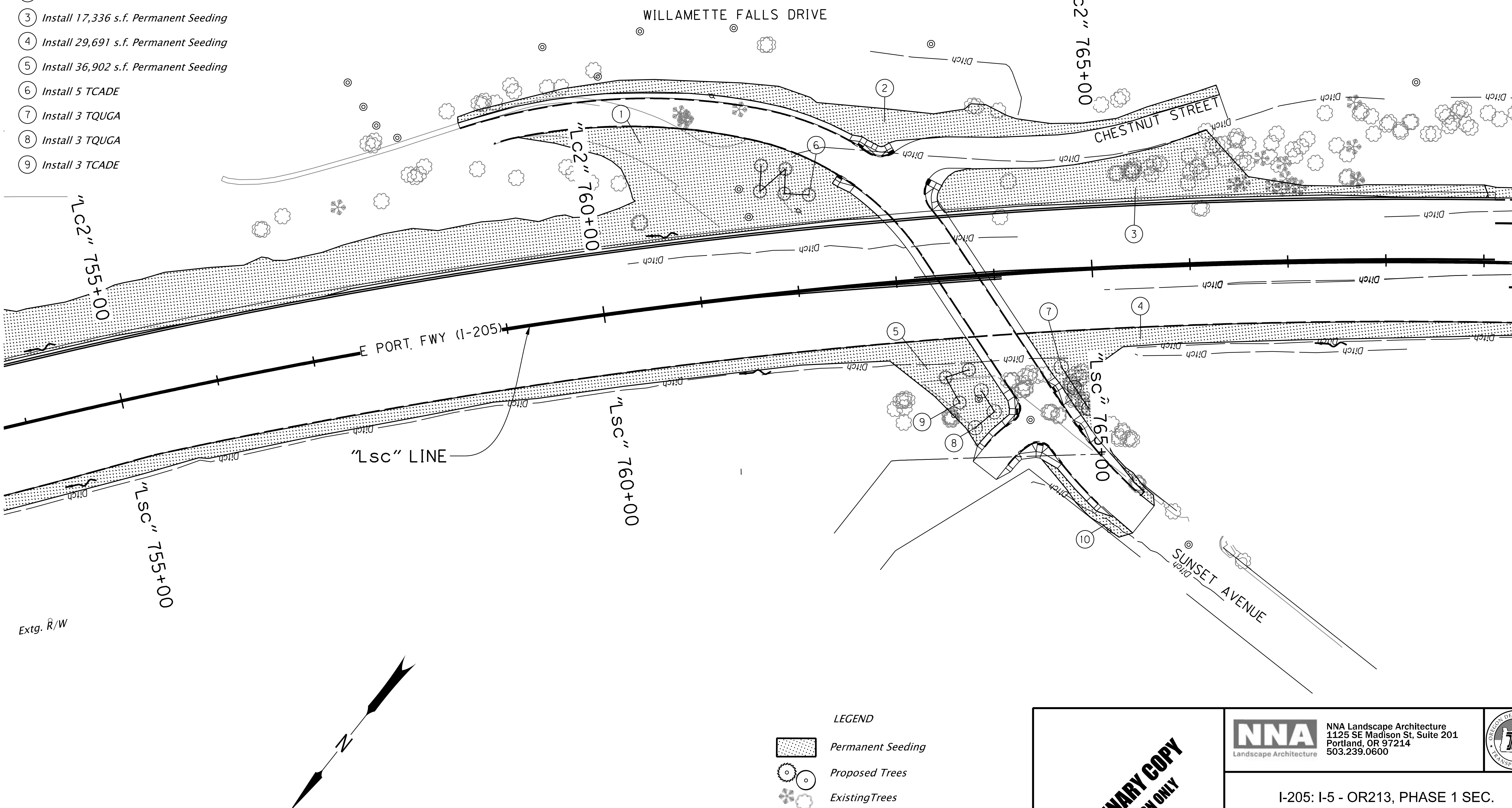
OREGON DEPARTMENT OF TRANSPORTATION
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY
Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan
ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION
SHEET NO.
FA18
NNA_Roadside_Devel :: FA18 2/2/2021 9:43:44 AM jane
FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST
Rotation: 221.1612°
Scale: 1"=100'

Sec. 31, T. 2 S, R. 2 E, W.M.

??V-???

1. *Install 107,397 s.f. Permanent Seeding*
2. *Install 12,390 s.f. Permanent Seeding*
3. *Install 17,336 s.f. Permanent Seeding*
4. *Install 29,691 s.f. Permanent Seeding*
5. *Install 36,902 s.f. Permanent Seeding*
6. *Install 5 TCADE*
7. *Install 3 TQUGA*
8. *Install 3 TQUGA*
9. *Install 3 TCADE*
10. *Install 985 s.f. Permanent Seeding*



LEGEND

Permanent Seeding

Proposed Trees

ExistingTrees

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INFORMATION ONLY

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1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA19

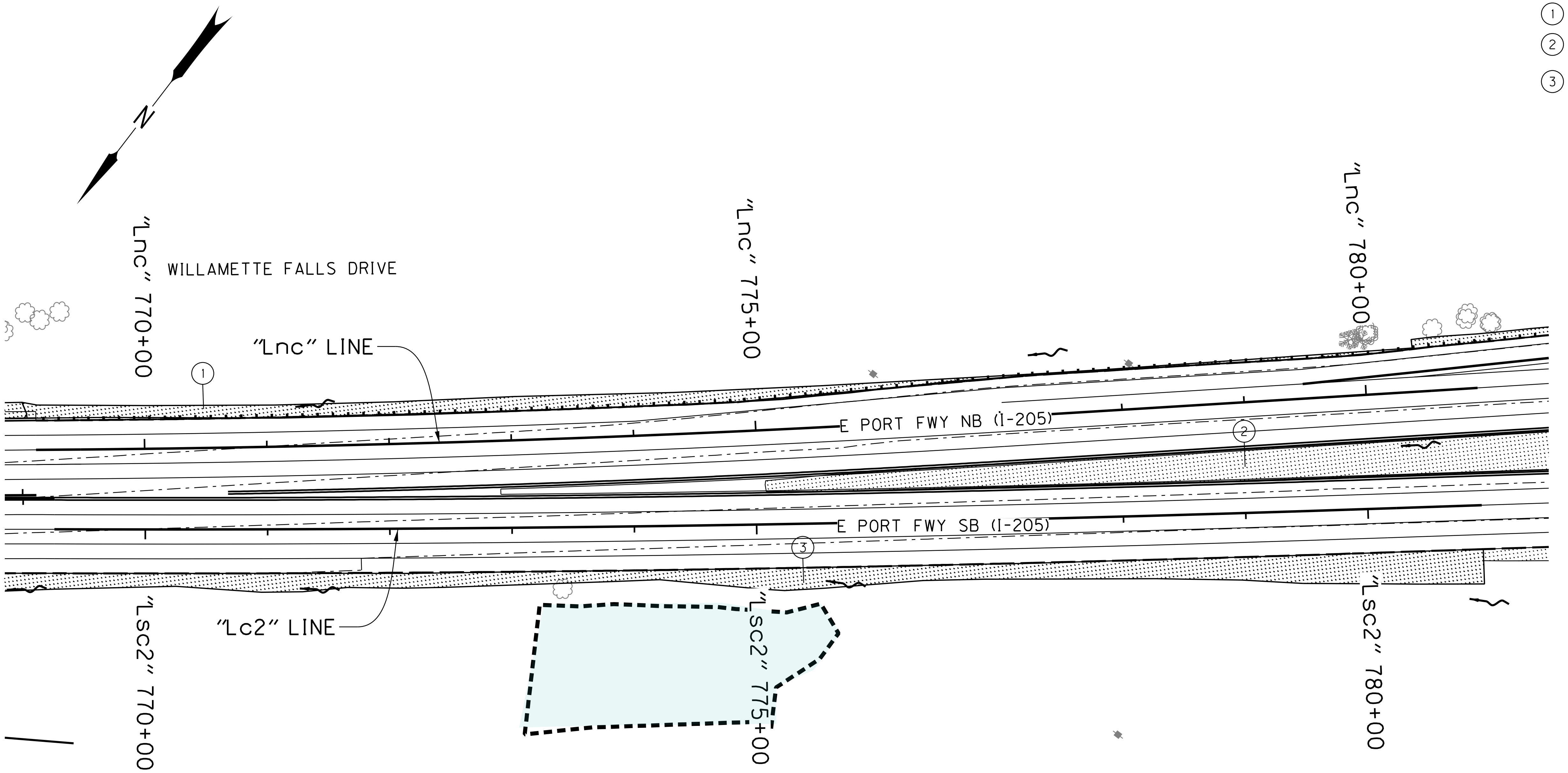
NNA_Roadside_Devel :: FA19 2/2/2021 9:43:49 AM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.5198° Scale: 1"=100'

??V-???

1. Install 13,860 s.f. Permanent Seeding
2. Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1
3. Total area on FA19 and FA20, shown on FA19, note 4



LEGEND

Permanent Seeding

HCA Buffer

ExistingTrees

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1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

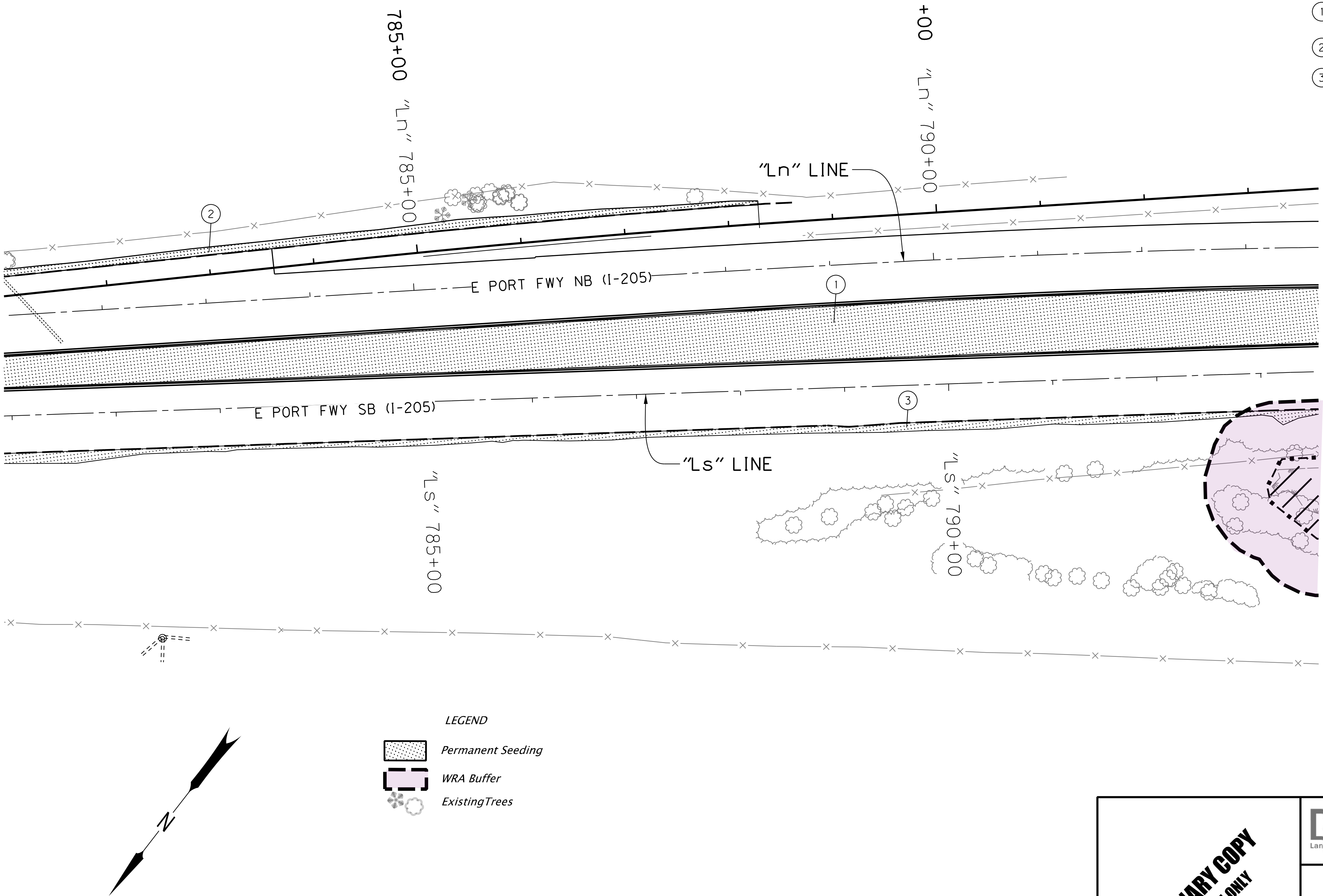
ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION

SHEET NO. FA20

Sec. 36, T. 2 S, R. 1 E, W.M.

??V-???

1. *Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1*
2. *Total area on FA20 and FA21, shown on FA20, note 1*
3. *Install 36,248 s.f. Permanent Seeding*



LEGEND

- *Permanent Seeding*
- *WRA Buffer*
- *ExistingTrees*

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NNA Landscape Architecture
1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA21

Sec. 36, T. 2 S, R. 1 E, W.M.

??V-???

1. Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1
2. Total area on FA21, FA22, FA23, shown on FA21, note 3
3. Install 993 s.f. Permanent Seeding

LEGEND

- Permanent Seeding
- HCA Buffer
- WRA Buffer
- ExistingTrees

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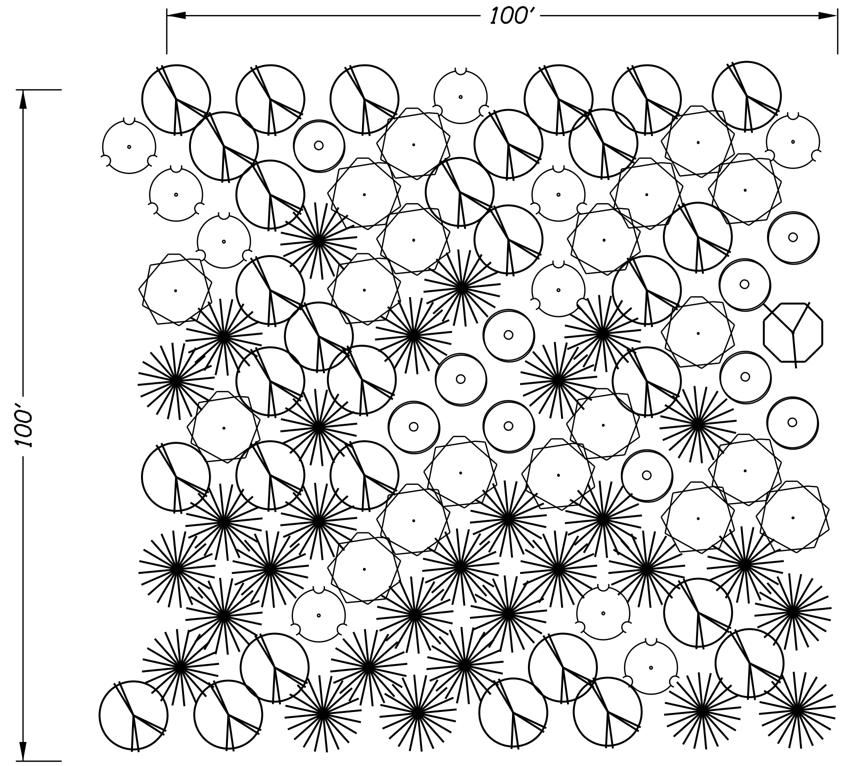
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA22



LEGEND

Large, Slow-Growing Trees

- Arbutus menziesii (TARME), 20%
- Quercus garryana (TQUGA), 30%
- Pinus ponderosa (TPIPO),30%

Small Trees

- Rhamnus purshiana (TRHPU), 10%
- Salix scouleriana (TSASC), 10%

Please note, the required shrub plantings are not shown on this diagram for visual clarity.

MIX D: TUALATIN HCA TREE AND SHRUB MIX

Tree	Approximate Planting Density	Planting Percentage
Large, Slow-Growing Trees		
Arbutus menziesii	20 stems / 10,000 s.f.	20%
Pinus ponderosa var. willamettensis	30 stems / 10,000 s.f.	30%
Quercus garryana	30 stems / 10,000 s.f.	30%
Small Trees		
Salix scouleriana	10 stems / 10,000 s.f.	10%
Rhamnus purshiana	10 stems / 10,000 s.f.	10%
Shrubs*		
Amelanchier alnifolia	120 stems / 10,000 s.f.	20%
Mahonia aquifolium	125 stems / 10,000 s.f.	25%
Ribes lobbii	120 stems / 10,000 s.f.	20%
Rosa gymnocarpa	75 stems / 10,000 s.f.	15%
Symphoricarpos albus	120 stems / 10,000 s.f.	20%

* Groupings required

Hatch appears on FA21, FA22, FA23, FA26, and FA27

NOTE:
Total quantity of species per sheet shown on FA04.

MIX D: TUALATIN HCA TREE AND SHRUB MIX

Not To Scale

TREE PLANTING NOTES

1) Install trees at an overall density of 100 trees/10,000 s.f.

2) Install trees at an average of 8 - 9.5' O.C. with triangular spacing

3) Install shrubs at an overall density of 500 shrubs/10,000 s.f.

4) Coordinate with Project Engineer on placement of species across site according to microclimate and topographic conditions.

5) Install trees in groups of up to 4 specimens per species.

6) Install shrubs at an average of 5' O.C. with triangular spacing, no closer than 3' O.C.. Install shrubs in groups of up to 4 specimens per species, with each group planted between 8 and 10' O.C. When planting near existing trees, the drip line of the existing tree shall be the starting point for plant spacing measurements.

7) Spread species throughtout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

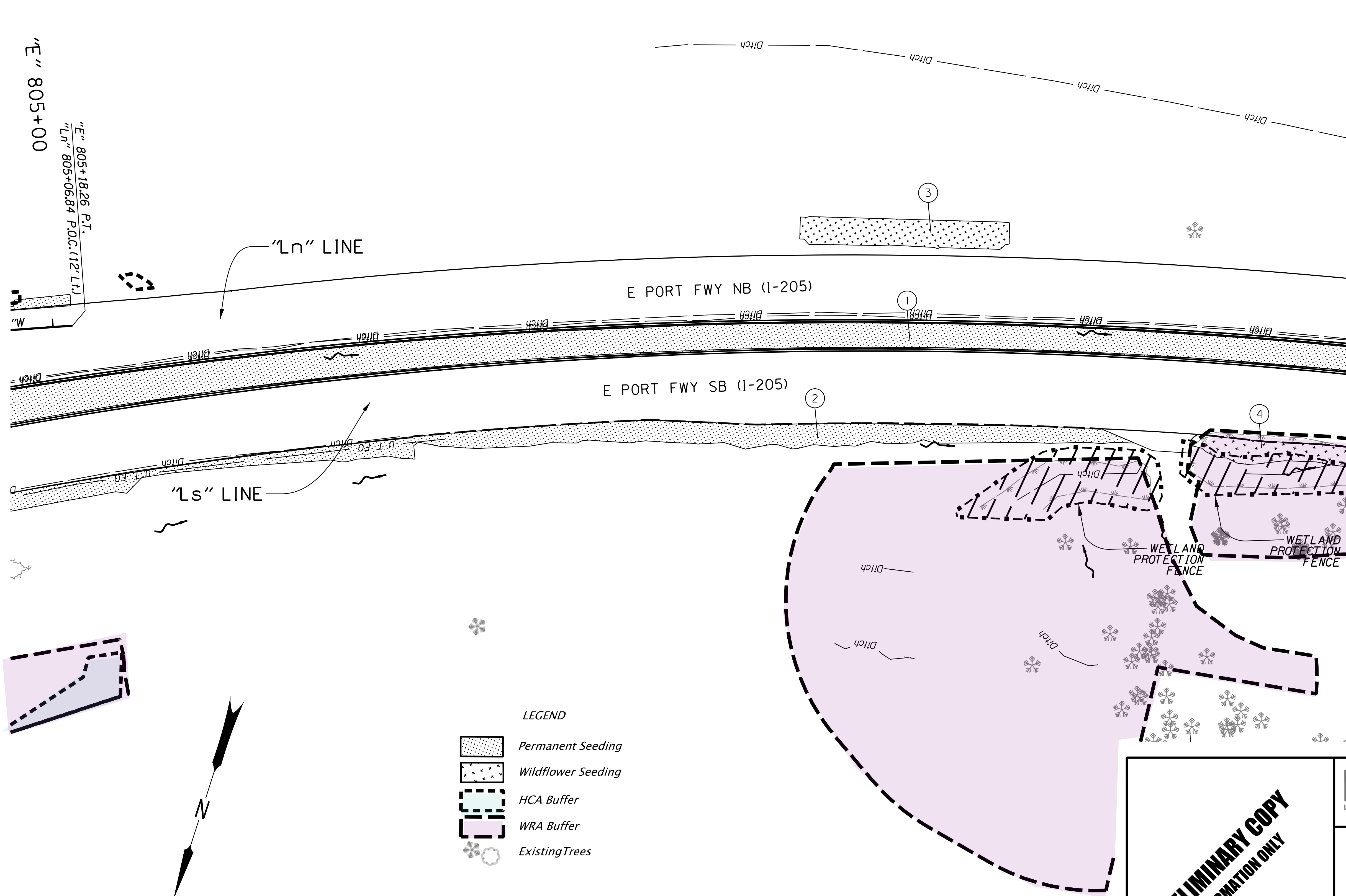
ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA22A

Sec. 36, T. 2 S, R. 1 E, W.M.

??V-???

1. Install 244,107 s.f. Permanent Seeding
2. Total area on FA21, FA22, FA23, shown on FA21, note 3
3. Install 4,981 s.f. Wildflower Seeding
4. Total area on FA23, FA24, FA25, FA26, FA27, shown on FA25, note 3



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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

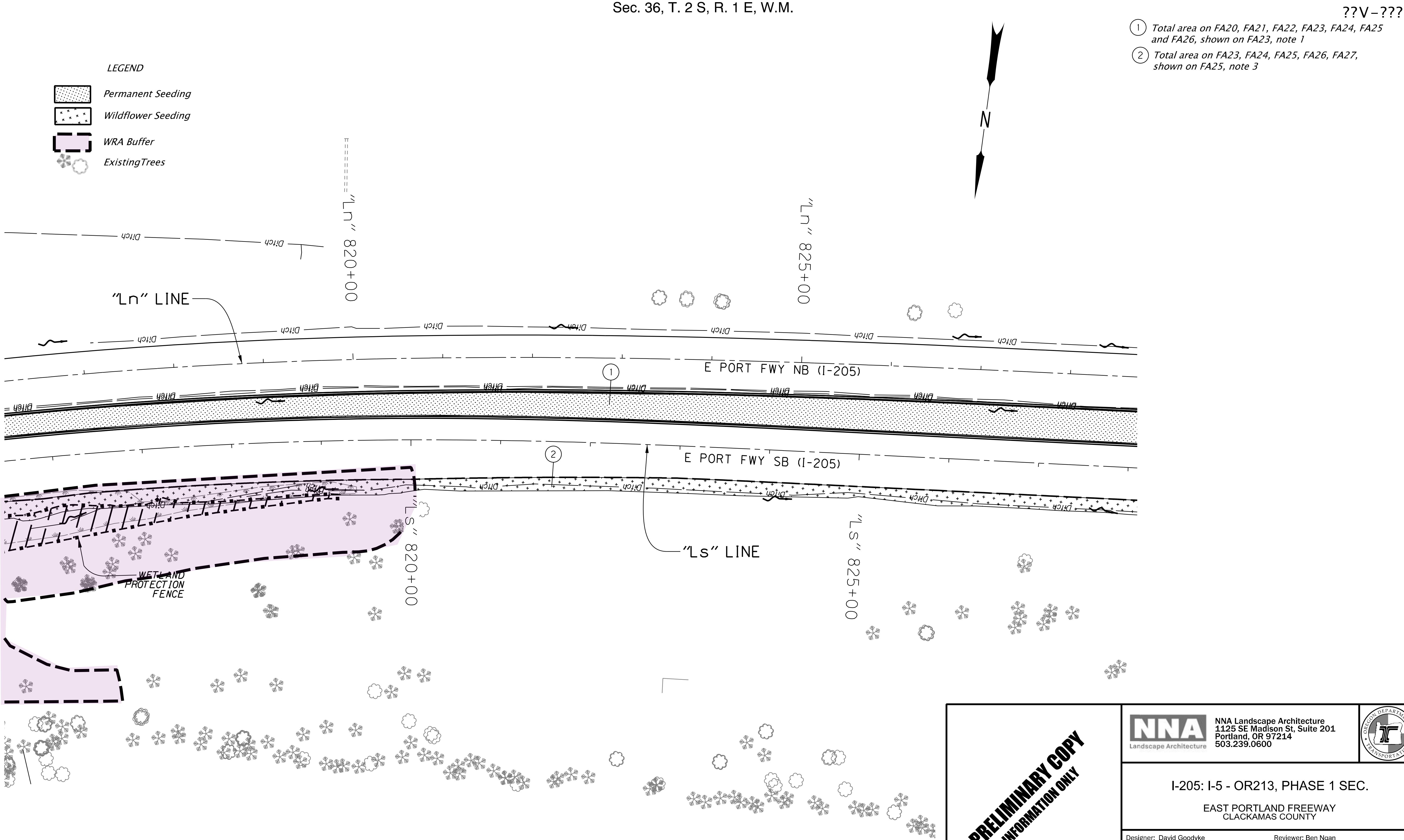
Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO. FA23

Sec. 36, T. 2 S, R. 1 E, W.M.

??V-???



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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

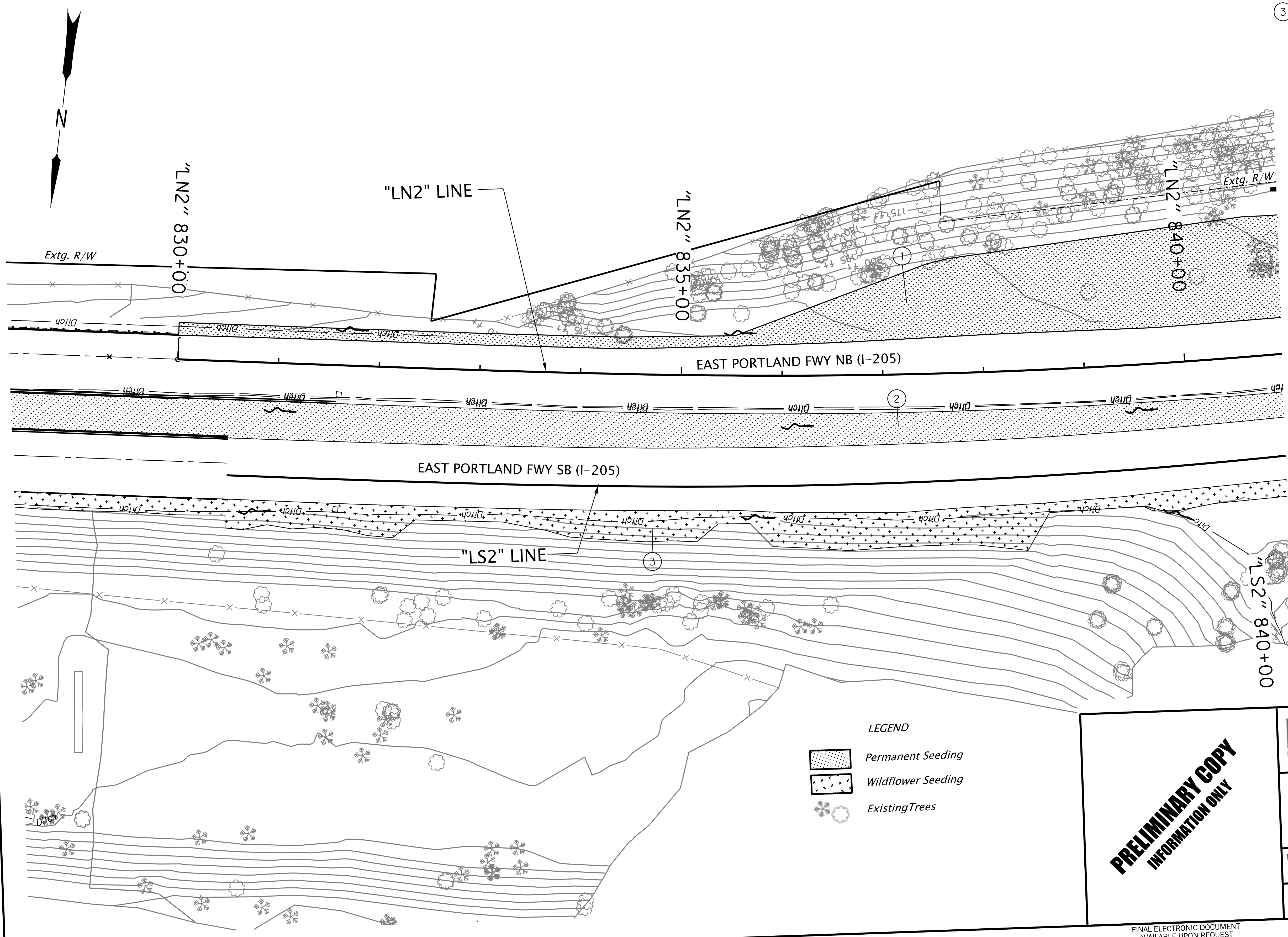
SHEET NO.
FA24

Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

1 Install 69,324 s.f. Permanent Seeding

2 Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1

3 Install 97,124 s.f. Wildflower Seeding



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I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

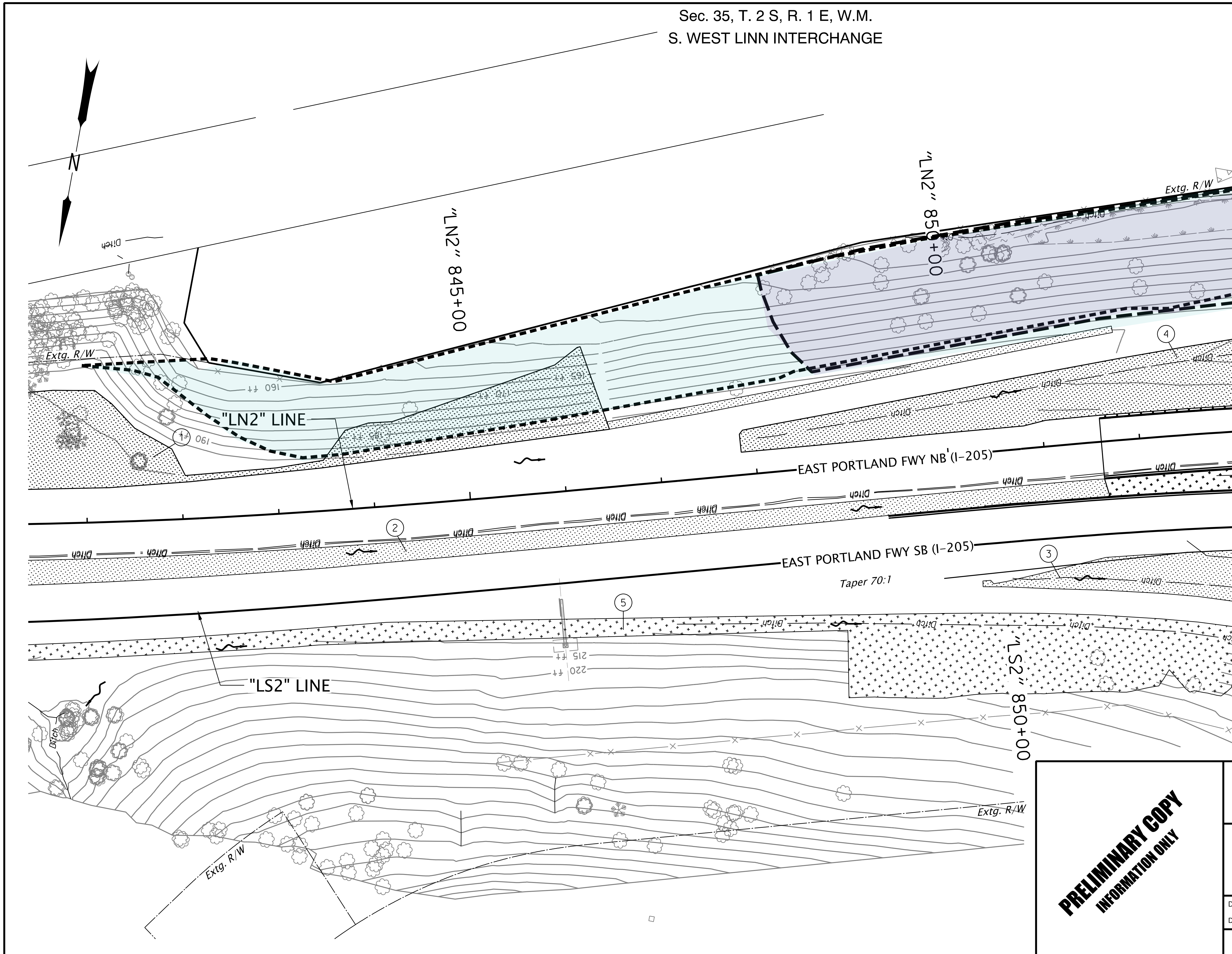
Designer: David Goodyke
Drafter: David Goodyke
Reviewer: Ben Ngan
Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA25

Rotation: 188.8482° Scale: 1"=100'

NNA_Roadside_Devel :: FA25 2/2/2021 9:44:23 AM jane



1. Total area on FA25 and FA26, shown on FA25, note 1
2. Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1
3. Total area on FA26 and FA27, shown on FA27, note 10
4. Total area on FA26 and FA27, shown on FA27, note 1
5. Total area on FA23, FA24, FA25, FA26, FA27, shown on FA25, note 3
6. Total area on FA26 and FA27, shown on FA27, note 12

LEGEND

- *Permanent Seeding*
- *HCA Buffer*
- *WRA Buffer*
- *Wildflower Seeding*
- *ExistingTrees*

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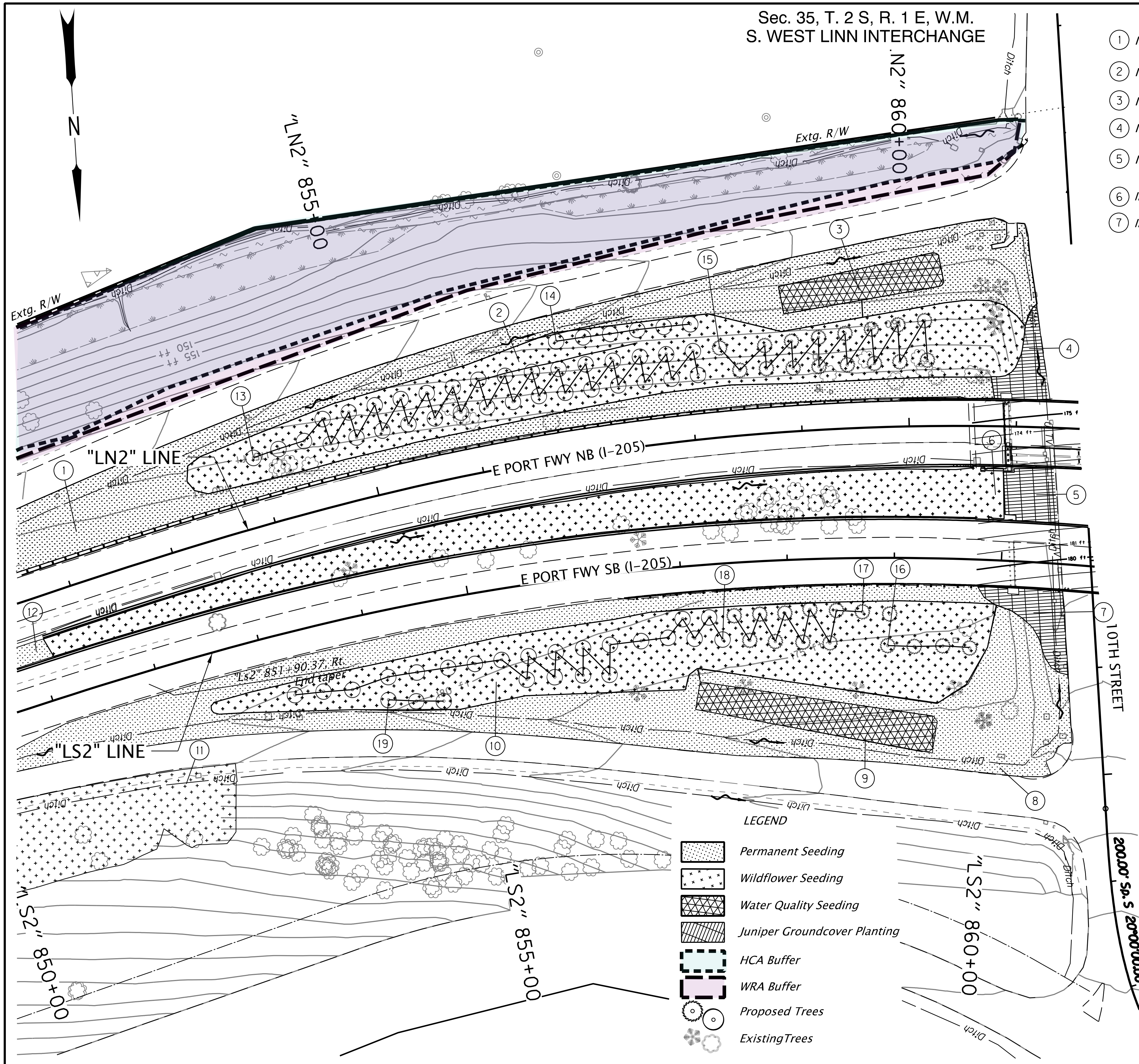
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT
PLANTING PLAN/SECTION

SHEET NO.
FA26



1. Install 65,826 s.f. Permanent Seeding
2. Install 46,920 s.f. Wildflower Seeding
3. Install 4,416 s.f. Water Quality Seeding
4. Install 161 Juniper Groundcover Plants
5. Install 171 Juniper Groundcover Plants
6. Install 29,367 s.f. Wildflower Seeding
7. Install 211 Juniper Groundcover Plants
8. Install 57,324 s.f. Permanent Seeding
9. Install 6,788 s.f. Water Quality Seeding
10. Install 43,433 s.f. Wildflower Seeding
11. Total area on FA23, FA24, FA25, FA26, FA27, shown on FA25, note 3
12. Total area on FA20, FA21, FA22, FA23, FA24, FA25 and FA26, shown on FA23, note 1
13. Install 33 TQUGA
14. Install 6 TQUCH
15. Install 16 TPIPO
16. Install 4 TPIPO
17. Install 10 TPIPO
18. Install 22 TQUGA
19. Install 3 TQUCH

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503.239.0600

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

ROADSIDE DEVELOPMENT PLANTING PLAN/SECTION

SHEET NO. FA27

Attachment X. Signing Plan

LEGEND

N	Install new sign (N)
N / M	Install new sign (N) on new (M) sign support
EXN	Maintain and protect existing sign (N) and support
RSN	Remove and save existing sign (N)
RSN / M	Remove and save existing sign (N) and remove (M) sign support
RIN	Reinstall existing sign (N)
RIN / M	Reinstall existing sign (N) on new (M) sign support
RXN / M	Remove existing sign (N) and (M) sign support
RXN	Remove existing sign (N)
CXN	Modify existing sign (N) as shown on plans
VMS	Variable Message Sign. See ITS Plans.
EX VAS	Existing Variable Advisory Speed Sign

N = Sign Number

M = Material

Material options:

- W = Wood Post
- S = Steel Breakaway Support (TBB or MPB)
- P = Round Pipe Support
- SM = Structure Mount
- C = Cantilever
- SB = Sign Bridge
- MP = Milepost Marker Post
- SSC = Stainless Steel Clamp
- BR = Bridge Rail Mount
- ST = Perforated Steel Square Tube Sign Support
- VM = Vertical Sign Mount

HWY: 064
M.P.: 11.06-10.89

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65671
OREGON
July 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA01

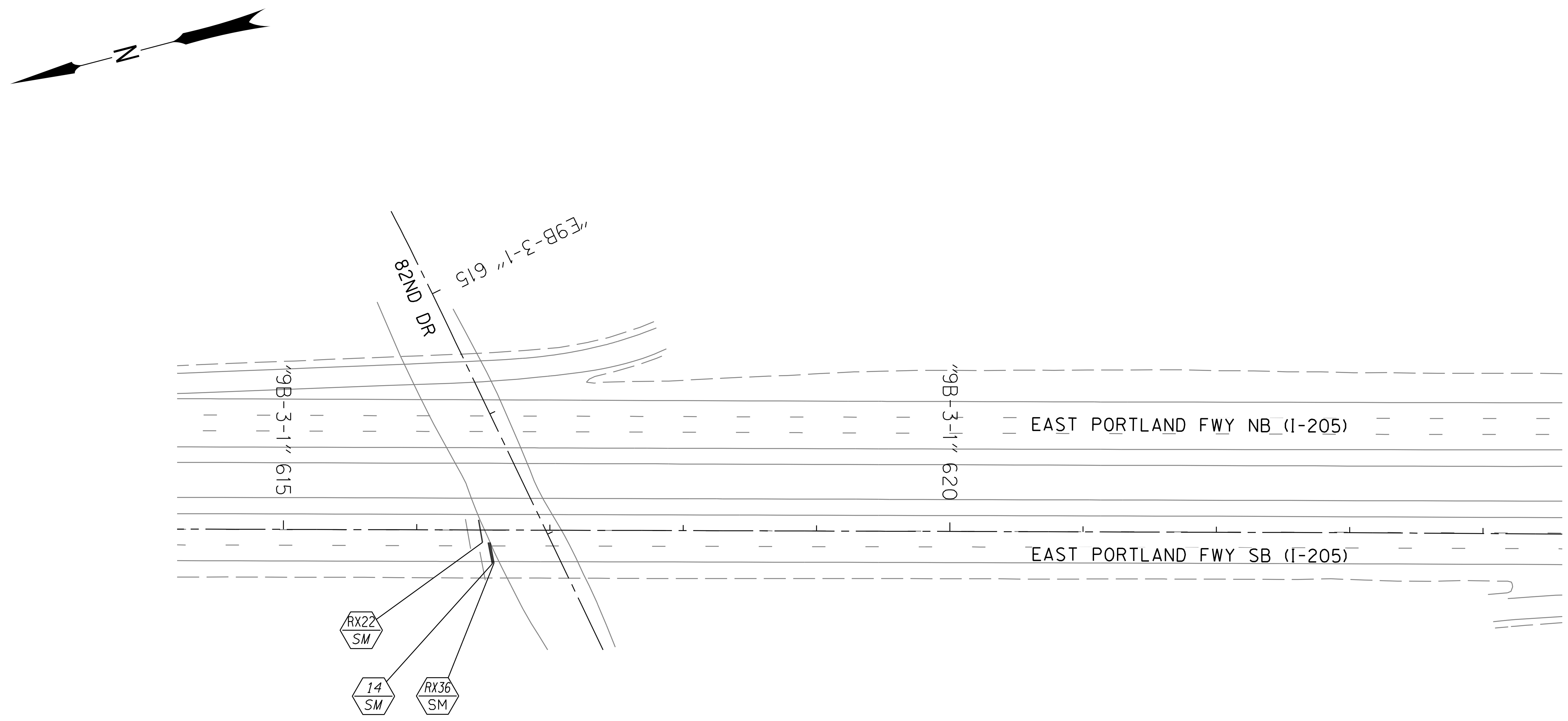
TN_K19786_HDR_snpl_02_09132019.dgn :: LA01 7/17/2020 2:36:49 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 255.4717° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 11.06 TO M.P. 10.89
STA "9B-3-1" 615+00 TO "9B-3-1" 624+00



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	
M.P.: 11.06-10.89	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
July 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020
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HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LA02

TN_K19786_HDR_snpl_02_09132019.dgn :: LA02 7/17/2020 2:36:55 PM CAMAKOH

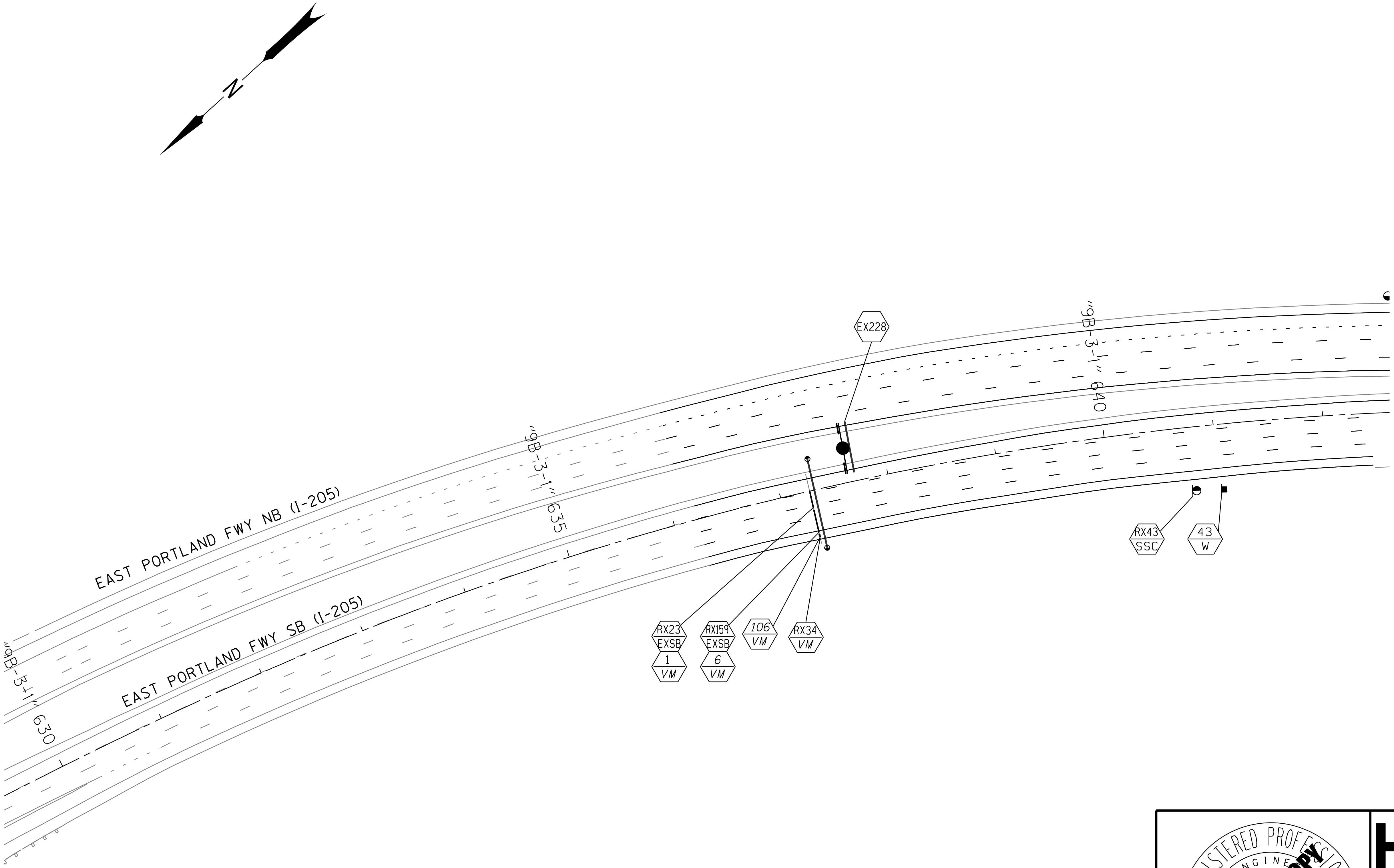
741

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 255.4793° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 10.81 TO M.P. 10.58
STA "9B-3-1" 630+00 TO
"9B-3-1" 642+00



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 10.81-10.58

TRS
00000

DFI/TSSU NO.
N/A

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OREGON
COLETTE T. SNUFFIN
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PORTLAND, OR 97204-1134
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

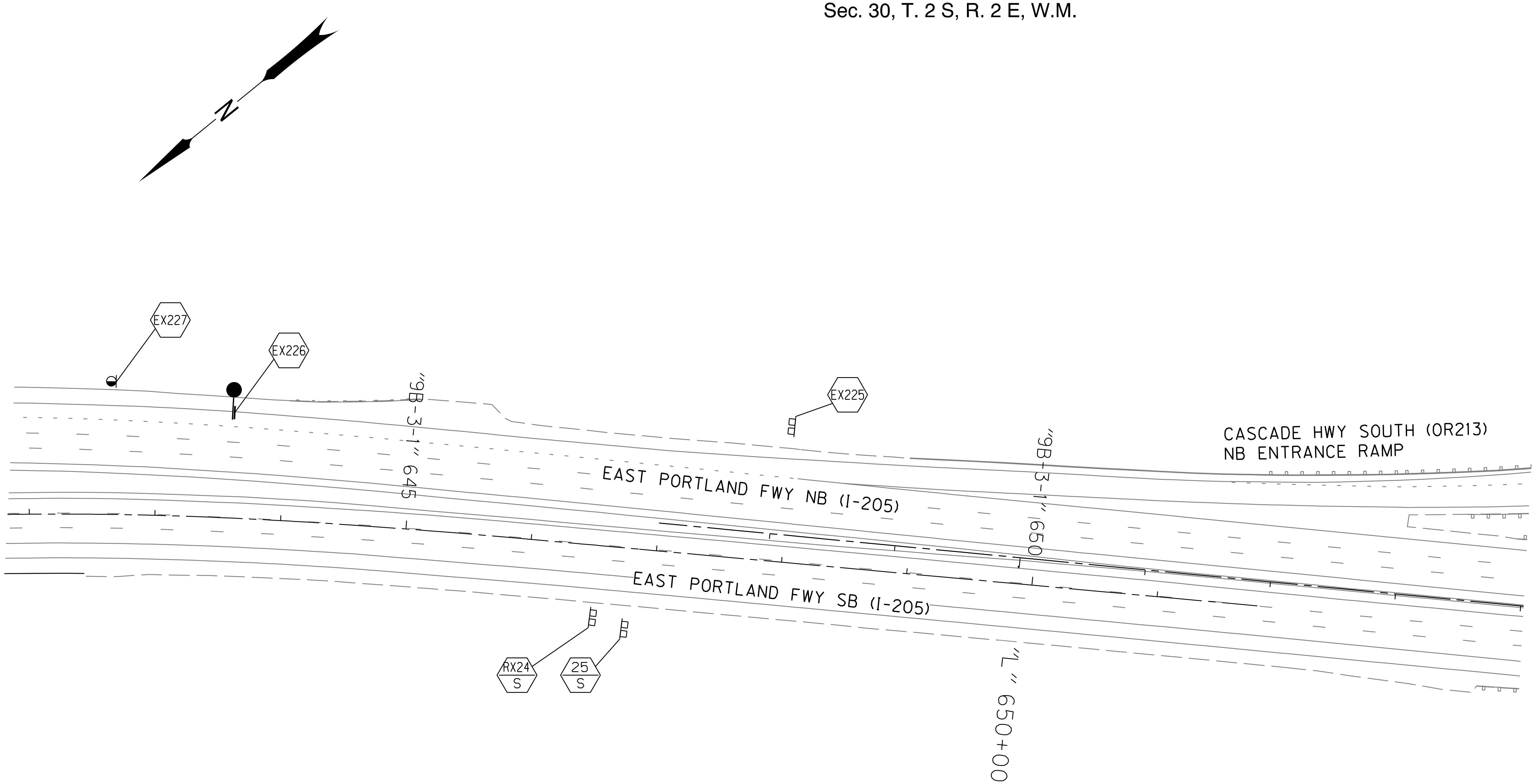
Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA03

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 10.58 TO M.P. 10.36
STA "9B-3-1" 642+00 TO
"L" 653+50



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	
M.P.: 10.81-10.58	
TRS	00000
DFI/TSSU NO.	N/A

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1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LA04

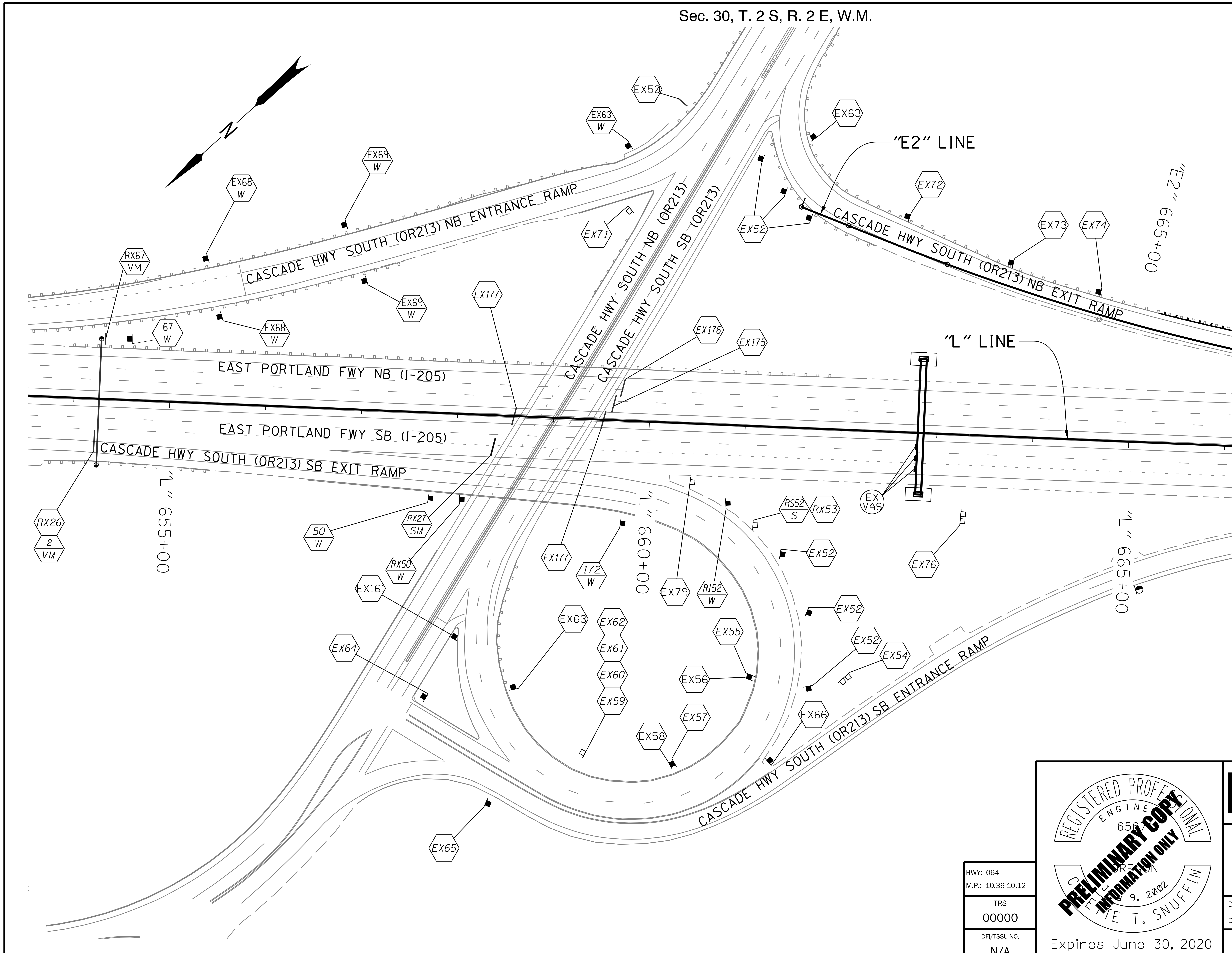
TN_K19786_HDR_snpl_02_09132019.dgn :: LA04 7/17/2020 2:36:58 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 230.7962° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I–205 M.P. 10.36 TO M.P. 10.12
STA "L" 653+50 TO "L" 665+65



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 10.36-10.12

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65637
OREGON
9, 2002
COLETTE T. SNUFFIN
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PORTLAND, OR 97204-1134
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA05

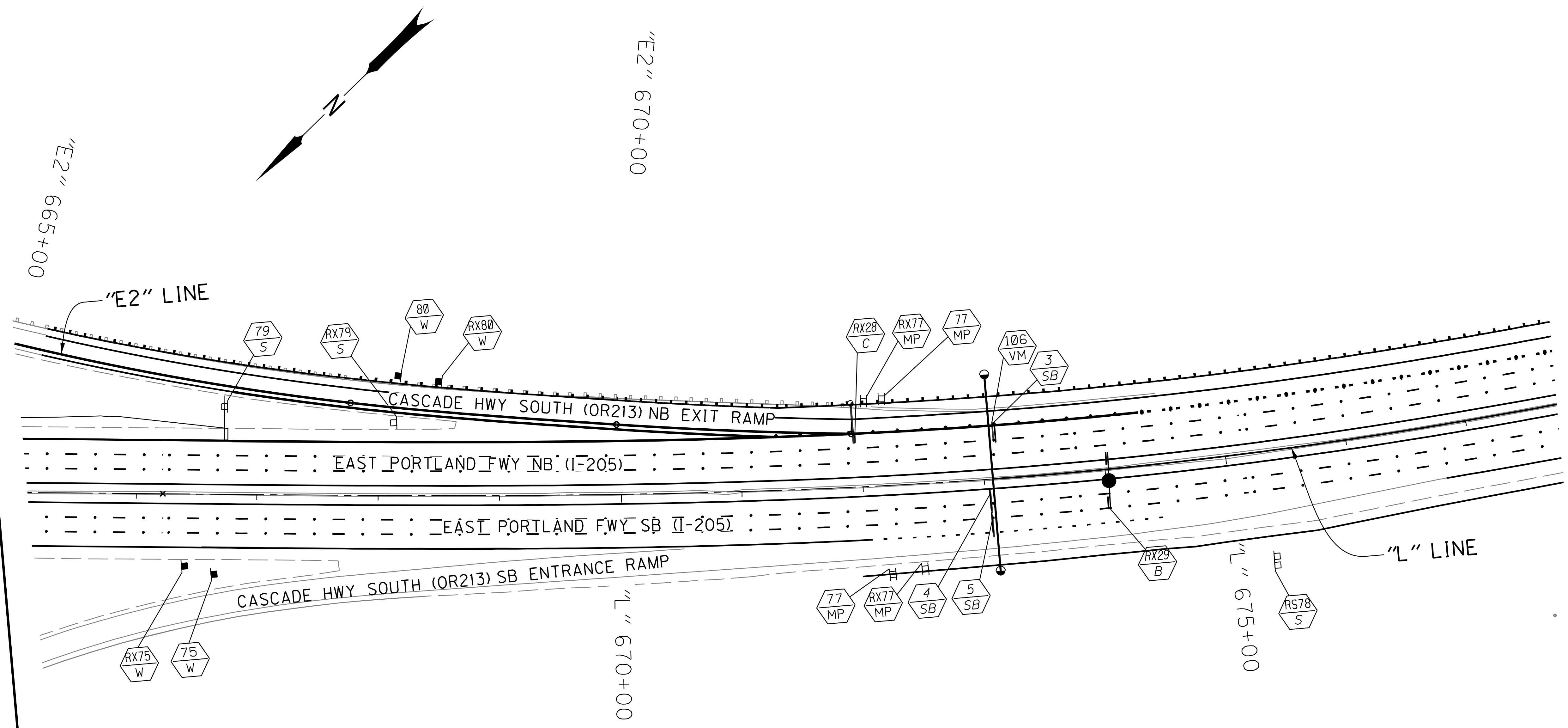
TN_K19786_HDR_snpl_02_09132019.dgn :: LA05 7/17/2020 2:36:59 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 227.6721° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 10.12 TO M.P. 9.86
STA "L" 665+65 TO "L" 677+25



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

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JUNE 9, 2002
COLETTE T. SNUFFIN
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Drafter: Colina Lieu
Reviewer: Simon Eng
Checker: Colette Snuffin

HWY: 064
M.P.: 10.12-9.86

TRS
00000

DFI/TSSU NO.
N/A

PERMANENT SIGNING

SHEET NO.
LA06

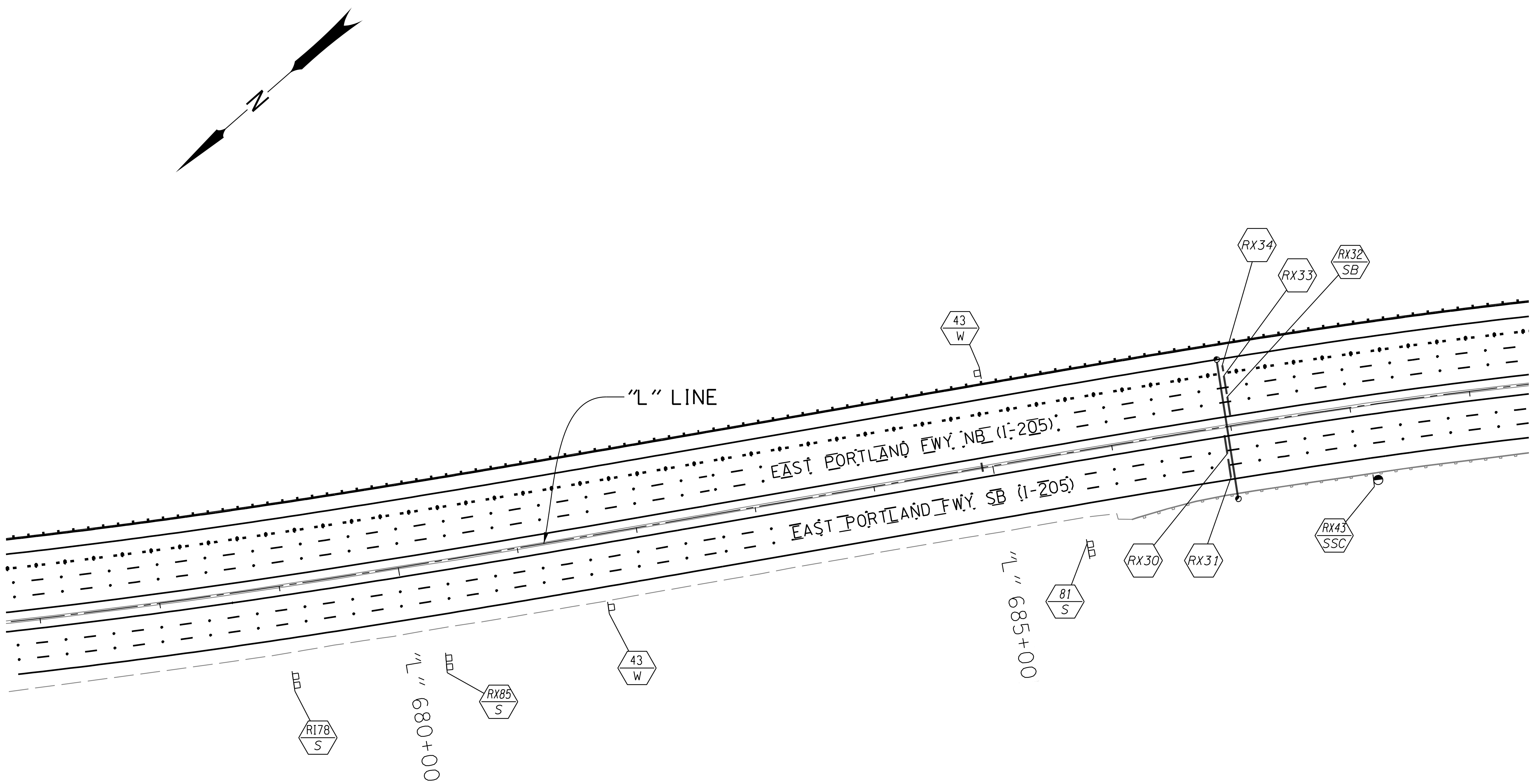
Rotation: 230.7962° Scale: 1"=100'

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

TN_K19786_HDR_snpl_02_09132019.dgn :: LA06 7/17/2020 2:37:01 PM CAMAKOH

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 9.86 TO M.P. 9.67
STA "L" 677+25 TO "L" 689+00



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

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65672
OREGON
9, 2002
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HWY: 064
M.P.: 9.86-9.67
TRS
00000
DFI/TSSU NO.
N/A

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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

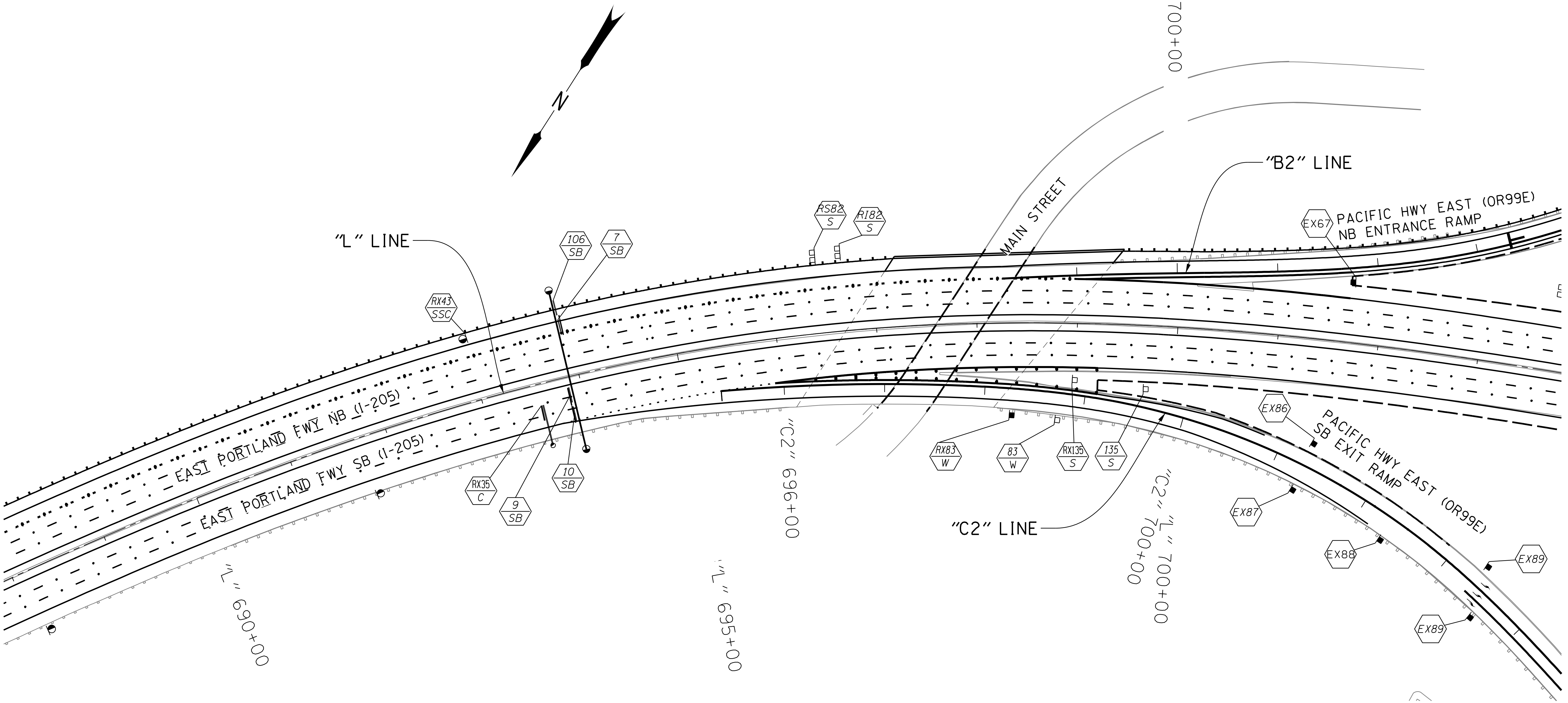
Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA07

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 9.67 TO M.P. 9.42
STA "L" 689+00 TO "L" 703+35



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	M.P.: 9.67-9.42
TRS	00000
DFI/TSSU NO.	N/A

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

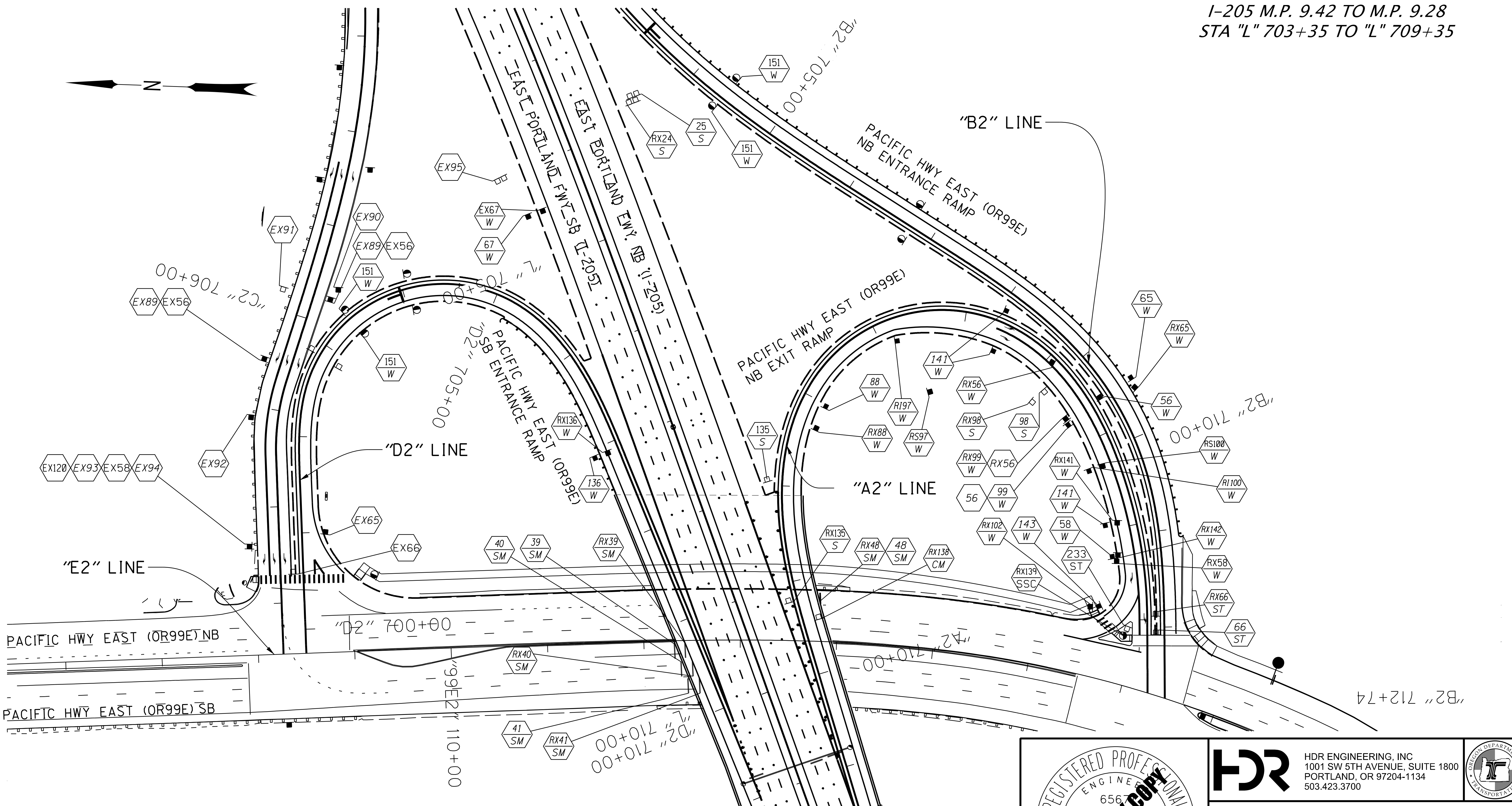
PERMANENT SIGNING | SHEET NO. LA08

TN_K19786_HDR_snpl_02_09132019.dgn :: LA08 7/17/2020 2:37:04 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 212.6746° Scale: 1"=100'

SIGNING PLAN
I-205 M.P. 9.42 TO M.P. 9.28
STA "L" 703+35 TO "L" 709+35



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.

HWY:	064
M.P.:	9.42-9.28
TRS	00000
DFI/TSSU NO.	N/A

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503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

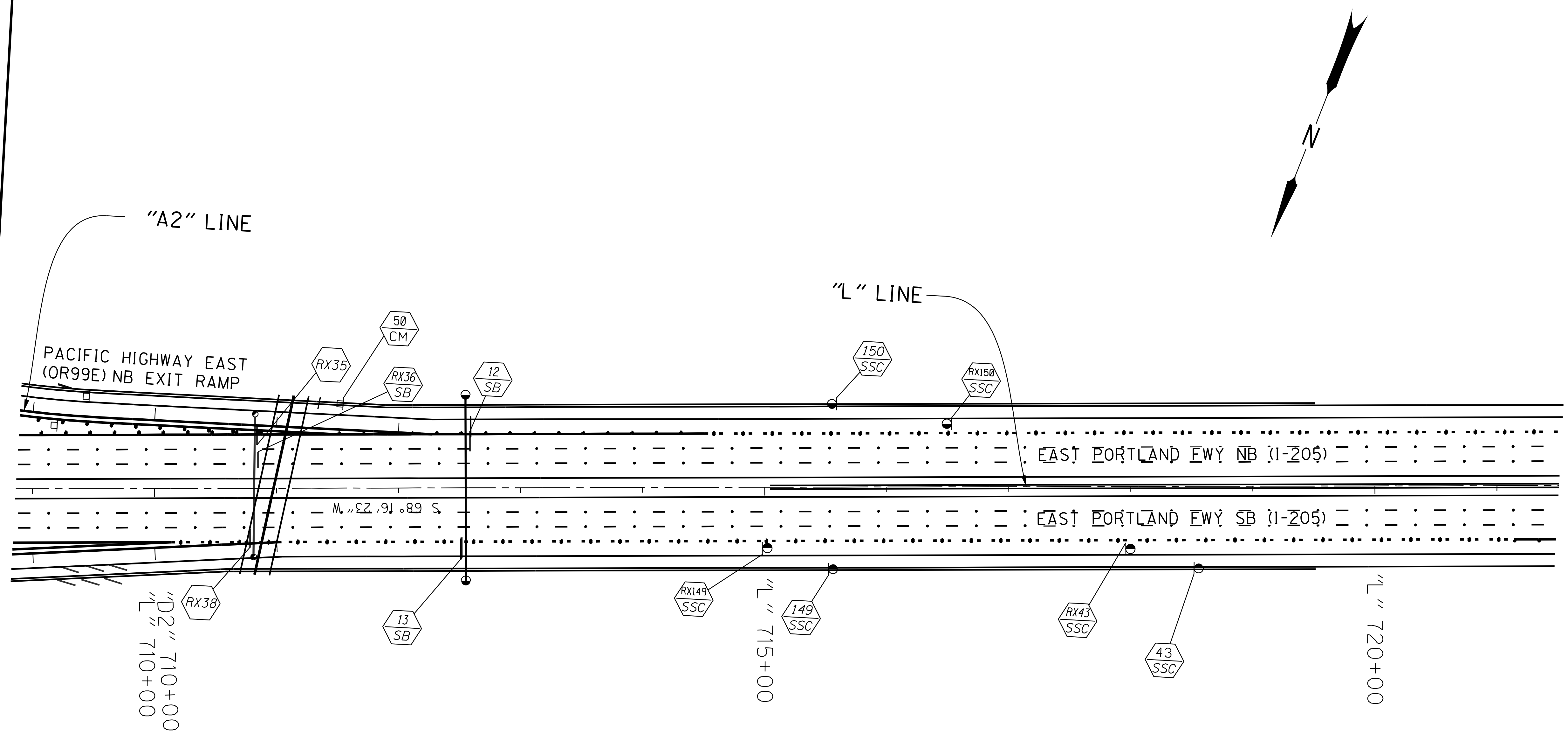
Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LA09

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 9.28 TO M.P. 9.06
STA "L" 709+35 TO "L" 723+45



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

REGISTERED PROFESSIONAL ENGINEER
65...
OREGON
...9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

HWY: 064
M.P.: 9.28-9.06

TRS
00000

DFI/TSSU NO.
N/A

Designer: Colina Lieu
Drafter: Colina Lieu
Reviewer: Simon Eng
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA10

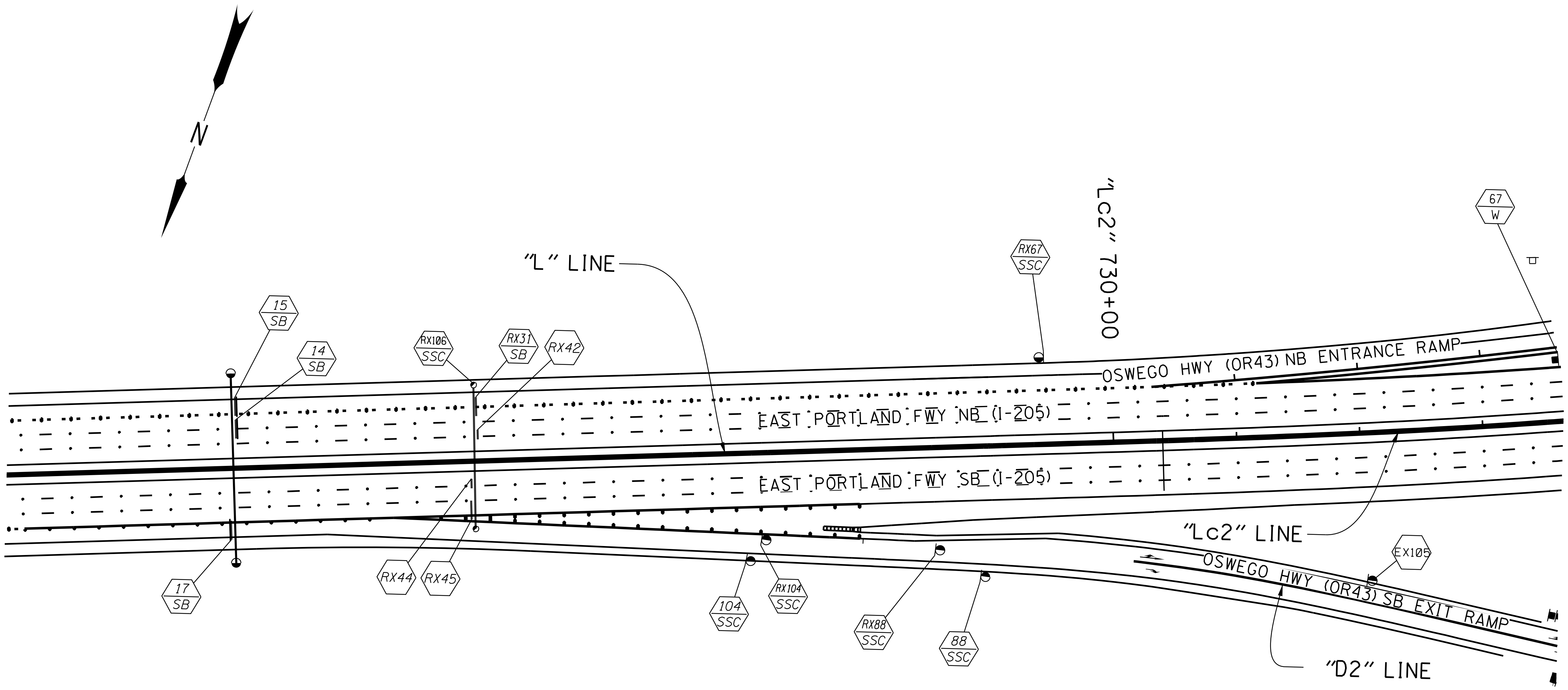
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431°
Scale: 1"=100'

TN_K19786_HDR_snpl_02_09132019.dgn :: LA10 7/17/2020 2:37:06 PM CAMAKOH

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 9.06 TO M.P. 8.87
STA "L" 723+45 TO "L" 733+15



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 9.06-8.87
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER 65697 OREGON FEB. 9, 2002 COLETTE T. SNUFFIN
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HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Drafter: Colina Lieu
Reviewer: Simon Eng
Checker: Colette Snuffin

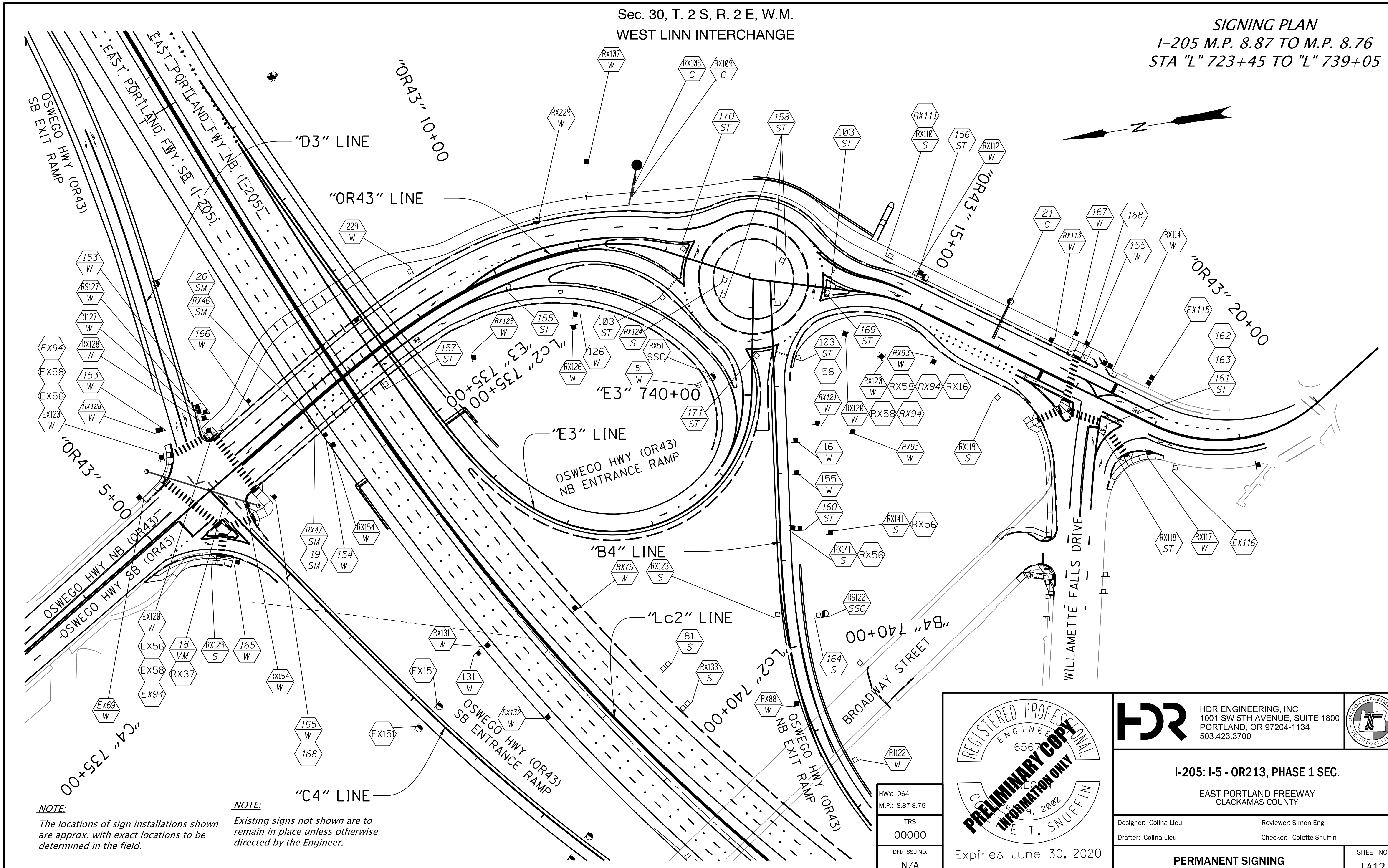
PERMANENT SIGNING

SHEET NO.
LA11

TN_K19786_HDR_snpl_02_09132019.dgn :: LA11 7/17/2020 2:37:07 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431° Scale: 1"=100'



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.

REGISTERED PROFESSIONAL ENGINEER 65677 OREGON COLETTE T. SNUFFIN

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Expires June 30, 2020

HWY: 064
M.P.: 8.87-8.76

TRS 00000

DFI/TSSU NO. N/A

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

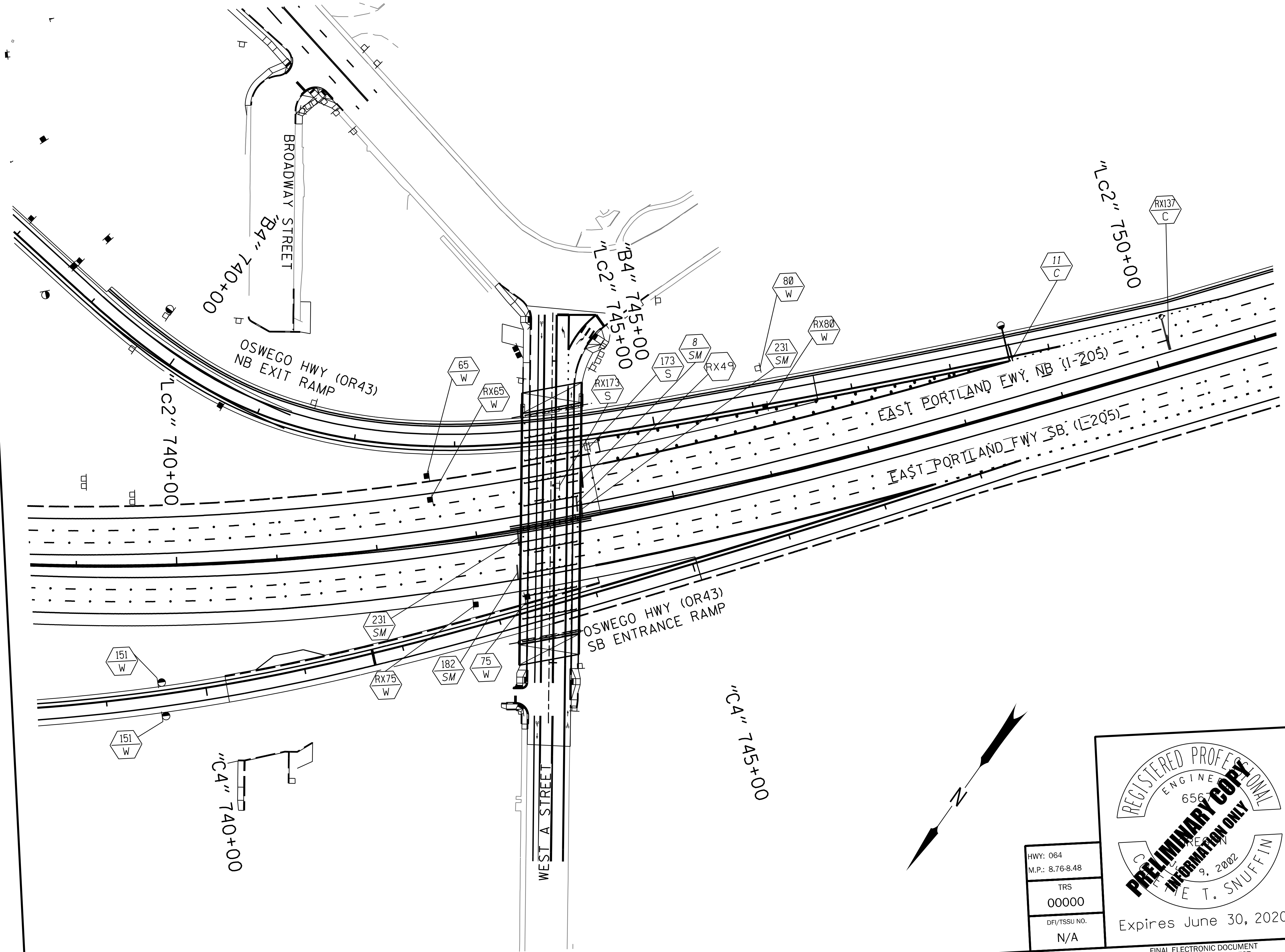
Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LA12

Sec. 30, T. 2 S, R. 2 E, W.M.

SIGNING PLAN
I-205 M.P. 8.76 TO M.P. 8.48
STA "L" 739+05 TO "L" 753+80



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 8.76-8.48
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
COLETTE T. SNUFFIN
Expires June 30, 2020

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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

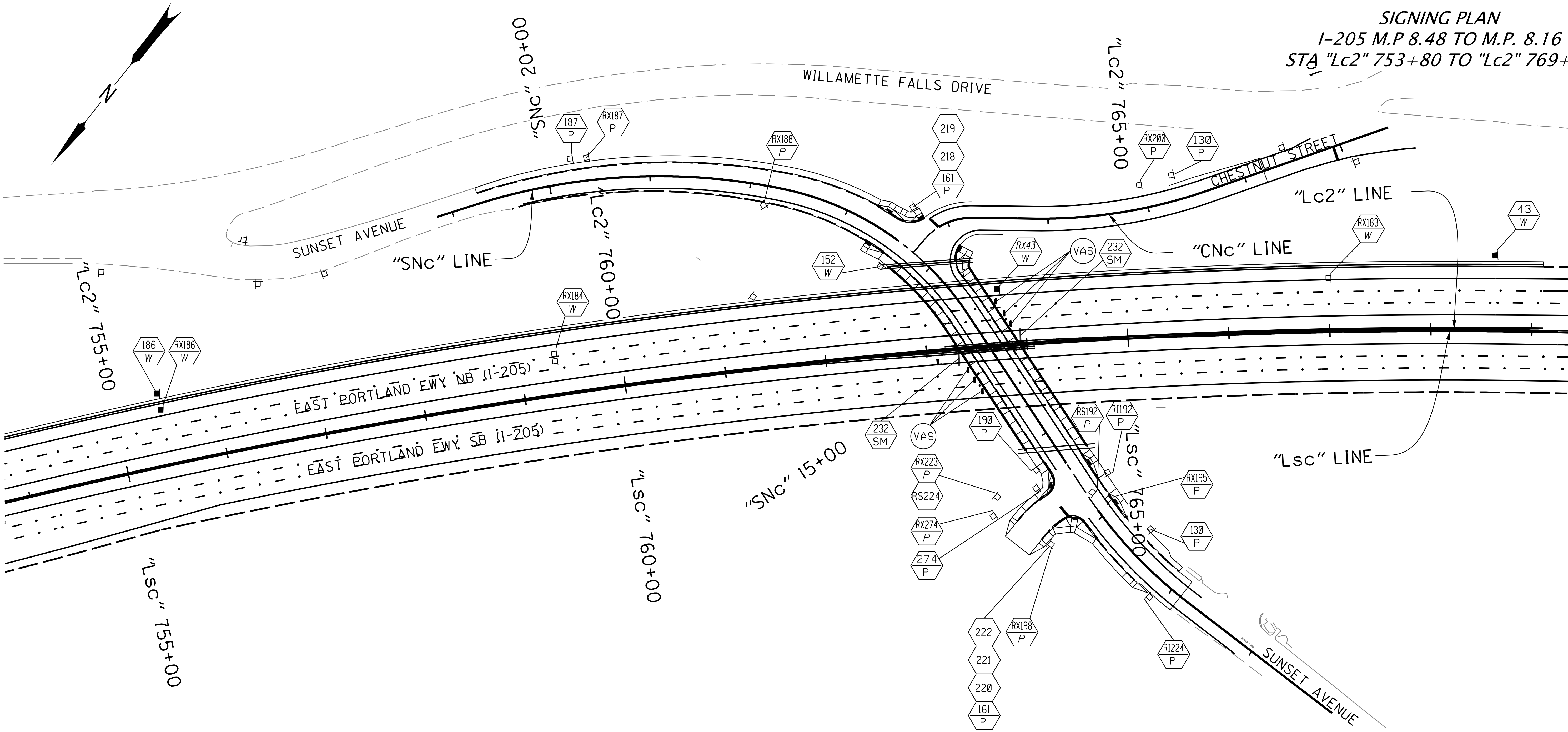
PERMANENT SIGNING

SHEET NO.
LA13

Rotation: 218.1362° Scale: 1"=100'

TN_K19786_HDR_snpl_02_09132019.dgn :: LA13 7/17/2020 2:37:10 PM CAMAKOH

SIGNING PLAN
I-205 M.P 8.48 TO M.P. 8.16
STA "Lc2" 753+80 TO "Lc2" 769+00



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 8.44-8.16

TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER
65675
OREGON
JANUARY 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

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HDR
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1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA14

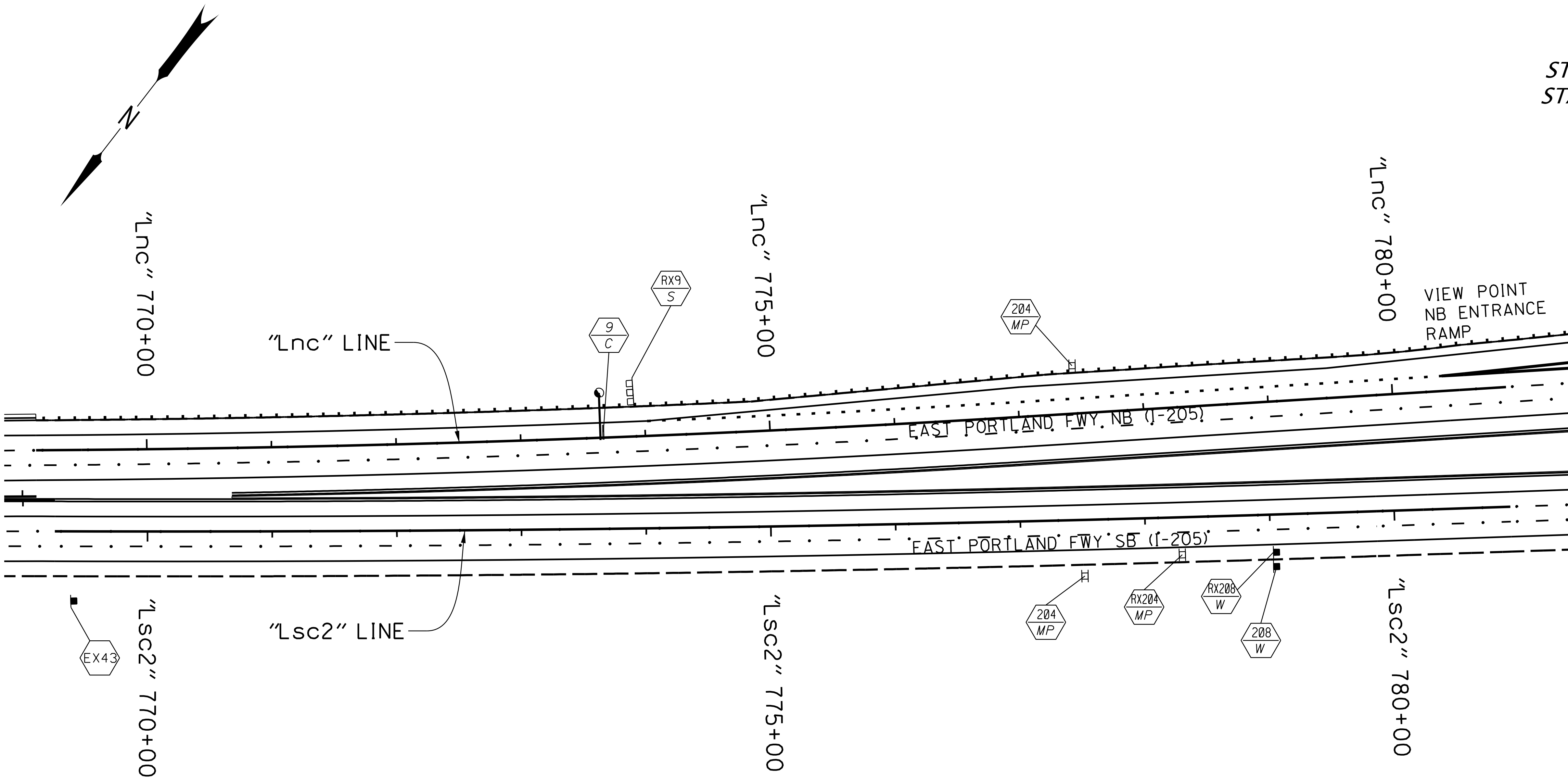
TN_K19786_HDR_snpl_02_09132019.dgn :: LA14 7/17/2020 2:37:12 PM CAMAKOH

753

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.5198° Scale: 1"=100'

SIGNING PLAN
I-205 M.P 8.16 TO M.P. 7.88
STA "Lnc" 769+00 TO "Ln" 784+00
STA "Lsc2" 769+00 TO "Ls" 784+00



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	
M.P.: 8.16-7.88	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 6567 OREGON ... 9, 2002 COLETTE T. SNUFFIN

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Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

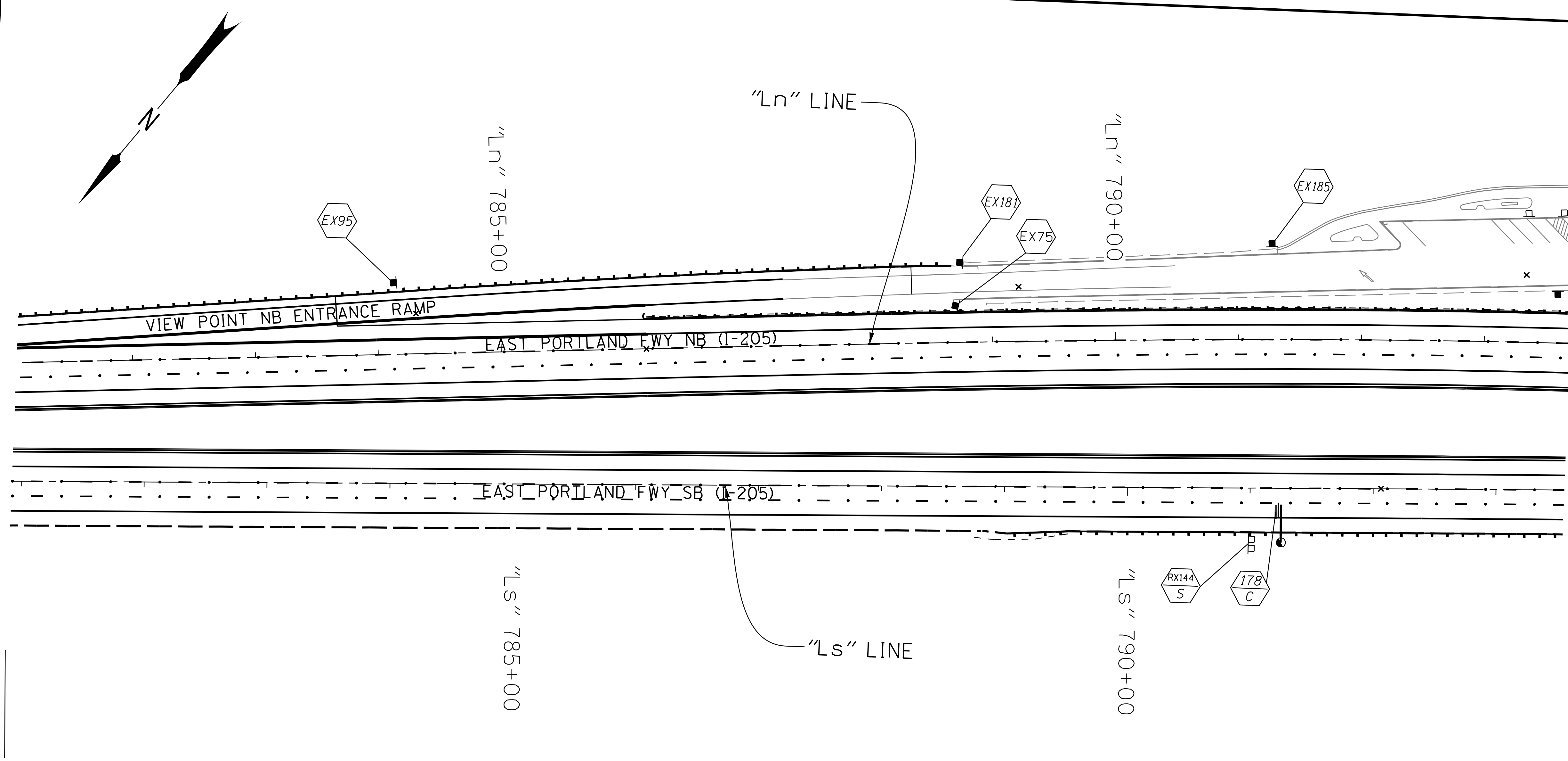
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LA15

SIGNING PLAN
I-205 M.P 7.88 TO M.P. 7.71
STA "Ln" 784+00 TO "Ln" 793+00
STA "Ls" 784+00 TO "Ls" 793+00



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

REGISTERED PROFESSIONAL ENGINEER
65678
OREGON
JULY 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

HWY: 064
M.P.: 7.88-7.71
TRS
00000
DFI/TSSU NO.
N/A

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

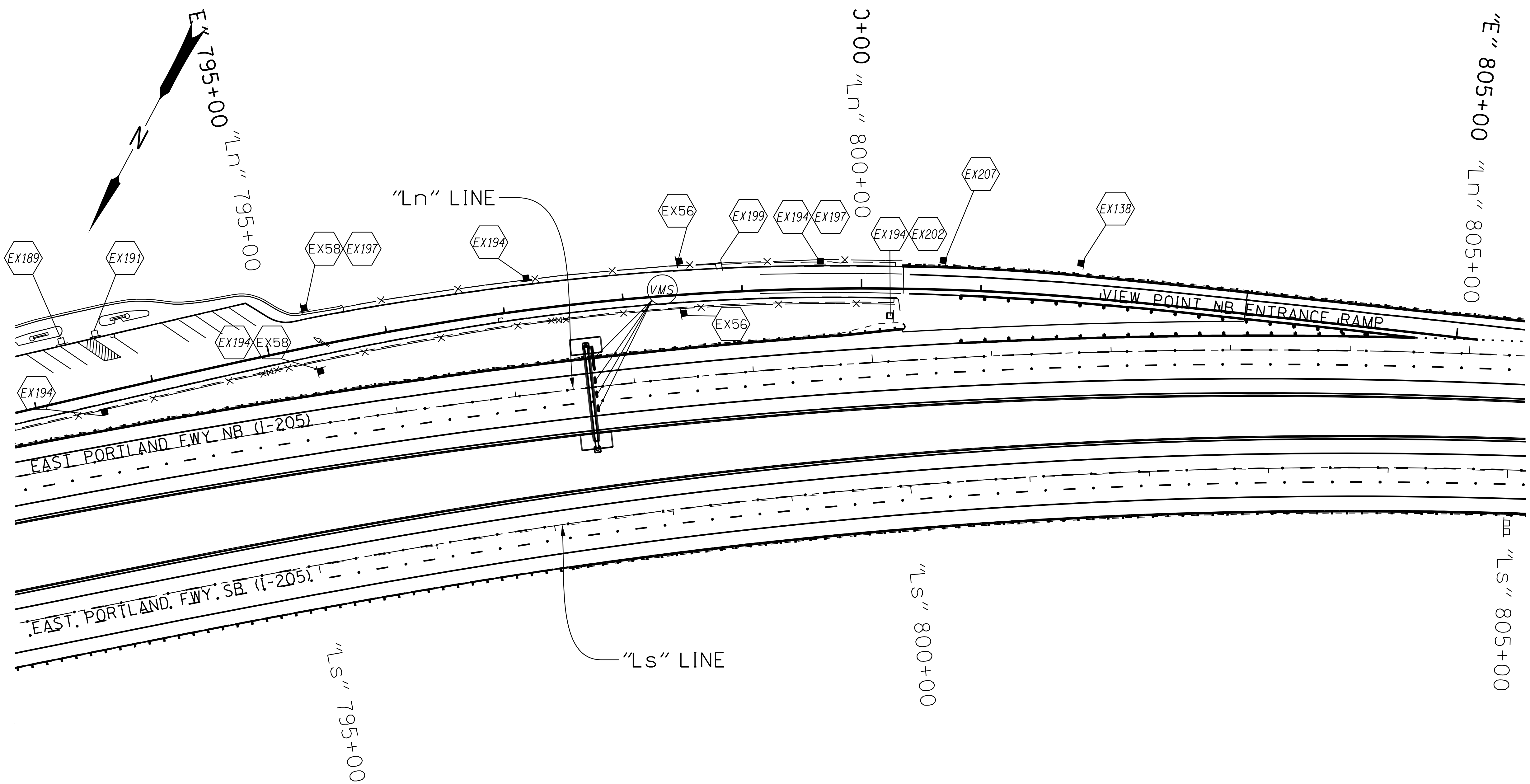
PERMANENT SIGNING

SHEET NO.
LA16

TN_K19786_HDR_snpl_02_09132019.dgn :: LA16 7/17/2020 2:37:15 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'



SIGNING PLAN
I-205 M.P 7.71 TO M.P. 7.48
STA "Ln" 793+00 TO "Ln" 805+00
STA "Ls" 793+00 TO "Ls" 805+00

NOTE:

No signing work on this sheet. Included for continuity only.

NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064
M.P.: 7.71-7.48

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65676
OREGON
... 9, 2002
... T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

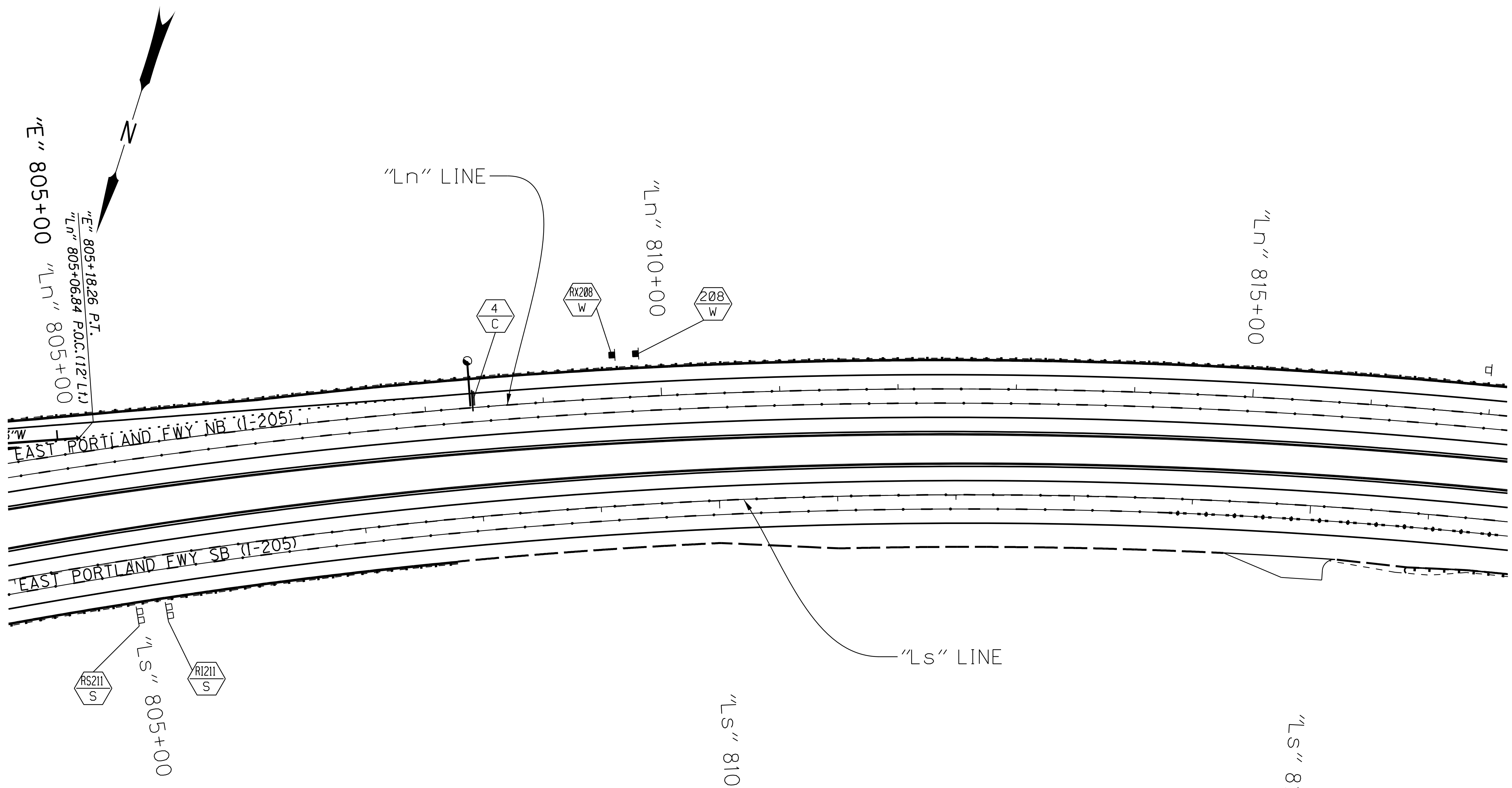
SHEET NO.
LA17

TN_K19786_HDR_snpl_02_09132019.dgn :: LA17 7/17/2020 2:37:16 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 208.1457° Scale: 1"=100'

SIGNING PLAN
I-205 M.P 7.48 TO M.P. 7.27
STA "Ln" 805+00 TO "Ln" 816+00
STA "Ls" 805+00 TO "Ls" 816+00



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	
M.P.: 7.48-7.27	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 6567 OREGON 9, 2002 T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

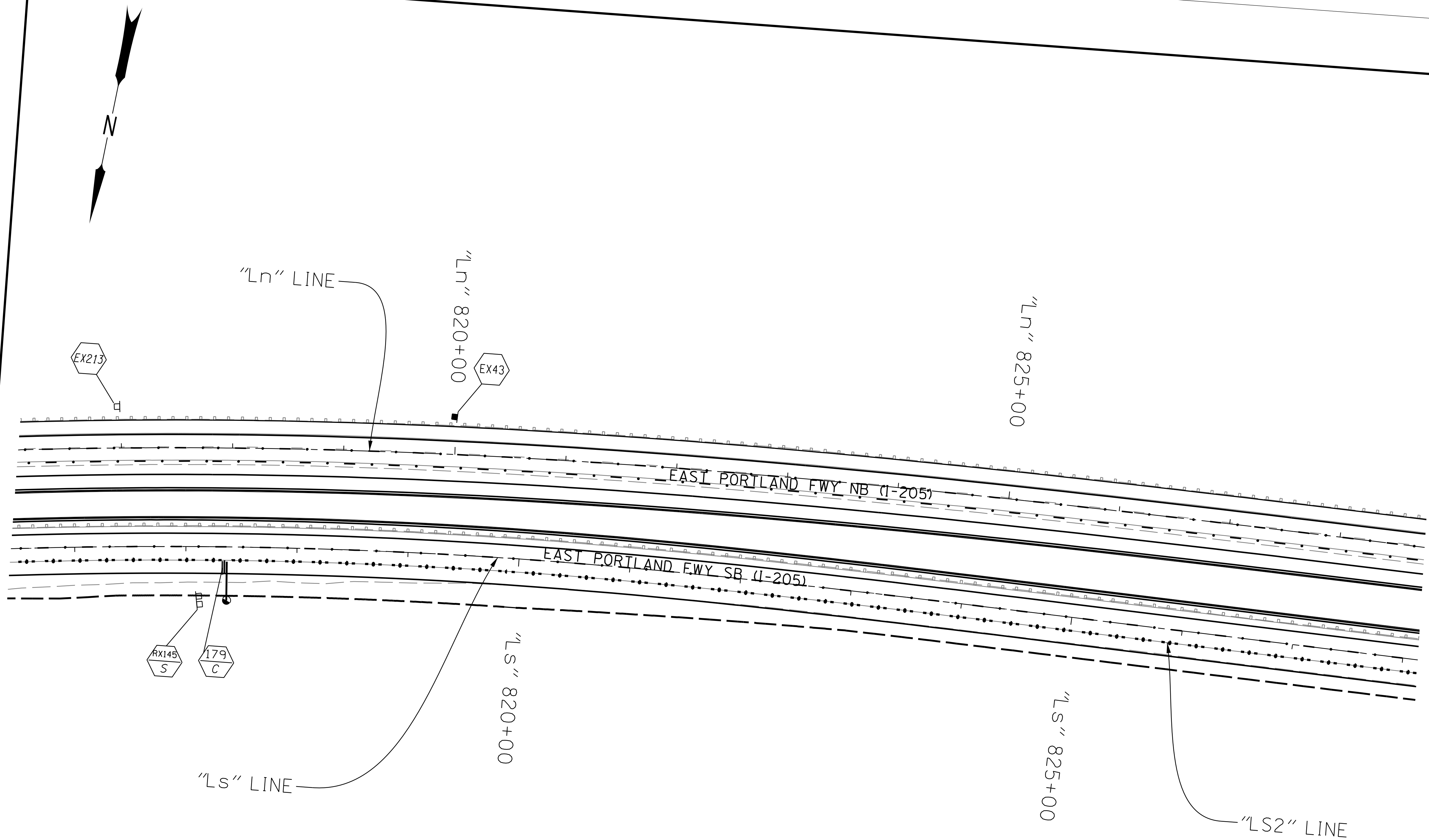
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LA18

SIGNING PLAN
I-205 M.P 7.27 TO M.P. 7.04
STA "Ln" 816+00 TO "Ln" 828+00
STA "Ls" 816+00 TO "Ls2" 828+00



NOTE:
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NOTE:
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HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

HWY: 064
M.P.: 7.27-7.04
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65672PE
OREGON
... 9, 2002
... T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

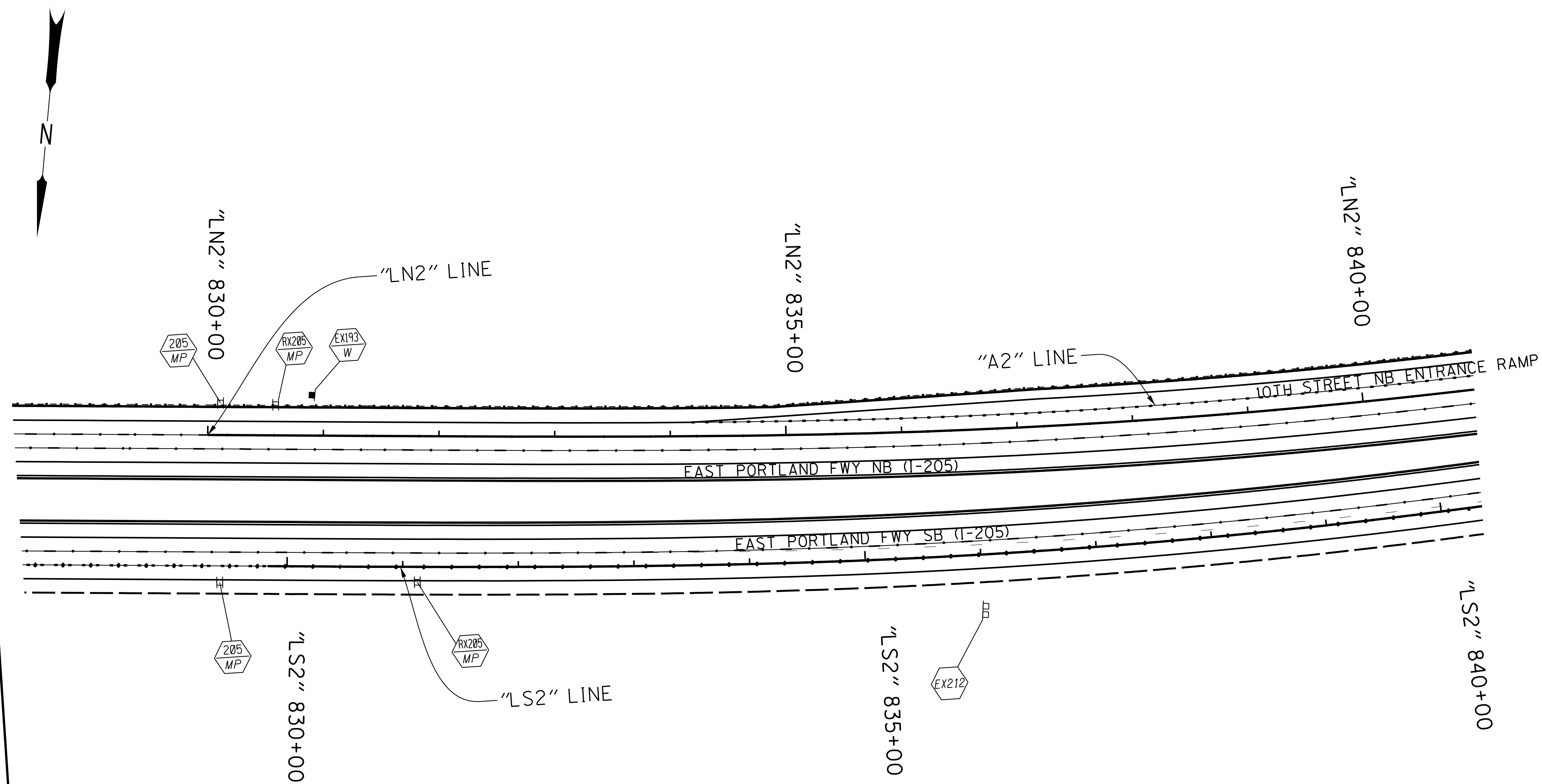
Designer: Colina Lieu
Drafter: Colina Lieu
Reviewer: Simon Eng
Checker: Colette Snuffin

PERMANENT SIGNING
SHEET NO.
LA19

TN_K19786_HDR_snpl_02_09132019.dgn :: LA19 7/17/2020 2:37:19 PM CAMAKOH

Rotation: 187.5797° Scale: 1"=100'

SIGNING PLAN
I-205 M.P 7.04 TO M.P. 6.81
STA "Ln2" 828+00 TO "Ln2" 840+00
STA "Ls2" 828+00 TO "Ls2" 840+00



NOTE:
Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

HWY: 064	
M.P.: 7.04-6.81	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 65677 OREGON ... 9, 2002 ... E T. SNUFFIN
Expires June 30, 2020

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INFORMATION ONLY

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1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

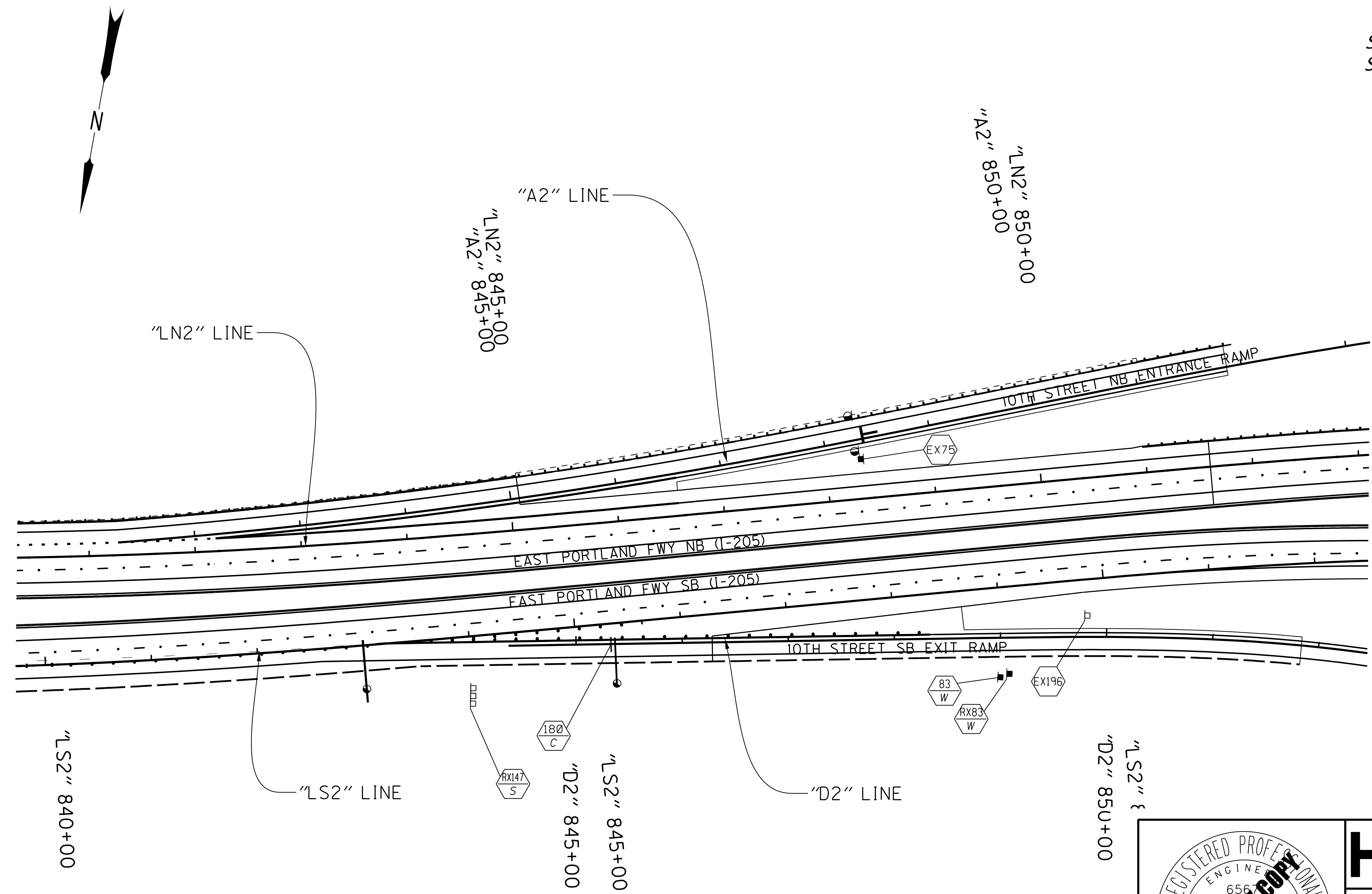
Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING
SHEET NO. LA20

Rotation: 188.8482° Scale: 1"=100'

TN_K19786_HDR_snpl_02_09132019.dgn :: LA20 7/17/2020 2:37:20 PM CAMAKOH

SIGNING PLAN
I–205 M.P 6.81 TO M.P. 6.57
STA "Ln2" 840+00 TO "Ln2" 853+00
STA "Ls2" 840+00 TO "Ls2" 852+00



NOTE:
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NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

REGISTERED PROFESSIONAL ENGINEER
65677PE
OREGON
JULY 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR
HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

HWY: 064
M.P.: 6.81-6.57

TRS
00000

DFI/TSSU NO.
N/A

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA21

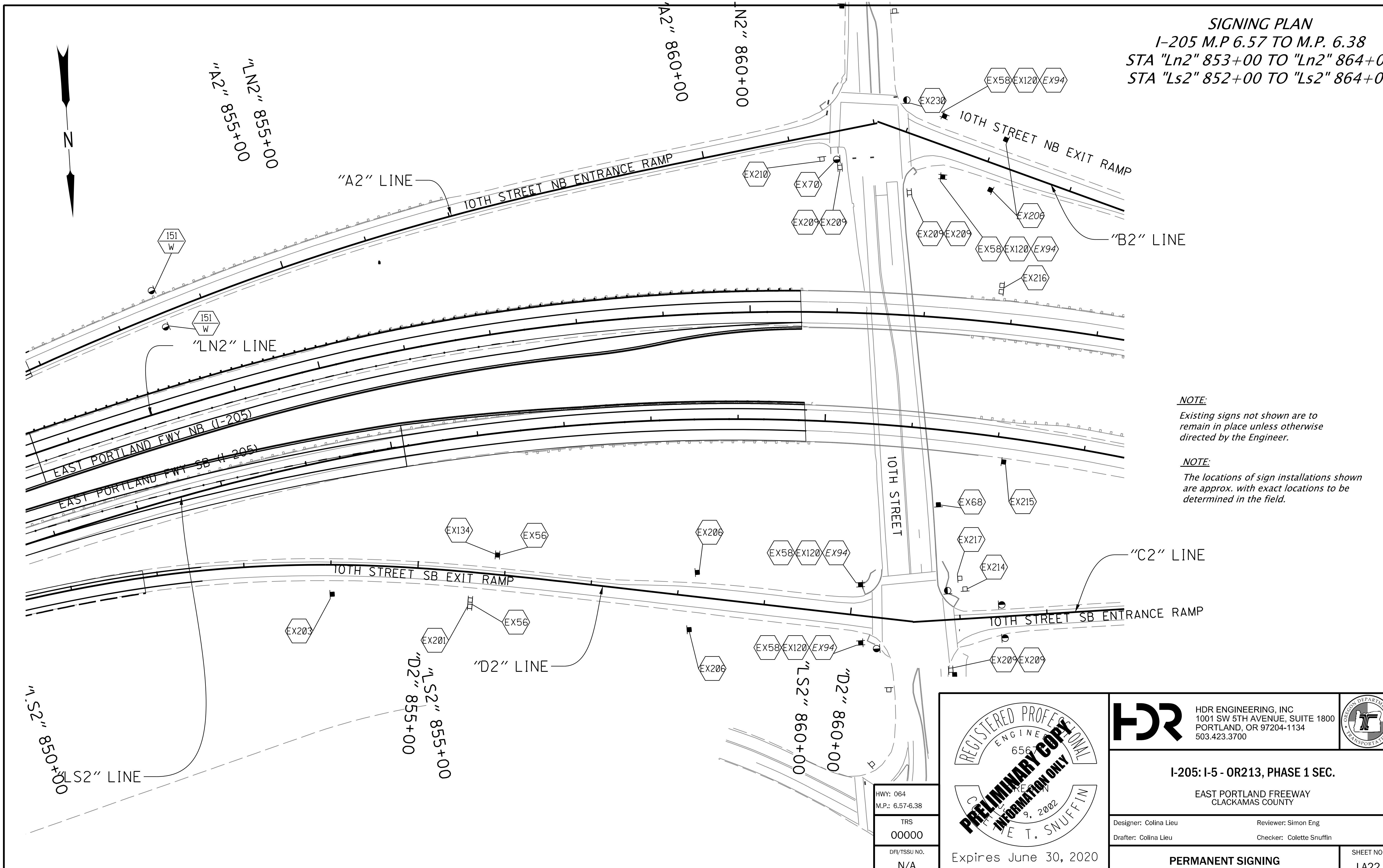
TN_K19786_HDR_snpl_02_09132019.dgn :: LA21 7/17/2020 2:37:21 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 190.2392° Scale: 1"=100'

SIGNING PLAN

I-205 M.P 6.57 TO M.P. 6.38
STA "Ln2" 853+00 TO "Ln2" 864+00
STA "Ls2" 852+00 TO "Ls2" 864+00



NOTE:

Existing signs not shown are to remain in place unless otherwise directed by the Engineer.

NOTE:

The locations of sign installations shown are approx. with exact locations to be determined in the field.

REGISTERED PROFESSIONAL ENGINEER 65675 OREGON ... 9, 2002 COLETTE T. SNUFFIN

PRELIMINARY COPY INFORMATION ONLY

Expires June 30, 2020

HWY: 064
M.P.: 6.57-6.38

TRS
00000

DFI/TSSU NO.
N/A

HDR

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LA22

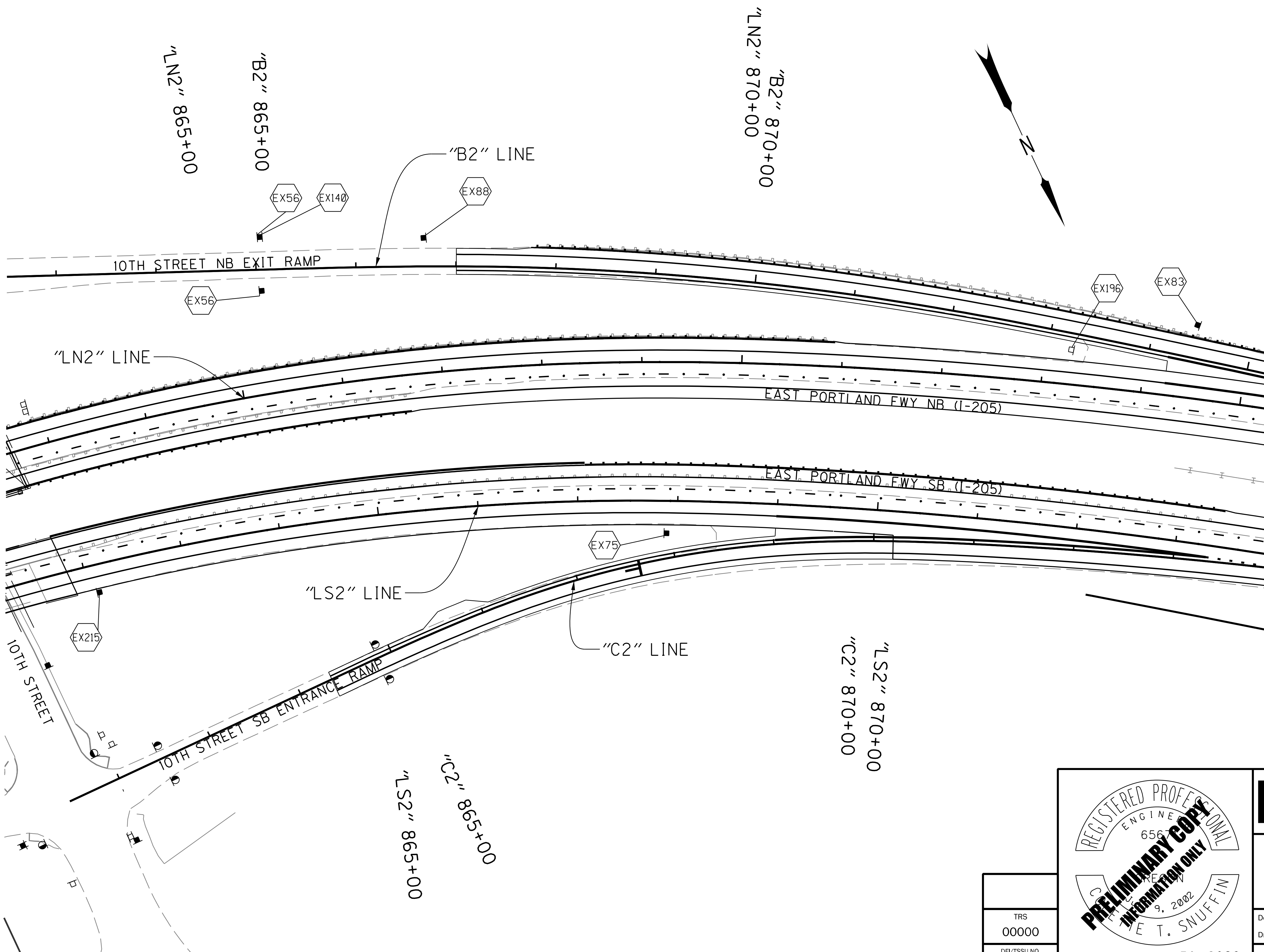
TN_K19786_HDR_snpl_02_09132019.dgn :: LA22   7/17/2020 2:37:22 PM   CAMAKOH

761

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 176.5124°   Scale: 1"=100'

SIGNING PLAN
I-205 M.P 6.38 TO M.P. 6.16
STA "Ln2" 864+00 TO "Ln2" 875+00
STA "Ls2" 863+00 TO "Ls2" 873+00



NOTE:
No signing work on this sheet.
Included for continuity only.

NOTE:
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NOTE:
The locations of sign installations shown are approx. with exact locations to be determined in the field.

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PRELIMINARY COPY INFORMATION ONLY
Expires June 30, 2020

TRS 00000
DFI/TSSU NO. N/A

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

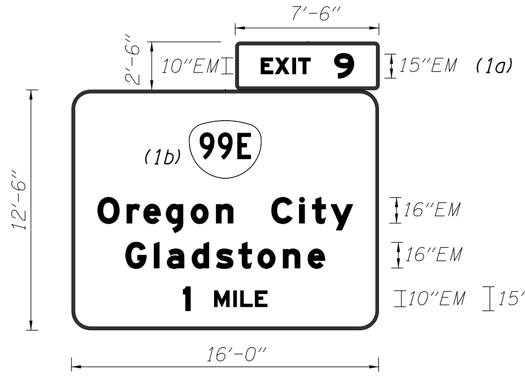
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

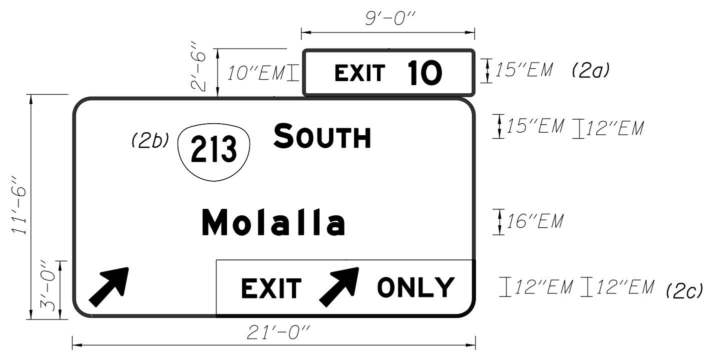
PERMANENT SIGNING

SHEET NO. LA23

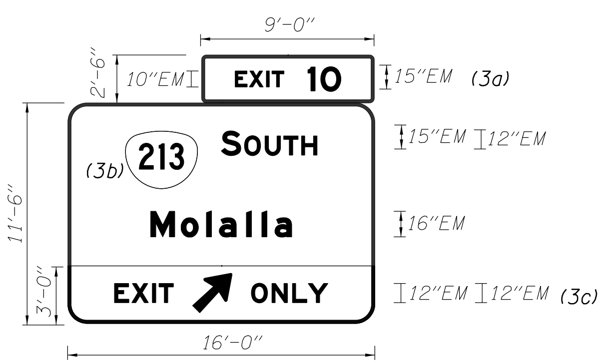
SIGNING DETAILS



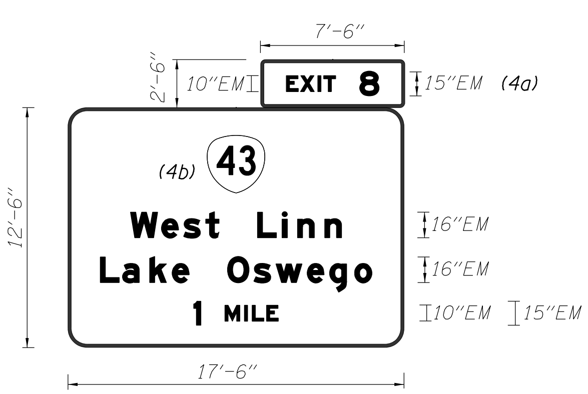
Sign 1



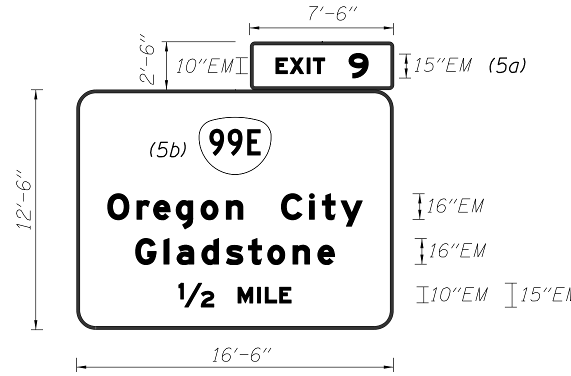
Sign 2



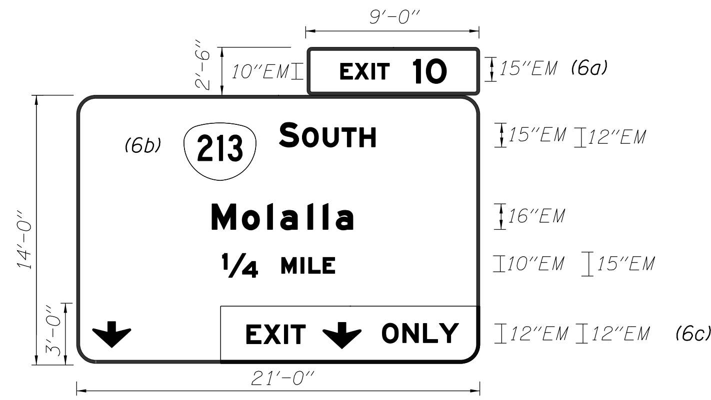
Sign 3



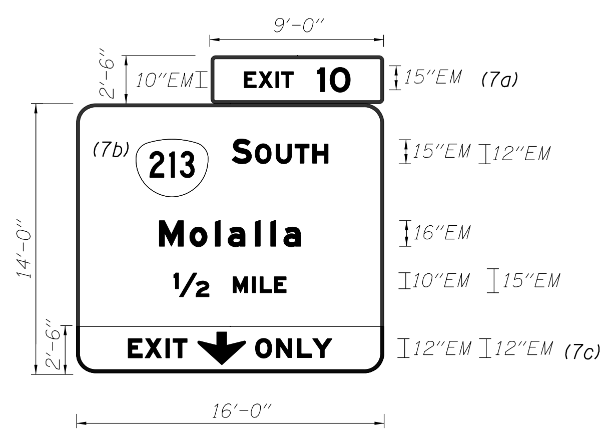
Sign 4



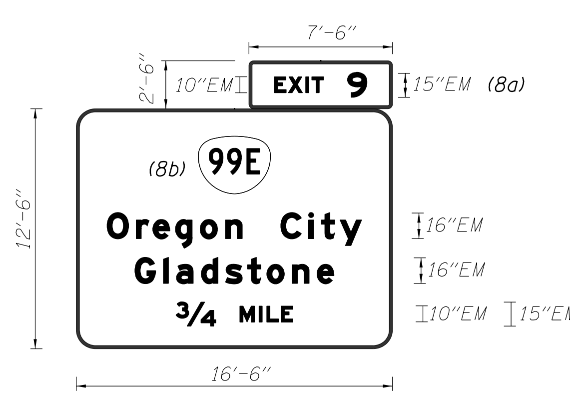
Sign 5



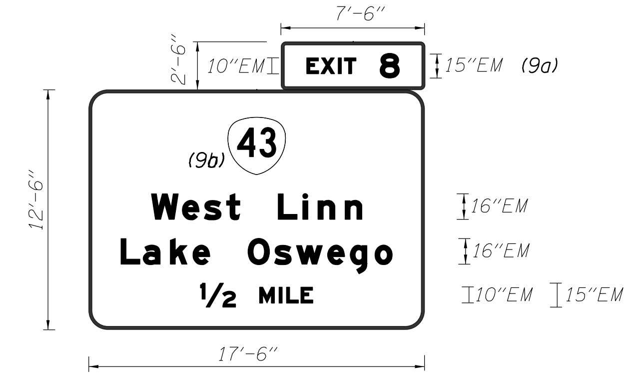
Sign 6



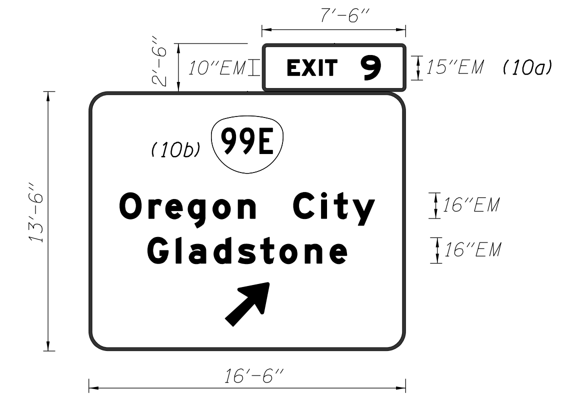
Sign 7



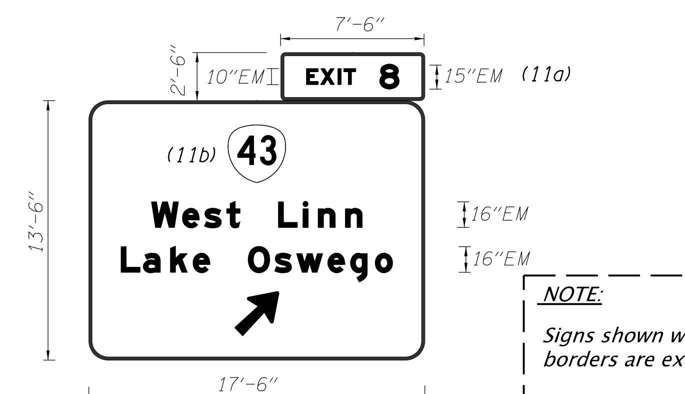
Sign 8



Sign 9



Sign 10



Sign 11

NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

REGISTERED PROFESSIONAL ENGINEER 65676 OREGON COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

HWY: 064	
M.P.: 6.16-11.06	
TRS	00000
DFI/TSSU NO.	N/A

I-205: I-5 - OR213, PHASE 1 SEC.

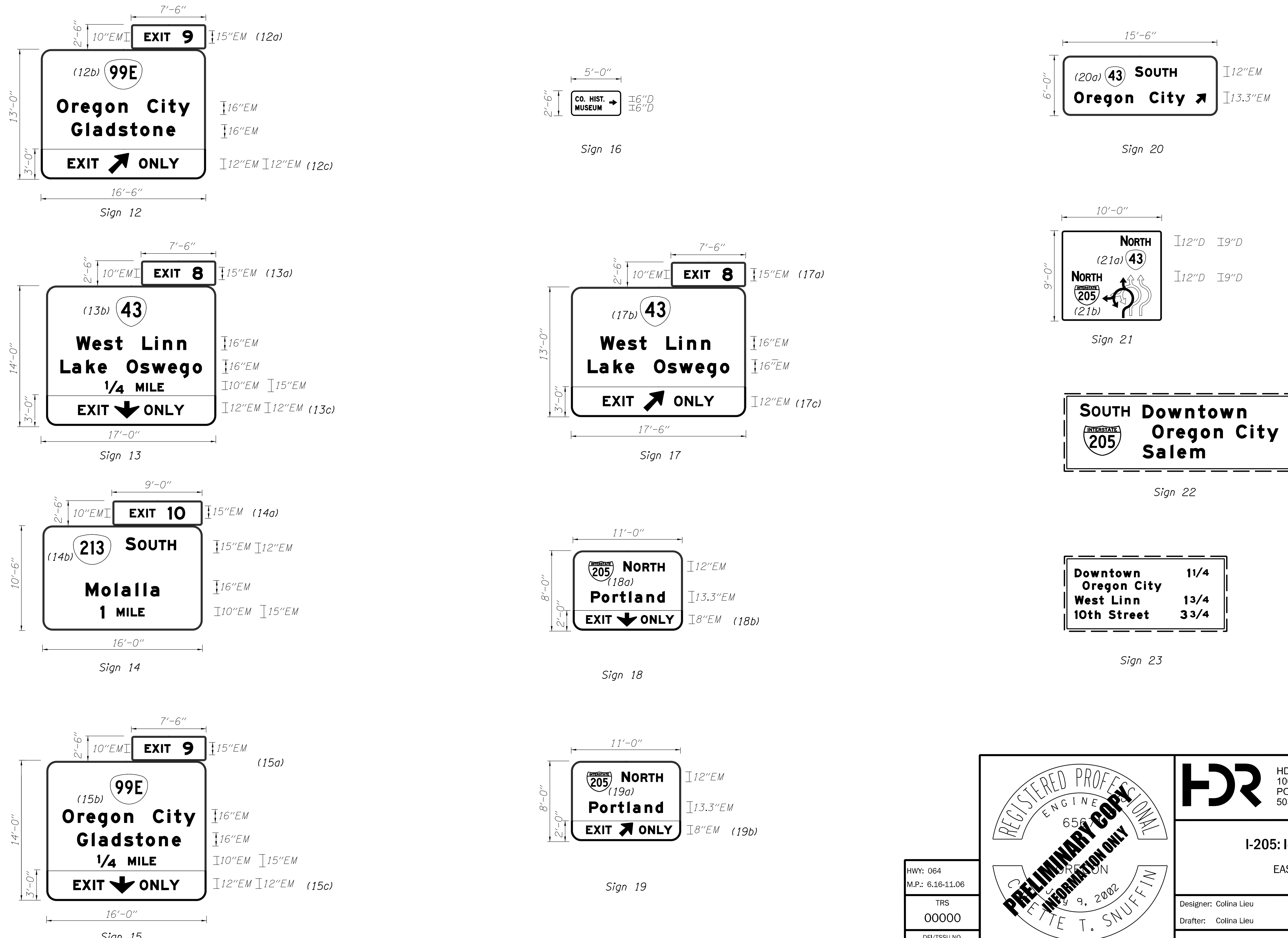
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu — Reviewer: Simon Eng
Drafter: Colina Lieu — Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LB01

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

REGISTERED PROFESSIONAL ENGINEER 65671 OREGON JULY 9, 2002 COLETTE T. SNUFFIN

PRELIMINARY COPY INFORMATION ONLY

Expires June 30, 2020

HWY: 064
M.P.: 6.16-11.06

TRS
00000

DFI/TSSU NO.
N/A

HDR

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

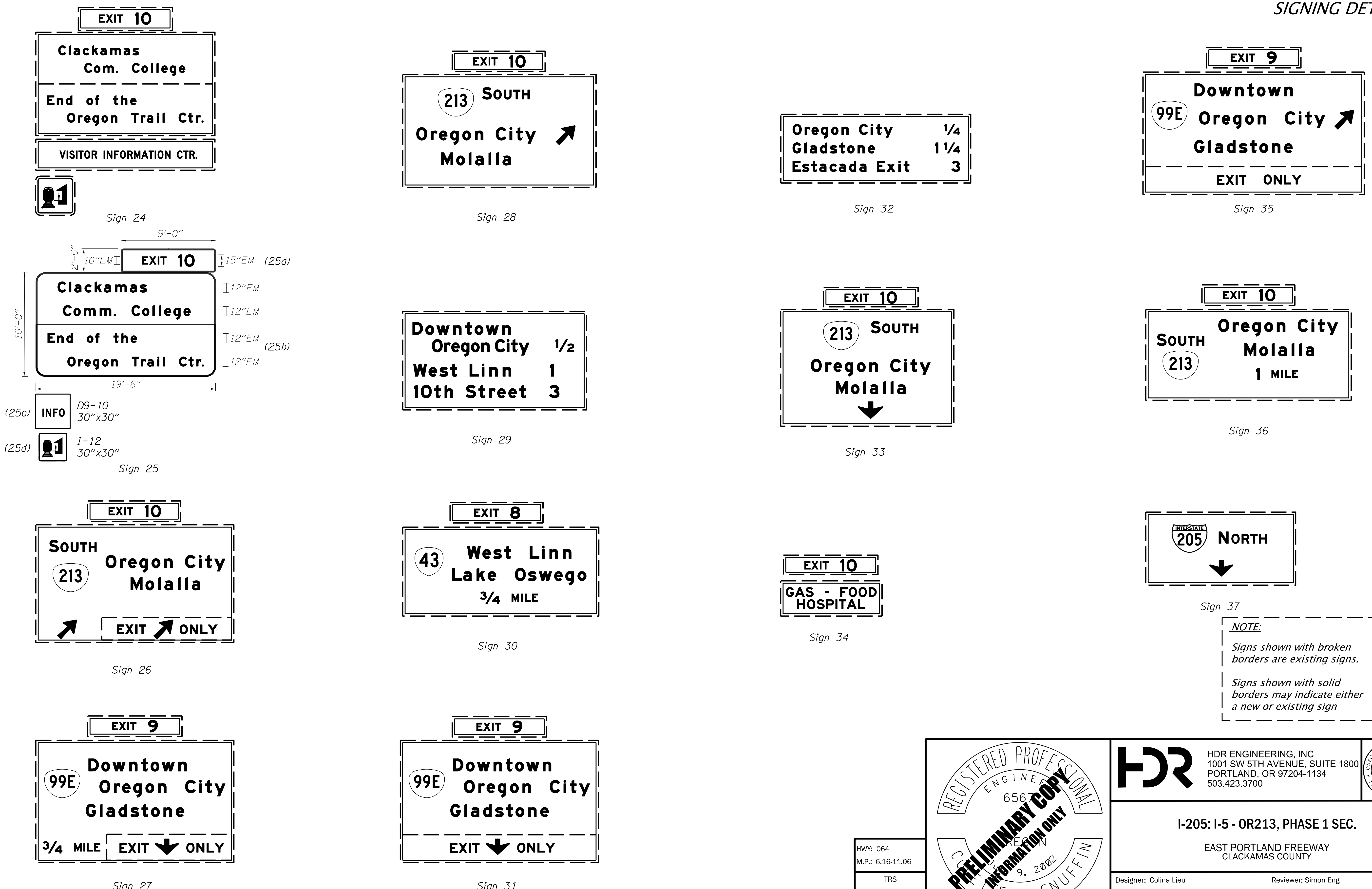
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu	Reviewer: Simon Eng
Drafter: Colina Lieu	Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LB02

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY: 064
M.P.: 6.16-11.06

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
6567
OREGON
9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LB03

EXIT 8
43 West Linn
Lake Oswego
EXIT ONLY

Sign 38

10'-0"
6'-0"
205 NORTH
(39a)
LEFT LANE
12"EM
10"EM

Sign 39

13'-0"
6'-0"
14th Street
13.3"EM

Sign 40

13'-6"
7'-6"
Downtown
Oregon City
13.3"EM
13.3"EM

Sign 41

NORTH
205

Sign 42

SPEED LIMIT 55
R2-1
48"x 60"

Sign 43

SOUTH
205

Sign 44

EXIT 8
43 West Linn
Lake Oswego
EXIT ONLY

Sign 45

Oregon City
43

Sign 46

205 NORTH

Sign 47

14'-6"
8'-0"
(48a) 43
Lake Oswego
NEXT RIGHT
13.3"EM
10"EM

Sign 48

EXIT 9
99E Downtown
Oregon City
Gladstone
3/4 MILE

Sign 49

NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

REGISTERED PROFESSIONAL ENGINEER
656??
OREGON
... 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020
PRELIMINARY COPY
INFORMATION ONLY

HDR

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

HWY: 064
M.P.: 6.16-11.06

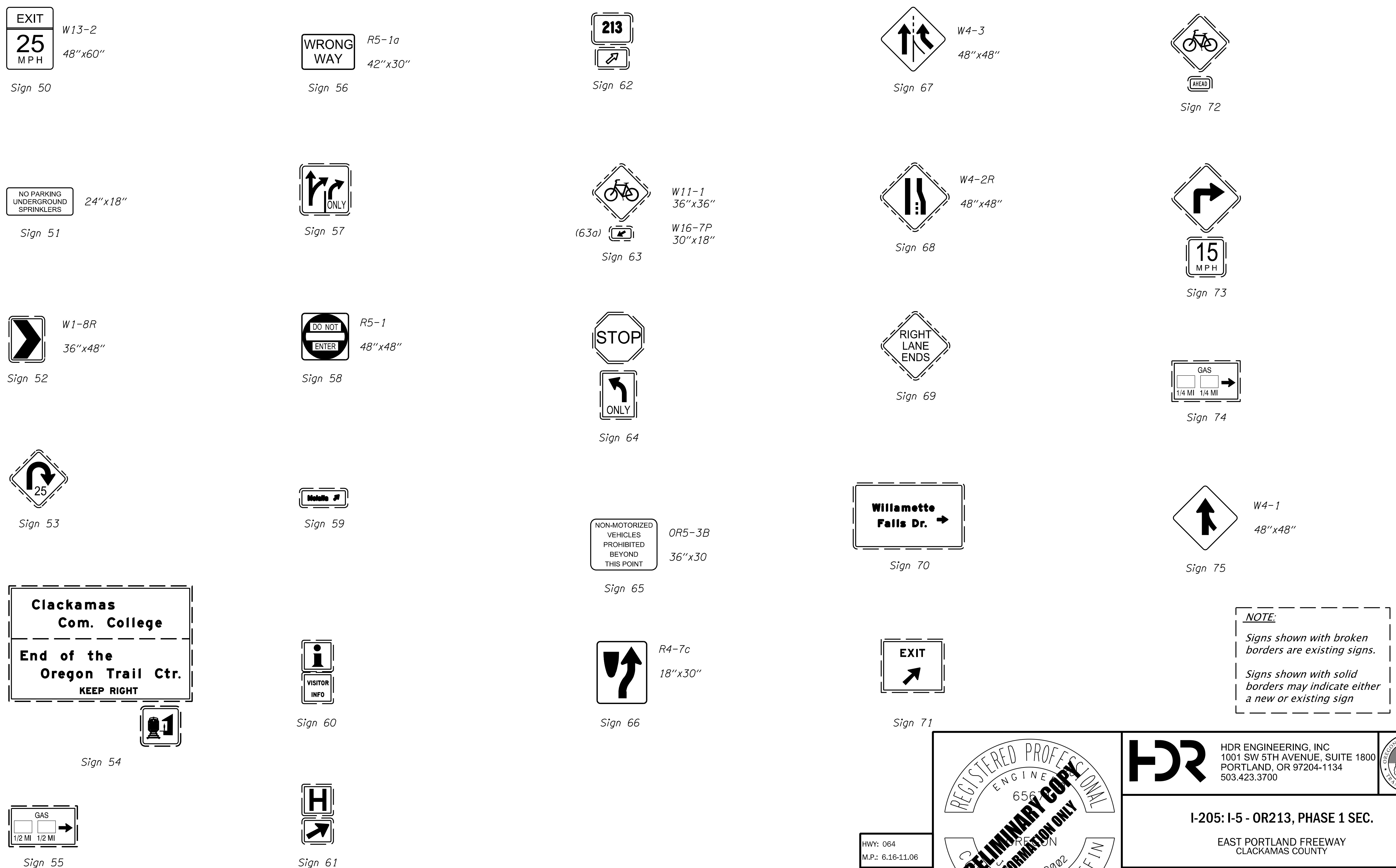
TRS
00000

DFI/TSSU NO.
N/A

Designer: Colina Lieu
Drafter: Colina Lieu
Reviewer: Simon Eng
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LB04



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY: 064
M.P.: 6.16-11.06

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65675
OREGON
May 9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

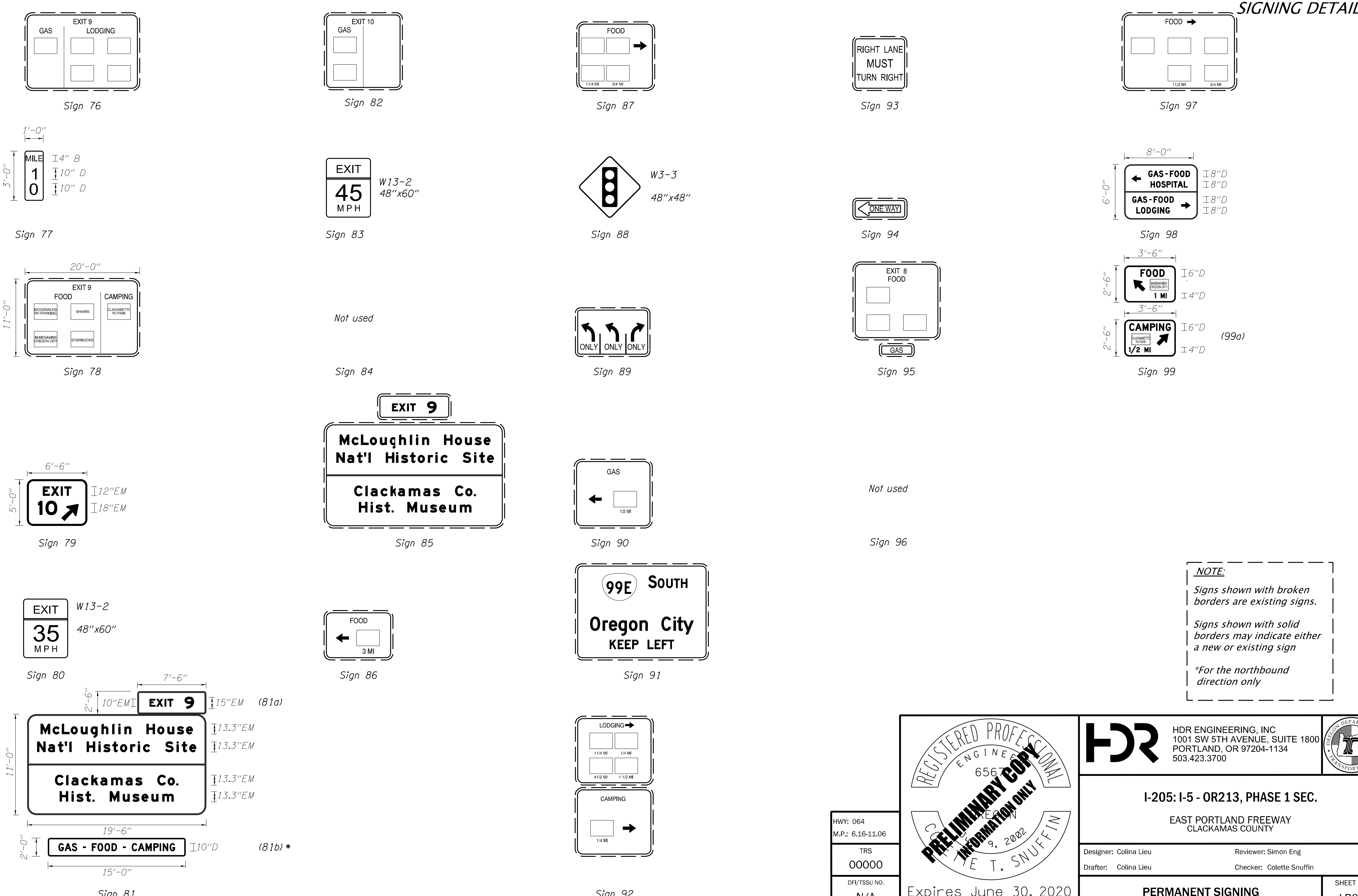
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LB05

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

*For the northbound direction only

HWY: 064	
M.P.: 6.16-11.06	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 65671 OREGON COLETTE T. SNUFFIN

PRELIMINARY COPY INFORMATION ONLY

Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

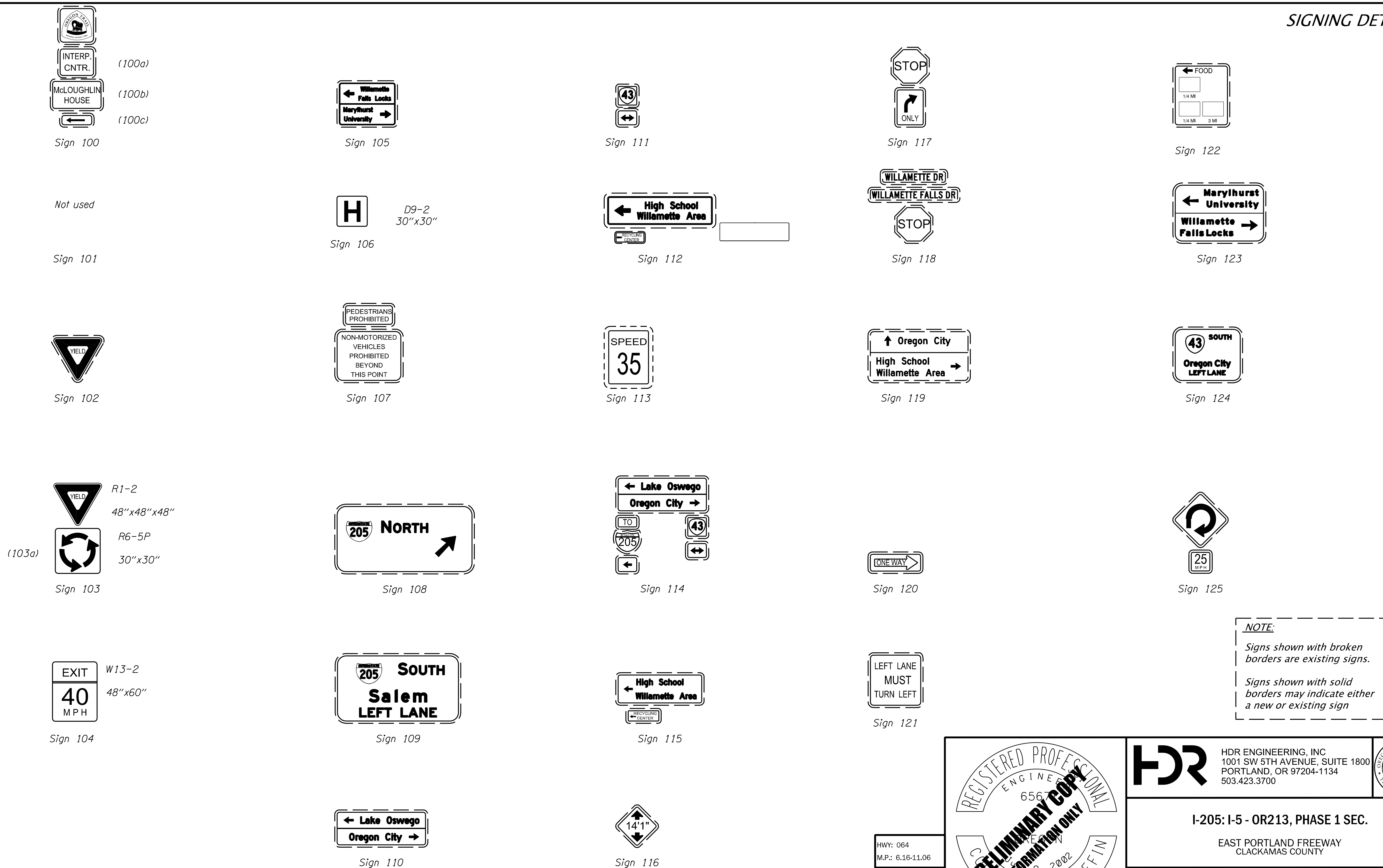
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LB06

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY:	064
M.P.:	6.16-11.06
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER
65671
OREGON
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

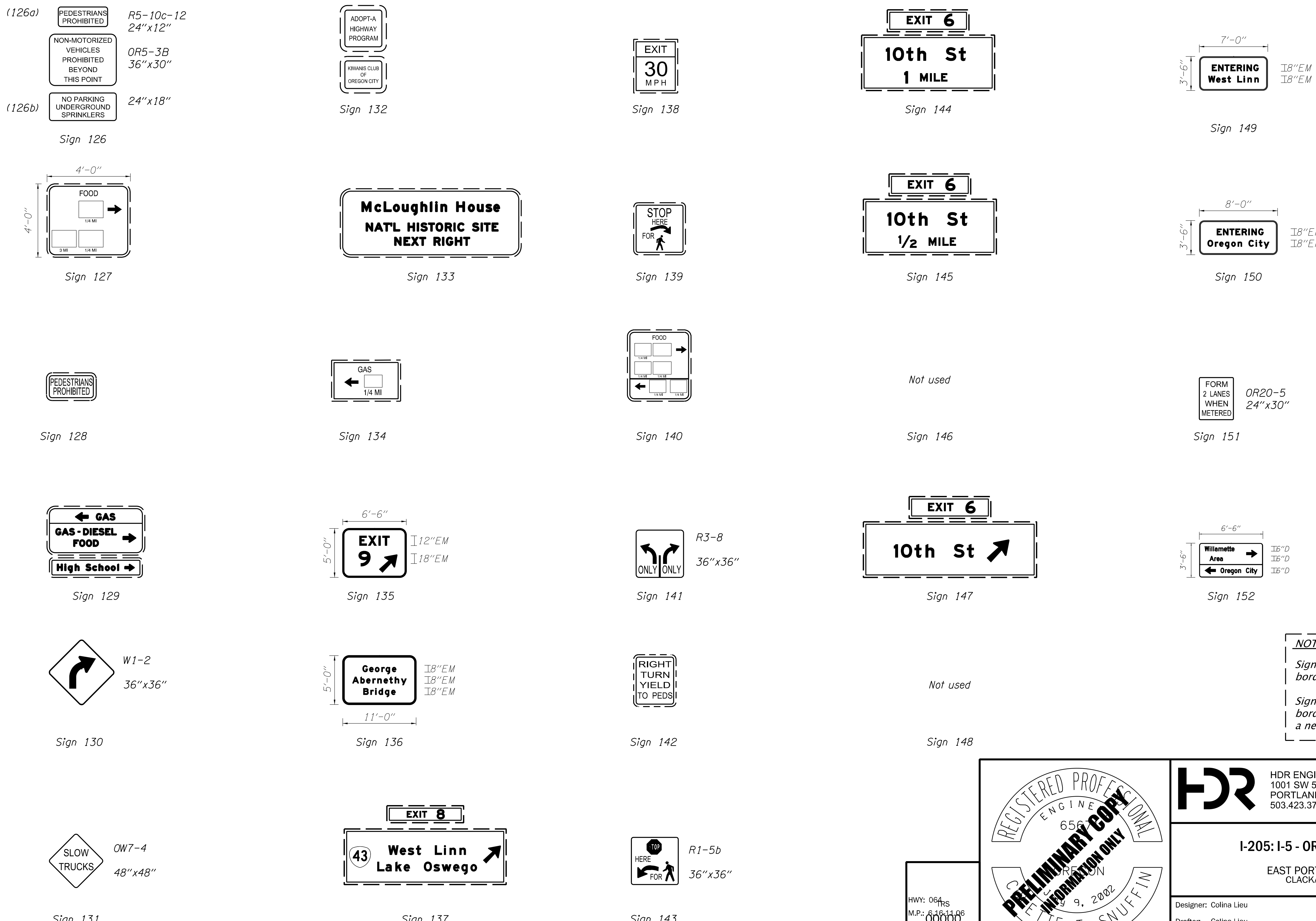
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LB07

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY: 064 M.P.: 6.16-11.06

TRS 00000

DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER 6567 OREGON JULY 9, 2002 COLETTE T. SNUFFIN

PRELIMINARY COPY INFORMATION ONLY

Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

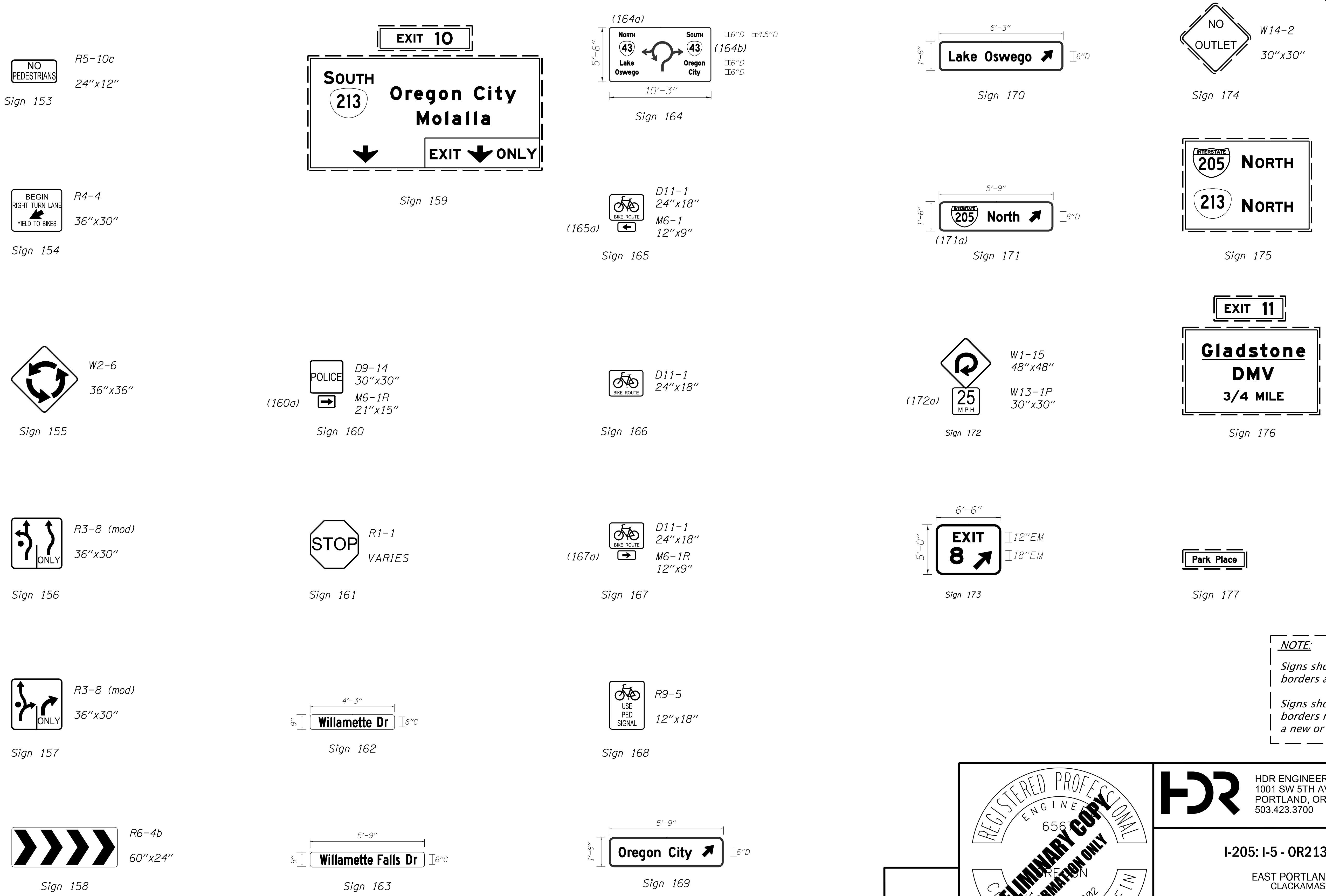
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu — Reviewer: Simon Eng
Drafter: Colina Lieu — Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LB08

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

REGISTERED PROFESSIONAL ENGINEER 656.. OREGON ... 9, 2002 COLETTE T. SNUFFIN

PRELIMINARY COPY INFORMATION ONLY

Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

TRS
HWY: 064
M.P.: 0.18-11.06
00000

DFI/TSSU NO.
N/A

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

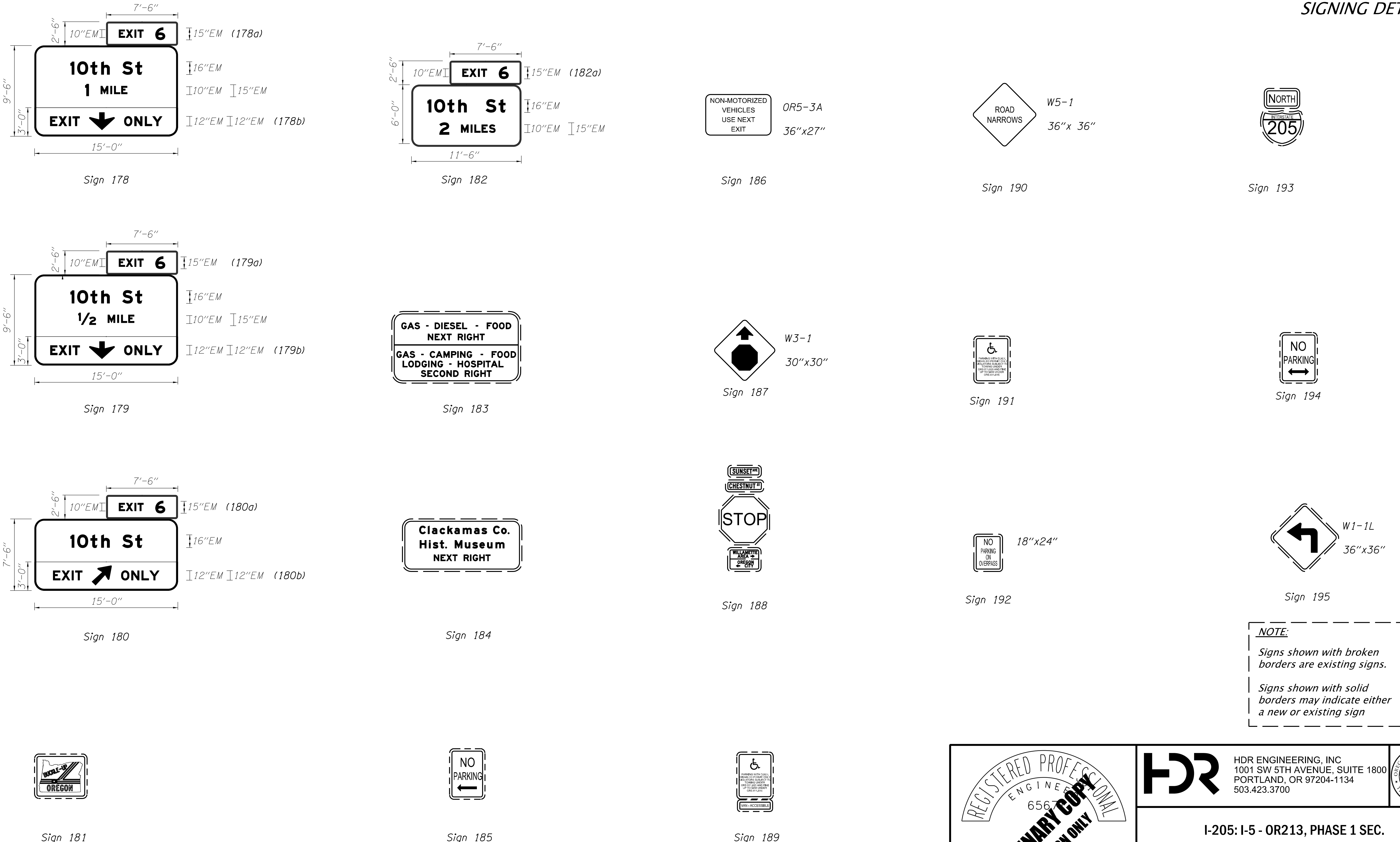
SHEET NO.
LB09

TN_K19786_HDR_sndt_01_A2.dgn :: LB01-LB05 7/21/2020 5:38:35 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: N/A

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

REGISTERED PROFESSIONAL ENGINEER
65674
OREGON
JANUARY 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

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INFORMATION ONLY

HDR
HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

HWY: 064
M.P.: 6.16-11.06

TRS
00000

DFI/TSSU NO.
N/A

I-205: I-5 - OR213, PHASE 1 SEC.

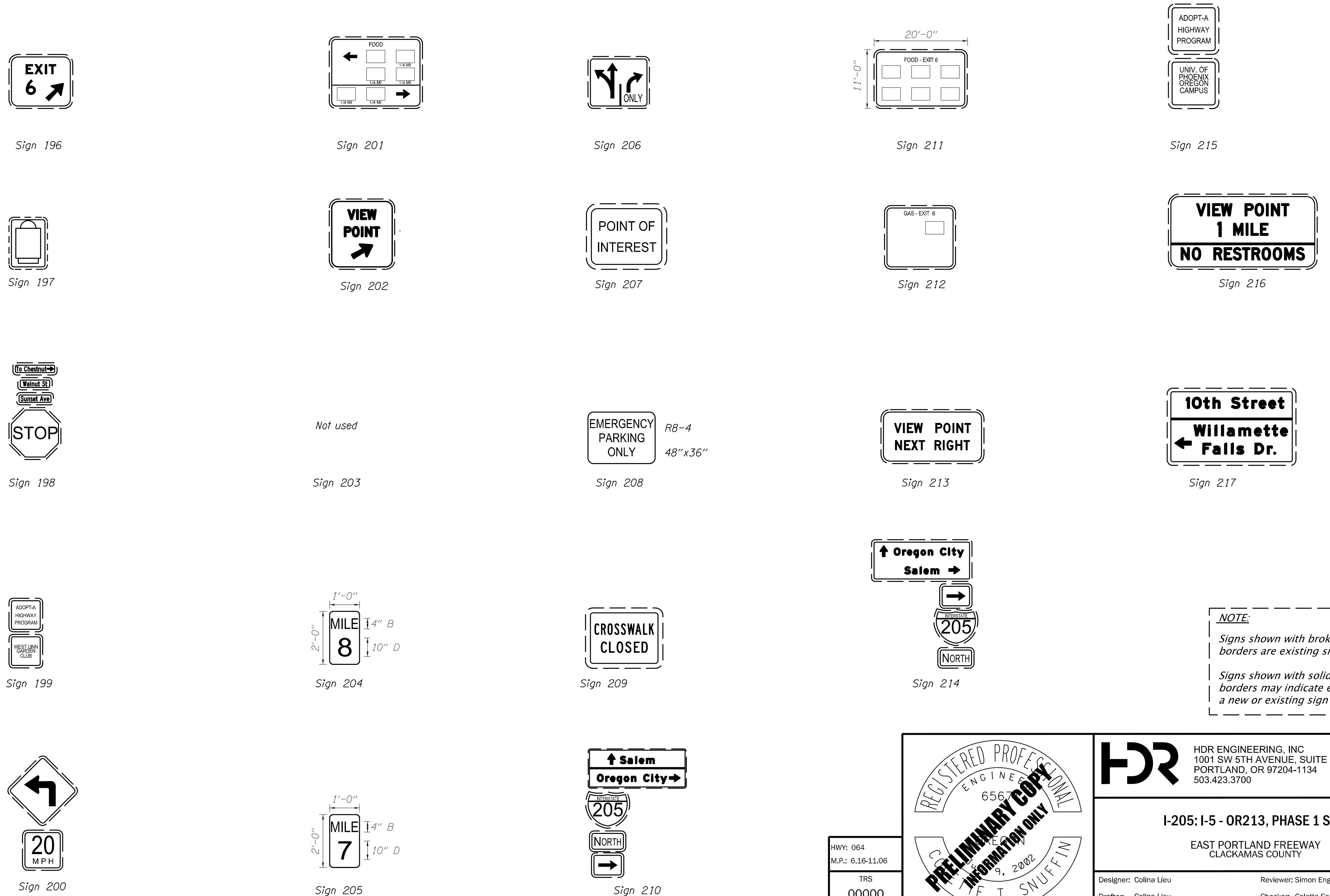
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO.
LB10

SIGNING DETAILS



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY: 064	
M.P.: 6.16-11.06	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 65673 OREGON ... 9, 2002 COLETTE T. SNUFFIN

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Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

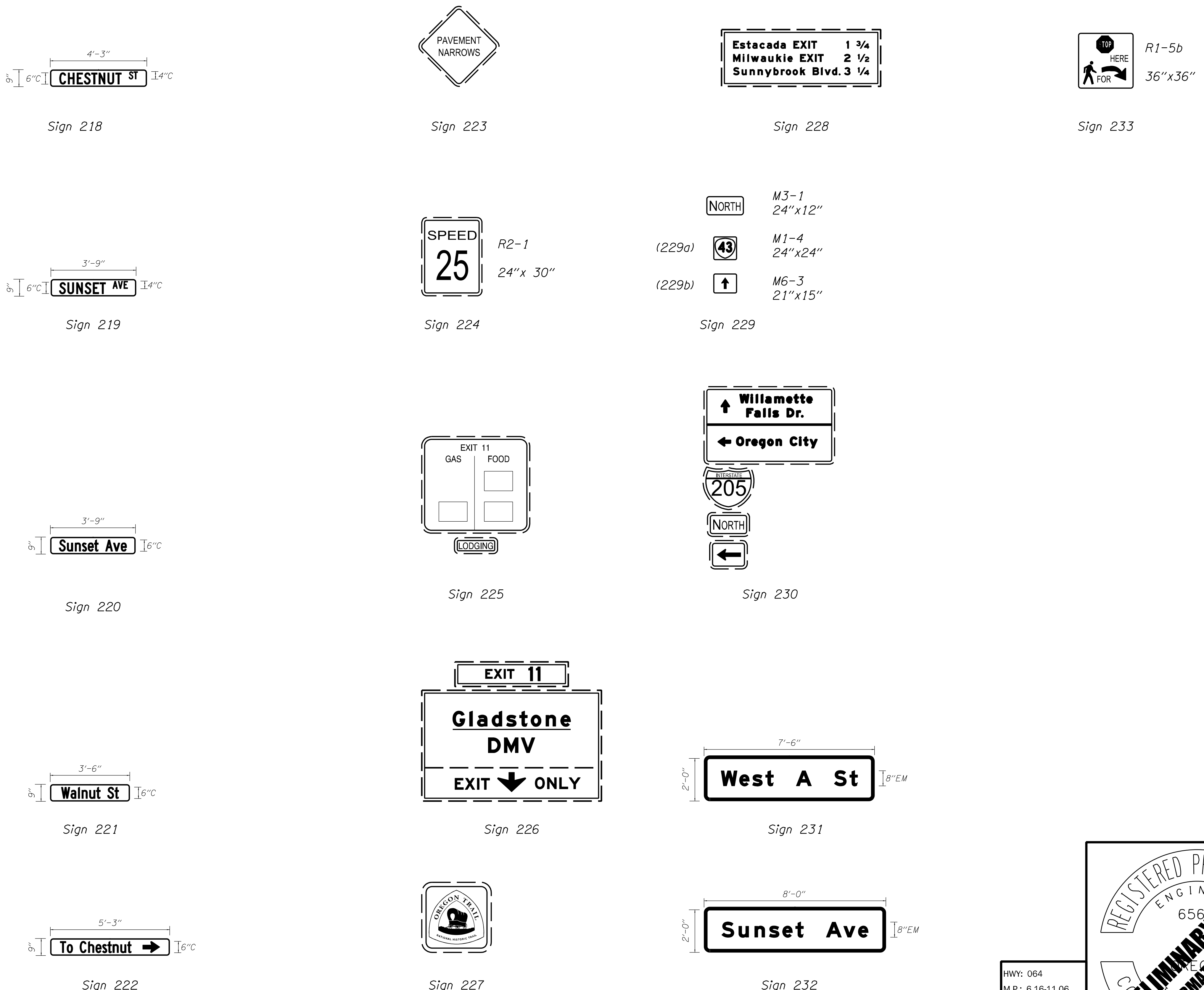
OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu — Reviewer: Simon Eng
Drafter: Colina Lieu — Checker: Colette Snuffin

PERMANENT SIGNING — SHEET NO. LB11



NOTE:

Signs shown with broken borders are existing signs.

Signs shown with solid borders may indicate either a new or existing sign

HWY: 064	
M.P.: 6.16-11.06	
TRS	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 65675 OREGON ... 9, 2002 COLETTE T. SNUFFIN

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Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu — Reviewer: Simon Eng
Drafter: Colina Lieu — Checker: Colette Snuffin

PERMANENT SIGNING

SHEET NO. LB12

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 - TM233)
1	SB "9B-3-1" 637+27 Rt.	16'-0"	12'-6"			✓	G			W			✓
1a		7'-6"	2'-6"			✓	G			W			✓
1b		3'-9"	3'-0"		✓			SW			BK	✓	
2	SB "L" 654+22 Rt.	21'-0"	11'-6"			✓	G			W			✓
2a		9'-0"	2'-6"			✓	G			W			✓
2b		3'-9"	3'-0"		✓			SW			BK	✓	
2c		13'-6"	3'-0"			✓		FY			BK		✓
3	NB "L" 673+10 Lt.	16'-0"	11'-6"			✓	G			W			✓
3a		9'-0"	2'-6"			✓	G			W			✓
3b		3'-9"	3'-0"		✓			SW			BK	✓	
3c		16'-0"	3'-0"			✓		FY			BK		✓
4	SB "L" 673+05 Rt.	17'-6"	12'-6"			✓	G			W			✓
4a		7'-6"	2'-6"			✓	G			W			✓
4b		3'-0"	3'-0"		✓			SW			BK	✓	
4	NB "Ln" 808+42 Lt.	17'-6"	12'-6"			✓	G			W			✓
4a		7'-6"	2'-6"			✓	G			W			✓
4b		3'-0"	3'-0"		✓			SW			BK	✓	
5	SB "L" 673+05 Rt.	16'-6"	12'-6"			✓	G			W			✓
5a		7'-6"	2'-6"			✓	G			W			✓
5b		3'-9"	3'-0"		✓			SW			BK	✓	
6	SB "9B-3-1" 637+27 Rt.	21'-0"	14'-0"			✓	G			W			✓
6a		9'-0"	2'-6"			✓	G			W			✓
6b		3'-9"	3'-0"		✓			SW			BK	✓	
6c		13'-6"	3'-0"			✓		FY					✓
7	NB "L" 693+92 Lt.	16'-0"	14'-0"			✓	G			W			✓
7a		9'-0"	2'-6"			✓	G			W			✓
7b		3'-9"	3'-0"		✓			SW			BK	✓	
7c		16'-0"	2'-6"			✓		FY			BK		✓

SIGN NO. 2/	WOOD POST (TM670-TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687-TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H - FRAME	MULTI-POST BREAKAWAY (TM220, TM600-TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622-TM627)	SIGN BRIDGE (TM606-TM612, TM614-TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221-TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
1																	✓									Install on exist.sign bridge.For details see LD sheets.
1a													✓									(2) S3x5.7	7'-0"			
1b																										
2																	✓									
2a													✓									(2) S3x5.7	7'-0"			Install on exist.sign bridge.For details see LD sheets.
2b																										
2c																										
3												✓														Install on new sign bridge.For details see LD sheets.
3a													✓									(2) S3x5.7	7'-0"			
3b																										
3c																										
4												✓														Install on new sign bridge.For details see LD sheets.
4a													✓									(2) S3x5.7	7'-0"			
4b																										
4											✓															Install on new cantilever.For details see LD sheets.
4a													✓									(2) S3x5.7	7'-0"			
4b																										
5												✓														Install on new sign bridge.For details see LD sheets.
5a													✓									(2) S3x5.7	7'-0"			
5b																										
6																	✓									Install on new sign bridge.For details see LD sheets.
6a													✓									(2) S3x5.7	7'-0"			
6b																										
6c																										
7												✓														Install on new sign bridge.For details see LD sheets.
7a													✓									(2) S3x5.7	7'-0"			
7b																										
7c																										

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 064
M.P.: 8.48-11.06
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656..
OREGON
.. 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC01

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUBSTRATE PLYWOOD	SUBSTRATE SHEET ALUMINUM	SUBSTRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 - TM233)	SIGN NO. 2/	WOOD POST (TM670-TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687-TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H - FRAME	MULTI-POST BREAKAWAY (TM220, TM600-TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622-TM627)	SIGN BRIDGE (TM606-TM612, TM614-TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221-TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
8	NB "Lc2" 744+04 Lt.	16'-6"	12'-6"			√	G			W			√	8										√																Install on exist.structure.For details see LD sheets.
8a		7'-6"	2'-6"			√	G			W			√	8a													√									(2) S3x5.7	7'-0"			
8b		3'-9"	3'-0"		√			SW			BK	√		8b																										
9	SB "L" 693+87 Rt.	17'-6"	12'-6"			√	G			W			√	9												√														Install on new sign bridge.For details see LD sheets.
9a		7'-6"	2'-6"			√	G			W			√	9a													√									(2) S3x5.7	7'-0"			
9b		3'-0"	3'-0"		√			SW			BK	√		9b																										
9	NB "Lnc" 773+66 Lt.	17'-6"	12'-6"			√	G			W			√	9											√															Install on new cantilever.For details see LD sheets.
9a		7'-6"	2'-6"			√	G			W			√	9a													√									(2) S3x5.7	7'-0"			
9b		3'-0"	3'-0"		√			SW			BK	√		9b																										
10	SB "L" 693+87 Rt.	16'-6"	13'-6"			√	G			W			√	10												√														Install on new sign bridge.For details see LD sheets.
10a		7'-6"	2'-6"			√	G			W			√	10a													√									(2) S3x5.7	7'-0"			
10b		3'-9"	3'-0"		√			SW			BK	√		10b																										
11	NB "Lc2" 748+62 Lt.	17'-6"	13'-6"			√	G			W			√	11											√															Install on new cantilever.For details see LD sheets.
11a		7'-6"	2'-6"			√	G			W			√	11a													√									(2) S3x5.7	7'-0"			
11b		3'-0"	3'-0"		√			SW			BK	√		11b																										
12	NB "L" 712+59 Lt.	16'-6"	13'-0"			√	G			W			√	12												√														Install on new sign bridge.For details see LD sheets.
12a		7'-6"	2'-6"			√	G			W			√	12a													√									(2) S3x5.7	7'-0"			
12b		3'-9"	3'-0"		√			SW			BK	√		12b																										
12c		16'-6"	3'-0"			√		FY			BK		√	12c																										
13	SB "L" 712+51 Rt.	17'-0"	14'-0"			√	G			W			√	13												√														Install on new sign bridge.For details see LD sheets.
13a		7'-6"	2'-6"			√	G			W			√	13a													√									(2) S3x5.7	7'-0"			
13b		3'-0"	3'-0"		√			SW			BK	√		13b																										
13c		17'-0"	3'-0"			√		FY			BK		√	13c																										
14	SB "9B-3-1" 616+55 Rt.	16'-0"	10'-6"			√	G			W			√	14										√																Install on exist.structure.For details see LD sheets.
14a		9'-0"	2'-6"			√	G			W			√	14a													√									(2) S3x5.7	7'-0"			
14b		3'-9"	3'-0"		√			SW			BK	√		14b																										

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 064
M.P.: 8.48-11.06

TRS
00000

DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656
OREGON
JULY 9, 2002
COLETTE T. SNUFFIN
Expires June 30, 2020

PRELIMINARY COPY
INFORMATION ONLY

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC02

TN_K19786_HDR_snpd_01.dgn :: LC01-LC03 7/17/2020 2:37:38 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: N/A

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 - TM233)	SIGN NO. 2/	WOOD POST (TM670-TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687-TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H - FRAME	MULTI-POST BREAKAWAY (TM220, TM600-TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622-TM627)	SIGN BRIDGE (TM606-TM612, TM614-TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221-TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
14	NB "L" 722+88 Lt.	16'-0"	10'-6"			✓	G			W			✓	14												✓														Install on new sign bridge.For details see LD sheets.
14a		9'-0"	2'-6"			✓	G			W			✓	14a													✓									(2) S3x5.7	7'-0"			
14b		3'-9"	3'-0"		✓			SW			BK	✓		14b																										
15	NB "L" 722+88 Lt.	16'-0"	14'-0"			✓	G			W			✓	15												✓														Install on new sign bridge.For details see LD sheets.
15a		7'-6"	2'-6"			✓	G			W			✓	15a													✓									(2) S3x5.7	7'-0"			
15b		3'-9"	3'-0"		✓			SW			BK	✓		15b																										
15c		16'-0"	3'-0"			✓		FY			BK		✓	15c																										
16	NB "B4" 737+63 Lt.	5'-0"	2'-6"		✓		BR		SW			✓		16	✓																					4" x 6"	16'-0"			
17	SB "L" 722+83 Rt.	17'-6"	13'-0"			✓	G			W			✓	17												✓														Install on new sign bridge.For details see LD sheets.
17a		7'-6"	2'-6"			✓	G			W			✓	17a													✓									(2) S3x5.7	7'-0"			
17b		3'-0"	3'-0"		✓			SW			BK	✓		17b																										
17c		17'-6"	3'-0"			✓		FY			BK		✓	17c																										
18	SB "OR43" 5+93 Rt.	11-0"	8'-0"			✓	G			W			✓	18																	✓									Install on exist.structure.For details see LD sheets.
18a		2'-6"	2'-0"		✓		RB			W		✓		18a																										
18b		11-0"	2'-0"			✓		FY			BK		✓	18b																										
19	SB "OR43" 7+26 Rt.	11-0"	8'-0"			✓	G			W			✓	19										✓																Install on exist.structure.For details see LD sheets.
19a		2'-6"	2'-0"		✓		RB			W		✓		19a																										
19b		11-0"	2'-0"			✓		FY			BK		✓	19b																										
20	SB "OR43" 7+27 Rt.	15-6"	6'-0"			✓	G			W			✓	20										✓																Install on exist.structure.For details see LD sheets.
20a		2'-0"	2'-0"		✓			SW			BK	✓		20a																										
21	NB "OR43" 15+90 Lt.	10'-0"	9'-0"			✓	G			W			✓	21											✓															Install on new cantilever.For details see LD sheets.
21a		2'-0"	2'-0"		✓			SW			BK	✓		21a																										
21b		2'-6"	2'-0"		✓		RB			W		✓		21b																										

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 064
M.P.: 8.48-11.06
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656
OREGON
9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR
HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC03

TN_K19786_HDR_snpd_01.dgn :: LC01-LC03 7/17/2020 2:37:39 PM CAMAKOH

777

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: N/A

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
25	SB "9B-3-1" 646+80 Rt.	19'-6"	10-0"			√	G			W			√	25L					√																	W12 x 30	22'-9"	30'-0"	13-3"	3/ Distance from edge of travel lane
25														25R					√																	W12 x 30	22'-10"	41'-9"	13-3"	3/ Distance from edge of travel lane
25a		9'-0"	2'-6"			√	G			W			√	25a													√									(2) S3x5.7	7'-0"			
25b		19'-6"	5'-0"		√		BR		SW			√		25b																										Use brown background sheeting for sign 25b
25c		30"	30"		√		G			W		√		25c																										
25d		30"	30"		√		BL		SW			√		25d																										
25	NB "L" 703+70 Lt.					√	G			W			√	25R					√																	W12 x 30	23'-1"	30'-0"	13'-3"	3/ Distance from edge of travel lane
25														25L					√																	W12 x 30	22'-10"	41'-9"	13'-3"	3/ Distance from edge of travel lane
25a						√	G			W			√	25a													√									(2) S3x5.7	7'-0"			
25b							BR		SW					25b																										Use brown background sheeting for sign 25b
25c					√		G			W		√		25c																										
25d					√		BL		SW			√		25d																										
39	SB "E2" 112+32 Rt.	10'-0"	6'-0"			√	G			W			√	39										√																Install on exist.structure.For details see LD sheets.
39a		3'-9"	3'-0"		√		RB			W		√		39a																										
40	SB "E2" 112+38 Rt.	13'-0"	6'-0"			√	G			W			√	40										√																Install on exist.structure.For details see LD sheets.
41	SB "E2" 112+45 Rt.	13'-6"	7'-6"			√	G			W			√	41										√																Install on exist.structure.For details see LD sheets.
43	SB "9B-3-1" 640+04 Rt.	48"	60"		√			SW			BK	√		43	√																					6" x 6"	18'-0"			
43	SB "L" 681+69 Rt.	48"	60"		√			SW			BK	√		43	√																					6" x 6"	18'-0"			
43	NB "L" 685+00 Lt.	48"	60"		√			SW			BK	√		43	√																					6" x 8"	24'-0"			
43	NB "L" 686+97 Lt.	48"	60"		√			SW			BK	√		43							√																			
43	SB "L" 718+56 Rt.	48"	60"		√			SW			BK	√		43							√																			
43	NB "Lc2" 768+64 Lt.	48"	60"		√			SW			BK	√		43	√																					6" x 8"	18'-0"			
48	NB "E2" 113+84 Rt.	14'-6"	8'-0"			√	G			W			√	48										√																Install on exist.structure.For details see LD sheets.
48a		3'-0"	3'-0"		√			SW			BK	√		48a																										
50	SB "L" 657+76 Rt.	48"	60"		√		Y				BK	√		50	√																					6" x 6"	18'-0"			
50	SB "A2" 711+50 Rt.	48"	60"		√		Y				BK	√		50																		√								Install on concrete barrier.For details see LD sheets.
51	NB "E3" 740+10 Lt.	24"	18"		√		W				BK	√		51	√																					4" x 4"	14'-0"			

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 064
M.P.: 8.48-11.06
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656..
OREGON
... 9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC04

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
52	SB "L" 660+86 Rt.	36" (EX)	48" (EX)											52	√																					4" x 6"	18'-0"			Reinstall existing sign on new support.
56	NB "A2" 703+40 Lt.	42"	30"		√		R		SW			√		56																										Install sign on back of sign 99.
56	NB "A2" 704+60 Rt.	42"	30"		√		R		SW			√		56	√																					4" x 6"	16'-0"			
58	NB "A2" 701+71 Lt.	48"	48"		√		R		SW			√		58	√																					6" x 6"	18'-0"			
58	NB "B4" 736+68 Lt.	48"	48"		√		R		SW			√		58																										Install sign on back of sign 103.
65	NB "B2" 709+45 Lt.	36"	30"		√		W				BK	√		65	√																					4" x 4"	14'-0"			
65	NB "Lc2" 742+59 Lt.	36"	30"		√		W				BK	√		65	√																					4" x 4"	14'-0"			
66	NB "A2" 700+87 Rt.	18"	30"		√		Y				BK	√		66		√																				2" – 12 ga.	11'-6"			
67	NB "L" 654+55 Lt.	48"	48"		√		Y				BK	√		67	√																					6" x 6"	18'-0"			
67	SB "L" 704+50 Rt.	48"	48"		√		Y				BK	√		67	√																					6" x 6"	18'-0"			
67	NB "Lc2" 733+63 Lt.	48"	48"		√		Y				BK	√		67	√																					6" x 6"	18'-0"			
75	SB "L" 666+41 Rt.	48"	48"		√		Y				BK	√		75	√																					6" x 6"	18'-0"			
75	SB "Lc2" 743+40 Rt.	48"	48"		√		Y				BK	√		75	√																					6" x 6"	18'-0"			
77	NB "L" 672+19 Lt.	12	36"		√		G		SW			√		77															√							SEE TM222	6'-0"			
77	SB "L" 672+19 Rt.	12"	36"		√		G		SW			√		77															√							SEE TM222	6'-0"			
78	SB "L" 679+02 Rt.	20-0"(EX)	11-0"(EX)											78L					√																	W10 x 26	20'-6"	30'-0"	11'-0"	3/ Distance from edge of travel lane
78														78R					√																	W10 x 26	21'-1"	42'-0"	11'-0"	3/ Distance from edge of travel lane
79	NB "L" 666+73 Lt.	6'-6"	5'-0"			√	G			W			√	79			√																			6x6x3/16	12'-0"	30'-3"	5'-0"	3/ Distance from edge of travel lane
80	NB "E2" 669+15 Lt.	48"	60"		√		Y				BK	√		80	√																					6" x 6"	18'-0"			
80	NB "Lc2" 746+12 Lt.	48"	60"		√		Y				BK	√		80	√																					6" x 6"	18'-0"			
81	SB "L" 685+69 Rt.	19'-6"	11'-0"			√	BR		SW				√	81L					√																	W14 x 30	20'-8"	30'-0"	13'-9"	3/ Distance from edge of travel lane
81														81R					√																	W14 x 30	24'-0"	41'-6"	13'-9"	3/ Distance from edge of travel lane
81a		2'-6"	7'-6"			√	G			W			√	81a													√									(2) S3x5.7	7'-0"			

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN
RW=RED-WHITE

2/ 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 TM601, 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.

HWY: 064
M.P.: 8.48-11.06
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656
OREGON
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC05

TN_K19786_HDR_snpd_01.dgn :: LC01-LC03 7/17/2020 2:37:39 PM CAMAKOH

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: N/A

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	TYPE OF SUPPORT: WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
81	NB "Lc2" 739+07 Lt.	19'-6"	11'-0"			√	BR		SW				√	81R					√																	W12 x 26	20'-11"	30'-0"	12'-3"	3/ Distance from edge of travel lane
81														81L					√																	W12 x 26	20'-0"	41'-6"	12'-3"	3/ Distance from edge of travel lane
81a		2'-6"	7'-6"			√	G			W			√	81a													√									(2) S3x5.7	7'-0"			
81b		15'-0"	2'-0"			√	BL			W			√	81b																										
82	NB "L" 696+67.9 Rt.													82					√																					Sign supports will be evaluated after 60% Plans.
83	SB "C2" 698+75 Rt.	48"	60"		√		Y				BK	√		83	√																					6" x 6"	18'-0"			
83	SB "D2" 848+72 Rt.	48"	60"		√		Y				BK	√		83	√																					6" x 6"	18'-0"			
88	NB "A2" 707+04 Lt.	48"	48"		√		Y				BK	√		88	√																					6" x 6"	18'-0"			
88	SB "D2" 728+96 Rt.	48"	48"		√		Y				BK	√		88							√																			
97	NB "A2" 705+81 Lt.	5'-0"(EX)	4'-0"(EX)											97	√																					6" x 6"	18'-0"			Reinstall existing sign on new support.
98	NB "A2" 703+75 Lt.	8'-0"	6'-0"			√	BL		SW				√	98			√																			7x7x3/16	14'-2"	16'-0"	6'-0"	3/ Distance from edge of travel lane
99	NB "A2" 703+27 Lt.	3'-6"	2'-6"		√		BL		SW			√		99	√																					6" x 6"	18'-0"			
99a		3'-6"	2'-6"		√		BL		SW			√		99a																										
100	NB "A2" 702+69 Lt.	30" (EX)	30" (EX)											100	√																					6" x 6"	20'-0"			Reinstall existing sign on new support.
100a		30" (EX)	24" (EX)											100a																										
100b		48" (EX)	12" (EX)											100b																										
100c		30" (EX)	6" (EX)											100c																										
103	NB "OR43" 13+92 Lt.	48"	48"		√		R		RW			√		103	√																					6" x 8"	24'-0"			
103a		30"	30"		√		W				BK	√		103a																										
103	NB "OR43" 12+13 Rt.	48"	48"		√		R		RW			√		103	√																					6" x 8"	24'-0"			
103a		30"	30"		√		W				BK	√		103a																										
103	NB "B4" 736+68 Lt.	48"	48"		√		R		RW			√		103	√																					6" x 8"	24'-0"			
103a		30"	30"		√		W				BK	√		103a																										
104	SB "D2" 727+05 Rt.	48"	60"		√		Y				BK	√		104							√																			
106	SB "9B-3-1" 637+27 Rt.	30"	30"		√		BL		SW			√		106																	√									Install on new sign bridge. For details see LD sheets.
106	NB "L" 673+10 Lt.	30"	30"		√		BL		SW			√		106																	√									Install on new sign bridge. For details see LD sheets.

1/ BK=BLACK
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FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
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2/ NOTE: L,C,R ARE LOCATIONS OF POSTS FACING THE SIGN.

L=LEFT POST
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3/ DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601, 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.

HWY: 064
M.P.: 8.48-11.06
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
65633
OREGON
JANUARY 9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC06

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	BACKGROUND ASTM TYPE IX	LEGEND ASTM TYPE III OR TYPE IV	LEGEND ASTM TYPE IX	NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 - TM233)	SIGN NO. 2/	TYPE OF SUPPORT WOOD POST (TM670-TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687-TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H - FRAME	MULTI-POST BREAKAWAY (TM220, TM600-TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622-TM627)	SIGN BRIDGE (TM606-TM612, TM614-TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221-TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
106	NB "L" 693+92 Lt.	30"	30"		✓		BL		SW			✓		106												✓														Install on new sign bridge.For details see LD sheets.
122	NB "B4" 741+51 Lt.	4'-0"(EX)	4'-0"(EX)											122	✓																					6" x 6"	18'-0"			
126	SB "OR43" 10+76 Rt.	36"	30"		✓		W				BK	✓		126	✓																					6" x 6"	18'-0"			
126a		24"	12"		✓		W				BK	✓		126a																										
126b		24"	18"		✓		W				BK	✓		126b																										
127	SB "D3" 733+65 Lt.	4'-0"(EX)	4'-0"(EX)											127	✓																					6" x 6"	18'-0"			Reinstall existing sign on new support.
130	NB "CNc" 11+38 Rt.	36"	36"		✓		Y				BK	✓		130						✓																2" Sched.40	13'-0"			
130	NB "SNc" 12+59 Rt.	36"	36"		✓		Y				BK	✓		130						✓																2" Sched.40	13'-0"			
131	SB "Lc2" 737+51 Rt.	48"	48"		✓		Y				BK	✓		131	✓																					6" x 6"	18'-0"			
135	SB "L" 699+71 Rt.	6'-6"	5'-0"			✓	G			W			✓	135			✓																			5x5x3/16	12'-0"	19'-3"	4'-6"	3/ Distance from edge of travel lane
135	NB "L" 707+92 Lt.	6'-6"	5'-0"			✓	G			W			✓	135			✓																			5x5x3/16	11'-7"	29'-3"	4'-6"	3/ Distance from edge of travel lane
136	SB "D2" 707+10 Rt.	11'-0"	5'-0"			✓	G			W			✓	136L	✓																					6" x 8"	20'-0"			
136														136R	✓																					6" x 8"	20'-0"			
141	NB "A2" 702+06 Lt.	36"	36"		✓		SW				BK	✓		141	✓																					4" x 6"	16'-0"			
141	NB "A2" 704+57 Lt.	36"	36"		✓		SW				BK	✓		141	✓																					4" x 6"	16'-0"			
141	NB "A2" 704+62 Rt.	36"	36"		✓		SW				BK	✓		141	✓																					4" x 6"	16'-0"			
143	NB "A2" 701+16 Lt.	36"	36"		✓		W				BK	✓		143	✓																					4" x 6"	16'-0"			
149	SB "L" 715+58 Rt.	7'-0"	3'-6"			✓	G			W			✓	149							✓																			Install on new pole.For details see LD sheets.
150	NB "L" 715+58 Lt.	8'-0"	3'-6"			✓	G			W			✓	150							✓																			Install on new pole.For details see LD sheets.
151	SB "D2" 703+39 Lt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			
151	SB "D2" 703+39 Rt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			
151	NB "B2" 704+37 Lt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			
151	NB "B2" 704+37 Rt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			
151	SB "C4" 739+55 Lt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			
151	SB "C4" 739+55 Rt.	24"	30"		✓		W				BK	✓		151	✓																					4" x 4"	14'-0"			

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
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O=ORANGE
R=RED
RB=RED-BLUE
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W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, TM602 AND TM635.

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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.

HWY: 000
M.P.: 000.00-000.00
TRS 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER 656 OREGON COLETTE T. SNUFFIN
PRELIMINARY COPY INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

SIGN AND POST DATA TABLE
SHEET NO. LC07

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL–TM223–A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
151	NB "A2" 853+50 Lt.	24"	30"		√		W				BK	√		151	√																					4" x 4"	14'-0"			
151	NB "A2" 853+50 Rt.	24"	30"		√		W				BK	√		151	√																					4" x 4"	14'-0"			
152	NB "SNc" 16+40 Lt.	6'-6"	3'-6"			√	G			W			√	152	√																									Sign supports will be evaluated after 60% Plans.
153	SB "OR43" 5+92 Lt.	24"	12"		√		SW				BK	√		153	√																					4" x 4"	14'-0"			
153	SB "OR43" 6+43 Lt.	24"	12"		√		SW				BK	√		153	√																					4" x 4"	14'-0"			
154	SB "OR43" 7+30 Rt.	36"	30"		√		SW				BK	√		154	√																					4" x 4"	14'-0"			
155	NB "OR43" 10+08 Lt.	36"	36"		√		Y				BK	√		155		√																				2 1/2"-12 ga.	12'-6"			
155	NB "OR43" 16+89 Lt.	36"	36"		√		Y				BK	√		155	√																					4" x 6"	18'-0"			
155	NB "B4" 738+00 Lt.	36"	36"		√		Y				BK	√		155	√																					4" x 6"	18'-0"			
156	NB "OR43" 14+80 Lt.	36"	30"		√		SW				BK	√		156		√																				2 1/2" - 12 ga.	11'-6"			
157	SB "OR43" 8+21 Rt.	36"	30"		√		SW				BK	√		157		√																				2 1/2" - 12 ga.	11'-6"			
158	SB "OR43" 12+78 Rt.	60"	24"		√		W				BK	√		158		√																				2 1/2"-12 ga.	10'-6"			
158	NB "B4" 736+05 Lt.	60"	24"		√		W				BK	√		158		√																				2 1/2"-12 ga.	10'-6"			
158	NB "OR43" 13+36 Lt.	60"	24"		√		W				BK	√		158		√																				2 1/2"-12 ga.	10'-6"			
160	NB "B4" 738+63 Lt.	30"	30"		√		BL		SW			√		160		√																				2 1/2"-12 ga.	12'-10"			
160a		21"	15"		√		SW				BK	√		160a																										
161	SB "OR43" 17+50 Rt.	36"	36"		√		R		SW			√		161		√																				2 1/4" & 2 1/2"-12ga.	12'-3"			
161	SB "SNc" 13+08 Lt.	30"	30"		√		R		SW			√		161						√																2" Sched. 40	14'-6"			
161	NB "SNc" 16+49 Rt.	30"	30"		√		R		SW			√		161						√																2" Sched. 10	15'-3"			
162	SB "OR43" 17+50 Rt.	4'-3"	0'-9"			√	G			W			√	162																										Install Sign 162 above Sign 163.
163	SB "OR43" 17+50 Rt.	5'-9"	0'-9"			√	G			W			√	163																										Install Sign 163 above Sign 161.
164	NB "B4" 739+65 Lt.	10'-3"	5'-6"			√	G			W			√	164			√	√																		7x7x3/16	11'-3"	30'-0"	6'-0"	3/ Distance from edge of travel lane
164a		1'-6"	1'-6"		√			SW			BK	√		164a																										
164b		1'-6"	1'-6"		√			SW			BK	√		164b																										

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2/ NOTE: L,C,R ARE LOCATIONS OF POSTS FACING THE SIGN.

L=LEFT POST
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3/ DISTANCE FROM EDGE OF TRAVEL LANE, FACE OF CURB, GUARDRAIL, OR BARRIER TO THE CENTERLINE OF FOOTING. FOR ADDITIONAL INFORMATION SEE STANDARD DRAWINGS TM601, TM602 AND TM635.

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HWY: 000
M.P.: 000.00-000.00
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656
OREGON
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu
Reviewer: Simon Eng
Drafter: Colina Lieu
Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO.
LC08

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
165	SB "OR43" 5+58 Rt.	24"	18"		✓		G			W		✓		165	✓																					4" x 4"	14'-0"			
165a		12"	9"		✓		G			W		✓		165a																										
165	SB "OR43" 6+39 Rt.	24"	18"		✓		G			W		✓		165	✓																					4" x 4"	14'-0"			
165a		12"	9"		✓		G			W		✓		165a																										
166	NB "OR43" 6+89 Lt.	24"	18"		✓		G			W		✓		166	✓																					4" x 4"	14'-0"			
167	NB "OR43" 16+73 Lt.	24"	18"		✓		G			W		✓		167	✓																					4" x 4"	14'-0"			
167a		12"	9"		✓		G			W		✓		167a																										
168	NB "OR43" 16+89 Lt.	12"	18"		✓		G			W		✓		168																										Install Sign 168 above Sign 155.
168	SB "OR43" 6+39 Rt.	12"	18"		✓		G			W		✓		168																										Install Sign 168 below Sign 165.
169	NB "B4" 735+95 Lt.	5'-9"	1'-6"			✓	G			W			✓	169		✓																				2 1/2" - 12 ga.	10'-0"			
170	NB "OR43" 12+18 Lt.	6'-3"	1'-6"			✓	G			W			✓	170		✓																				2 1/2" - 12 ga.	10'-0"			
171	NB "E3" 740+45 Rt.	5'-9"	1'-6"			✓	G			W			✓	171		✓																				2 1/2" - 12 ga.	11'-4"			
171a		1'-4"	1'-0"		✓			RB			W	✓		171a																										
172	SB "L" 659+77 Rt.	48"	48"		✓		Y				BK	✓		172	✓																					6" x 8"	24'-0"			
172a		30"	30"		✓		Y				BK	✓		172a																										
173	NB "Lc2" 744+25 Lt.	6'-6"	5'-0"			✓	G			W			✓	173			✓																			5x5x3/16	12"-0"	19'-3"	4'-6"	3/ Distance from edge of travel lane
174	NB "SNc" 13+43 Lt.	30"	30"		✓		Y				BK	✓		174						✓																2" Sched. 40	12'-10"			
178	SB "Ls" 791+21 Rt.	15'-0"	9'-6"			✓	G			W			✓	178											✓															Install on new cantilever. For details see LD sheets.
178a		7'-6"	2'-6"			✓	G			W			✓	178a													✓									(2) S3x5.7	7'-0"			
178b		15'-0"	3'-0"			✓		FY			BK		✓	178b																										
179	SB "Ls" 817+33 Rt.	15'-0"	9'-6"			✓	G			W			✓	179											✓															Install on new cantilever. For details see LD sheets.
179a		7'-6"	2'-6"			✓	G			W			✓	179a													✓									(2) S3x5.7	7'-0"			
179b		15'-0"	3'-0"			✓		FY			BK		✓	179b																										

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 000
M.P.: 000.00-000.00
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656..
OREGON
...9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO. LC09

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200–TM201, TM635)	SIGN DIMENSIONS WIDTH	SIGN DIMENSIONS HEIGHT	SUB-STRATE PLYWOOD	SUB-STRATE SHEET ALUMINUM	SUB-STRATE EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND ASTM TYPE IX	COLOR 1/ LEGEND ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND ASTM TYPE IX	COLOR 1/ LEGEND NON-REFLECTIVE	LEGEND PERMANENT	LEGEND REMOVABLE (TM230 – TM233)	SIGN NO. 2/	WOOD POST (TM670–TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687–TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H – FRAME	MULTI-POST BREAKAWAY (TM220, TM600–TM601)	ROUND PIPE SUPPORTS (WL–TM223–A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622–TM627)	SIGN BRIDGE (TM606–TM612, TM614–TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221–TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SIGN SUPPORT	SECONDARY SIGN (TM676 & TM678) C 4X5.4	SECONDARY SIGN C 4X7.25	SECONDARY SIGN LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
180	SB "D2" 845+37 Rt.	15'–0"	7'–6"			√	G			W			√	180											√															Install on new cantilever. For details see LD sheets.
180a		7'–6"	2'–6"			√	G			W			√	180a													√									(2) S3x5.7	7'–0"			
180b		15'–0"	3'–0"			√		FY			BK		√	180b																										
182	SB "Lc2" 743+34 Rt.	11'–6"	6'–0"			√	G			W			√	182										√																Install on exist. structure. For details see LD sheets.
182a		7'–6"	2'–6"			√	G			W			√	182a													√									(2) S3x5.7	7'–0"			
186	NB "Lc2" 755+44 Lt.	36"	27"		√		SW				BK	√		186	√																					4" x 4"	14'–0"			
187	NB "SNc" 19+76 Rt.	30"	30"		√		Y				BK	√		187						√																2" Sched. 40	12'–10"			
190	SB "SNc" 13+74 Lt.	36"	36"		√		Y				BK	√		190						√																2" Sched. 40	13'–0"			
192	NB "SNc" 13+34 Rt.	18" (EX)	24" (EX)											192						√																2" Sched. 40	12'–0"			Reinstall existing sign on new support.
204	NB "Lnc" 777+45 Lt.	12"	24"		√		G		SW			√		204															√							SEE TM222	6'–0"			
204	SB "Lnc" 777+45 Rt.	12"	24"		√		G		SW			√		204															√							SEE TM222	9'–0"			
205	NB "Ln2" 830+11 Lt.	12"	24"		√		G		SW			√		205															√							SEE TM222	6'–0"			
205	SB "Ln2" 830+11 Rt.	12"	24"		√		G		SW			√		205															√							SEE TM222	9'–0"			
208	SB "Lnc" 778+99 Rt.	48"	36"		√		SW				BK	√		208	√																					4" x 6"	16'–0"			
208	NB "Ln" 809+80 Lt.	48"	36"		√		SW				BK	√		208	√																					4" x 6"	16'–0"			
211	SB "Ls" 805+26 Rt.	20'–0"(EX)	11'–0"(EX)											211L					√																	W10 x 22	20'–4"	30'–0"	10'–3"	3/ Distance from edge of travel lane
211														211R					√																	W10 x 22	18'–0"	42'–0"	10'–3"	3/ Distance from edge of travel lane
218	NB "SNc" 16+49 Rt.	4'–3"	0'–9"			√	G			W			√	218																										Install Sign 218 above Sign 161.
219	NB "SNc" 16+49 Rt.	3'–9"	0'–9"			√	G			W			√	219																										Install Sign 219 above Sign 218.
220	SB "SNc" 13+08 Lt.	3'–9"	0'–9"			√	G			W			√	220																										Install Sign 220 above Sign 161.
221	SB "SNc" 13+08 Lt.	3'–6"	0'–9"			√	G			W			√	221																										Install Sign 221 above Sign 220.

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED–BLUE
SW=SILVER–WHITE
W=WHITE
Y=YELLOW
YG=YELLOW–GREEN

2/ 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 TM601, 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.

HWY: 000
M.P.: 000.00-000.00
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656
OREGON
JULY 9, 2002
COLETTE T. SNUFFIN
PRELIMINARY COPY
INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

SIGN AND POST DATA TABLE

SHEET NO. LC10

SIGN & POST DATA TABLE

SIGN NO.	SIGN LOCATION 4/ (TM200-TM201, TM635)	SIGN DIMENSIONS: WIDTH	SIGN DIMENSIONS: HEIGHT	SUB-STRATE: PLYWOOD	SUB-STRATE: SHEET ALUMINUM	SUB-STRATE: EXTRUDED ALUM. (TM675)	COLOR 1/ BACKGROUND: ASTM TYPE III OR TYPE IV	COLOR 1/ BACKGROUND: ASTM TYPE IX	COLOR 1/ LEGEND: ASTM TYPE III OR TYPE IV	COLOR 1/ LEGEND: ASTM TYPE IX	COLOR 1/ LEGEND: NON-REFLECTIVE	LEGEND: PERMANENT	LEGEND: REMOVABLE (TM230 - TM233)	SIGN NO. 2/	WOOD POST (TM670-TM671, TM676)	SQ. TUBE SIGN SUPPORT (TM671, TM676, TM681, TM687-TM689)	TRIANGULAR BASE BREAKAWAY (TM602)	H - FRAME	MULTI-POST BREAKAWAY (TM220, TM600-TM601)	ROUND PIPE SUPPORTS (WL-TM223-A.dwg)	STAINLESS STEEL CLAMP (SSC) (TM677)	SIGNAL POLE MOUNT (TM680)	MAST ARM SIGN MOUNT (TM679)	BRIDGE STRUCTURE MOUNT (TM677)	CANTILEVER / BUTTERFLY (TM622-TM627)	SIGN BRIDGE (TM606-TM612, TM614-TM620)	EXIT NUMBER SIGN MOUNT (TM220, TM225)	ROUTE MARKER FRAME (TM678)	MILEPOST MARKER POST (TM221-TM222)	CROSSWALK CLOSURE BARRICADE (TM490)	VERTICAL SIGN MOUNTS ON EXISTING STRUCTURES	CUSTOM VARIABLE SUPPORT	SECONDARY SIGN (TM676 & TM678): C 4X5.4	SECONDARY SIGN: C 4X7.25	SECONDARY SIGN: LENGTH	POST SIZE (BASED ON ESTIMATED LENGTH)	POST LENGTH (MUST BE FIELD VERIFIED)	FOOTING LOCATION 3/	FOOTING MIN. DEPTH 5/	REMARKS
222	SB "SNc" 13+08 Lt.	5'-3"	0'-9"			√	G			W			√	222																										Install Sign 222 above Sign 221.
224	SB "SNc" 12+12 Lt.	24" (EX)	30" (EX)											224						√																2" Sched. 40	12' - 6"			Reinstall existing sign on new support.
229	NB "OR43" 108+29 Rt.	24"	12"		√		W				BK	√		229	√																					4" x 6"	18'-0"			
229a		24"	24"		√		W				BK	√		229a																										
229b		21"	15"		√		W				BK	√		229b																										
231	SB "Lc2" 743+41 Rt.	7'-6"	2'-0"		√		G			W		√		231										√																Install on exist. structure. For details see LD sheets.
231	NB "Lc2" 744+08 Lt.	7'-6"	2'-0"		√		G			W		√		231										√																Install on exist. structure. For details see LD sheets.
232	SB "Lsc" 763+31 Rt.	8'-0"	2'-0"		√		G			W		√		232										√																Install on exist. structure. For details see LD sheets.
232	NB "Lc2" 763+94 Lt.	8'-0"	2'-0"		√		G			W		√		232										√																Install on exist. structure. For details see LD sheets.
233	NB "A2" 700+91 Lt.	36"	36"		√		W				BK	√		233	√																					2 1/2" - 12 ga.	11'-6"			

1/ BK=BLACK
BL=BLUE
BR=BROWN
FY=FLUORESCENT YELLOW
G=GREEN
O=ORANGE
R=RED
RB=RED-BLUE
SW=SILVER-WHITE
W=WHITE
Y=YELLOW
YG=YELLOW-GREEN

2/ 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 TM601, 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.

HWY: 000
M.P.: 000.00-000.00
TRS
00000
DFI/TSSU NO.
N/A

REGISTERED PROFESSIONAL ENGINEER
656..
OREGON
9, 2002
COLETTE T. SNUFFIN
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INFORMATION ONLY
Expires June 30, 2020

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

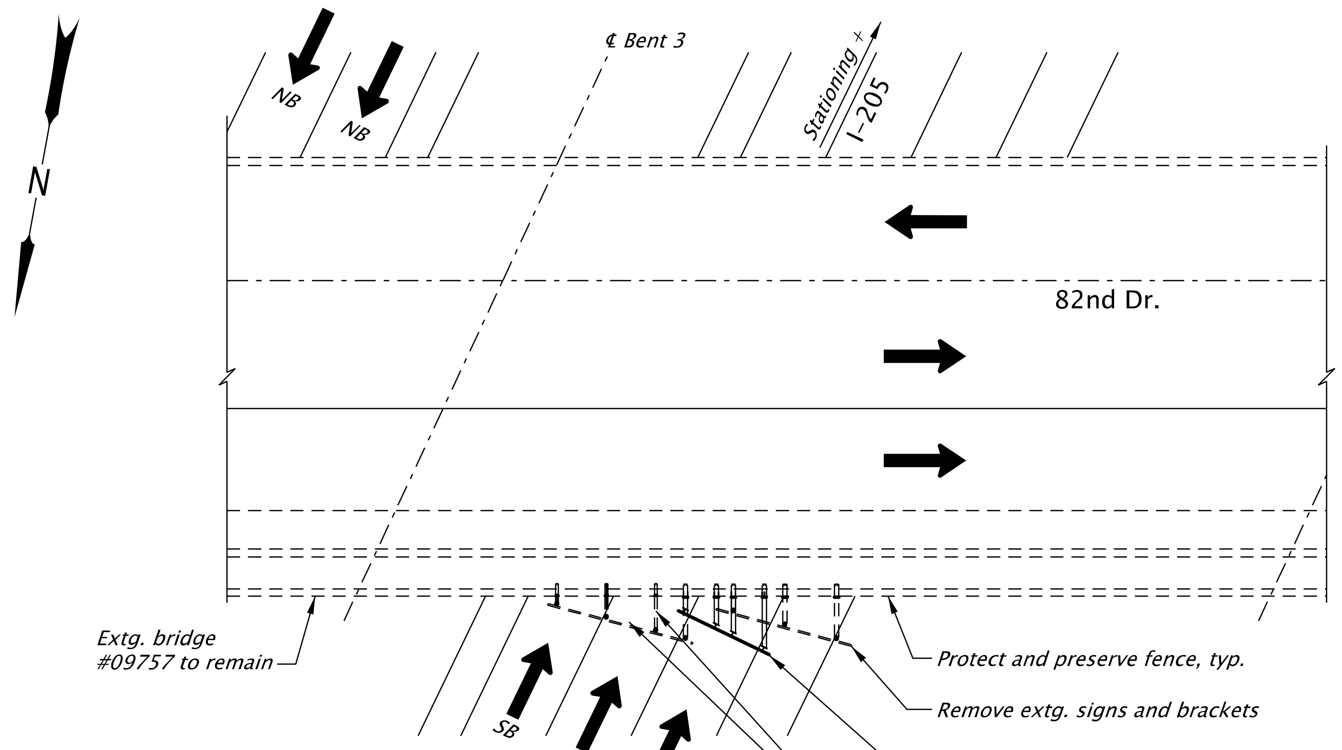
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Colina Lieu | Reviewer: Simon Eng
Drafter: Colina Lieu | Checker: Colette Snuffin

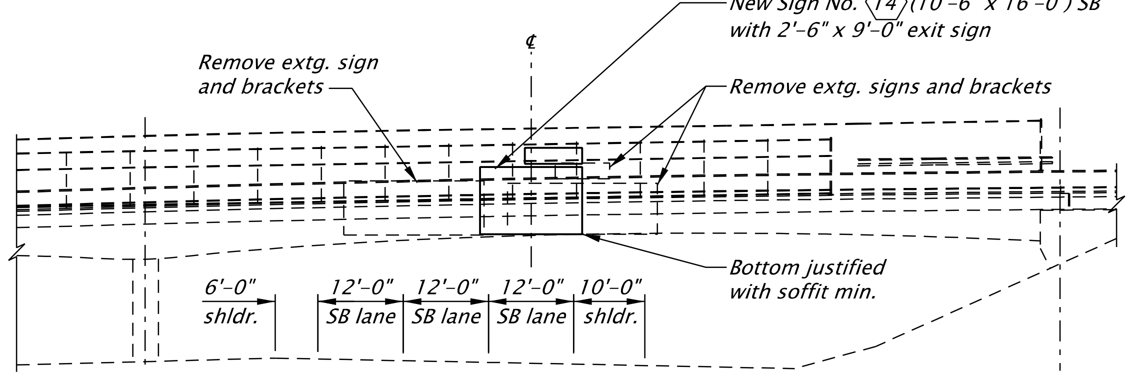
SIGN AND POST DATA TABLE

SHEET NO. LC11



PLAN

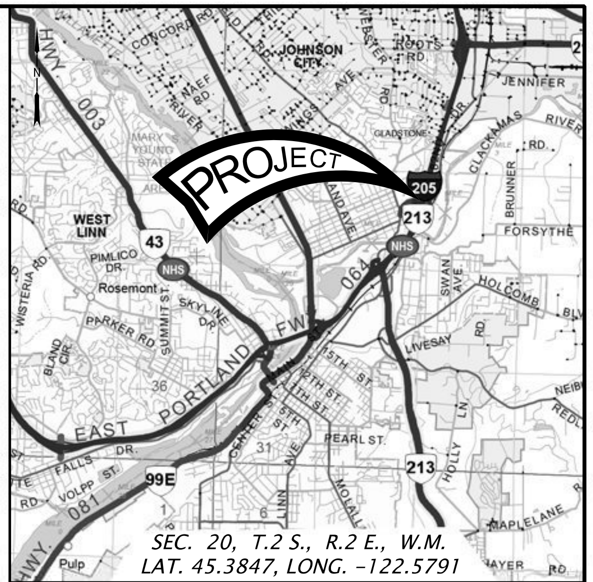
Scale: 1"=30'



ELEVATION

Scale: 1"=30'

Existing Sign Bridge M.P. 11.04 SB



SEC. 20, T.2 S., R.2 E., W.M.
LAT. 45.3847, LONG. -122.5791

LOCATION MAP

No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Structure mounts are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st Edition, 2015 and interim revisions 2017.

Basic wind speed (1700 year recurrence interval) used for sign structure design is 115 mph, $G = 1.14$, $K_z = 1.0$ and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise.

All fasteners shall be ASTM A325 unless otherwise noted. All steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Note:
Elevations are based on the North American Vertical Datum, 1988.

ACCOMPANIED BY DWGS.: TM220, TM675

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 09757
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 11.04 SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL STRUCTURAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

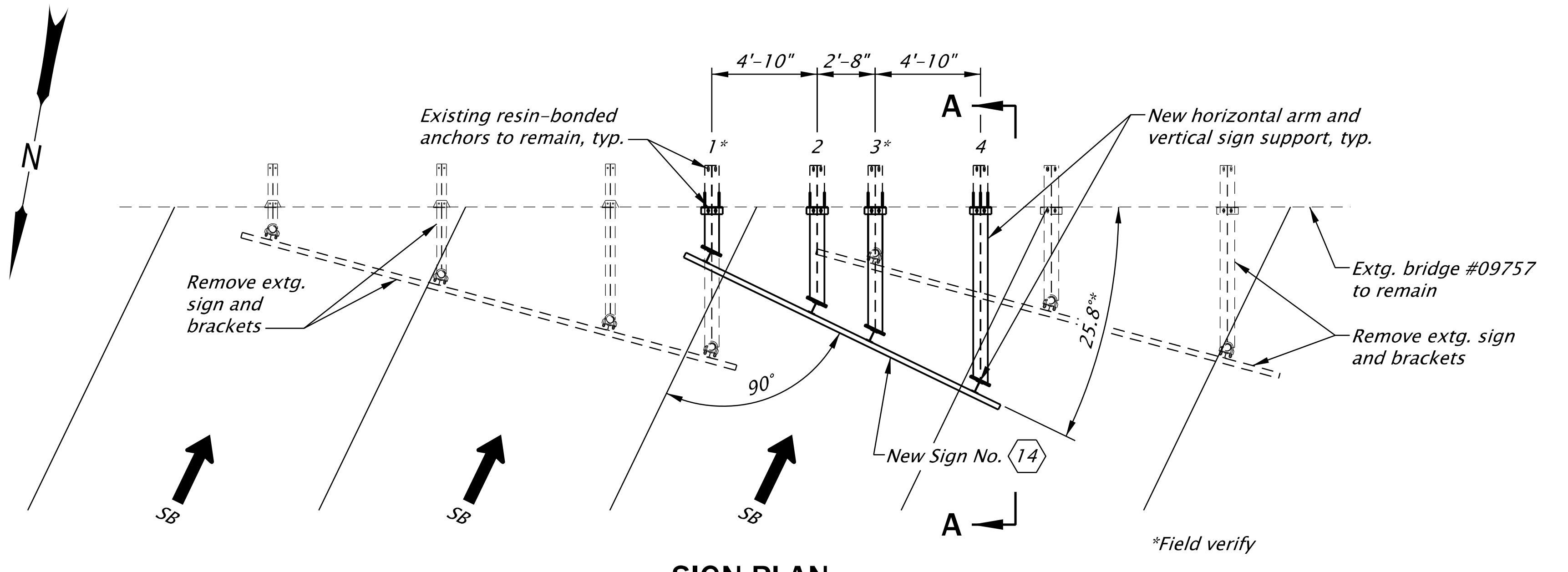
DOWL WWW.DOWL.COM
OREGON DEPARTMENT OF TRANSPORTATION

82nd Dr over Hwy 64 (Gladstone Intchg)
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION
SHEET NO. LD01

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST



SIGN PLAN

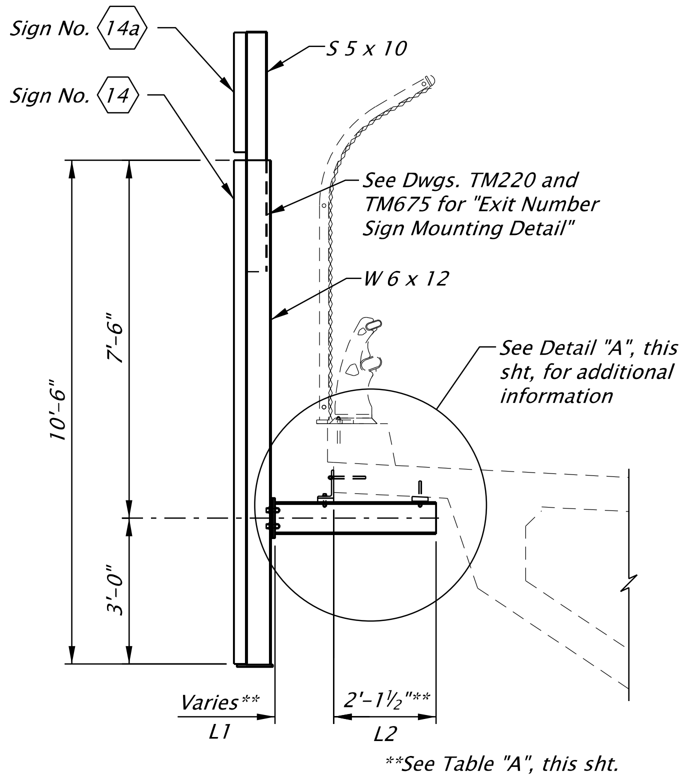
Scale: 1/8"=1'-0"

Notes:

*1. Bracket assemblies 1 & 3 reuse existing resin-bonded anchors. Contractor shall verify anchor pattern prior to fabrication.

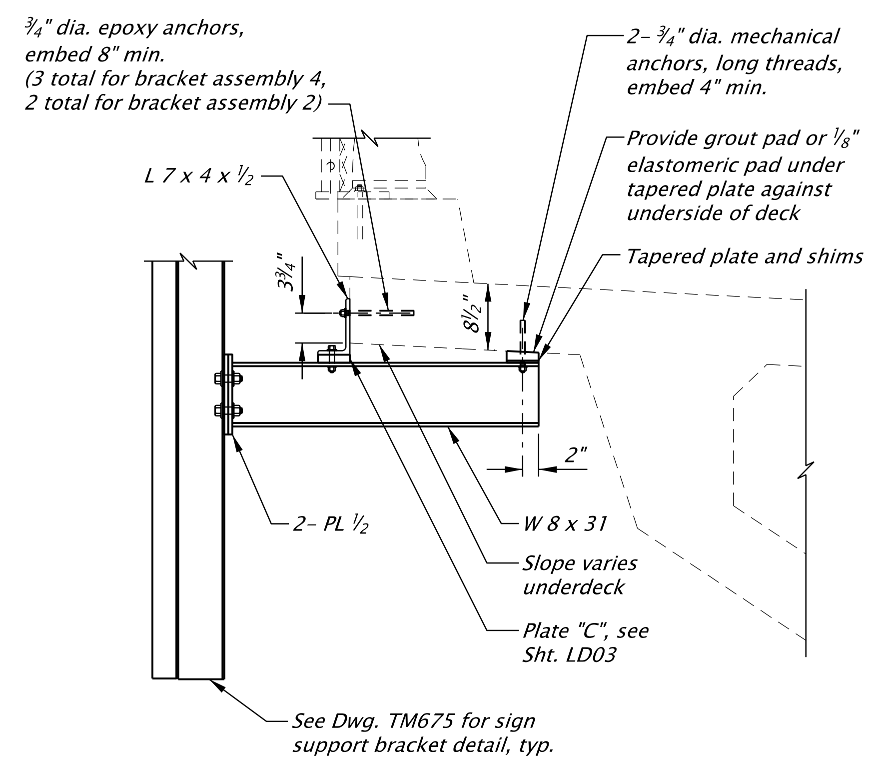
2. Bracket assemblies 2 & 4 require new resin-bonded anchors.

3. All bracket assemblies require new horizontal arms, vertical sign supports, angles connectors, and plate connectors.



SECTION A-A

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



DETAIL "A"

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

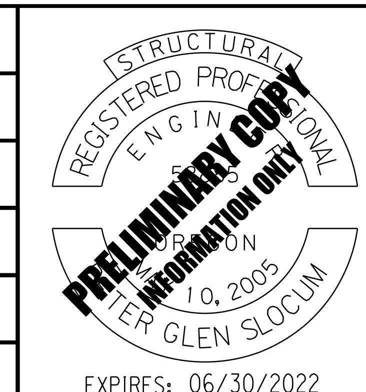
TABLE "A"								
Sign No.	Brackets							
	1		2		3		4	
	L1	L2	L1	L2	L1	L2	L1	L2
14	1'-11⅝"	2'-1½"***	4'-3⅝"	2'-1½"***	5'-7"	2'-1½"***	7'-11"	2'-1½"***

***Field verify

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09757
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064 M.P.: 11.04 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A



DOWL WWW.DOWL.COM

82nd Dr over Hwy 64 (Gladstone Intchg)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.

Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN DETAILS

SHEET NO. LD02

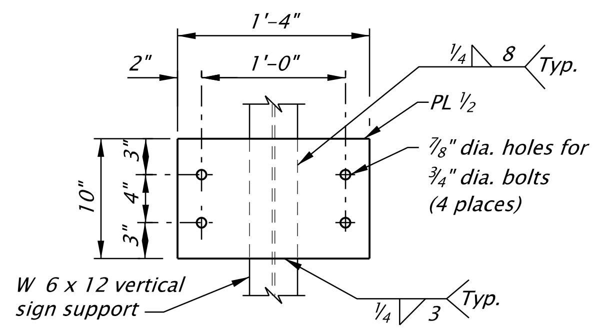


PLATE "A"

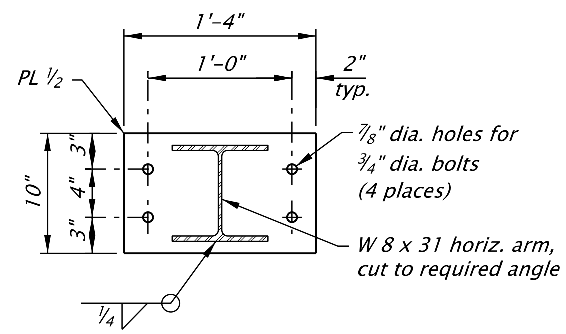
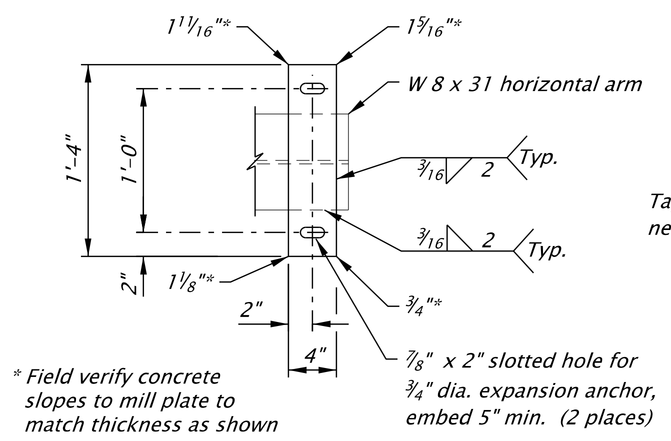


PLATE "B"



* Field verify concrete slopes to mill plate to match thickness as shown

TAPERED SHIM

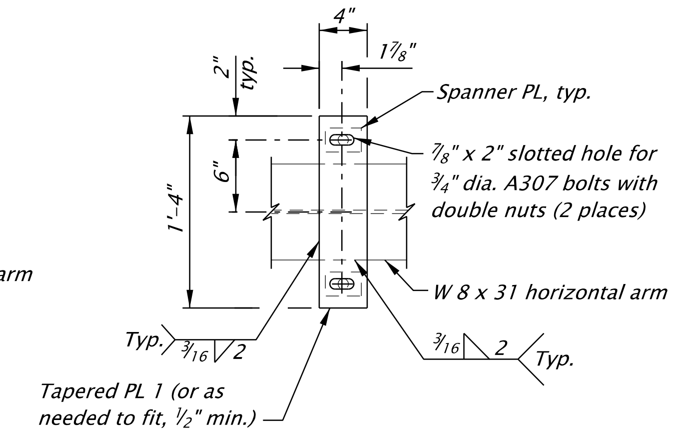
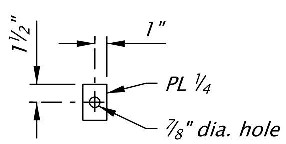


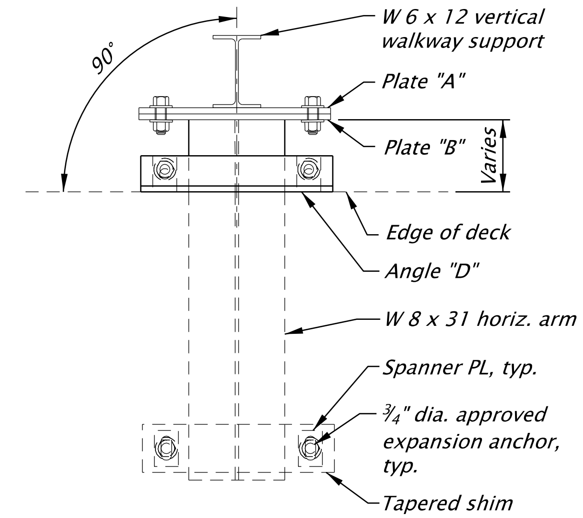
PLATE "C"



SPANNER PLATE

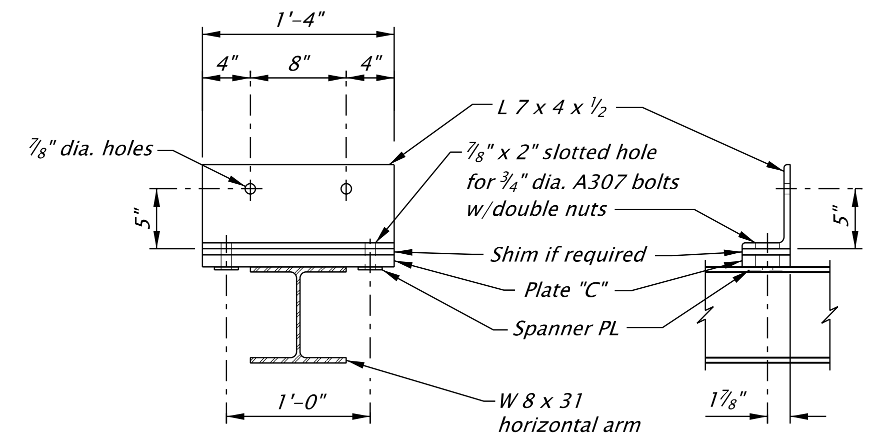
SIGN MOUNTING DETAILS

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



PLAN

SUPPORT ASSEMBLY



ELEVATION

SIDE

ANGLE "D"

CONNECTION DETAILS

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09757
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064	M.P.: 11.04 SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON MAY 10, 2005 PETER GLEN SLOCUM

PRELIMINARY COPY INFORMATION ONLY

EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM

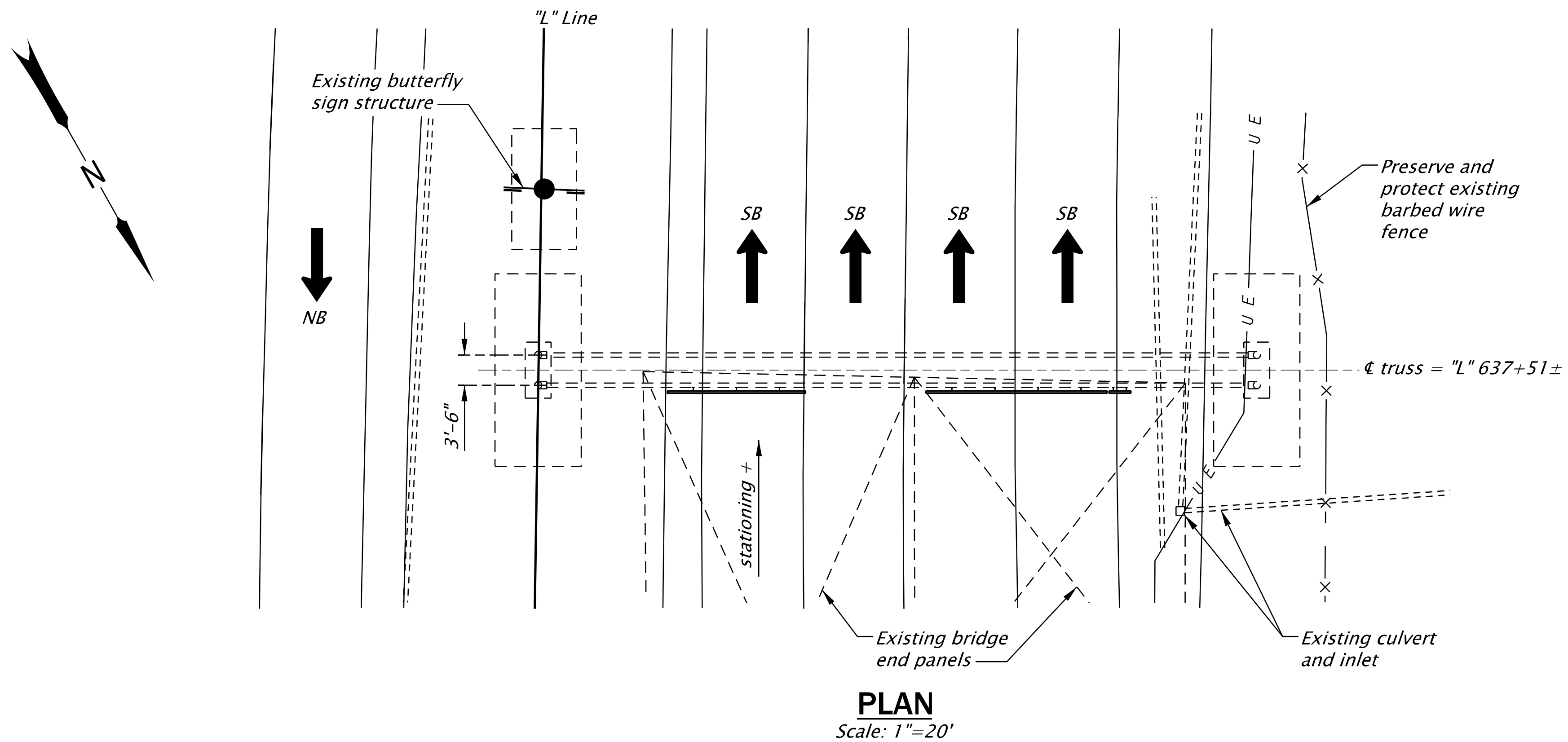
82nd Dr over Hwy 64 (Gladstone Intchg)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

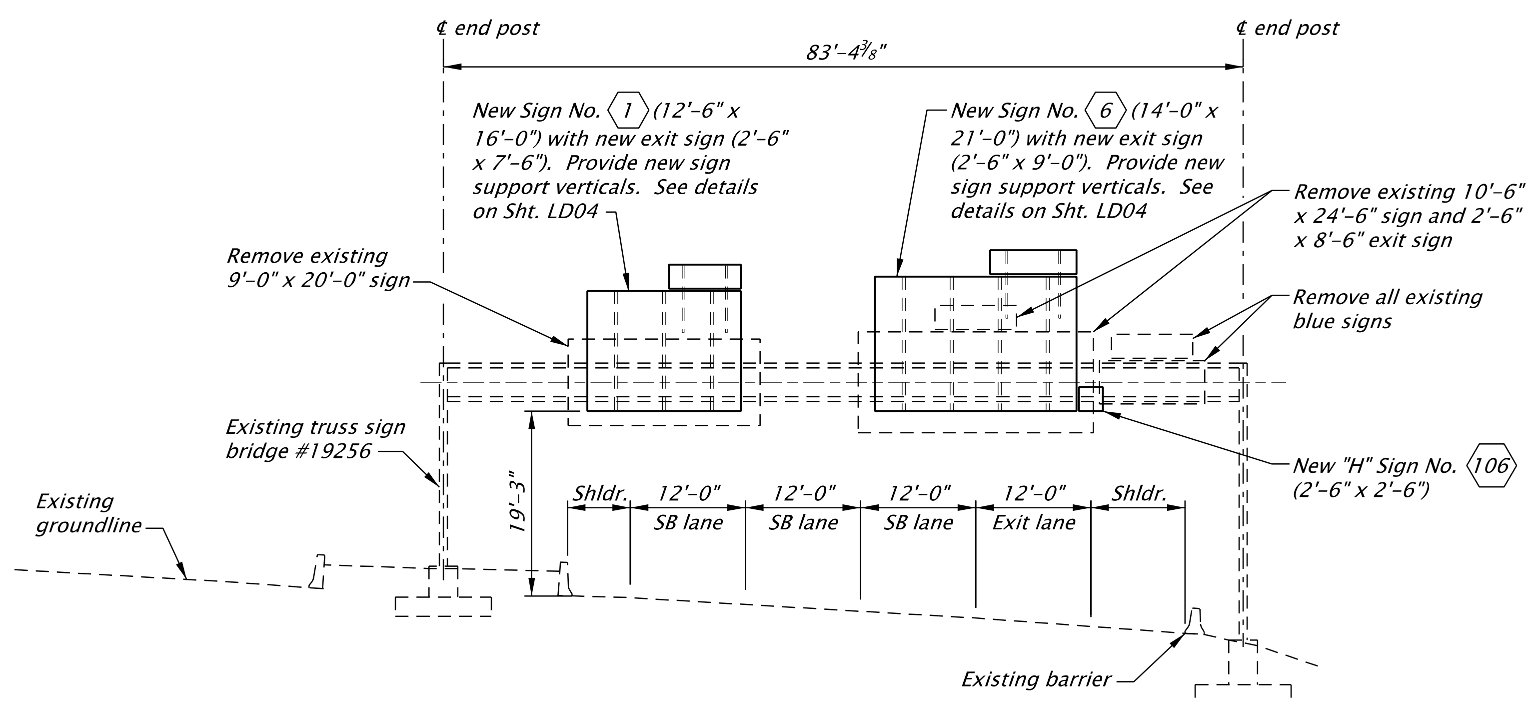
SIGN DETAILS

SHEET NO. LD03



PLAN

Scale: 1"=20'

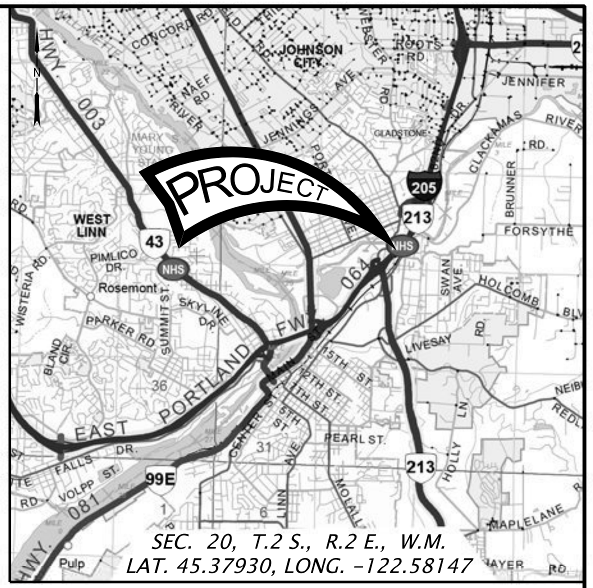


*ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

Existing Sign Bridge M.P. 10.68 SB



LOCATION MAP

No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Vertical structure mounts are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 4th edition, 2001 and 2002 interim revisions.

Basic wind speed (3 second gust) used for sign structure design is 110 mph, G = 1.14, I_r = 1.0 (50 year recurrence interval) and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise. All structural plates shall conform to ASTM A36, or ASTM A572, Grade 42.

All fasteners shall be ASTM A325 unless otherwise noted. All structural steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

See Signing Plans and Dwgs. TM220, TM618 and TM675 for sign mounting details.

All welding shall conform to the current edition American Welding Society (AWS) D1.1.

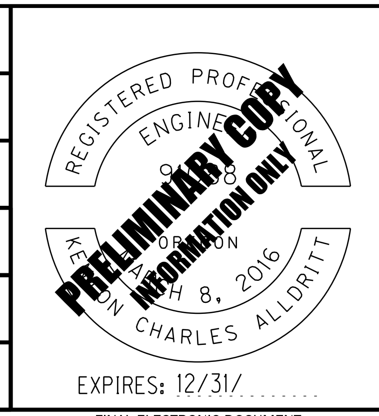
Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Note:
Elevations are based on the North American Vertical Datum, 1988.

ACCOMPANIED BY DWGS.:
000000, TM220, TM618, TM675

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	19256
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 10.68 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A



FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM

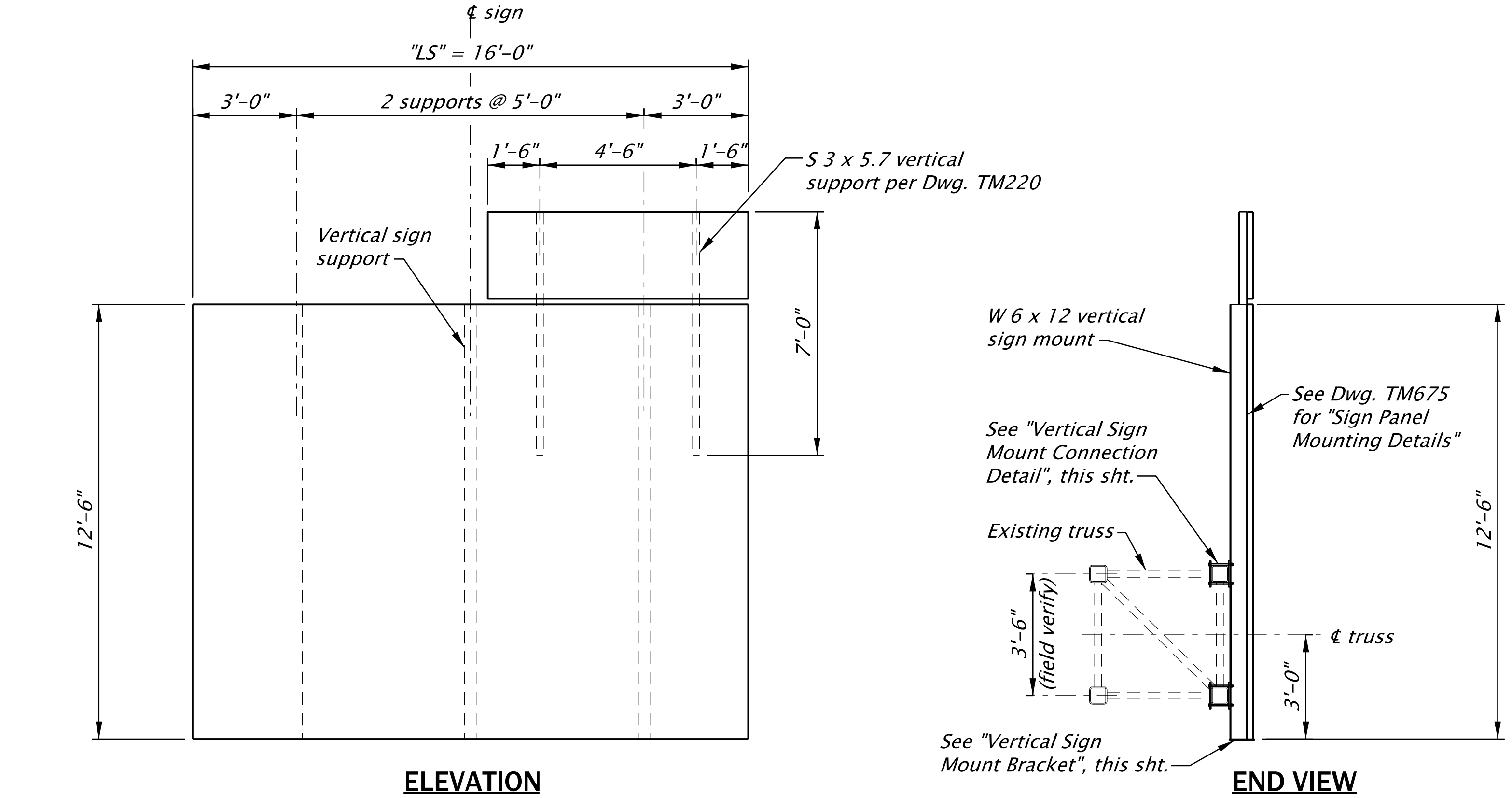
SIGN BRIDGE, HWY 64 SB @ MP 10.68

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Peter G. Slocum, P.E., S.E.

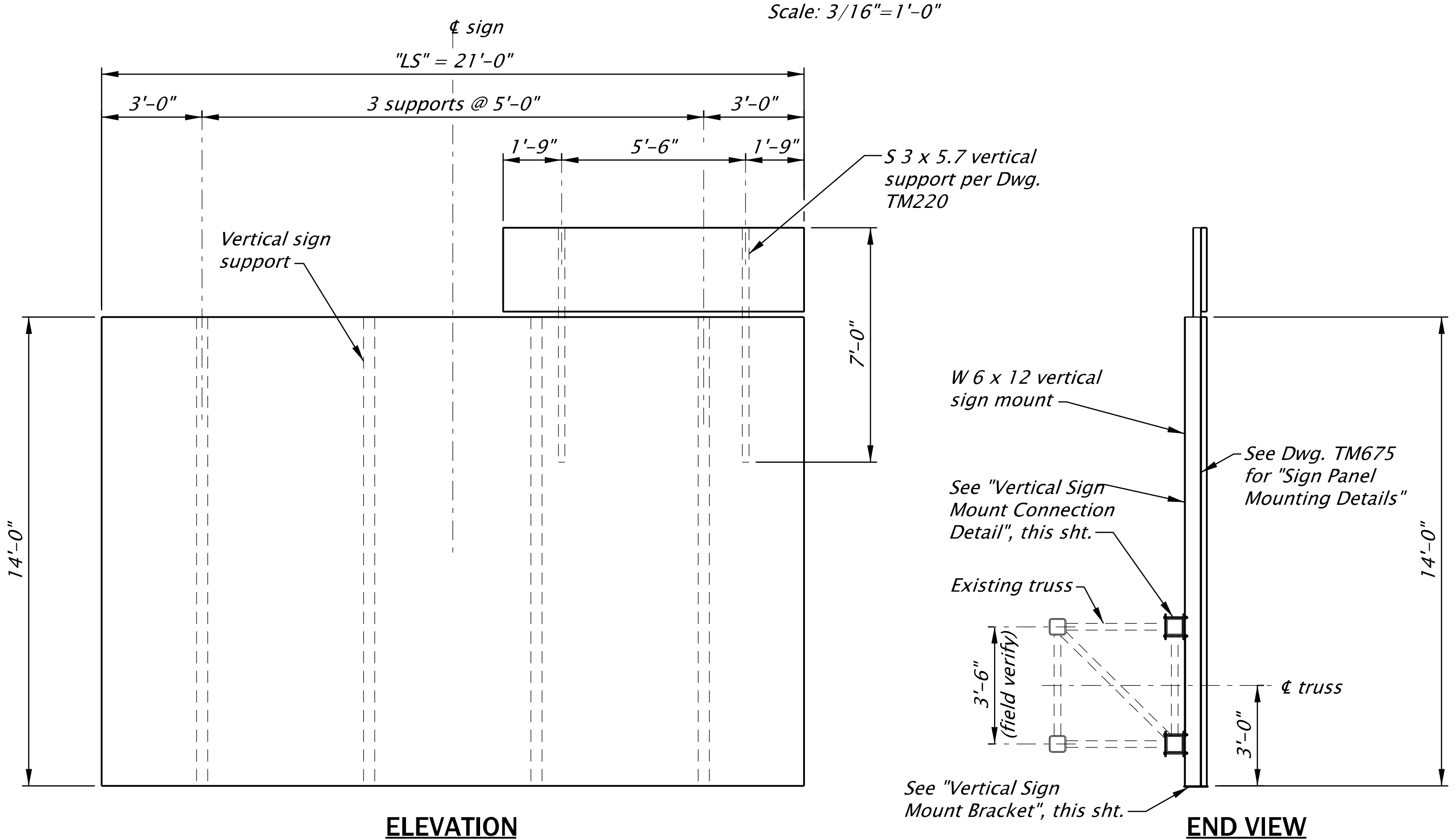
PLAN AND ELEVATION

SHEET NO. LD04



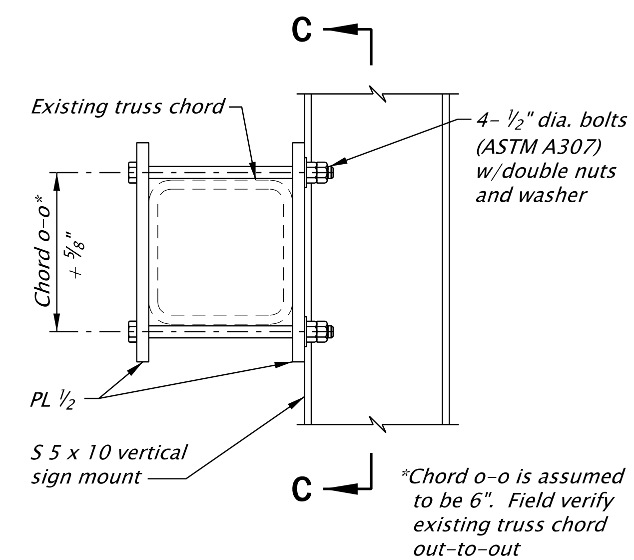
VERTICAL SIGN MOUNT - SIGN NO. 1

Scale: 3/16"=1'-0"



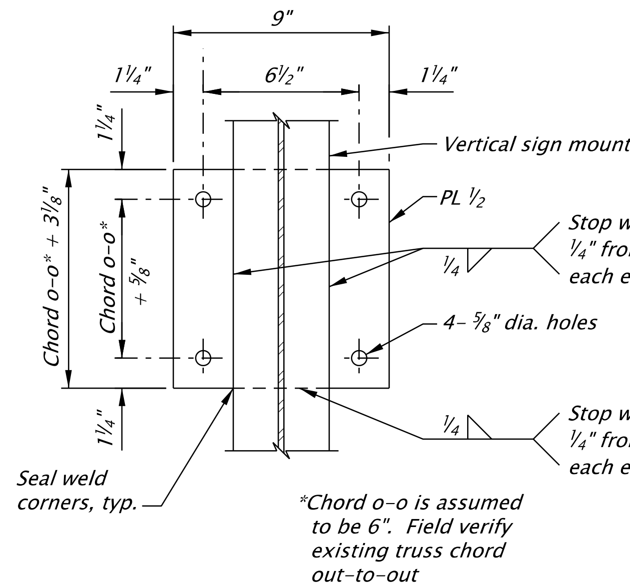
VERTICAL SIGN MOUNT - SIGN NO. 6 (SIMILAR FOR SIGN NO. 106)

Scale: 3/16"=1'-0"



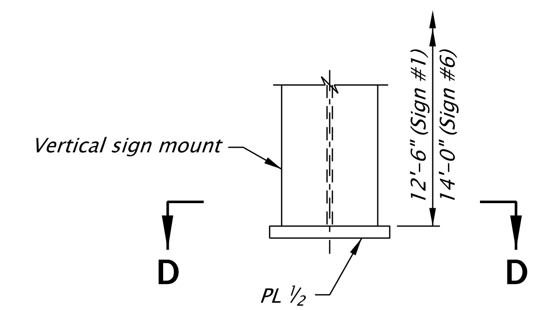
VERTICAL SIGN MOUNT CONNECTION DETAIL

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



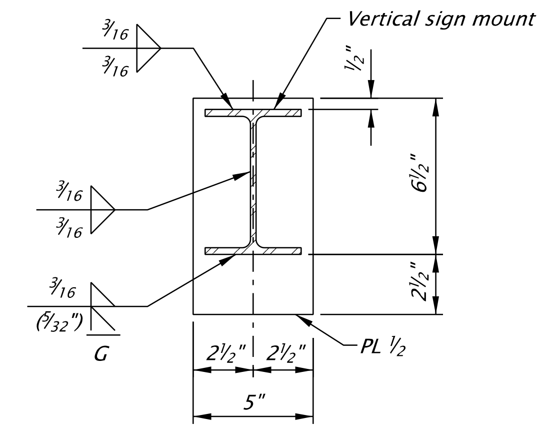
SECTION C-C

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



VERTICAL SIGN MOUNT BRACKET

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



SECTION D-D

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	19256
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064 M.P.: 10.68 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER OREGON MARCH 8, 2016 KENTON CHARLES ALLDRITT

PRELIMINARY COPY INFORMATION ONLY

EXPIRES: 12/31/

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM

SIGN BRIDGE, HWY 64 SB @ MP 10.68

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY

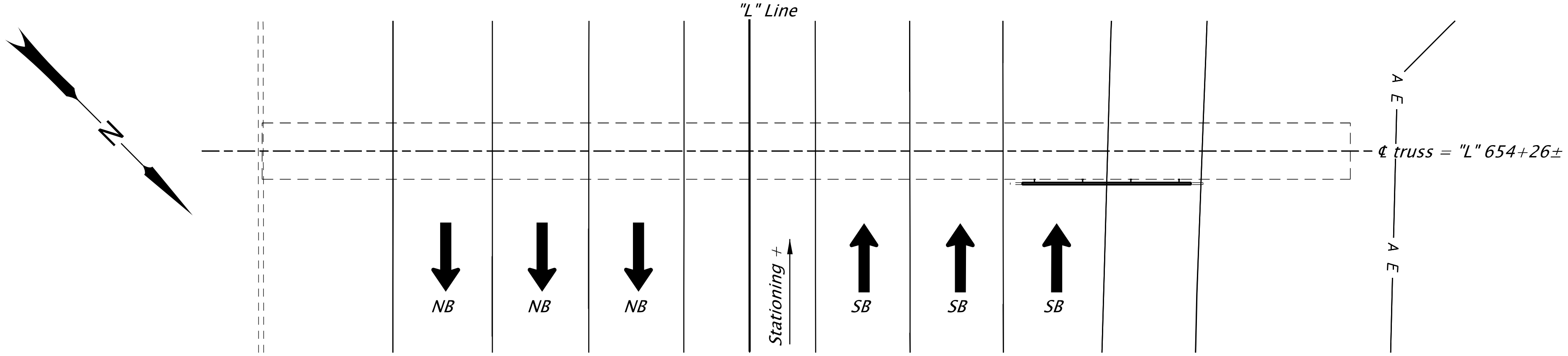
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E. Reviewer: Douglas Kirkpatrick, P.E.

Drafter: Yuka Garzenelli Checker: Peter G. Slocum, P.E., S.E.

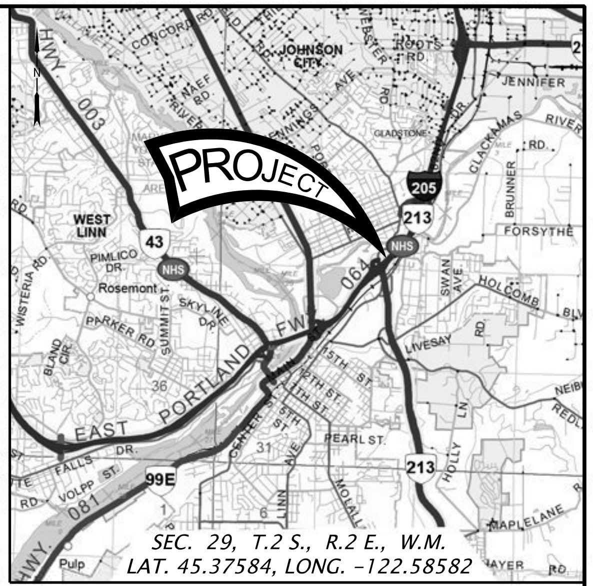
SIGN DETAILS

SHEET NO. LD05

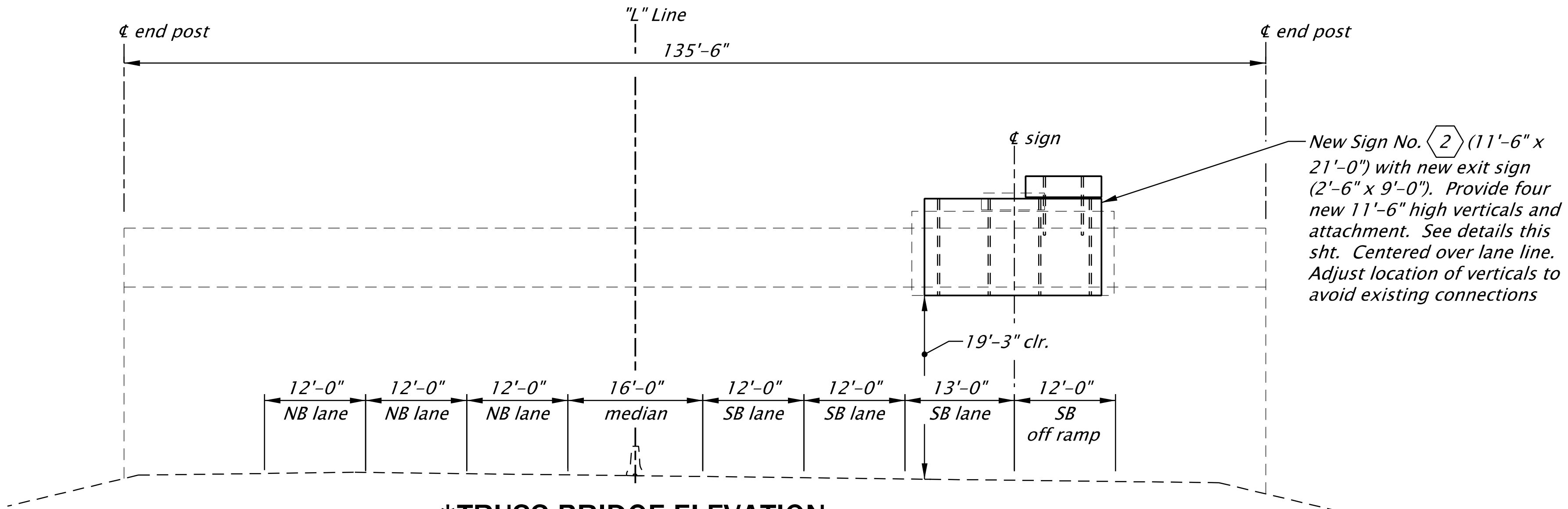


PLAN
Scale: 1"=20'

EXISTING SIGN BRIDGE M.P. 10.34 SB



LOCATION MAP
No Scale



*TRUSS BRIDGE ELEVATION
Scale: 1"=20' *Elevation view is looking ahead on station, SB direction.

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Vertical structure mounts are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 4th edition, 2001 and 2002 interim revisions.

Basic wind speed (3 second gust) used for new sign support design only is 110 mph, G = 1.14, I_r = 1.0 (50 year recurrence interval) and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise. All structural plates shall conform to ASTM A36, or ASTM A572, Grade 42.

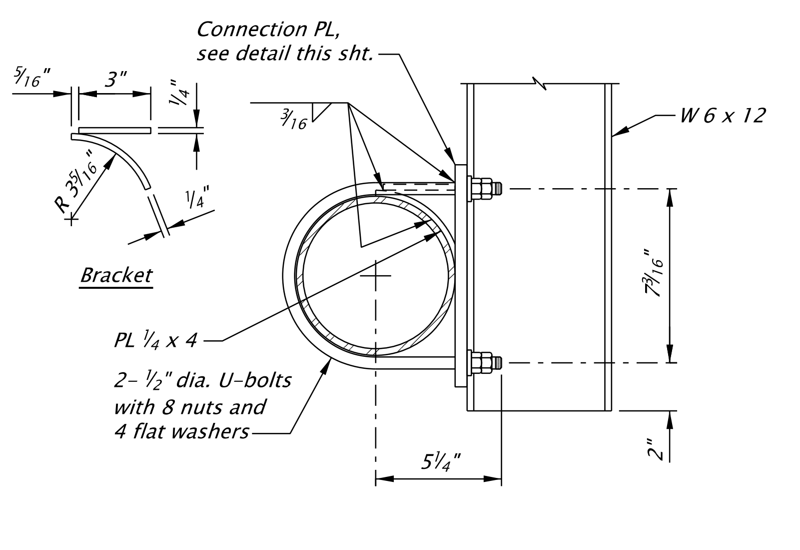
All fasteners shall be ASTM A325 unless otherwise noted. All structural steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

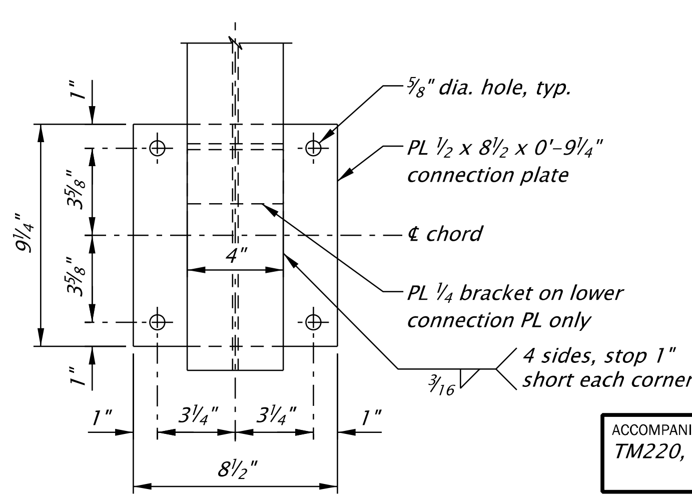
See Signing Plans and Dwgs. TM220, TM618 and TM675 for sign mounting details.

All welding shall conform to the current edition American Welding Society (AWS) D1.1.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.



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



CONNECTION PLATE DETAIL
Scale: 1 1/2"=1'-0"

ACCOMPANIED BY DWGS.: TM220, TM618, TM675

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	19257
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 10.34 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

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EXPIRES: 06/30/2022

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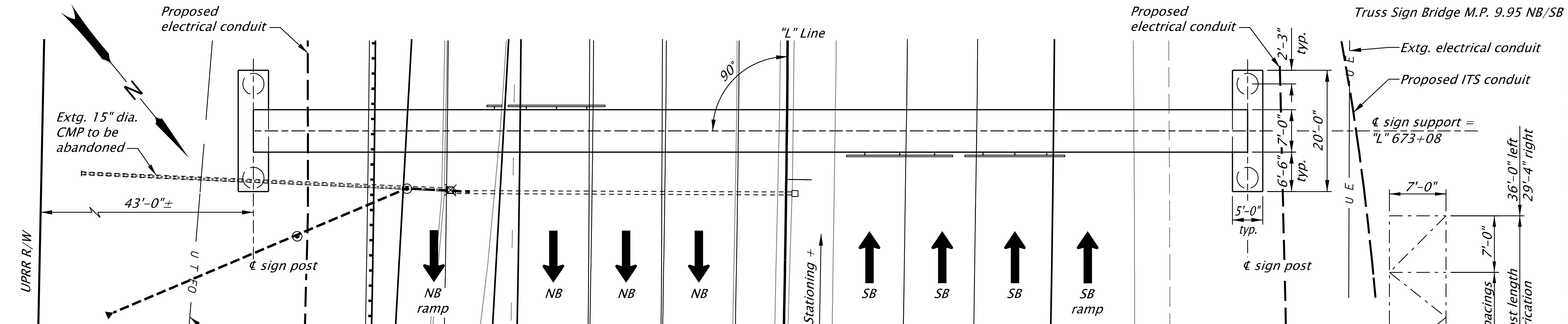
SIGN BRIDGE, HWY 64 SB @ MP 10.34

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

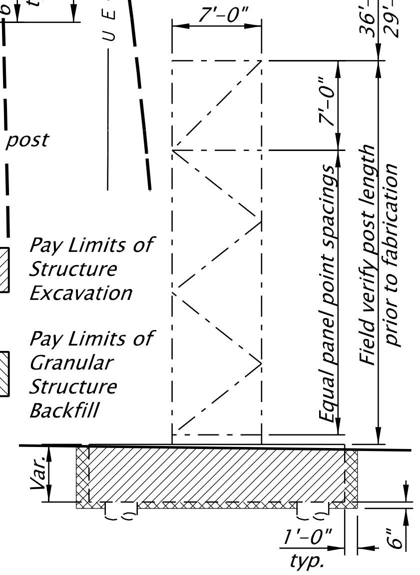
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION — SHEET NO. LD06



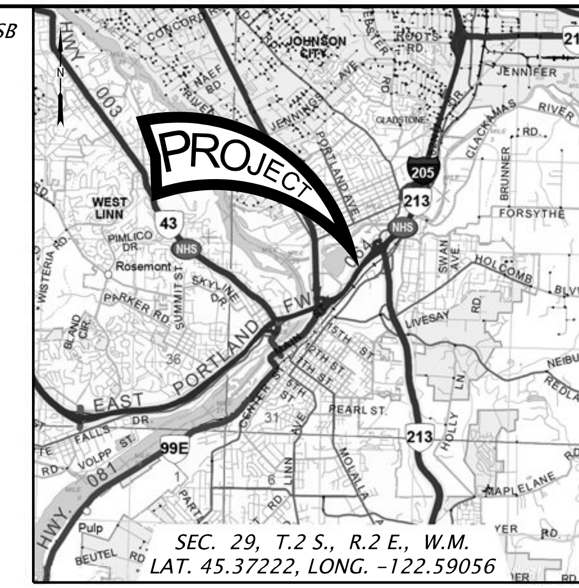
PLAN

Scale: 1"=20'



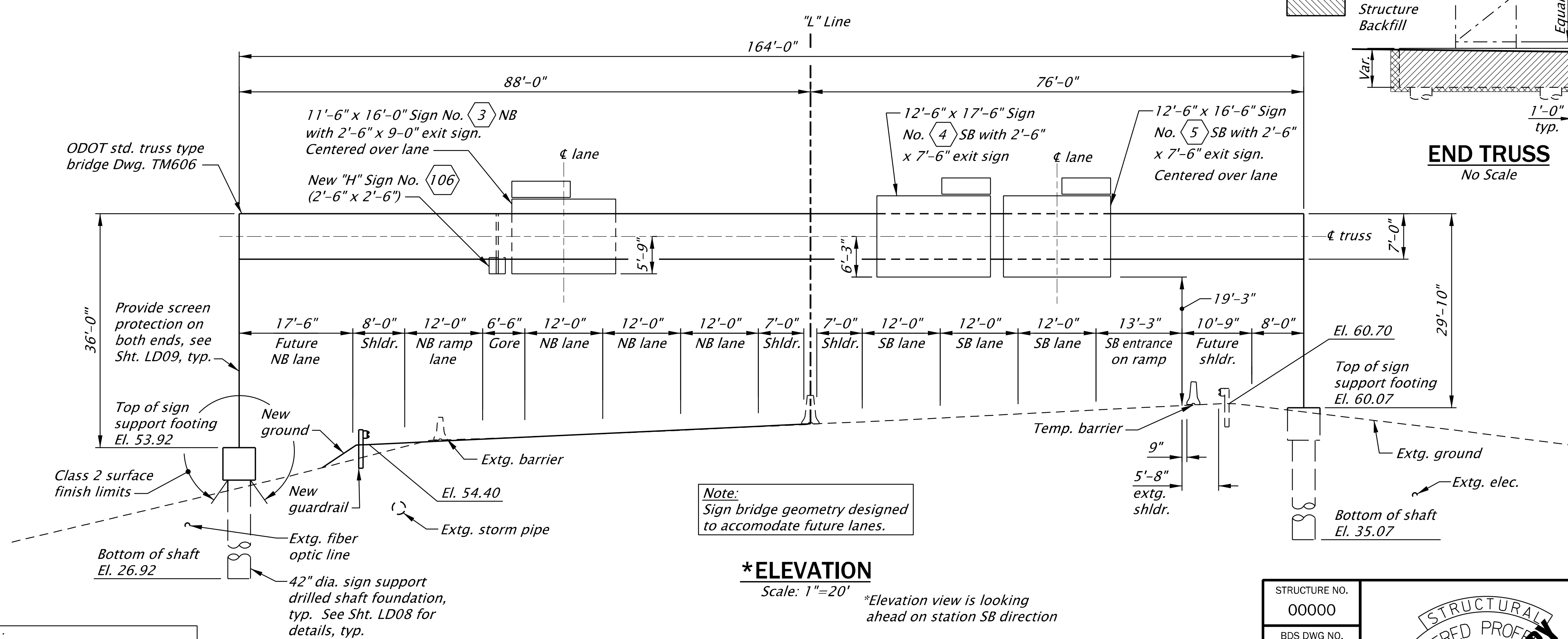
END TRUSS

No Scale



LOCATION MAP

No Scale



*ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station SB direction

General Notes:

All materials and workmanship shall conform to the Oregon Standard Specifications for Construction 2018 and the Special Provisions. Truss type sign bridge structures are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, with 2001 and 2002 interim Revisions and Dwgs. TM614 through TM620.

The sign support shall meet the requirements for span length, post height, and sign area, as shown on Dwg.TM614. Use sign bridge design for "S" = 148' to 167'.

Sign support structure is designed for all items shown including future signs and lanes (by others).

Field verify conditions, elevations, dimensions, and span prior to fabrication. Field verify utility locations and conditions prior to construction.

See Traffic Plans for sign information.

Right of way line and wetland boundary are outside limits of view.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA
(Left and Right are as seen while looking ahead on station)

Sign Bridge		"S" Span	Foundation Sheet Number	Spread Footing Foundation Design Number See Dwg. TM619	"HP" Post Height see Dwg. TM614 (Field Verify)		"HF" Foundation Height see Dwg. TM619 (Field Verify)		Luminaires ("Yes" or "No") see Dwg. TM618
At Station	M.P.				Left	Right	Left	Right	
"L" 673+08	9.95 NB/SB	164'-0"	LD02	N/A	36'-0"	29'-10"	N/A	N/A	No

ACCOMPANIED BY DWGS.:
000000, 000000, TM606, TM614-TM620

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 9.95 NB/SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL STRUCTURAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
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EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP9.95

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Wyatt Dean, E.I.

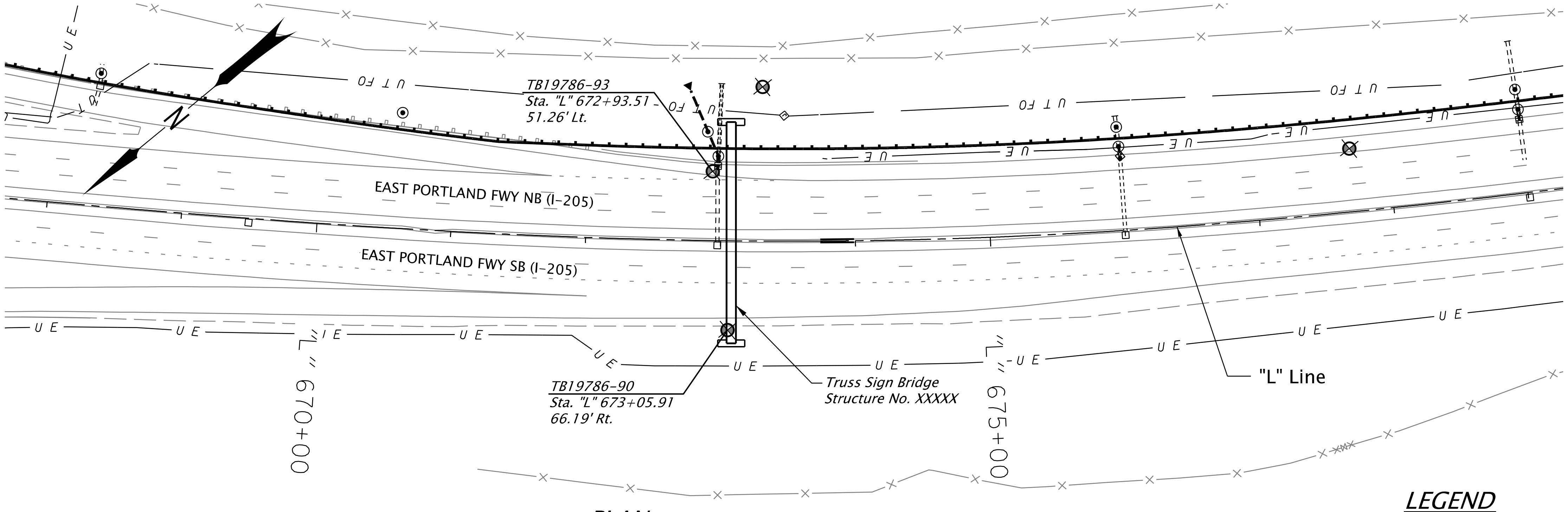
PLAN AND ELEVATION

SHEET NO. LD07

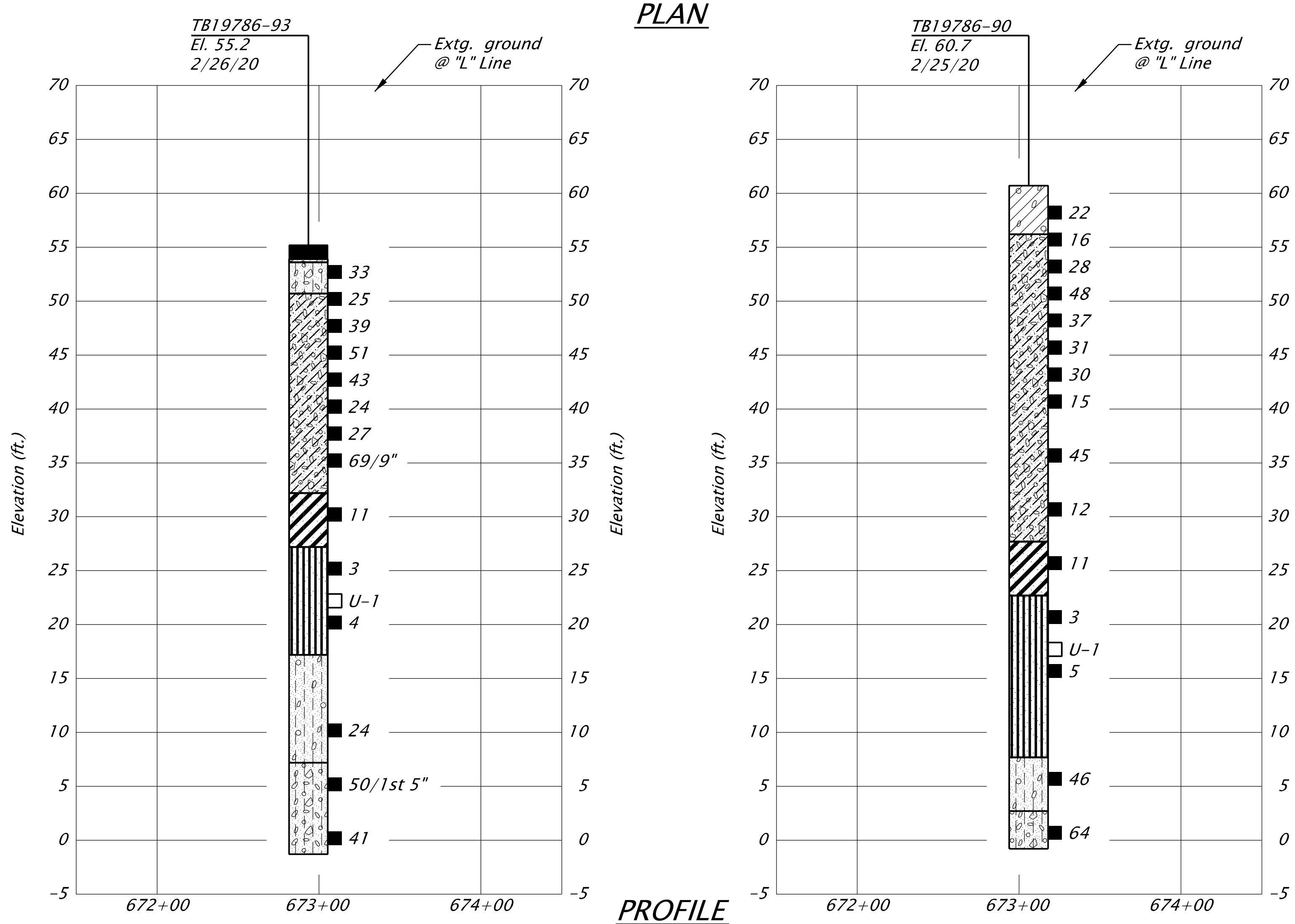
A_LD07_Sign Structure Plan Sheets - DOWL :: LD07 7/28/2020 1:49:01 PM YGarzenelli

792

Rotation: 140.6429° Scale: 1"=20'



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":15'

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

UNIT DESCRIPTIONS

- ASPHALTIC CONCRETE
- BASE ROCK
- Sandy silty GRAVEL (GM); yellow-brown, non-plastic silt, damp to moist, dense, fine to coarse sand, fine to coarse subangular to subrounded gravel, (fill).
- Gravelly silty CLAY, some sand (CL); brown, low to medium plasticity, moist, very stiff, fine to coarse sand, fine to coarse subangular to subrounded gravel, (fill).
- Sandy clayey GRAVEL (GC); brown, low to medium plasticity clay, moist, medium dense to very dense, fine to coarse sand, fine to coarse angular to subrounded gravel, (fill).
- CLAY, some sand, trace gravel (CH); grey, high plasticity, moist, stiff, fine sand, coarse subangular gravel, (alluvium).
- Clayey SILT, some sand (MH); grey, low to medium plasticity, moist, soft to stiff, fine sand, micaceous, (alluvium).
- Gravelly silty SAND (SM); brown or grey, non-plastic to low plasticity silt, moist, medium dense to dense, fine to coarse sand, fine to coarse subangular to rounded gravel, (alluvium).
- Sandy silty GRAVEL (GM); grey or brown, non-plastic silt, moist, dense to very dense, fine to coarse sand, fine to coarse subangular to rounded gravel, (alluvium).

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

U-1 = Shelby Tube Sample

Notes:
1. Borings were sampled with a hammer efficiency of 69.2%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 9.95 NB/SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JUNE 11, 2008 JONATHAN C. HUFFMAN
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

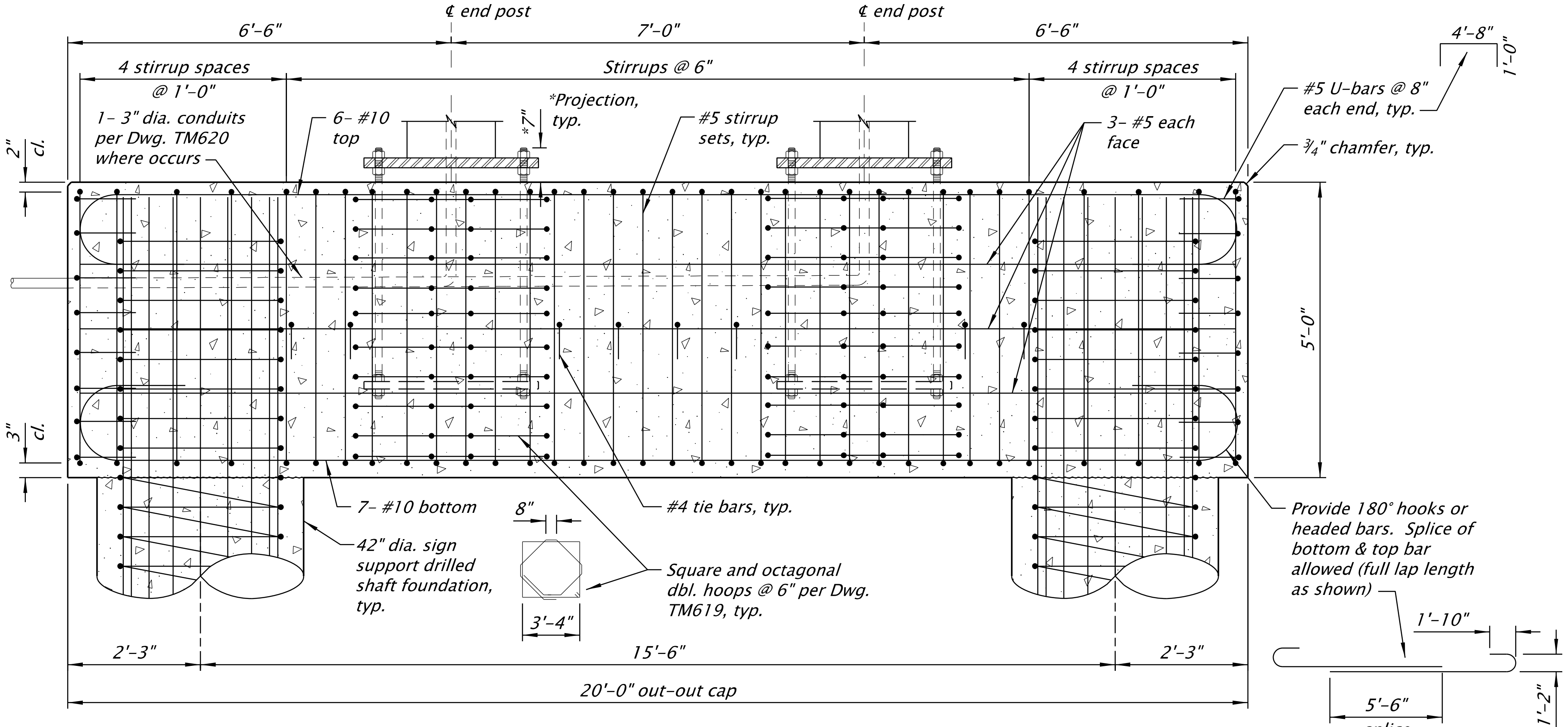
sn_Hwy064_MP9.95

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

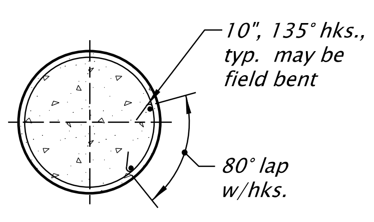
GEOTECHNICAL DATA

SHEET NO. LD07A

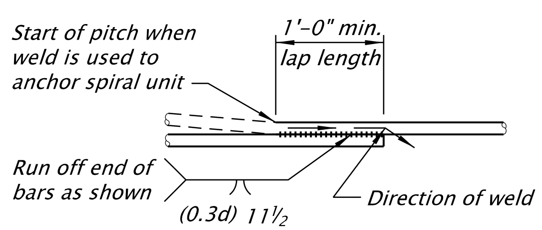


SIGN BRIDGE FOOTING DETAIL

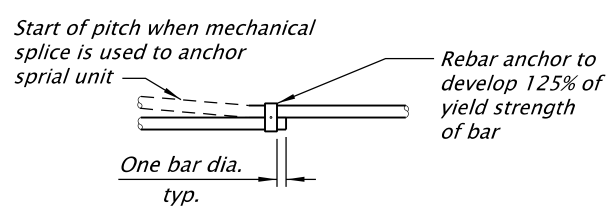
Scale: 3/8"=1'-0"



LAPPED SPLICE OPTION



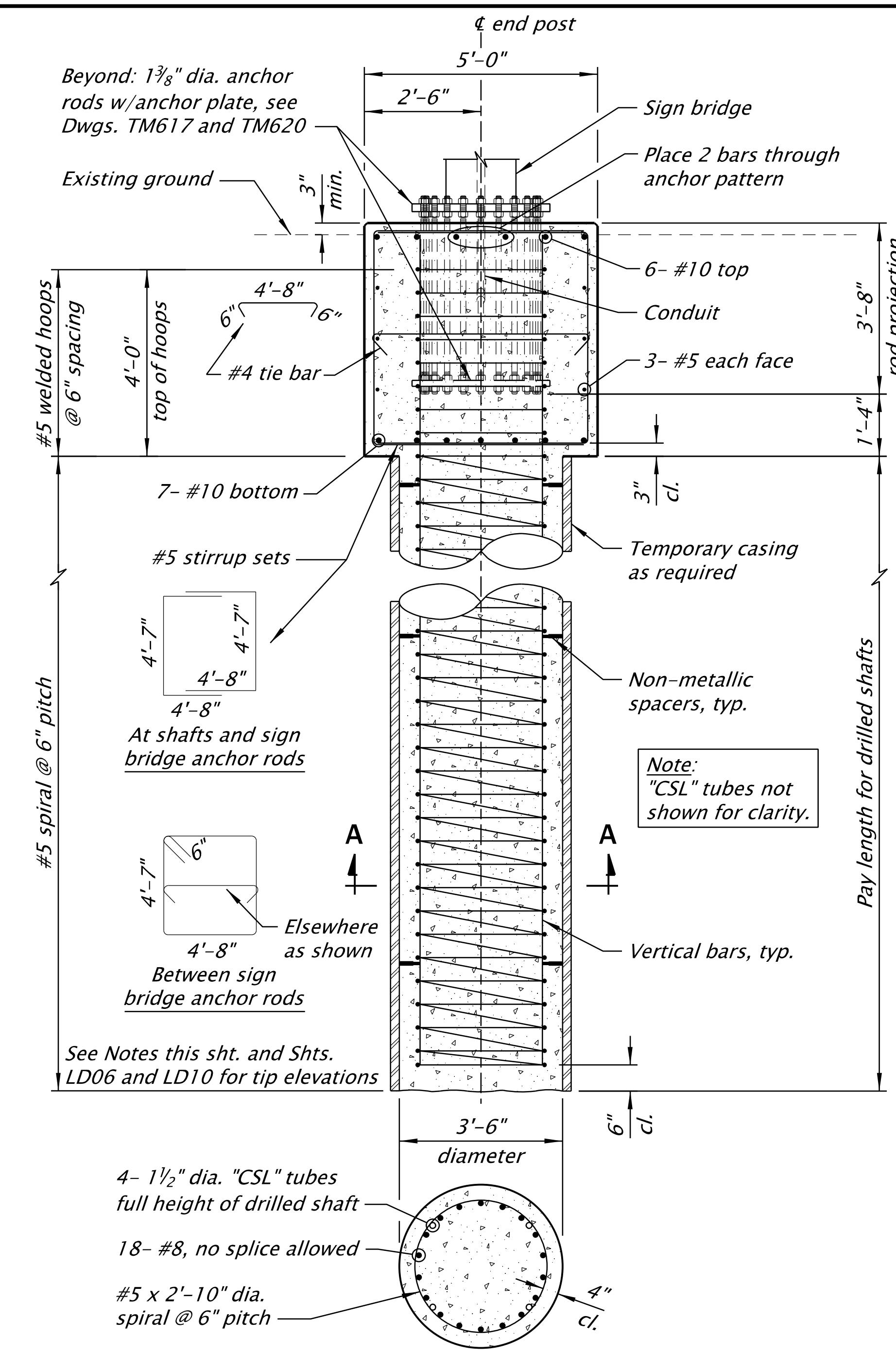
WELDED SPLICE OPTION



MECHANICAL SPLICE OPTION

SPIRAL SPLICE/TERMINATION DETAIL

No Scale



SECTION A-A

DRILLED SHAFT

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

Drilled Shaft Notes:

Reinforced concrete drilled shafts shall be constructed in accordance with the "Oregon Standard Specifications for Construction" 2018 and the Special Provisions. Minimum tip elevations of drilled shafts shall be as shown on Plan and Elevation sheets.

Where groundwater is encountered and excavations are not dewatered, the concrete must be placed with a rigid pipe tremie in accordance with Section 00512.47(c).

Coordinate moving existing barrier for construction and traffic activities with ODOT.

Securely tie "CSL" tubes to reinforcement.

Cap concrete shall be Class 4000 - ¾".
Drilled shaft concrete shall be Class 4000 - ⅜".

Use temporary casing as required. Permanent casing not permitted.

See Dwg. TM615 for notes not shown.

Spiral Notes:

Reinforcing steel shall conform to ASTM A615 (Grade 60) or A706.

ASTM A706 spirals shall be used for all welded splices, except ASTM A615 (Grade 60), ASTM A82, or ASTM A496 may be used if copies of the chemical composition analysis are submitted and approved as weldable by the Engineer.

Make flare weld in direction shown.

Mechanical splice is not allowed for ASTM A82 spirals.

Spirals shall be terminated at each end or discontinuity with 1½ extra turns and a splice to itself as shown.

STRUCTURE NO.	00000, 00000
BDS DWG NO.	000000
CALC. BOOK	7084
HWY:	064
M.P.:	9.95 NB/SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON MAY 10, 2005 PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM

sn_Hwy064_MP9.95

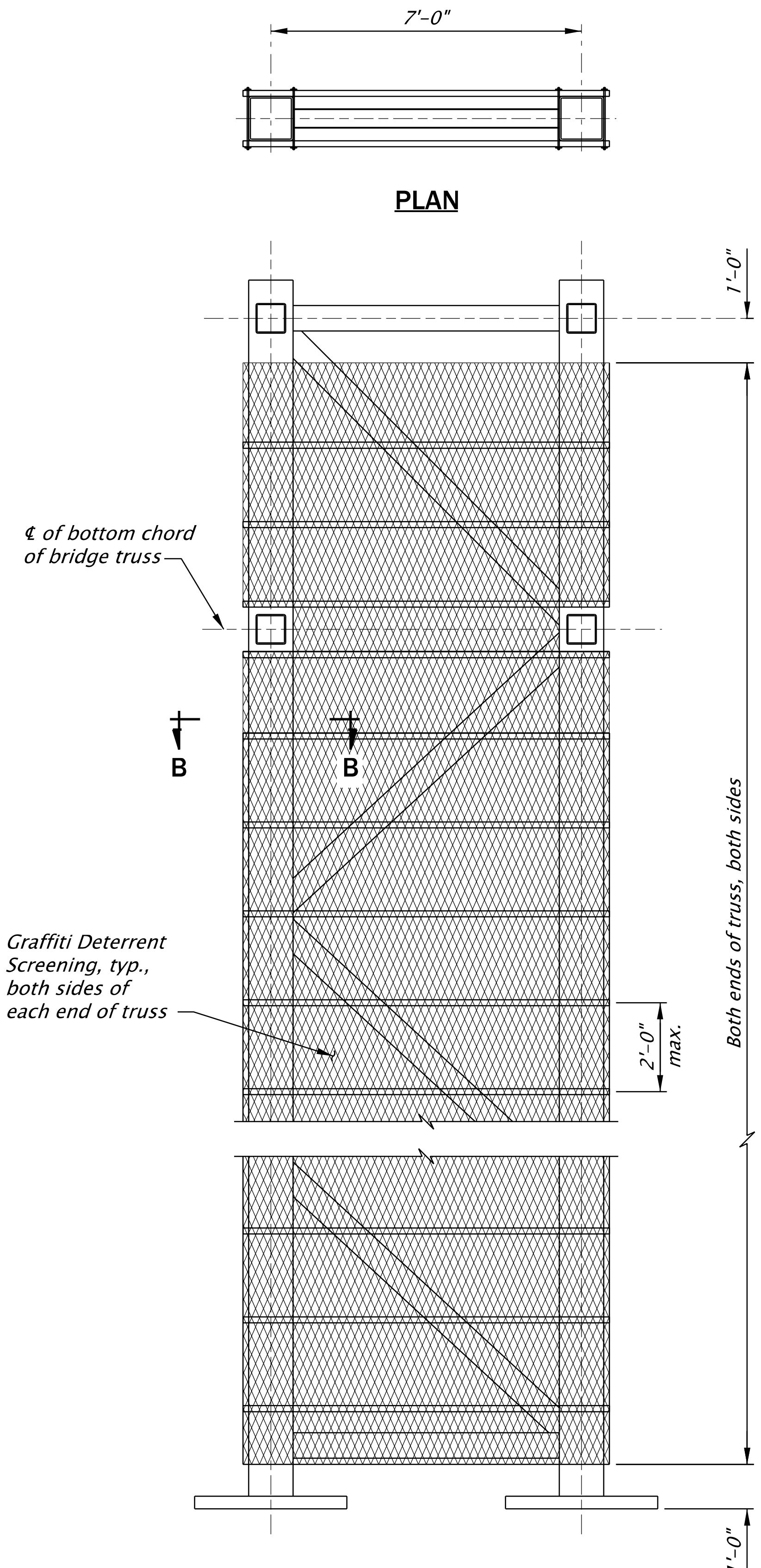
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN BRIDGE DETAILS

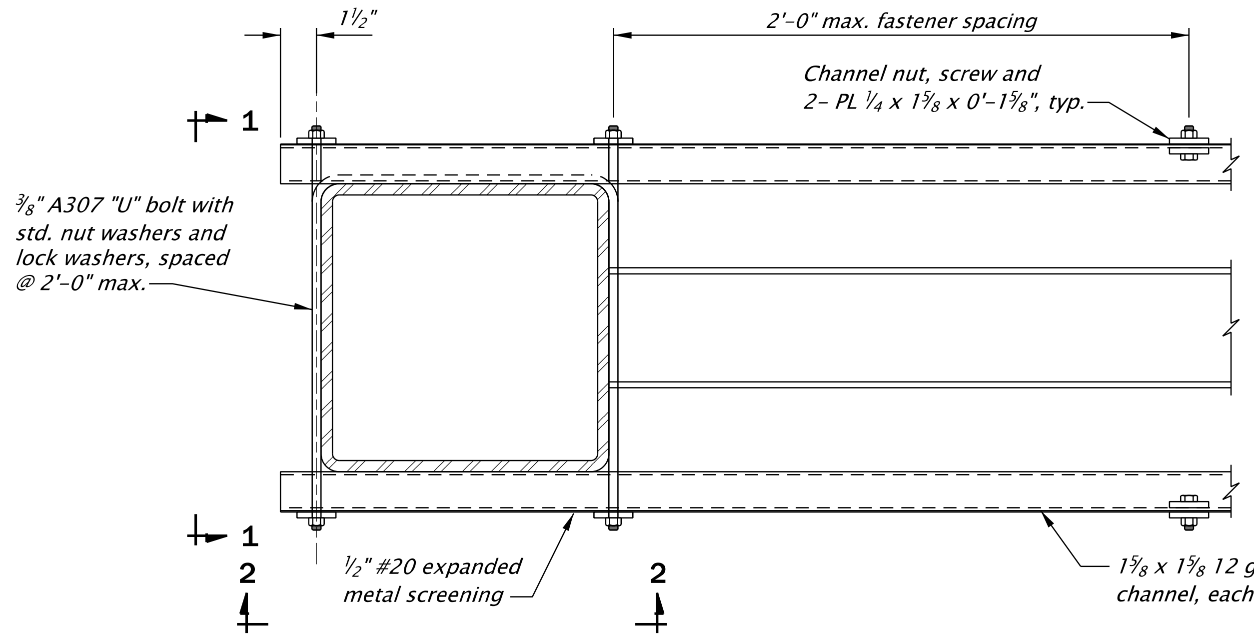
SHEET NO. LD08

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST



SCREENING LOCATION DETAIL

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



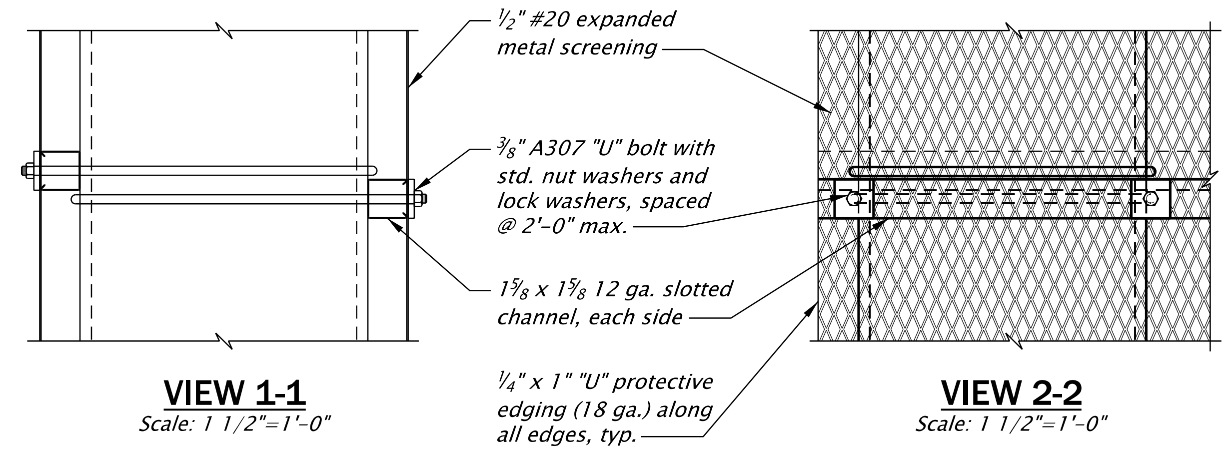
SECTION B-B

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

Notes:

Hot-dip galvanize all steel shown on this sheet.

All expanded flattened metal screening shall be ASTM F1267.

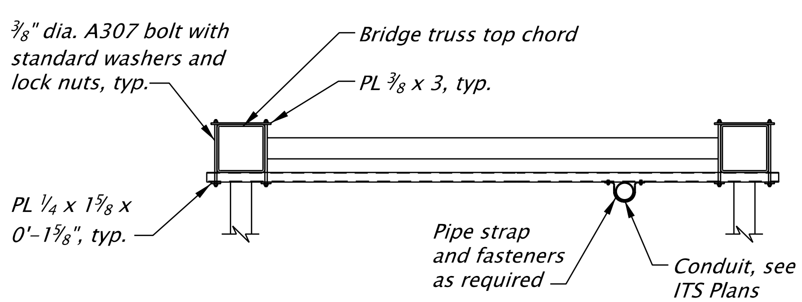


VIEW 1-1

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

VIEW 2-2

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



CONDUIT SUPPORT DETAIL

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000, 00000

BDS DWG NO. 000000

CALC. BOOK 7084

HWY: 064
M.P.: 9.95 NB/SB

UNIT FILE CODE 00000

DFI/TSSU NO. N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON ... 10, 2005 PETER GLEN SLOCUM

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EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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OREGON DEPARTMENT OF TRANSPORTATION

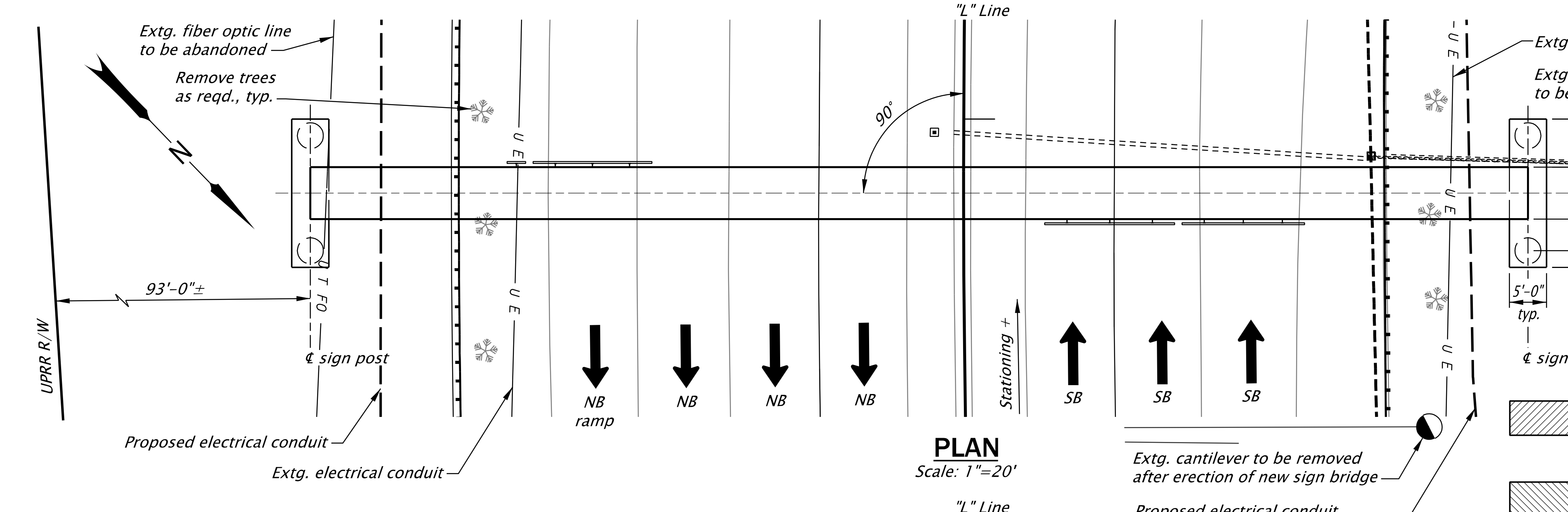
sn_Hwy064_MP9.95

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

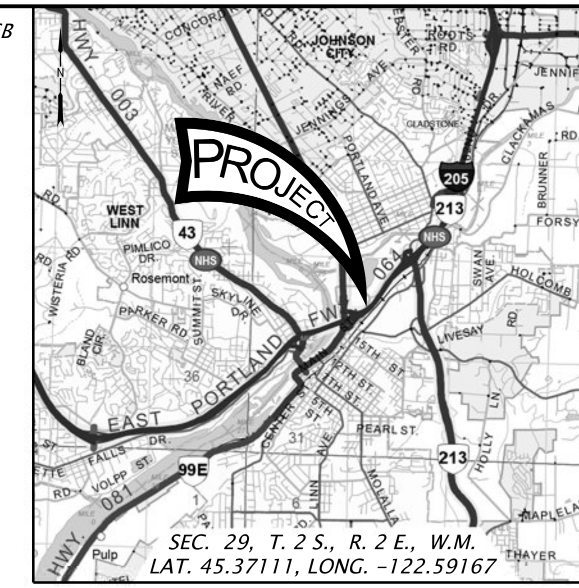
Designer: Peter G. Slocum, P.E., S.E. | Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli | Checker: Wyatt Dean, E.I.

SIGN BRIDGE DETAILS

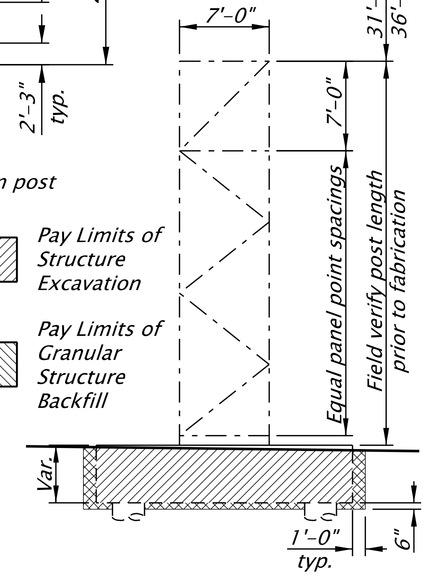
SHEET NO. LD09



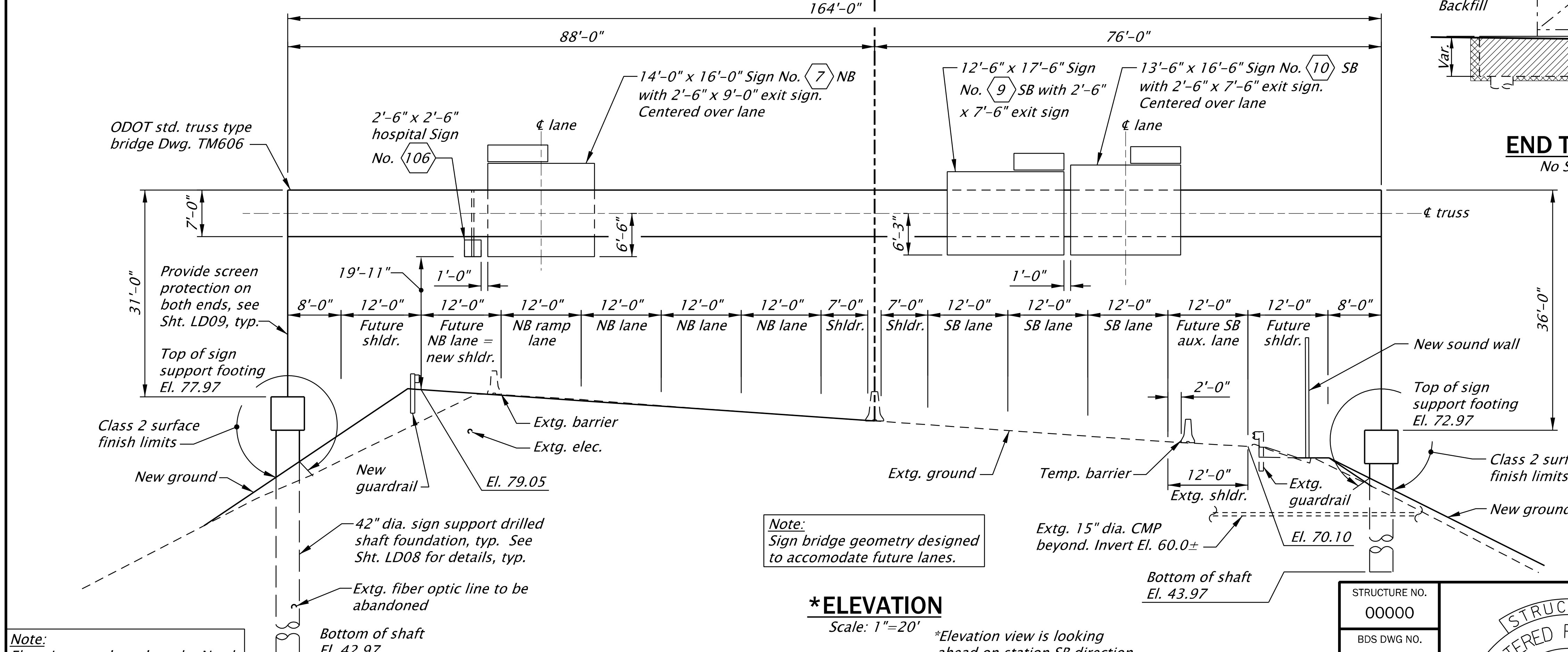
PLAN
Scale: 1"=20'



LOCATION MAP
No Scale



END TRUSS
No Scale



***ELEVATION**
Scale: 1"=20'

*Elevation view is looking ahead on station SB direction

Note:
Elevations are based on the North American Vertical Datum, 1988.

Notes:

All materials and workmanship shall conform to the Oregon Standard Specifications for Construction 2018 and the Special Provisions. Truss type sign bridge structures are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, with 2001 and 2002 interim Revisions and Dwgs. TM614 through TM620.

The sign support shall meet the requirements for span length, post height, and sign area, as shown on Dwg.TM614. Use sign bridge design for "S" = 148' to 167'.

Sign support structure is designed for all items shown including future signs and lanes (by others).

Field verify conditions, elevations, dimensions, and span prior to fabrication. Field verify utility locations and conditions prior to construction.

See Traffic Plans for sign information.

Right of way line and wetland boundary are outside limits of view.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

PROJECT DATA
(Left and Right are as seen while looking ahead on station)

Sign Bridge		"S" Span	Foundation Sheet Number	Spread Footing Foundation Design Number See Dwg. TM619	"HP" Post Height see Dwg. TM614 (Field Verify)		"HF" Foundation Height see Dwg. TM619 (Field Verify)		Luminaires ("Yes" or "No") see Dwg. TM618
At Station	M.P.				Left	Right	Left	Right	
"L" 693+90	9.60 NB/SB	164'-0"	LD02	N/A	31'-0"	36'-0"	N/A	N/A	No

ACCOMPANIED BY DWGS.:
000000, 000000, TM606, TM614-TM620

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 000000
CALC. BOOK 7084
HWY: 064
M.P.: 9.60 NB/SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

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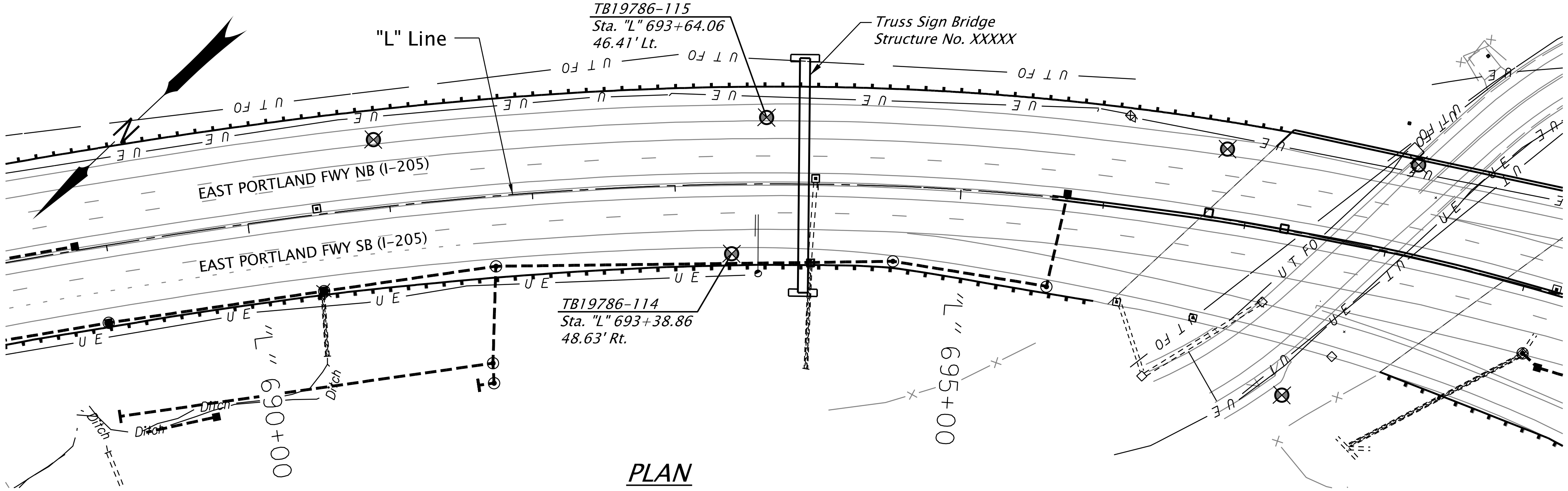
sn_Hwy064_MP9.60

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

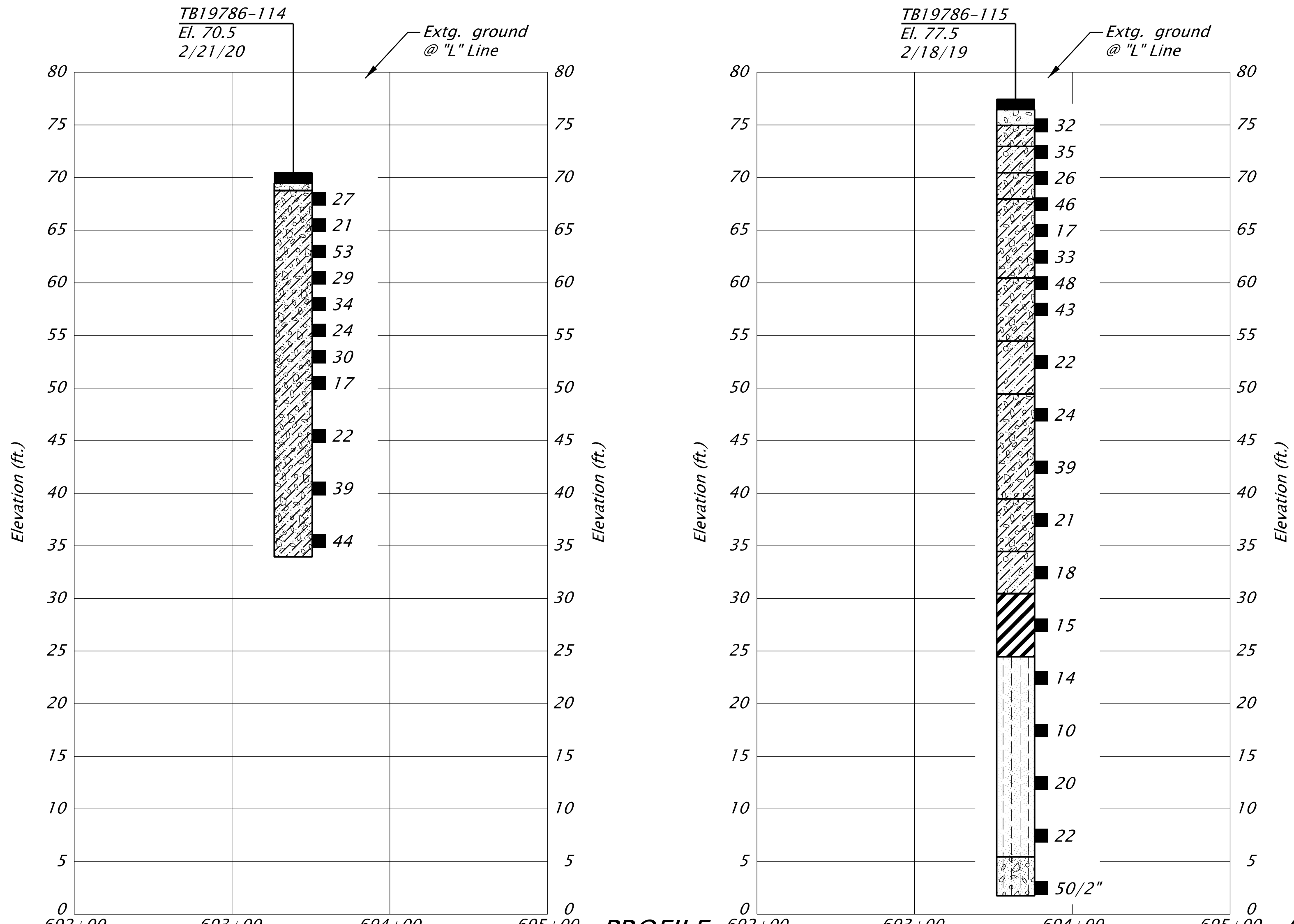
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION
SHEET NO. LD10

A_LD10_Sign Structure Plan Sheets - DOWL :: LD10 7/28/2020 2:08:27 PM YGarzenelli
796
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
Rotation: 136.0778° Scale: 1"=20'



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":15'

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

UNIT DESCRIPTIONS

- ASPHALTIC CONCRETE
- BASE ROCK
- Clayey sandy GRAVEL or Sandy clayey GRAVEL (GC); grey to brown or orange-brown, medium plasticity clay, moist to wet, medium dense to very dense, fine to coarse sand, fine to coarse angular to subrounded gravel, (fill).
- Sandy GRAVEL, some clay (GP-GC); red-brown and grey-brown, low to medium plasticity clay, wet, medium dense to dense, fine to coarse sand, fine to coarse angular to subangular gravel, (fill).
- Gravelly clayey SAND or Clayey SAND, some gravel (SC); grey to brown or red-brown, moist to wet, medium dense to dense, fine to coarse sand, fine to coarse angular to subangular gravel, (fill).
- CLAY (CH); grey, high plasticity, moist, stiff to very stiff, scattered organics and rootlets, (alluvium).
- Silty SAND (SM); brown, non-plastic to low plasticity silt, moist to wet, loose to medium dense, fine to medium sand, micaceous, slight iron-oxidation and staining, (alluvium).
- Sandy GRAVEL, some silt (GP-GM); grey, non-plastic silt, wet, very dense, fine to coarse sand, fine to coarse subangular to subrounded gravel, (alluvium).

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

Notes:
1. Borings were sampled with a hammer efficiency of 69.2% to 88.0%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 9.60 NB/SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JAN. 11, 2008 JONATHAN C. HUFFMAN
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

sn_Hwy064_MP9.60

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

SHEET NO. LD10A

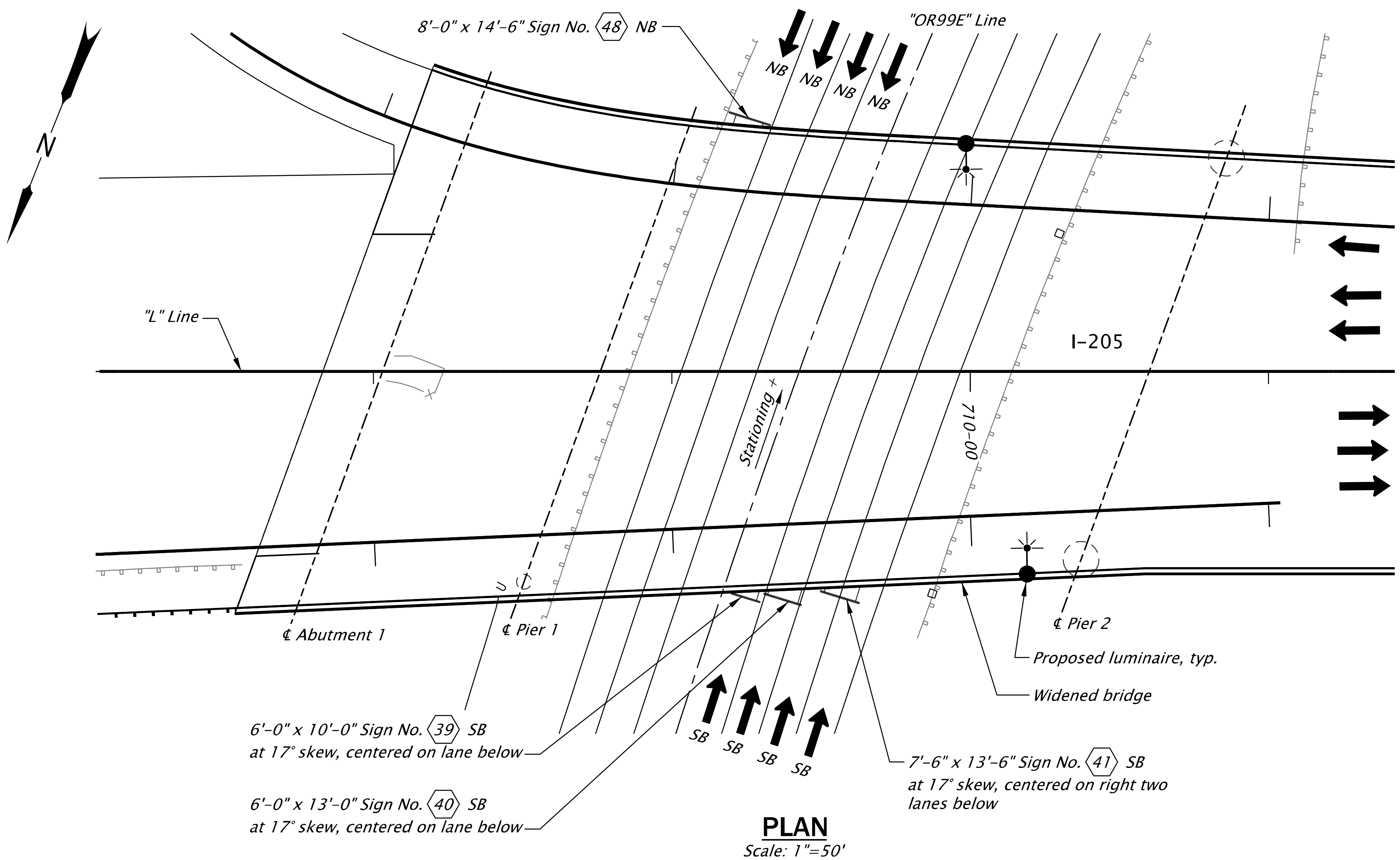
A_LD10A_Geotechnical Data - FEI :: LD10A 7/28/2020 2:14:02 PM YGarzenelli

797

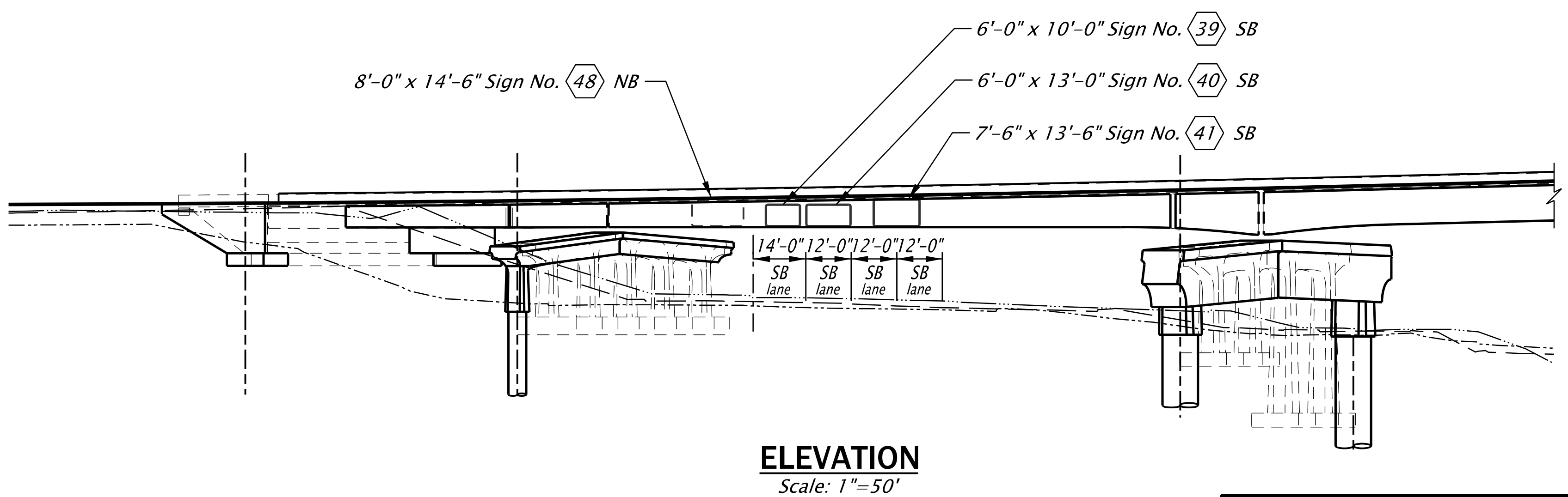
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 226.6391° Scale: 1"=100'

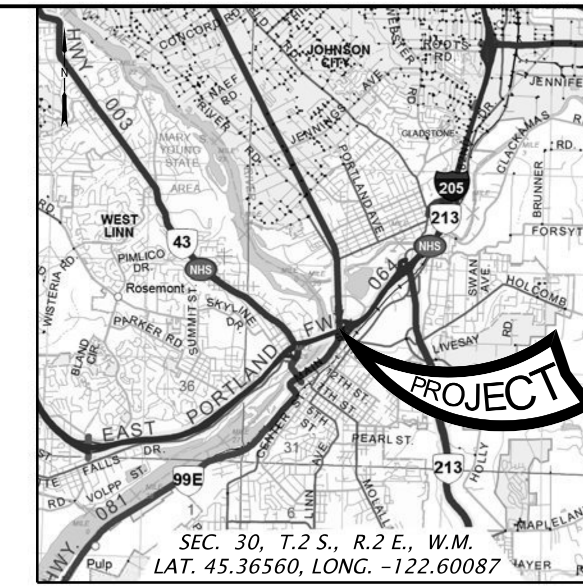
Signs on Existing Bridge M.P. 9.27 SB



PLAN
Scale: 1"=50'



ELEVATION
Scale: 1"=50'



LOCATION MAP
No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Structure mounts are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st Edition, 2015 and interim revisions 2017.

Basic wind speed (1700 year recurrence interval) used for sign structure design is 115 mph, G = 1.14, K_z = 1.0 and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise.

All fasteners shall be ASTM A325 unless otherwise noted. All steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

ACCOMPANIED BY DWGS.:
000000

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09403
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064	M.P.: 9.27 SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM

Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

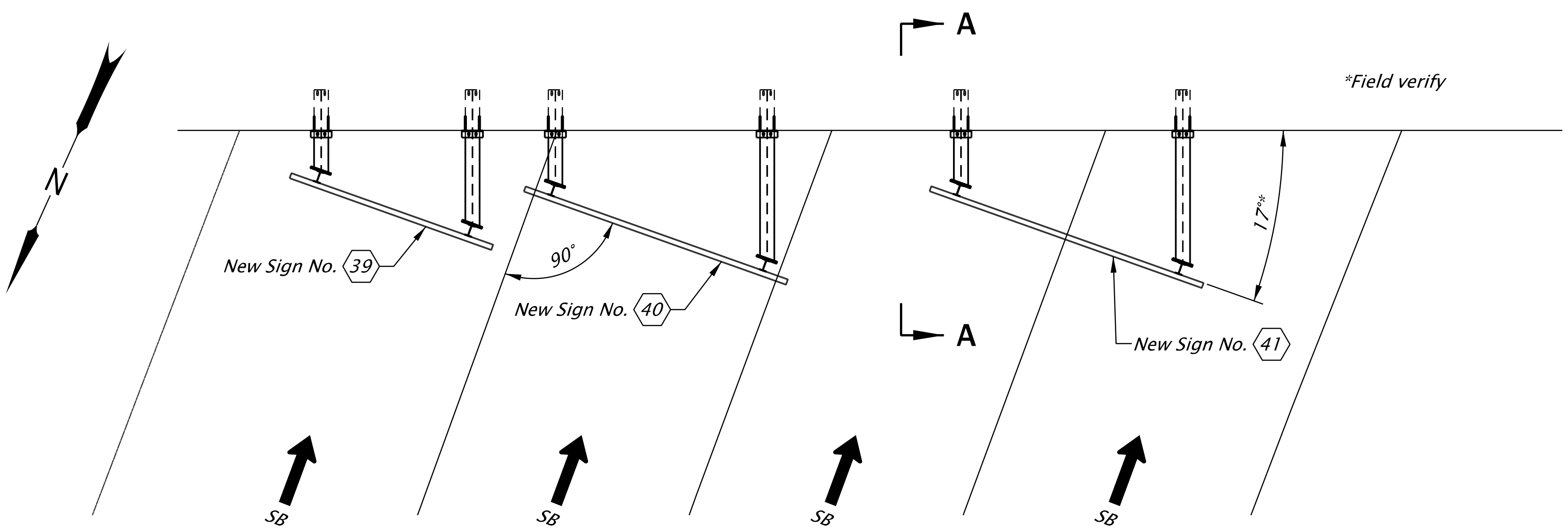
Designer: Peter G. Slocum, P.E., S.E. | Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli | Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION | SHEET NO. LD11

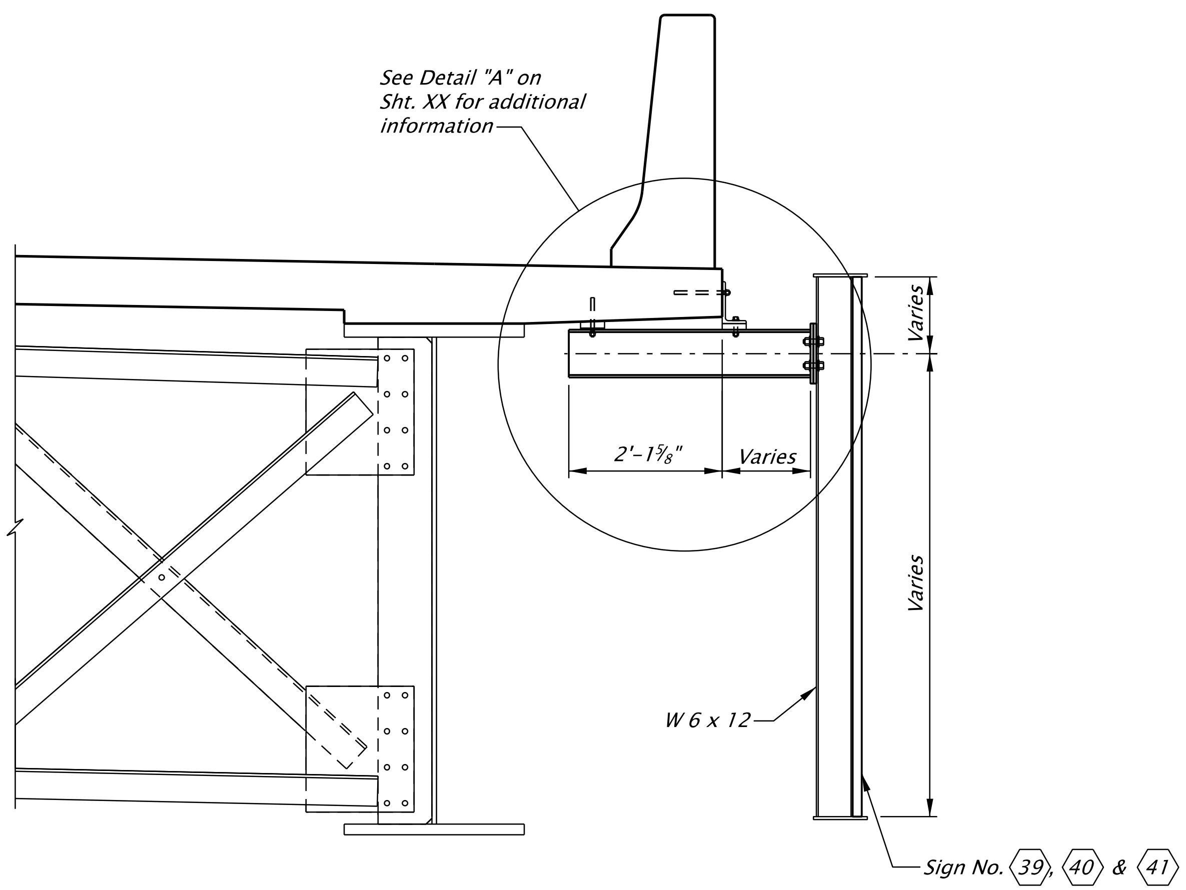
A_LD11_Sign Structure Plan Sheets - DOWL :: LD11 7/28/2020 2:22:05 PM YGarzenelli

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 201.7268° Scale: 1"=50'



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



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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09403
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064	M.P.: 9.27 SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 06/30/2022

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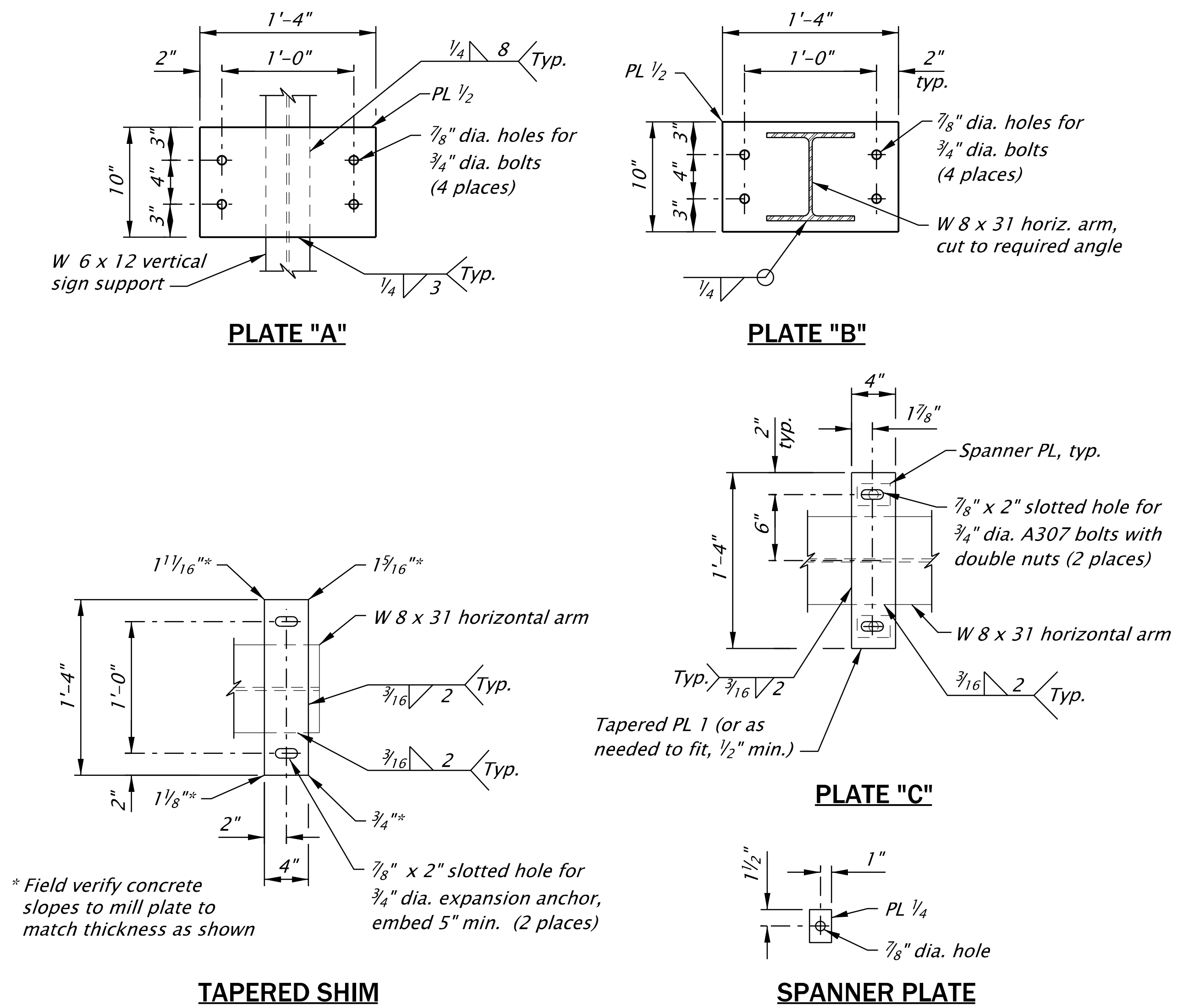
Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. | Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli | Checker: Wyatt Dean, E.I.

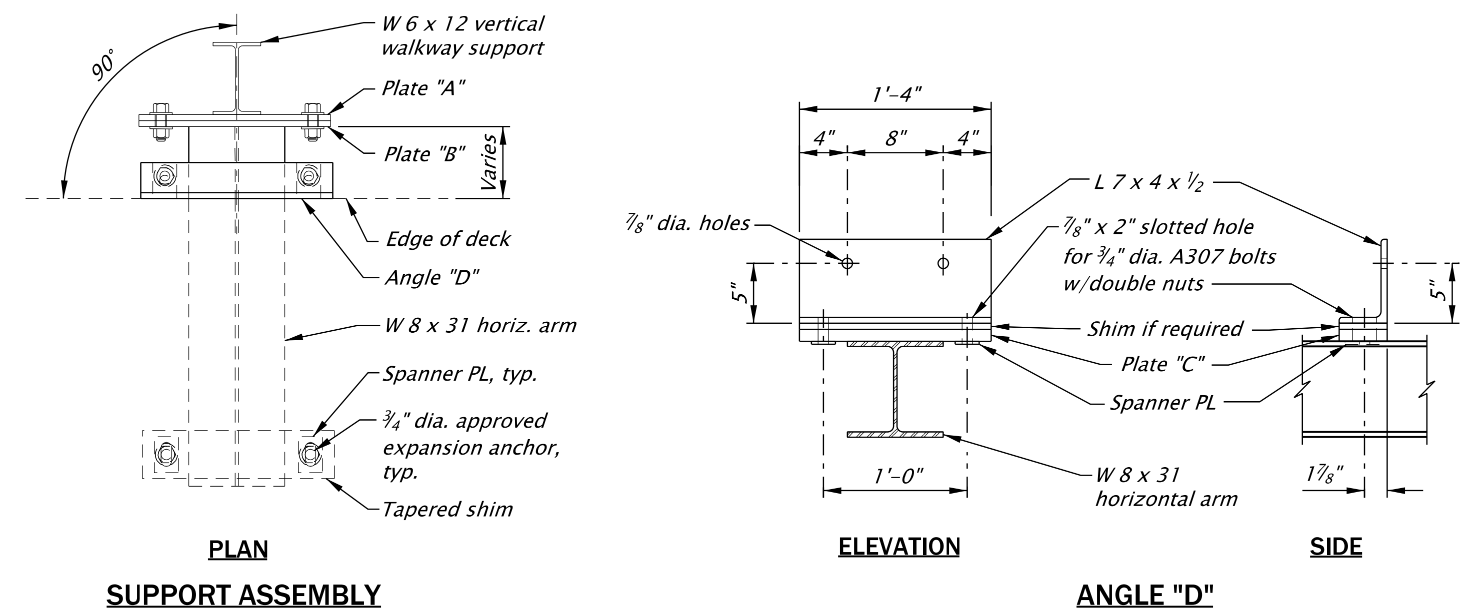
SIGN DETAILS

SHEET NO. LD12



SIGN MOUNTING DETAILS

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



CONNECTION DETAILS

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

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09403
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064 M.P.: 9.27 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON ... 10, 2005 PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

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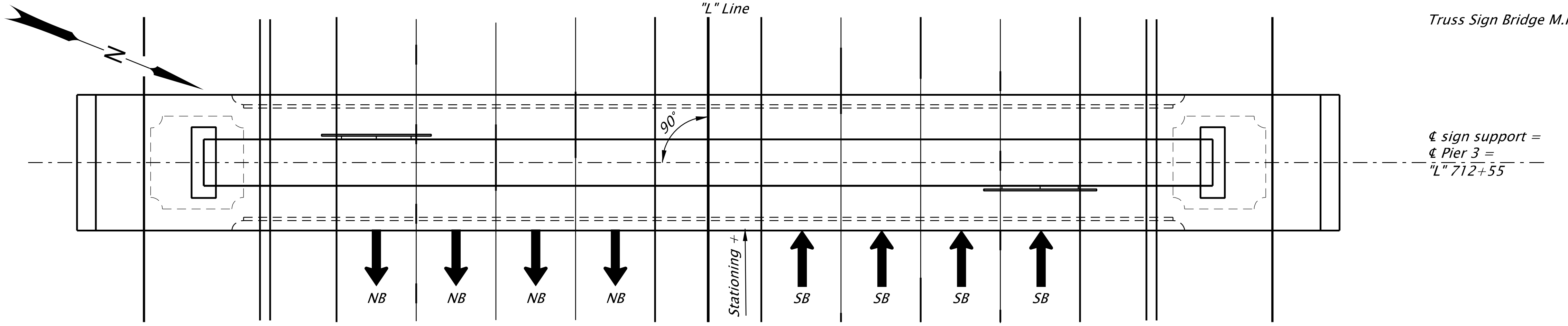
Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

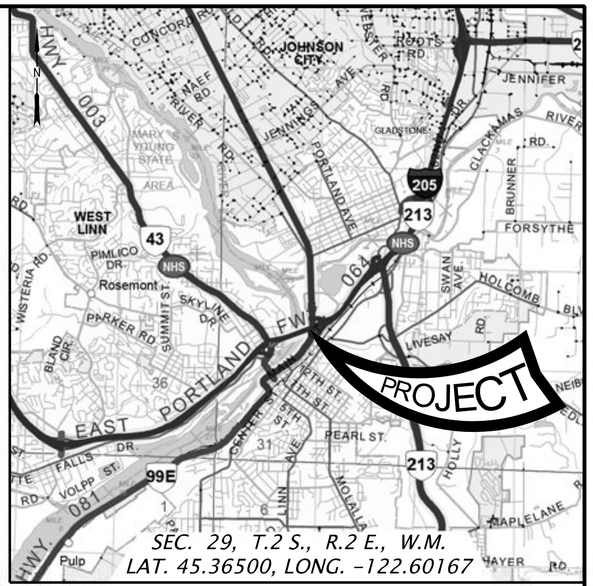
SIGN DETAILS — SHEET NO. LD13

Truss Sign Bridge M.P. 9.22 NB/SB



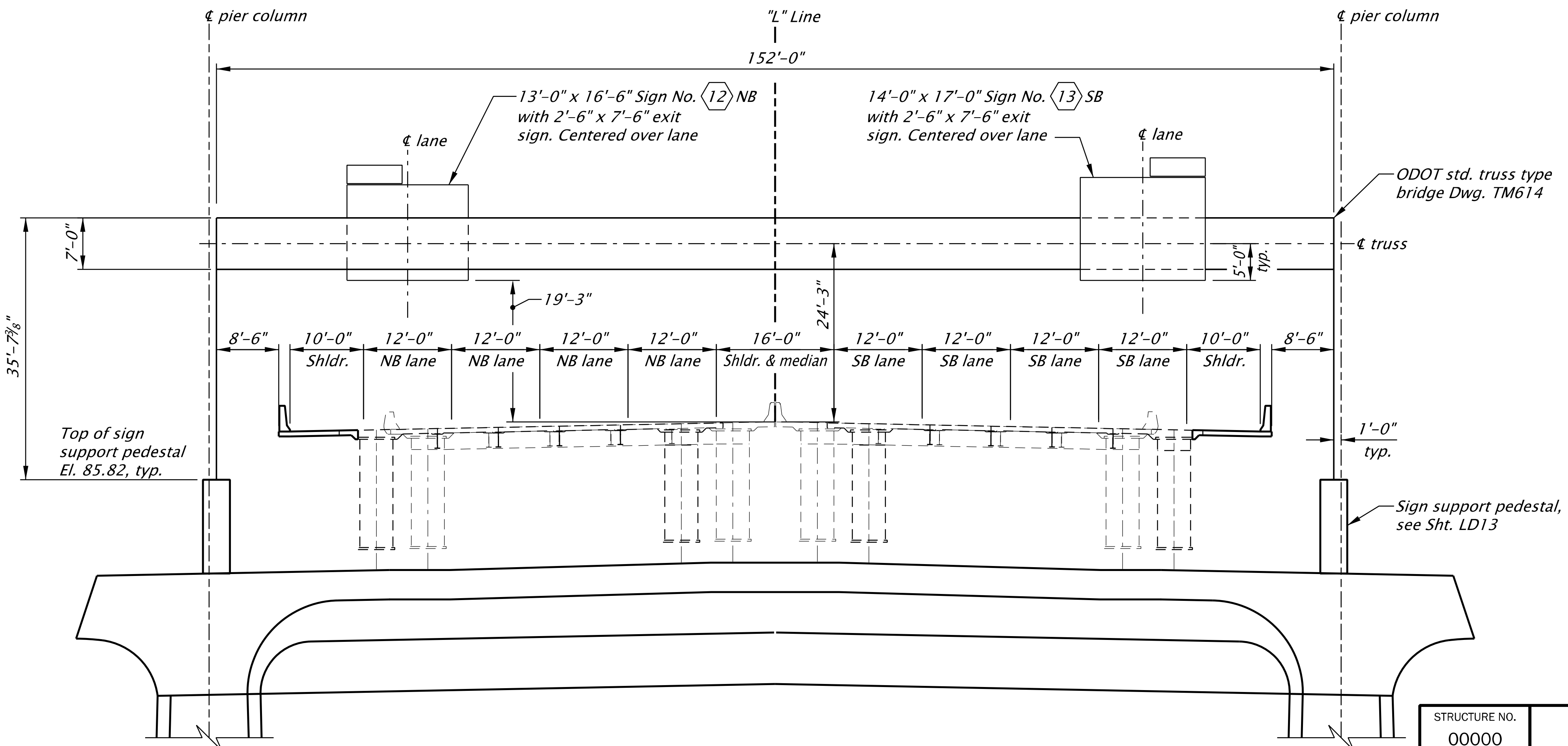
PLAN

Scale: 1"=20'



LOCATION MAP

No Scale



Note:
Elevations are based on the North American Vertical Datum, 1988.

***TRUSS TYPE SIGN BRIDGE AT PIER 3 ELEVATION**

Scale: 1"=20'

**Elevation view is looking ahead on station SB direction*

Notes:

All materials and workmanship shall conform to the Oregon Standard Specifications for Construction 2018 and the Special Provisions. Structure mounts are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Sixth Edition, 2013, with 2015 interim Revisions.

Basic wind speed used for sign structure design is 110 mph, G = 1.14, K_z = 1.39 and Exposure C was used for design.

The sign support shall meet the requirements for span length, post height, and sign area, as shown on Dwg.TM614. Use sign bridge design for "S" = 149' to 167'.

Sign support structure is designed for all items shown including future signs (by others).

Field verify conditions, elevations, dimensions, and span prior to fabrication. Field verify utility locations and conditions prior to construction.

See Traffic Plans for sign information.

Right of way line and wetland boundary are outside limits of view.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

PROJECT DATA
(Left and Right are as seen while looking ahead on station)

Sign Bridge		"S" Span	Foundation Sheet Number	Spread Footing Foundation Design Number See Dwg. TM619	"HP" Post Height see Dwg. TM614 (Field Verify)		"HF" Foundation Height see Dwg. TM619 (Field Verify)		Luminaires ("Yes" or "No") see Dwg. TM618
At Station	M.P.				Left	Right	Left	Right	
"L" 712+55	9.22 NB/SB	152'-0"	–	–	36'-0"	36'-0"	N/A	N/A	No

ACCOMPANIED BY DWGS.:
000000, TM614, TM620

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 000000
CALC. BOOK 7084
HWY: 064
M.P.: 9.22 NB/SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 8, 2016
KENTON CHARLES ALLDRITT
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 12/31/

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

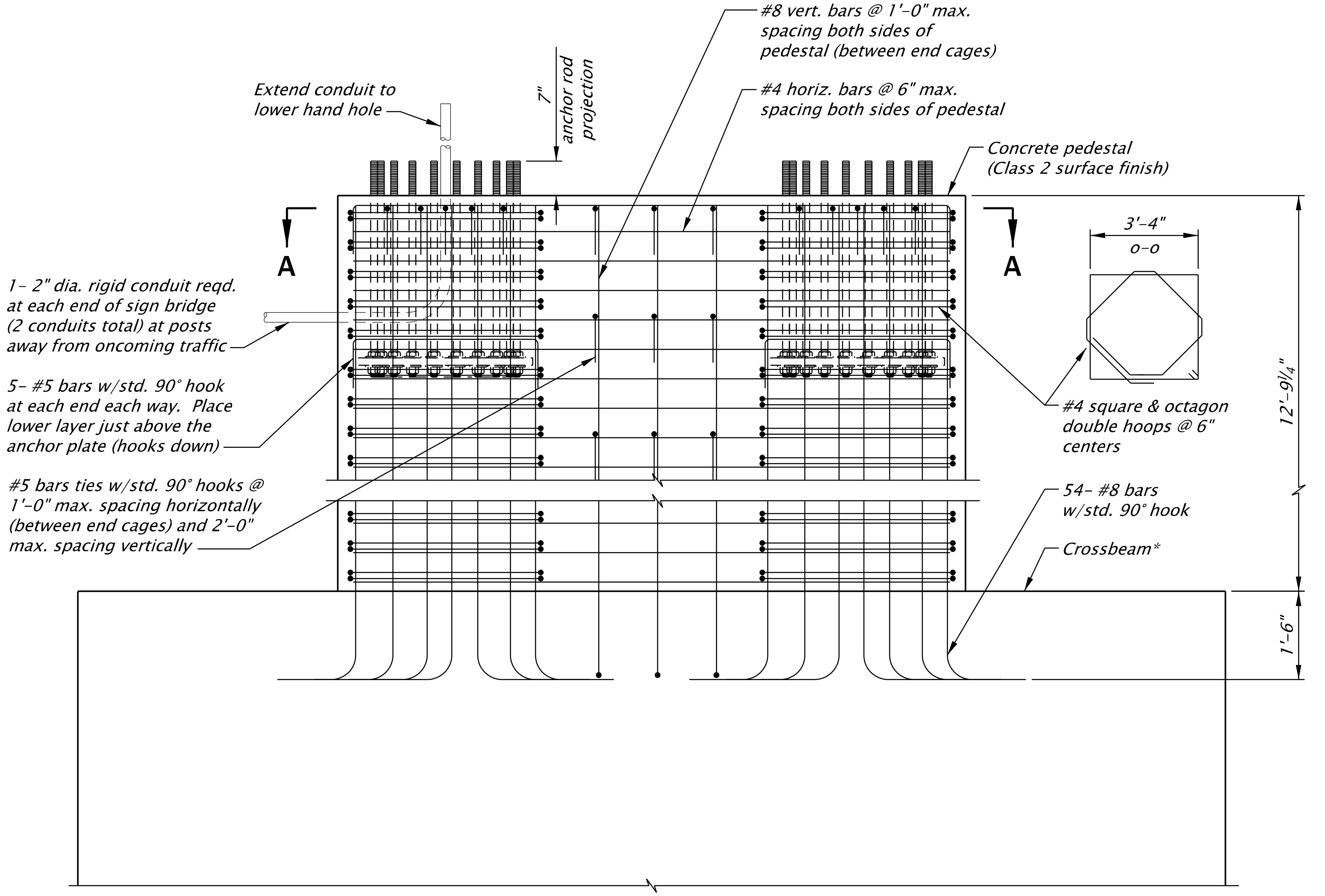
Designer: Kenton Alldritt, P.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Peter G. Slocum, P.E., S.E.

PLAN AND ELEVATION

SHEET NO. LD14

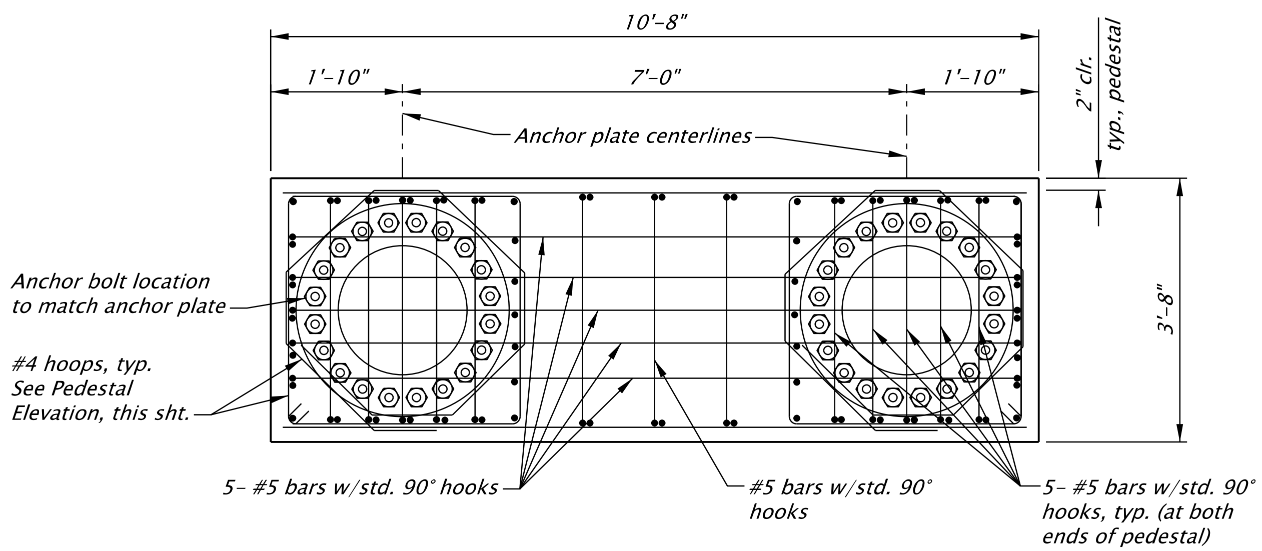
A_LD14_Sign Structure Plan Sheets - DOWL :: LD14 7/28/2020 2:31:13 PM YGarzenelli

Rotation: 111.7268° Scale: 1"=20'



PEDESTAL ELEVATION

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



SECTION A-A

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

STRUCTURE NO. 00000, 00000
BDS DWG NO. 000000
CALC. BOOK 7084
HWY: 064
M.P.: 9.22 NB/SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 8, 2016
KENTON CHARLES ALLDRITT
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 12/31/

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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OREGON DEPARTMENT OF TRANSPORTATION

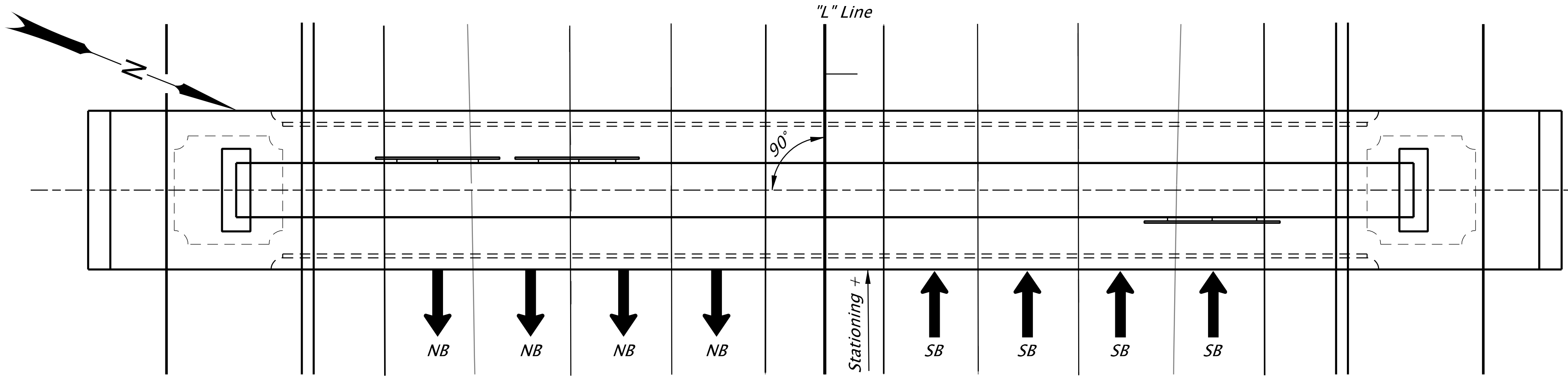
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Peter G. Slocum, P.E., S.E.

SIGN BRIDGE DETAILS

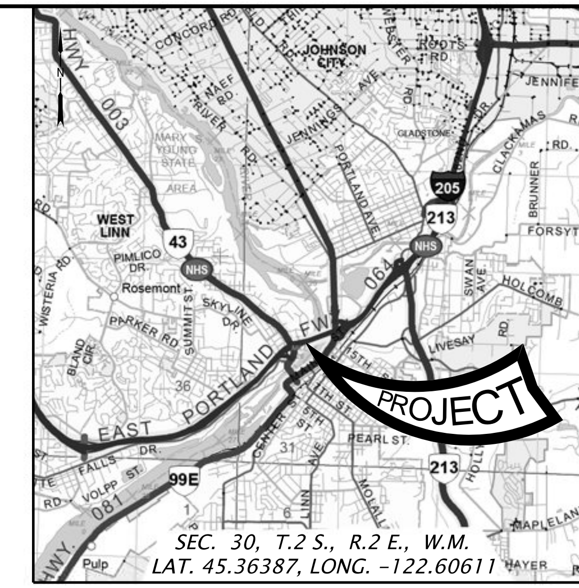
SHEET NO. LD15

Truss Sign Bridge M.P. 9.07 NB/SB



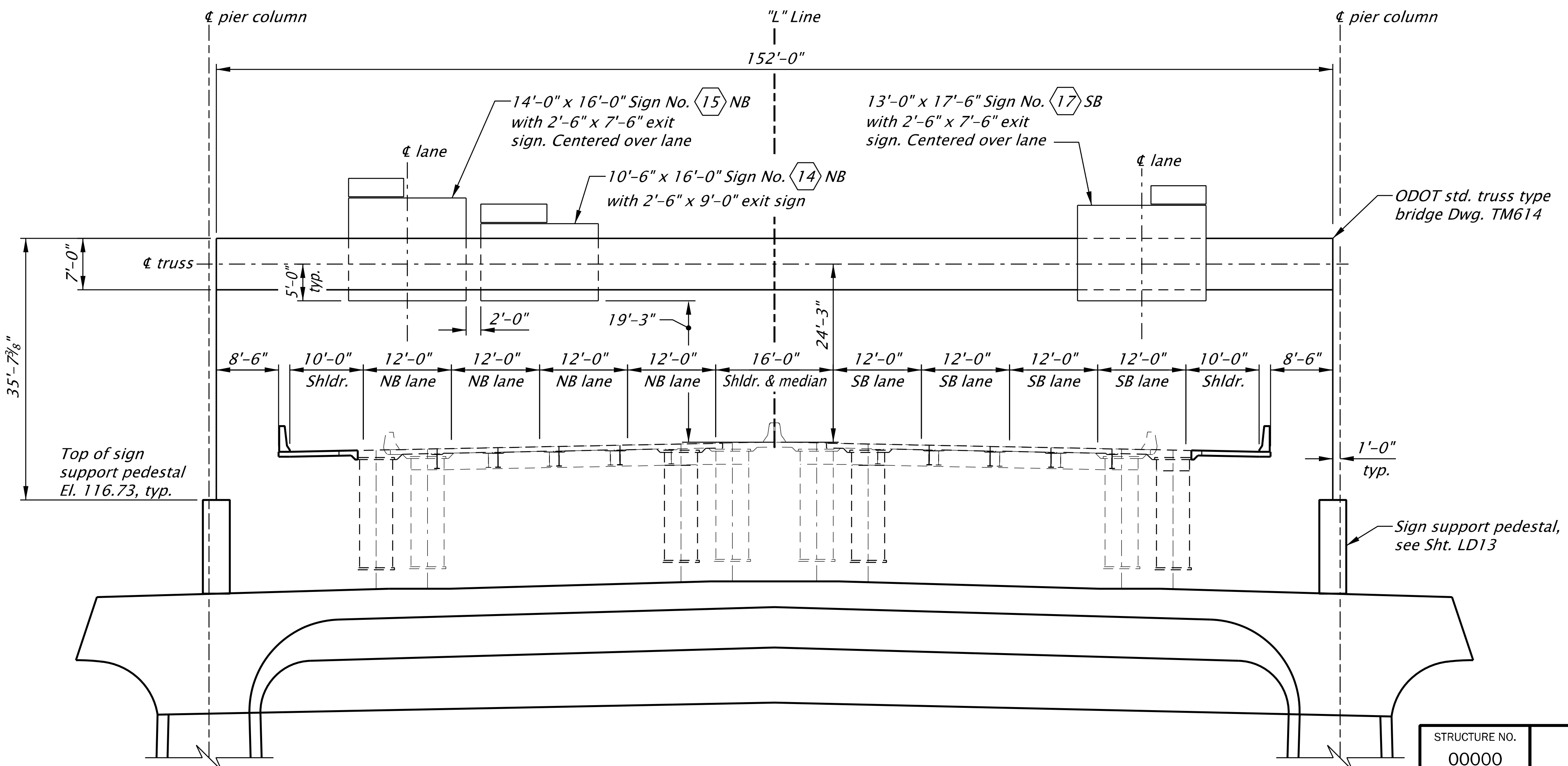
PLAN

Scale: 1"=20'



LOCATION MAP

No Scale



Notes:

All materials and workmanship shall conform to the Oregon Standard Specifications for Construction 2018 and the Special Provisions. Structure mounts are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Sixth Edition, 2013, with 2015 interim Revisions.

Basic wind speed used for sign structure design is 110 mph, G = 1.14, K_z = 1.39 and Exposure C was used for design.

The sign support shall meet the requirements for span length, post height, and sign area, as shown on Dwg.TM614. Use sign bridge design for "S" = 149' to 167'.

Sign support structure is designed for all items shown including future signs (by others).

Field verify conditions, elevations, dimensions, and span prior to fabrication. Field verify utility locations and conditions prior to construction.

See Traffic Plans for sign information.

Right of way line and wetland boundary are outside limits of view.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Note:
Elevations are based on the North American Vertical Datum, 1988.

*TRUSS TYPE SIGN BRIDGE AT PIER 6 ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station SB direction

PROJECT DATA
(Left and Right are as seen while looking ahead on station)

Sign Bridge		"S" Span	Foundation Sheet Number	Spread Footing Foundation Design Number See Dwg. TM619	"HP" Post Height see Dwg. TM614 (Field Verify)		"HF" Foundation Height see Dwg. TM619 (Field Verify)		Luminaires ("Yes" or "No") see Dwg. TM618
At Station	M.P.				Left	Right	Left	Right	
"L" 722+85	9.07 NB/SB	152'-0"	–	–	36'-0"	36'-0"	N/A	N/A	No

ACCOMPANIED BY DWGS.:
000000, TM614, TM620

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 9.07 NB/SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 8, 2016
KENTON CHARLES ALLDRITT
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 12/31/

DOWL WWW.DOWL.COM

OREGON DEPARTMENT OF TRANSPORTATION

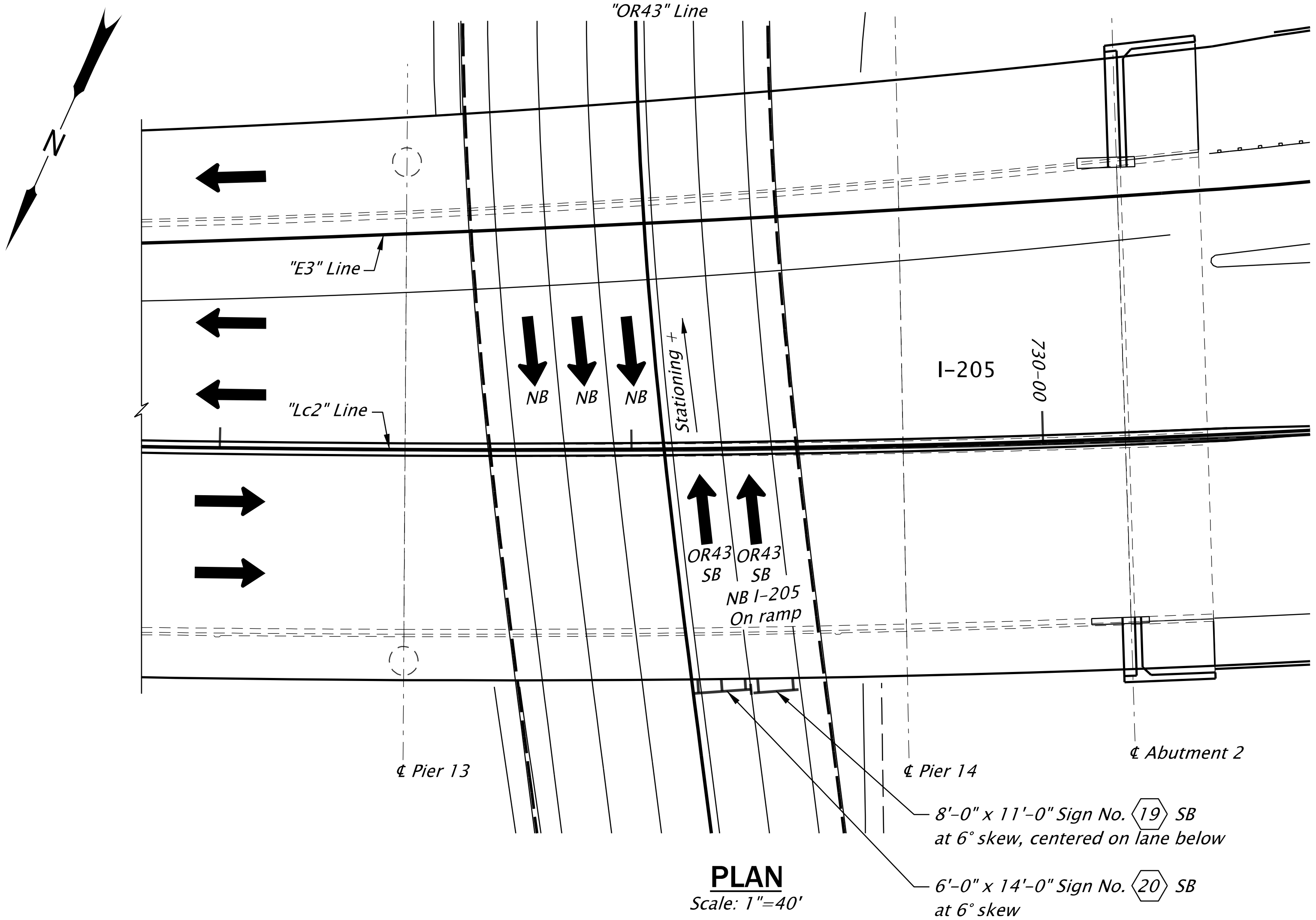
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Peter G. Slocum, P.E., S.E.

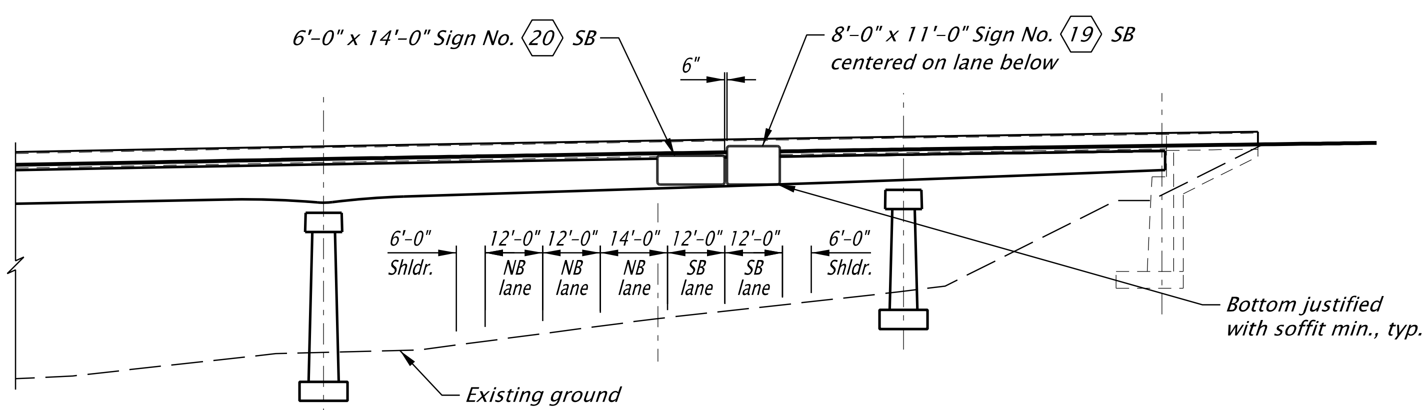
PLAN AND ELEVATION

SHEET NO. LD16

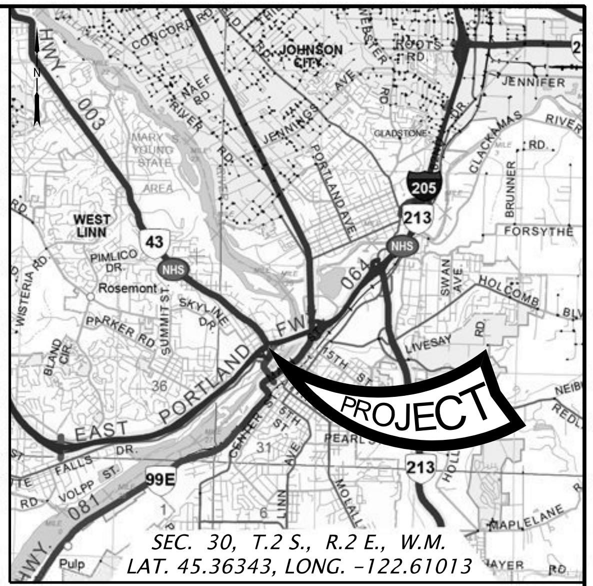
Signs on Existing Bridge M.P. 8.69 SB



PLAN
Scale: 1"=40'



ELEVATION
Scale: 1"=40'



LOCATION MAP
No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Structure mounts are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st Edition, 2015 and interim revisions 2017.

Basic wind speed (1700 year recurrence interval) used for sign structure design is 115 mph, G = 1.14, K_Z = 1.0 and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise.

All fasteners shall be ASTM A325 unless otherwise noted. All steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

ACCOMPANIED BY DWGS.: 000000

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 09403
BDS DWG NO. 000000
CALC. BOOK 7084
HWY: 064
M.P.: 8.69 SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

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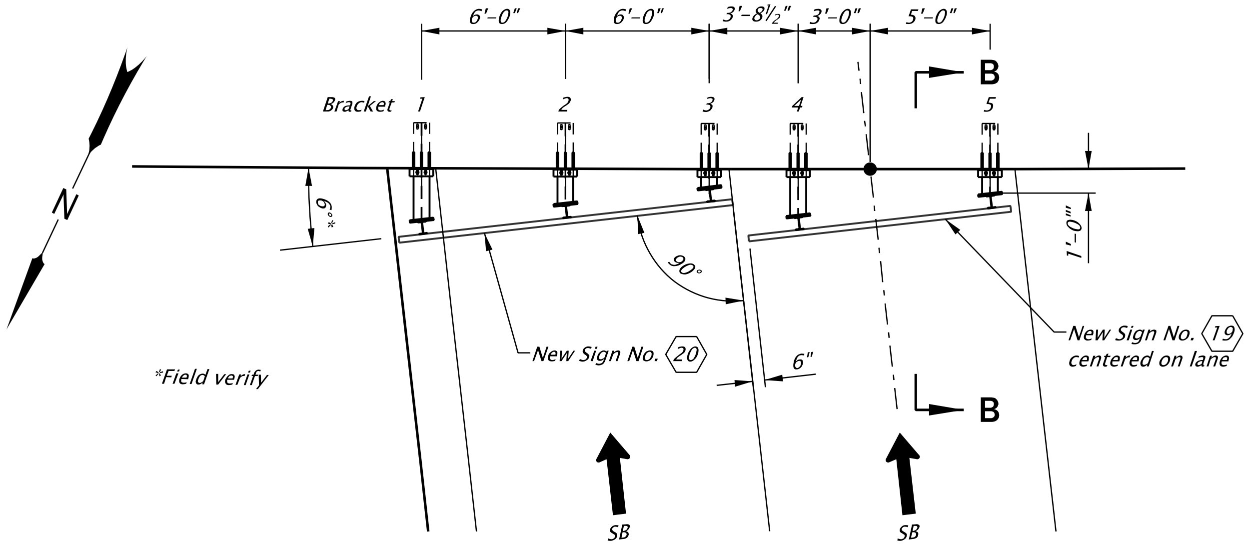
Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

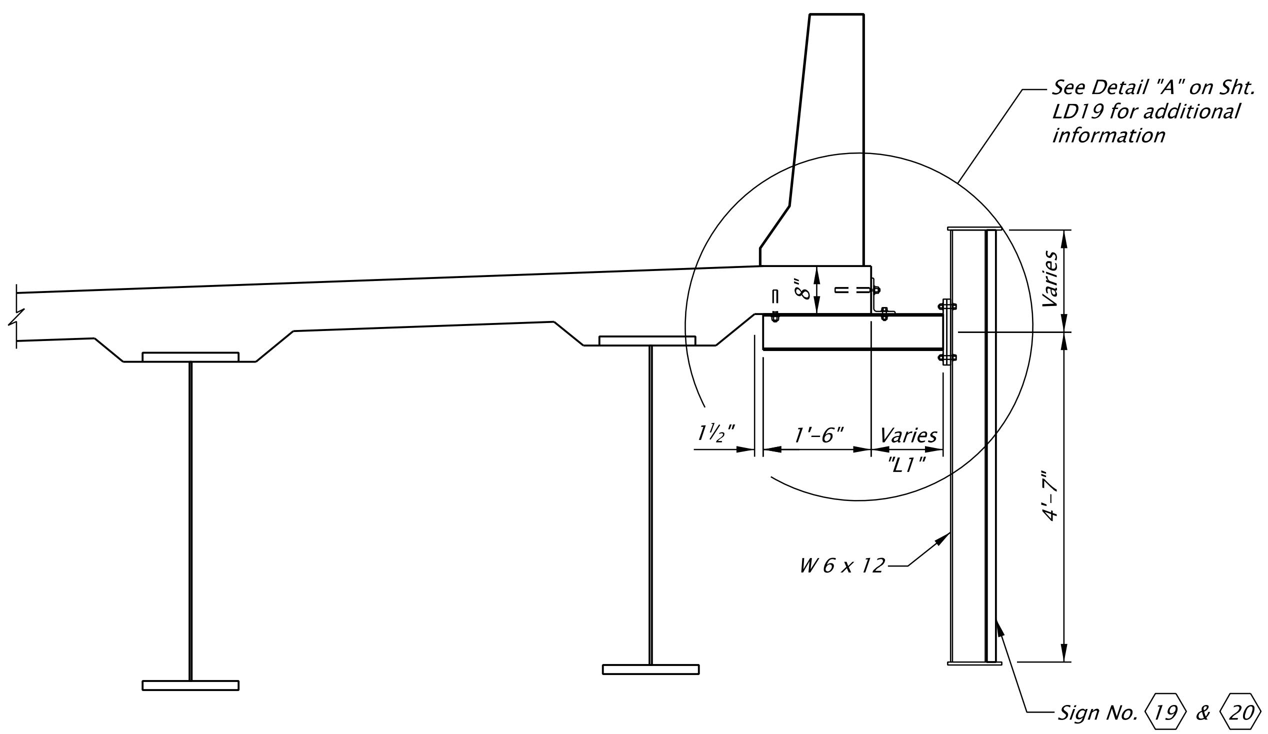
Designer: Peter G. Slocum, P.E., S.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION
SHEET NO. LD17



SIGN PLAN

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



SECTION B-B

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

TABLE "A"					
Sign No.	Brackets				
	1	2	3	4	5
19	-	-	-	1'-10"	1'-0"
20	2'-3"	1'-7½"	1'-0"	-	-

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09403
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064 M.P.: 8.69 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON PETER GLEN SLOCUM

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EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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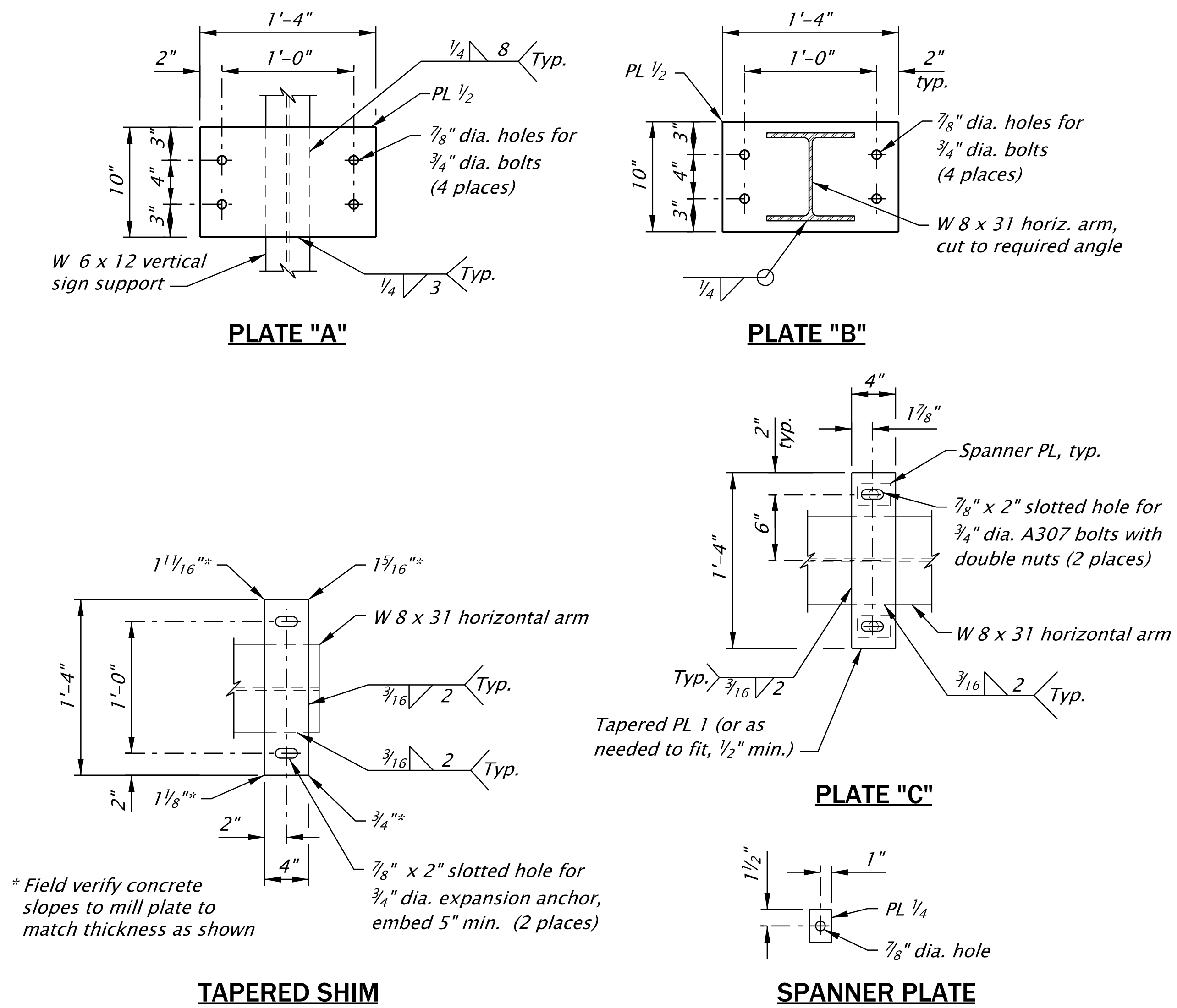
OREGON DEPARTMENT OF TRANSPORTATION

Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

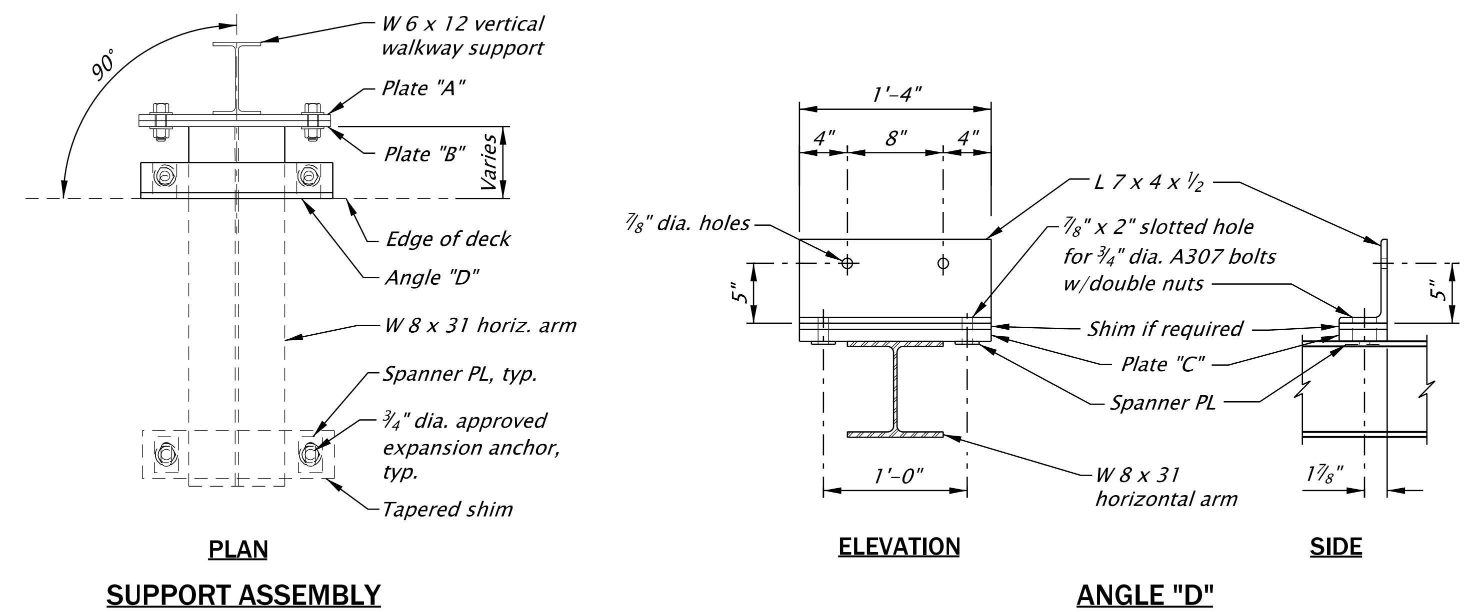
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN DETAILS SHEET NO. LD18



SIGN MOUNTING DETAILS

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



CONNECTION DETAILS

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09403
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064	M.P.: 8.69 SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
EXPIRES: 06/30/2022

PRELIMINARY COPY
INFORMATION ONLY

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OREGON DEPARTMENT OF TRANSPORTATION

Willamette River & Hwy 1E & Hwy 3, Hwy 64 (George Abernethy)

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

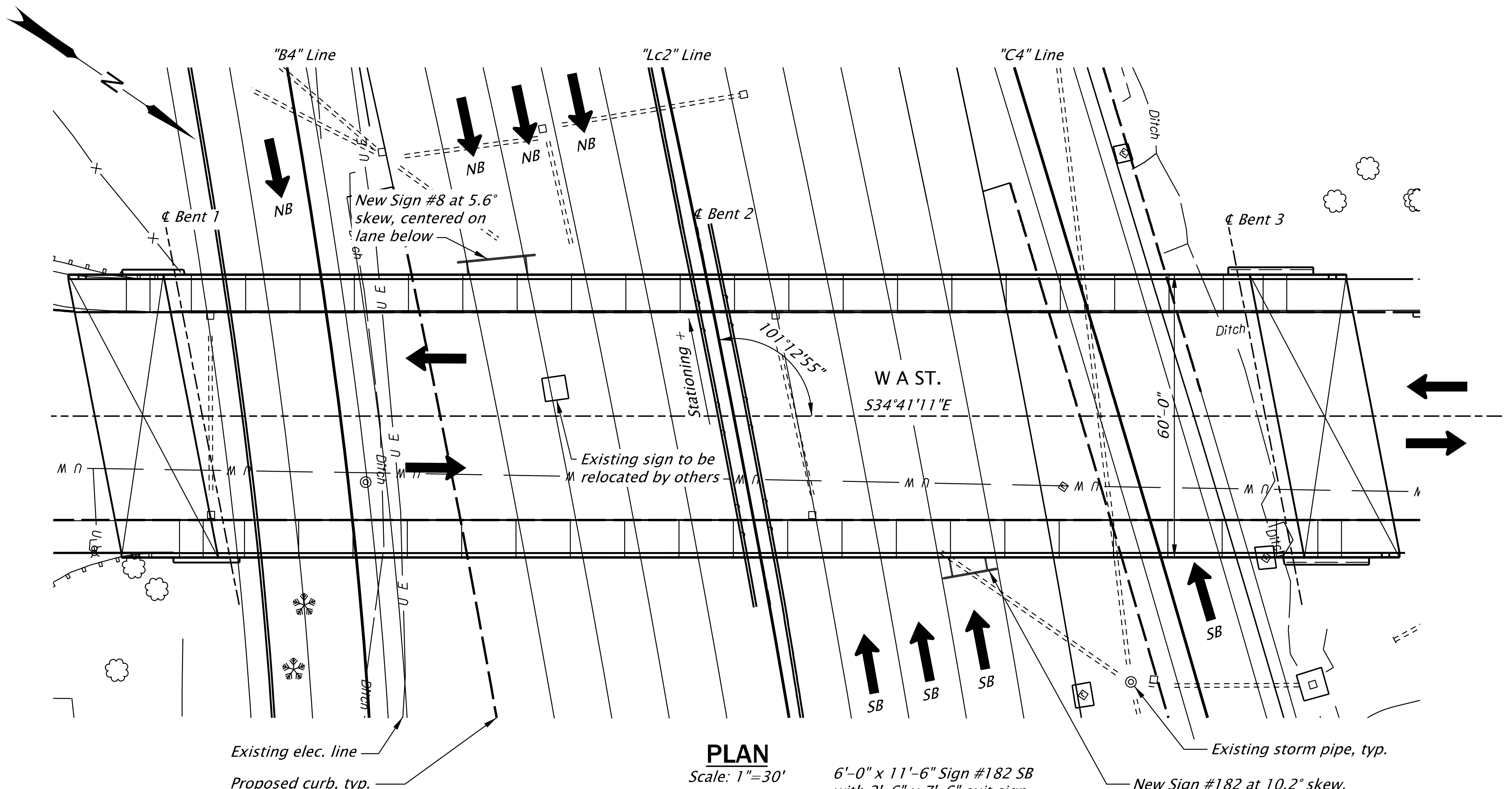
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN DETAILS

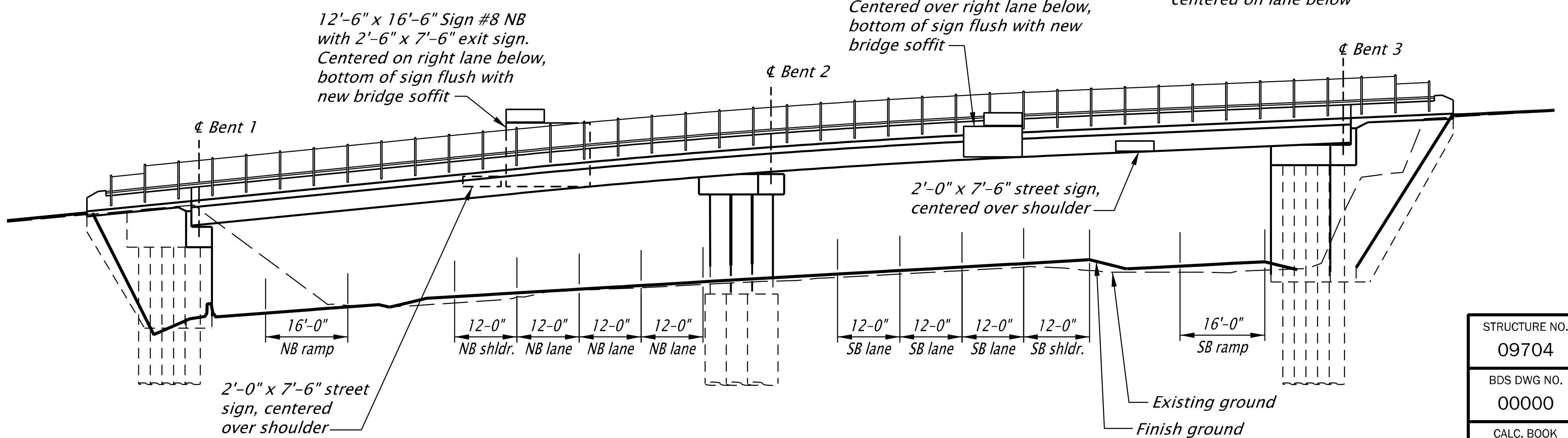
SHEET NO. LD19

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

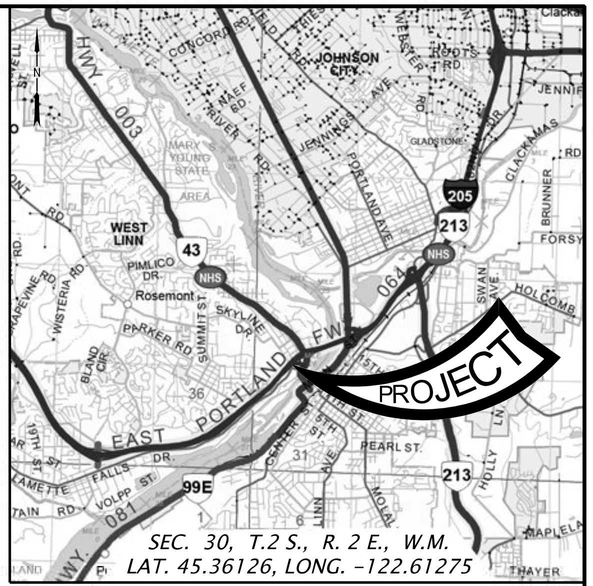
Mounts on Bridge M.P. 8.64 NB



PLAN
Scale: 1"=30'



ELEVATION
Scale: 1"=30'



SEC. 30, T.2 S., R. 2 E., W.M.
LAT. 45.36126, LONG. -122.61275

LOCATION MAP
No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Structure mounts are designed in accordance with the 5th Edition (2009) of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st Edition, 2015 and interim revisions 2017.

Basic wind speed (1700 year recurrence interval) used for sign structure design is 115 mph, G = 1.14, Kz = 0.98 and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise.

All fasteners shall be ASTM A325 unless otherwise noted. All steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

ACCOMPANIED BY DWGS.:
TM220, TM675

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 09704
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 8.64 NB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

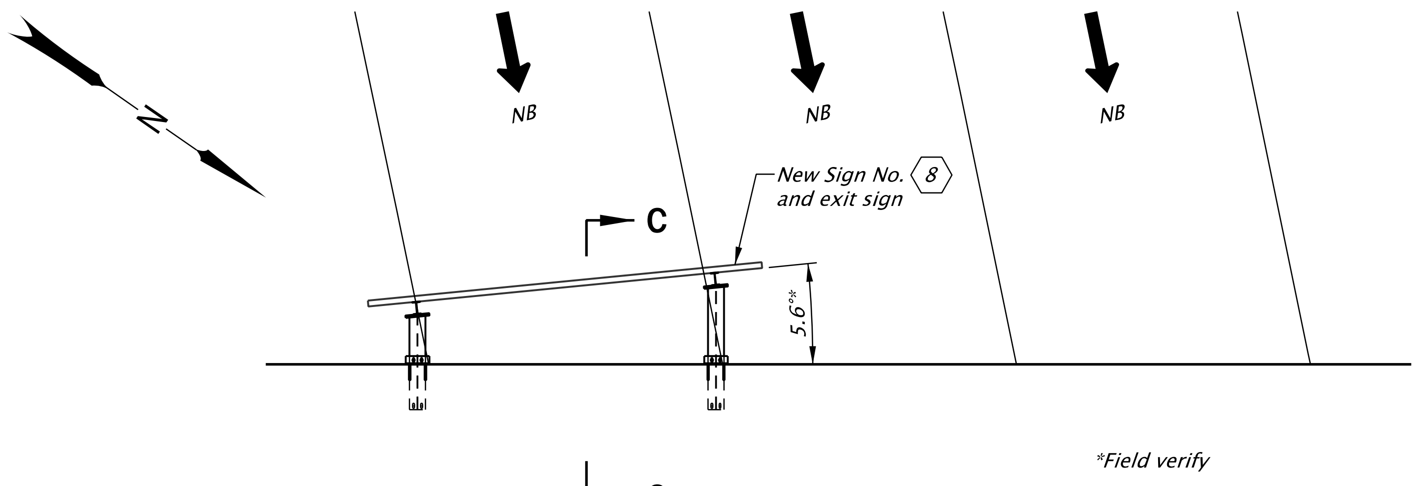
REGISTERED PROFESSIONAL STRUCTURAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM
OREGON DEPARTMENT OF TRANSPORTATION

West A St (West Linn) over Hwy 64
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

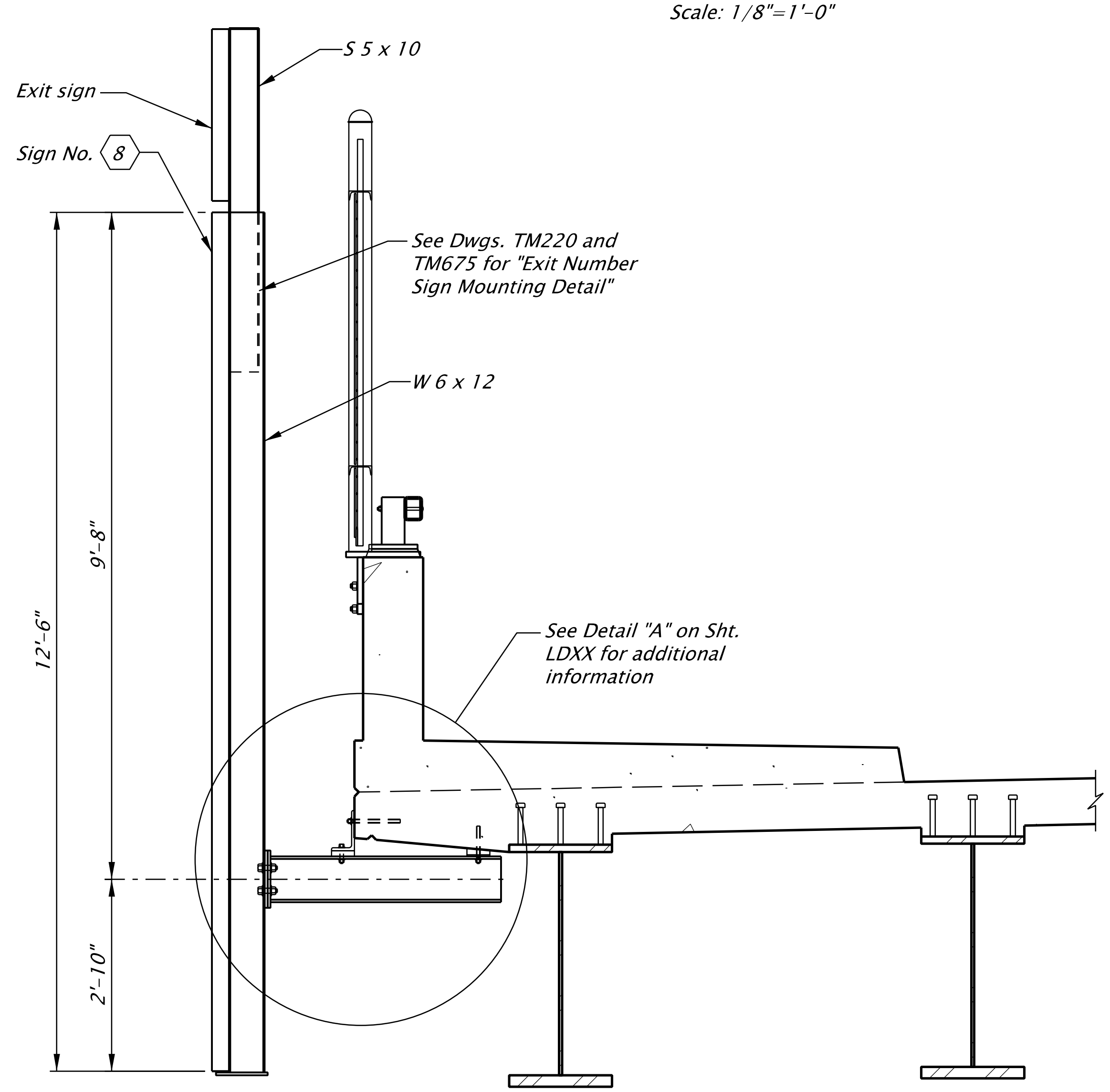
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION
SHEET NO. LD20



SIGN PLAN

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



SECTION C-C

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09704
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064	M.P.: 8.64 NB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER

OREGON

PETER GLEN SLOCUM

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INFORMATION ONLY

EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM

West A St (West Linn) over Hwy 64

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY

CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.

Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN DETAILS

SHEET NO. LD21

A_LD21_Sign Structure Detail Sheets - DOWL :: LD21 7/28/2020 2:52:54 PM YGarzenelli

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: Full Size 1=1

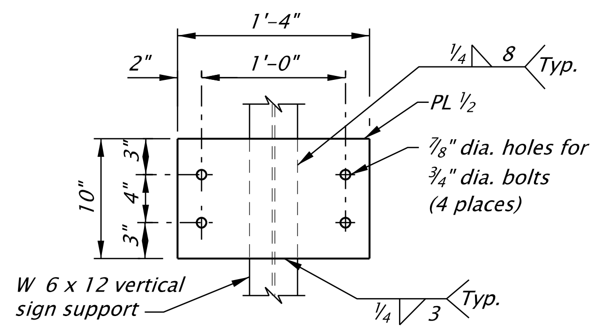


PLATE "A"

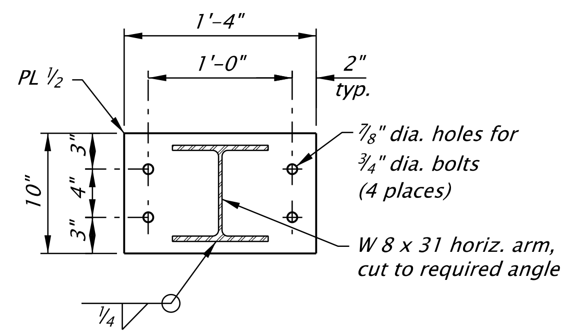


PLATE "B"

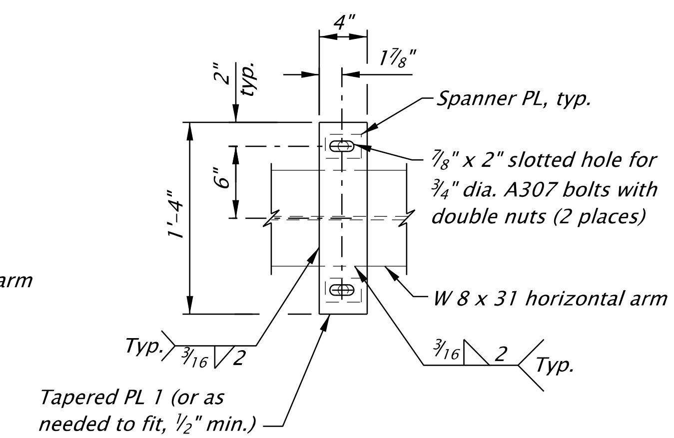
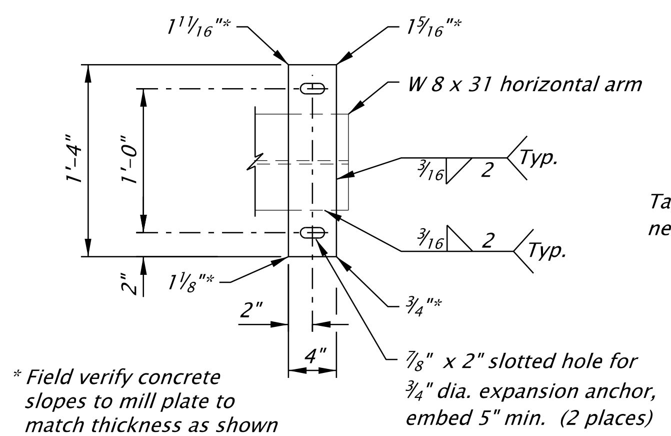
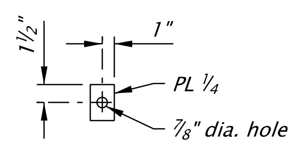


PLATE "C"



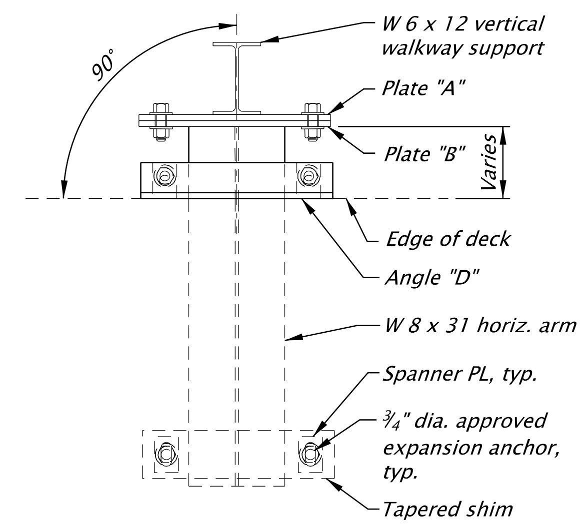
TAPERED SHIM



SPANNER PLATE

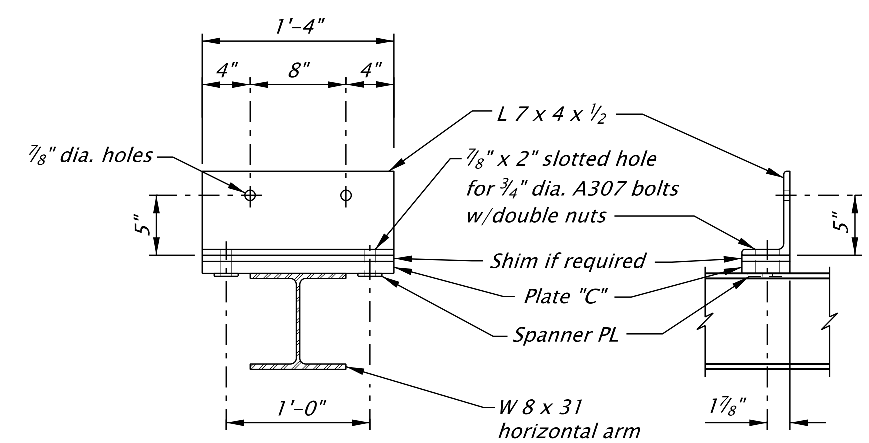
SIGN MOUNTING DETAILS

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



PLAN

SUPPORT ASSEMBLY



ELEVATION

SIDE

ANGLE "D"

CONNECTION DETAILS

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09704
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064	M.P.: 8.64 NB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON MAY 10, 2005 PETER GLEN SLOCUM

PRELIMINARY COPY INFORMATION ONLY

EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM

West A St (West Linn) over Hwy 64

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY

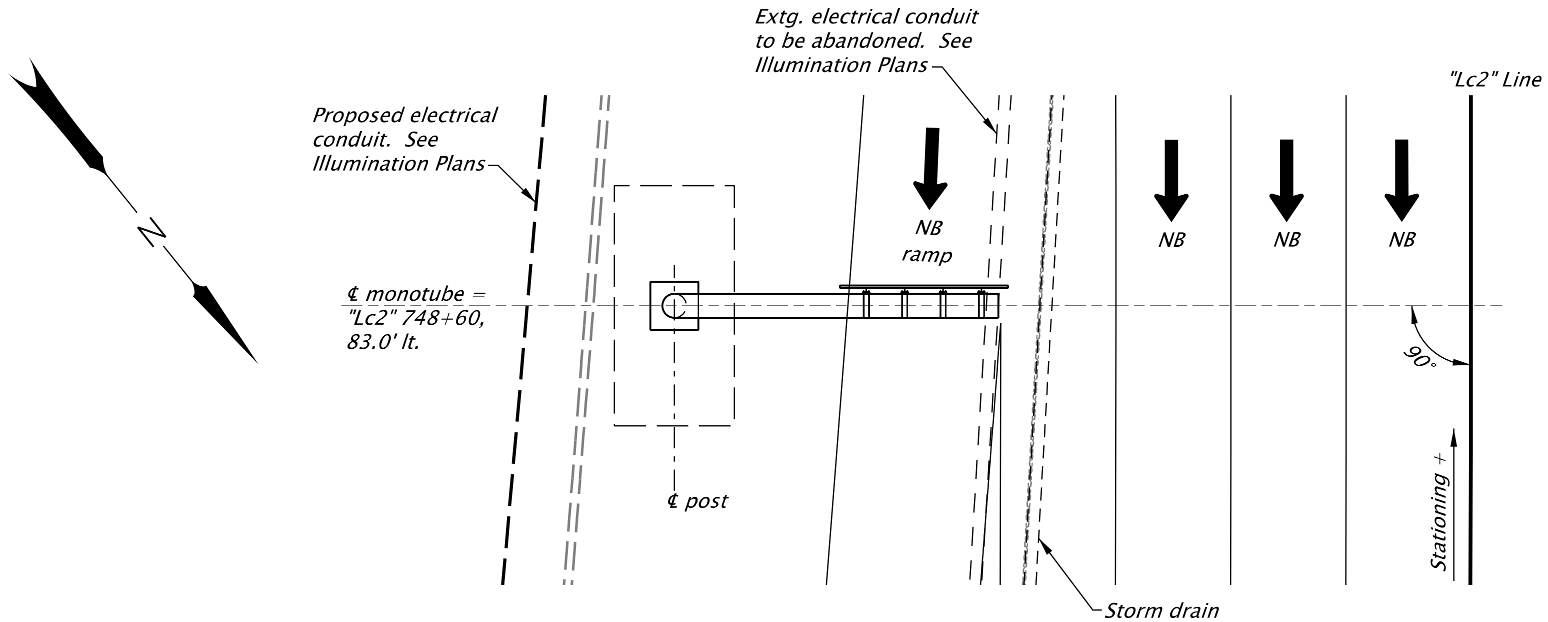
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.

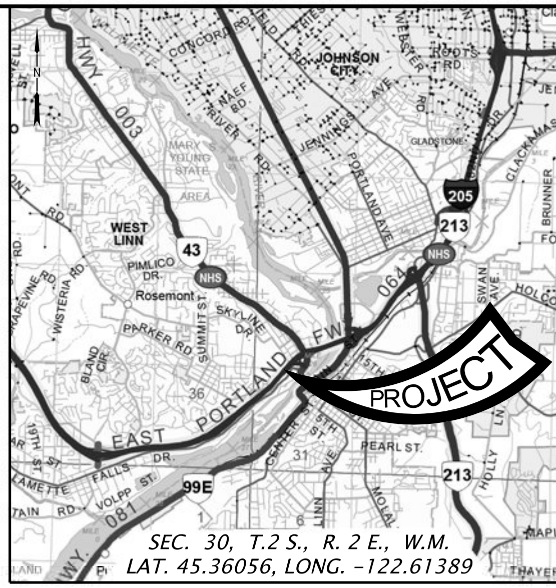
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

SIGN DETAILS

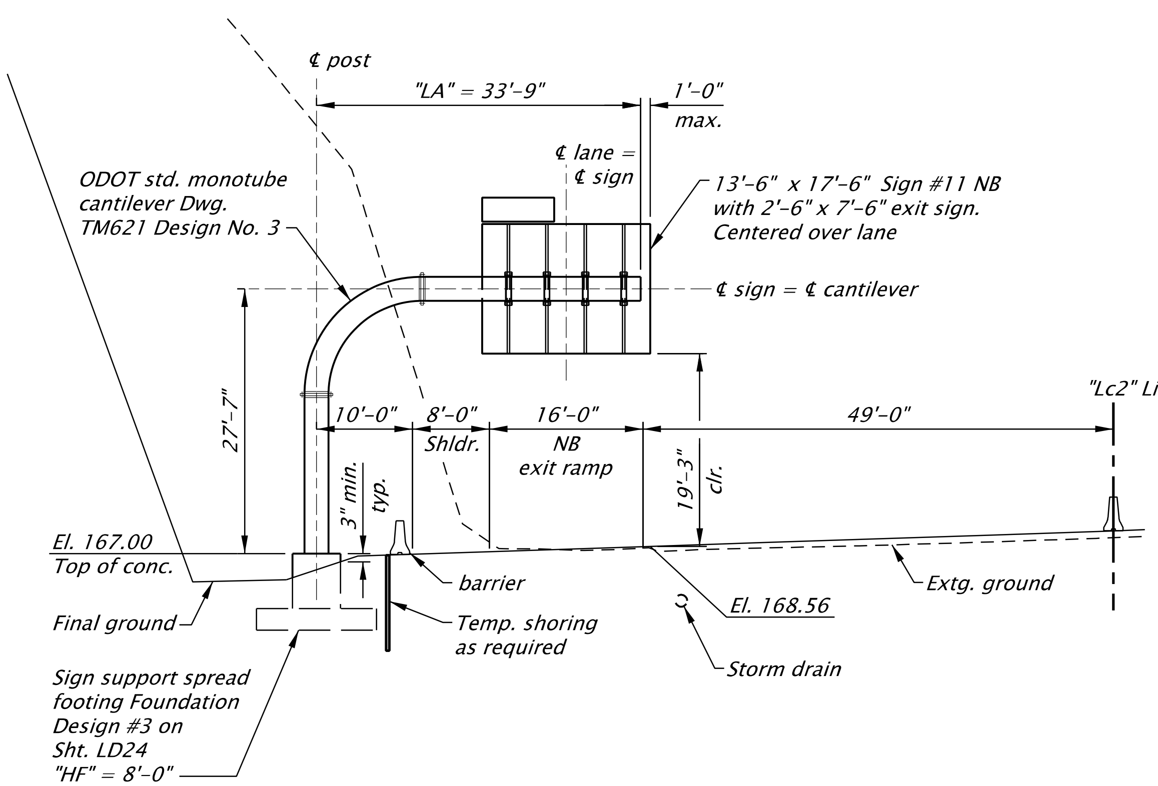
SHEET NO. LD22



PLAN
Scale: 1"=20'



LOCATION MAP
No Scale



*MONOTUBE CANTILEVER ELEVATION
Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Weathered and fractured bedrock at shallow depths is anticipated during hard rock excavation for the spread footing.

Backfilling around footing is required prior to erection.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
At Station	M.P.					
"Lc2" 748+60	8.55 NB	33'-9"	TM627	3	27'-4½"	No

ACCOMPANIED BY DWGS.:
TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 8.55 NB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER STRUCTURAL OREGON MAY 10, 2005 PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM
OREGON DEPARTMENT OF TRANSPORTATION

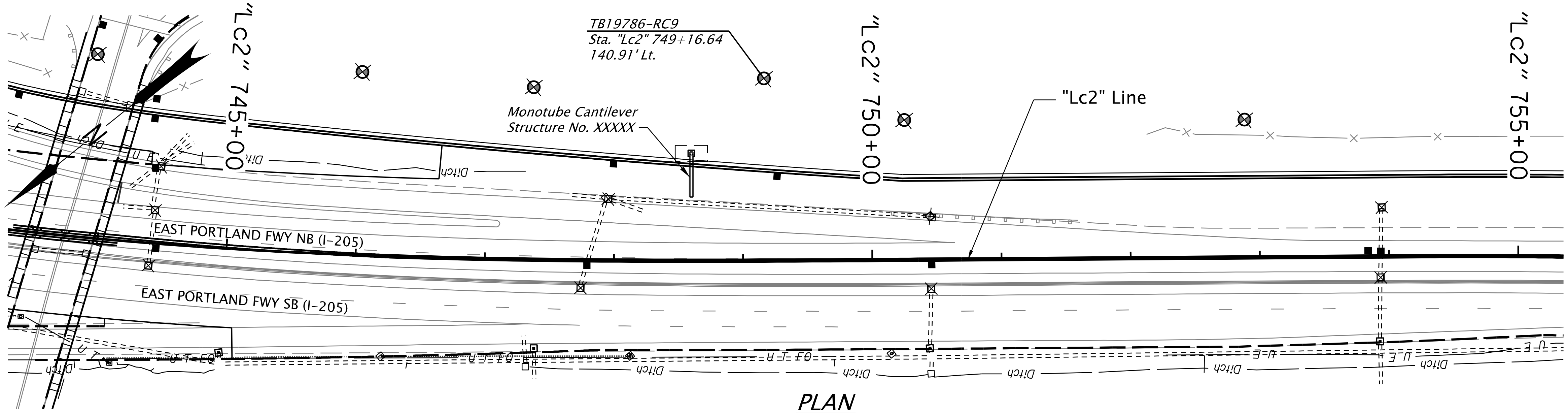
sn_Hwy064_MP8.55

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

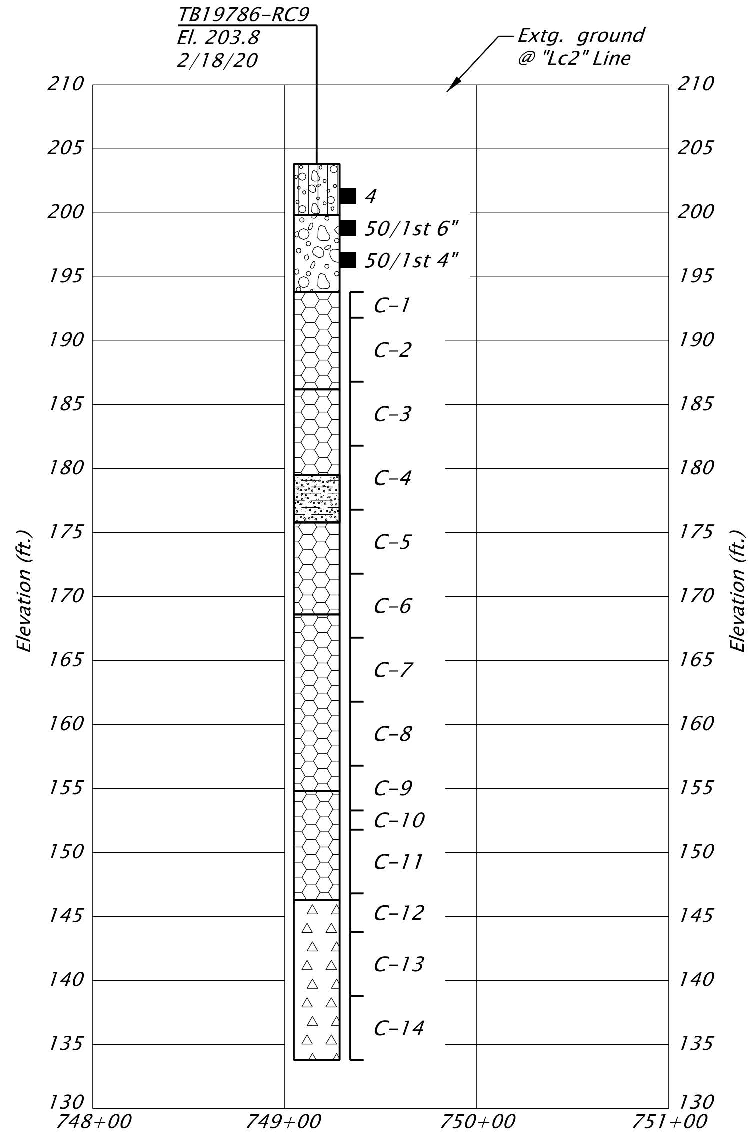
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION

SHEET NO. LD23



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":15'

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

UNIT DESCRIPTIONS

Gravelly SILT, some sand (ML); yellow-brown, low plasticity, wet, soft to medium stiff, fine to coarse sand, fine angular to subrounded gravel, some rootlets, (matrix-supported colluvium)

Gravelly silty SAND to sandy GRAVEL, some cobbles and boulders (SM to GP); dark grey and brown, non-plastic silt, wet, very dense, fine to coarse sand, fine angular to subangular gravel, (clast-supported colluvium)

BASALT; grey, slightly weathered to fresh, medium hard to very hard (R3 to R5), very close to moderately close joints are planar and undulating, rough, and open, trace iron-staining and mineral infilling, some vesicles to highly vesicular, (Columbia River Basalt)

Sandy MUDSTONE, decomposed to moderately weathered, extremely soft to very soft (R0 to R1), inferred from core loss, (Vantage Horizon)

BASALT BRECCIA; grey, yellow and red, decomposed to slightly weathered, extremely soft to medium hard (R0 to R3), very close to close joints are undulating, rough, and open, some rubble zones, trace iron-staining and mineral infilling, some vesicles to highly vesicular, (Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-RC9	C-1	100	R4 to R5	40	
	C-2	100	R4 to R5	74	15,958
	C-3	93	R3 to R5	68	
	C-4	46	R3 to R5	30	
	C-5	77	R3 to R5	20	
	C-6	100	R3 to R5	74	
	C-7	100	R4 to R5	42	16,290
	C-8	100	R4 to R5	81	
	C-9	100	R4 to R5	37	
	C-10	100	R4 to R5	47	
	C-11	100	R3 to R5	16	
	C-12	100	R0 to R3	39	
	C-13	30	R0 to R3	8	
	C-14	62	R0 to R3	27	

Notes:
1. Boring was sampled with a hammer efficiency of 85.0%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 8.55 NB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JONATHAN C. HUFFMAN 11, 2008
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP8.55

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

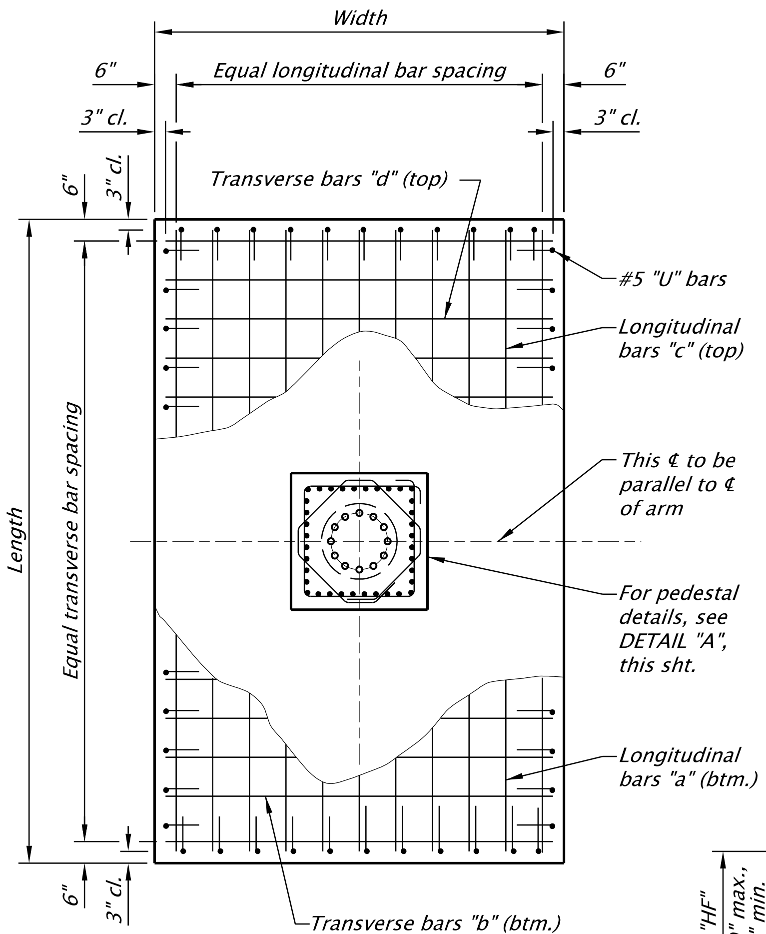
SHEET NO. LD23A

SPREAD FOOTING DIMENSIONS AND REINFORCING								REACTIONS AT BASE PLATE (FACTORED)					
Cantilever Spread Footing Design No.	Footing		Pedestal	Reinforcing Steel				Force in vertical axis (lb)	Moment about axis perp. to sign (ft-lb)	Moment about axis parallel to sign (ft-lb)	Moment about vertical axis (ft-lb)	Shear normal to signs (lb)	Shear parallel to signs (lb)
	Length	Width	"D"	"a"	"b"	"c"	"d"						
1	-	-	-	-	-	-	-	-	-	-	-	-	-
2	21'-0"	10'-6"	5'-0"	14 - #7	20 - #5	14- #6	20 - #5	28,100	469,700	628,000	707,000	20,000	0
3	19'-0"	9'-6"	5'-0"	14 - #6	18 - #5	14 - #6	18 - #5	18,400	196,000	590,000	517,000	19,600	0
4	19'-0"	9'-6"	5'-0"	12 - #6	18 - #5	12 - #6	18 - #5	21,800	363,000	442,000	496,000	15,400	0
5	18'-0"	9'-0"	5'-0"	12 - #6	17 - #5	12 - #6	17 - #5	16,900	173,800	395,000	357,000	13,400	0

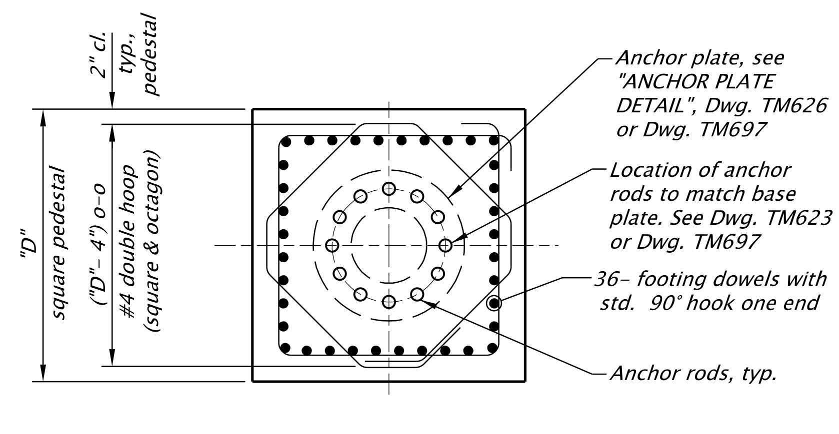
Advisory Note:
The Standard reactions provided in the table are located at the base of the post and are the total reactions to the foundation due to Extreme I - Case 1 Loading (wind normal to sign). They include the loading from the maximum sign area listed on Dwg. TM622 or Dwg. TM693 or the maximum VMS loadings for the types listed, whichever produces the greatest reactions. Strength I and Extreme I Loadings are summarized in the calculation book.

This Monotube Spread Footing drawing contains designs based on soil conditions provided by Foundation Engineering (FEI). These footings only pertain to a select few structures for the project where bedrock is present. The spread footing designs include consideration of one condition as follows:

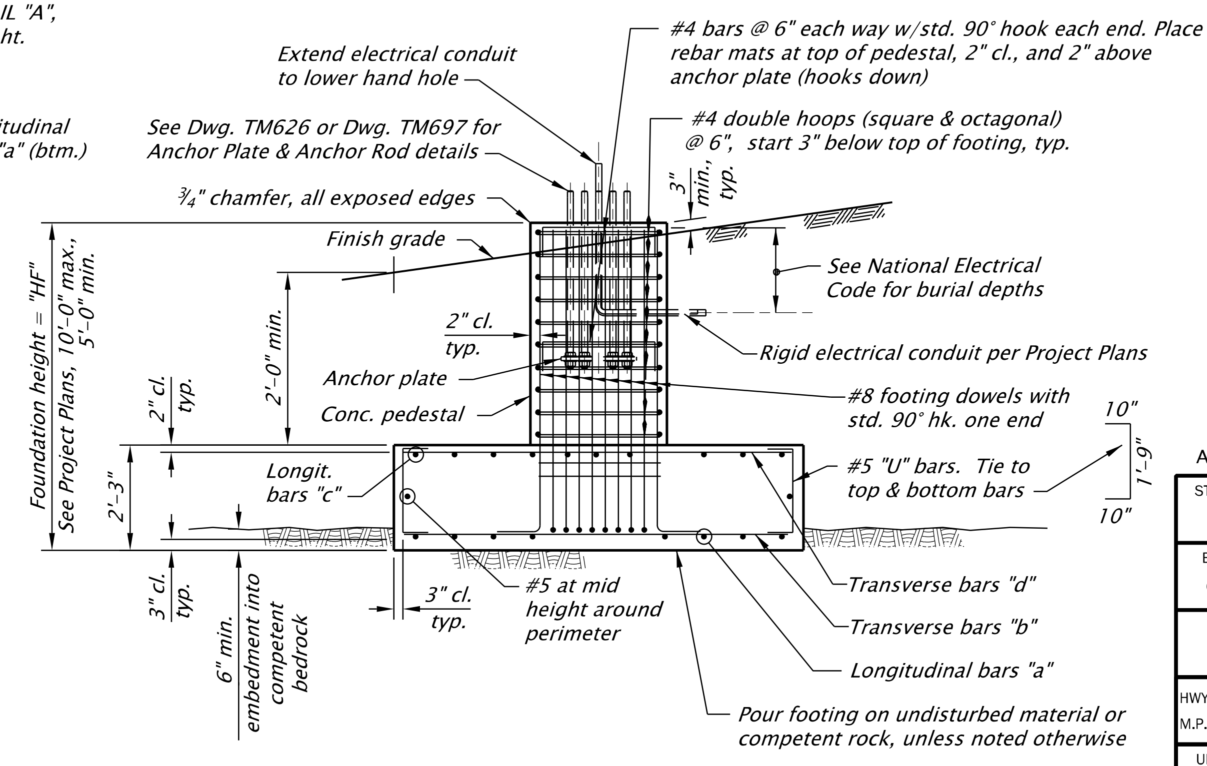
Non-buoyant conditions for stability calculations (compacted soil density of soil over footing = 120 lb/ft³, concrete density = 150 lb/ft³) with resistance factor = 0.5, nominal bearing resistance = 30,000 psf and factored bearing resistance of 15,000 psf.



PLAN
No Scale



DETAIL "A"
No Scale



ELEVATION - SPREAD FOOTING
No Scale

The following uncoated splice lengths are for Class 3600 concrete and shall be used unless shown otherwise:

Bar size	#4	#5	#6	#7	#8	#9
Splice length (in.) (top bars)	2'-2"	2'-9"	3'-3"	3'-9"	4'-4"	4'-10"
Splice length (in.) (all others)	1'-8"	2'-1"	2'-6"	2-11"	3'-4"	3'-9"

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

Accompanied by Dwgs.: TM621, TM622, TM623, TM624, TM625, TM626, TM628

STRUCTURE NO.	00000, 00000
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 064 M.P.: 8.55 NB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON MAY 10, 2005 PETER GLEN SLOCUM
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sn_Hwy064_MP8.55

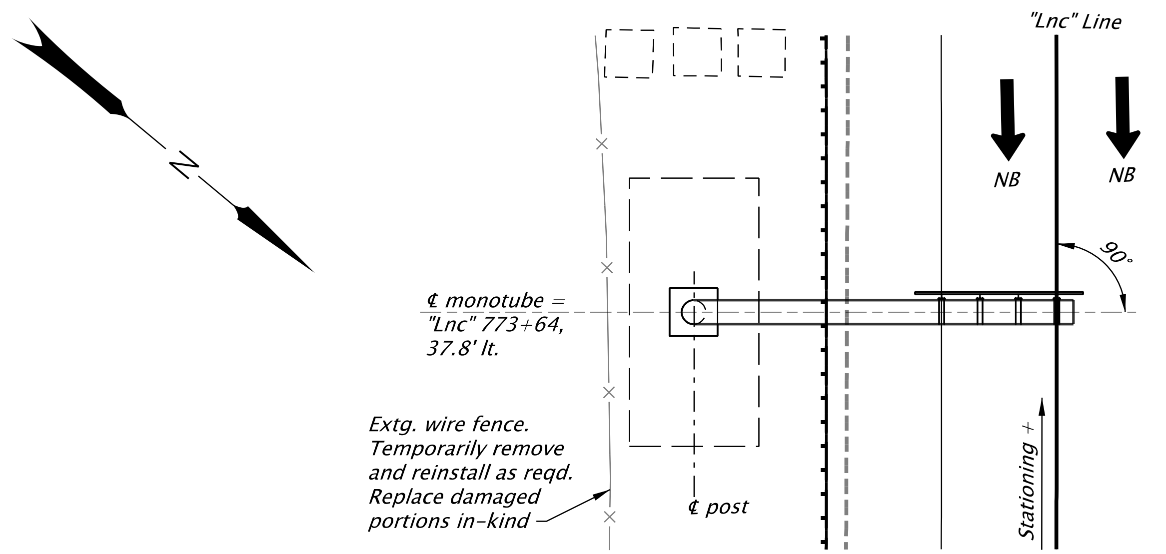
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

MONOTUBE SPREAD FOOTING DETAILS SHEET NO. LD24

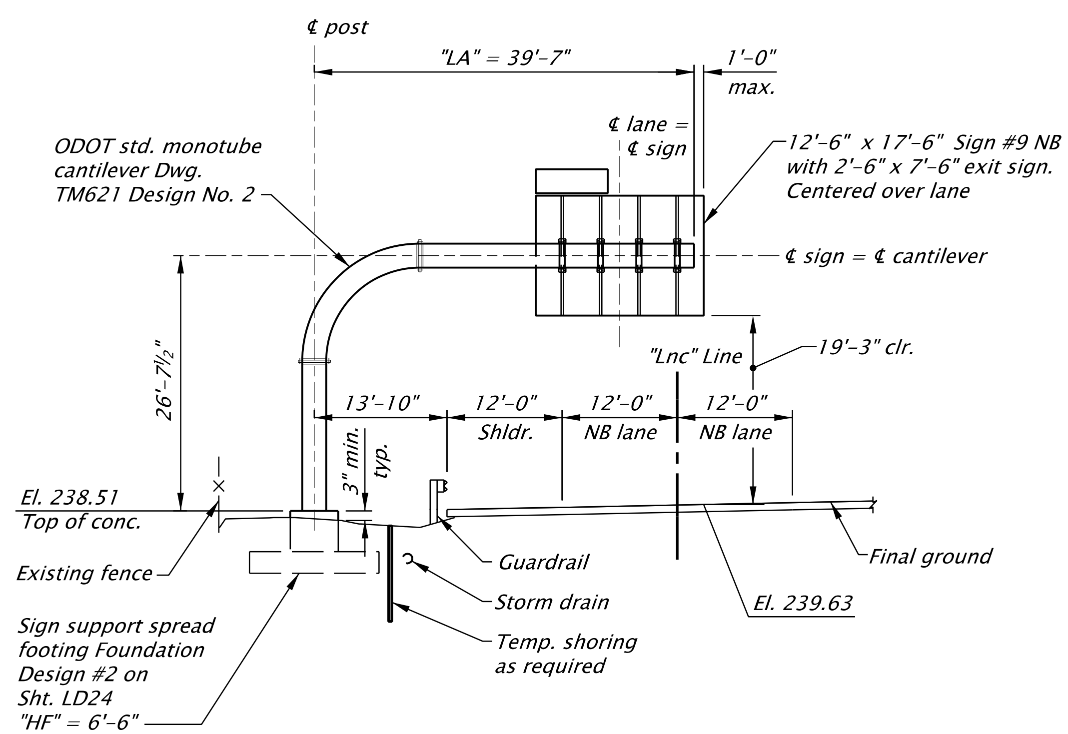
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Monotube Cantilever M.P. 8.00 NB



PLAN

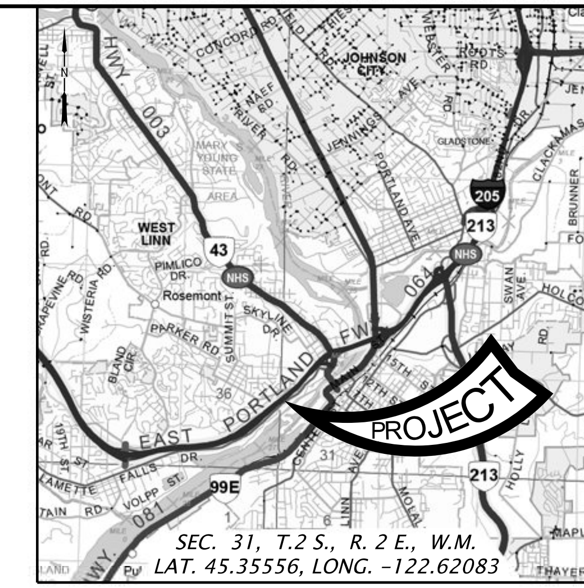
Scale: 1"=20'



***MONOTUBE CANTILEVER ELEVATION**

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction



LOCATION MAP

No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Weathered and fractured bedrock at shallow depths is anticipated during hard rock excavation for the spread footing.

Backfilling around footing is required prior to erection.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA							
Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
At Station	M.P.					
"Lnc" 773+64	8.00 NB	39'-7"	TM627	2	26'-5"	No

ACCOMPANIED BY DWGS.: TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 8.00 NB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL ENGINEER — OREGON — PETER GLEN SLOCUM — EXPIRES: 06/30/2022
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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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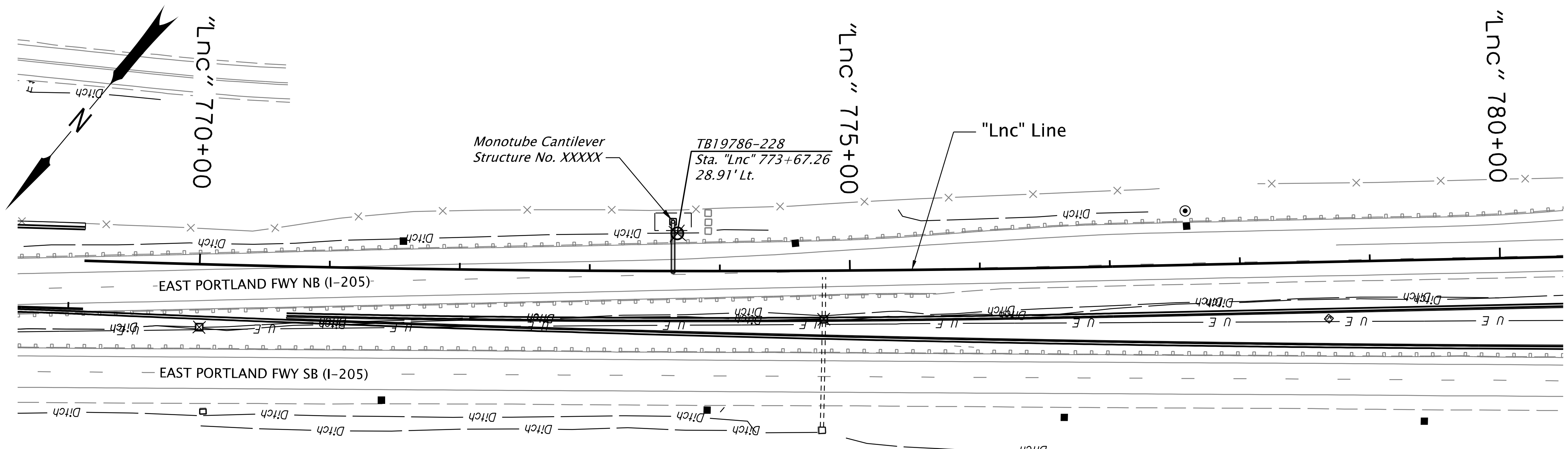
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

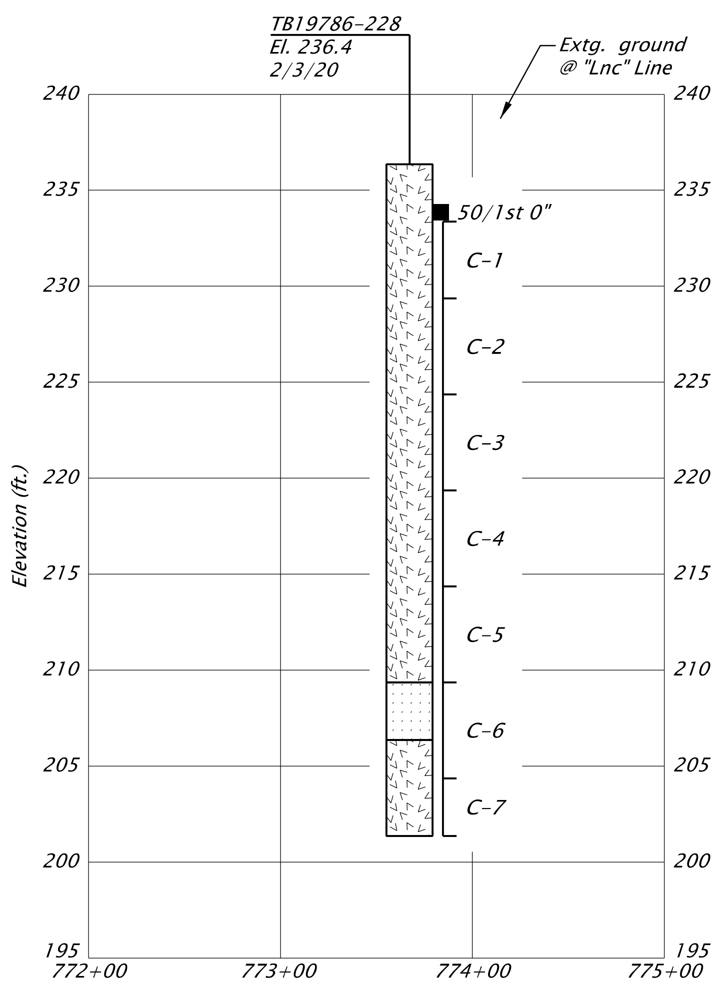
PLAN AND ELEVATION — SHEET NO. LD25

A_LD25_Sign Structure Plan Sheets - DOWL :: LD25 7/28/2020 3:02:54 PM YGarzenelli

Rotation: 129.789° Scale: 1"=20'



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

UNIT DESCRIPTIONS

BASALT; dark grey, moderately weathered to slightly weathered, very soft to very hard (R1 to R5), very close to moderately close joints are planar, undulating and irregular, rough, and open, some clay infilling, some vesicles, (Columbia River Basalt)

SANDSTONE, grey, slightly weathered, soft (R2), very close to close joints are planar to irregular, smooth to rough, and open, (possible erosional unconformity, Vantage Horizon)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)

N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

Notes:

1. Boring was sampled with a hammer efficiency of 85.0%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-228	C-1	98	R5	58	22,642
	C-2	92	R4 to R5	88	
	C-3	100	R4 to R5	78	
	C-4	100	R1 to R2	93	
	C-5	72	R1 to R2	24	
	C-6	88	R2 to R5	48	
	C-7	100	R4 to R5	64	

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

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 8.00 NB
COUNTY 00000
DATE N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JANUARY 11, 2008 JONATHAN C. HUFFMAN
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FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP8.00

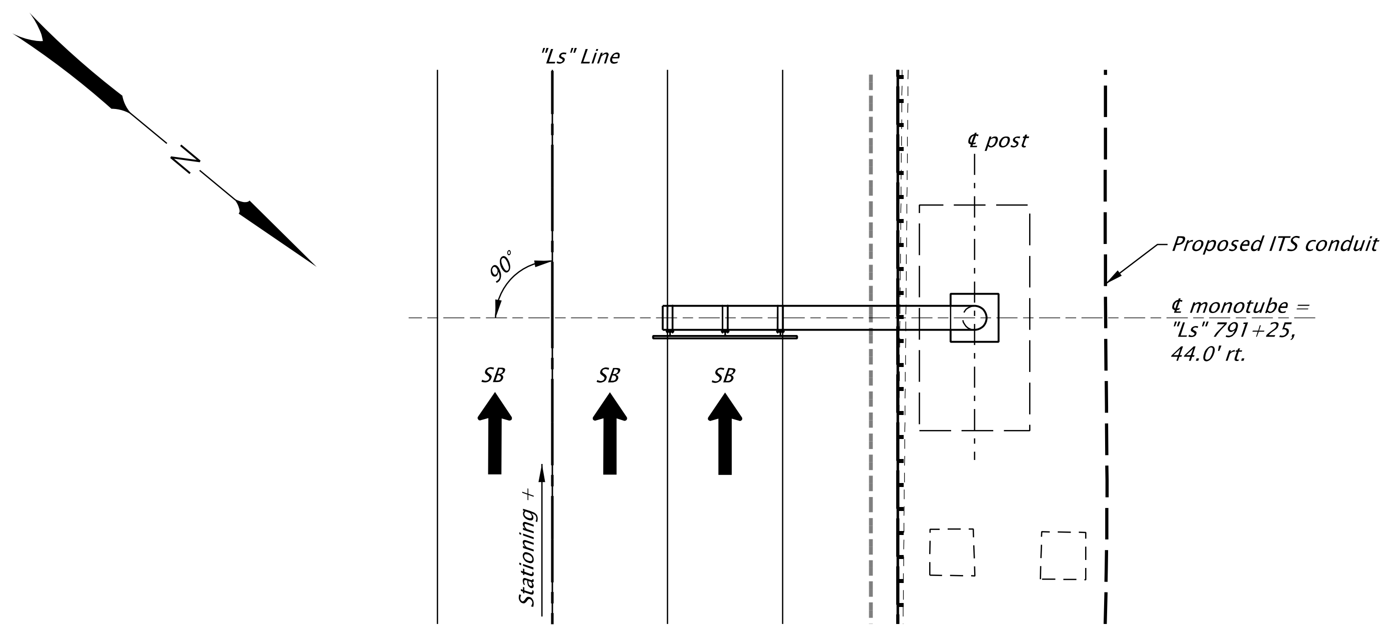
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

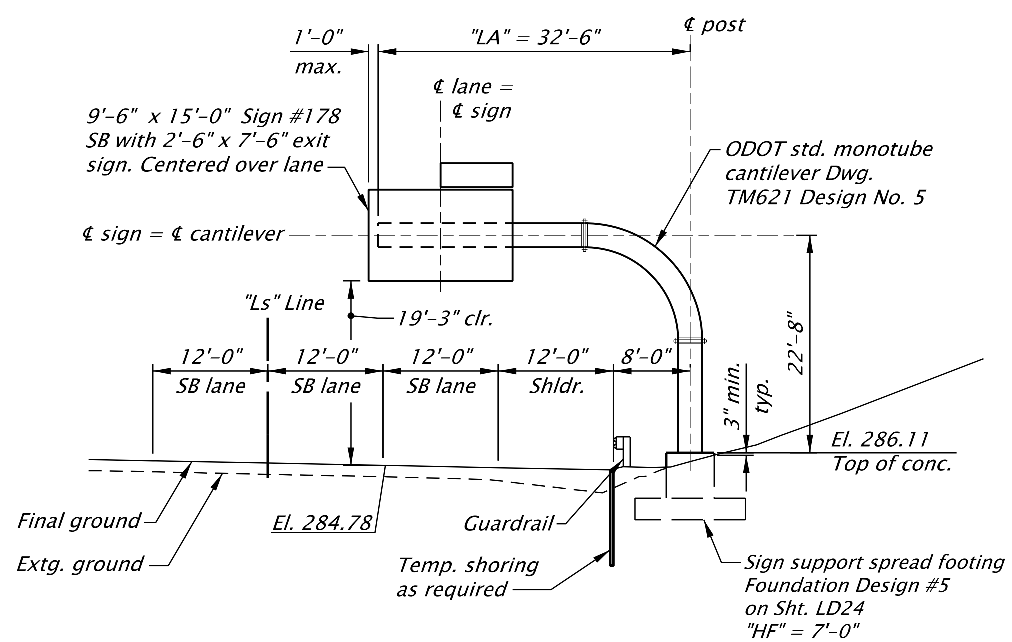
SHEET NO. LD25A

Monotube Cantilever M.P. 7.70 SB



PLAN

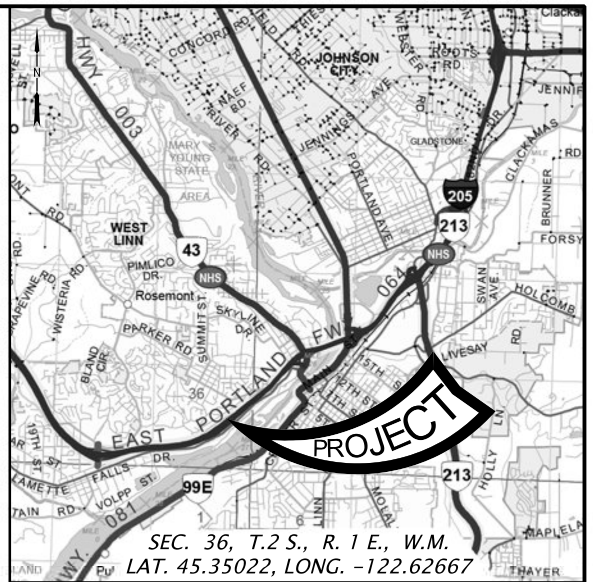
Scale: 1"=20'



*MONOTUBE CANTILEVER ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction



LOCATION MAP

No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Weathered and fractured bedrock at shallow depths is anticipated during hard rock excavation for the spread footing.

Backfilling around footing is required prior to erection of structure.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
At Station	M.P.					
"Ls" 791+25	7.70 SB	32'-6"	TM627	5	22'-5½"	No

ACCOMPANIED BY DWGS.:
TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 7.70 SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

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OREGON DEPARTMENT OF TRANSPORTATION
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I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

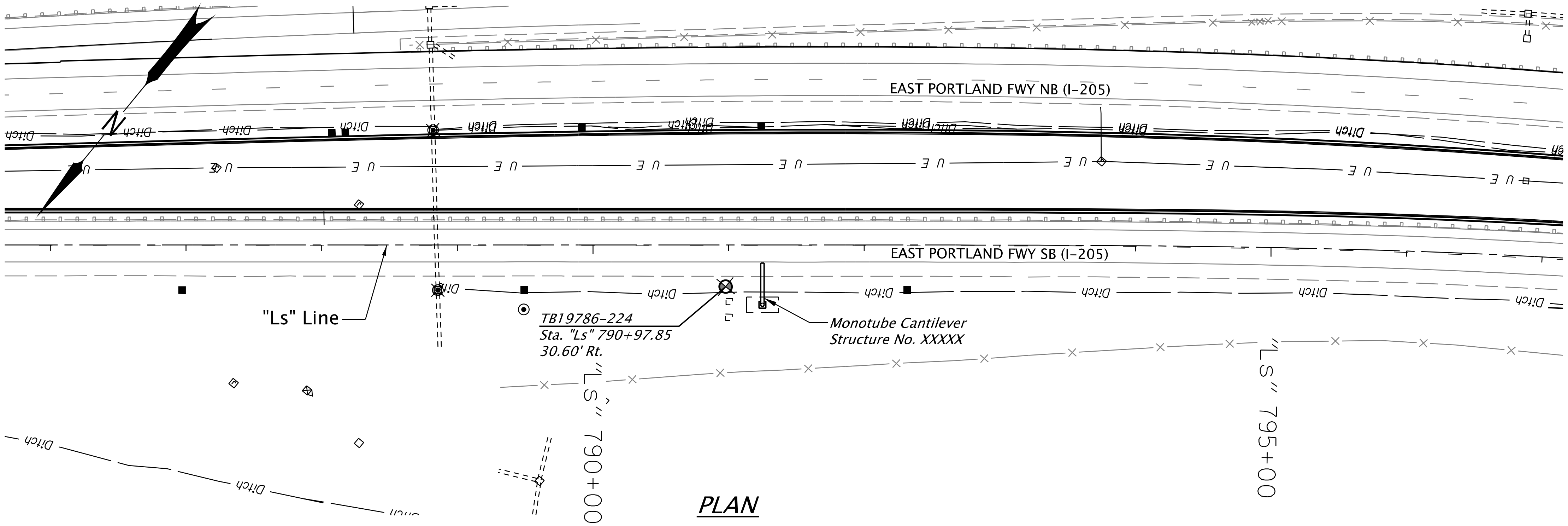
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION

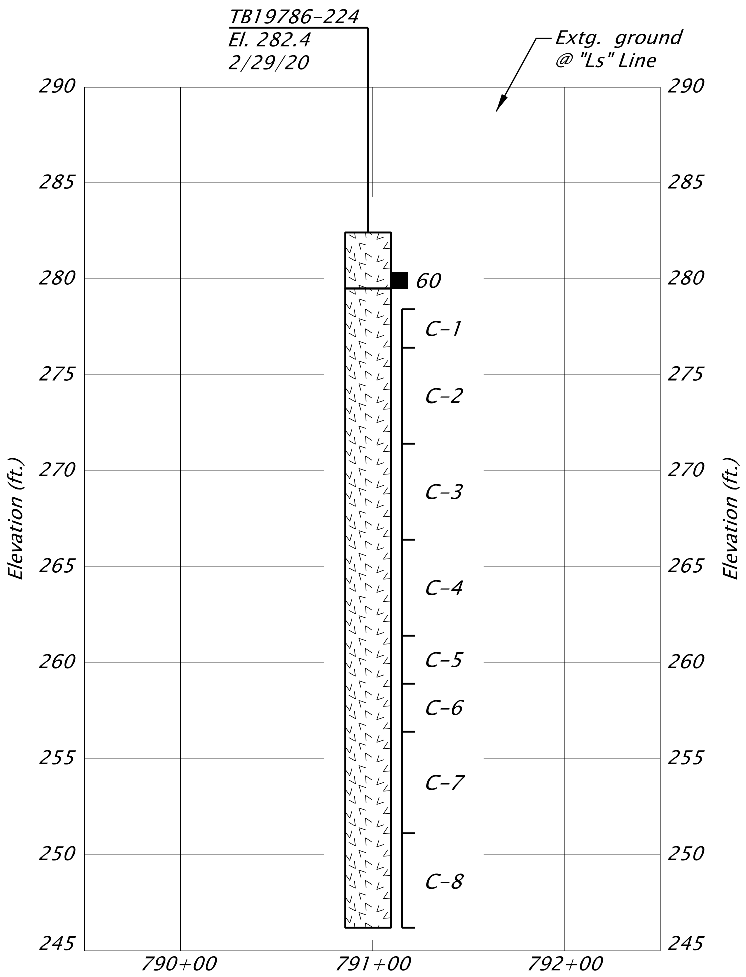
SHEET NO. LD26

A_LD26_Sign Structure Plan Sheets - DOWL :: LD26 7/28/2020 3:07:23 PM YGarzenelli

Rotation: 129.5496° Scale: 1"=20'



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

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

UNIT DESCRIPTIONS

BASALT; dark grey to brown, moderately weathered, soft (R2), very close joints are infilled with sandy clay, (Columbia River Basalt)

BASALT; dark grey, slightly weathered to fresh, hard to very hard (R4 to R5), very close to moderately close joints are planar, undulating and irregular, rough, and open, some vesicles to highly vesicular, (Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

Notes:
1. Boring was sampled with a hammer efficiency of 69.2%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-224	C-1	95	R5	80	19,264
	C-2	60	R4 to R5	0	
	C-3	100	R4 to R5	100	
	C-4	96	R4 to R5	48	
	C-5	100	R4 to R5	16	
	C-6	100	R4 to R5	63	
	C-7	100	R4 to R5	74	
	C-8	100	R4 to R5	72	

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 7.70 SB
COUNTY 00000
DATE N/A

REGISTERED PROFESSIONAL ENGINEER
75110PE
OREGON
JAN. 11, 2008
JONATHAN C. HUFFMAN
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EXPIRES: 6/30/

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FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 NW CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

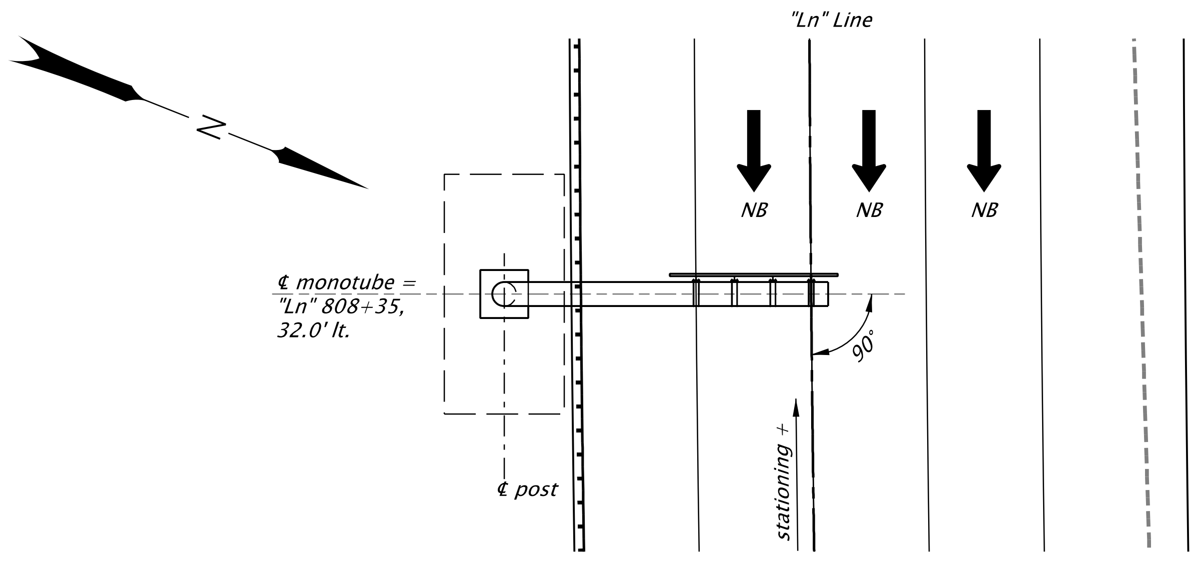
sn_Hwy064_MP7.70

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E.
Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli
Checker: Brooke Running, R.G., C.E.G.

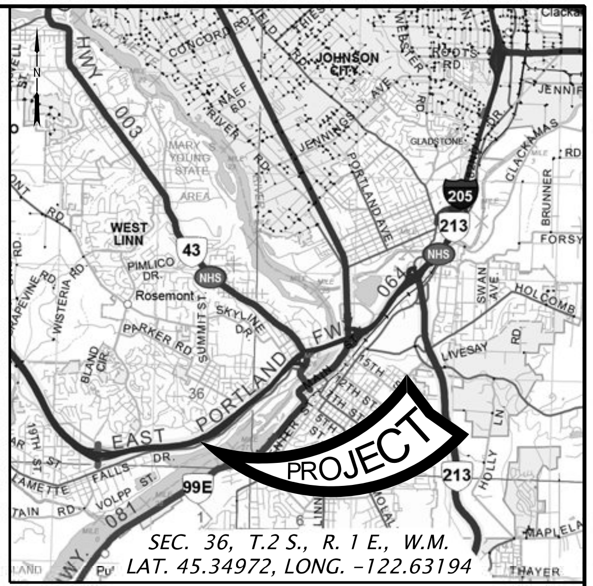
GEOTECHNICAL DATA
SHEET NO. LD26A

Monotube Cantilever M.P. 7.41 NB



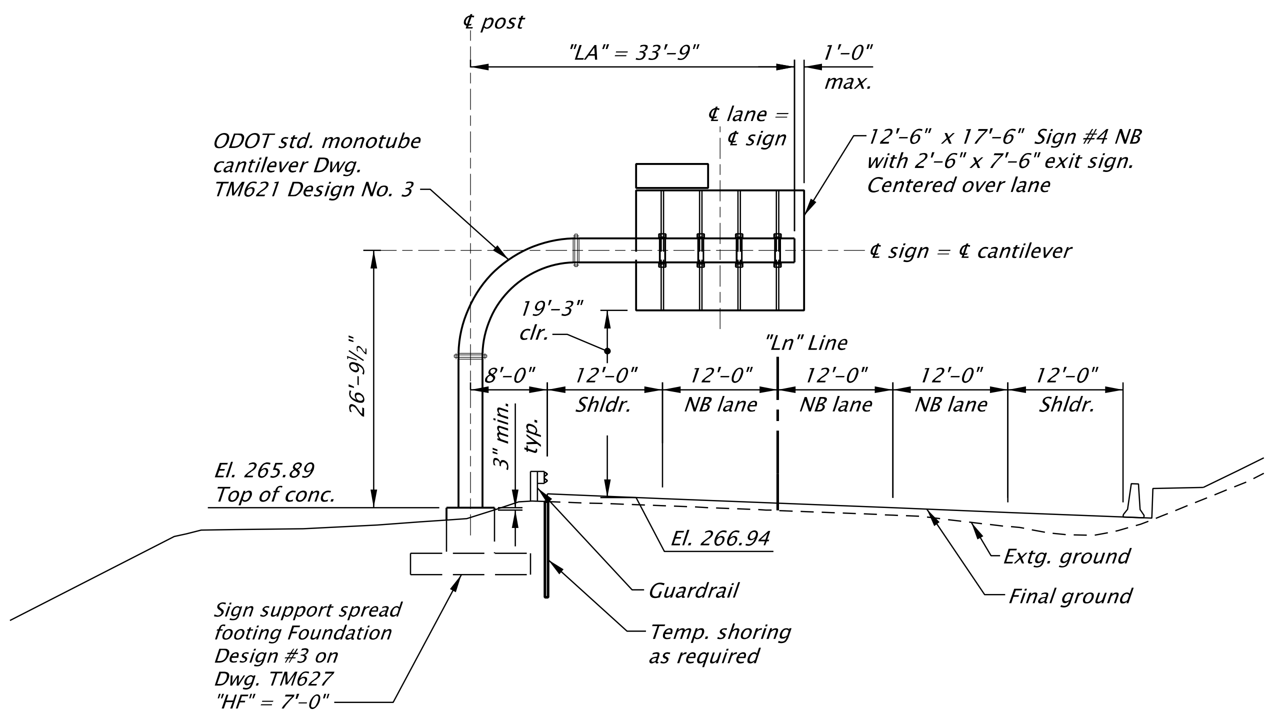
PLAN

Scale: 1"=20'



LOCATION MAP

No Scale



*MONOTUBE CANTILEVER ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Backfilling around footing is required prior to erection of structure.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
At Station	M.P.					
"Ln" 808+35	7.41 NB	33'-9"	TM627	3	26'-7"	No

ACCOMPANIED BY DWGS.:
TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 7.41 NB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

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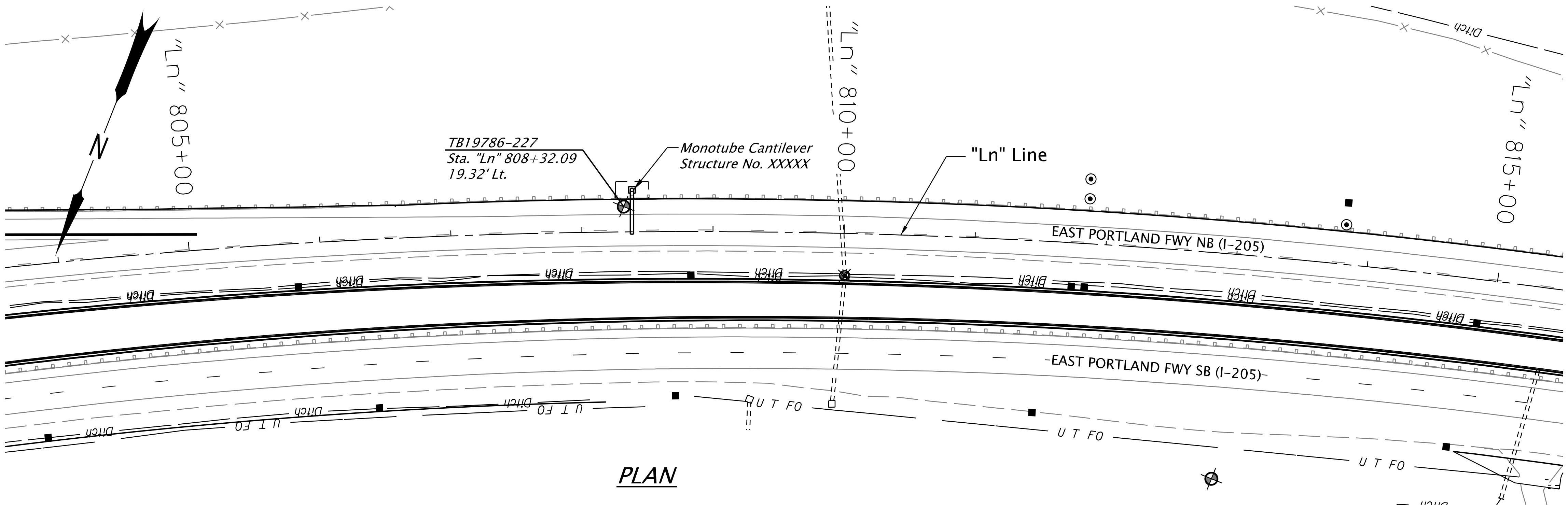
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

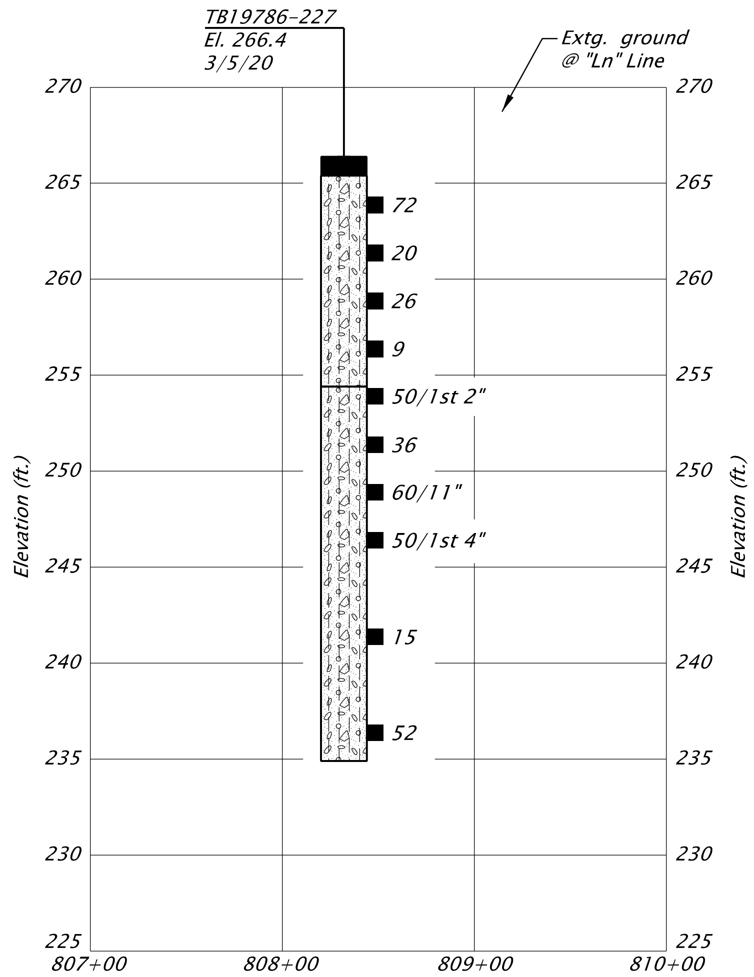
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION

SHEET NO. LD27



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

UNIT DESCRIPTIONS

ASPHALTIC CONCRETE (±12 inches)

Sandy GRAVEL, some silt (GP-GM); grey-brown, low plasticity silt, moist, medium dense to very dense, fine to coarse sand, fine to coarse subangular basaltic gravel, (fill)

GRAVEL, some sand, trace to some silt (GP to GP-GM); grey, low plasticity silt, moist, dense to very dense, fine to coarse sand, fine to coarse subangular basaltic gravel fragments, (possible fill or highly weathered Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)

N-value

Notes:

1. Boring was sampled with a hammer efficiency of 80.8%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 7.41 NB	
COUNTY	00000
DATE	N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JAN. 11, 2008 JONATHAN C. HUFFMAN

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PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP7.41

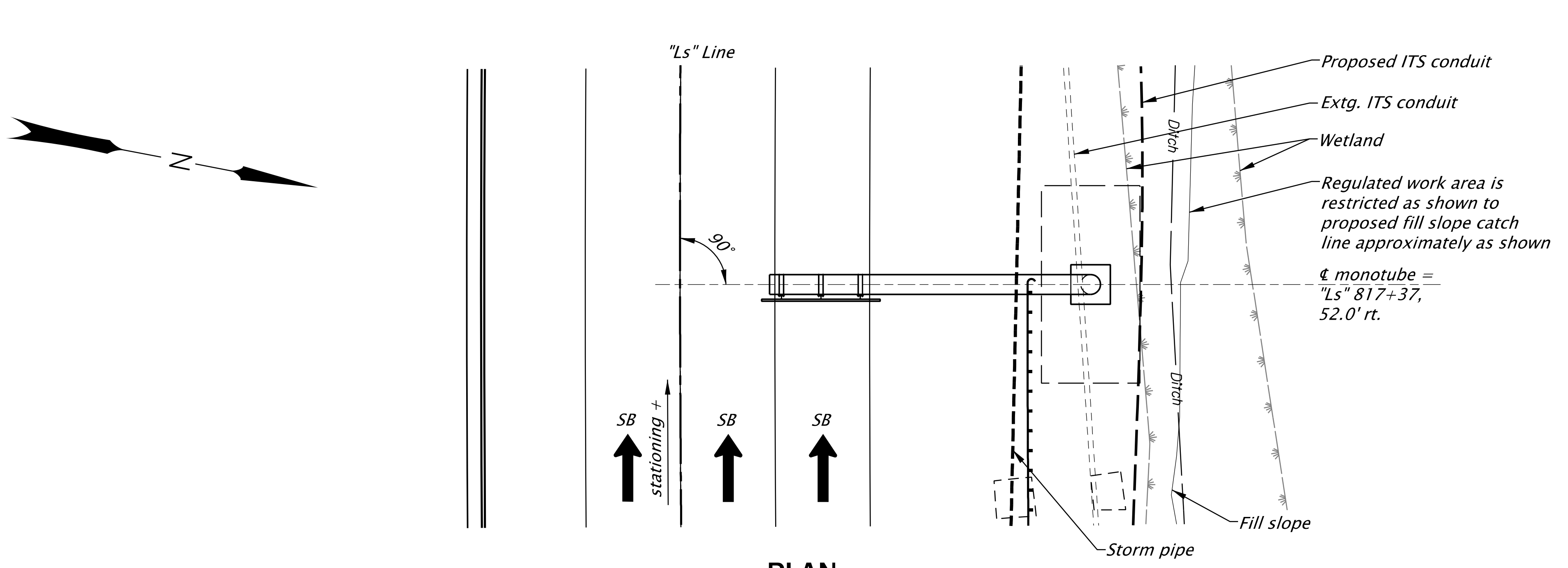
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

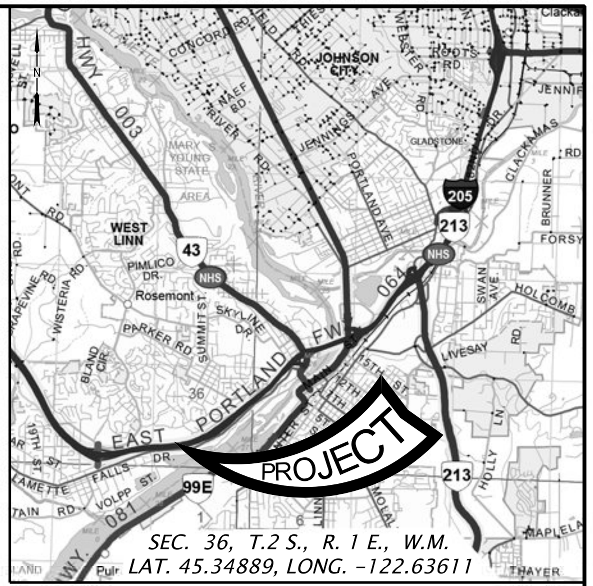
SHEET NO. LD27A

Monotube Cantilever M.P. 7.21 SB



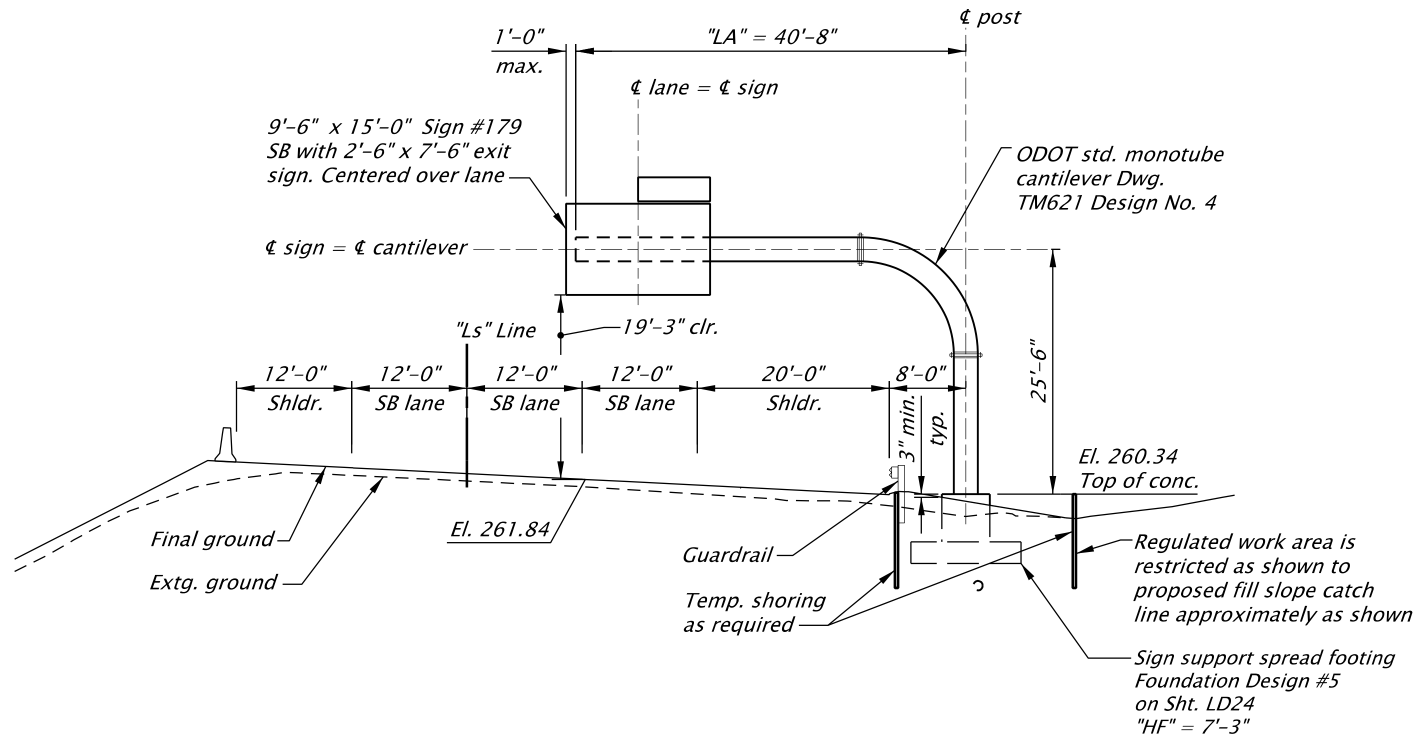
PLAN

Scale: 1"=20'



LOCATION MAP

No Scale



*MONOTUBE CANTILEVER ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Weathered and fractured bedrock at shallow depths is anticipated during hard rock excavation for the spread footing.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
At Station	M.P.					
"Ls" 817+37	7.21 SB	40'-8"	TM627	5	25'-3½"	No

ACCOMPANIED BY DWGS.:
TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 7.21 SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM

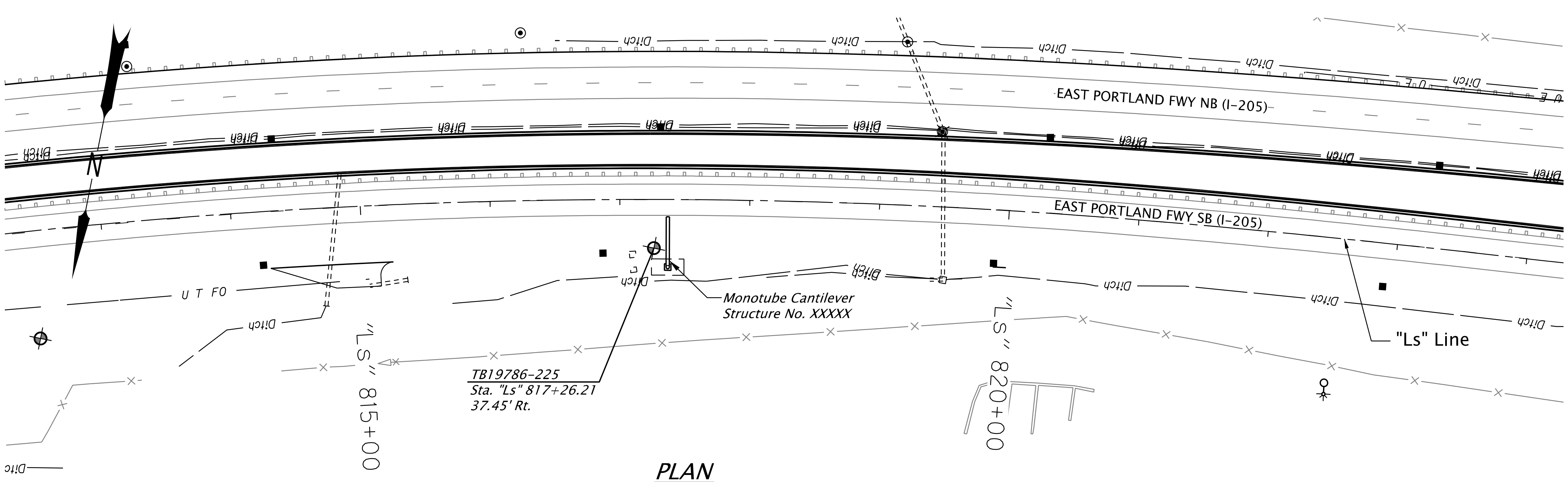
sn_Hwy064_MP7.21

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

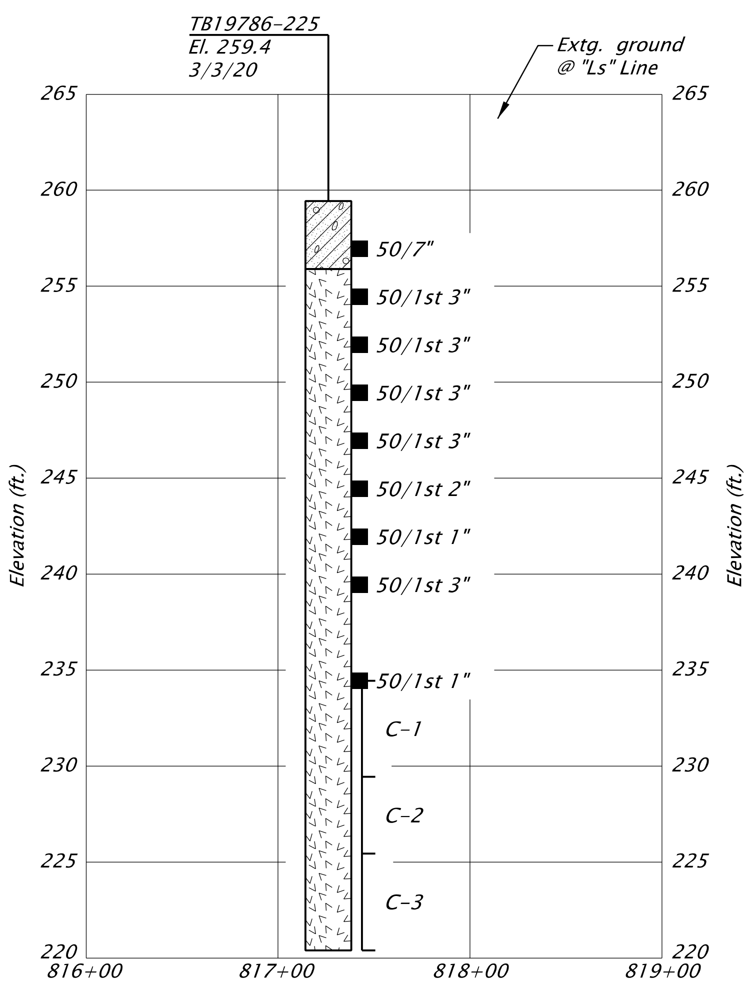
Designer: Peter G. Slocum, P.E., S.E.
Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli
Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION

SHEET NO. LD28



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

UNIT DESCRIPTIONS

Gravelly silty CLAY, some sand (CL); grey-brown, medium plasticity, moist, hard, fine to coarse sand, fine to coarse subangular basaltic gravel, (possible fill or residual soil)

BASALT; grey with iron-stained joints, highly to moderately weathered grading to slightly weathered, soft to hard (R2 to R4), very close to moderately close joints are planar to irregular, smooth to rough, and open, some vesicles, (Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)

N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

Notes:
1. Boring was sampled with a hammer efficiency of 80.8%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-225	C-1	100	R4	62	
	C-2	85	R4	29	
	C-3	100	R4	48	

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

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 064 M.P.: 7.21 SB	
COUNTY	00000
DATE	N/A

REGISTERED PROFESSIONAL ENGINEER 75110PE OREGON JONATHAN C. HUFFMAN 11, 2008
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP7.21

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E. Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli Checker: Brooke Running, R.G., C.E.G.

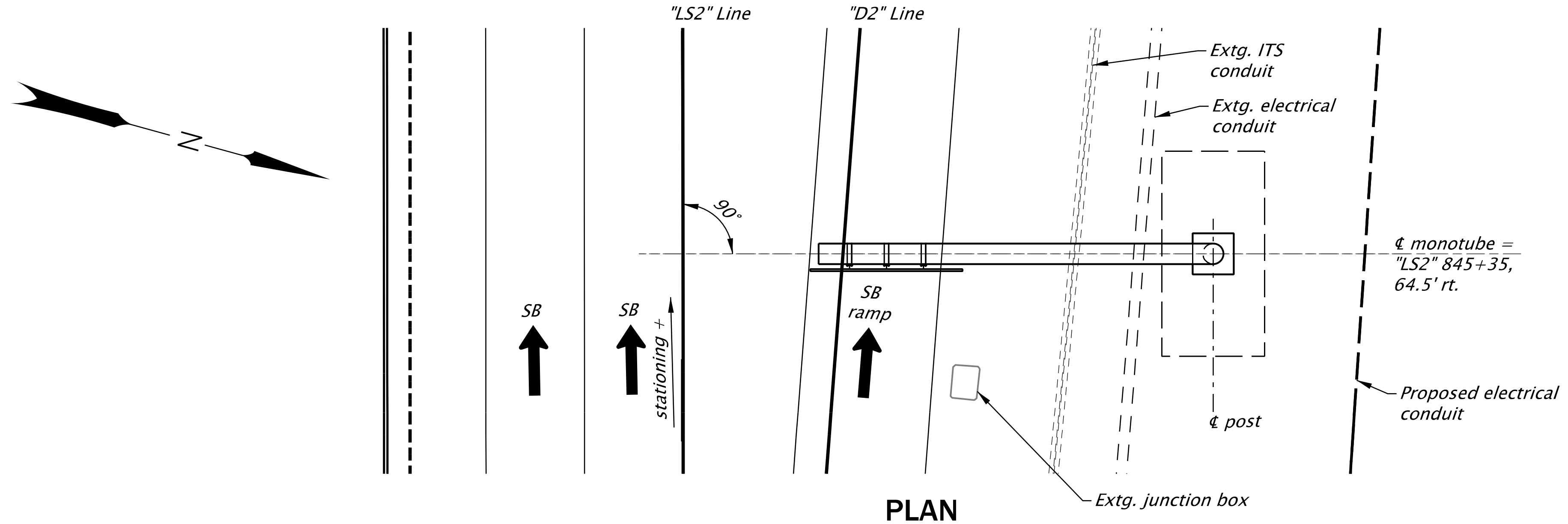
GEOTECHNICAL DATA
SHEET NO. LD28A

A_LD28A_Geotechnical Data - FEI :: LD28A 7/28/2020 3:30:37 PM YGarzenelli

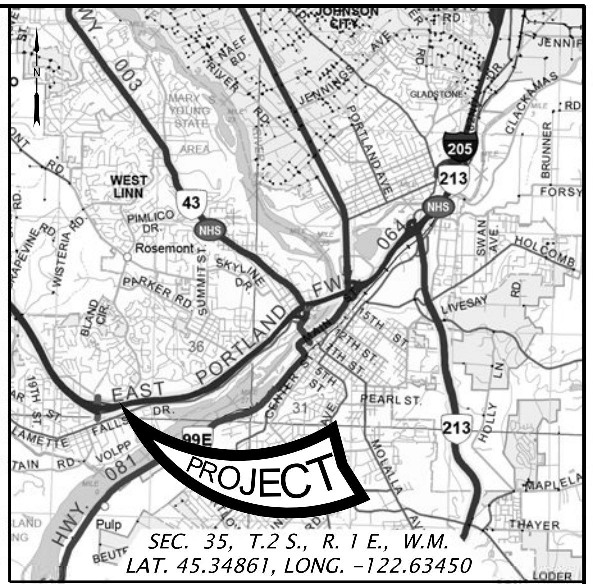
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 191.2744° Scale: 1"=100'

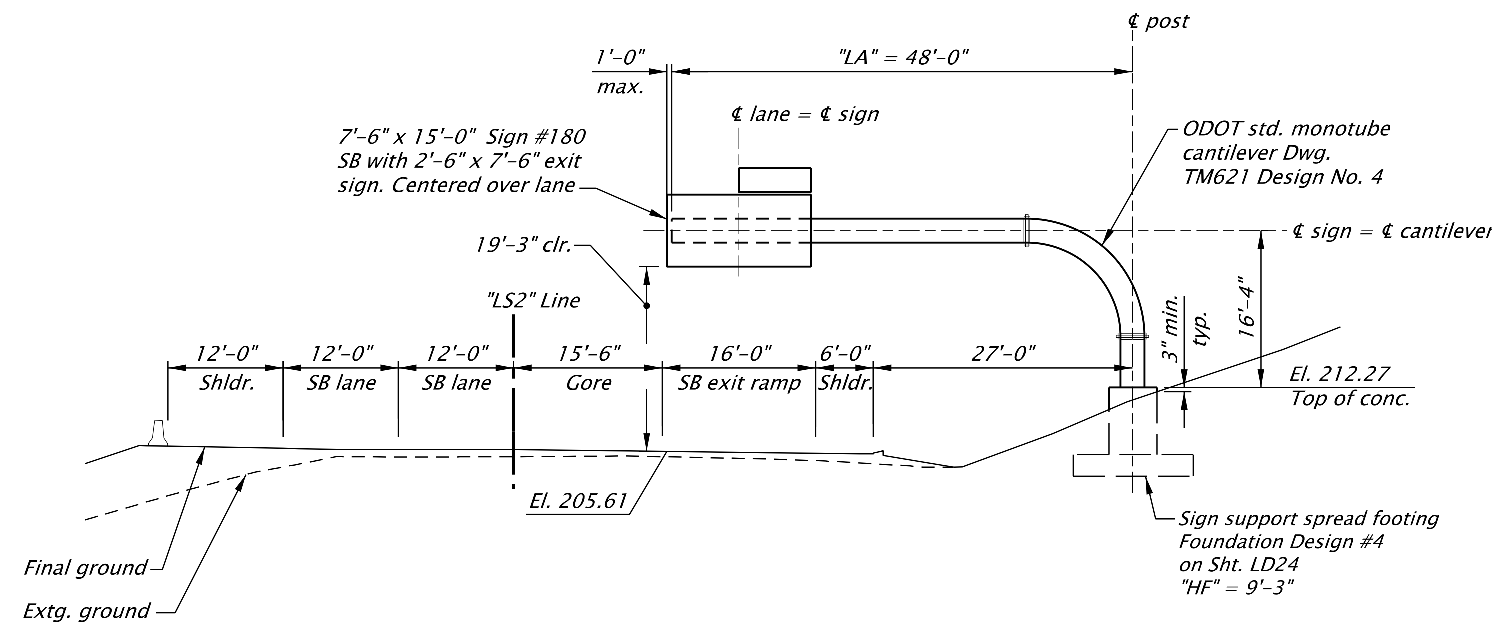
Monotube Cantilever M.P. 6.70 SB



PLAN
Scale: 1"=20'



LOCATION MAP
No Scale



*MONOTUBE CANTILEVER ELEVATION
Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Monotube cantilever sign structures are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions through 2017.

See Dwg. TM622 for General Notes.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Weathered and fractured bedrock at shallow depths is anticipated during hard rock excavation for the spread footing.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge: At Station	Sign Bridge: M.P.	"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number	Post Length see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM624
"LS2" 845+35	6.70 SB	48'-0"	TM627	4	16'-1½"	No

ACCOMPANIED BY DWGS.: TM621-TM624, TM626, TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 6.70 SB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL STRUCTURAL ENGINEER
OREGON
PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

DOWL WWW.DOWL.COM

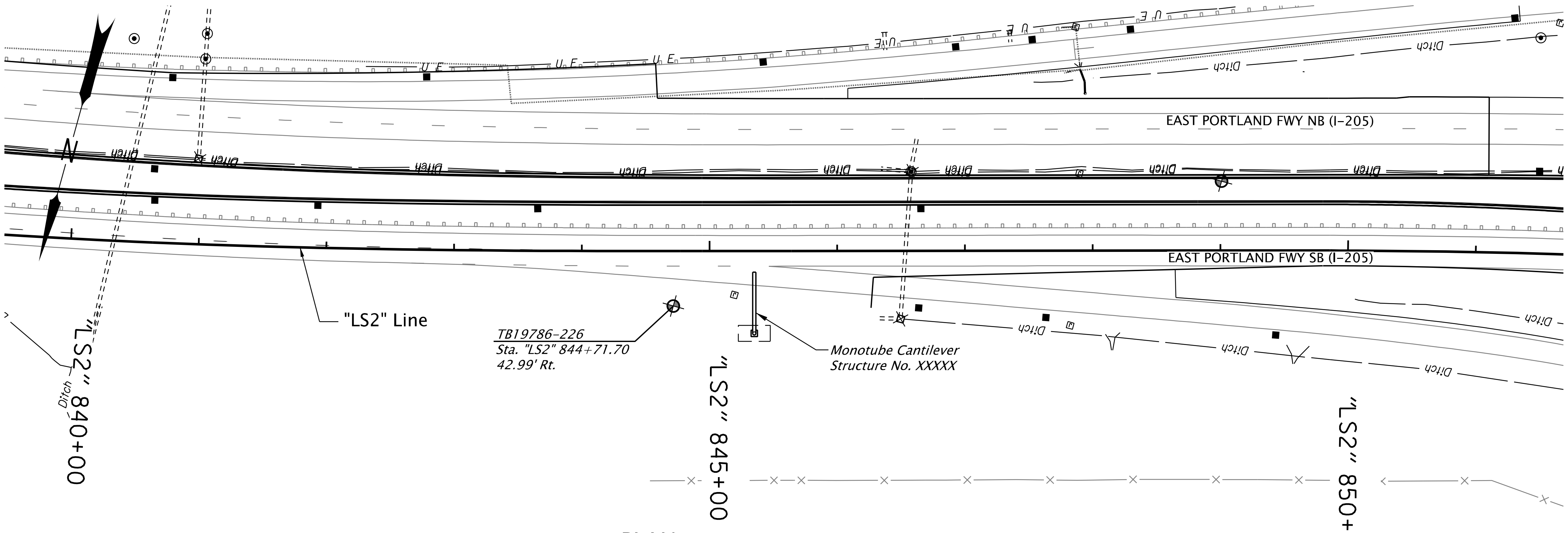
sn_Hwy064_MP6.70

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

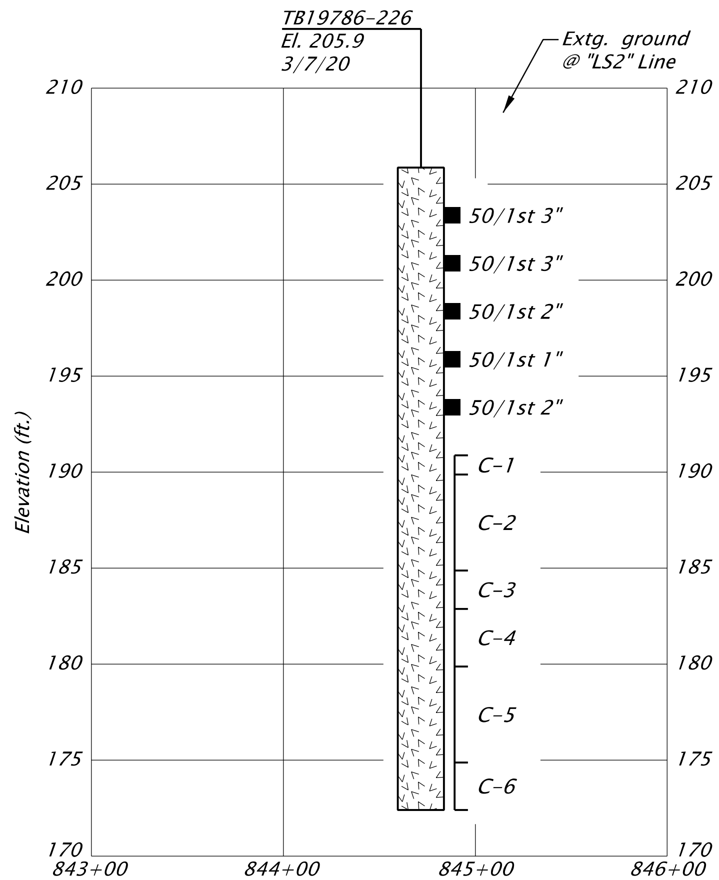
Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

PLAN AND ELEVATION

SHEET NO. LD29



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

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

UNIT DESCRIPTIONS

BASALT; dark grey with iron-stained joints, moderately to slightly weathered, soft to hard (R2 to R4), very close to moderately close joints are planar to irregular, smooth to rough, and open to closed, some sand and clay infilling, some vesicles, (Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

Notes:

1. Boring was sampled with a hammer efficiency of 85.0%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-226	C-1	100	R3 to R4	0	
	C-2	100	R3 to R4	12	
	C-3	100	R3 to R4	35	
	C-4	87	R3 to R4	13	
	C-5	100	R3 to R4	50	
	C-6	100	R3 to R4	52	

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 064
M.P.: 6.70 SB
COUNTY 00000
DATE N/A

REGISTERED PROFESSIONAL ENGINEER
75110PE
OREGON
JUNE 11, 2008
JONATHAN C. HUFFMAN
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy064_MP6.70

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E.
Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli
Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

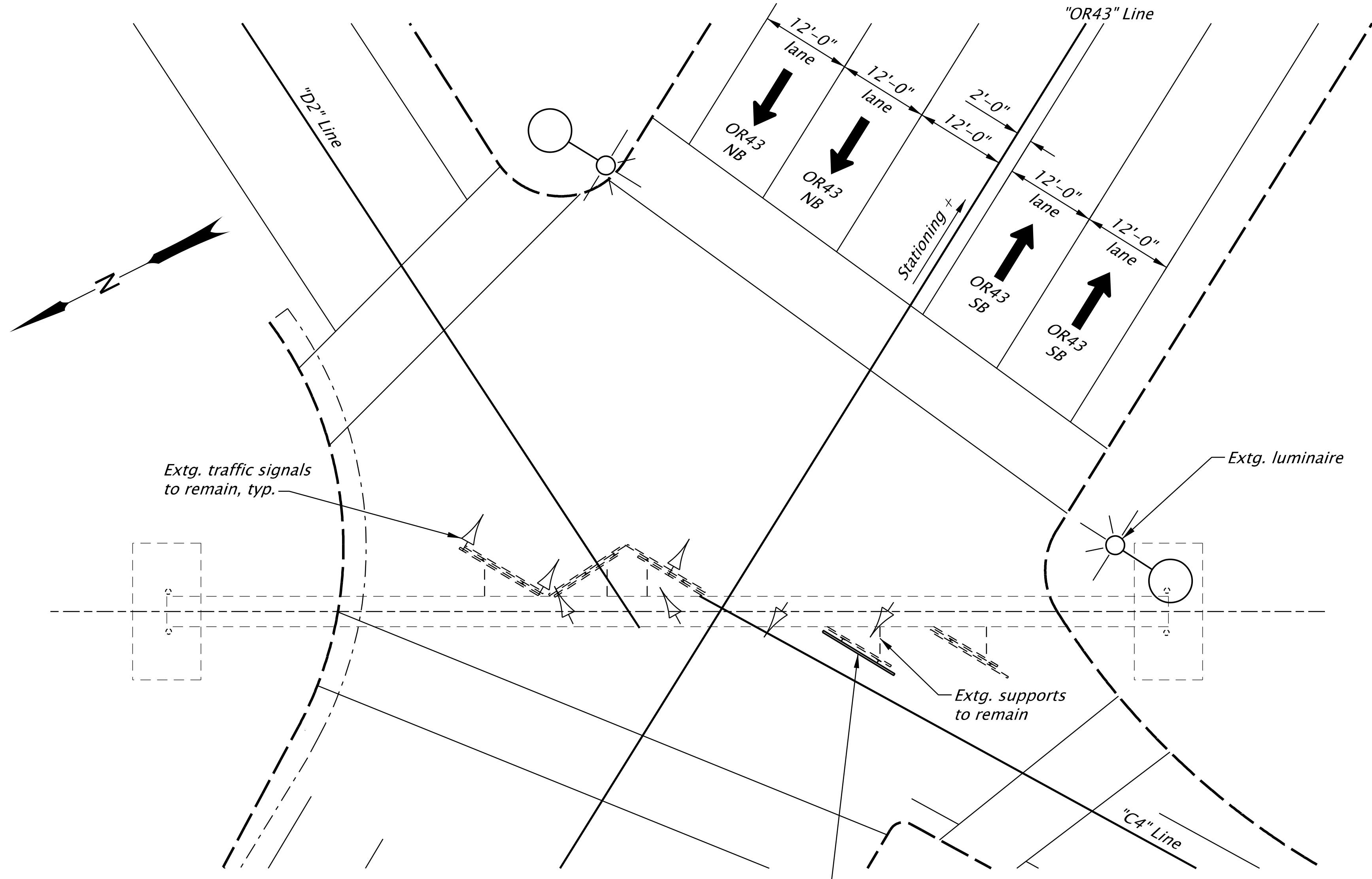
SHEET NO. LD29A

A_LD29A_Geotechnical Data - FEI :: LD29A 7/28/2020 3:35:33 PM YGarzenelli

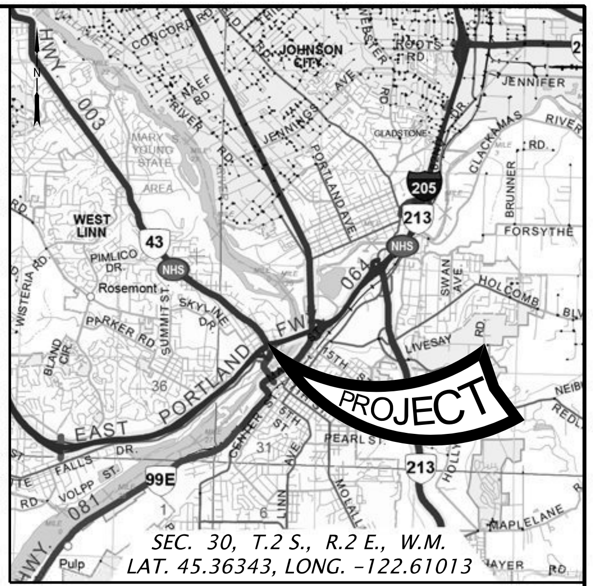
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 195.4952° Scale: 1"=100'

OR43 Existing Sign Bridge M.P. 11.13 SB



PLAN
Scale: 1"=20'



LOCATION MAP
No Scale

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Vertical structure mounts are designed in accordance with the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 4th edition, 2001 and 2002 interim revisions.

Basic wind speed (3 second gust) used for sign structure design is 110 mph, G = 1.14, I_r = 1.0 (50 year recurrence interval) and Exposure C were used for design.

All structural steel shapes shall conform to ASTM A572, Grade 50, or ASTM A992, unless noted otherwise. All structural plates shall conform to ASTM A36, or ASTM A572, Grade 42.

All fasteners shall be ASTM A325 unless otherwise noted. All structural steel and fasteners shall be hot-dip galvanized after fabrication, unless noted otherwise. The silicon content of the base metal shall be according to the Special Provisions for all hot-dip galvanized steel, unless noted otherwise.

Contractor shall field verify conditions, work, locations, elevations and all dimensions prior to beginning fabrication. Existing traffic lane and structural dimensions shown are approximate and should not be used as a basis for development of fabrication drawings.

See Signing Plans and Dwgs. TM220, TM618 and TM675 for sign mounting details.

All welding shall conform to the current edition American Welding Society (AWS) D1.1.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

ACCOMPANIED BY DWGS.:
000000, TM220, TM618, TM675

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09816D
BDS DWG NO.	00000
CALC. BOOK	7084
HWY: 003	M.P.: 11.13 SB
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
KENTON CHARLES ALLDRITT
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 12/31/

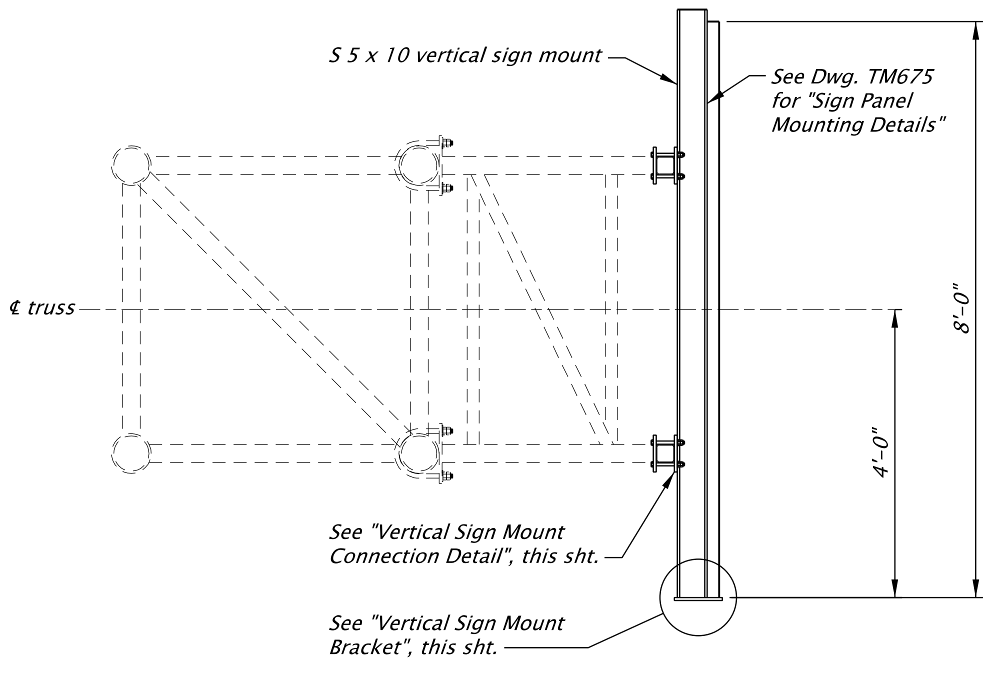
DOWL WWW.DOWL.COM

Sign Truss Br, Hwy 3 at MP 11.13

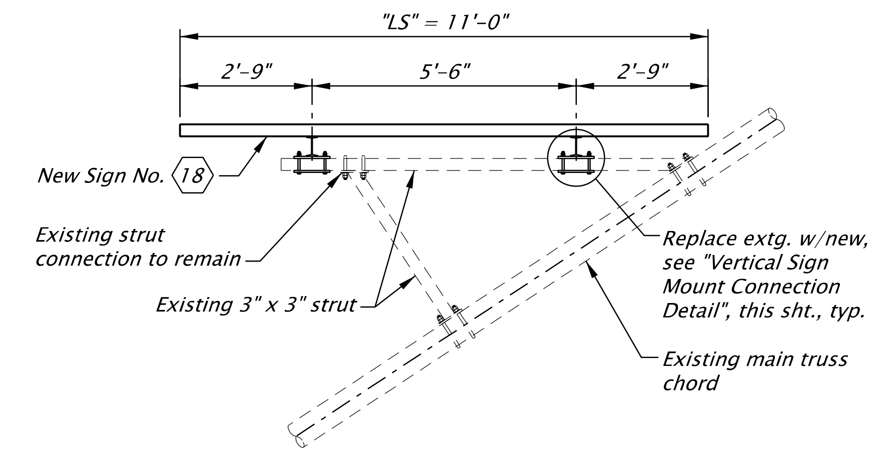
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Peter G. Slocum, P.E., S.E.

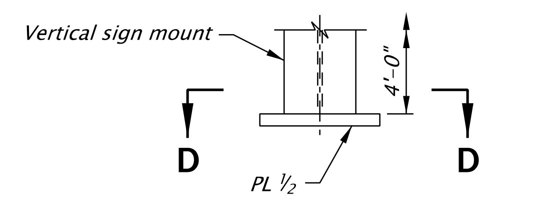
SITE PLANS SHEET NO. LD30



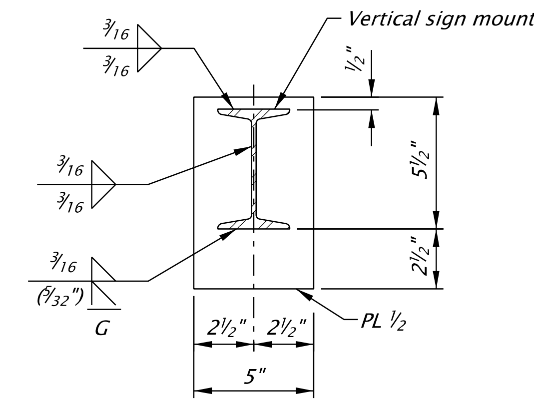
VERTICAL SIGN MOUNT
No Scale



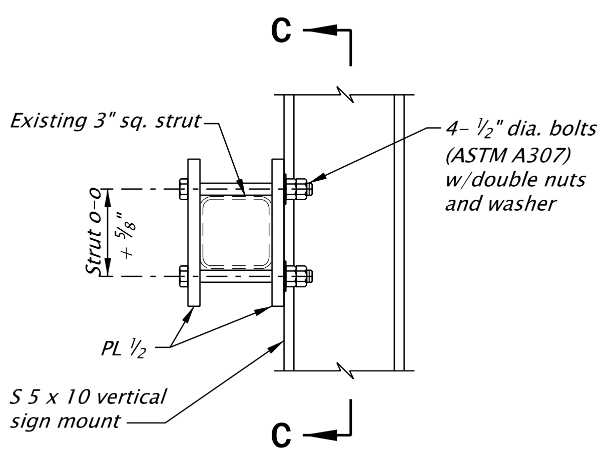
PLAN
Scale: 1/4"=1'-0"



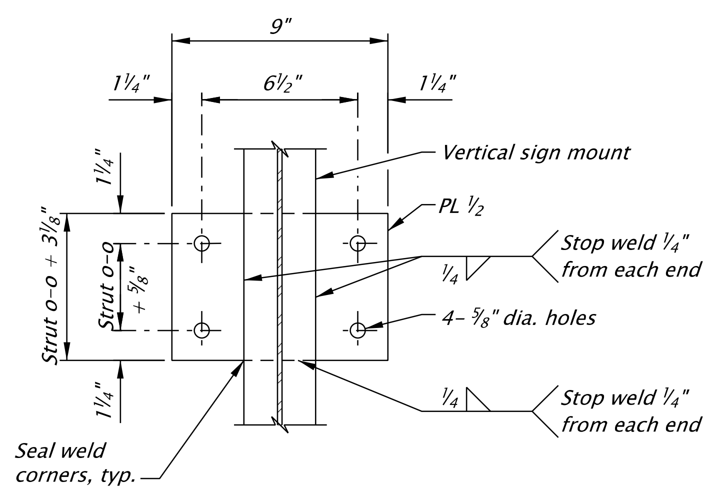
VERTICAL SIGN MOUNT BRACKET
Scale: 1 1/2"=1'-0"



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



VERTICAL SIGN MOUNT CONNECTION DETAIL
Scale: 1 1/2"=1'-0"



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

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	09816D
BDS DWG NO.	000000
CALC. BOOK	7084
HWY: 003 M.P.: 11.13 SB	
UNIT FILE CODE	00000
DFI/TSSU NO.	N/A

REGISTERED PROFESSIONAL ENGINEER
OREGON
MARCH 8, 2016
KENTON CHARLES ALLDRITT
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 12/31/

DOWL WWW.DOWL.COM

OREGON DEPARTMENT OF TRANSPORTATION

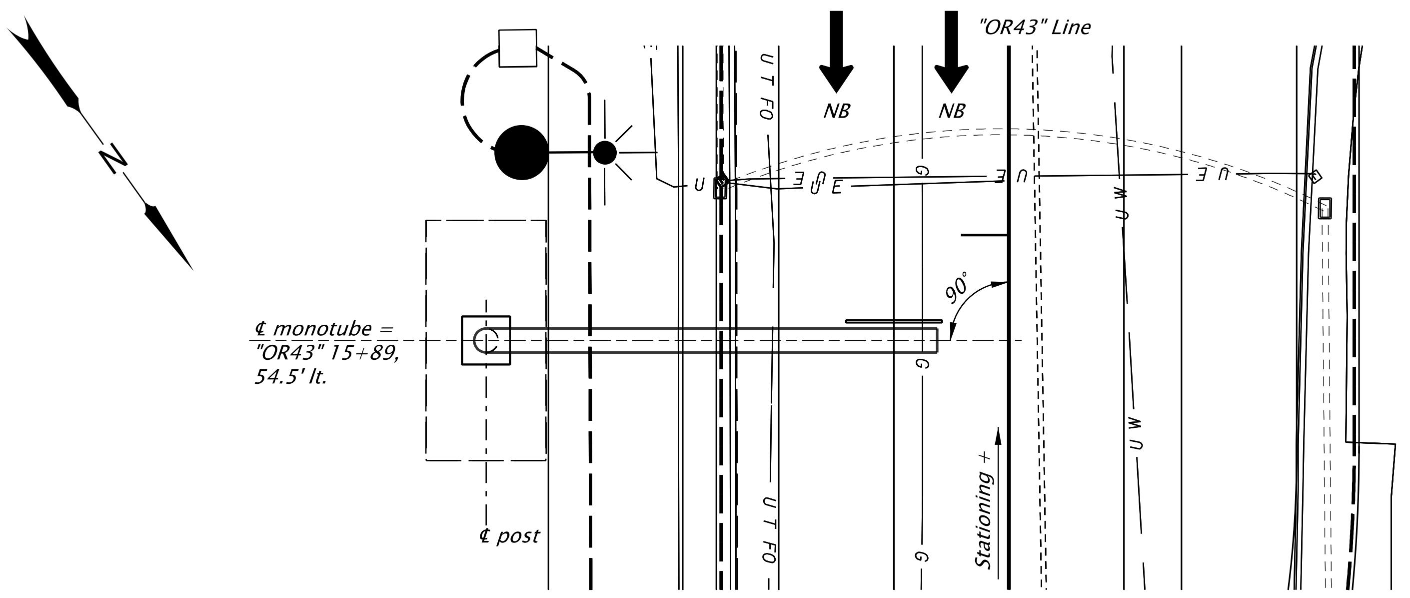
Sign Truss Br, Hwy 3 at MP 11.13

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Kenton Alldritt, P.E. | Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli | Checker: Peter G. Slocum, P.E., S.E.

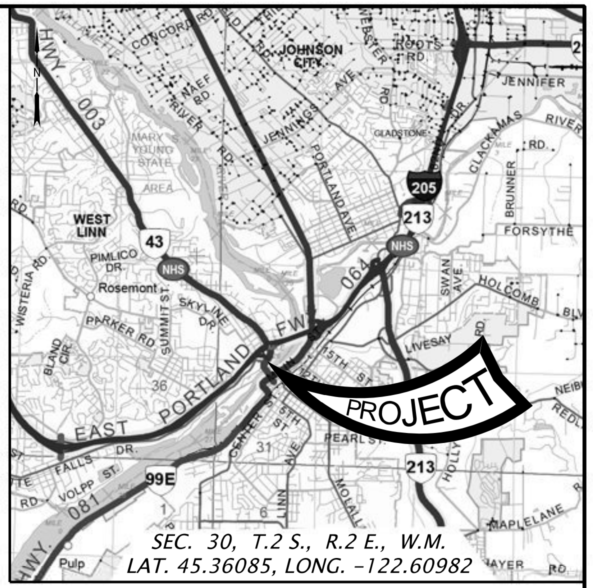
SIGN DETAILS SHEET NO. LD31

OR43 Cantilever Monotube Sign Bridge M.P. 11.31 NB



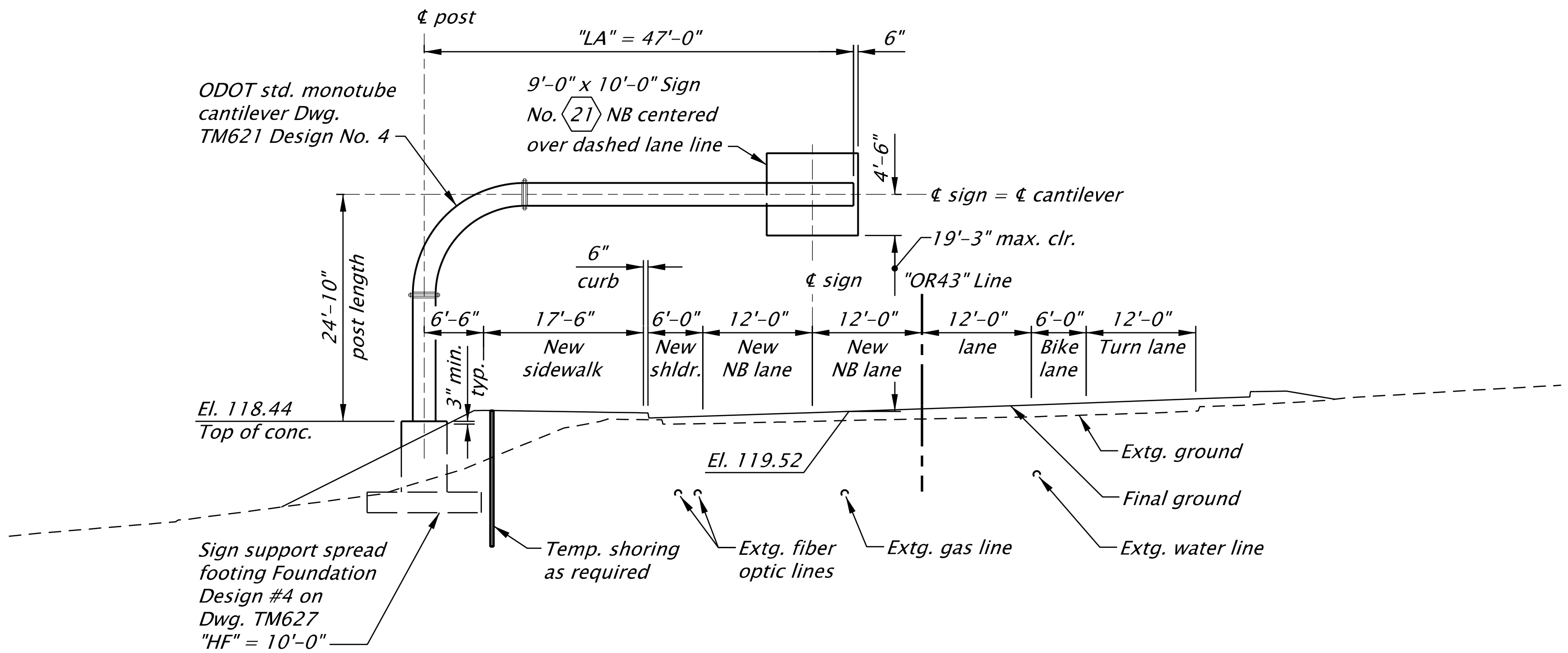
PLAN

Scale: 1"=20'



LOCATION MAP

No Scale



*MONOTUBE CANTILEVER ELEVATION

Scale: 1"=20'

*Elevation view is looking ahead on station, SB direction

General Notes:

All materials and workmanship shall conform to the 2018 Oregon Standard Specifications for Construction and the Special Provisions. Structure mounts are designed in accordance with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals 1st edition, 2015 and interim revisions 2017.

See Dwg. TM622 for General Notes.

The sign support shall meet the requirements for 50'-0" span length, post height, and maximum sign area as shown on Dwg. TM621.

See Dwgs. TM621-TM624, TM626 and TM627 for details not shown. Use Design No. 4 in Dwg. TM621.

Field verify conditions, elevations, and span prior to fabrication. Field verify utility conditions and dimensions prior to construction.

See Traffic Plans for sign information.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Right of way is outside limits of view.

For sign mounting details, see Dwg. TM624.

Note:
Elevations are based on the North American Vertical Datum, 1988.

PROJECT DATA

Sign Bridge		"LA"	Foundation Drawing Number	Spread Footing Foundation Design Number See Dwg. TM627	Post Height see Dwg. TM621 (Field Verify)	Luminaires ("Yes" or "No") see Dwg. TM625
At Station	M.P.					
"OR43" 15+89	11.31 NB	47'-0"	TM627	4	24'-7½"	No

ACCOMPANIED BY DWGS.: TM621-TM627

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 003
M.P.: 11.31 NB
UNIT FILE CODE 00000
DFI/TSSU NO. N/A

REGISTERED PROFESSIONAL STRUCTURAL ENGINEER
OREGON
MAY 10, 2005
PETER GLEN SLOCUM
PRELIMINARY COPY INFORMATION ONLY
EXPIRES: 06/30/2022

DOWL WWW.DOWL.COM
sn_Hwy003_MP11.31

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Peter G. Slocum, P.E., S.E. Reviewer: Douglas Kirkpatrick, P.E.
Drafter: Yuka Garzenelli Checker: Wyatt Dean, E.I.

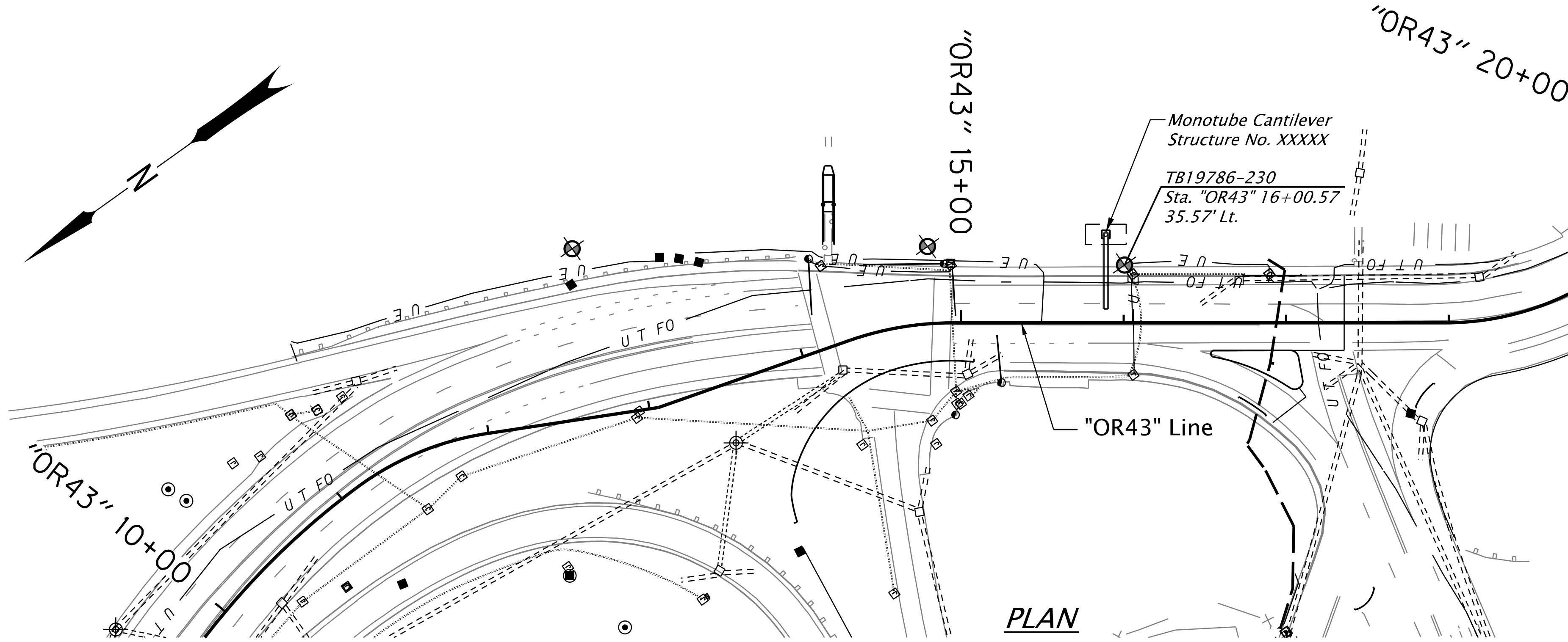
PLAN AND ELEVATION
SHEET NO. LD32

A_LD32_Sign Structure Plan Sheets - DOWL :: LD32 7/28/2020 3:41:05 PM YGarzenelli

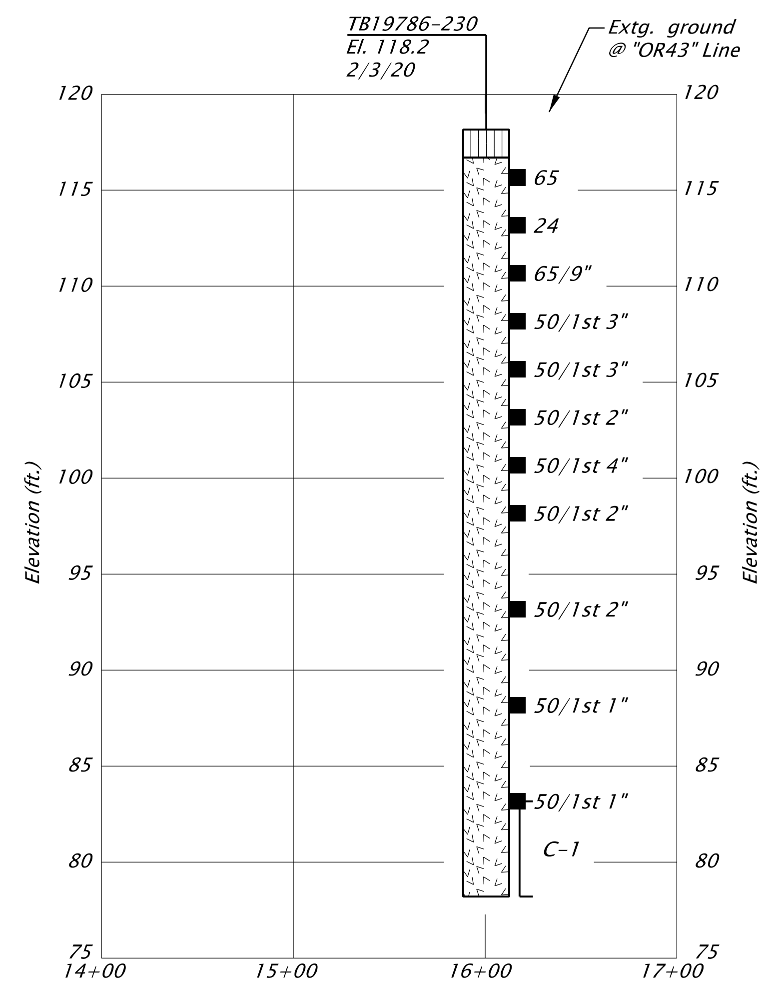
825

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 144.4671° Scale: 1"=20'



PLAN



PROFILE

Horiz. scale: 1":100'
Vert. scale: 1":10'

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

UNIT DESCRIPTIONS

Sod and roots over SILT

BASALT; brown to dark grey with iron-stained joints, moderately weathered to fresh, soft to medium hard (R2 to R4), very close to close joints are planar to irregular and stepped, rough, and open, some silt infilling, (Columbia River Basalt)

LEGEND

= Geotech Test Boring (TB)

24 = Standard Penetration Test (SPT)
N-value

C-1 = Core Sample Interval

% REC = Percent Core Sample Recovery

RQD = Rock Quality Designation

q_u = Unconfined Compressive Strength

Notes:
1. Boring was sampled with a hammer efficiency of 82.2%.
2. Geotechnical data shown on this drawing are a consolidation of information and/or revision in terminology from the drill logs. The drill logs used in compiling this drawing are available upon request. Contractor shall refer to geotechnical reports and drill logs and information contained therein.
3. Refer to the ODOT Soil and Rock Classification Manual (1987) for a description of the terms used on this sheet.

TEST BORING	CORE RUN	% REC	HARDNESS	RQD	q_u (psi)
TB19786-230	C-1	100	R3 to R4	38	

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO. 00000
BDS DWG NO. 00000
CALC. BOOK 7084
HWY: 003
M.P.: 11.31 NB
COUNTY 00000
DATE N/A

REGISTERED PROFESSIONAL ENGINEER
75110PE
OREGON
JAN 11, 2008
JONATHAN C. HUFFMAN
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 6/30/

FOUNDATION ENGINEERING, INC.
PROFESSIONAL GEOTECHNICAL SERVICES
820 N.W. CORNELL AVENUE
CORVALLIS, OREGON 97330
BUS. (541) 757-7645 FAX (541) 757-7650

OREGON DEPARTMENT OF TRANSPORTATION

sn_Hwy003_MP11.31

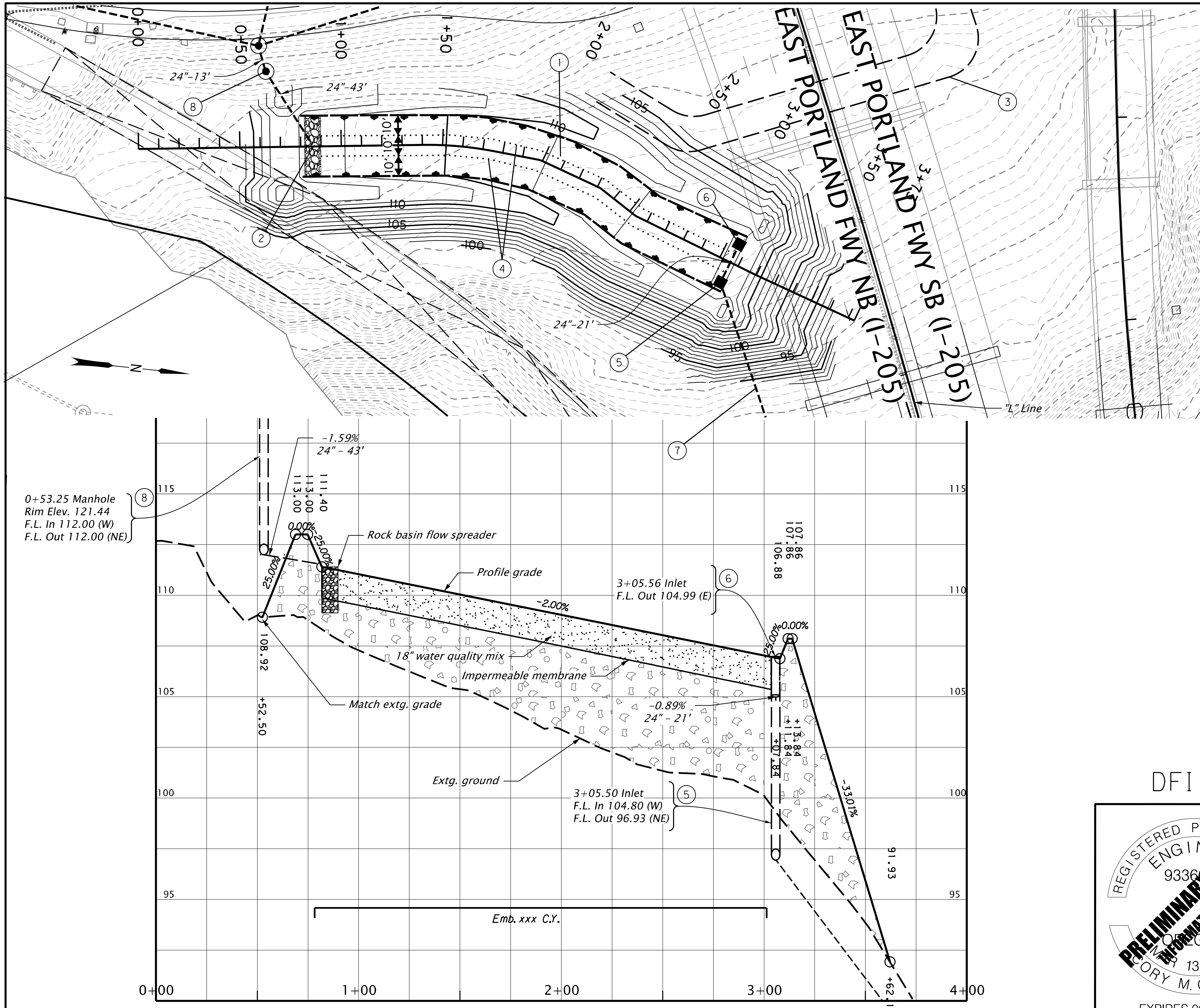
I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jonathan Huffman, P.E., G.E.
Reviewer: David Running, P.E., G.E.
Drafter: Yuka Garzenelli
Checker: Brooke Running, R.G., C.E.G.

GEOTECHNICAL DATA

SHEET NO. LD32A

Attachment Y. Stormwater Plan



1. Sta. 0+80.76 to Sta. 3+07.72 = Sta. "OR43" 10+12.40, 104.31' Lt. to Sta. "OR43" 8+77.47, 208.62' Lt.
Construct biofiltration swale
Inst. field facility marker (Type S2) - 2
(For details, see sht. HA16)

2. Sta. 0+86.13
Construct rock basin flow spreader
Inst. 24" storm sew. pipe - 43'
5' Depth
(For details, see sht. HA16)

3. Const. maintenance access road
Exc. - xx cu. yd.
Agg. base - xx ton
Subgrade geotextile - sq. yd.
(For details, see sht. HA17)

4. Construct biofiltration swale divider
(For details, see sht. HAxx)

5. Sta. 3+05.56, 10.11' Lt.
Const. type "D" inlet
Inst. 24" storm sew. pipe - 21'
5' Depth

6. Sta. 3+05.50, 10.87' Rt.
Const. type "D" inlet

7. See sht. HA07 for outfall details

8. Sta. 0+53.25, 37.24' Rt.
Const. pollution control manhole
Inst. 24" storm sew. pipe - 13'
10' Depth

DFI no. ######

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MAY 13, 2018
CORY M. GIESEKE
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503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

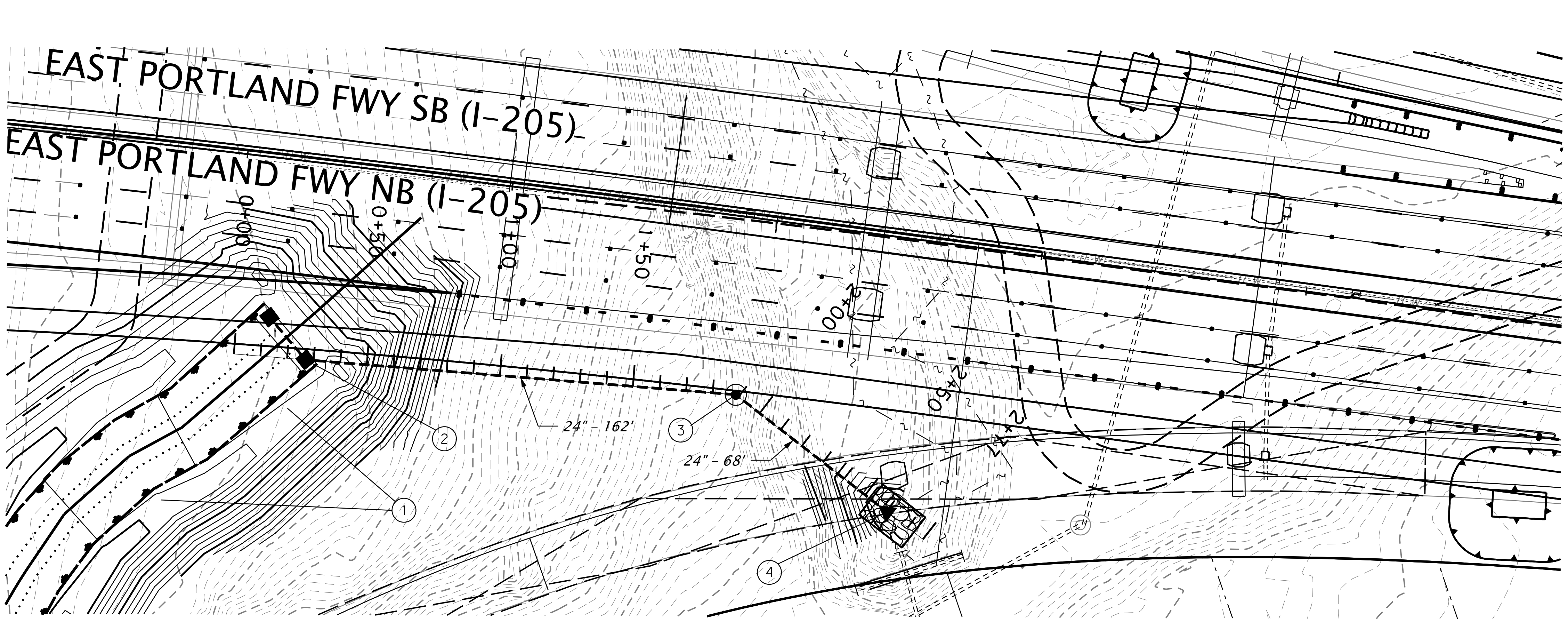
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke	Reviewer: Karen Tatman
Drafter: Morgan Tholl	Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE SHEET NO. HA06

830

Rotation: 96.0998° Scale: 1"=50'
Vertical Scale: 1:10

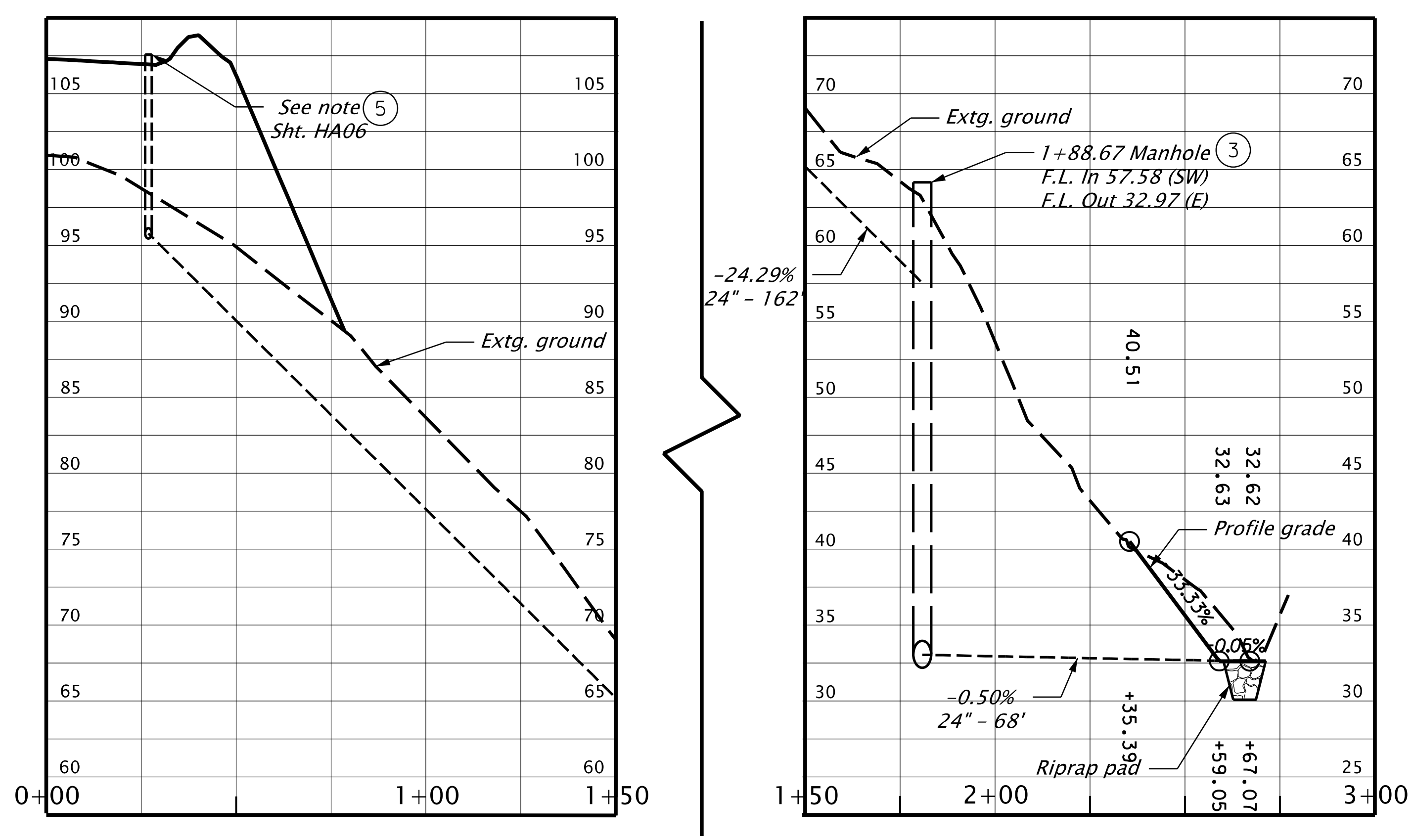


1 See sht. HA06, note 1

2 See sht. HA06, note 5

3 Sta. 1+88.67
Const. outside drop manhole
Inst. 24" storm sew. pipe - 162'
20' Depth

4 Sta. 2+50.00
Construct riprap pad
Loose riprap (class 50) - 5.0 tons
Inst. 24" storm sew. pipe w/ sloped end section- 68'
5' Depth



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MAY 13, 2018
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

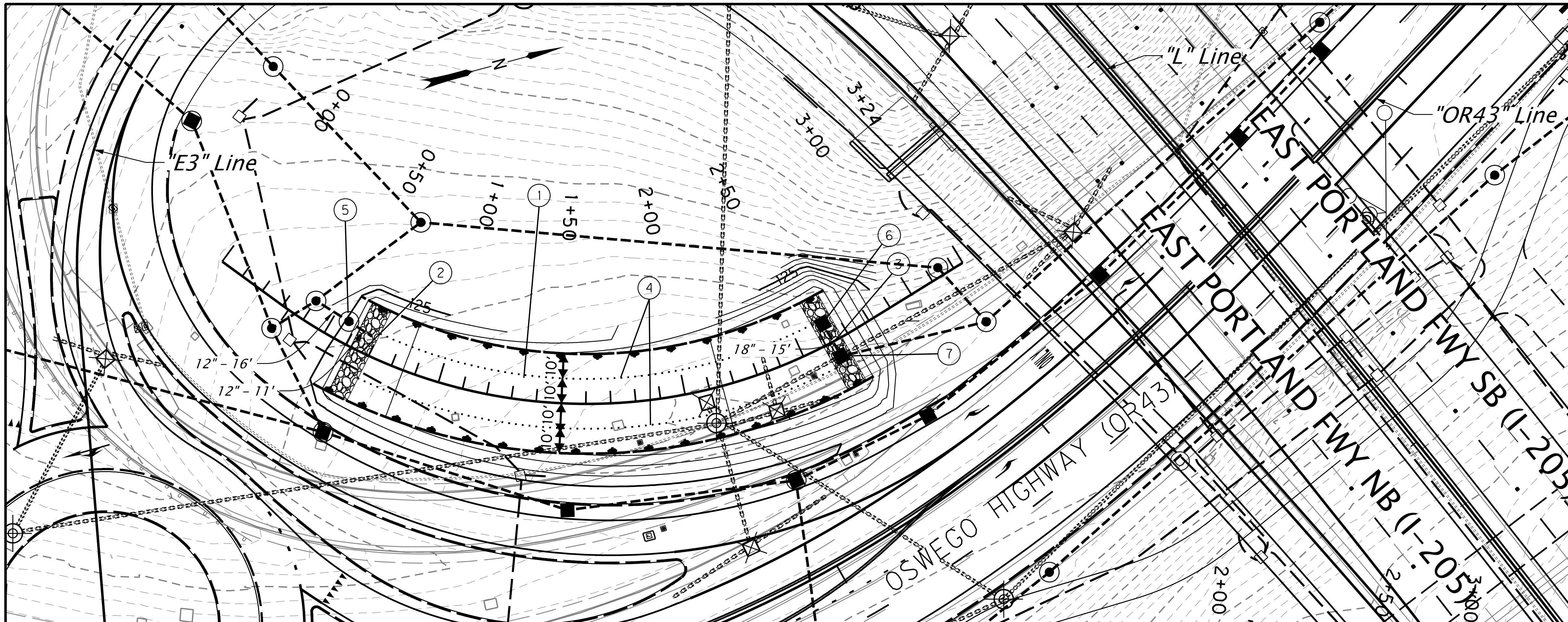
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer:
Reviewer:
Drafter:
Checker:

WATER QUALITY PLAN & PROFILE

SHEET NO.
HA07

Rotation: 29.332°   Scale: 1"=50'
Vertical Scale: 1:4



1. Sta. 0+59.27 to 2+69.56 = Sta. "E3" 740+37.28, 107.23' Lt. to Sta. "OR43" 9+52.79, 60.58' Rt.
Construct biofiltration swale
Inst. field facility marker (Type S2) - 2
(For details, see sht. HA16)

2. Sta. 0+66.37
Construct rock basin flow spreader
Install 12" storm sew. pipe - 11'
5' Depth
(For details, see sht. HA16)

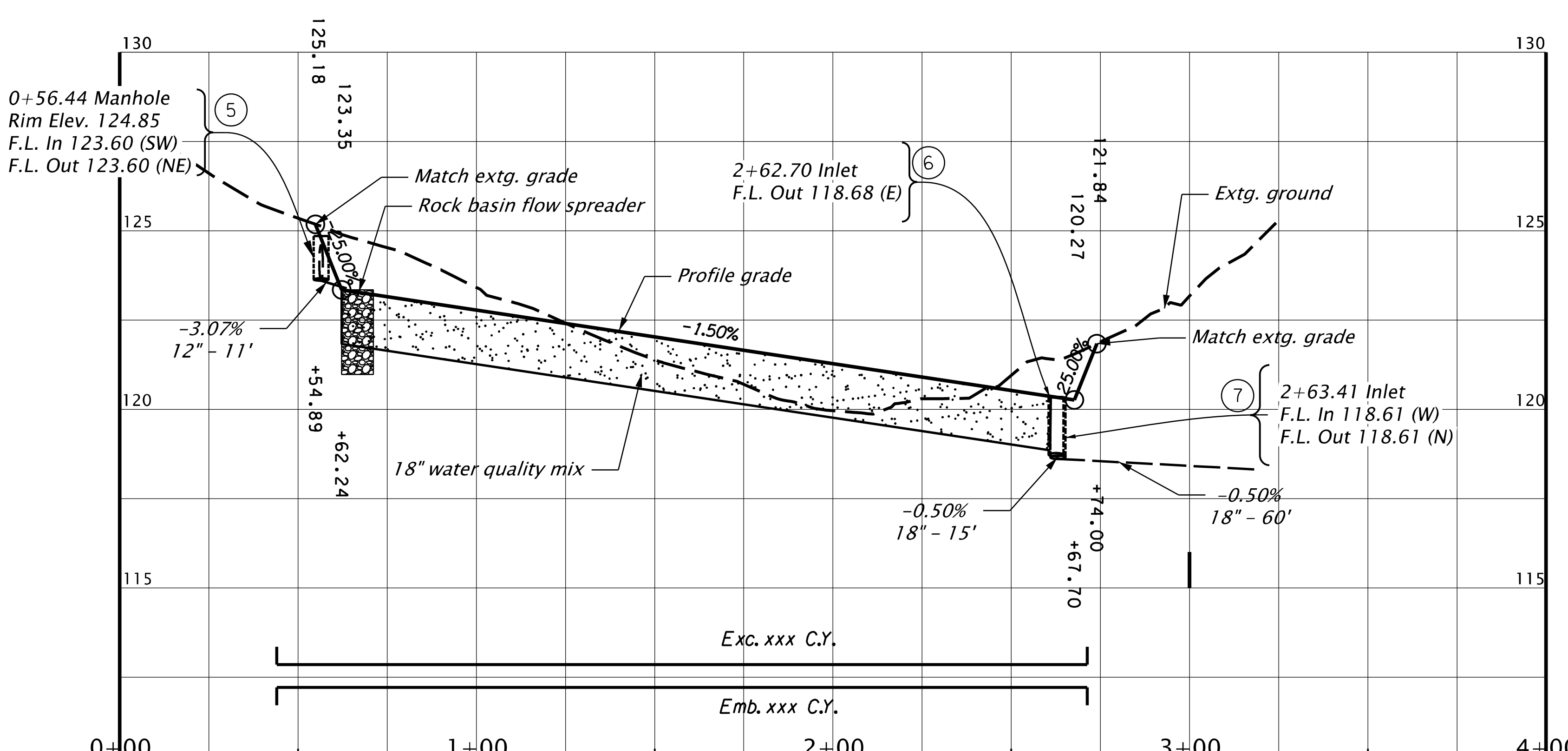
3. Sta. 2+62.73
Construct rock basin flow spreader
(For details, see sht. HA16)

4. Construct biofiltration swale divider
(For details, see sht. HAxx)

5. Sta. 0+56.44, 8.79' Lt.
Const. pollution control manhole
Inst. 12" storm sew. pipe - 16'
5' Depth

6. Sta. 2+62.70, 8.64' Lt.
Const. type "D" inlet

7. Sta. 2+63.41, 6.55' Rt.
Const. type "D" inlet
Inst. 18" storm sew. pipe - 15'
5' Depth



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I-205: I-5 - OR213, PHASE 1 SEC.

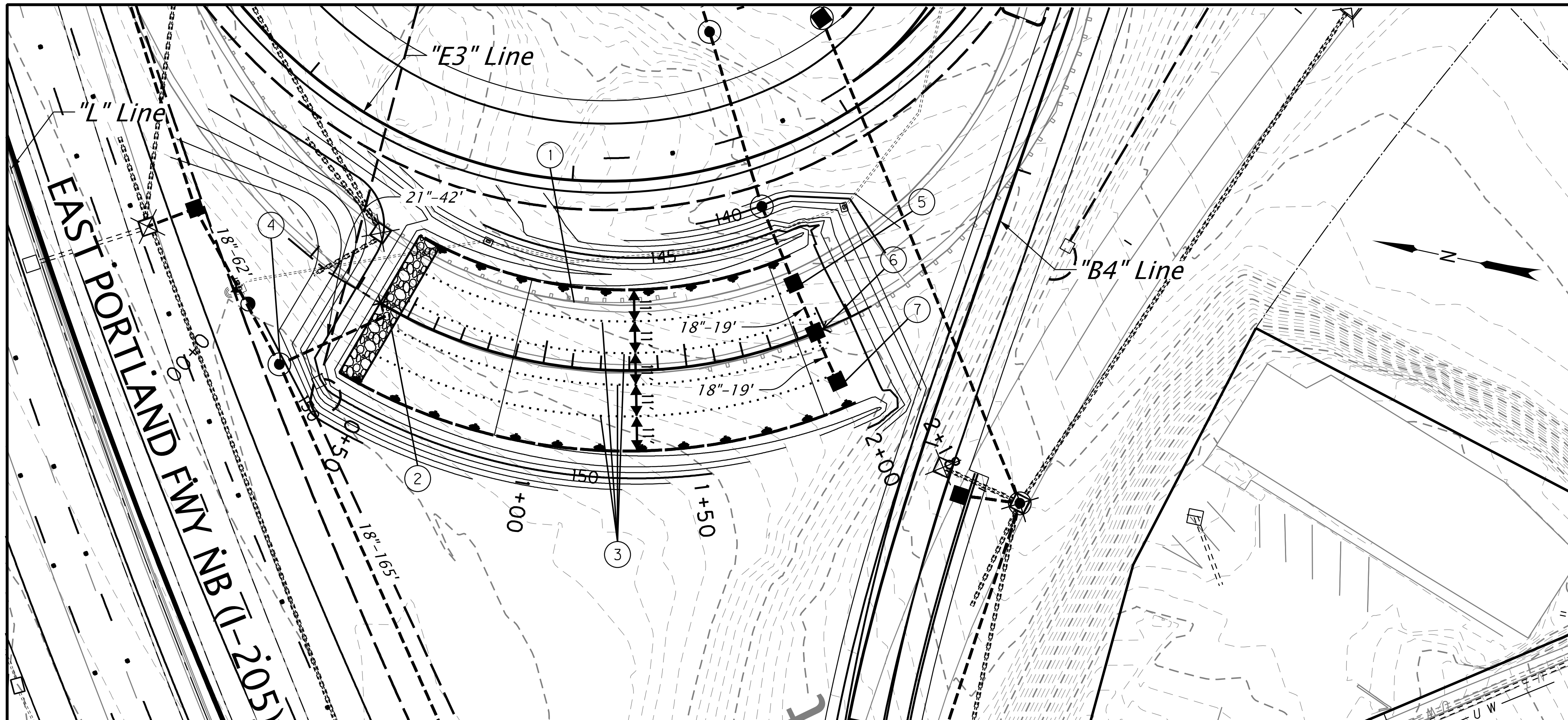
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke
Reviewer: Karen Tatman
Drafter: Morgan Tholl
Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE

SHEET NO.
HA08

Rotation: 75.0253° Scale: 1"=50'
Vertical Scale: 1:10



1. Sta. 0+39.24 to Sta. 1+98.79 = Sta. "E3" 737+52.57, 56.87' Rt. to Sta. "E3" 738+66.37, 64.42' Rt.
   Construct biofiltration swale
   Inst. field facility marker (Type S2) - 2
   (For details, see sht. HA16)

2. Sta. 0+44.18, 0.00'
   Construct rock basin flow spreader
   Inst. 21" storm sew. pipe - 42'
   5' Depth
   (For details, see sht. HA16)

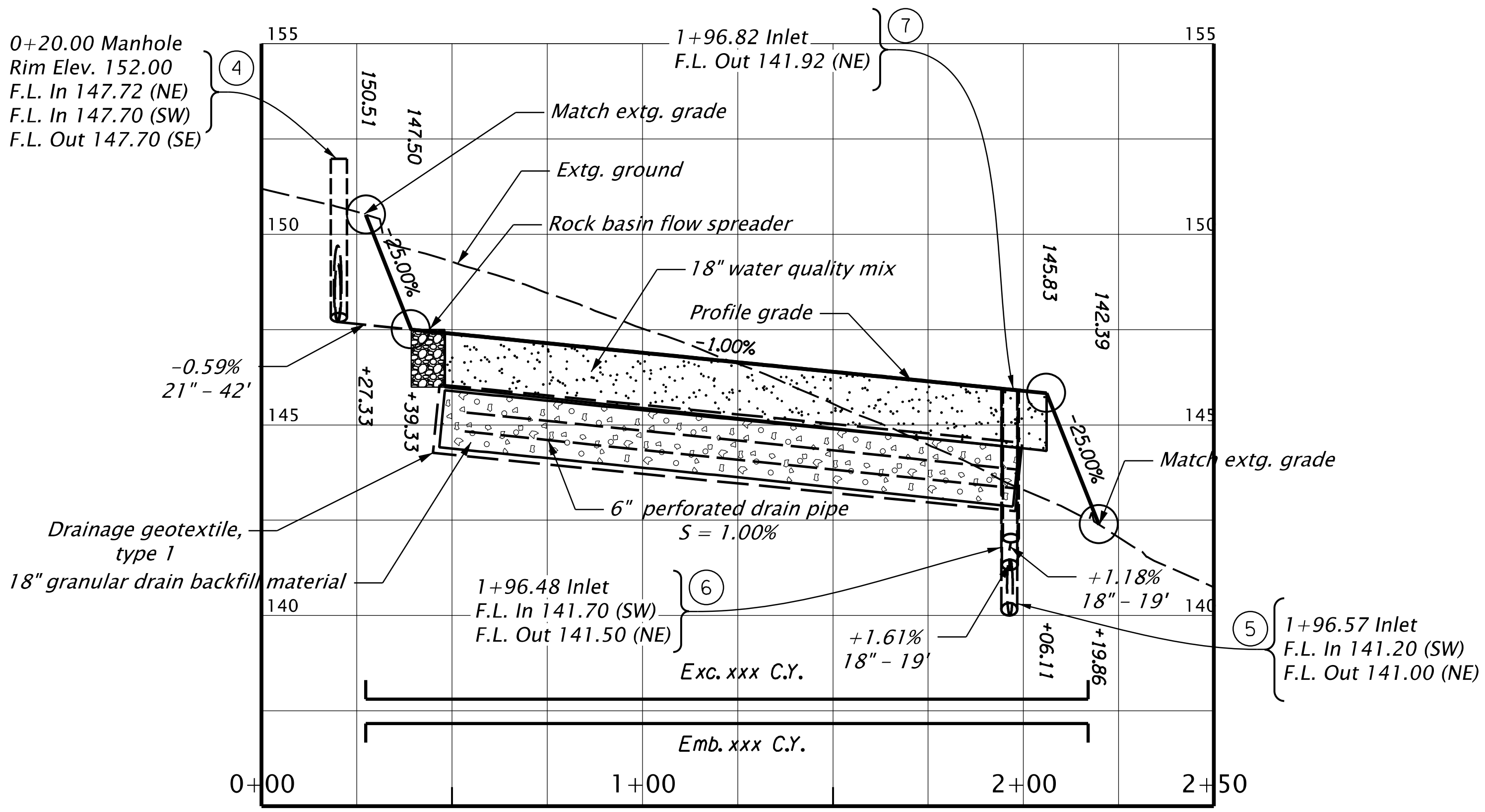
3. Construct biofiltration swale divider
   (For details, see sht. HAxx)

4. Sta. 0+20.00, 36.16' Rt.
   Const. pollution control manhole
   Inst. 18" storm sew. pipe - 62'
   5' Depth
   Inst. 18" storm sew. pipe - 165'
   5' Depth

5. Sta. 1+96.57, 18.41' Lt.
   Const. type "D" inlet
   Inst. 18" storm sew. pipe - 19'
   5' Depth

6. Sta. 1+96.48, 0.21' Rt.
   Const. type "D" inlet
   Inst. 18" storm sew. pipe - 19'
   5' Depth

7. Sta. 1+96.82, 18.86' Rt.
   Const. type "D" inlet



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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

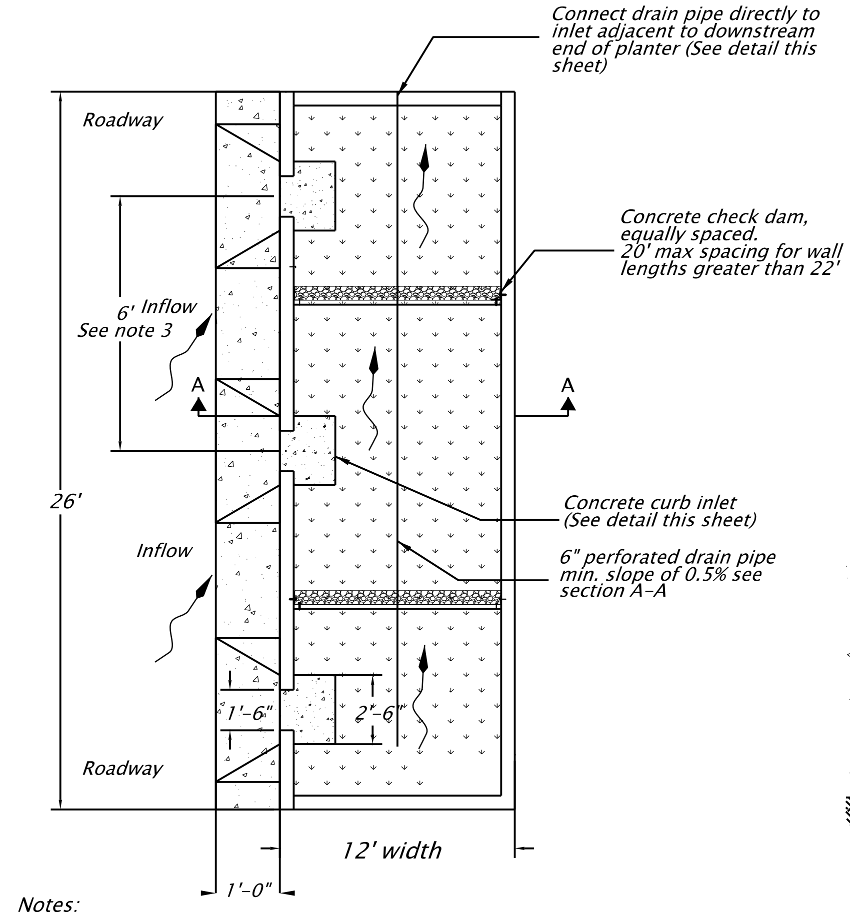
Designer: Cory Gieseke | Reviewer: Karen Tatman
Drafter: Morgan Tholl | Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE

SHEET NO. HA09

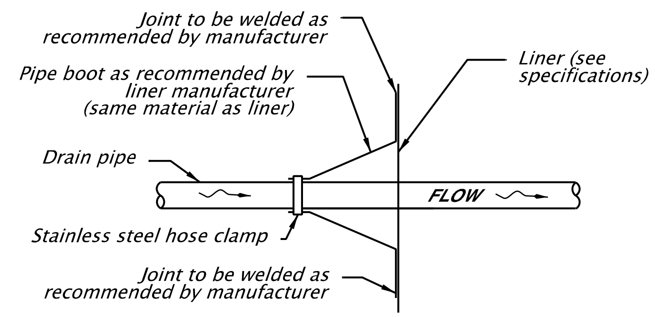
Rotation: 281.7947° Scale: 1"=50'
Vertical Scale: 1"=5'

S T O R M W A T E R   P L A N T E R

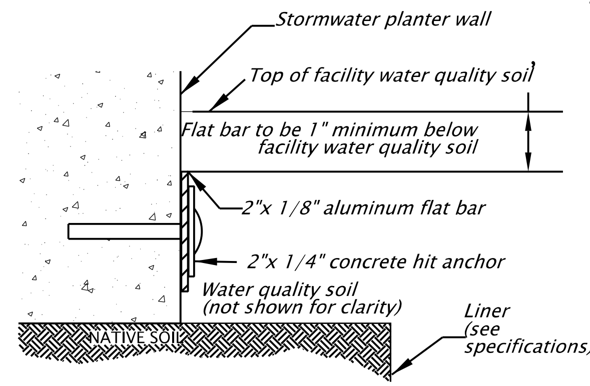


Notes:
1. Match longitudinal slope of planter to slope of the road.
2. If less than 18" is between splash pad and planter end wall, extend pad to wall.
3. Install inlets (6' on center) on all sides of facility that are adjacent to parking lot.

PLAN VIEW

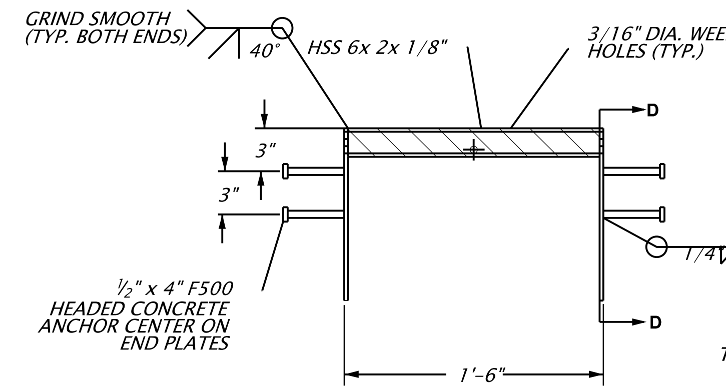


PIPE BOOT
NOT TO SCALE

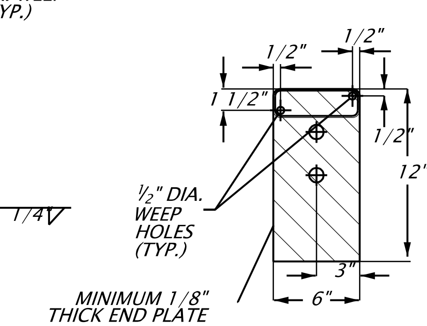


Notes:
1. Adhere liner to concrete with top coat tc moldable sealant, or approved equal.
2. Liner to extend from top of water quality soil to the bottom of excavation.
3. 3" of concrete is required on all sides of attachment. Adjust sidewalk depth as necessary.
4. Secure liner to concrete with 2" aluminum flat bar, placed as directed (around entire facility).
5. Attach flat bar with concrete hit anchors, 24" o.c.
6. Trim excess liner to the top of the flat bar.

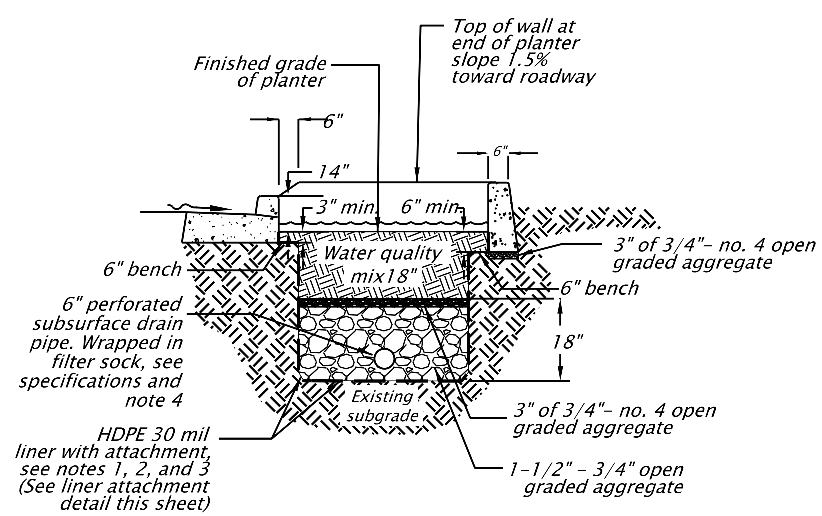
LINER ATTACHMENT DETAIL
NOT TO SCALE



ELEVATION



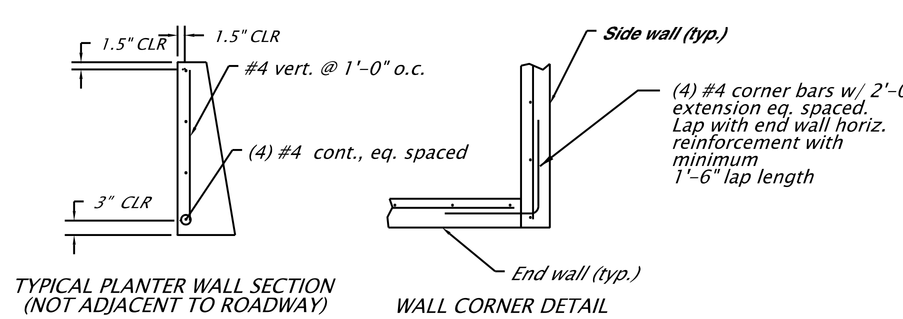
SECTION D–D



Notes:
1. Partial or full liner required. See stormwater planter table (this sheet) for requirement.
2. Partial liner located along side of planter adjacent to roadway.
3. Full liner located along all sides of planter.
4. Drain pipe only required for fully lined planters.
5. Scarify the native soil 12" following the initial excavation and before installing water quality soil and rock.

SECTION A–A

STORMWATER PLANTER DETAIL
NOT TO SCALE

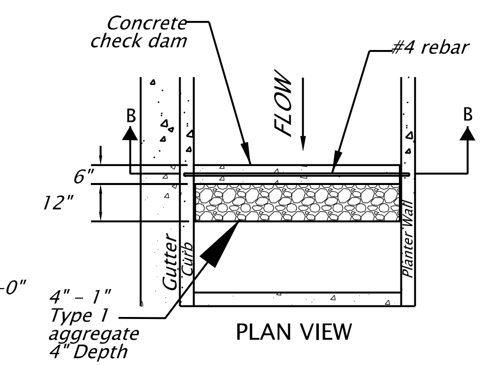


TYPICAL PLANTER WALL SECTION (NOT ADJACENT TO ROADWAY)

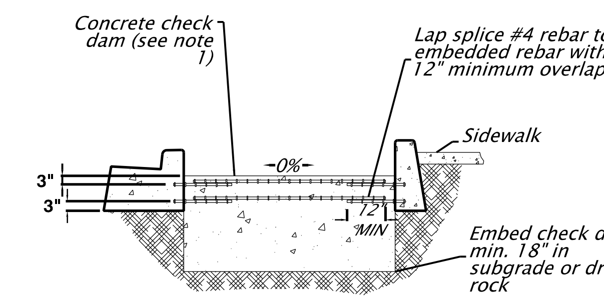
WALL CORNER DETAIL

Notes:
1. Top of planter walls to be 4" higher than adjacent sidewalk.
2. Bottom of planter walls to be 6" below top of water quality soil.

PLANTER WALL
NOT TO SCALE



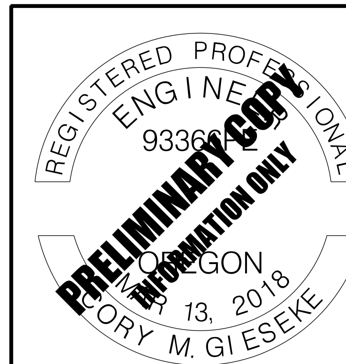
PLAN VIEW



SECTION B–B

Notes:
1. Top of dam elevation to be 2" lower than upstream curb depression elevation.
2. Concrete to be 3,000 psi.
3. Embed #4 rebar 3" into curb and planter wall.

CONCRETE CHECK DAM
NOT TO SCALE



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I-205: I-5 - OR213, PHASE 1 SEC.

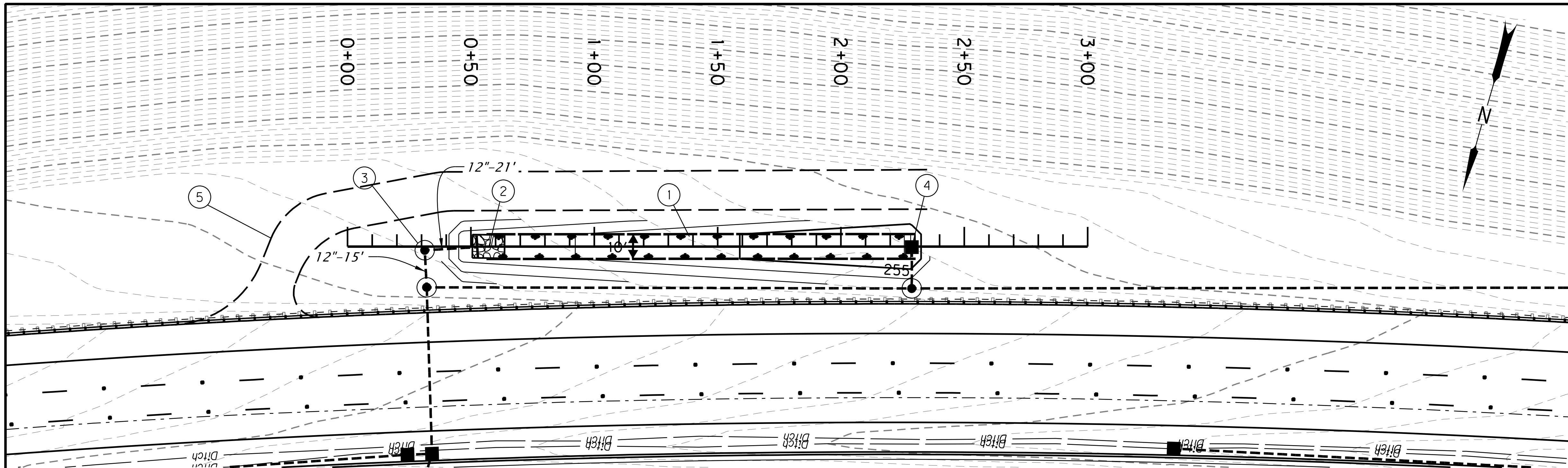
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke	Reviewer: Karen Tatman
Drafter: Morgan Tholl	Checker: Christine Higgins

WATER QUALITY DETAILS

SHEET NO. HA10

Rotation: 0°   Scale: 1"=60'



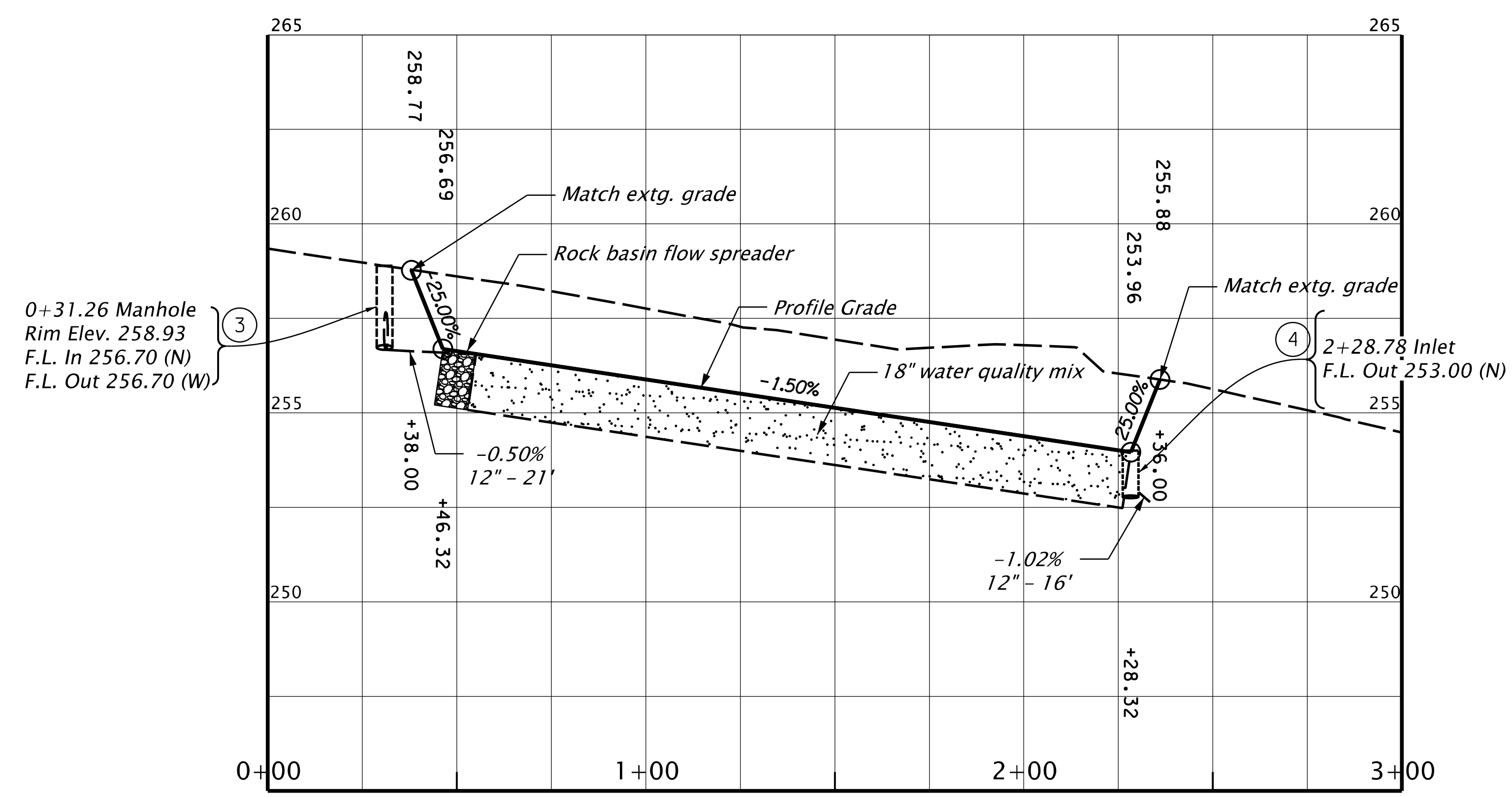
1. Sta. 0+56.01 to Sta. 2+30.32 =
Sta. "Ln" 812+11.63, 49.46' Lt. to
Sta. "Ln" 813+82.31, 47.34' Lt.
Construct bioretention swale
Inst. field facility marker (Type S2) - 2
(For details, see sht. HA16)

2. Sta. 0+57.34
Construct rock basin flow spreader
Inst. 12" storm sew. pipe - 21'
5' Depth
(For details, see sht. HA16)

3. Sta. 0+31.26, 1.40' Rt.
Const. pollution control manhole
Inst. 12" storm sew. pipe - 15'
5' Depth

4. Sta. 2+28.78, 0.00'
Const. type "D" inlet

5. Const. maintenance access road
Exc. - xx cu. yd.
Agg. base - xx ton
Subgrade geotextile - sq. yd.
(For details, see sht. HA17)



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MAY 13, 2018
CORY M. GIESEKE
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

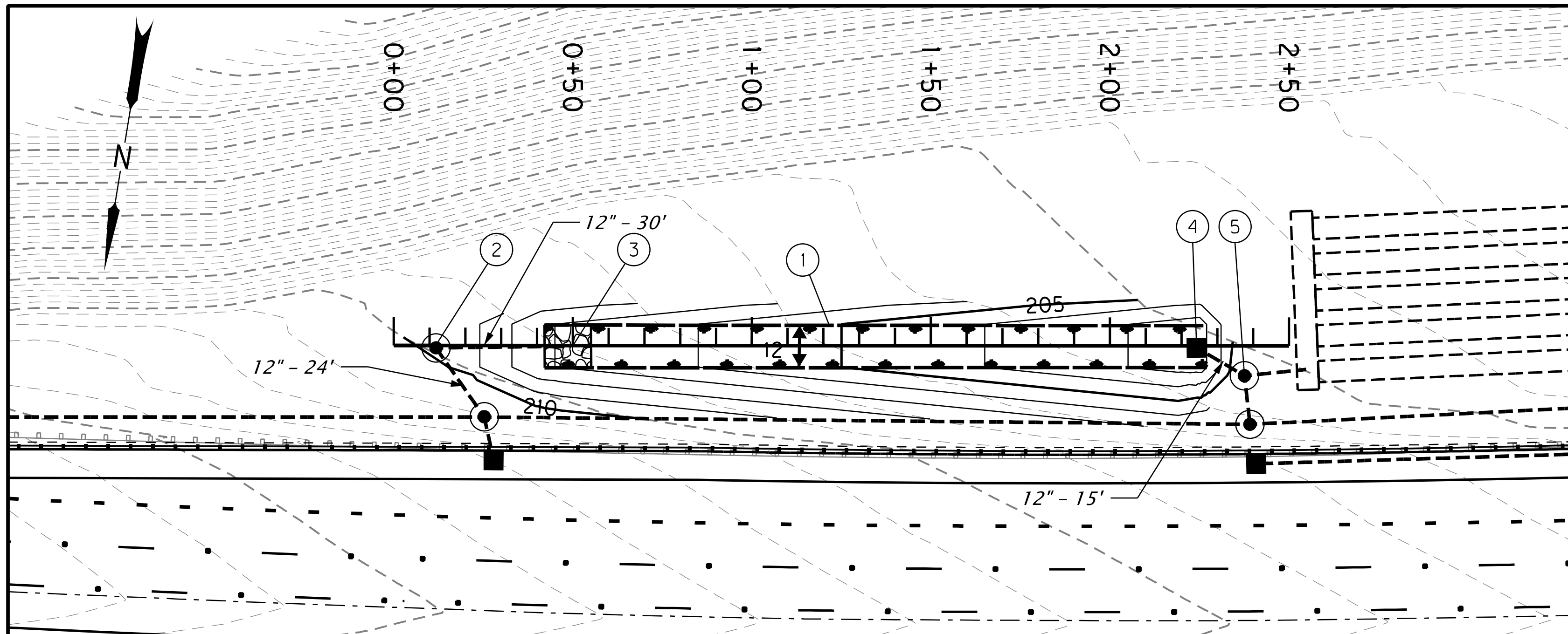
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke | Reviewer: Karen Tatman
Drafter: Morgan Tholl | Checker: Christine Higgins

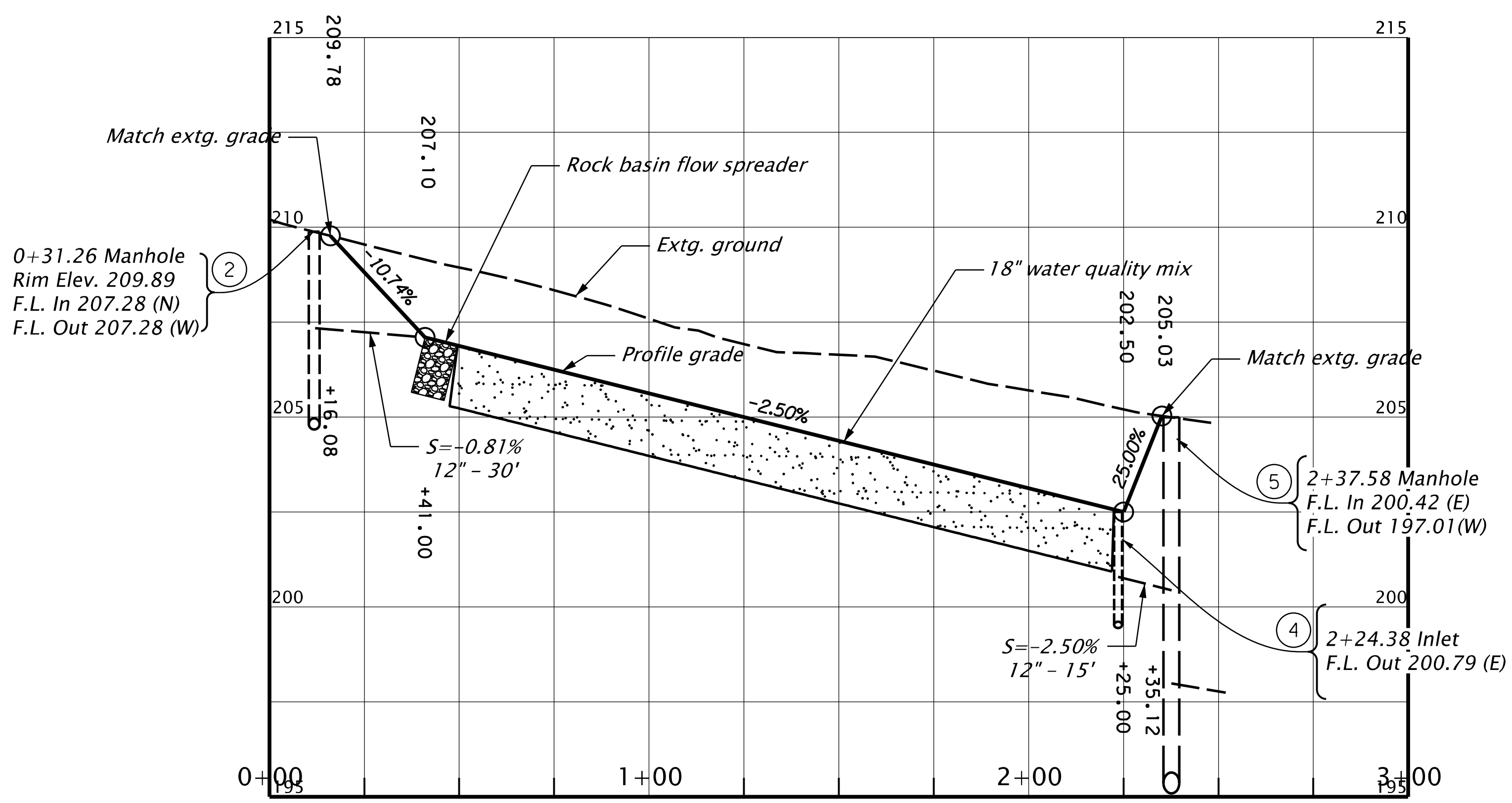
WATER QUALITY PLAN & PROFILE

SHEET NO. HA11

Rotation: 223.5514° Scale: 1"=50'
Vertical Scale: 1:10



1. Sta. 0+41.77 to Sta 2+24.40 = Sta. "Ln2" 836+82.56, 60.48' Lt. to Sta. "Ln2" 838+59.54, 61. 72' Lt.
   Construct biofiltration swale
   Inst. 12" storm sew. pipe - 30'
   5' Depth
   Inst. field facility marker (Type S2) - 2
   (For details, see sht. HA16)
2. Sta. 0+31.26, 1.40' Rt.
   Const. pollution control manhole
   Inst. 12" storm sew. pipe - 24'
   5' Depth
3. Sta. 0+48.66
   Construct rock basin flow spreader
   (For details, see sht. HA16)
4. Sta. 2+24.38, 0.38' Rt.
   Const. type "D" inlet
5. Sta. 2+37.58, 8.32' Rt.
   Const. diversion manhole
   Inst. 12" storm sew. pipe - 15'
   5' Depth



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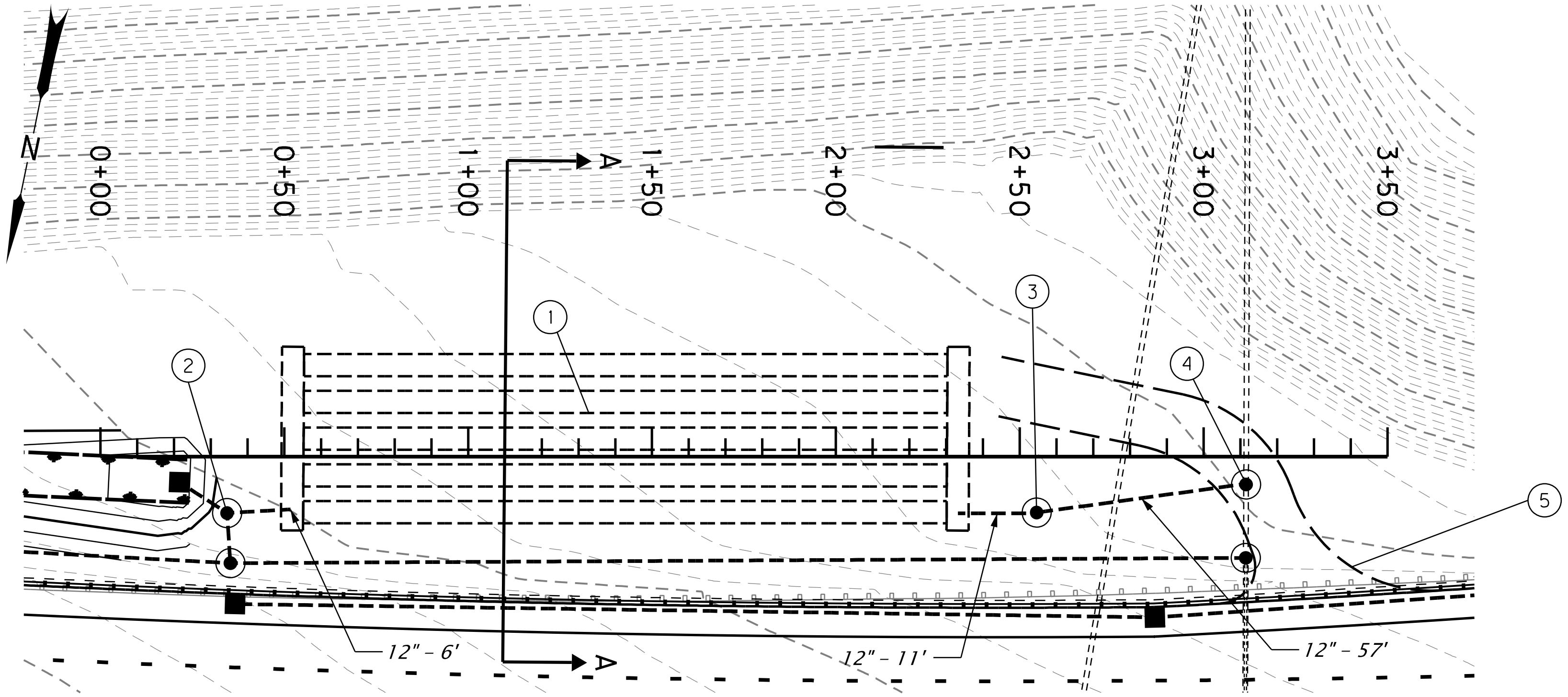
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke | Reviewer: Karen Tatman
Drafter: Morgan Tholl | Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE | SHEET NO. HA12

Rotation: 223.5514° Scale: 1"=50'
Vertical Scale: 1:10



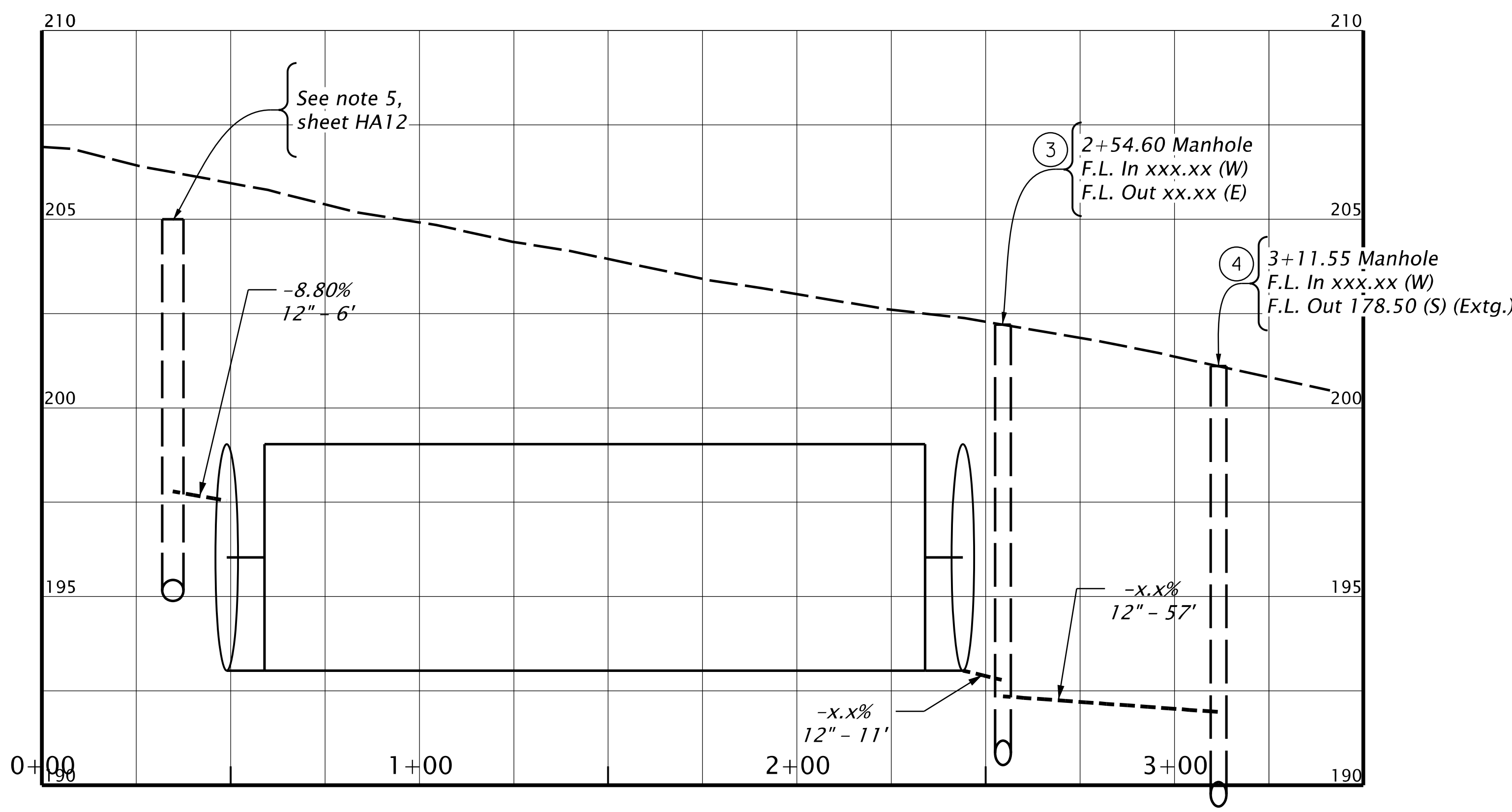
(1) Sta. 0+42.14 to Sta. 2+42.32 =
Sta. "Ln2" 838+80.48, 70.62' Lt. to
Sta "Ln2" 840+81.69, 75.39' Lt.
Const. underground detention system
Inst. 72" storm sew. pipe - 875'
20' Depth
Inst. field facility marker (Type S2) - 2

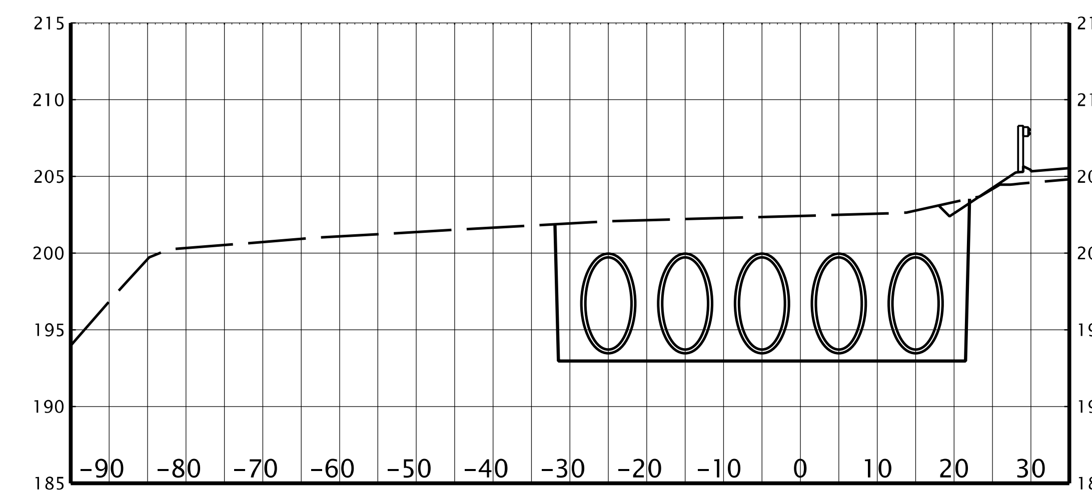
(2) See note 5, sht. HA12

(3) Sta. 2+54.60, 15.20' Rt.
Const. storm sew. manhole
Inst. 12" storm sew. pipe - 11'
10' Depth

(4) Sta. 3+11.55, 7.37' Rt.
Const. storm sew. manhole over existing pipe
Inst. 12" storm sew. pipe - 57'
20' Depth

(5) Const. maintenance access road
Exc. - xx cu. yd.
Agg. base - xx ton
Subgrade geotextile - sq. yd.
(For details, see sht. HA17)





SECTION A-A

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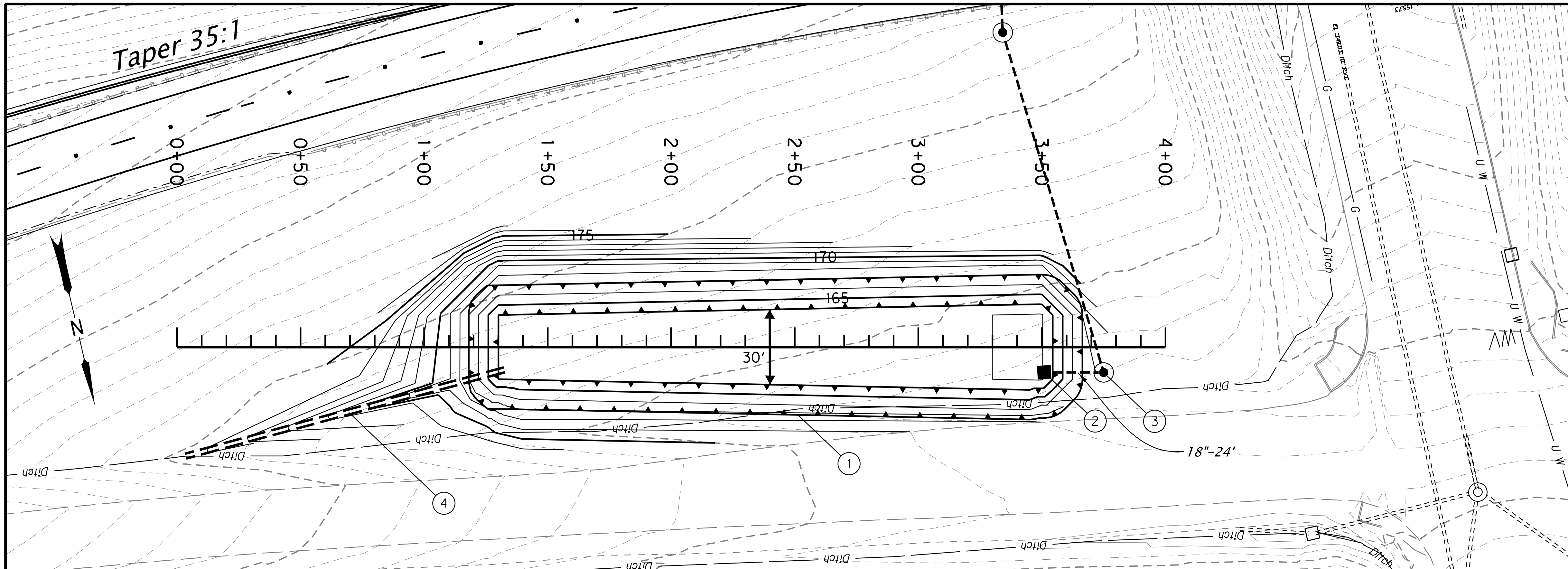
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke | Reviewer: Karen Tatman
Drafter: Morgan Tholl | Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE

SHEET NO.
HA13

Rotation: 223.5514° Scale: 1"=50'
Vertical Scale: 1:10

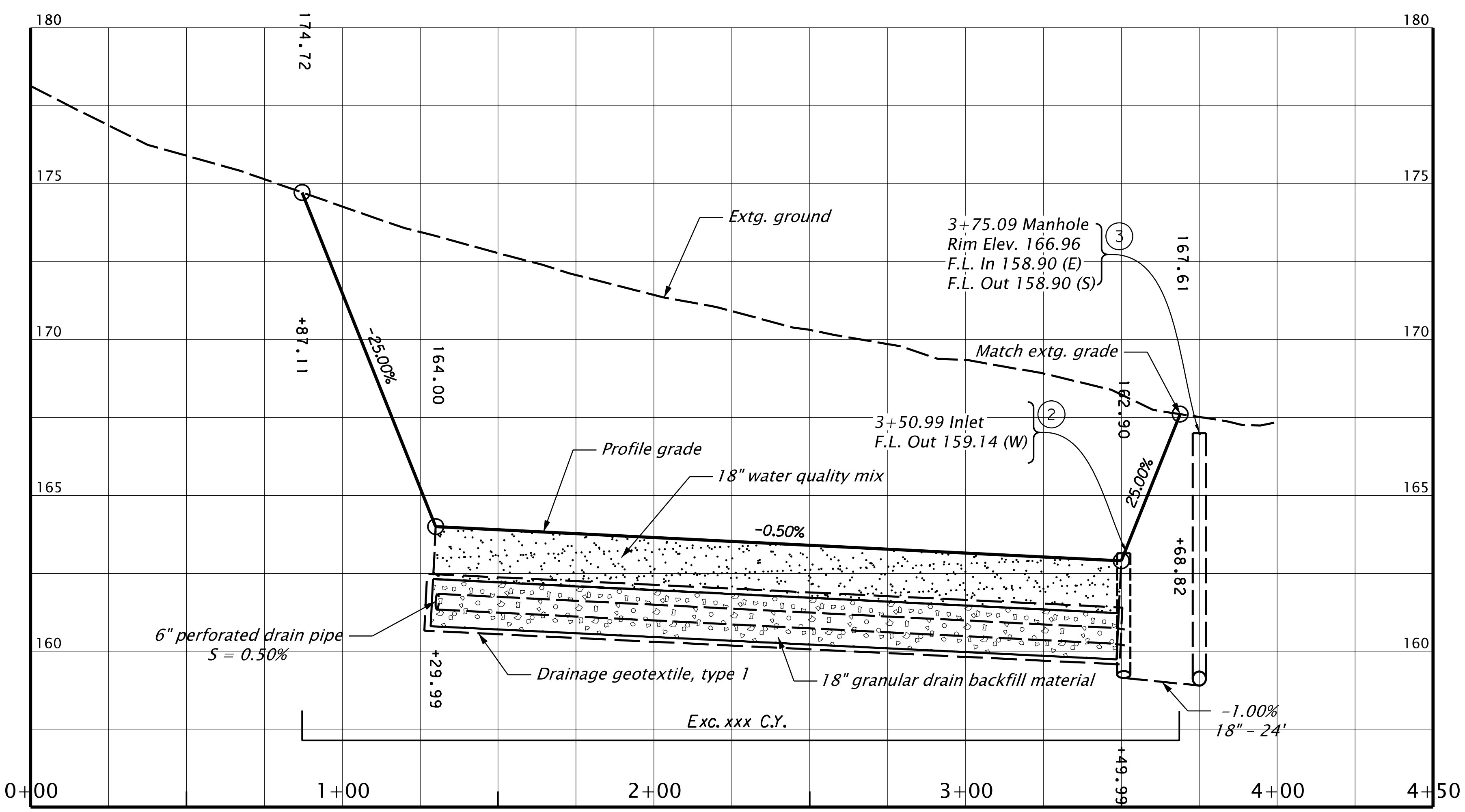


1. Sta. 1+18.08 to Sta. 3+66.37 =
Sta. "D2" 856+66.70, 60.41' Lt. to
Sta. "D2" 859+14.63, 48.14' Lt.
Construct bioretention pond
Inst. filed facility marker (Type S2) - 2
(For details, see sht. HA17)

2. Sta. 3+50.99, 10.15' Rt.
Const. water quality facility outlet structure
(For details, see sht. HA19)

3. Sta. 3+75.09, 9.97' Rt.
Const. storm sew. manhole
Inst. 18" storm sew. pipe - 24'
10' Depth

Const. ditch



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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

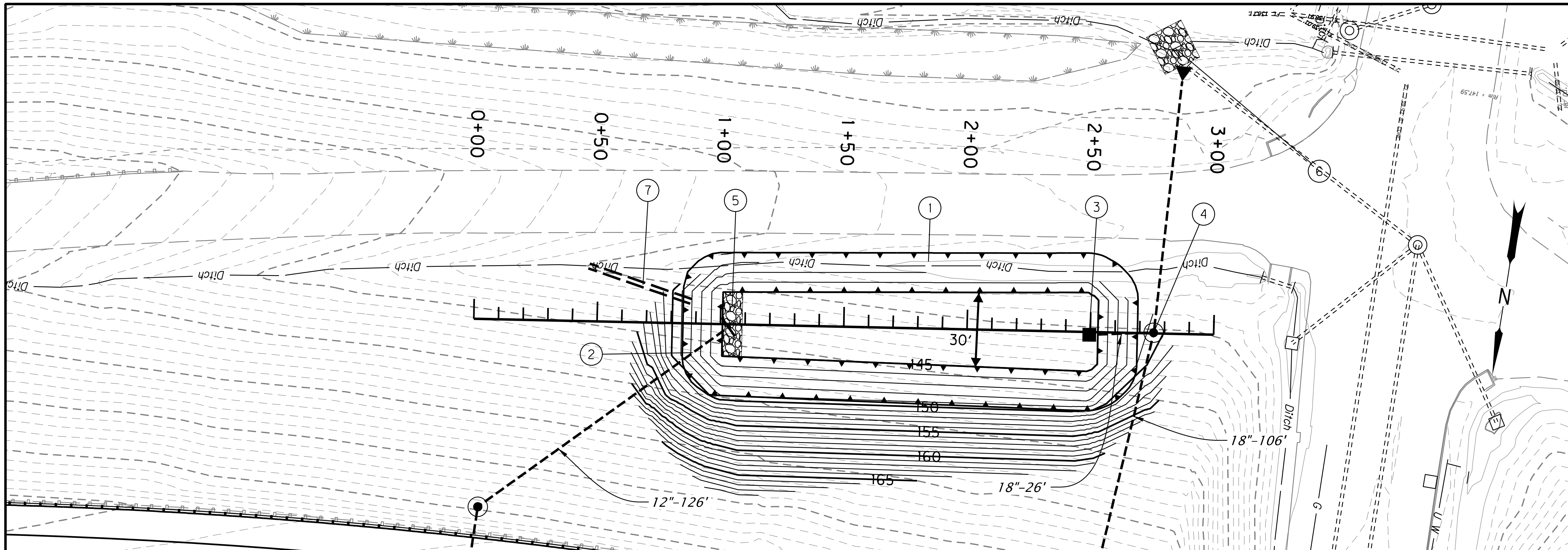
Designer: Cory Gieseke	Reviewer: Karen Tatman
Drafter: Morgan Tholl	Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE

SHEET NO.
HA14

Rotation: 223.5514° Scale: 1"=50'
Vertical Scale: 1:10

838



(1) *Sta. 0+84.80 to Sta. 2+69.05 =*
Sta. "A2" 859+06.98, 45.55' Rt. to
Sta. "A2" 860+91.75, 46.62' Rt.
Construct bioretention pond
Inst. field facility marker (Type S2) - 2
(For details, see sht. HA17)

(2) *Sta. 0+89.08, 11.96' Rt.*
Inst. 12" storm sew. pipe - 126'
20' Depth

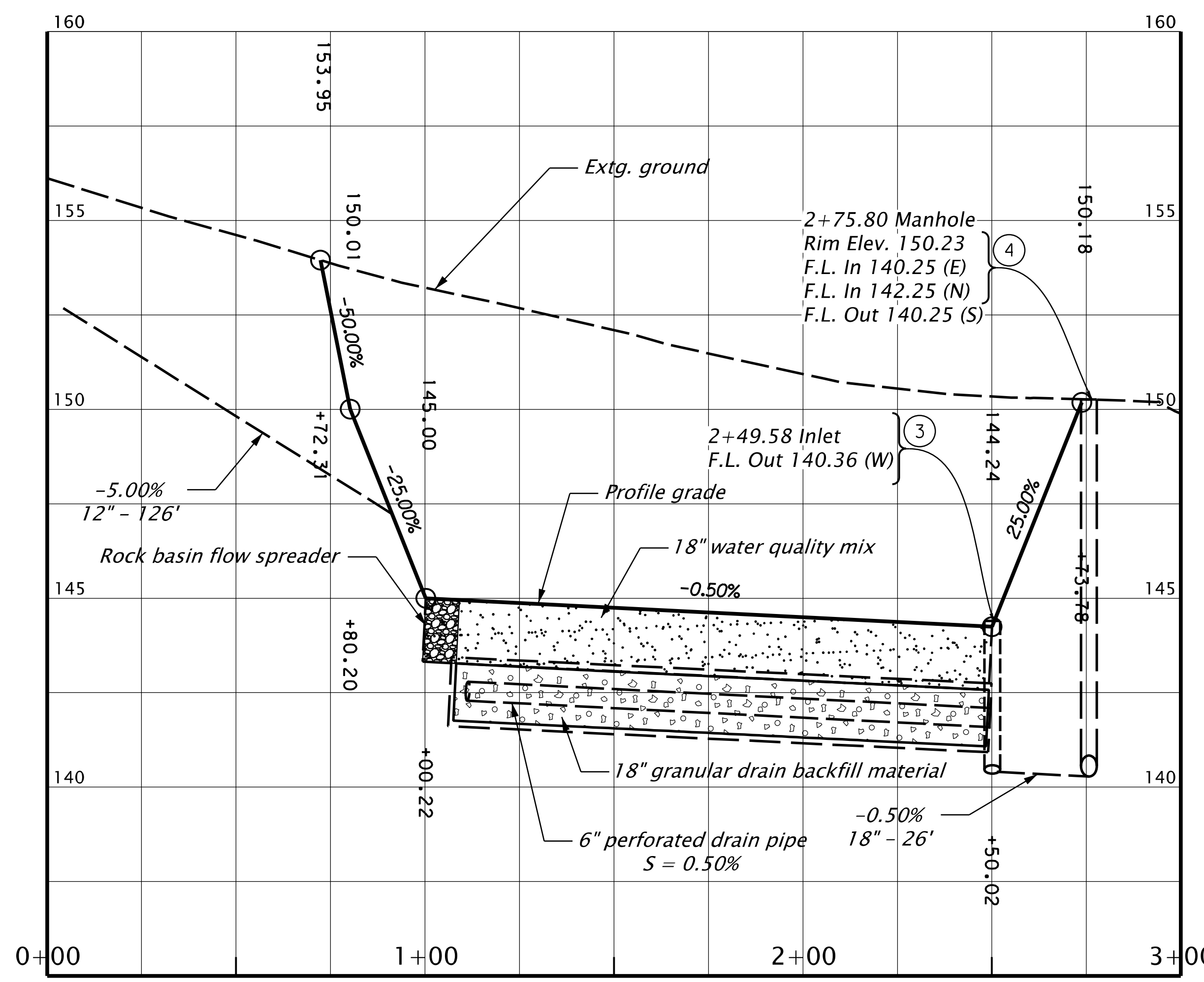
(3) *Sta. 2+49.58, 1.05' Rt.*
Const. water quality facility outlet structure
(For details, see sht. HA19)

(4) *Sta. 2+75.80, 0.29' Lt.*
Const. storm sew. manhole
Inst. 18" storm sew. pipe - 26'
5' Depth
Inst. 18" storm sew. pipe - 106'
10' Depth

(5) *Sta. 1+02.00*
Const. rock basin flow spreader
(For details see sht. HA16)

(6) *Sta. 2+81.68, 115.50' Lt.*
Const. rock basin flow spreader
(For details see sht. HA16)

(7) *Const. ditch*



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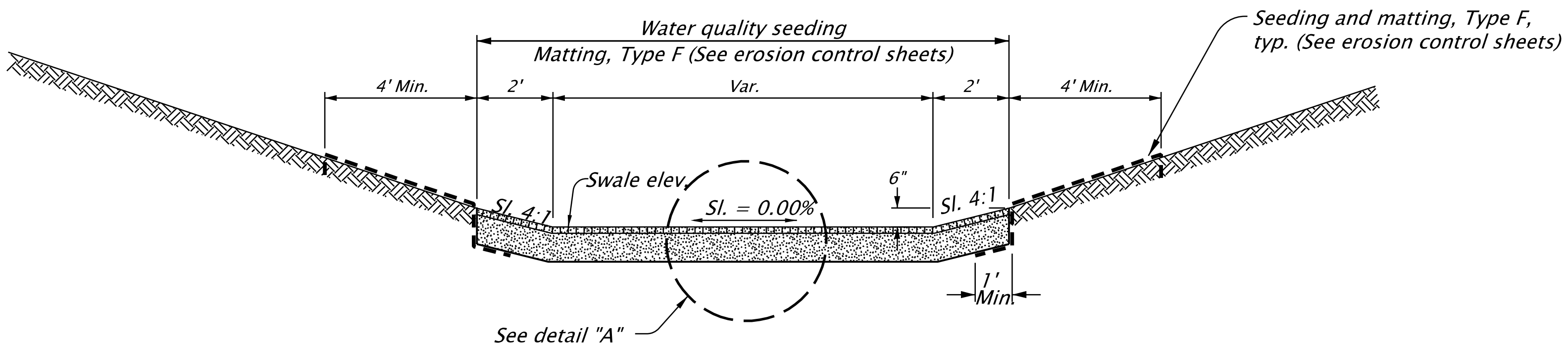
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

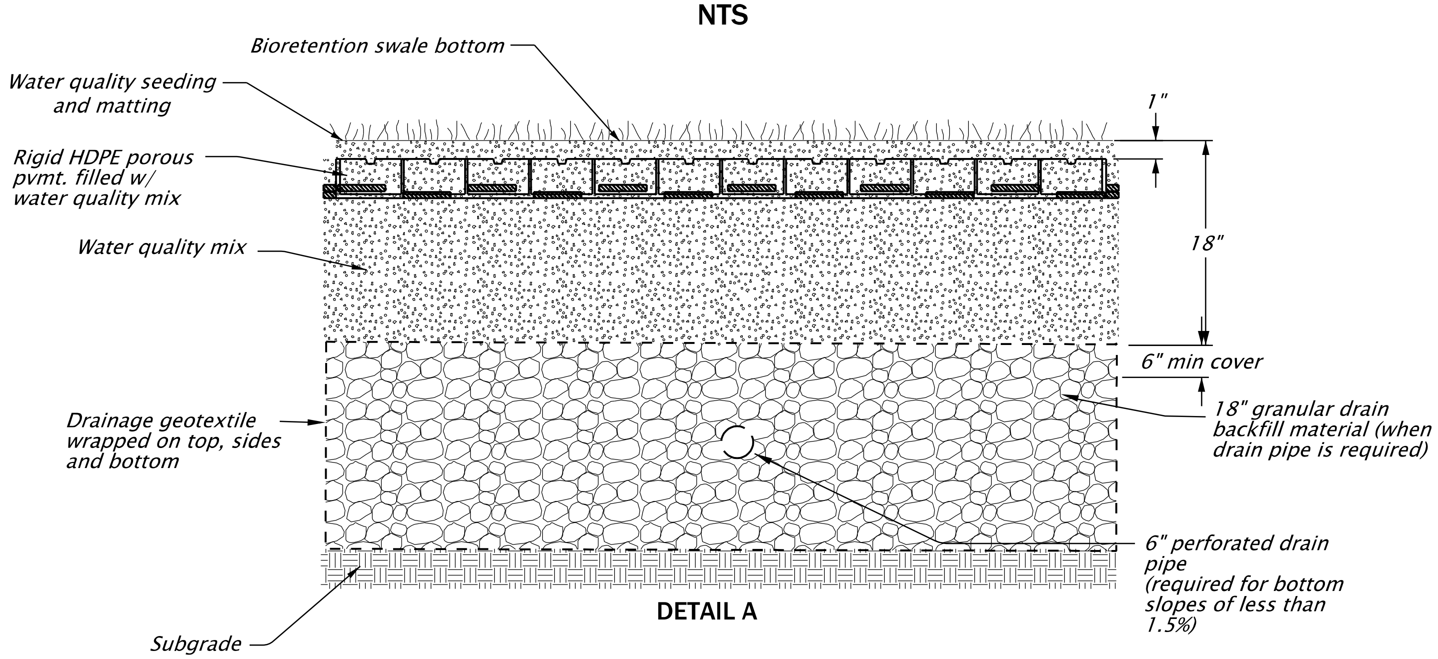
Designer: Cory Gieseke — Reviewer: Karen Tatman
Drafter: Morgan Tholl — Checker: Christine Higgins

WATER QUALITY PLAN & PROFILE — SHEET NO. HA15

Rotation: 223.5514° *Scale: 1"=50'*
Vertical Scale: 1:10



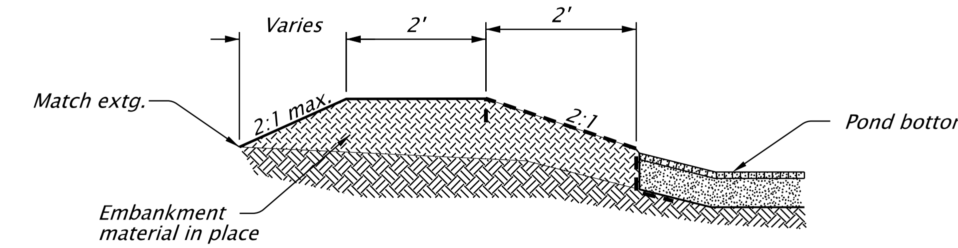
BIOFILTRATION SWALE
NTS



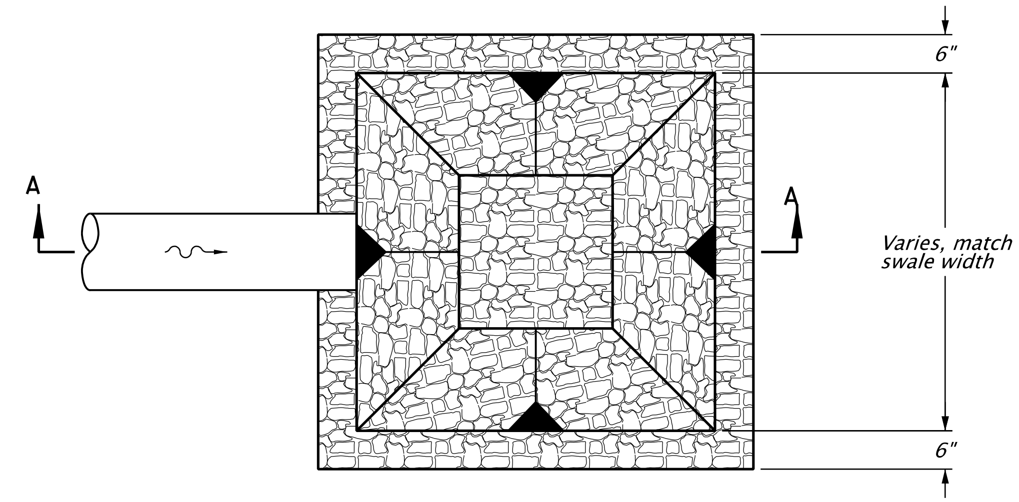
DETAIL A

BIOFILTRATION SWALE TABLE

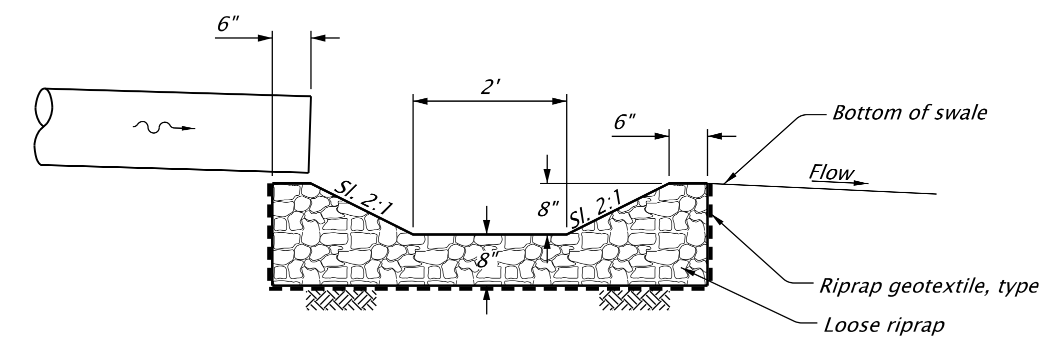
Station	Facility DFI	Biofiltration Swale Bottom Width (feet)	Biofiltration Swale Bottom Length (feet)
"99E2" 108+94.90 to "99E2" 110+06.66	#	10	220
"99E2" 114+24.15 to "99E2" 115+28.87	#	10	220
"OR43" 10+12.40 to "OR43" 8+77.47	#	30	226
"A2" 859+06.98 to "A2" 860+91.75	#	40	205
"L" 691+52.97 to "L" 688+85.28	#	10	183
"D2" 856+66.70 to "D2" 859+14.63	#	30	220
"A2" 859+06.98 to "A2" 860+91.75	#	30	150



BIORETENTION POND BERM
NTS



ROCK BASIN FLOW SPREADER
NTS



SECTION A-A

REGISTERED PROFESSIONAL ENGINEER
93360PE
OREGON
MAY 13, 2018
CORY M. GIESEKE
EXPIRES 06/30/2021

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INFORMATION ONLY

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

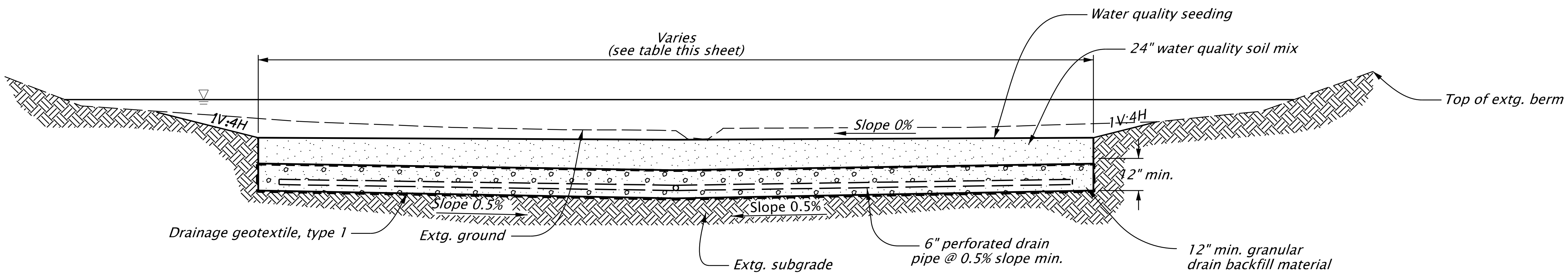
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer:
Reviewer:
Drafter:
Checker:

WATER QUALITY DETAILS

SHEET NO.
HA16

Rotation: 0° Scale: 1"=60'

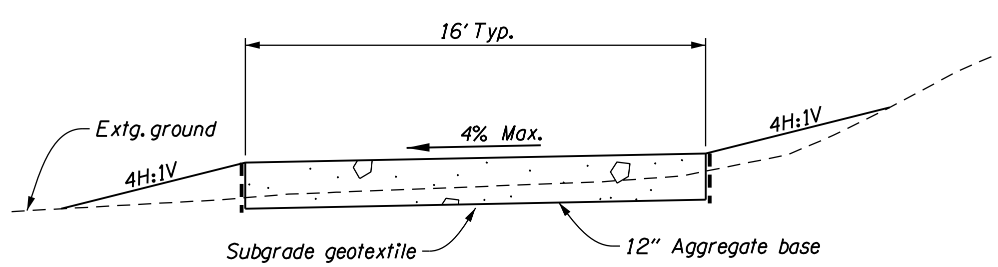


BIORETENTION POND SECTION

Scale: NTS

BIORETENTION POND TABLE

Station	Facility DFI	Bioretention Pond Bottom Width (feet)	Bioretention Pond Length (feet)
"L" 665+46.16 to "L" 663+50.02	#	10	120
"L" 691+52.97 to "L" 688+85.28	#	10	183
"D2" 856+66.70 to "D2" 859+14.63	#	30	220
"A2" 859+06.98 to "A2" 860+91.75	#	30	150



MAINTENANCE ACCESS ROAD SECTION
NTS

REGISTERED PROFESSIONAL ENGINEER
93360PE
OREGON
MAY 13, 2018
CORY M. GIESEKE
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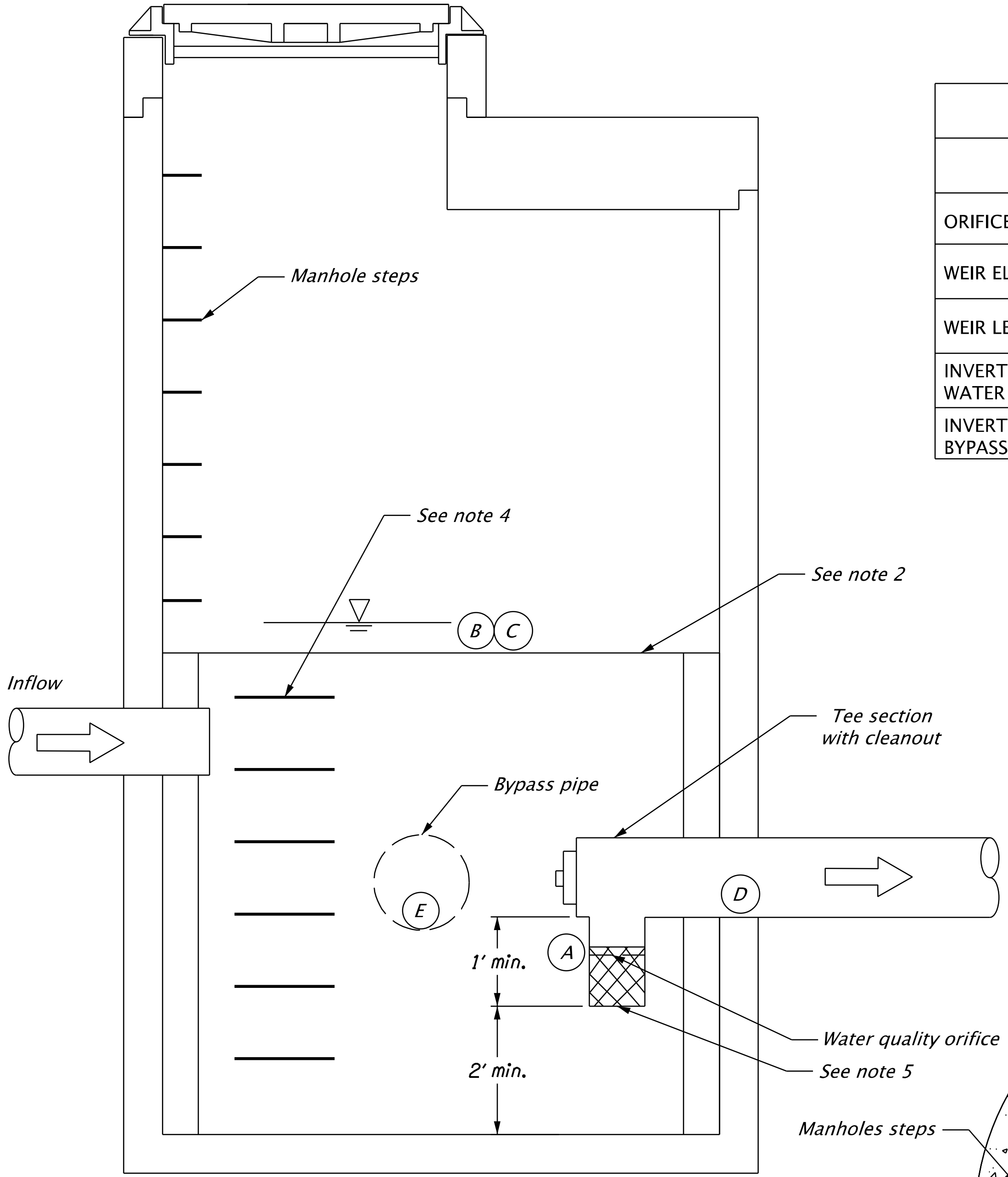
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Cory Gieseke
Reviewer: Karen Tatman
Drafter: Morgan Tholl
Checker: Christine Higgins

WATER QUALITY DETAILS

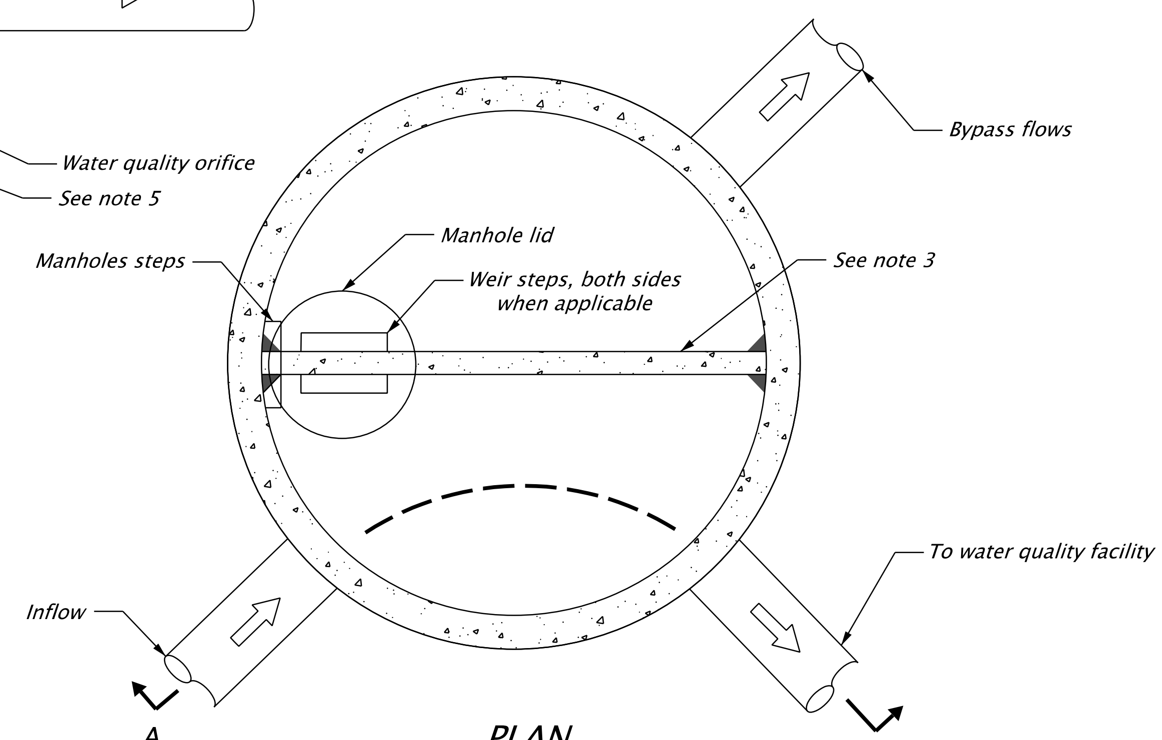
SHEET NO.
HA17

DIVERSION MANHOLE



SECTION A-A
N.T.S.

		WQF#3	WQF#4	WQF#5	WQF#6	WQF#7	WQF#8	WQF#11	WQF#12
DESCRIPTION	LETTER	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE	VALUE
ORIFICE DIAMETER	A	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed
WEIR ELEVATION	B	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed
WEIR LENGTH	C	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed
INVERT OF OUTLET PIPE TO WATER QUALITY FACILITY	D	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed
INVERT OF HIGH FLOW BYPASS OUTLET PIPE	E	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed	To Be Developed



PLAN
N.T.S.

GENERAL NOTES:

1. *Manhole structure 72 in. min. dia.*
2. *4 in . min. thickness reinforced concrete weir.*
3. *Weir shall be grouted to manhole stucture (both ends)*
4. *Provide weir steps when height of weir is greater than 36 inches, both sides*
5. *Water quality orifice screening. The wire cloth strainer assembly should be secured to pipe with a stainless steel hose clamp. Orifice screening must contain mulitple openings that are equal to or less than the orifice diameter.*
6. *Include tracer wire as shown in Standard Drawing RD336.*

REGISTERED PROFESSIONAL ENGINEER
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OREGON
MAY 13, 2018
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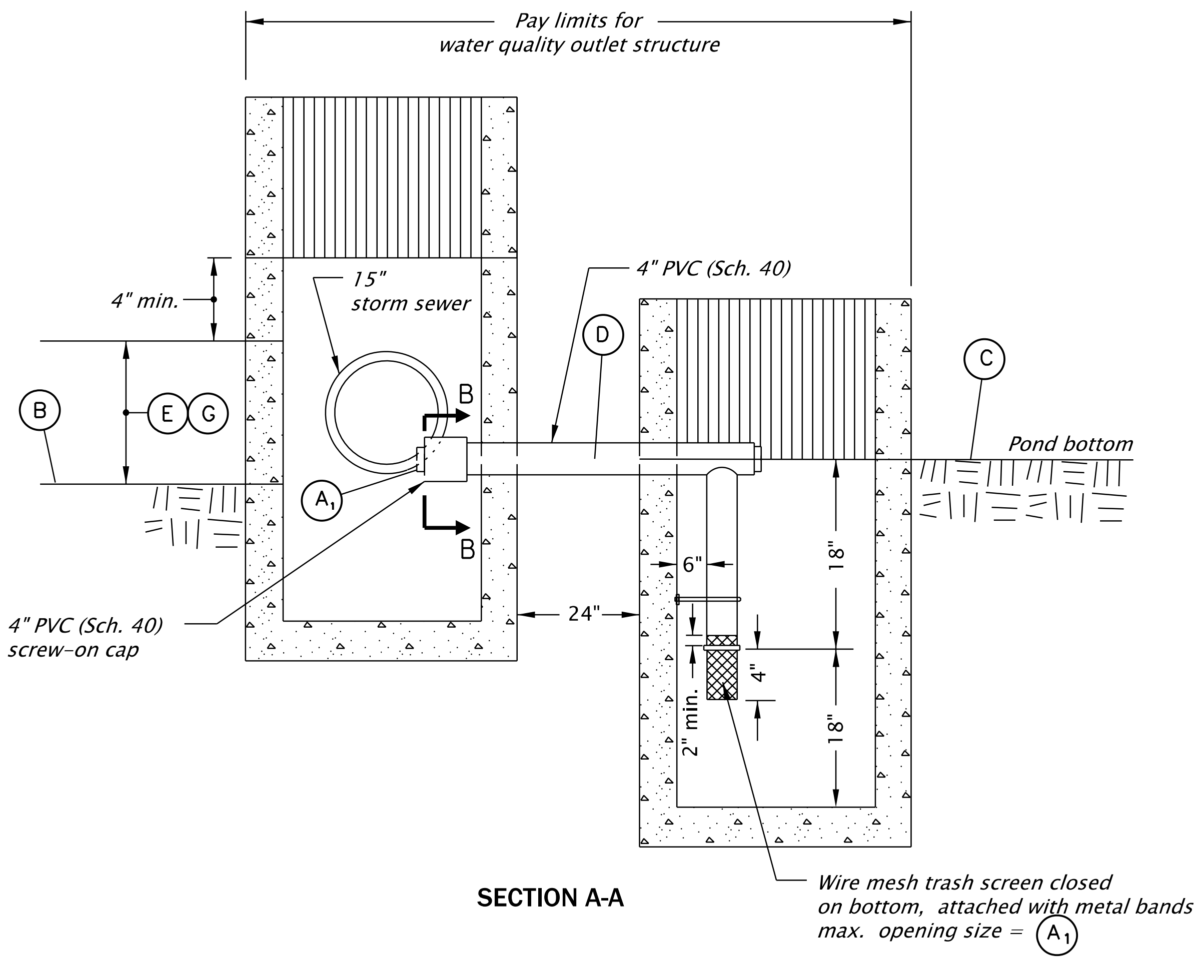
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

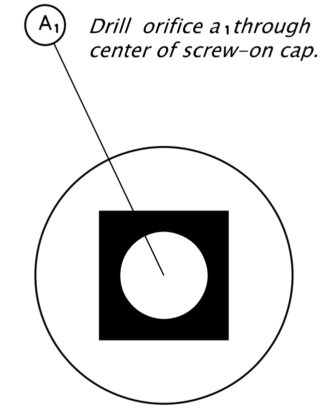
Designer: Cory Gieseke | Reviewer: Karen Tatman
Drafter: Morgan Tholl | Checker: Christine Higgins

WATER QUALITY DETAILS | SHEET NO. HA18

WATER QUALITY OUTLET STRUCTURE

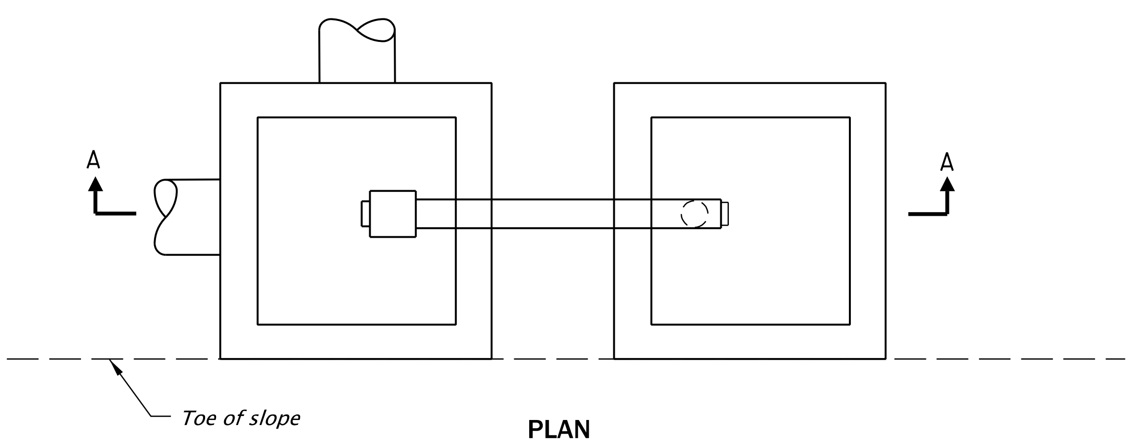


SECTION A-A



SECTION B-B

Letter	Value (inch)	Description
A_1	To Be Developed	Orifice diameter
A_2	To Be Developed	Elev. of center of orifice
B	To Be Developed	Elev. of pond bottom
C	To Be Developed	Elev. of lip of inlet
D	To Be Developed	F.L. elev. of 4" PVC
E	To Be Developed	Pond design depth
F	To Be Developed	F.L. elev. of outfall pipe
G	To Be Developed	Pond design volume
H	To Be Developed	Elev. of lip of inlet



PLAN

POND BOTTOM

REGISTERED PROFESSIONAL ENGINEER
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OREGON
MAY 13, 2018
CORY M. GIESEKE
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

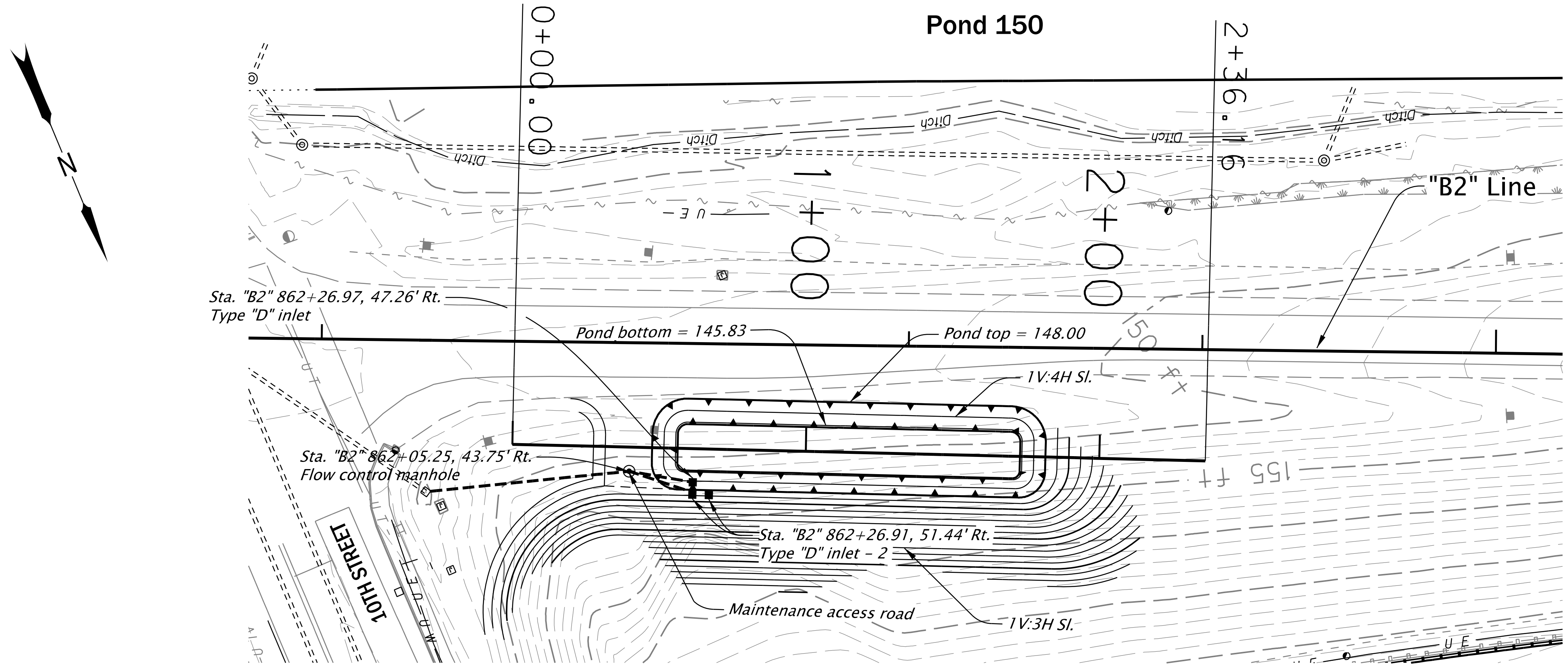
Designer: Cory Gieseke
Reviewer: Karen Tatman
Drafter: Morgan Tholl
Checker: Christine Higgins

WATER QUALITY DETAILS

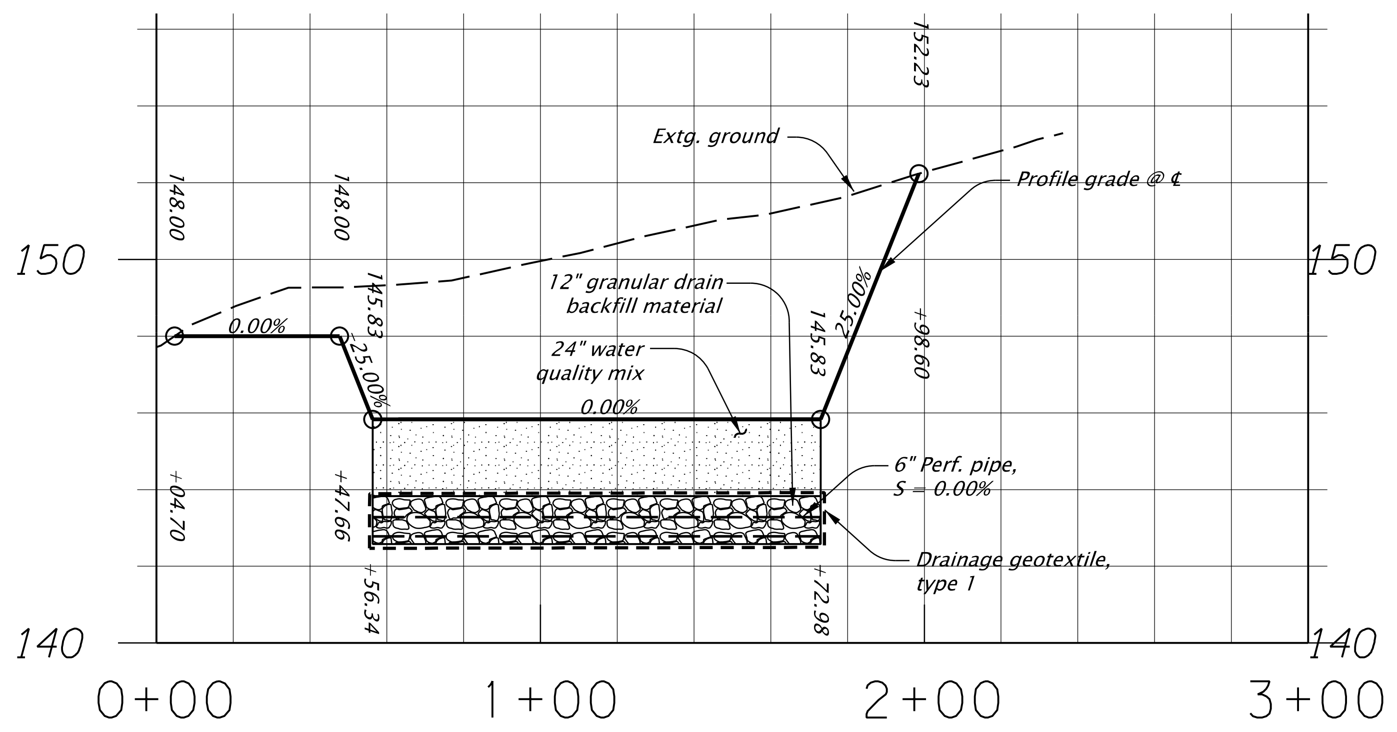
SHEET NO.
HA19

Rotation: 0° Scale: Full Size 1=1

Pond 150



PLAN



PROFILE

REGISTERED PROFESSIONAL ENGINEER
OREGON
JUNE 14, 2007
BENJAMIN P. WEWERKA
PRELIMINARY COPY
INFORMATION ONLY
EXPIRES: 06/30/

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OREGON DEPARTMENT OF TRANSPORTATION

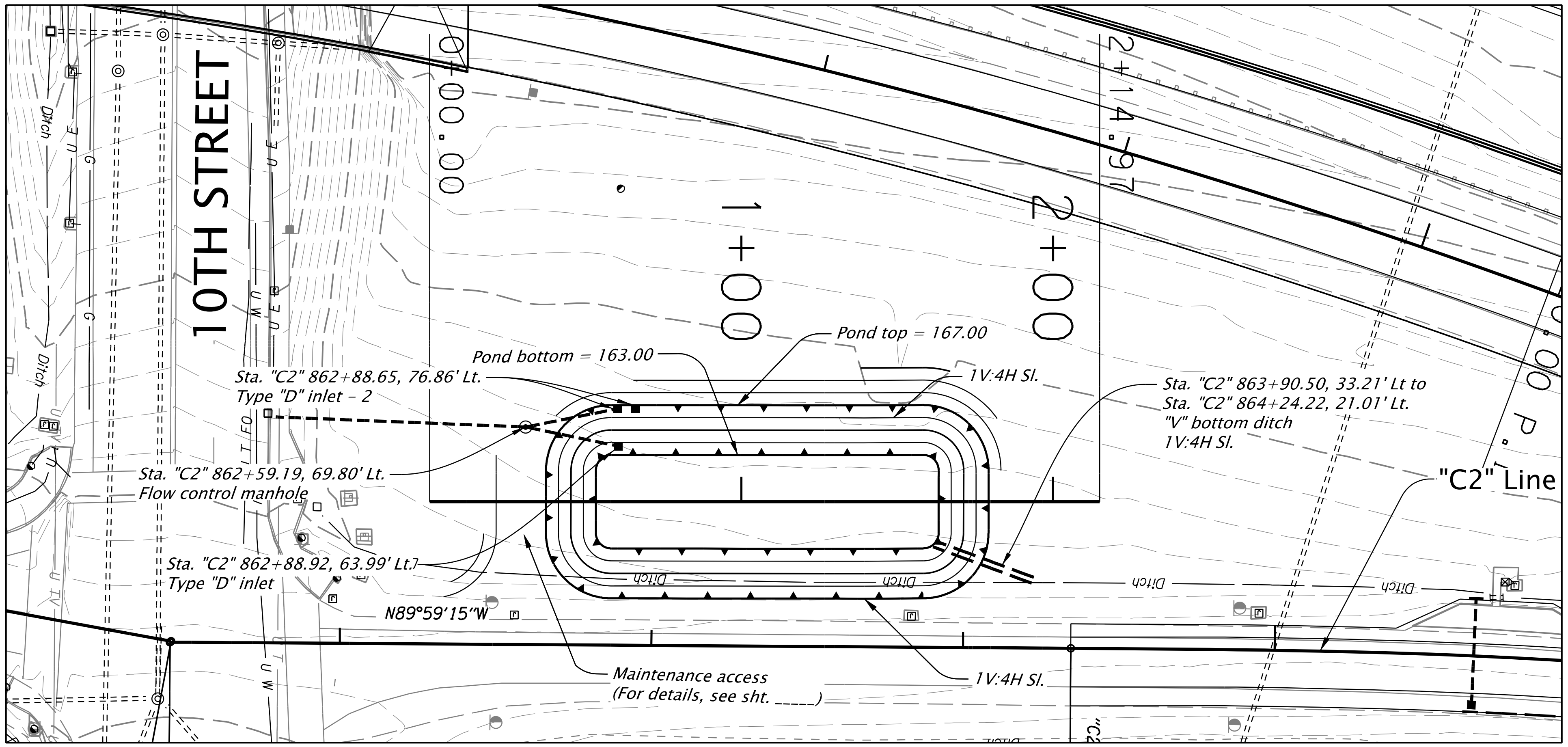
I-205: I-5 - OR213, PHASE 2 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Nick Reid | Reviewer: Jeff Bernardo
Drafter: Steve Wolfer | Checker: Jaime Jordan

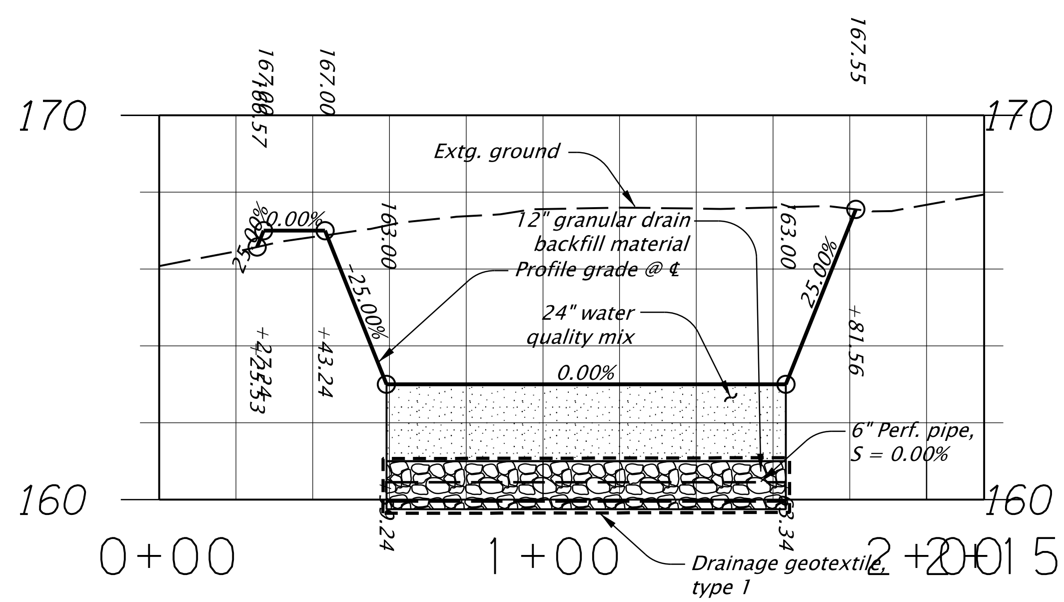
STORMWATER FACILITY PLAN

SHEET NO. HA01

Pond 151



PLAN



PROFILE

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OREGON
JUNE 14, 2007
BENJAMIN P. WEWERKA
EXPIRES: 06/30/

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Nick Reid
Reviewer: Jeff Bernardo
Drafter: Steve Wolfer
Checker: Jaime Jordan

STORMWATER FACILITY PLAN

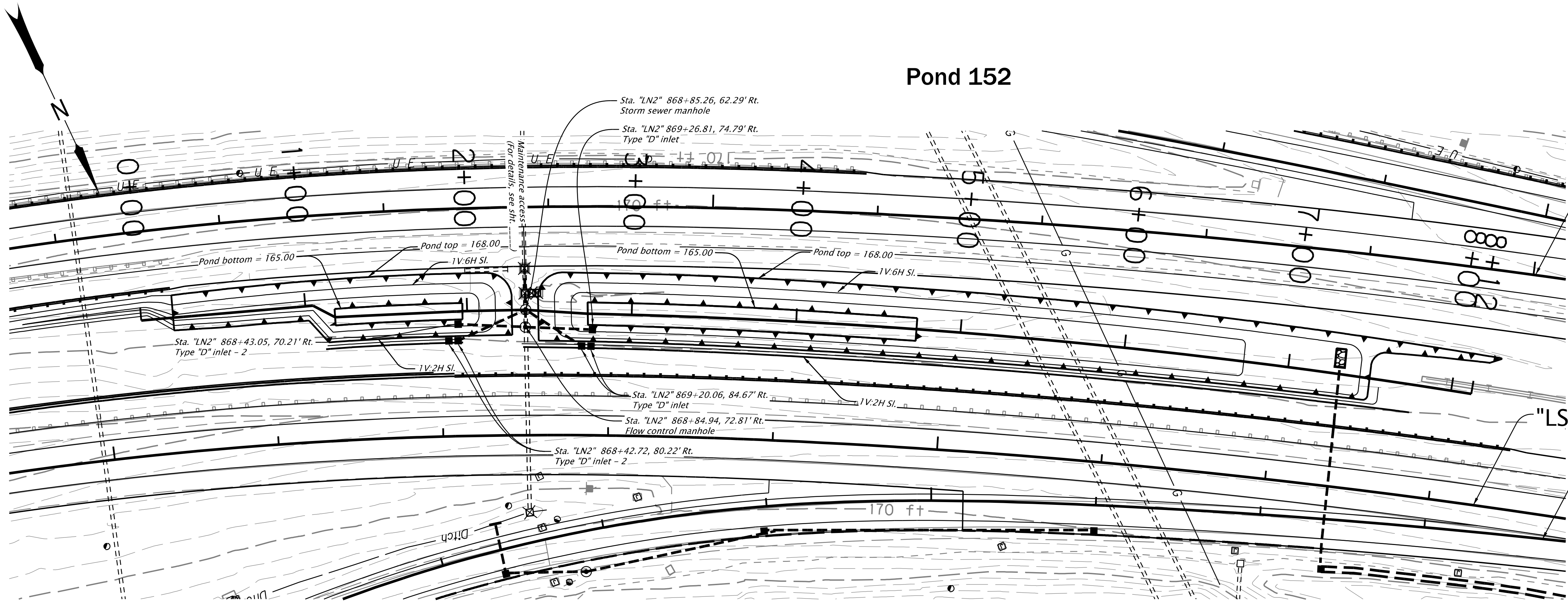
SHEET NO. HA04

B_Drainage Details 01 - OBEC :: HA04 11/12/2020 3:41:03 PM SWolfer

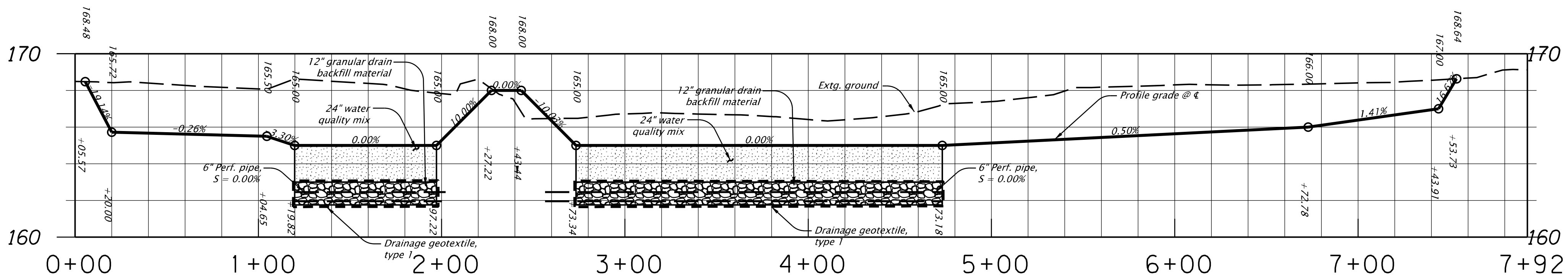
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 180.3745° Scale: 1"=50'

Pond 152



PLAN



PROFILE

REGISTERED PROFESSIONAL ENGINEER
OREGON
BENJAMIN P. WEWERKA
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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Nick Reid | Reviewer: Jeff Bernardo
Drafter: Steve Wolfer | Checker: Jaime Jordan

STORMWATER FACILITY PLAN

SHEET NO. HA07

B_Drainage Details 01 - OBEC :: HA07 11/12/2020 3:41:11 PM SWolfer

846

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 154.8398° Scale: 1"=80'

Attachment Z. Erosion and Sediment Control Plan

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 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-laden water does not enter the roadway or drainage system, or violate applicable water standards.

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

Inlet protection for existing facilities shall be installed before construction begins and shall remain in place until all construction is completed and approved. The contractor shall protect all storm drain inlets within the work area and adjacent to the work limits within 100' outside all working, stockpile, and staging areas, including the first inlet downstream (at any distance). In the case of inlets to be removed, protection measures shall remain in place until the new inlet is constructed and connected to the drainage network, and the existing inlet has been disconnected from the existing drainage network. Inlet protection shall be installed on new inlets before they are connected to the existing drainage network.

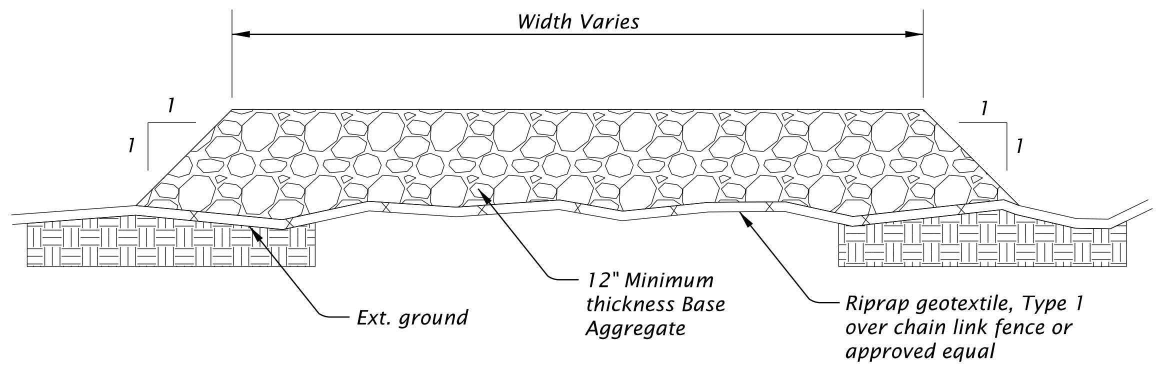
See section 00280 for material not shown in plans.

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

SEQUENCE OF WORK NOTES:

This Erosion and Sediment Control Plan has been prepared based upon the construction sequence represented in the Traffic Control Plan Sheets. This ESCP is not intended to supercede a construction sequencing plan. The ESCP is to be reviewed and revised to fit the actual construction sequence.

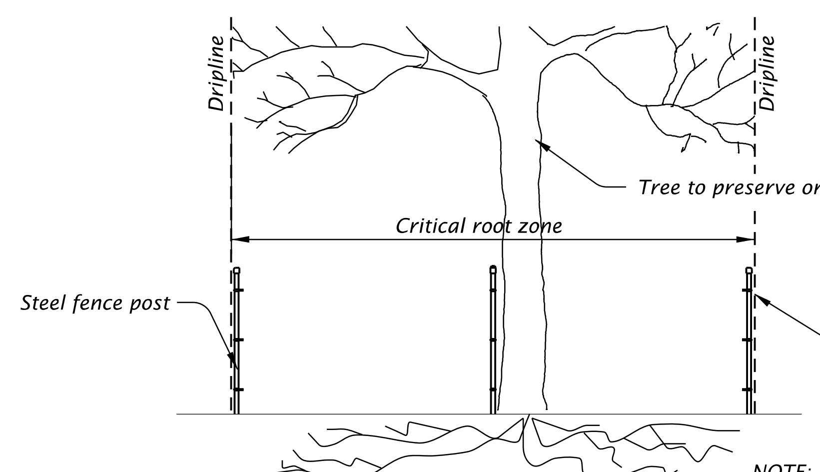


1. Existing ground shall grubbed to a depth 6".

2. Cover existing ground under Staging Area with riprap geotextile and either chain link fence or other approved geogrid type material and cover with Base Aggregate.

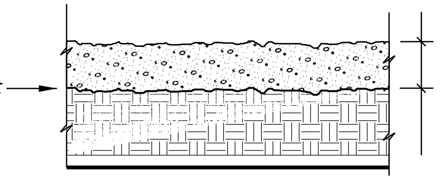
3. Applies to contractor staging within environmentally sensitive and regulated work areas.

STAGING AREA DETAIL
N.T.S.

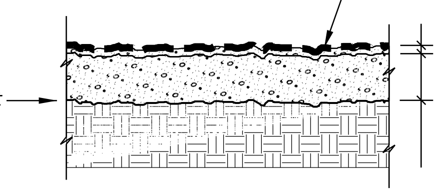


TREE PROTECTION DETAIL
N.T.S.

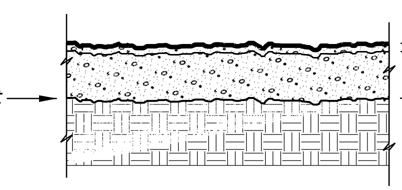
NOTE:
1. Do not work, store construction materials or park within the critical root zone of marked trees unless written approval has been obtained from the Engineer.



APPLICATION - TEMPORARY/PERMANENT MULCHING
N.T.S.



APPLICATION - STEEP SLOPES, SHALLOW DITCHES & BIO-SWALES
N.T.S.



APPLICATION – TEMPORARY/PERMANENT VEGETATIVE COVER
N.T.S.

REGISTERED PROFESSIONAL ENGINEER 77915PE OREGON JULY 14, 2011 JASON M. RAHM

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

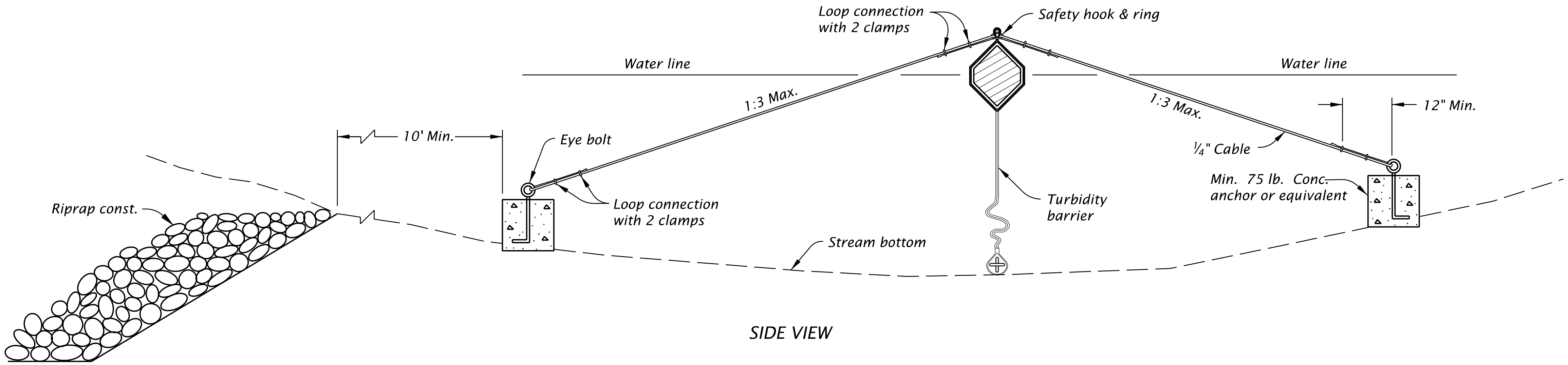
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

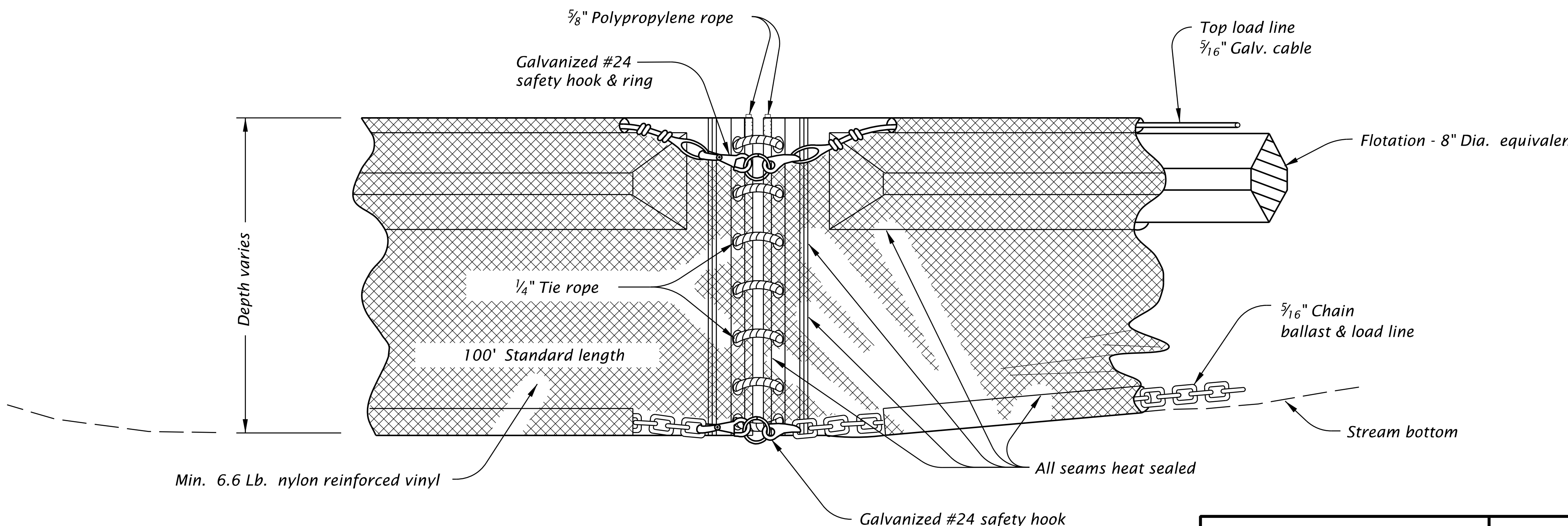
EROSION AND SEDIMENT CONTROL

SHEET NO.
FB01

SEDIMENT BARRIER FLOATING



SIDE VIEW



ANCHOR ASSEMBLY

NOTE:

Components of this barrier may be similar or identical to proprietary designs. Any infringement on the proprietary rights of the designer shall be the sole responsibility of the contractor. Substitutions shall be as approved by the engineer.

TURBIDITY BARRIER

REGISTERED PROFESSIONAL ENGINEER 77915PE OREGON JULY 14, 2011 JASON M. RAHM
EXPIRES: DEC. 31, 2020

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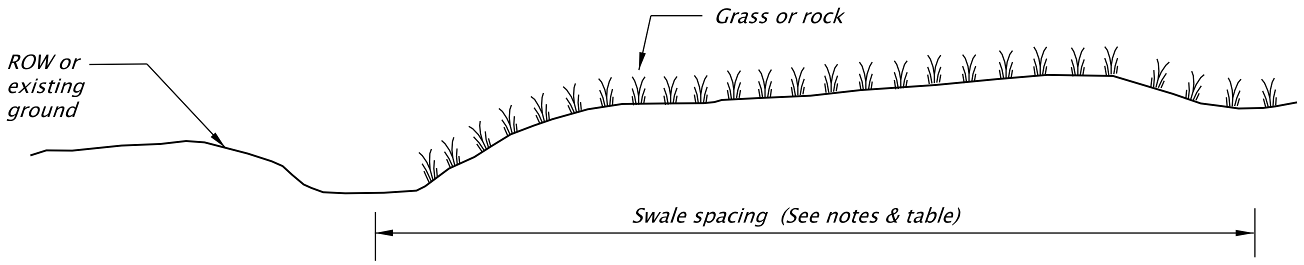
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm
Reviewer: Matt Steigleder
Drafter: Connor Donovan
Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB02

TEMPORARY INTERCEPTOR SWALE
TYPE 1



SECTION

Swale Spacing

Slope	Spacing
3-5%	300'
5-10%	200'
10-25%	100'
25-50%	50'

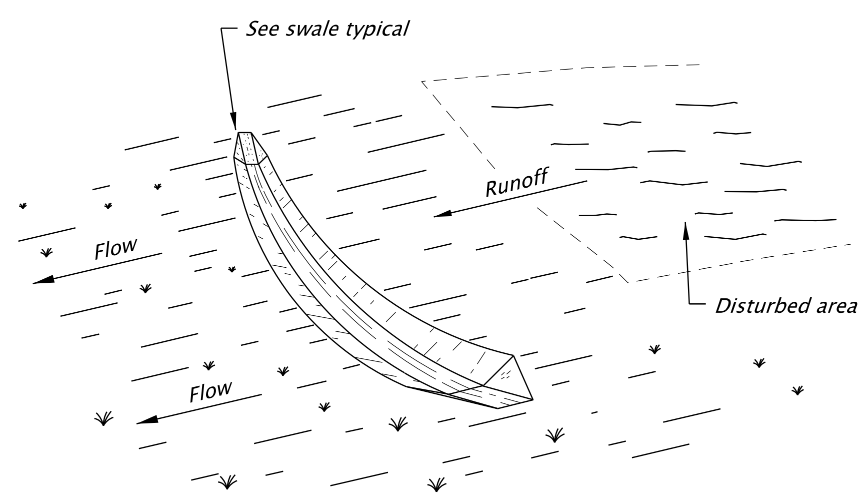
Notes:

Bottom width = 24" minimum at a 0% grade.

Depth = 12" minimum

Side slope = 1:2 or flatter

Grade = maximum 5 percent with positive drainage to a suitable outlet (such as sedimentation pond)



Notes:
Discharge onto undisturbed area or alternate sediment trapping device

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503.423.3700

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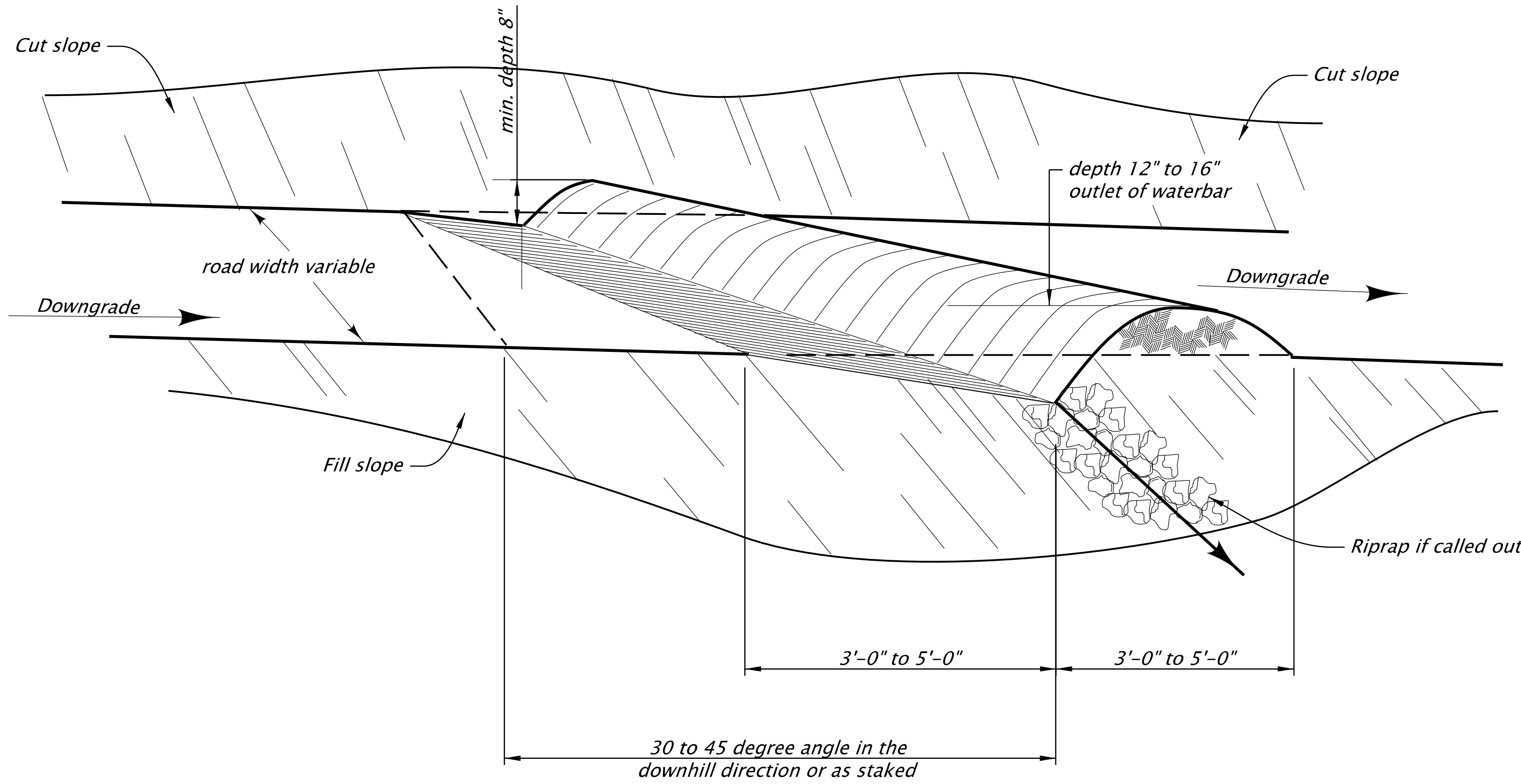
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm
Reviewer: Matt Steigleder
Drafter: Connor Donovan
Checker: Brendan LeBlanc

EROSION CONTROL DETAILS

SHEET NO. FB03

WATERBAR



NOTES:

1. *Begin waterbars at the intersection of the roadbed and cut slope, and run across the entire width of the roadbed.*
2. *Ensure waterbars have a free flowing outlet for drainage.*
3. *When stakes or flagging are used to locate waterbars, they designate the outlet location of the waterbar.*
4. *Ensure that waterbars allow for passage of a standard 4 x 4 pickup truck.*

REGISTERED PROFESSIONAL ENGINEER 77918PE OREGON JULY 14, 2011 JASON M. RAHM

EXPIRES: DEC. 31, 2020

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

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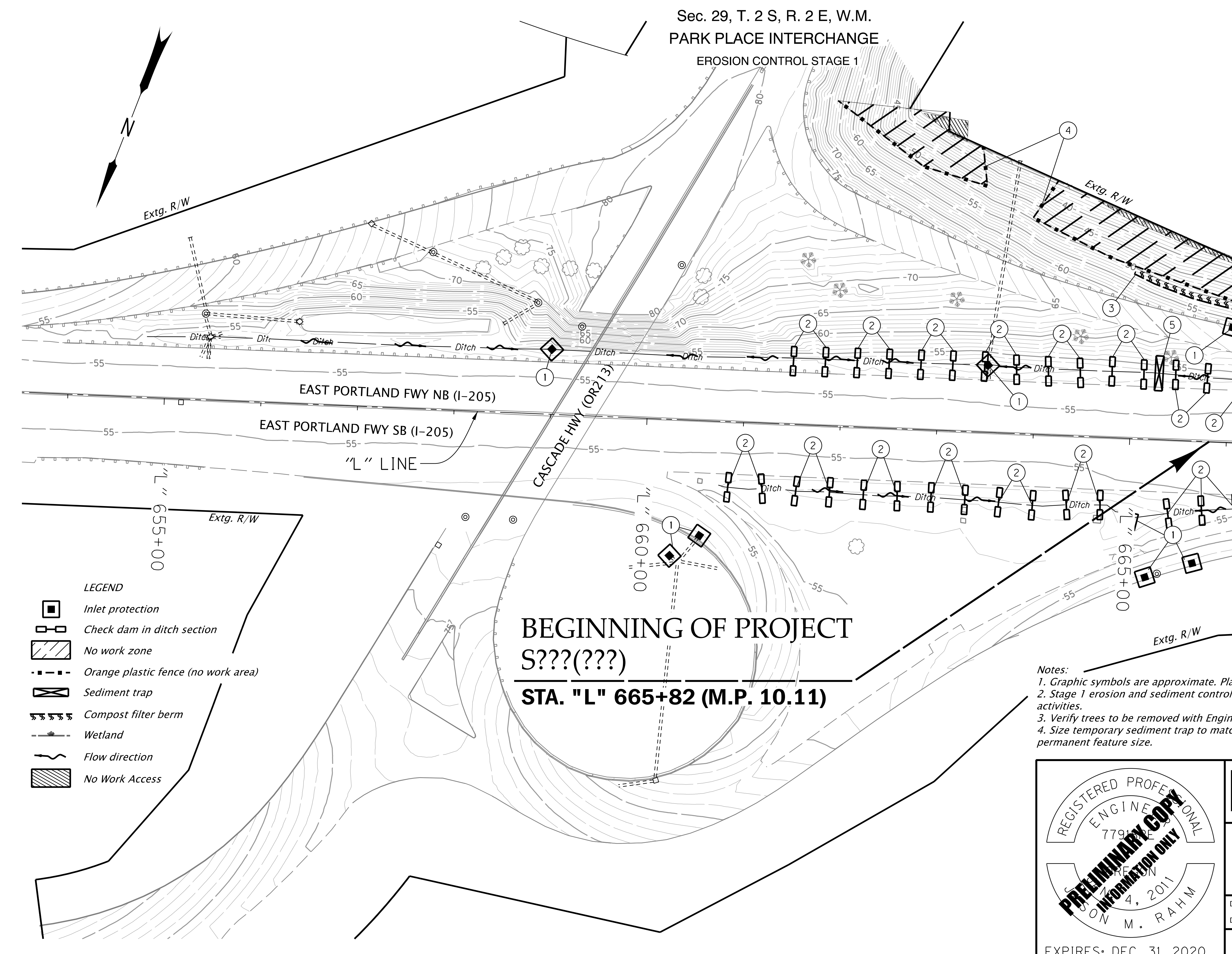
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION CONTROL DETAILS

SHEET NO. FB04

??V–???

Sec. 29, T. 2 S, R. 2 E, W.M.
PARK PLACE INTERCHANGE
EROSION CONTROL STAGE 1



1. Const. inlet protection, (Type 3) – 8 (See drg. no. RD1010)
2. Const. check dam, (Type 6) – 30 (See drg. no. RD1006)
3. Install sediment barrier – 834' (Type 9, Compost filter berm) (See drg. no. RD1033)
4. Install orange plastic mesh fencing
5. Const. temp. sediment trap (See drg. no. RD1065)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.

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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB05

ESCP Stage 1 – HDR :: FB05 7/15/2020 8:20:23 PM CDONOVAN

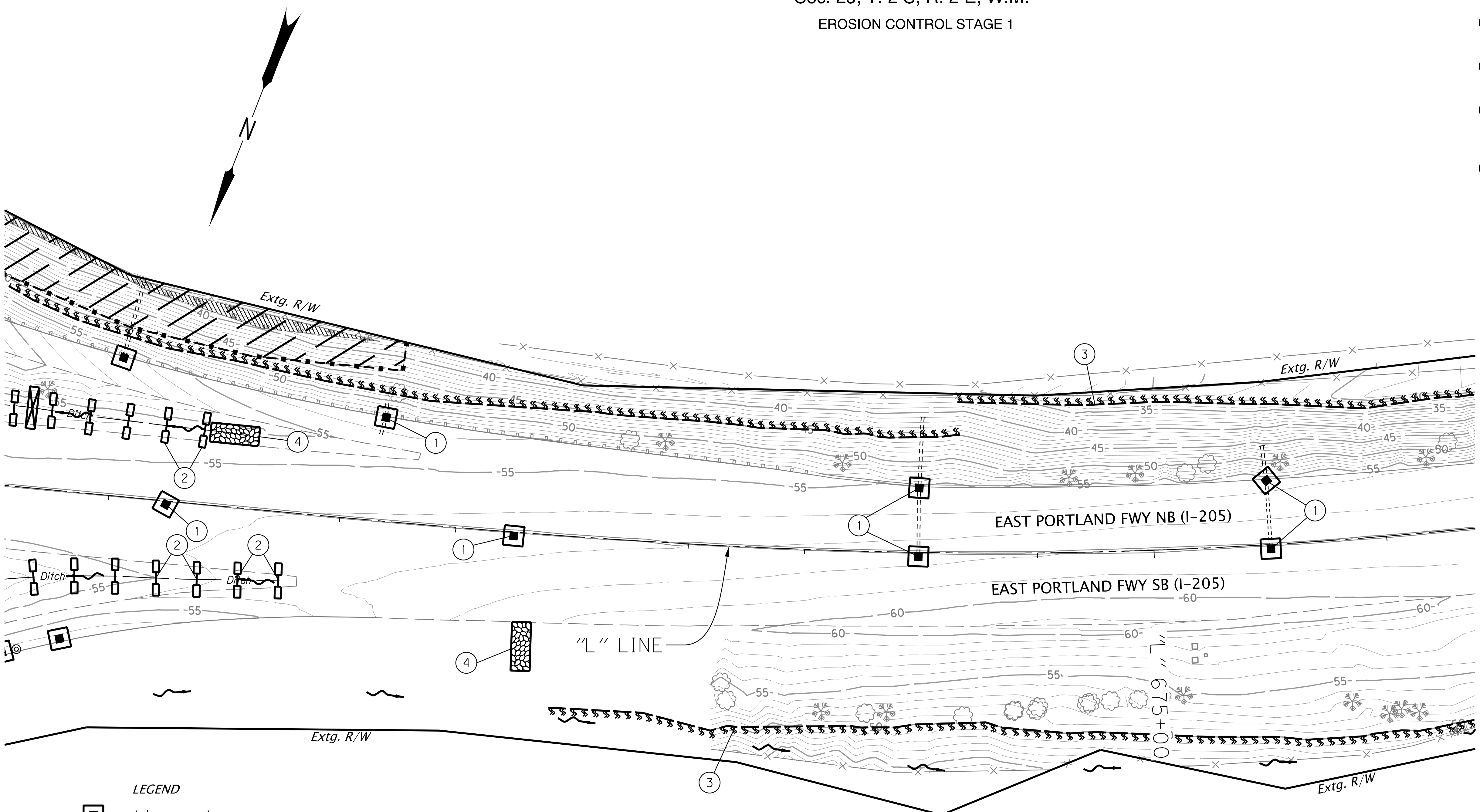
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 227.6721° Scale: 1"=100'

Sec. 29, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 1

1. Const. inlet protection, (Type 3) – 7 (See drg. no. RD1010)
2. Const. check dam, (Type 6) – 6 (See drg. no. RD1006)
3. Install sediment barrier – 2,960' (Type 9, Compost filter berm) (See drg. no. RD1033)
4. Const. construction entrance – 2 (Type 1) (See drg. no. RD1000)



LEGEND

- Inlet protection
- Check dam in ditch section
- No work zone
- Orange plastic fence (no work area)
- Wetland
- Compost filter berm
- Flow direction
- Construction entrance
- No Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77918PE OREGON JULY 14, 2011 JASON M. RAHM
EXPIRES: DEC. 31, 2020

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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL | SHEET NO. FB06

Sec. 29, T. 2 S, R. 2 E, W.M.

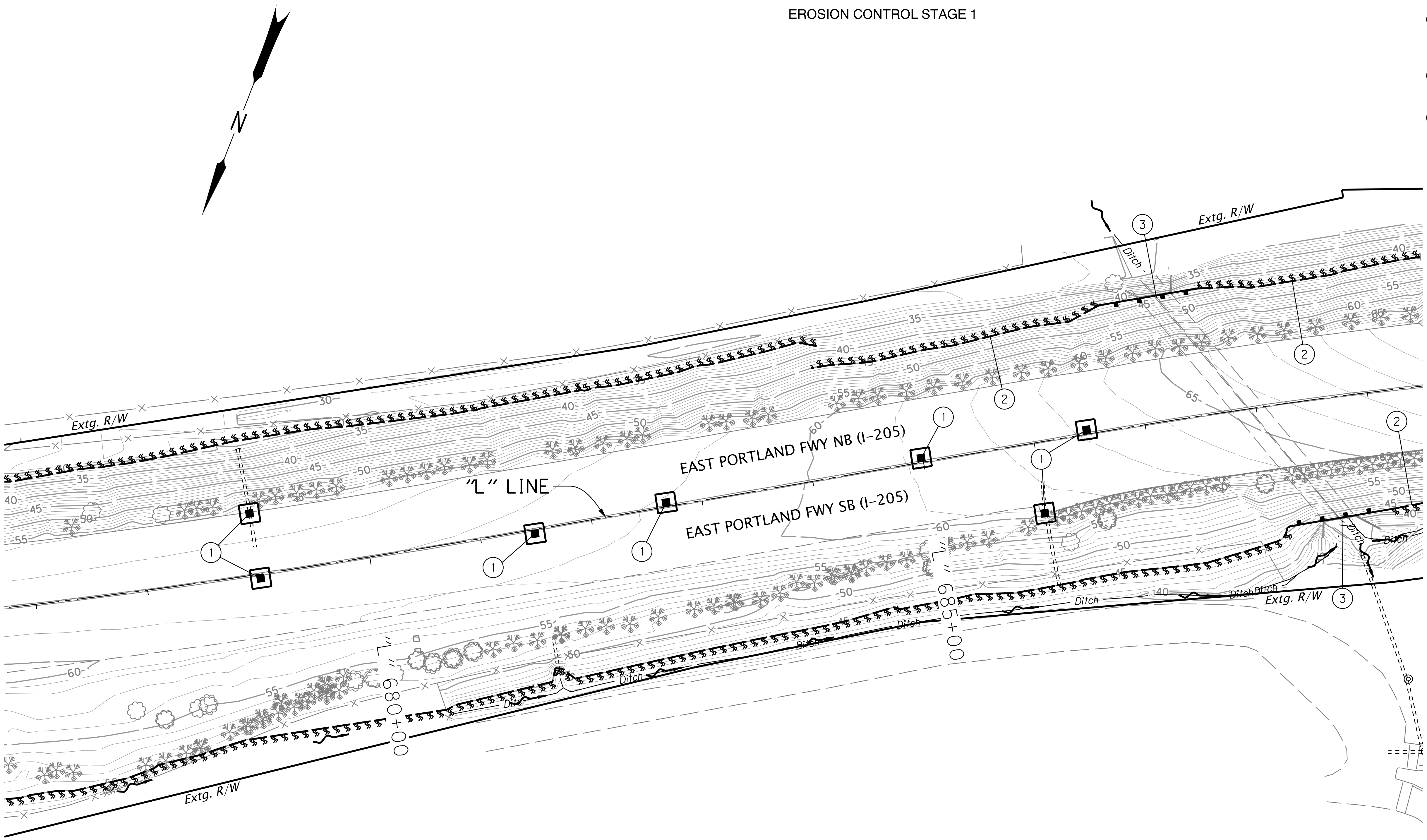
EROSION CONTROL STAGE 1

??V-???

(1) Const. inlet protection - 7
(Type 3)
(See drg. no. RD1010)

(2) Install sediment barrier, (Type 9) - 1,929'
(See drg. no. RD1033)

(3) Const. supported sediment fence - 182'



LEGEND

Inlet protection

Compost filter berm

Sediment fence

Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

ERSOSION AND SEDIMENT CONTROL

SHEET NO.
FB07

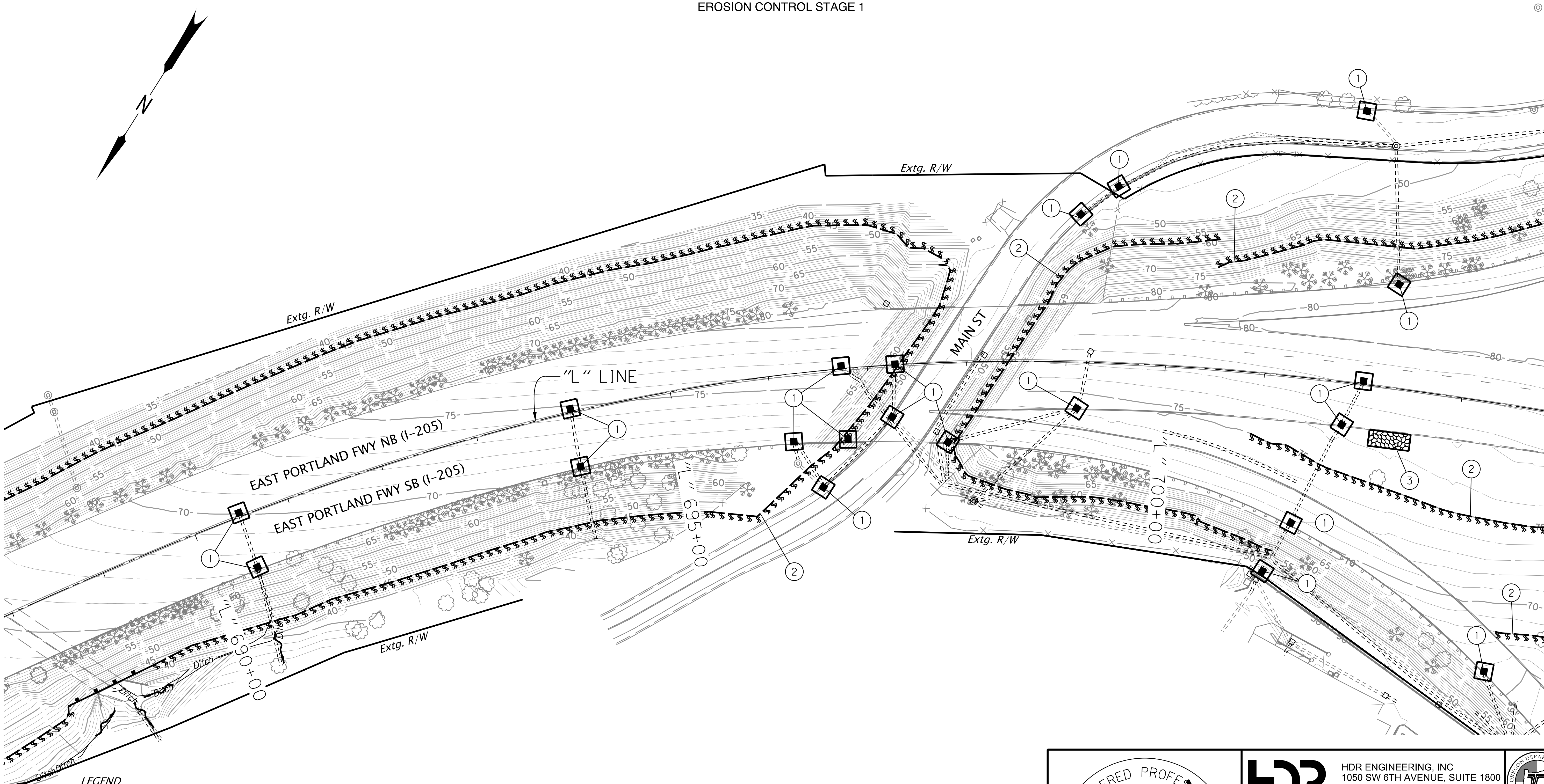
ESCP Stage 1 - HDR :: FB07 7/15/2020 8:20:40 PM CDONOVAN

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Rotation: 228.87° Scale: 1"=100'

Sec. 29, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 1



LEGEND

- *Inlet protection*
- *Compost filter berm*
- *Ordinary High Water*
- *Sediment fence*
- *Flow direction*
- *Construction entrance*

1. *Const. inlet protection, (Type 3) - 22 (See drg. no. RD1010)*
2. *Install sediment barrier - 2,323' (Type 9, Compost filter berm) (See drg. no. RD1033)*
3. *Const. construction entrance - 1 (Type 1) (See drg. no. RD1000)*

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77911PE OREGON ... 4, 2011 JASON M. RAHM
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HDR ENGINEERING, INC
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB08

ESCP Stage 1 - HDR :: FB08 7/15/2020 8:20:47 PM CDONOVAN

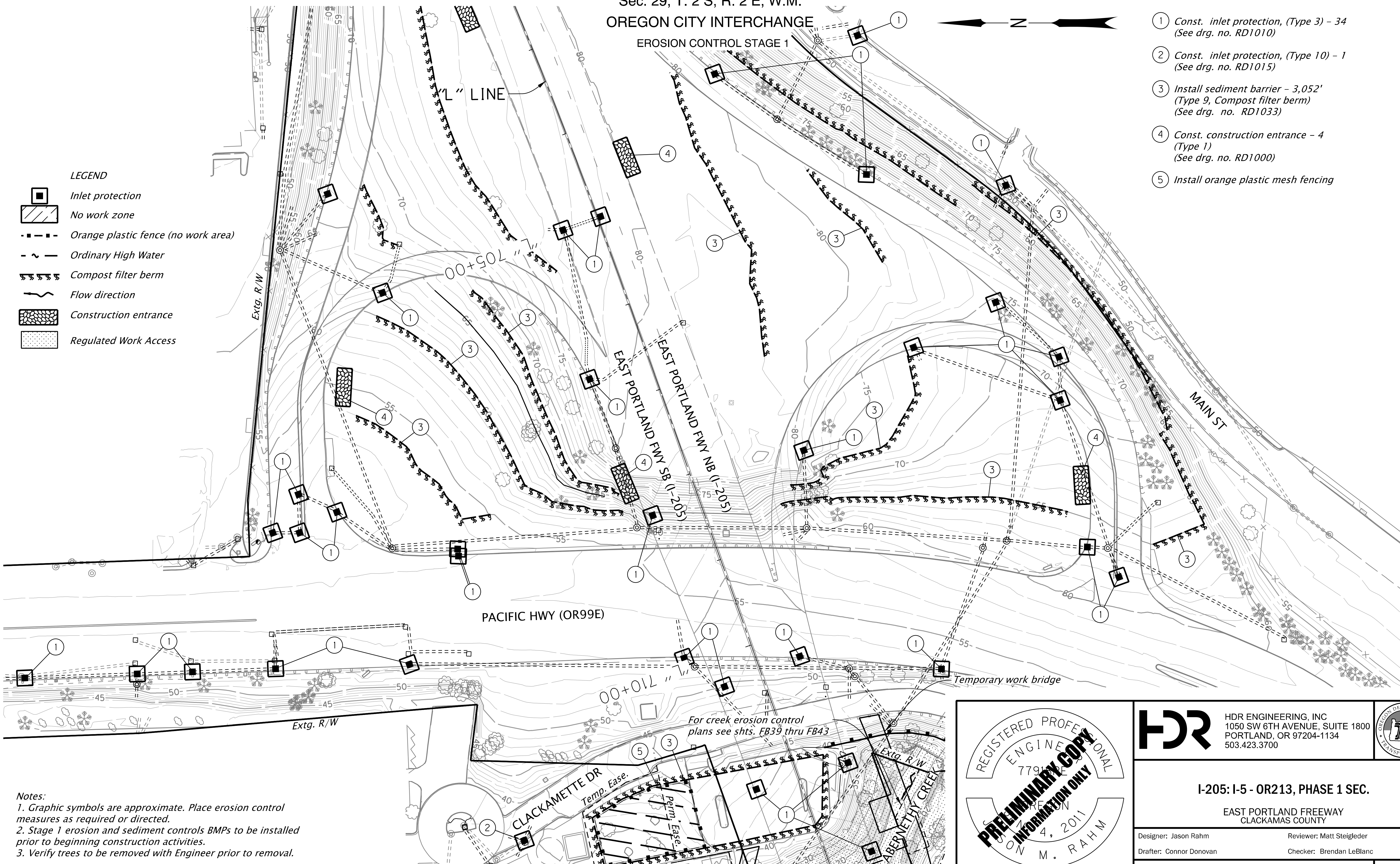
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 212.6746° Scale: 1"=100'

Sec. 29, T. 2 S, R. 2 E, W.M.

OREGON CITY INTERCHANGE

EROSION CONTROL STAGE 1



1. Const. inlet protection, (Type 3) – 34 (See drg. no. RD1010)
2. Const. inlet protection, (Type 10) – 1 (See drg. no. RD1015)
3. Install sediment barrier – 3,052' (Type 9, Compost filter berm) (See drg. no. RD1033)
4. Const. construction entrance – 4 (Type 1) (See drg. no. RD1000)
5. Install orange plastic mesh fencing

LEGEND

- *Inlet protection*
- *No work zone*
- *Orange plastic fence (no work area)*
- *Ordinary High Water*
- *Compost filter berm*
- *Flow direction*
- *Construction entrance*
- *Regulated Work Access*

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77910PE OREGON JASON M. RAHM

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB09

ESCP Stage 1 – HDR :: FB09 7/15/2020 8:20:54 PM CDONOVAN

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 272.0412° Scale: 1"=100'

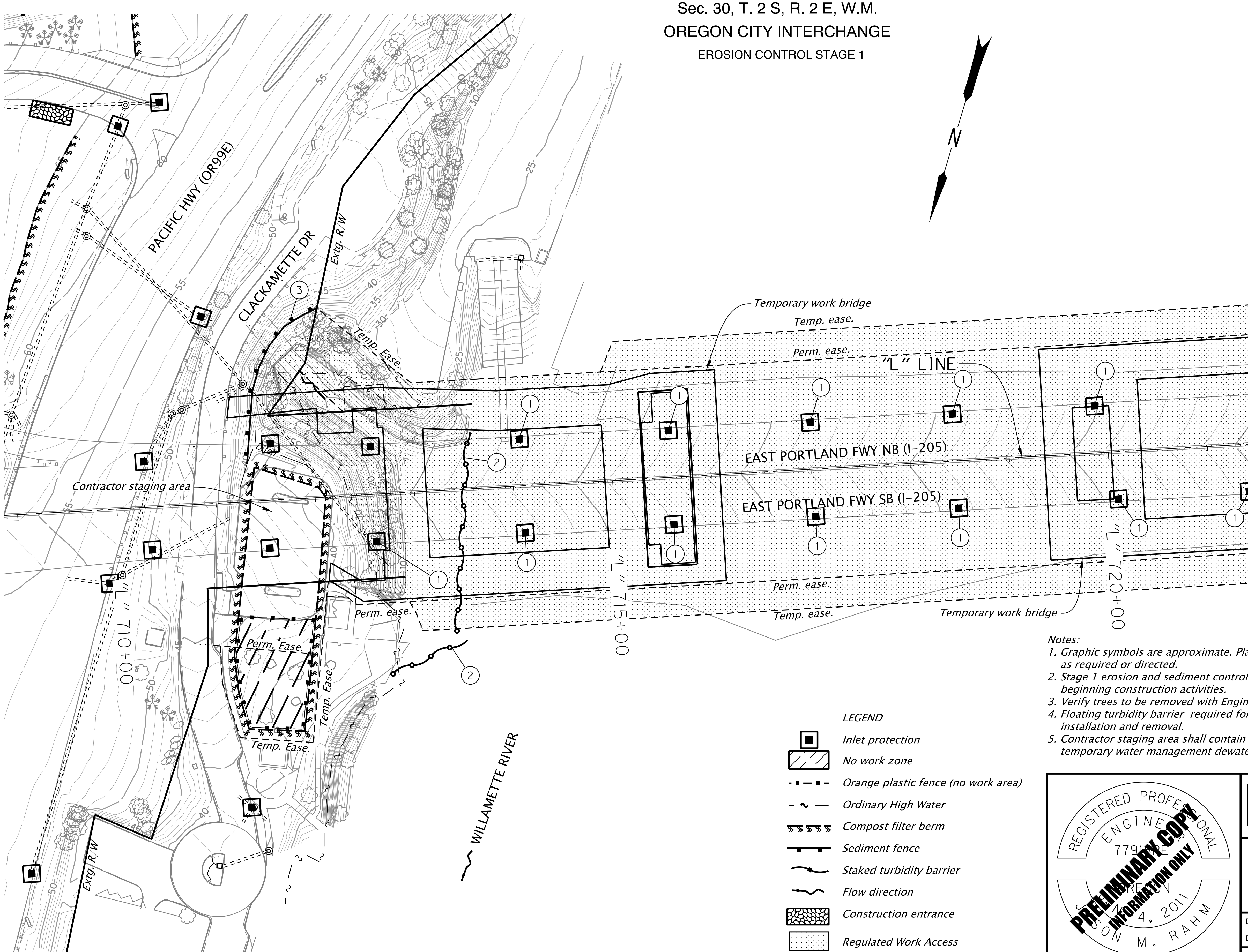
??V-???

Sec. 30, T. 2 S, R. 2 E, W.M.

OREGON CITY INTERCHANGE

EROSION CONTROL STAGE 1

1. Const. inlet protection - 12 (Type 3) (See drg. no. RD1010)
2. Const. turbidity barrier - 818' (For details, see sht. FB02)
3. Const. supported sediment fence - 185'



Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. Floating turbidity barrier required for rip rap removal and cofferdam installation and removal.
5. Contractor staging area shall contain concrete washout facility and temporary water management dewatering treatment.

LEGEND

- Inlet protection
- No work zone
- Orange plastic fence (no work area)
- Ordinary High Water
- Compost filter berm
- Sediment fence
- Staked turbidity barrier
- Flow direction
- Construction entrance
- Regulated Work Access

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON JUNE 14, 2011 JASON M. RAHM

EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

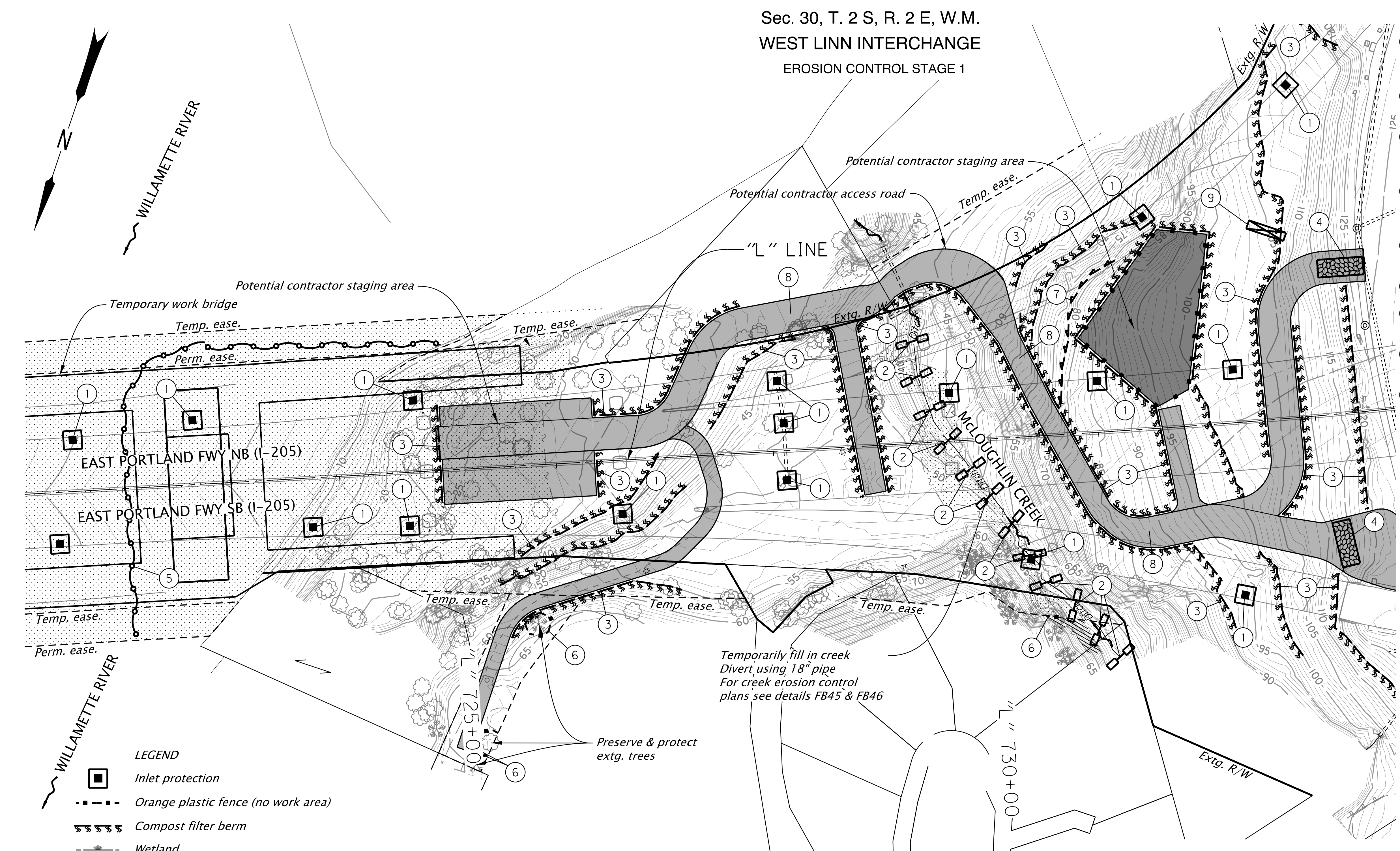
SHEET NO. FB10

EE_K19786_HDR_ecpl_01.dgn :: FB10 7/17/2020 2:23:38 PM JRAHM

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 1



1 Const. inlet protection – 16 (Type 3) (See drg. no. RD1010)

2 Const. check dam, (Type 6) – 12 (See drg. no. RD1006)

3 Install sediment barrier – 4,472' (Type 9) (See drg. no. RD1033)

4 Const. construction entrance – 2 (Type 1) (See drg. no. RD1000)

5 Const. turbidity barrier – 529' (For details, see sht. FB02)

6 Install orange plastic mesh fencing

7 Const. temp. interceptor swale, type 1 (For details, see sht. FB03)

8 Const. temp. waterbar (For details, see sht. FB04)

9 Const. temp. sediment trap (See drg. no. RD1065)

LEGEND

- *Inlet protection*
- *Orange plastic fence (no work area)*
- *Compost filter berm*
- *Wetland*
- *Ordinary High Water*
- *Temp. interceptor swale*
- *Sediment trap*
- *Flow direction*
- *Construction entrance*
- *Access road*
- *Regulated Work Access*
- *No Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *Verify trees to be removed with Engineer prior to removal.*
4. *Floating turbidity barrier required for rip rap removal and cofferdam installation and removal.*
5. *Contractor staging area shall contain concrete washout facility and temporary water management dewatering treatment.*
6. *Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.*

REGISTERED PROFESSIONAL ENGINEER
77913PE
OREGON
JAN 4, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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PORTLAND, OR 97204-1134
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

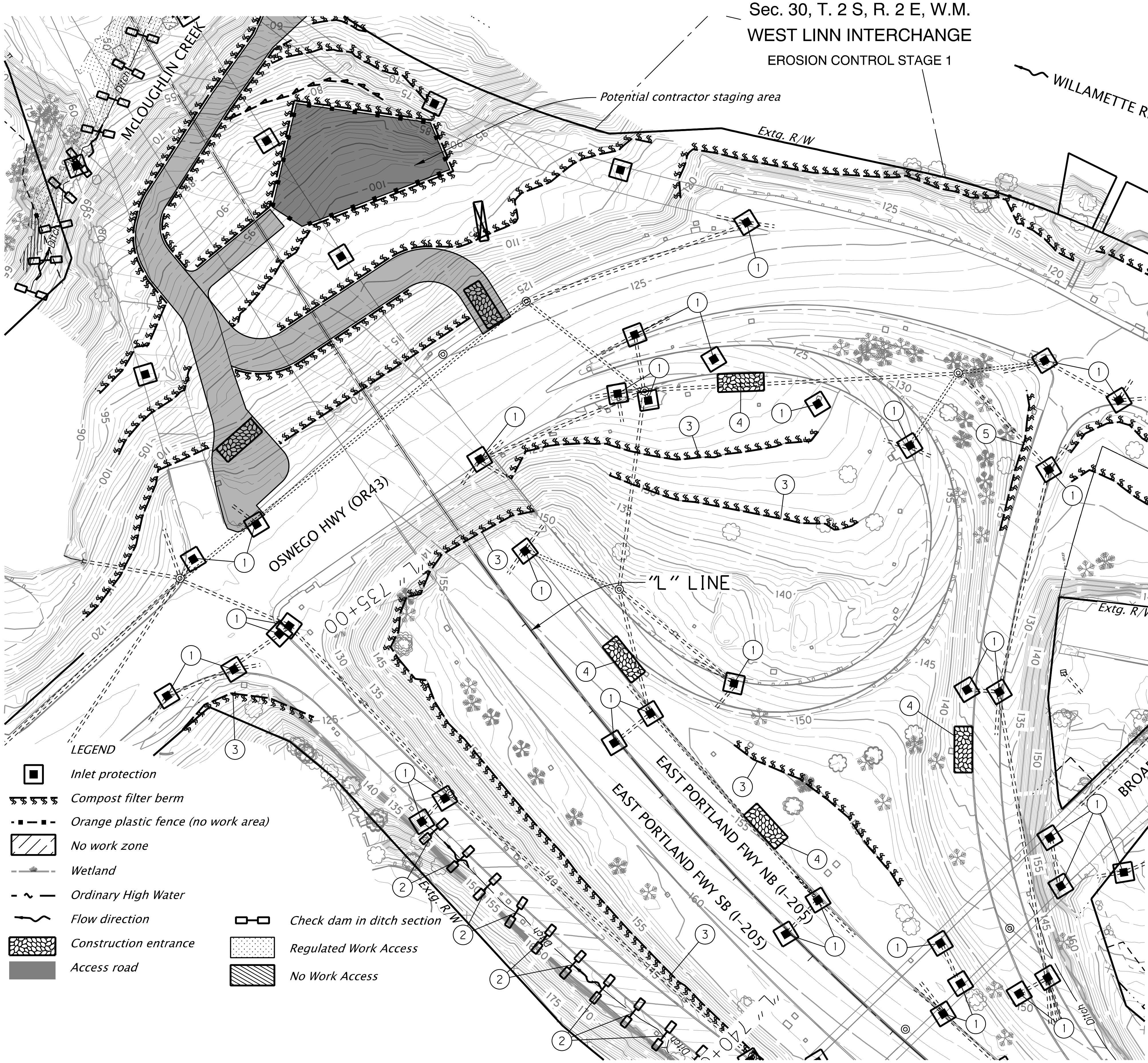
EROSION AND SEDIMENT CONTROL

SHEET NO. FB11

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

EROSION CONTROL STAGE 1



1. Const. inlet protection – 45 (Type 3) (See drg. no. RD1010)
2. Const. check dam (Type 1) – 9 (See drg. no. RD1005)
3. Install sediment barrier – 2,487' (Type 9) (See drg. no. RD1033)
4. Const. construction entrance – 5 (Type 1) (See drg. no. RD1000)

LEGEND

- Inlet protection
- Compost filter berm
- Orange plastic fence (no work area)
- No work zone
- Wetland
- Ordinary High Water
- Flow direction
- Construction entrance
- Access road
- Check dam in ditch section
- Regulated Work Access
- No Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. See sht. EA22 for access details.

REGISTERED PROFESSIONAL ENGINEER 77915PE OREGON JULY 14, 2011 JASON M. RAHM

EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

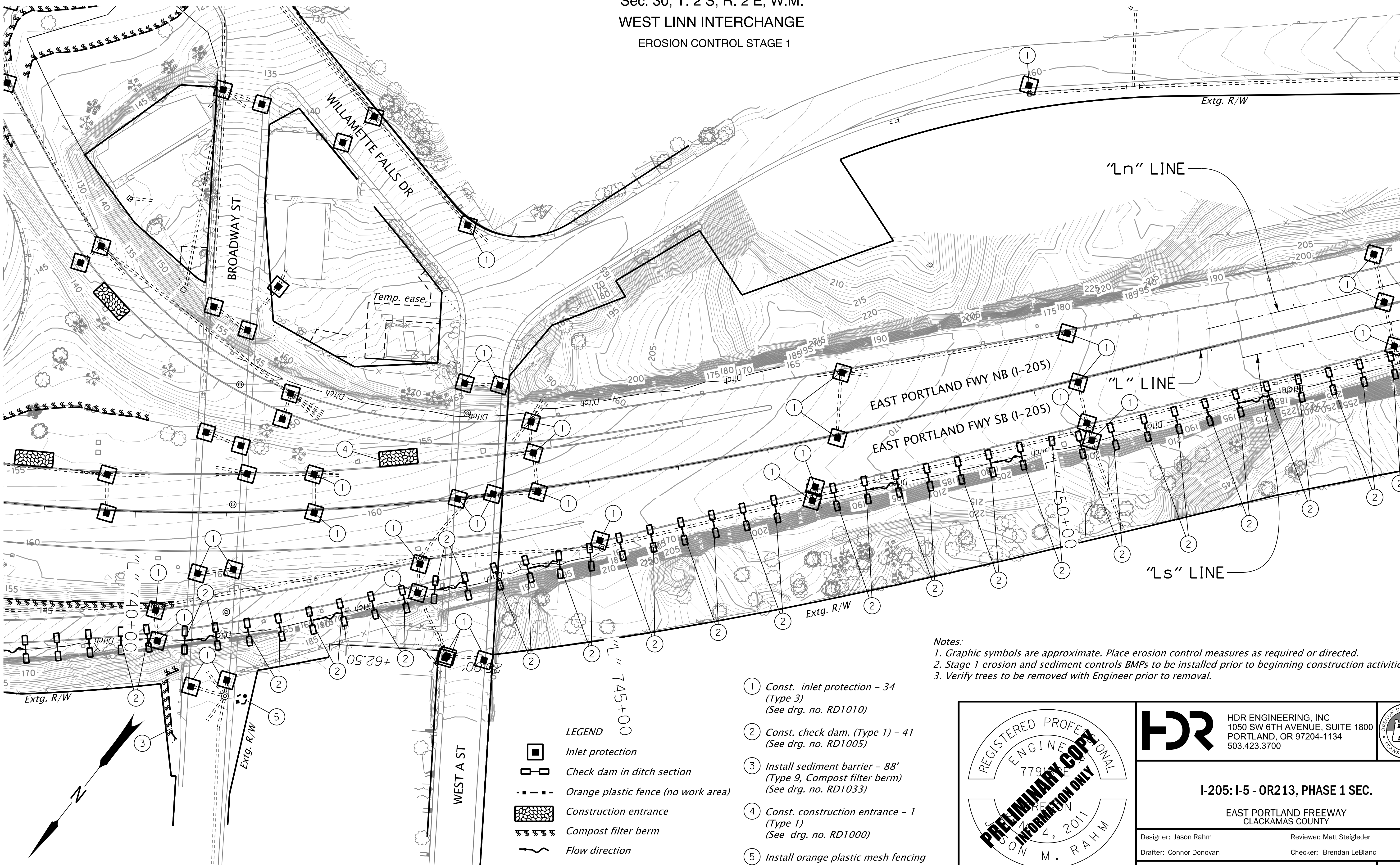
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB12

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 1



1. Const. inlet protection - 34 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 1) - 41 (See drg. no. RD1005)
3. Install sediment barrier - 88' (Type 9, Compost filter berm) (See drg. no. RD1033)
4. Const. construction entrance - 1 (Type 1) (See drg. no. RD1000)
5. Install orange plastic mesh fencing

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER
77912PE
OREGON
... 4, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB13

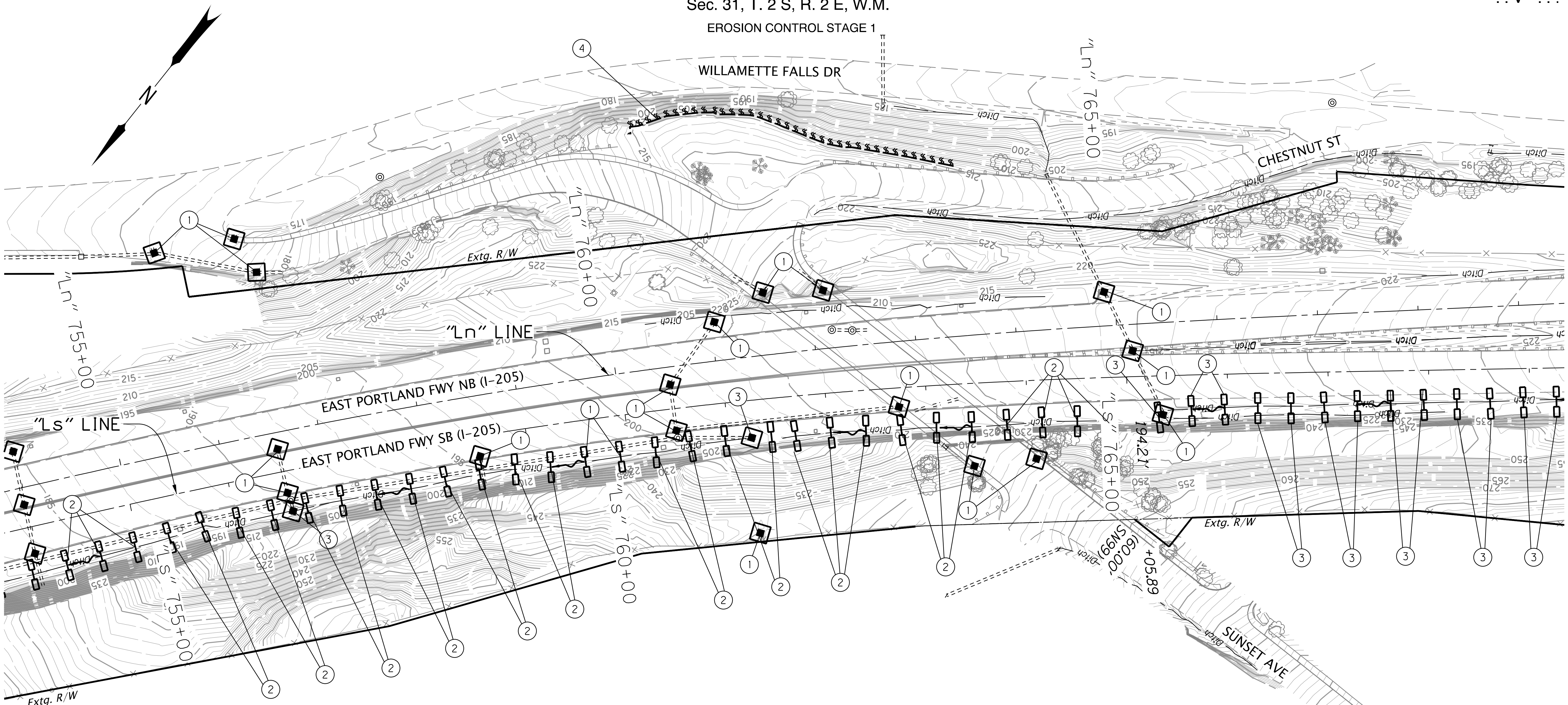
ESCP Stage 1 - HDR :: FB13 7/15/2020 8:21:26 PM CDONOVAN

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.1362° Scale: 1"=100'

Sec. 31, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 1



1. Const. inlet protection - 20 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 1) - 31 (See drg. no. RD1005)
3. Const. check dam, (Type 6) - 13 (See drg. no. RD1006)
4. Install sediment barrier - 339' (Type 9, Compost filter berm) (See drg. no. RD1033)

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON JASON M. RAHM

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB14

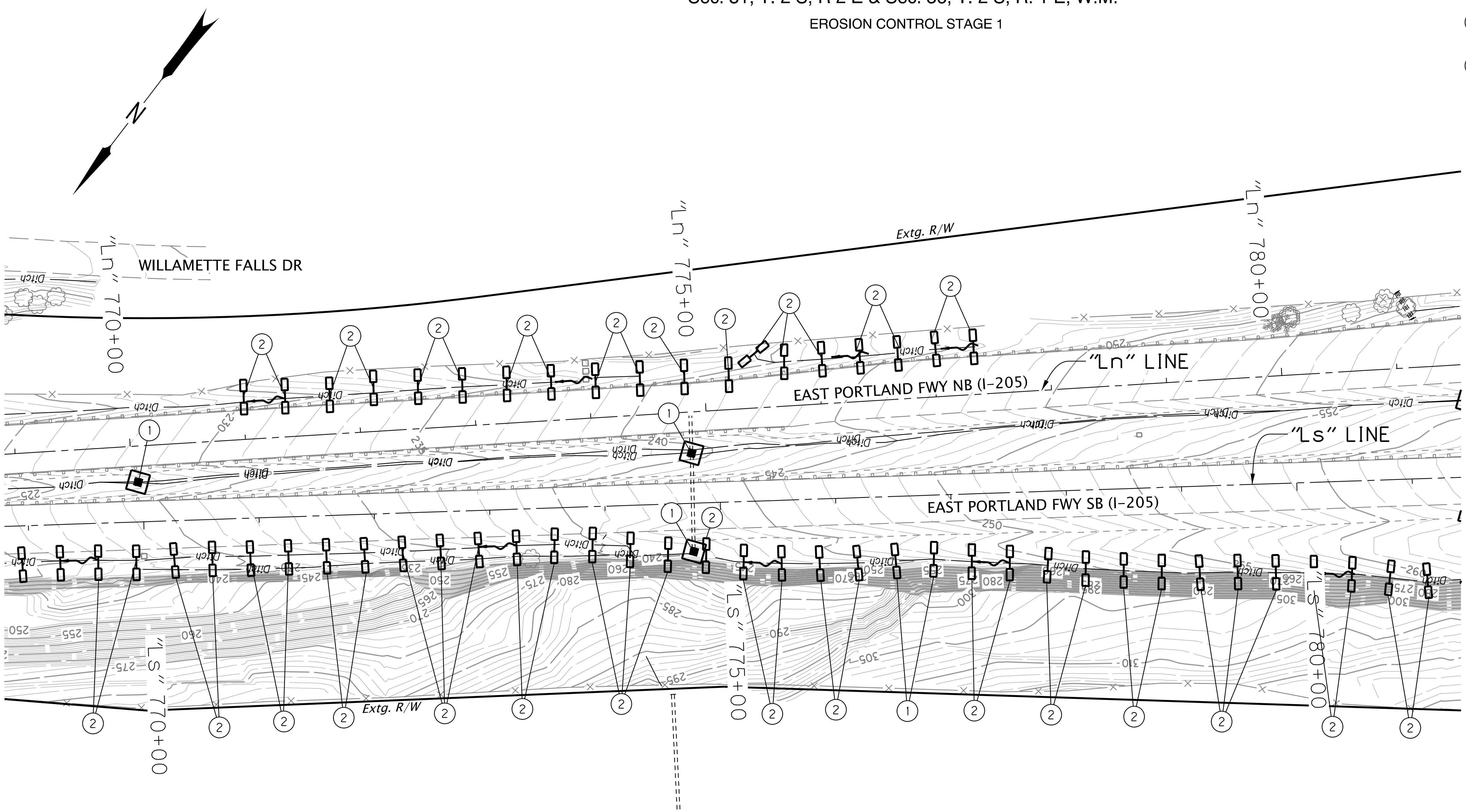
??V–???

Sec. 31, T. 2 S, R 2 E & Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

1 *Const. check dam, (Type 6) – 55*
(See drg. no. RD1006)

2 *Const. inlet protection – 3*
(Type 3)
(See drg. no. RD1010)



LEGEND

Inlet protection

Check dam in ditch section

Flow direction

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER
77919PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

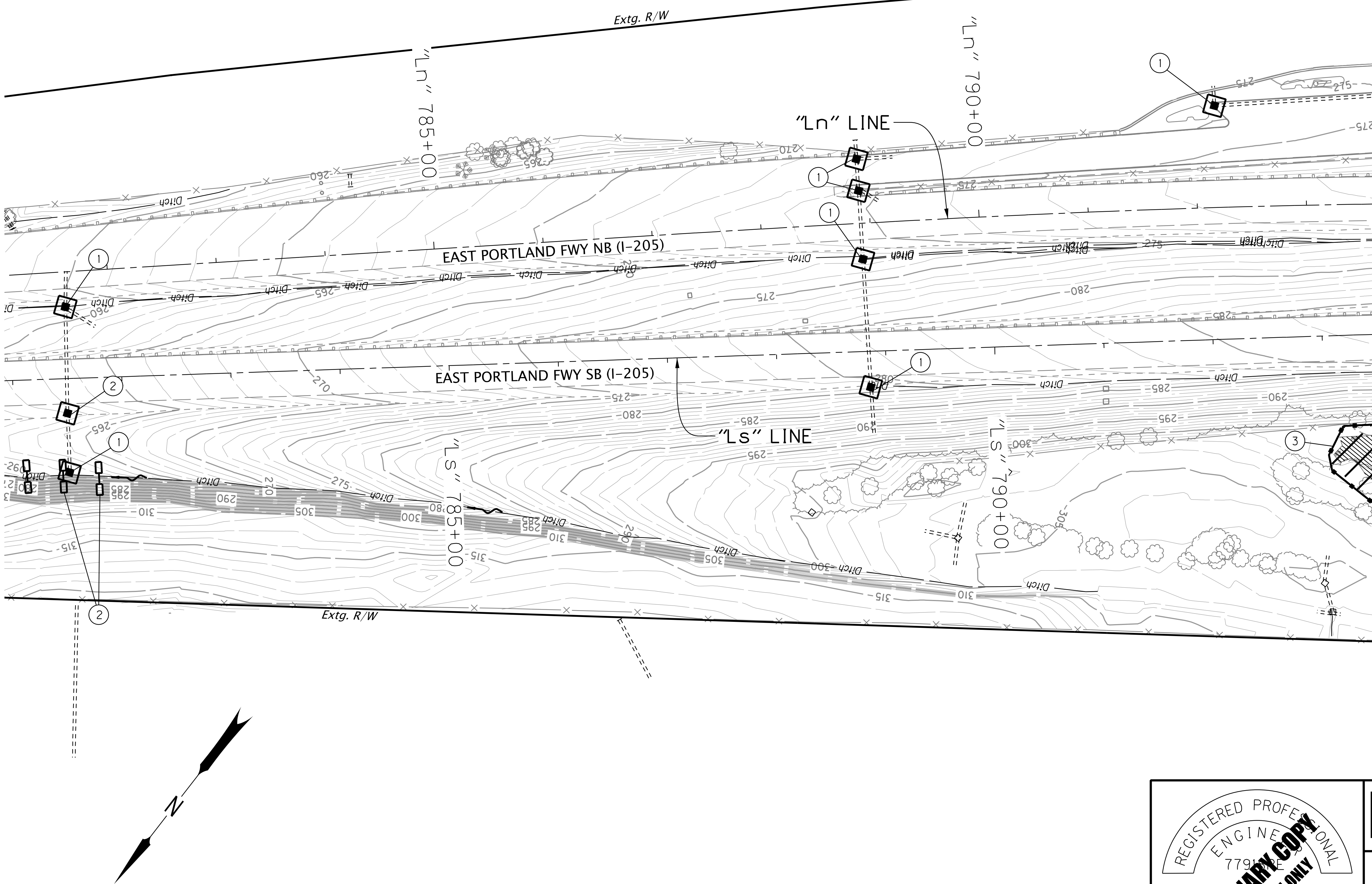
Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB15

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1



1. Const. inlet protection - 8 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 6) - 2 (See drg. no. RD1006)
3. Install orange plastic mesh fencing

LEGEND

- Inlet protection
- Check dam in ditch section
- Flow direction
- Orange plastic fence (no work area)
- Wetland
- Compost filter berm
- No Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77919PE OREGON JULY 14, 2011 JASON M. RAHM
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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

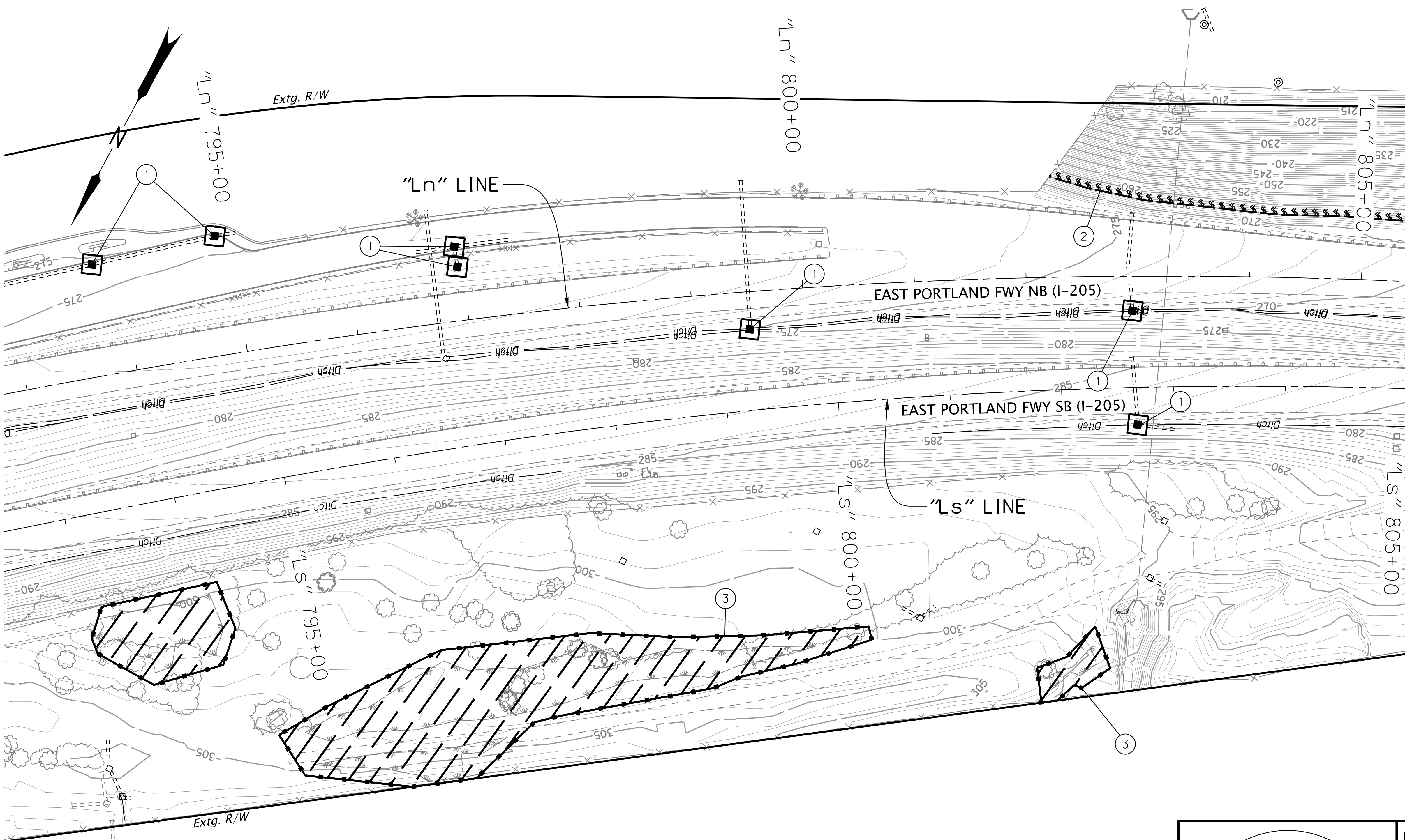
EROSION AND SEDIMENT CONTROL

SHEET NO. FB16

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

??V-???



1. Const. inlet protection - 7 (Type 3) (See drg. no. RD1010)
2. Install sediment barrier - 4,993' (Type 9, Compost filter berm) (See drg. no. RD1033)
3. Install orange plastic mesh fencing

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction
- Orange plastic fence (no work area)
- Wetland
- No Work Access

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77918PE OREGON JULY 14, 2011 JASON M. RAHM

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

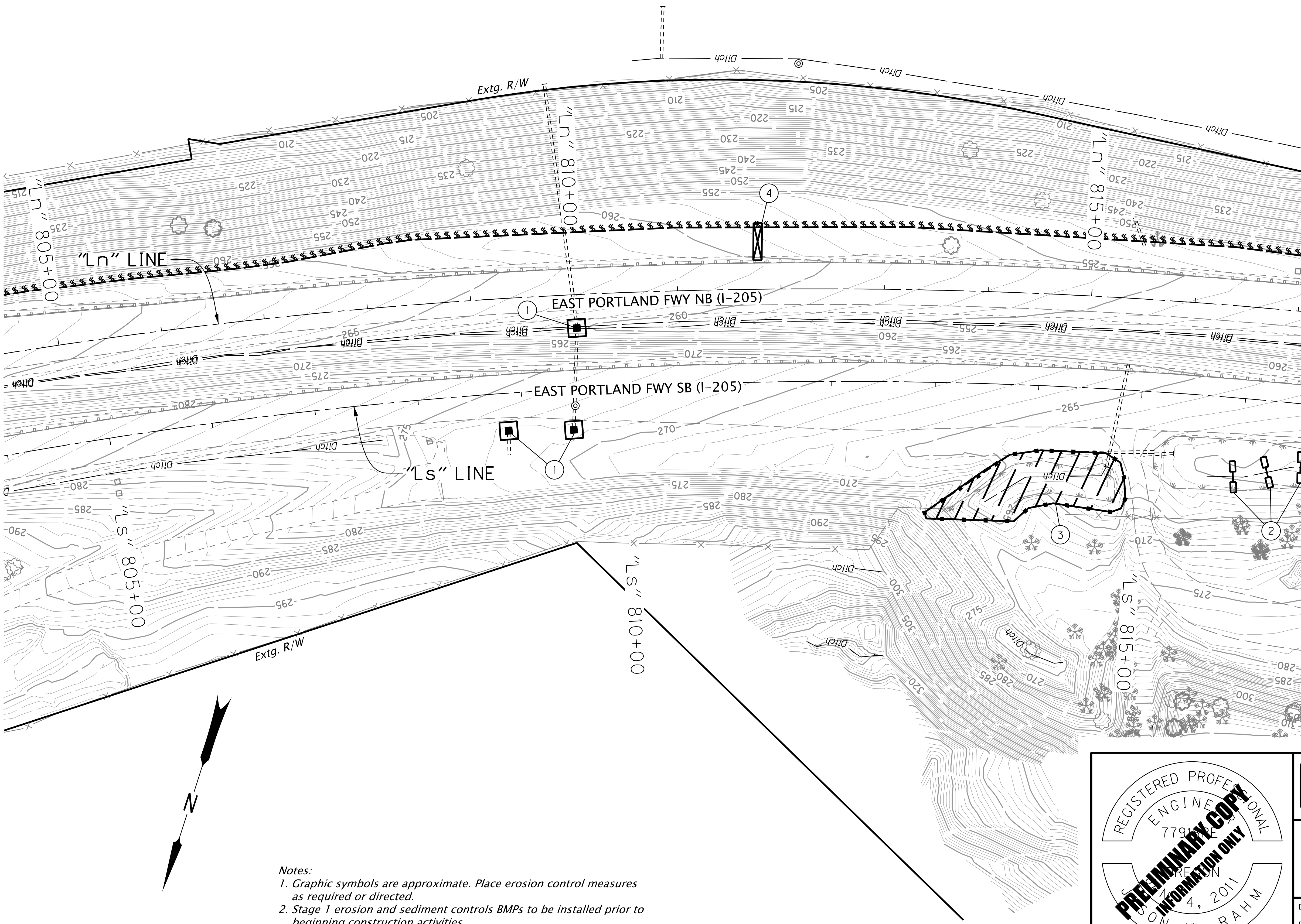
ERASION AND SEDIMENT CONTROL

SHEET NO. FB17

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

1. Const. inlet protection – 3 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 6) – 3 (See drg. no. RD1006)
3. Install orange plastic mesh fencing
4. Const. temp. sediment trap (See drg. no. RD1065)



LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction
- Orange plastic fence (no work area)
- Sediment trap
- Wetland
- No Work Access
- Regulated Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.

REGISTERED PROFESSIONAL ENGINEER 77915PE OREGON JULY 14, 2011 JASON M. RAHM

EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB18

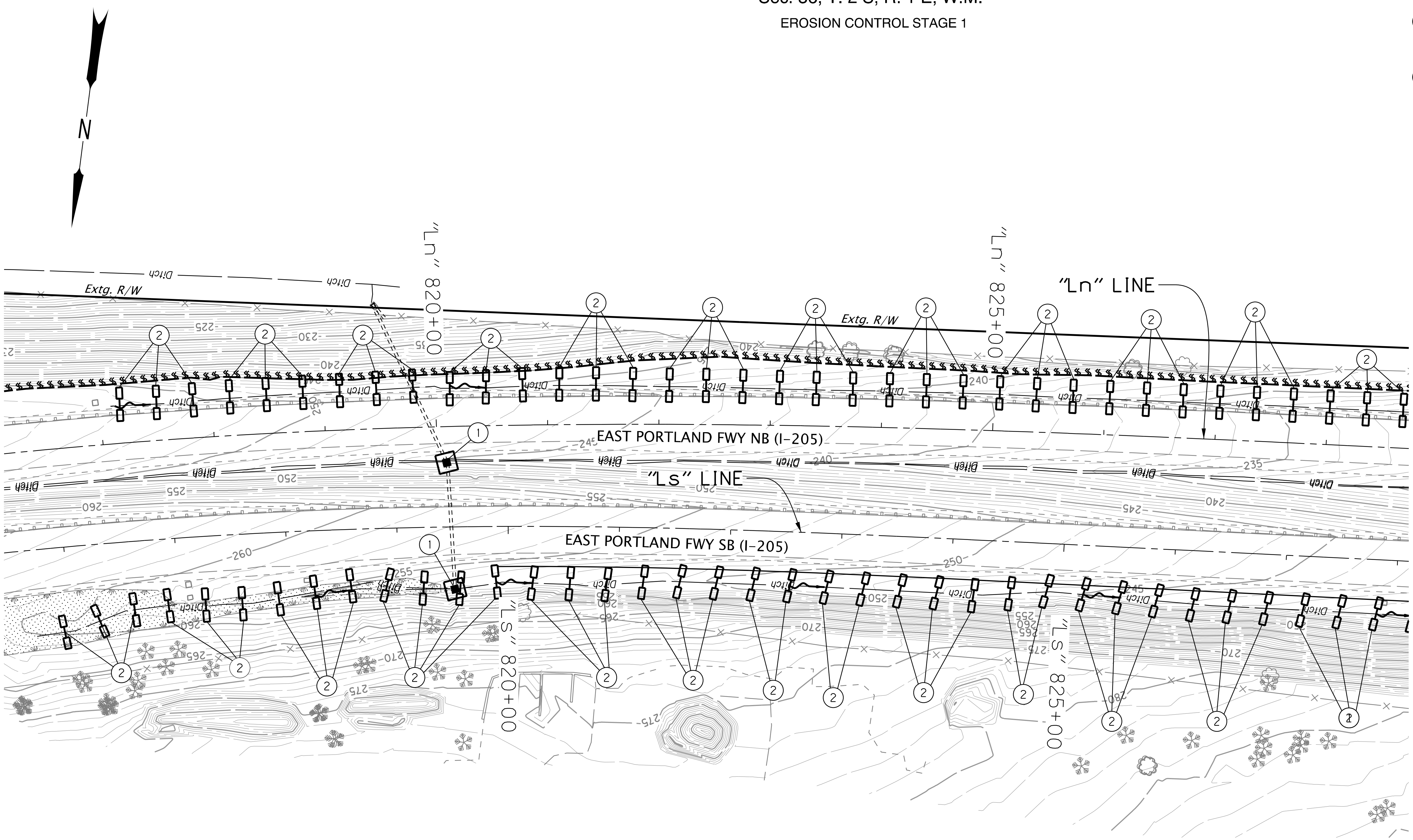
Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

??V-???

(1) Const. inlet protection - 2
(Type 3)
(See drg. no. RD1010)

(2) Const. check dam, (Type 6) - 73
(See drg. no. RD1006)



LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

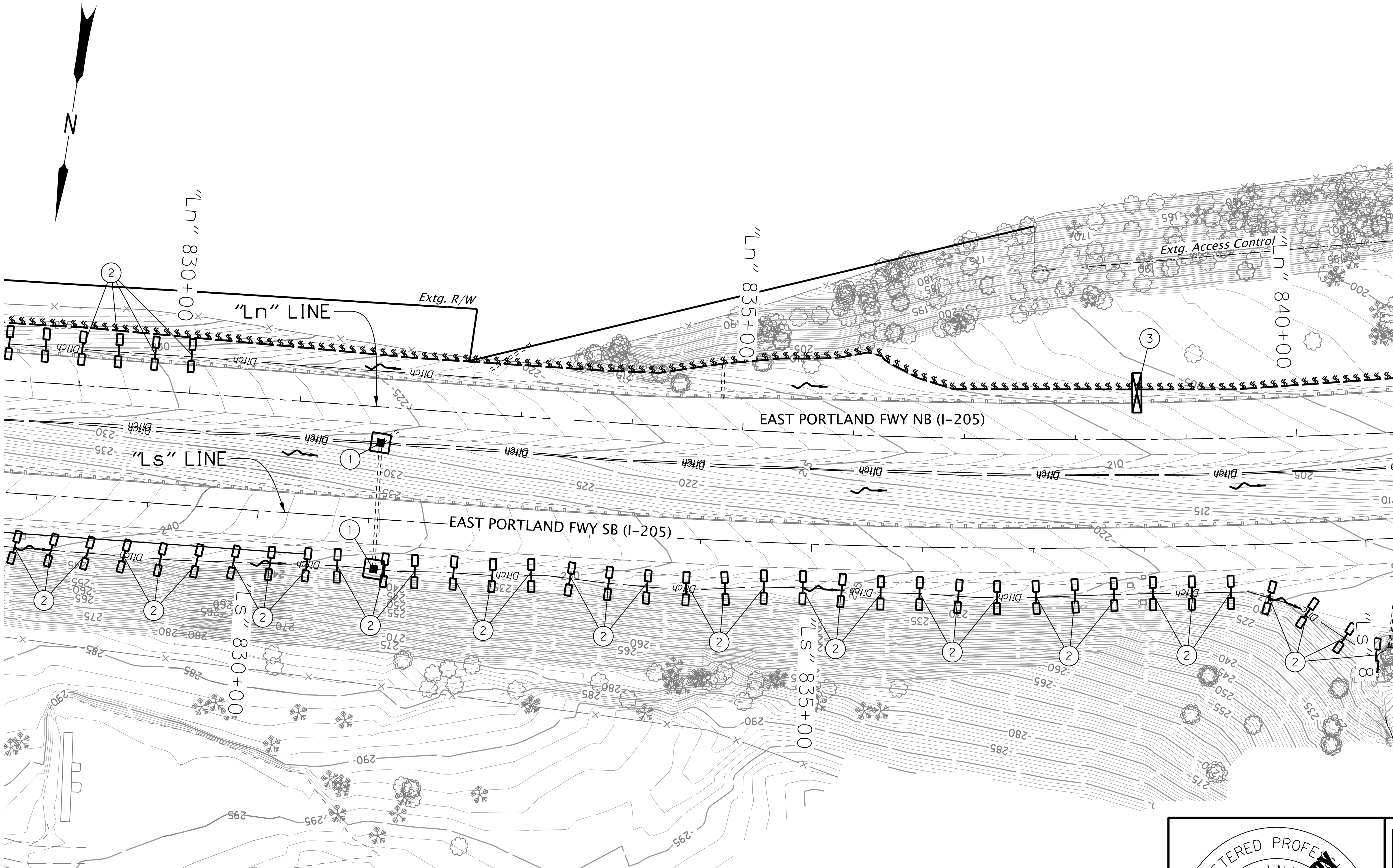
EROSION AND SEDIMENT CONTROL

SHEET NO. FB19

??V-???

Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1



1. Const. inlet protection - 2 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 6) - 41 (See drg. no. RD1006)
3. Const. temp. sediment trap (See drg. no. RD1065)

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Sediment trap
- Flow direction

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *Verify trees to be removed with Engineer prior to removal.*
4. *Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.*

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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INFORMATION ONLY

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB20

ESCP Stage 1 - HDR :: FB20 7/15/2020 8:35:01 PM CDONOVAN

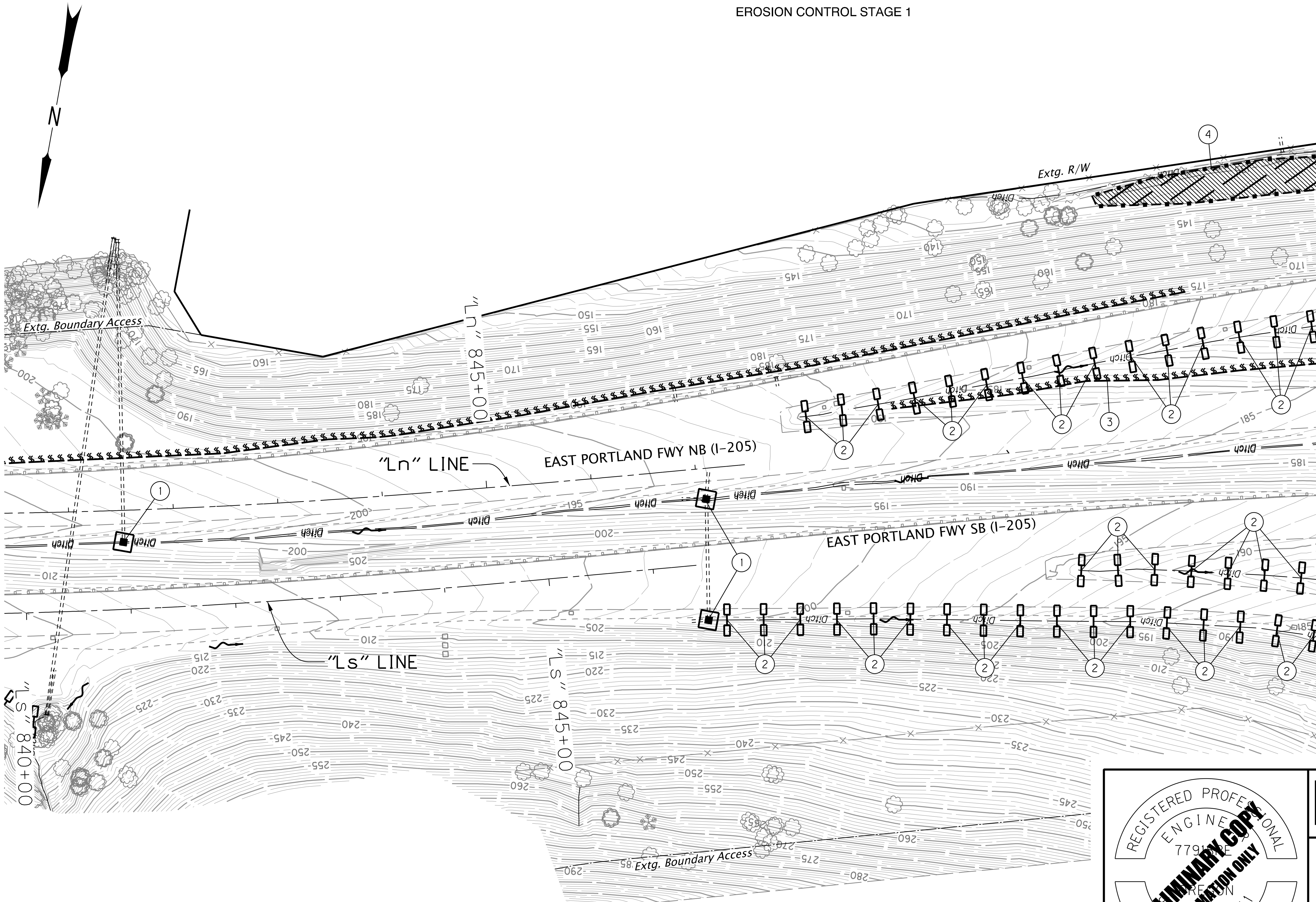
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 188.8482° Scale: 1"=100'

??V–???

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE
EROSION CONTROL STAGE 1

1. *Const. inlet protection – 3 (Type 3) (See drg. no. RD1010)*
2. *Const. check dam, (Type 6) – 39 (See drg. no. RD1006)*
3. *Install sediment barrier – 1,202' (Type 9, Compost filter berm) (See drg. no. RD1033)*
4. *Install orange plastic mesh fencing*



LEGEND

- *Inlet protection*
- *Compost filter berm*
- *Check dam in ditch section*
- *Flow direction*
- *No work zone*
- *Wetland*
- *Ordinary High Water*
- *No Work Access*

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER
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OREGON
4, 2011
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

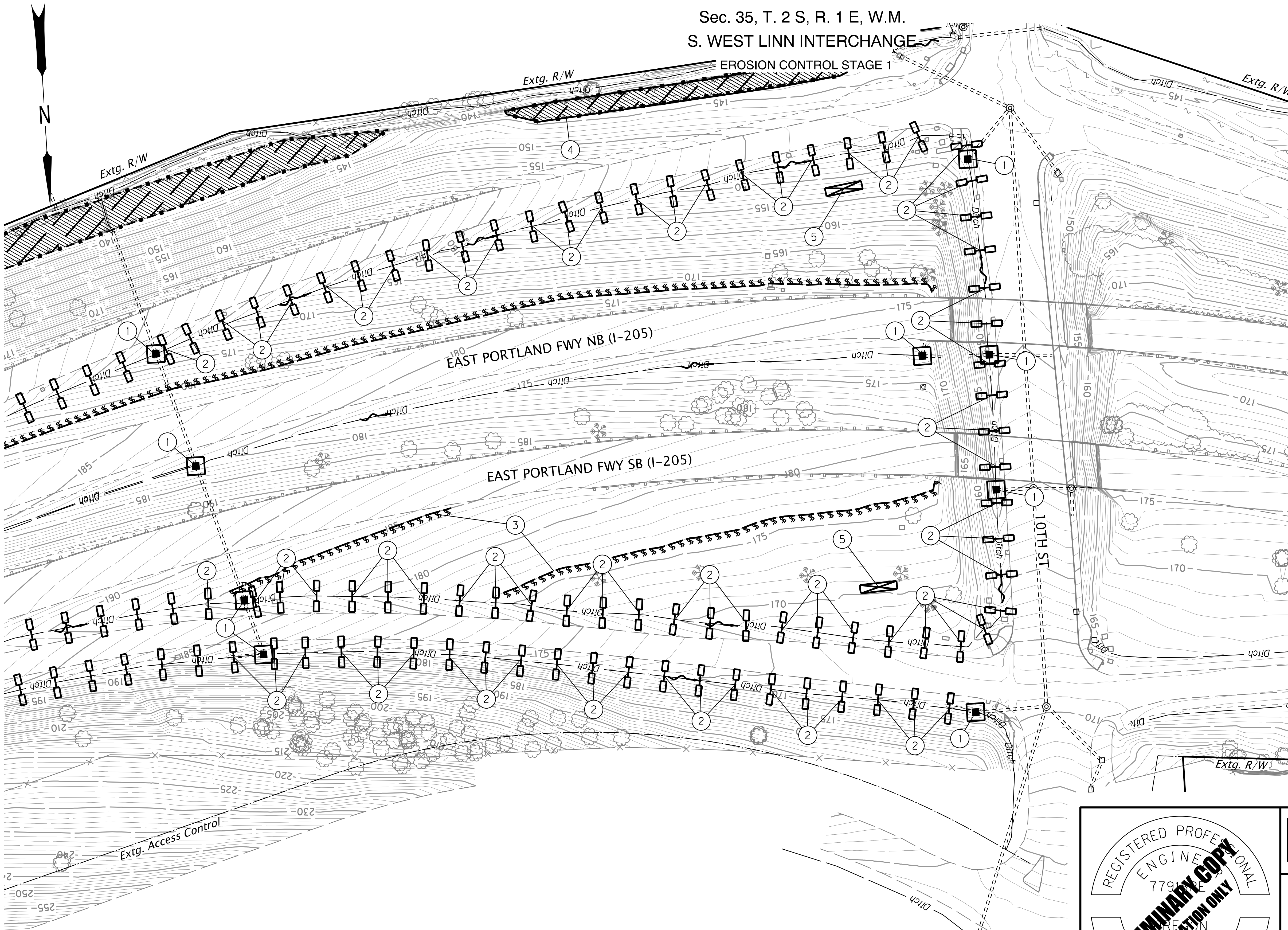
Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL SHEET NO. FB21

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 1



1. Const. inlet protection - 9 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 6) - 81 (See drg. no. RD1006)
3. Install sediment barrier - 676' (Type 9, Compost filter berm) (See drg. no. RD1033)
4. Install orange plastic mesh fencing
5. Const. temp. sediment trap (See drg. no. RD1065)

LEGEND

- Inlet protection
- Compost filter berm
- Check dam in ditch section
- Sediment trap
- Flow direction
- Wetland
- Ordinary High Water
- No Work Access
- No work zone

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77918PE OREGON JULY 14, 2011 JASON M. RAHM

EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

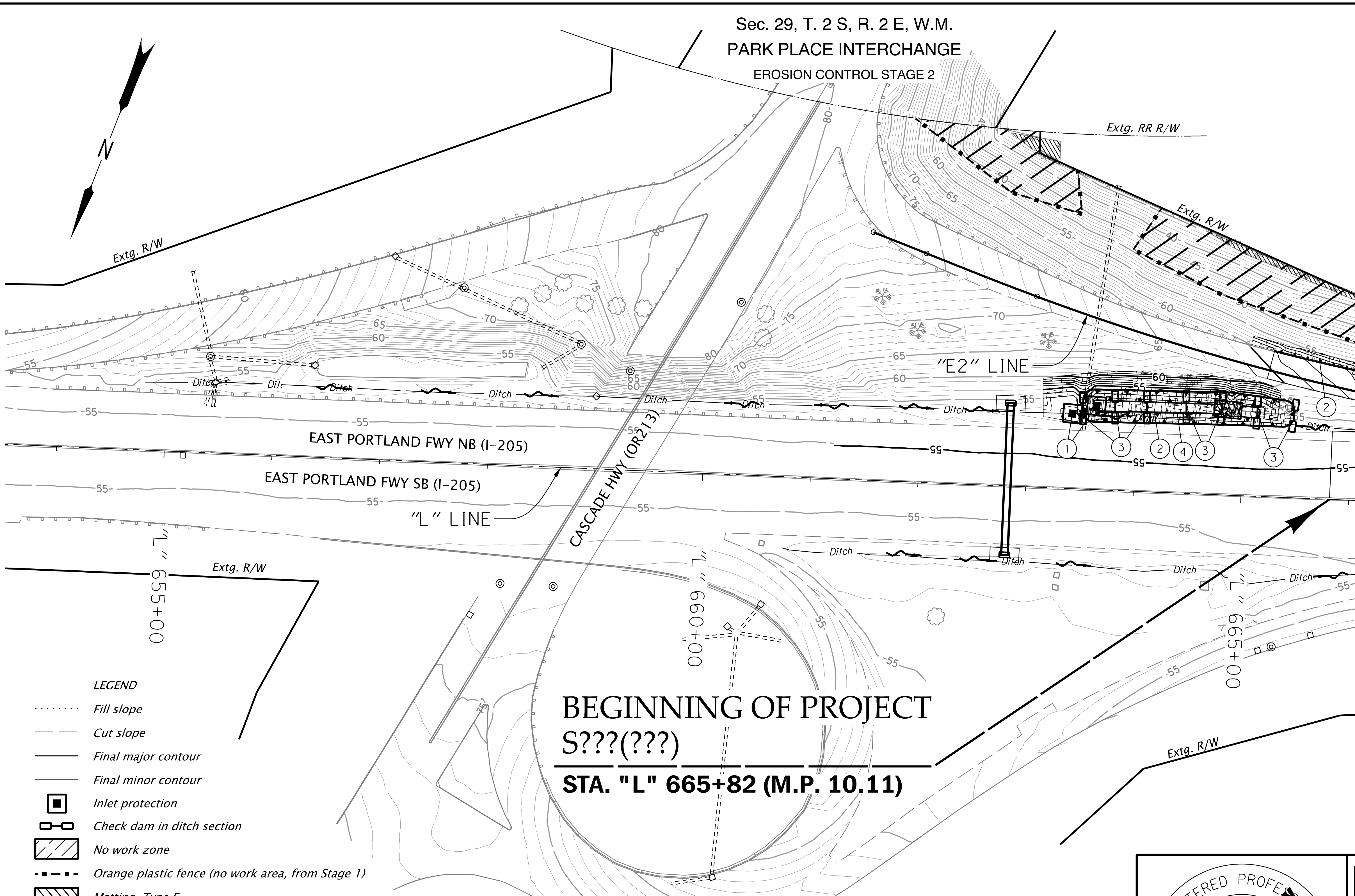
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB22

??V-???



1. Const. inlet protection, (Type 3) - 2 (See drg. no. RD1010)
2. Install compost erosion blanket - 1,553 sq. yd. (For details, see sht. FB01)
3. Const. check dam, (Type 6) - 7 (See drg. no. RD1006)
4. Install matting - 625 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Wetland*
- *Ordinary High Water*
- *Compost blanket*
- *Flow direction*
- *No Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77916PE OREGON JASON M. RAHM
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HDR ENGINEERING, INC
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB23

ESCP Stage 2 - HDR :: FB23 7/15/2020 11:17:13 PM CDONOVAN

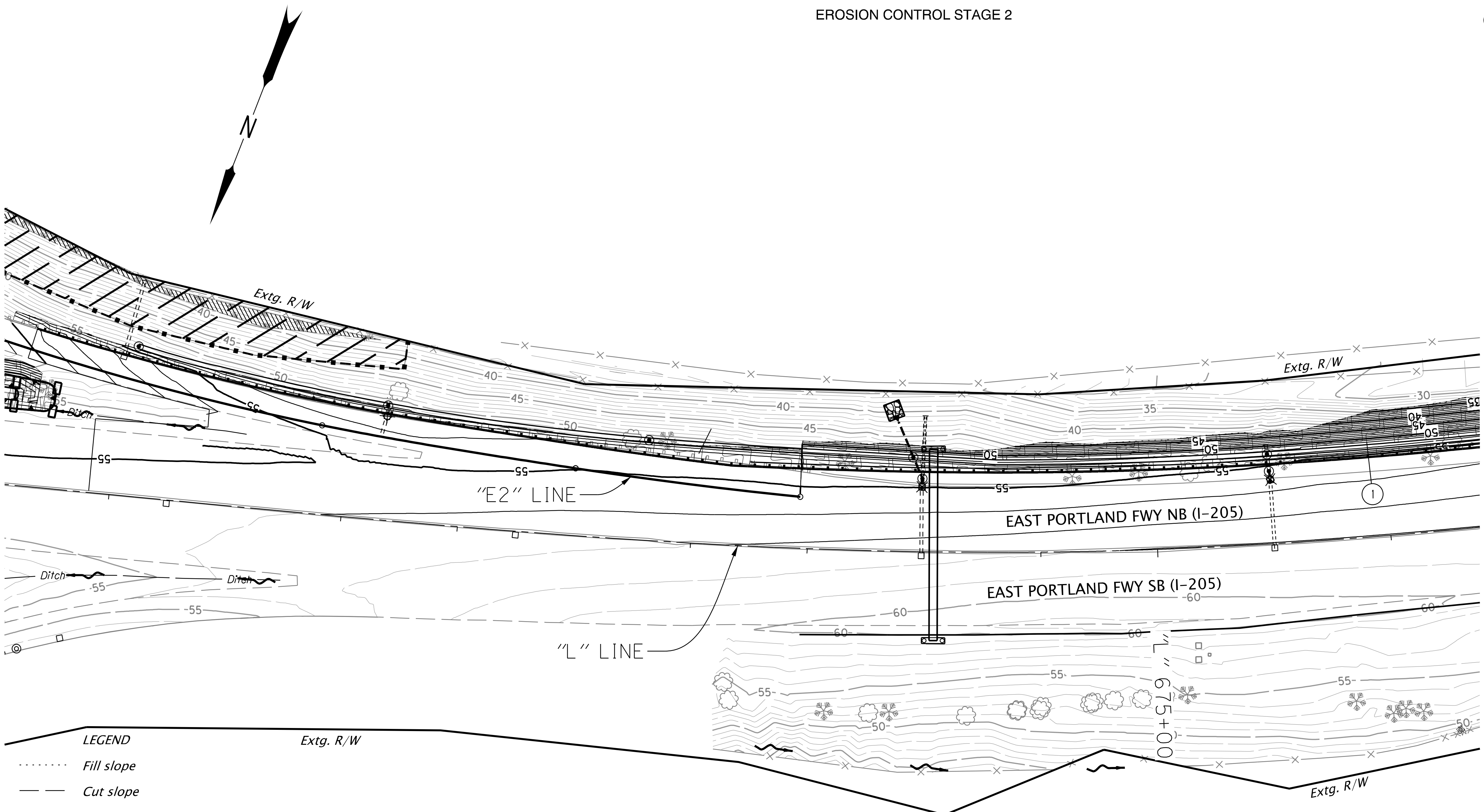
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 227.6721° Scale: 1"=100'

EROSION CONTROL STAGE 2

??V-???

(1) *Install compost erosion blanket - 7,538 sq. yd. (For details, see sht. FB01)*



LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Wetland*
- *Ordinary High Water*
- *Compost blanket*
- *Flow direction*
- *No Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER
77911PE
OREGON
4, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB24

ESCP Stage 2 - HDR :: FB24 7/15/2020 11:18:10 PM CDONOVAN

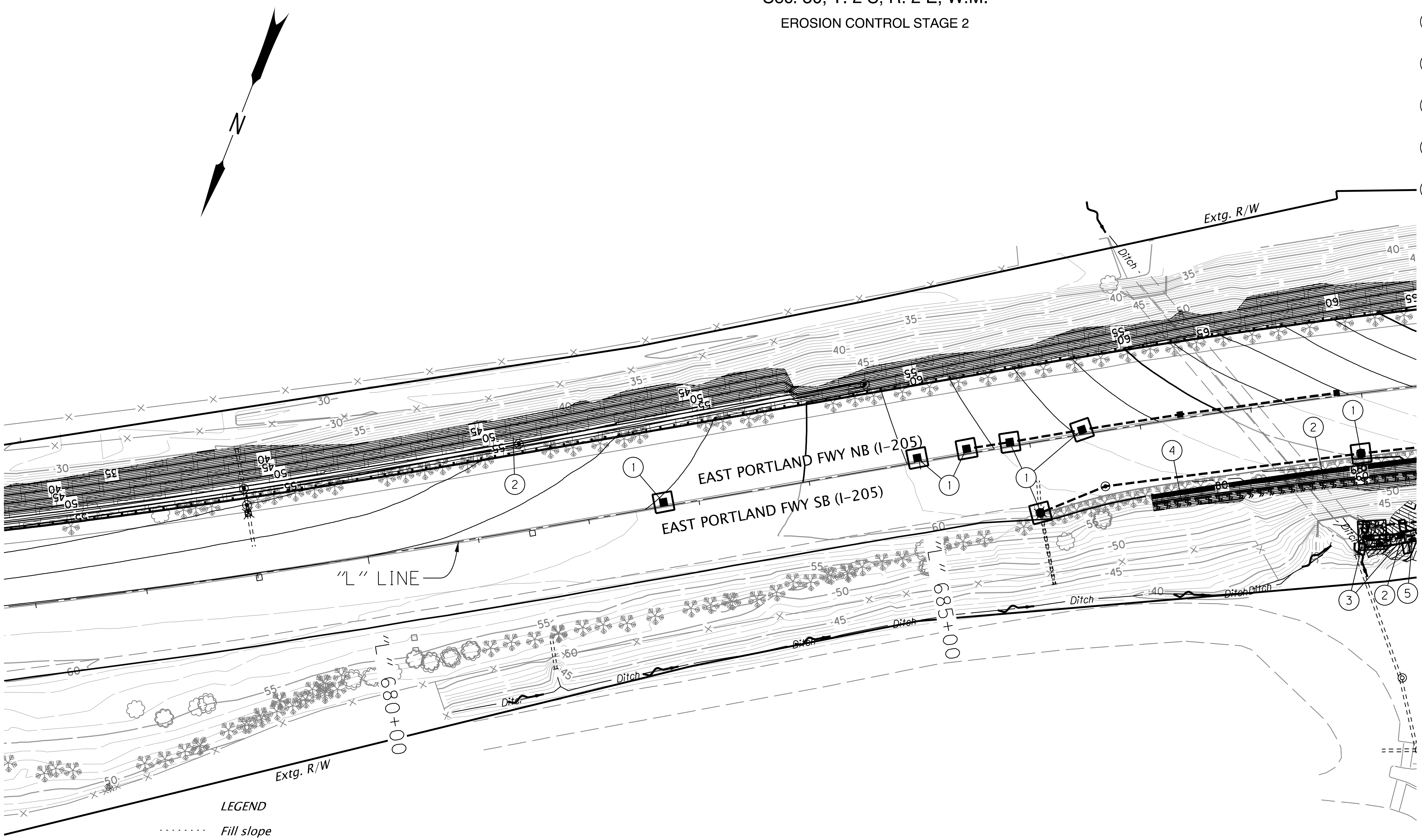
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 230.7962° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2

1. Const. inlet protection, (Type 3) - 7
   (See drg. no. RD1010)
2. Install compost erosion blanket - 2,600 sq. yd.
   (For details, see sht. FB01)
3. Const. check dam, (Type 6) - 2
   (See drg. no. RD1006)
4. Install sediment barrier, (Type 9) - 836'
   (See drg. no. RD1033)
5. Install matting - 281 sq. yd.
   (Flexible channel liner, Type F)
   (See drg. no. RD1055)



LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *Matting, Type F*
- *Orange plastic fence (no work area, from Stage 1)*
- *Compost blanket*
- *Flow direction*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77912PE OREGON JULY 14, 2011 JASON M. RAHM
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EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

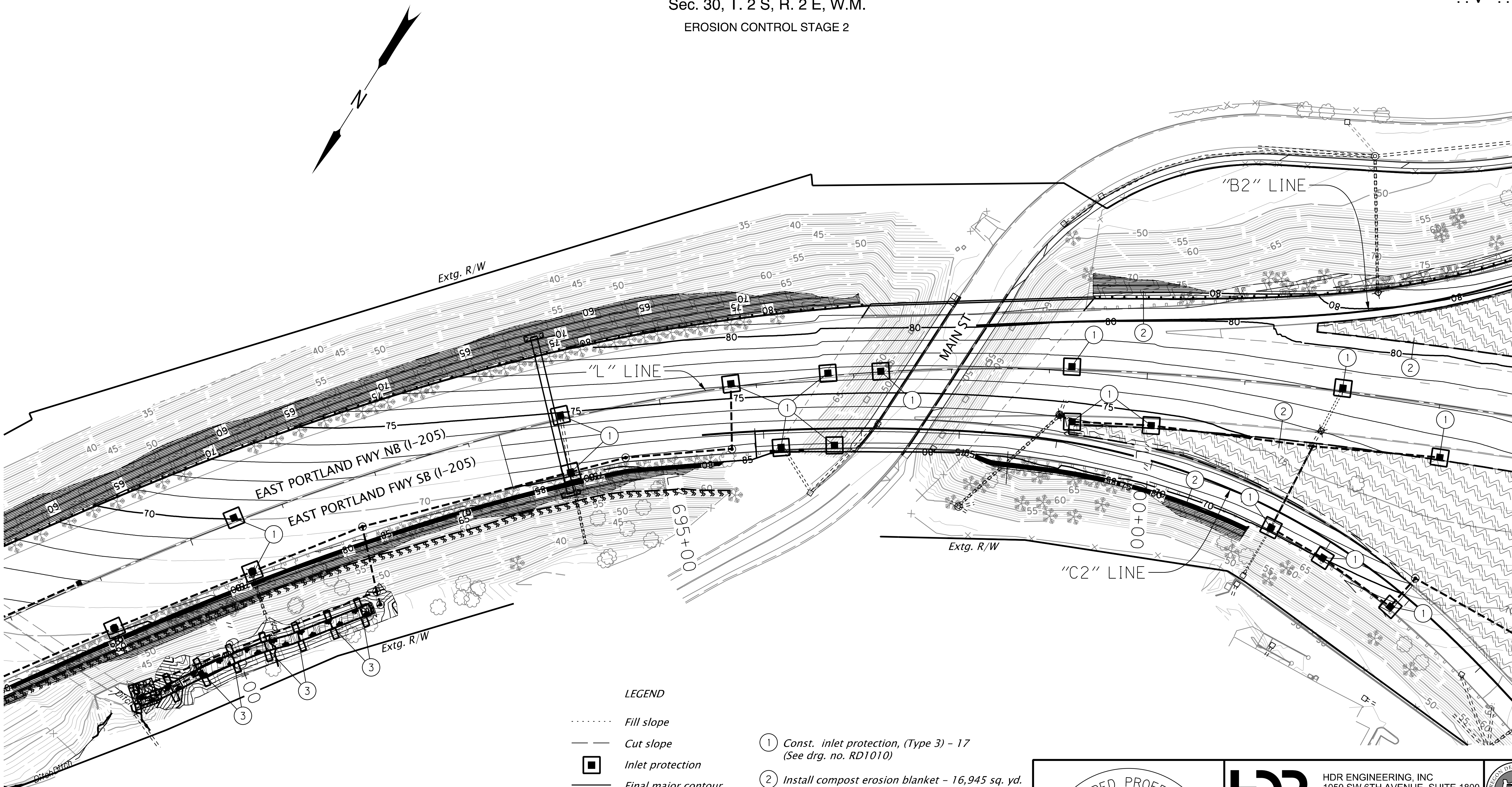
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB25

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



LEGEND

- Fill slope
- Cut slope
- Inlet protection
- Final major contour
- Final minor contour
- Compost blanket
- Matting, Type F
- Flow direction
- Compost filter berm

1. Const. inlet protection, (Type 3) – 17 (See drg. no. RD1010)
2. Install compost erosion blanket – 16,945 sq. yd. (For details, see sht. FB01)
3. Const. check dam, (Type 6) – 6 (See drg. no. RD1006)

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77919PE OREGON ... 4, 2011 JASON M. RAHM

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EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB26

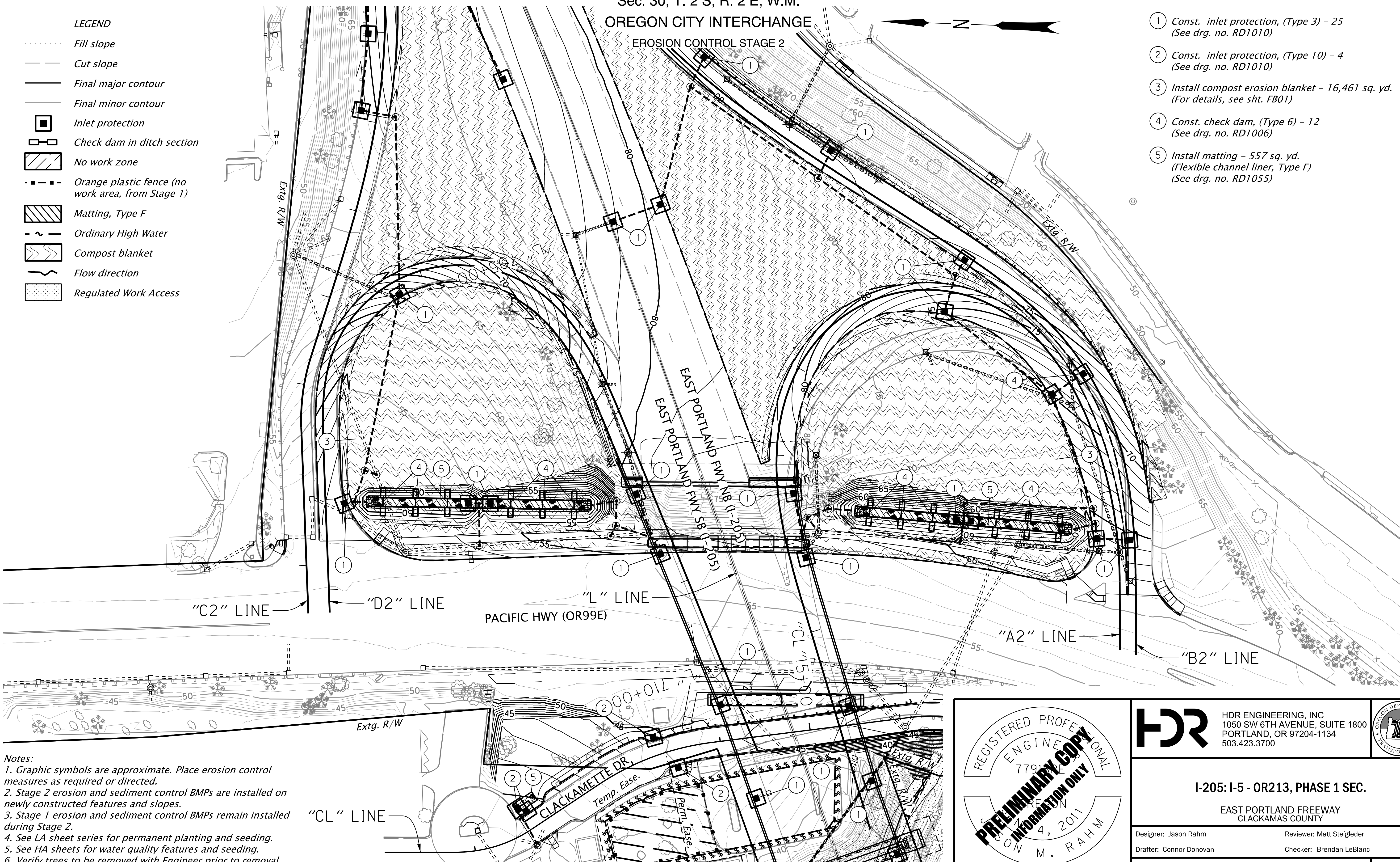
Sec. 30, T. 2 S, R. 2 E, W.M.
OREGON CITY INTERCHANGE
EROSION CONTROL STAGE 2

??V–???

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Ordinary High Water*
- *Compost blanket*
- *Flow direction*
- *Regulated Work Access*

1. *Const. inlet protection, (Type 3) – 25 (See drg. no. RD1010)*
2. *Const. inlet protection, (Type 10) – 4 (See drg. no. RD1010)*
3. *Install compost erosion blanket – 16,461 sq. yd. (For details, see sht. FB01)*
4. *Const. check dam, (Type 6) – 12 (See drg. no. RD1006)*
5. *Install matting – 557 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)*



Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77919PE OREGON JUNE 14, 2011 JASON M. RAHM
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EXPIRES: DEC. 31, 2020

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PORTLAND, OR 97204-1134
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB27

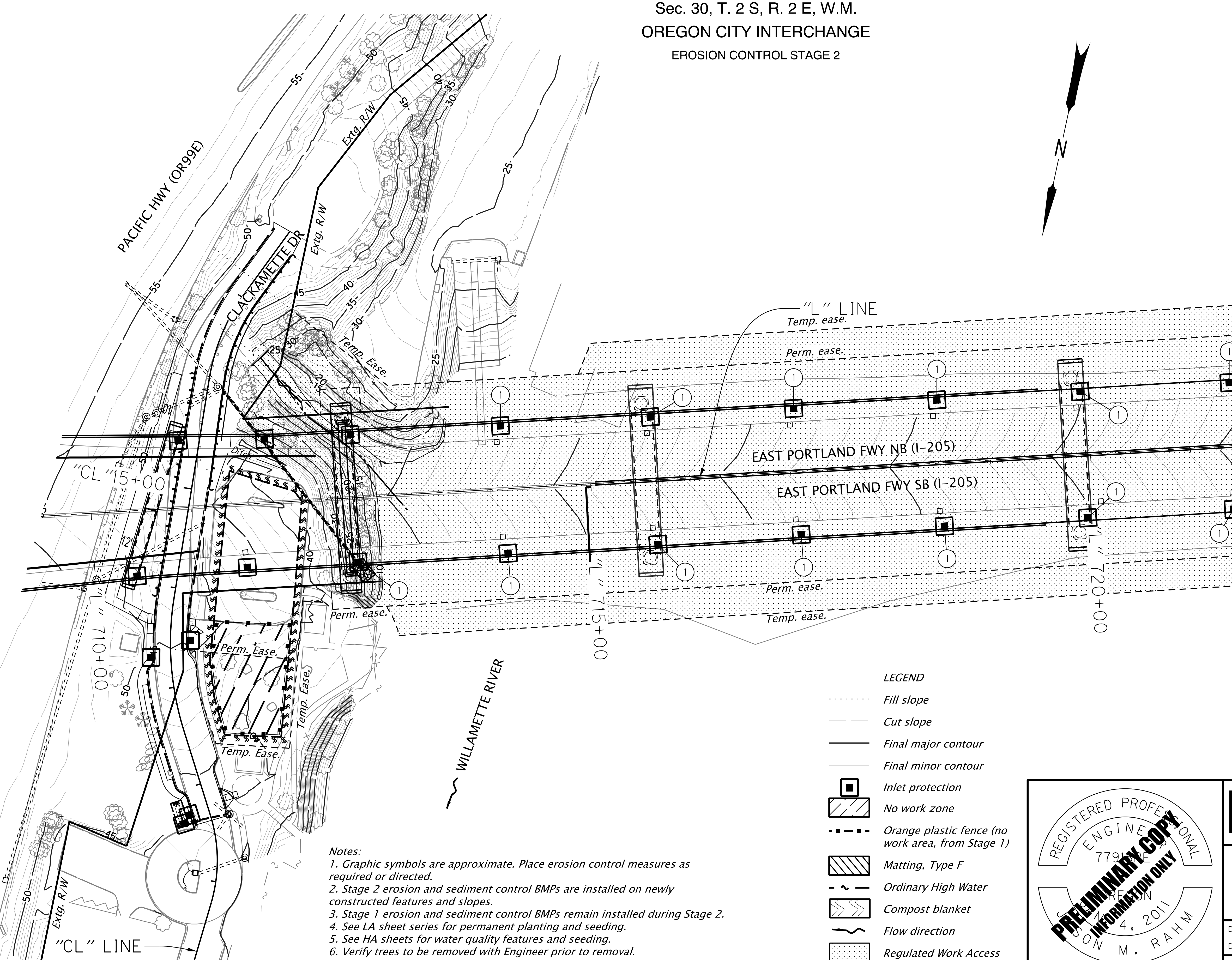
??V–???

Sec. 30, T. 2 S, R. 2 E, W.M.

OREGON CITY INTERCHANGE

EROSION CONTROL STAGE 2

(1) *Const. inlet protection – 13*
(Type 3)
(See drg. no. RD1010)



Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Ordinary High Water*
- *Compost blanket*
- *Flow direction*
- *Regulated Work Access*

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON ... 4, 2011 JASON M. RAHM

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503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB28

ESCP Stage 2 – HDR :: FB28 7/15/2020 10:56:37 PM CDONOVAN

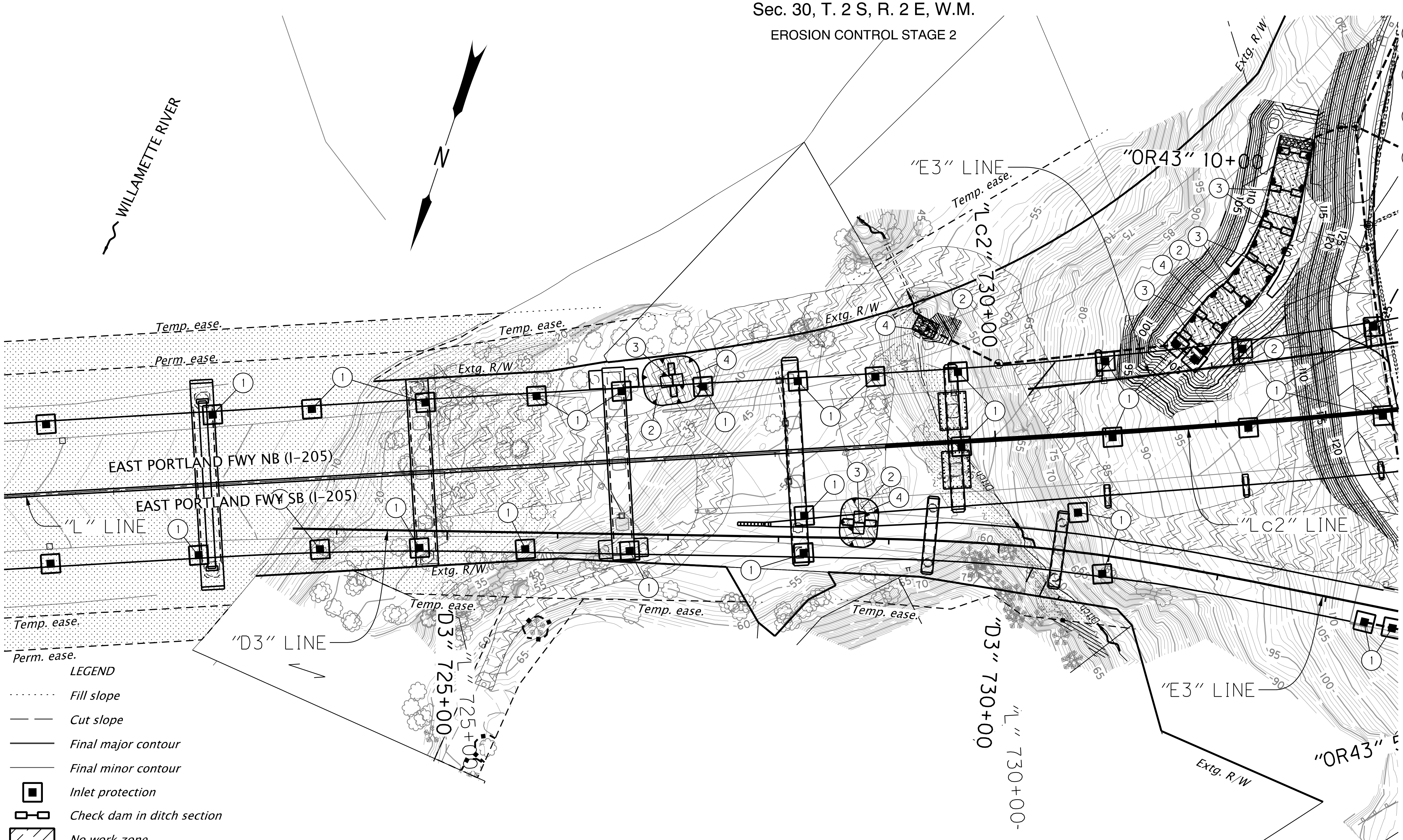
876

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.3393° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



1 Const. inlet protection, (Type 3) - 29 (See drg. no. RD1010)

2 Install compost erosion blanket - 7,189 sq. yd. (For details, see sht. FB01)

3 Const. check dam, (Type 6) - 9 (See drg. no. RD1006)

4 Install matting - 1,156 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Ordinary High Water*
- *Wetland*
- *Compost blanket*
- *Flow direction*
- *Regulated Work Access*
- *No Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
JULY 14, 2011
JASON M. RAHM
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EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

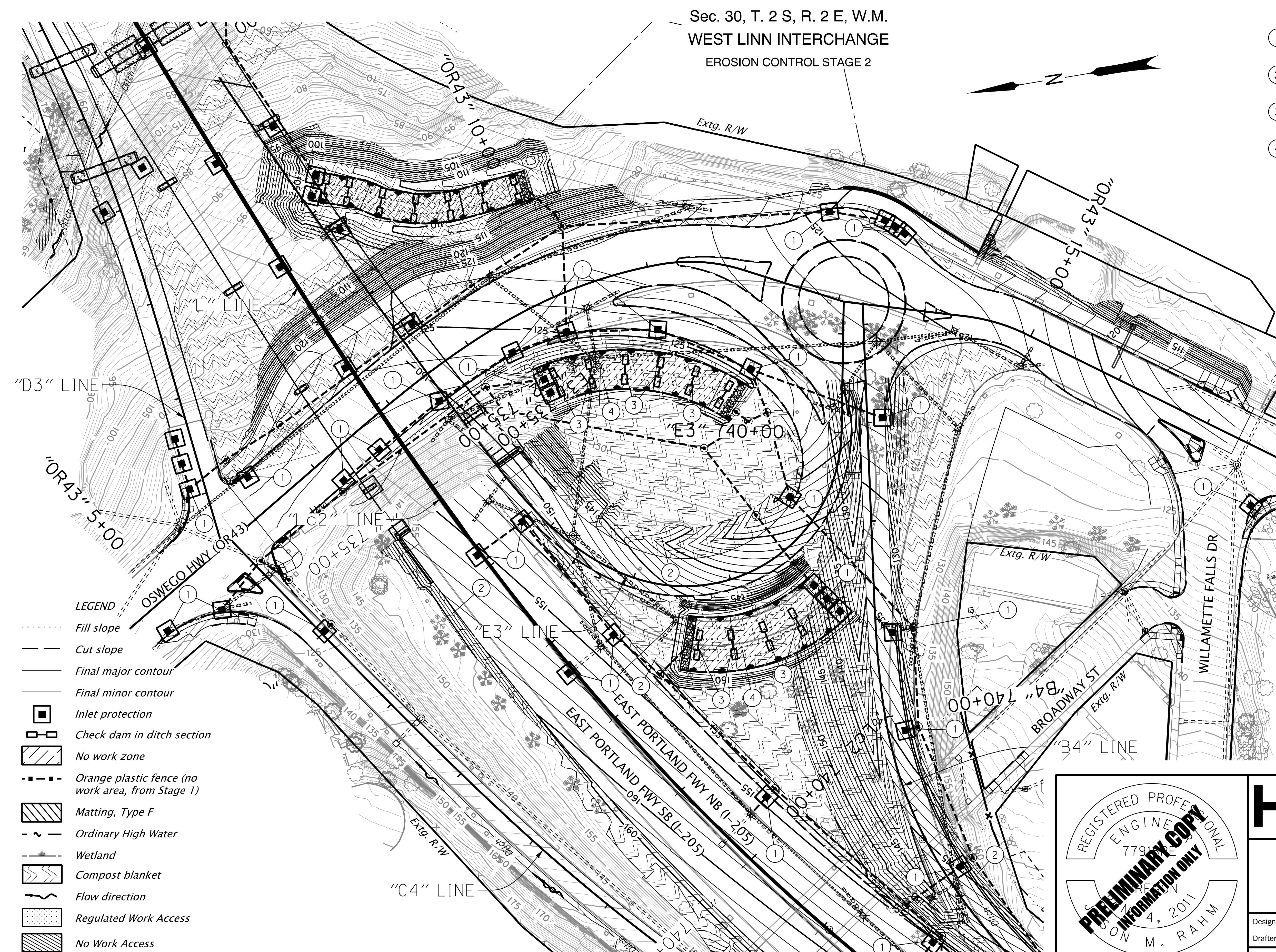
Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB29

??V-???

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 2



1. Const. inlet protection, (Type 3) - 33 (See drg. no. RD1010)
2. Install compost erosion blanket - 18,264 sq. yd. (For details, see sht. FB01)
3. Const. check dam, (Type 6) - 10 (See drg. no. RD1006)
4. Install matting - 1,948 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

LEGEND
- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- Check dam in ditch section
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Matting, Type F
- Ordinary High Water
- Wetland
- Compost blanket
- Flow direction
- Regulated Work Access
- No Work Access

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

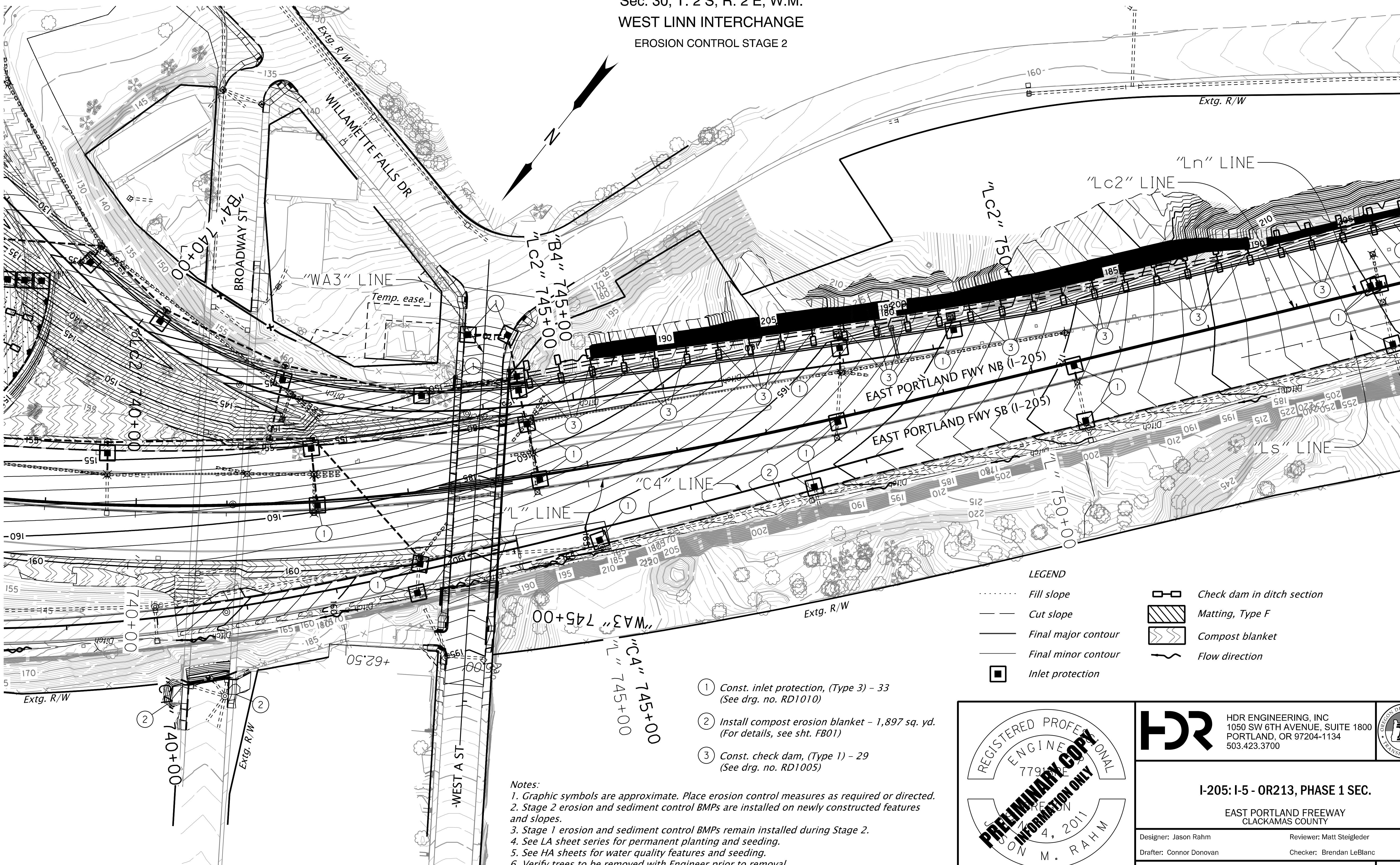
SHEET NO. FB30

??V–???

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

EROSION CONTROL STAGE 2



LEGEND

	Fill slope		*Check dam in ditch section*
	Cut slope		*Matting, Type F*
	Final major contour		*Compost blanket*
	Final minor contour		*Flow direction*
	Inlet protection		

1 *Const. inlet protection, (Type 3) – 33 (See drg. no. RD1010)*

2 *Install compost erosion blanket – 1,897 sq. yd. (For details, see sht. FB01)*

3 *Const. check dam, (Type 1) – 29 (See drg. no. RD1005)*

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 77919PE OREGON JULY 14, 2011 JASON M. RAHM

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder

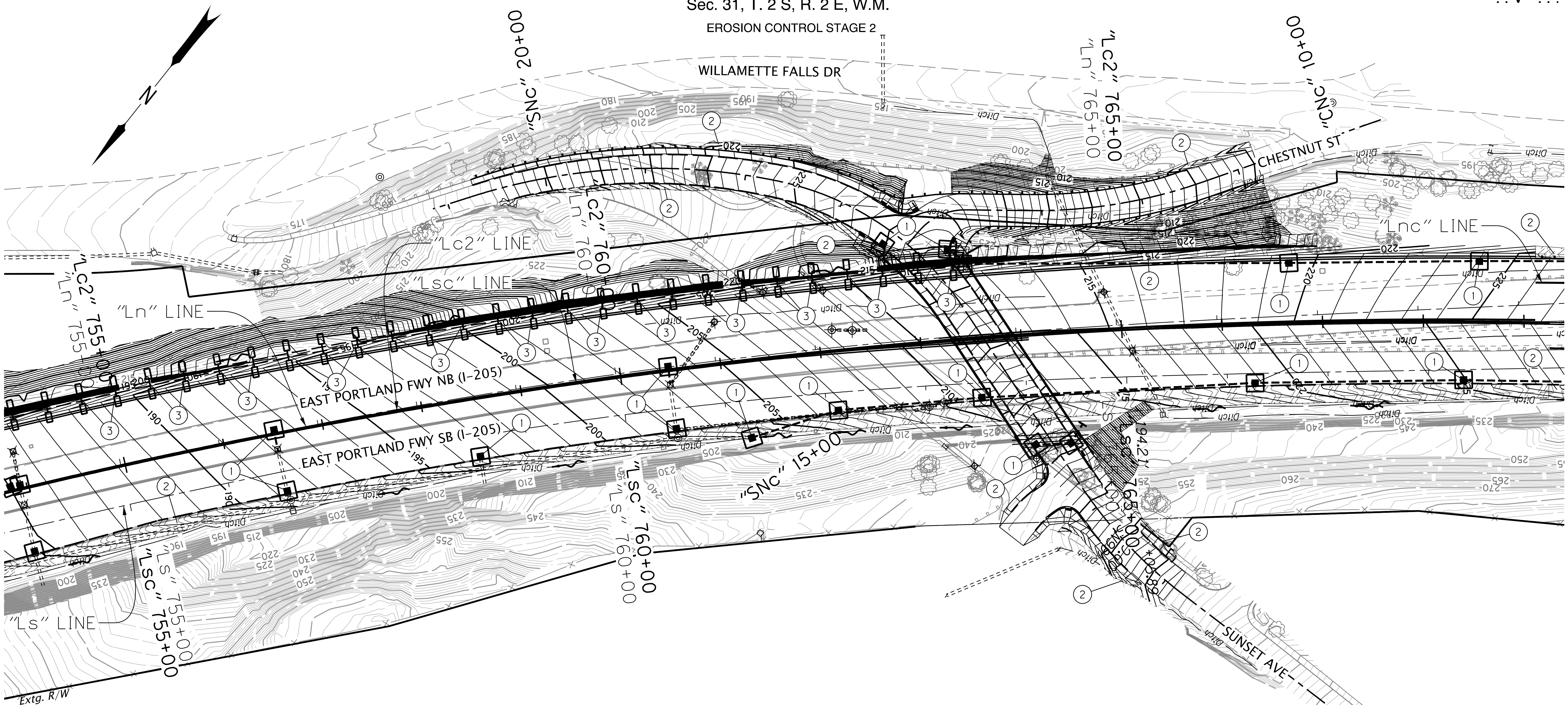
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB31

Sec. 31, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



1. Const. inlet protection, (Type 3) - 16 (See drg. no. RD1010)
2. Install compost erosion blanket - 8,605 sq. yd. (For details, see sht. FB01)
3. Const. check dam, (Type 6) - 24 (See drg. no. RD1006)

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *Compost blanket*
- *Flow direction*

REGISTERED PROFESSIONAL ENGINEER 77913PE OREGON JULY 14, 2011 JASON M. RAHM

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HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB32

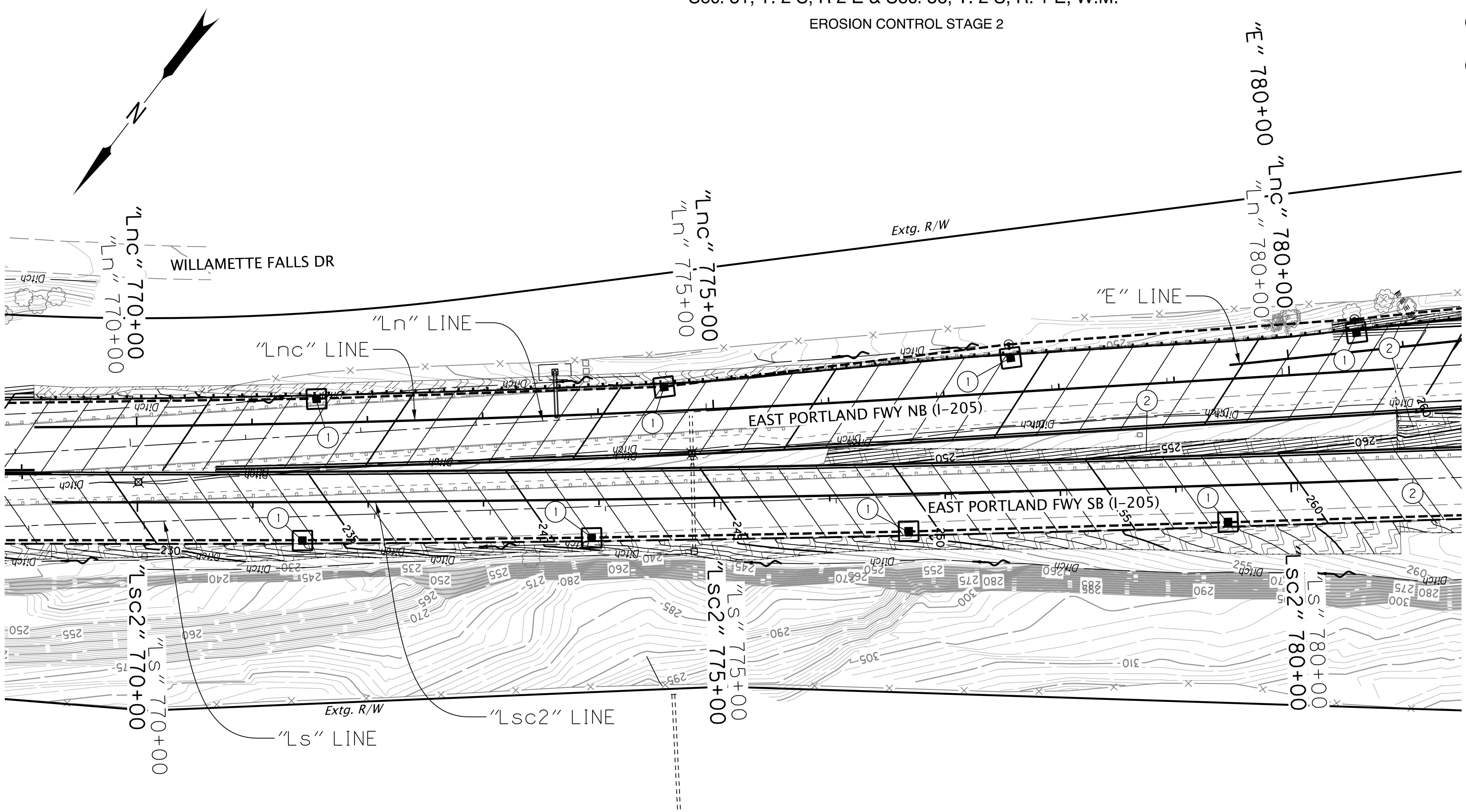
??V-???

Sec. 31, T. 2 S, R 2 E & Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2

(1) *Const. inlet protection, (Type 3) - 8*
(See drg. no. RD1010)

(2) *Install compost erosion blanket - 27,187 sq. yd.*
(For details, see sht. FB01)



LEGEND

Fill slope
Cut slope
Final major contour
Final minor contour
Inlet protection
Check dam in ditch section
Compost blanket
Flow direction

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

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EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB33

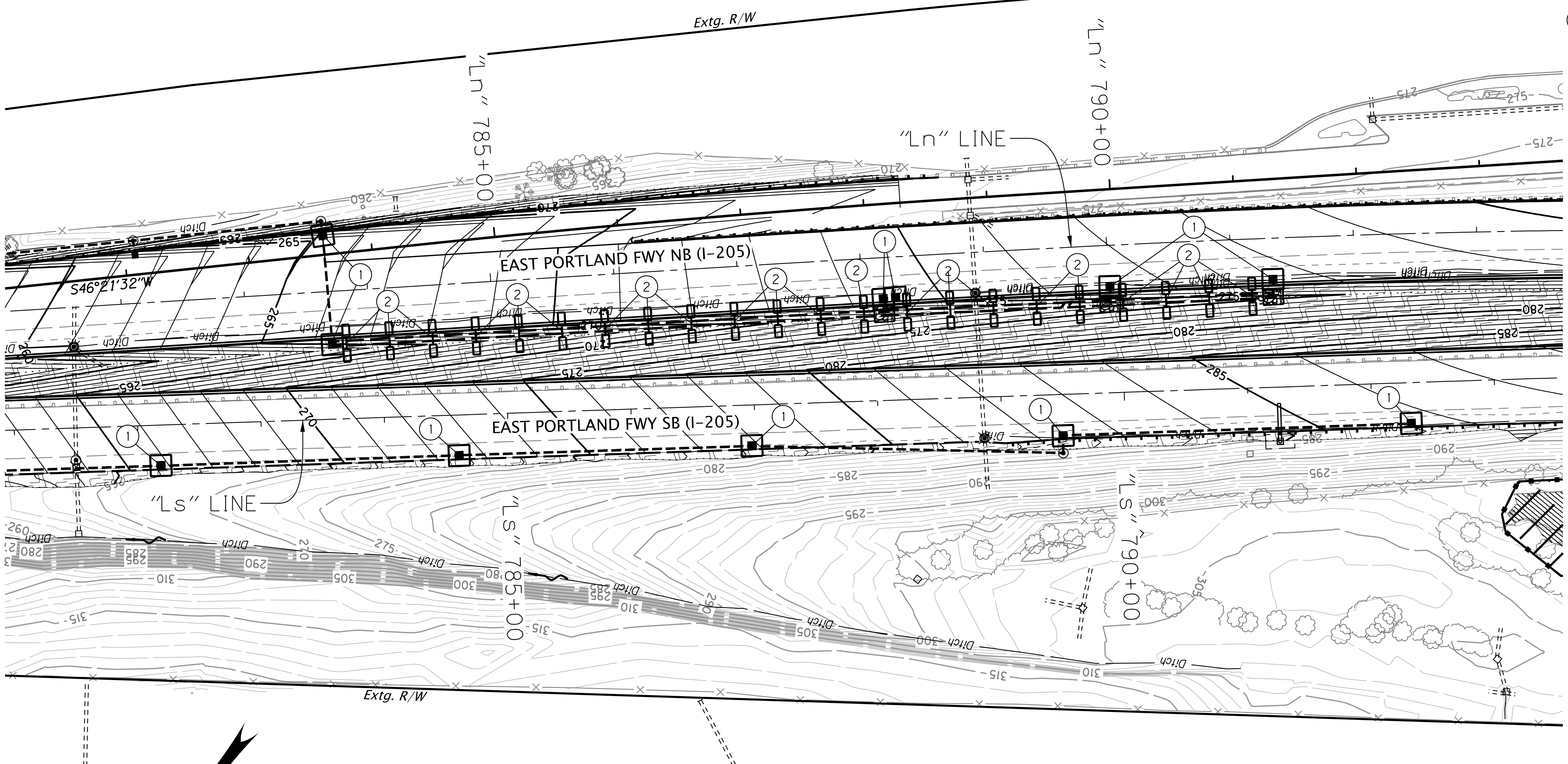
??V–???

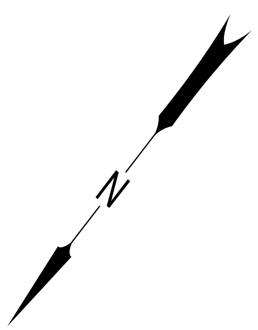
Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2

1 Const. inlet protection – 11
(Type 3)
(See drg. no. RD1010)

2 Const. check dam, (Type 6) – 22
(See drg. no. RD1006)





LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *No work zone*
- *Check dam in ditch section*
- *Orange plastic fence (no work area, from Stage 1)*
- *Compost blanket*
- *Flow direction*
- *No Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER
77915PE
OREGON
4, 2011
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB34

ESCP Stage 2 - HDR :: FB34 7/15/2020 10:57:26 PM CDONOVAN

882

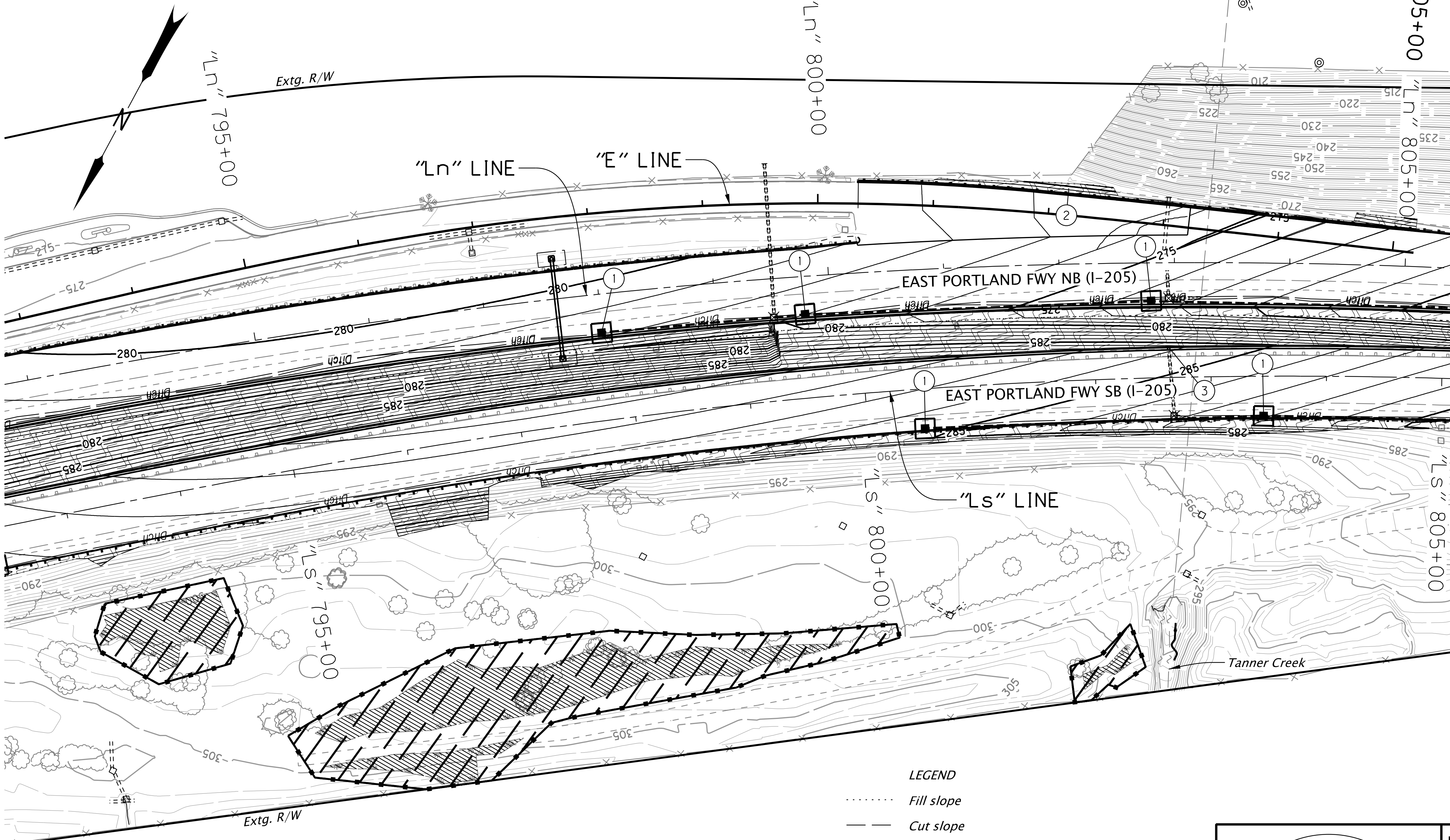
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'

??V–???

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



1 Const. inlet protection, (Type 3) – 5
(See drg. no. RD1010)

2 Install compost erosion blanket – 257 sq. yd.
(For details, see sht. FB01)

3 Const. temp. slope drain
(See drg. no. RD1045)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Compost blanket
- Flow direction
- No Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB35

ESCP Stage 2 - HDR :: FB35 7/15/2020 10:57:34 PM CDONOVAN

883

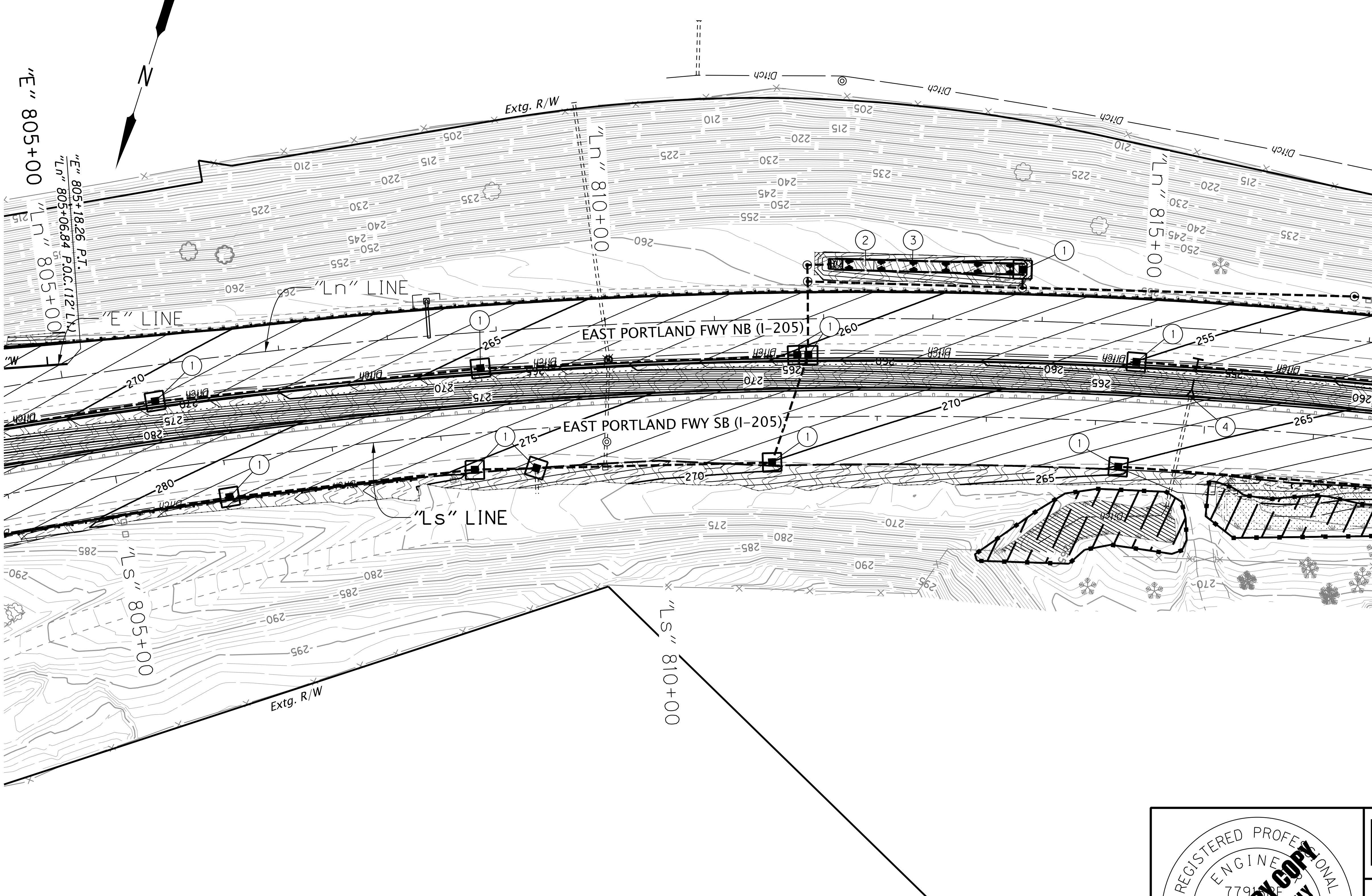
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 208.1457° Scale: 1"=100'

??V-???

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



1. Const. inlet protection - 11 (Type 3) (See drg. no. RD1010)
2. Install compost erosion blanket - 552 sq. yd. (For details, see sht. FB01)
3. Install matting - 41 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)
4. Const. temp. slope drain (See drg. no. RD1045)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Temporary slope drain with energy dissipator
- Wetland
- Flow direction
- Compost blanket
- Matting, Type F
- Orange plastic fence (no work area)
- No Work Access
- Regulated Work Access

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL | SHEET NO. FB36

ESCP Stage 2 - HDR :: FB36 7/15/2020 10:57:41 PM CDONOVAN

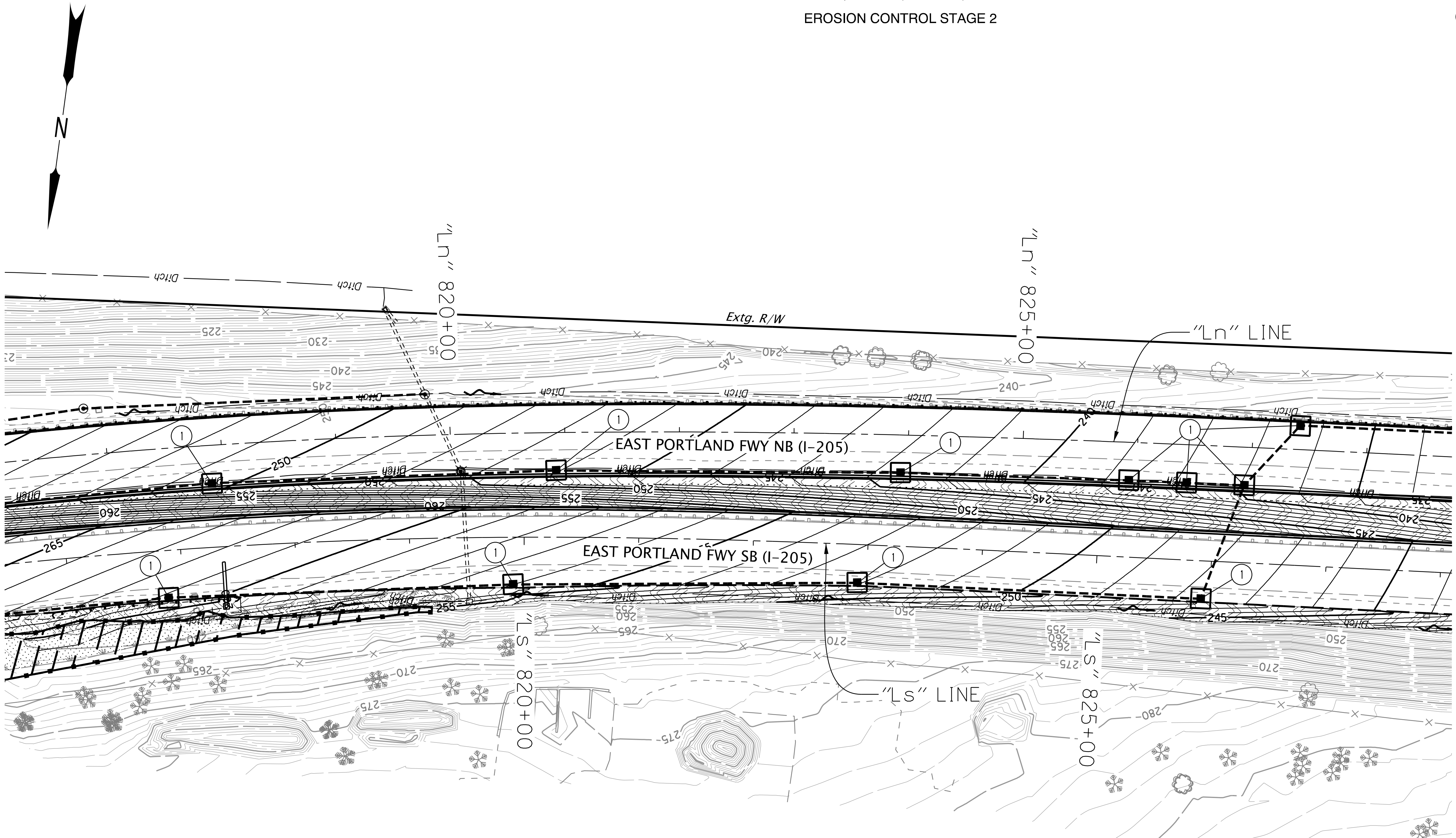
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 197.6361° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2

(1) Const. inlet protection – 11
(Type 3)
(See drg. no. RD1010)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Wetland
- Flow direction
- Compost blanket
- Orange plastic fence (no work area)
- No Work Access
- Regulated Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER
77919PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB37

ESCP Stage 2 - HDR :: FB37 7/15/2020 10:57:48 PM CDONOVAN

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 187.5797° Scale: 1"=100'

Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

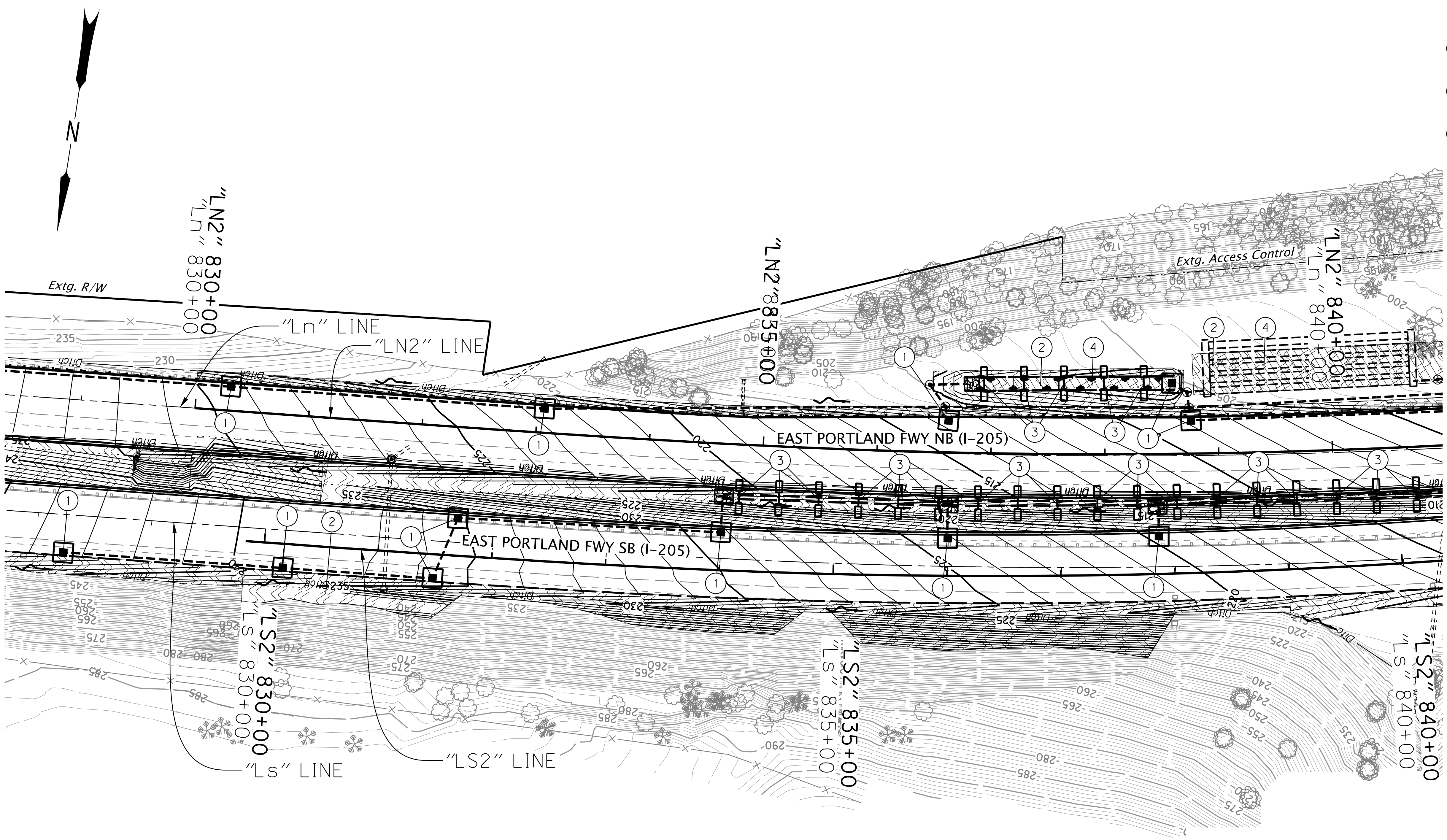
EROSION CONTROL STAGE 2

1 Const. inlet protection - 12 (Type 3) (See drg. no. RD1010)

2 Install compost erosion blanket - 10,652 sq. yd. (For details, see sht. FB01)

3 Const. check dam, (Type 6) - 23 (See drg. no. RD1006)

4 Install matting - 1,143 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Flow direction
- Compost blanket
- Matting, Type F

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

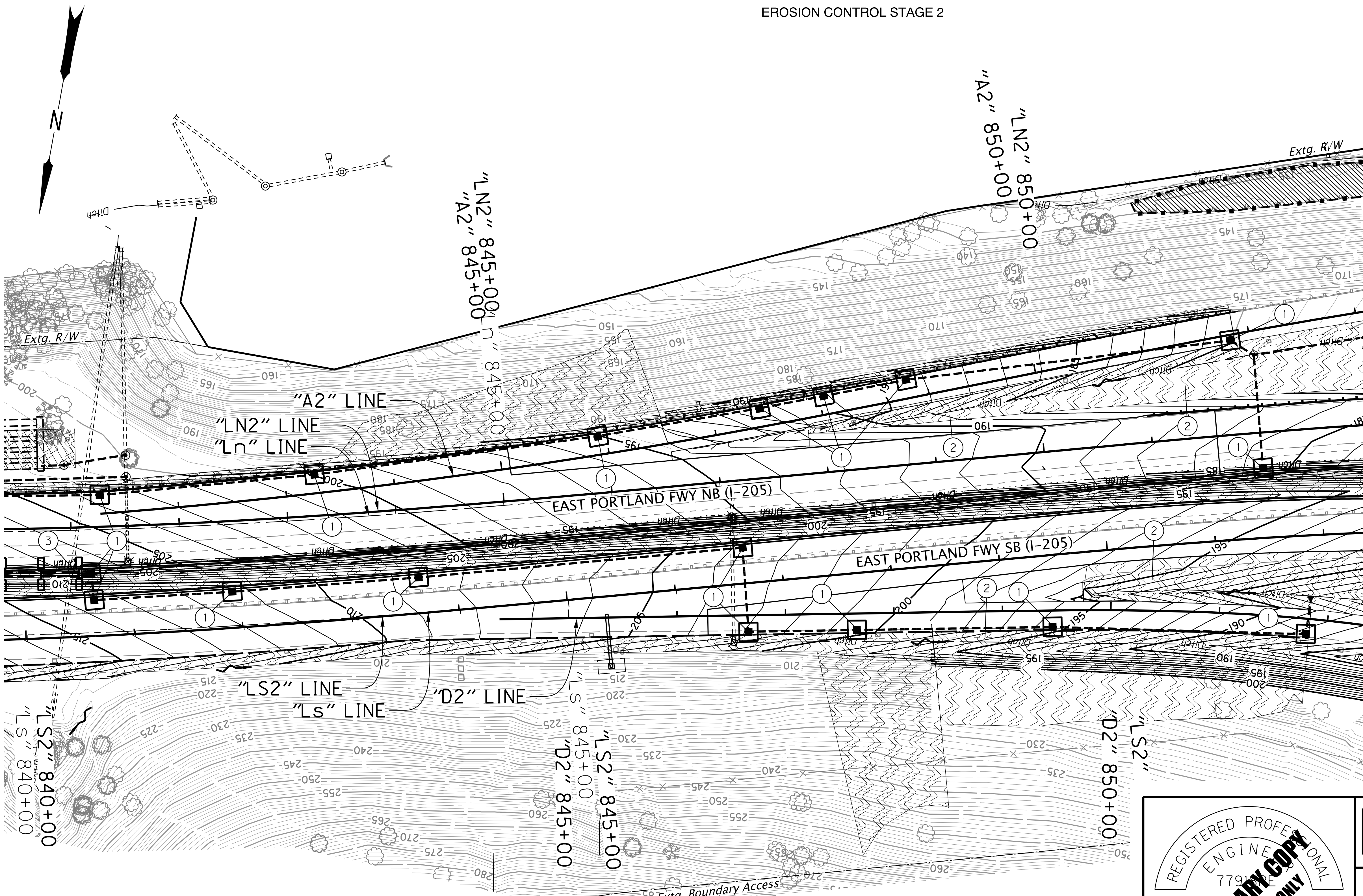
EROSION AND SEDIMENT CONTROL

SHEET NO. FB38

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 2



(1) Const. inlet protection - 16 (Type 3) (See drg. no. RD1010)

(2) Install compost erosion blanket - 26,775 sq. yd. (For details, see sht. FB01)

(3) Const. check dam, (Type 6) - 1 (See drg. no. RD1006)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Wetland
- Ordinary High Water
- Flow direction
- Compost blanket
- Matting, Type F
- Orange plastic fence (no work area, from Stage 1)
- No Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

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77912PE
OREGON
JUNE 14, 2011
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PORTLAND, OR 97204-1134
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

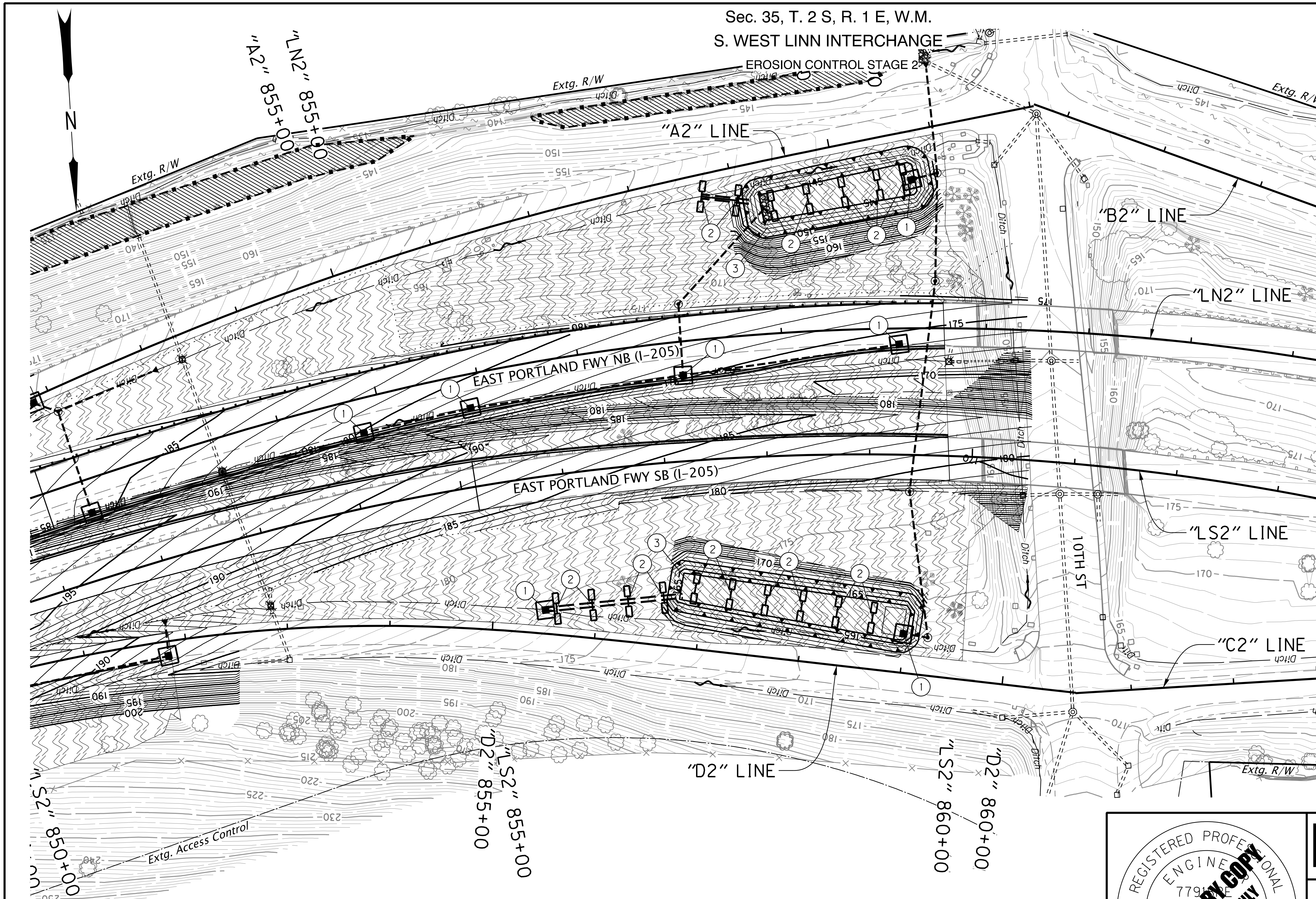
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB39

??V-???



1. Const. inlet protection - 7 (Type 3) (See drg. no. RD1010)
2. Const. check dam, (Type 6) - 17 (See drg. no. RD1006)
3. Install matting - 2,699 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Wetland
- Ordinary High Water
- Flow direction
- Compost blanket
- Matting, Type F
- Orange plastic fence (no work area, from Stage 1)
- No Work Access

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Verify trees to be removed with Engineer prior to removal.

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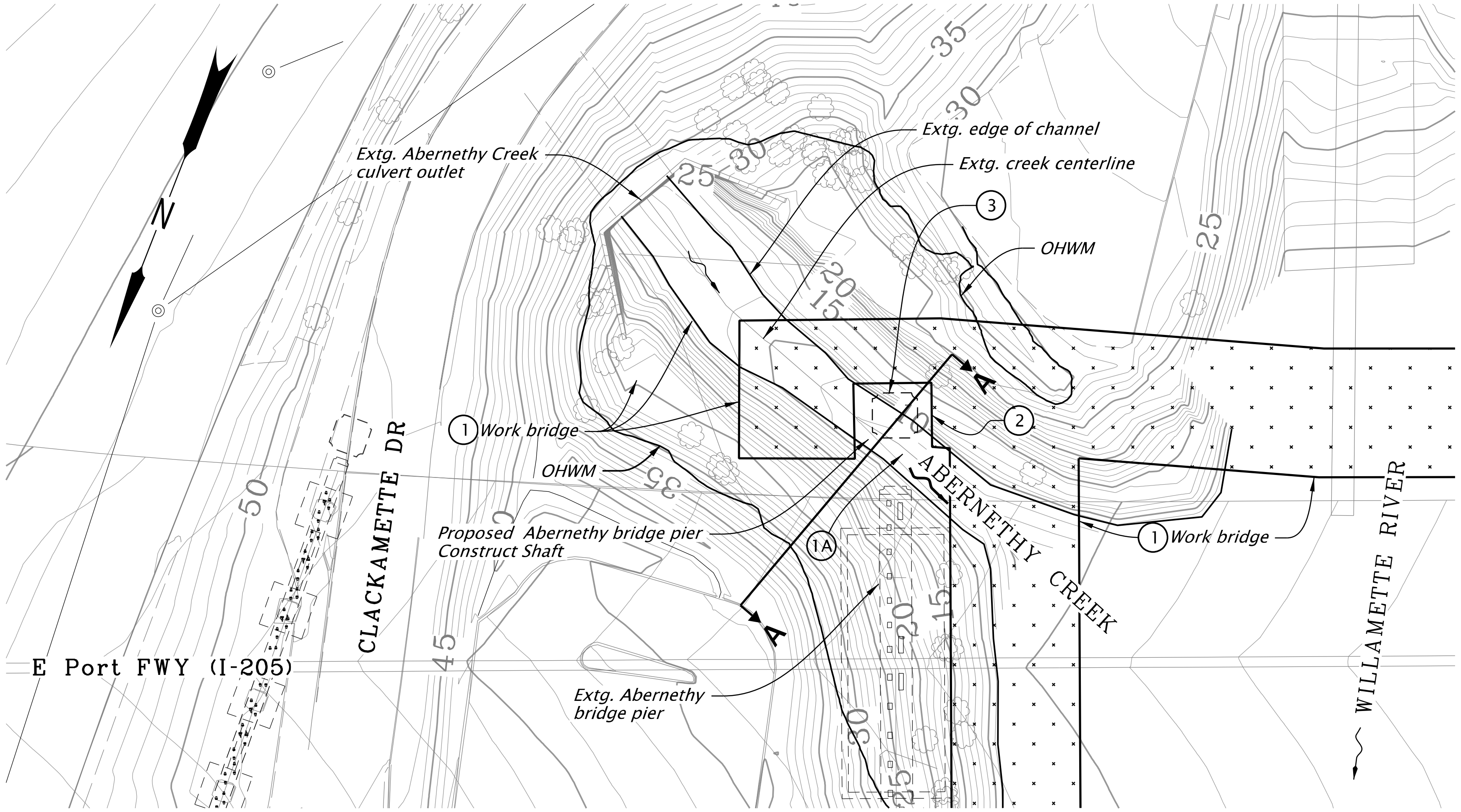
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB40



Abernethy Creek - Phase 1
(In-water-work activity)
Construct temporary work
bridge and Pier 3, south side.

CONSTRUCTION SEQUENCE

1A *Remove existing rip rap (as required)*
1 *Install temporary work bridge*
2 *Install temporary shoring at Pier 3*
3 *Construct shaft*

Note:
1. *Work bridge location and temporary work access is shown for reference only and is subject to change.*
2. *Temporary work access must accommodate existing flow rates for Abernethy Creek See sht. XX for additional shoring details.*
3. *See sht. FB 24 for section A-A.*

LEGEND

- *Fill slope*
- *Cut slope*
- *Ordinary High Water*
- *Flow direction*
- *Temp. work bridge*

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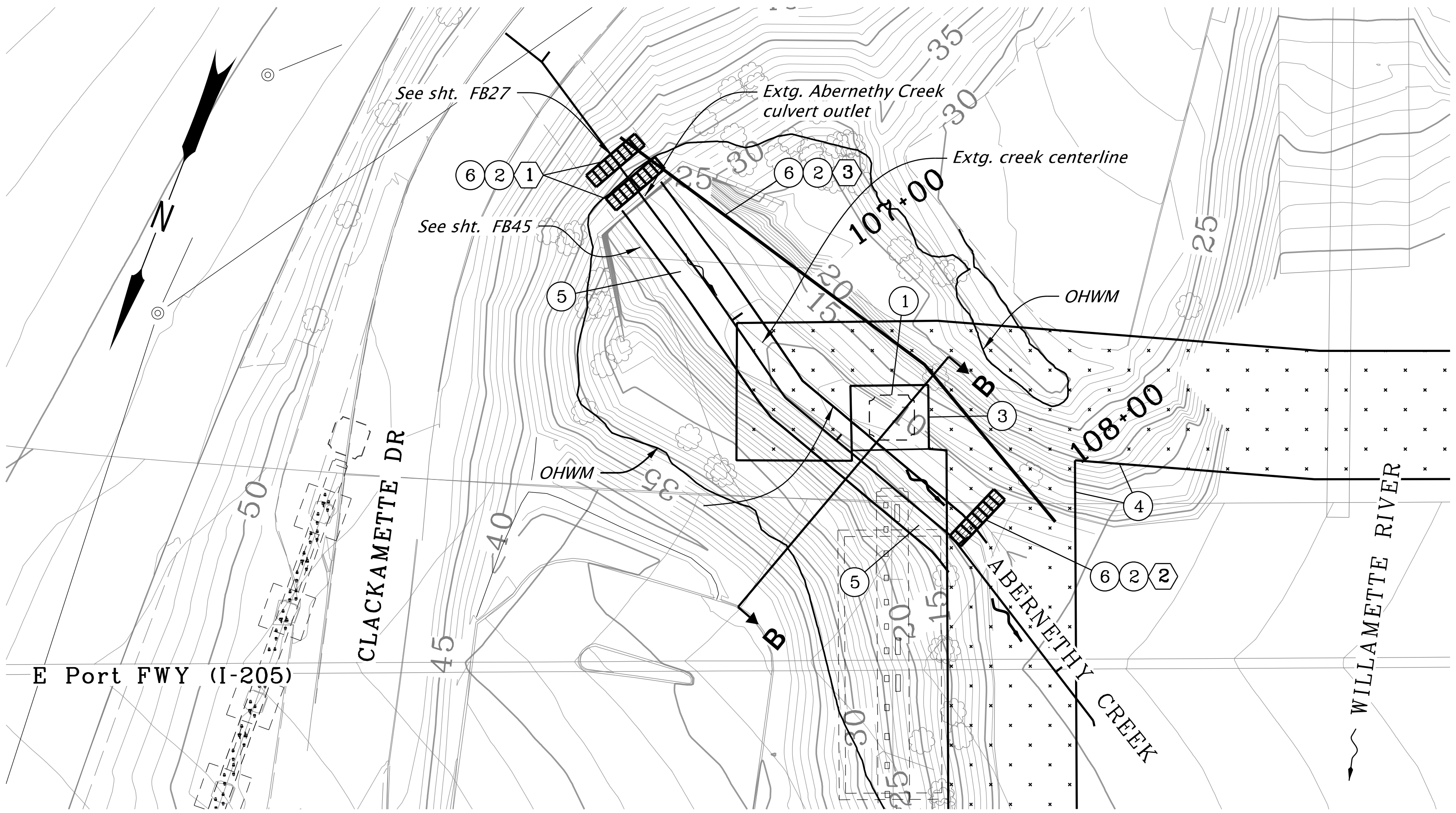
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL
SHEET NO. FB41

ESCP Creeks - HDR :: FB41 Phase 1 7/15/2020 10:58:57 PM CDONOVAN
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
Rotation: 201.4396° Scale: 1"=50'



Abernethy Creek Construction - Phase 2
(In-water-work)
Complete Pier 3 south side architectural treatment and channel restoration

CONSTRUCTION SEQUENCE

1. *Complete architectural finish on Pier 3 southern shaft*
2. *Install temporary water management features*
3. *Remove coffer dam at soutern shaft of Pier 3*
4. *Remove work bridge*
5. *Realign Abernethy Creek and install chanel restoration features. See FCXX for details.*
6. *Remove temporary water management features*

FULL ISOLATION NOTES:

1. *Isolating the work site upstream: Install single primary sandbag barrier across the stream channel. If Needed, install secondary sandbag barrier. Downstream: Install sandbag barrier.*
2. *Install sandbag barrier downstream from work area. Location to be set based on topography and easements available.*
3. *Size the temporary water management facility based on site conditions. Route water around work area using pipe, pump or combination. The discharge table below can be used to estimate the size of the bypass pipe and/or pump.*

Notes:

1. *Work bridge location and temporary work access is shown for reference only and is subject to change.*
2. *Temporary work access must accommodate existing flow rates for Abernethy Creek See sht. FB43 for additional shoring details.*

LEGEND

- *Fill slope*
- *Cut slope*
- *Ordinary High Water*
- *Flow direction*

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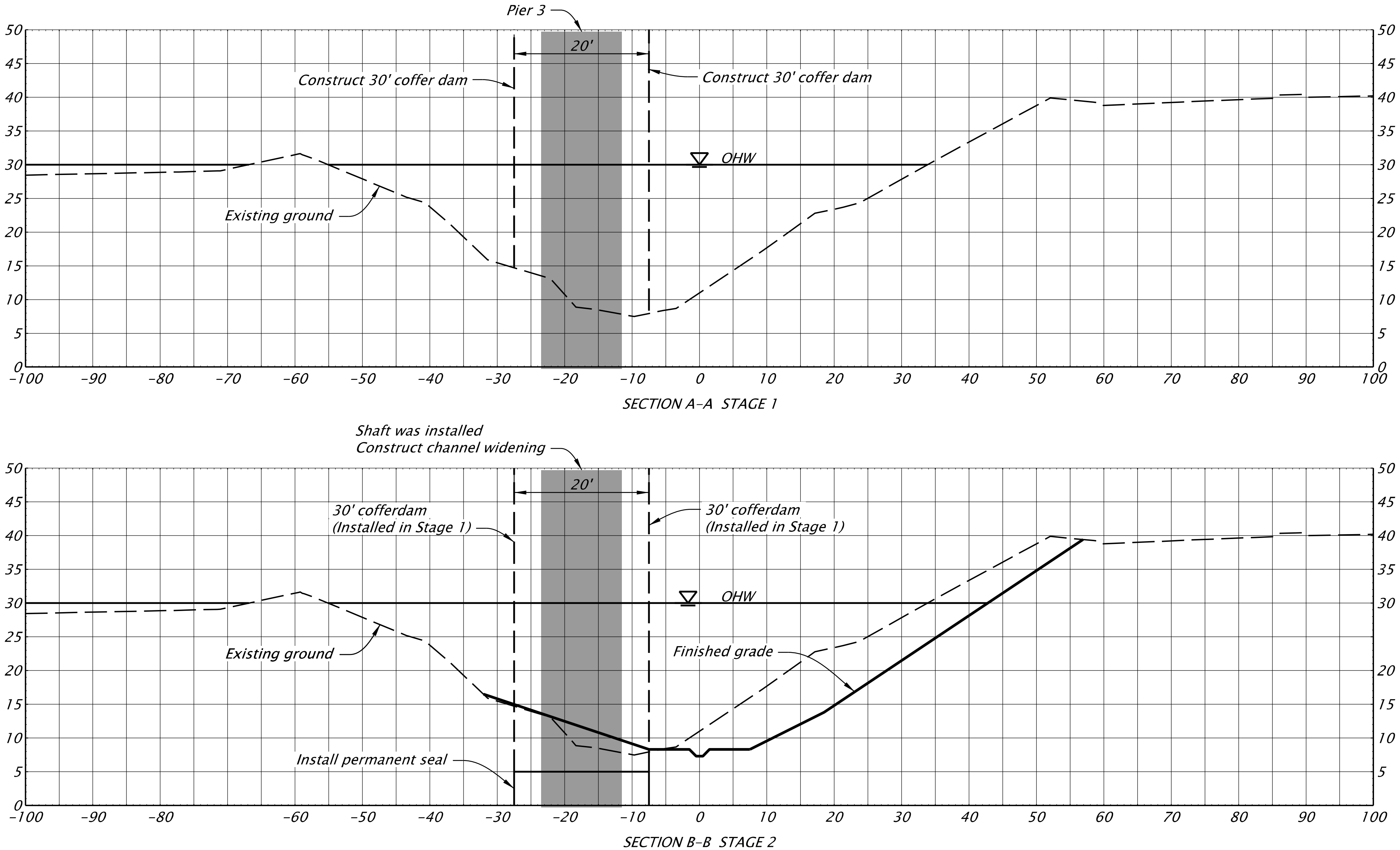
I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL | SHEET NO. FB42

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST



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PORTLAND, OR 97204-1134
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I-205: I-5 - OR213, PHASE 1 SEC.

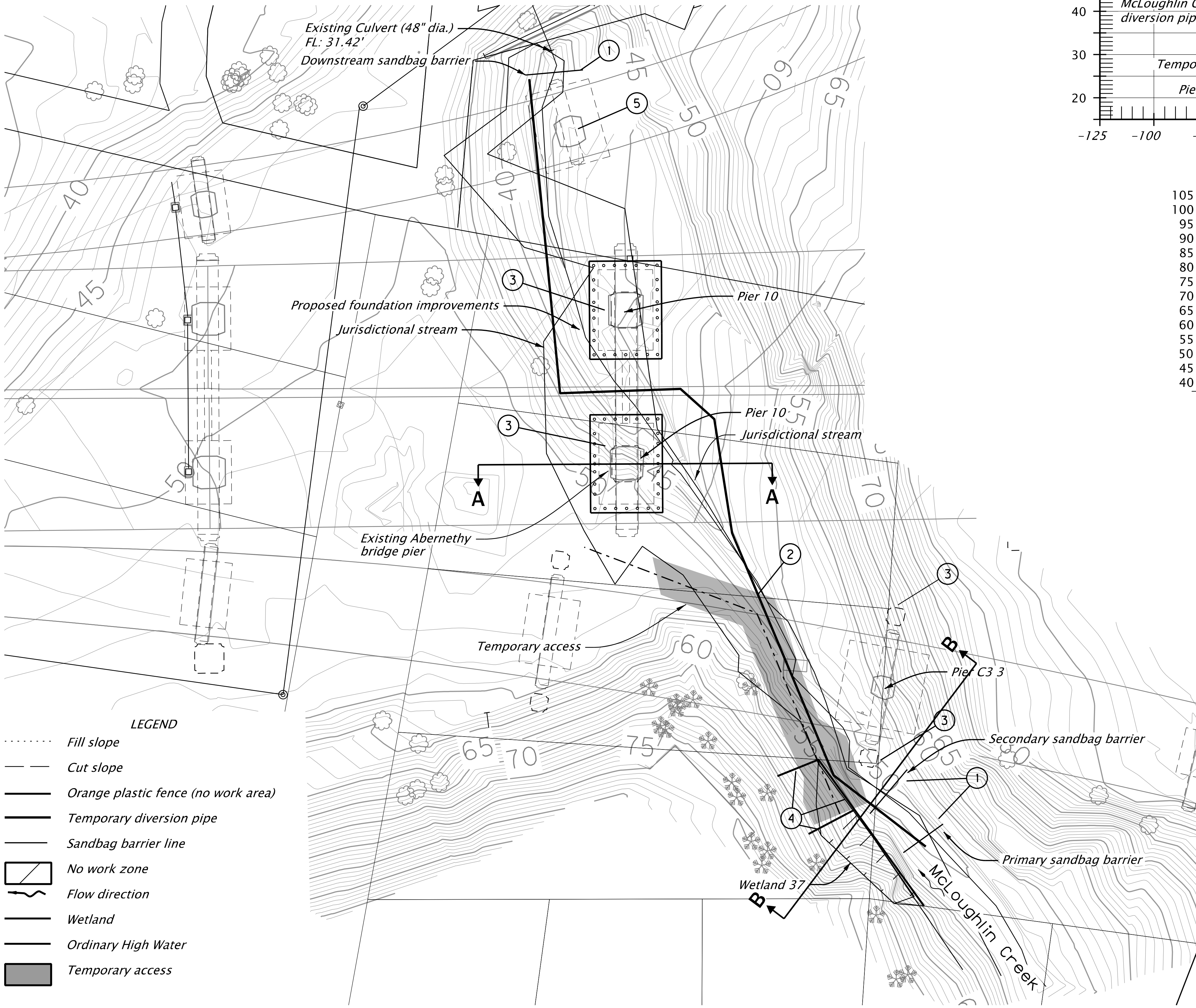
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

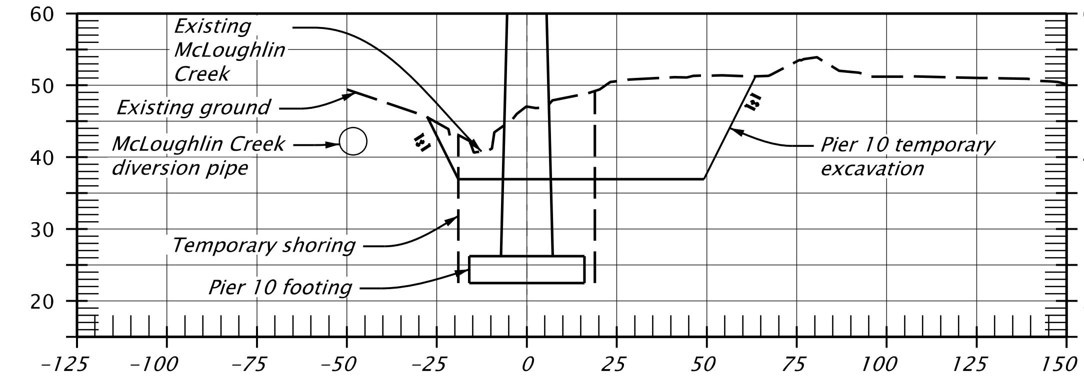
Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

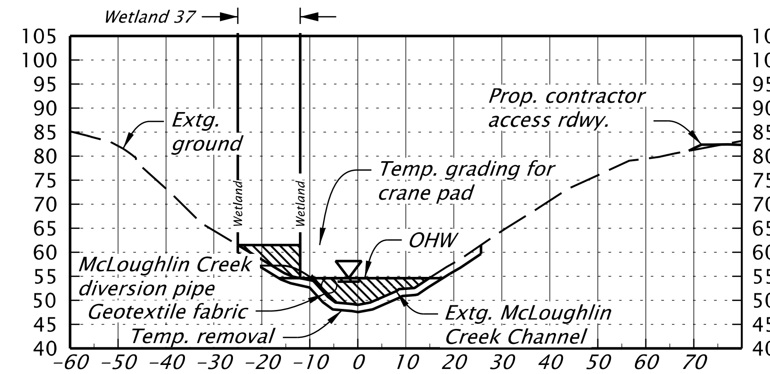
SHEET NO. FB43

McLoughlin Creek - Phase 1
Construct temporary dike
(In-water-work activities)
Construct shaft





SECTION A–A



SECTION B–B

Note:

For additional erosion control details not shown, see FB27.

Creek work below OHW cannot exceed 18 months. Install and remove temporary water diversion during in-water work window.

1. Install temporary BMPs and flow diversion
2. Install temporary diversion pipe (18" dia.)
3. Construct shaft
4. Install orange plastic fence (no work area)
5. Remove existing pile cap and bridge column

LEGEND

- Fill slope
- Cut slope
- Orange plastic fence (no work area)
- Temporary diversion pipe
- Sandbag barrier line
- No work zone
- Flow direction
- Wetland
- Ordinary High Water
- Temporary access

REGISTERED PROFESSIONAL ENGINEER
77918PE
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2020

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503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

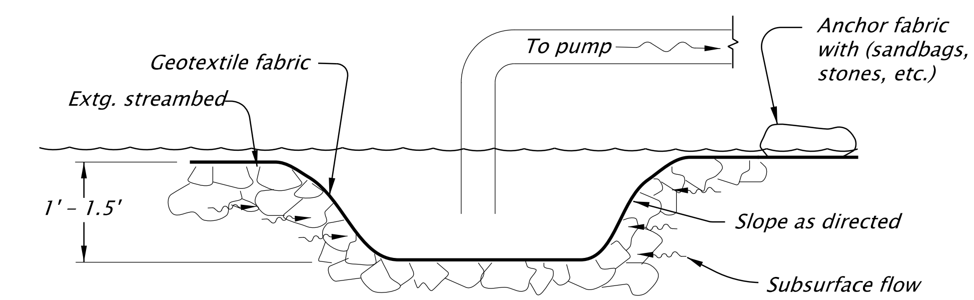
SHEET NO. FB44

EE_K19786_HDR_ecpl_03.dgn :: FB44 7/22/2020 11:22:22 AM JRAHM

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 201.4396° Scale: 1"=40'

TEMPORARY WATER MANAGEMENT FACILITY



SUMP DETAIL

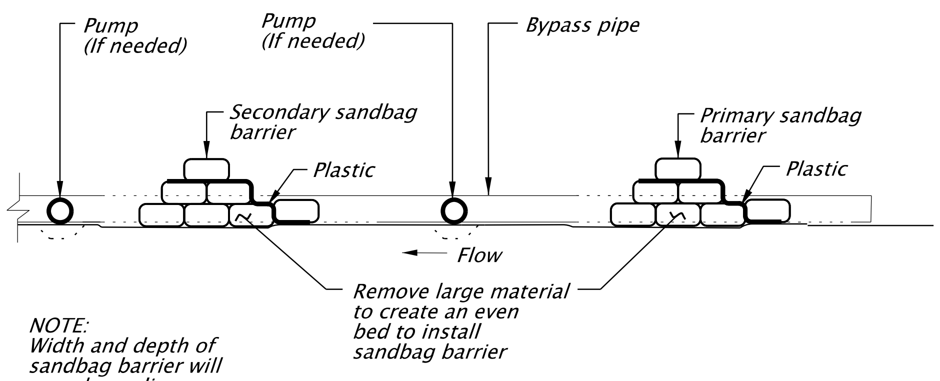
NTS

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.

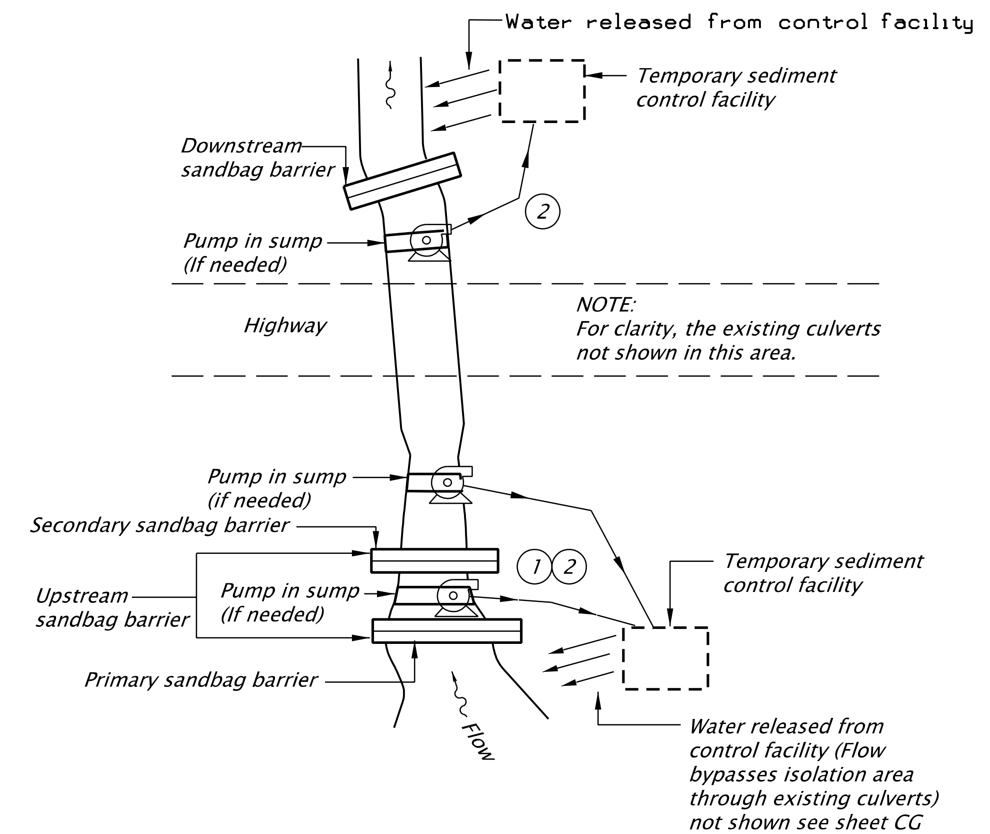


NOTE:
Width and depth of sandbag barrier will vary depending on site and stream flow conditions.

SANDBAG BARRIER SECTION

LEGEND:

- Sandbag barrier line
- Sediment control facility
- Sump pump



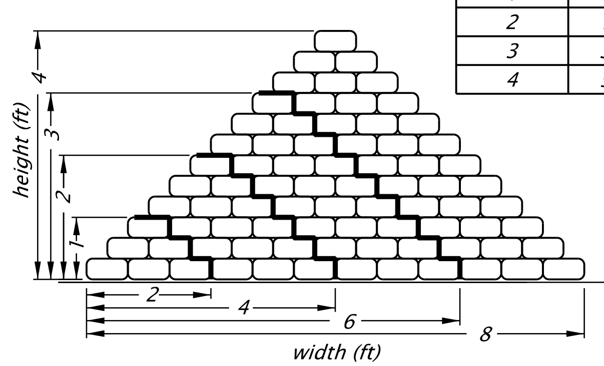
COMBINED PUMP/GRAVITY BYPASS DETAIL

NTS

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.

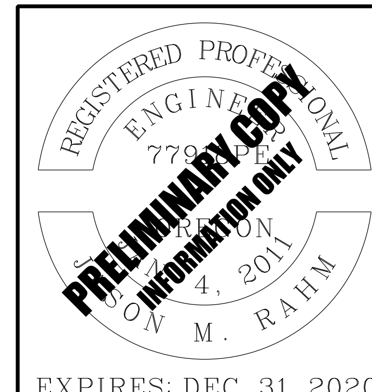
The estimated number of bags needed for 100 linear feet of barrier that is twice as wide as its height is:

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



FULL ISOLATION NOTES:

1. *See sheet FB22 note.*
2. *See sheet FB22 note.*



HDR ENGINEERING, INC
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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB45

1. The City Attorney is reviewing the interpretation that the I-205 right-of-way is not zoned and thus not subject to specific use and dimensional criteria of the City of West Linn Community Development Code (CDC).

If it is determined the I-205 right-of-way was legally zoned by the City, additional land use review may be required, including another pre-application meeting, neighborhood meetings, and potentially public hearings before the Planning Commission.

Acknowledged.

2. Chapter 28.090.C(3) – Grading Plan

Please submit a grading plan pursuant to CDC 28.130, including a larger scale plan for the Willamette River Greenway area under and adjacent to the Abernathy Bridge

The Erosion Control Plan (Attachment A) shows contour lines and location and height of retaining walls. The geotechnical report that was originally submitted as Attachment R provides details on slopes and development constraints in the WRG area.

3. Chapter 32.050.F(9) – Significant Tree Removal

Please coordinate with the City Arborist to determine if any proposed trees to be removed are considered significant and map appropriately.

In progress

4. Chapter 32.050(G) – Construction Management Plan

Please submit a construction management plan, including locations of anchored chain link fencing to protect Water Resource Areas.

The Erosion Control Plan (Attachment A) is the project's construction management plan, which shows construction ingress/egress, staging, proposed grading and contour lines, and proposed locations of anchored chain link fencing around WRAs.

5. Chapter 32.050.K(4) – Qualified Natural Resource Professional

Please submit the qualifications for the professional who prepared the narrative and analysis required by CDC 32.070 and 32.080.

Brian Bauman prepared the narrative and analysis for CDC 32.070 and 32.080. As a Senior Environmental Scientist at HDR, he has a BS in Natural Resources and 22 years of experience in the field of environmental science.

TREE ID	SPECIES	SCIENTIFIC	VISUAL	ACTION	COND	DBH	SHEET #	LOCATION	NUISANCE	TREE NOTES & CONDITION NOTES	LOCATION NOTES
Abbreviations: CP - Concrete Pad; CR - Tree crown; CS - Crown spread; CRZ - Critical Root Zone; FL - Fence line; FP - Foot Path; FY - Front Yard; LCR - Live Crown Ratio; NFE - Not fully measured & examined; PL - Parking Lot;											
DEFINITIONS: COND: Category of tree condition; DBH: Trunk diameter at 4.5-ft ht; E-RPZ: Estimated root protection radius recommendation; LOCATION NOTES: Growing location; NUISANCE: Trees considered invasive / undesirable											
NNA for HDR - SURVEY of 'SIGNIFICANT' TREES for !-205 CORRIDOR WIDENING PROJECT											
101	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	18	1		No	Closed canopy	
102	Black cottonwood	*Populus trichocarpa*		PROTECT	Fair	43	1		No	Sig stem lean	
103	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	27	1		No		
104	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	16	1		No	Closely spaced grouping	
105	Black cottonwood	*Populus trichocarpa*		PROTECT	Dead	14	1		No	Standing dead tree	
106	Black cottonwood	*Populus trichocarpa*		PROTECT	Poor	14	1		No	Severe decline	
107	Black cottonwood	*Populus trichocarpa*		3	Poor	23	1		No		
108	Black cottonwood	*Populus trichocarpa*		PROTECT	Good	16	1		No		
109	Black cottonwood	*Populus trichocarpa*		REM	Good	14	1		No		
110	Douglas fir	*Pseudotsuga menziesii*		REM	Good	6	1		No	**NOT A SIGNIFICANT TREE** Young tree	
111	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	13	1		No		
112	Big leaf maple	*Acer macrophyllum*		REM	Good	23	1		No		
113	Black cottonwood	*Populus trichocarpa*		REM	Good	27	1		No		
114	Big leaf maple	*Acer macrophyllum*	Yes	PROTECT	Fair/Good	60	1		No	Large old veteran tree. 40-ft CR spread. Some decay	
115	Big leaf maple	*Acer macrophyllum*		REM	Good	40	1		No	Large tree	
116	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	38	1		No		
117	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	20	1		No	Partially breaking apart	
118	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	32	1		No		
119	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	34	1		No		
120	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	26	1		No		
121	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	18	1		No		
122	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	16	1		No		
123	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	25	1		No	Multi-stems. Reduced CR	
124	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	13	1		No	Multi-stems. Reduced CR	
125	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	12	1		No	Multi-stems. Reduced CR	
126	Port Orford Cedar	*Chamaecyparis lawsoniana*		PROTECT	Good	15	1		No	Low LCR	
127	Douglas fir	*Pseudotsuga menziesii*		PROTECT	Fair/Ppoor	23	1		No	Stem lost at 25-ft	
128	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	65	1		No	3 massive stems from 10-ft. Erosion under base	Steep slope
55589	Port Orford Cedar	*Chamaecyparis lawsoniana*		PROTECT	Good/Fair	27	1		No		
55733	Giant sequoia	*Sequoiadendron giganteum*		PROTECT	Good	26	1		No		Adjacent to property line
55734	Port Orford Cedar	*Chamaecyparis lawsoniana*		PROTECT	Good	13	1		No		Adjacent to property line
55735	Port Orford Cedar	*Chamaecyparis lawsoniana*		PROTECT	Good	12	1		No	Twin stem	Adjacent to property line
55736	Port Orford Cedar	*Chamaecyparis lawsoniana*		PROTECT	Good	25	1		No		Private Property; 8-ft from fence
55744	Douglas fir	*Pseudotsuga menziesii*		PROTECT	Good/Fair	19	1		No		6-ft from property line fenc
55745	Douglas fir	*Pseudotsuga menziesii*		PROTECT	Good/Fair	13	1		No	Low LCR	3-ft from property line fence
55746	Port Orford Cedar	*Chamaecyparis lawsoniana*		REM	Good/Fair	18	1		No		
55747	Port Orford Cedar	*Chamaecyparis lawsoniana*		REM	Good/Fair	14	1		No	Stem lean. At edge of bridge overhang	
55750	Port Orford Cedar	*Chamaecyparis lawsoniana*		REM	Good	17	1		No		
56082	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	1		No	Closely spaced grouping	
56083	Black cottonwood	*Populus trichocarpa*		REM	Fair	33	1		No	Beaver damage	
56083	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	18	1		No	Closely spaced grouping	
56084	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	16	1		No	Closely spaced grouping	
56085	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	15	1		No	Closely spaced grouping	
56086	Black cottonwood	*Populus trichocarpa*		REM	Good	35	1		No		
56086	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	16	1		No	Closely spaced grouping	
56094	Big leaf maple	*Acer macrophyllum*		REM	Good	29	1		No		
56100	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	27	1		No		
56126	Black cottonwood	*Populus trichocarpa*		REM	Fair/Poor	13	1		No		
56135	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	13	1		No	Bending stem towards light	
56137	Black cottonwood	*Populus trichocarpa*		REM	Fair/Good	12	1		No		
56138	Black cottonwood	*Populus trichocarpa*		REM	Dead	14	1		No	Failed stem	
56140	Black cottonwood	*Populus trichocarpa*		REM	Good	12	1		No		
56142	Black cottonwood	*Populus trichocarpa*		REM	Good	20	1		No		
56171	Big leaf maple	*Acer macrophyllum*		REM	Fair	12	1		No		
56176	Oregon ash	*Fraxinus latifolia*		REM	Good/Fair	12	1		No		
56176	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	1		No		
56177	Oregon ash	*Fraxinus latifolia*		REM	Fair/Poor	12	1		No		
56177	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	1		No		

56178	Oregon ash	*Fraxinus latifolia*		REM	Fair/Poor	12	1		No		
56181	Big leaf maple	*Acer macrophyllum*		REM	Fair	12	1		No	Lost upper CR	
56181	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	1		No		
56182	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	1		No		
56191	Black cottonwood	*Populus trichocarpa*		REM	Dead	13	1		No	Tree failure	
56230	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	1		No		
56247	Oregon ash	*Fraxinus latifolia*		REM	Good/Fair	12	1		No		
56253	Black cottonwood	*Populus trichocarpa*		REM	Fair	12	1		No		
56254	Black cottonwood	*Populus trichocarpa*		REM	Fair	20	1		No	Beaver damage	
56254	Black cottonwood	*Populus trichocarpa*		REM	Good	30	1		No		
56255	Black cottonwood	*Populus trichocarpa*		REM	Fair	18	1		No	Erosion around roots	
56272	Black cottonwood	*Populus trichocarpa*		REM	Fair/Good	12	1		No		
56281	Black cottonwood	*Populus trichocarpa*		REM	Good	17	1		No		
56289	Black cottonwood	*Populus trichocarpa*		REM	Poor	12	1		No	Bending stem under bridge	
56290	Black cottonwood	*Populus trichocarpa*		REM	Fair	13	1		No	Weak crown form	
56291	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	22	1		No	Upright form	
56336	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	18	1		No	Closely spaced grouping	
56337	Black cottonwood	*Populus trichocarpa*		REM	Fair/Poor	12	1		No		
56348	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	1		No		
56349	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	1		No		
56353	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	13	1		No		
56356	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	20	1		No	Thin CR form	
56357	Oregon ash	*Fraxinus latifolia*		REM	Good/Fair	13	1		No		
56358	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	18	1		No		
56359	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	18	1		No		
56360	Black cottonwood	*Populus trichocarpa*		REM	Fair	21	1		No		
56361	Black cottonwood	*Populus trichocarpa*		REM	Dead	18	1		No		
56367	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	18	1		No		
56386	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	19	1		No		
56387	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	1		No		
56388	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	27	1		No		
56391	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	15	1		No		
56392	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	22	1		No	Twin stems from 15-ft	
56397	Big leaf maple	*Acer macrophyllum*		PROTECT	Poor	12	1		No	Broken stem	
56398	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	1		No		
56410	Big leaf maple	*Acer macrophyllum*		REM	Good	28	1		No		
56411	Big leaf maple	*Acer macrophyllum*		REM	Good	23	1		No		
56412	Big leaf maple	*Acer macrophyllum*		REM	Good	35	1		No		
56428	Big leaf maple	*Acer macrophyllum*		REM	Good	22	1		No	Twin stems from 25-ft	
56449	Big leaf maple	*Acer macrophyllum*		REM	Dead	65	1		No	Large decaying monolith	
56452	Deodar cedar	*Cedrus deodara*	Yes	PROTECT	Good/Fair	43	1		No	Thin crown. Some storm damage	
56507	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	30	1		No	Row of 3 trees	
56511	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	24	1		No		
56560	Giant sequoia	*Sequoiadendron giganteum*	Yes	PROTECT	Good/Fair	98	1		No	Sig storm damage to one side of tree	
56562	Saucer magnolia	*Magnolia soulangiana*		PROTECT	Good	26	1		No	CR 14-ft above street	
56599	Coastal redwood	*Sequoia sempervirens*	Yes	PROTECT	Good	60	1		No	CR 12-ft above street. Fill within CPZ	
56606	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	16	1		No	Closed canopy. Fill within CRZ	
56607	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	15	1		No	Closed canopy	
56608	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	14	1		No	Subdominant within canopy	
56609	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	16	1		No	Leaning stem. Storm damage	
56610	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	18	1		No		
56621	Big leaf maple	*Acer macrophyllum*		PROTECT	Poor	24	1		No	No CR. Sprouting from bole at 20-ft	
56625	Black cottonwood	*Populus trichocarpa*		REM	Good	45	1		No		
56626	Black cottonwood	*Populus trichocarpa*		REM	Good	38	1		No		
56631	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	1		No	Leader lost upper CR	
56640	Oregon ash	*Fraxinus latifolia*		PROTECT	Fair	25	1		No		
56641	Black cottonwood	*Populus trichocarpa*		PROTECT	Good/Fair	40	1		No		
65037	Black cottonwood	*Populus trichocarpa*		REM	Dead	14	1		No	Standing dead tree	
65165	Black cottonwood	*Populus trichocarpa*		REM	Good/Fair	12	1		No		
65166	Black cottonwood	*Populus trichocarpa*		REM	Poor	12	1		No		
65176	Black cottonwood	*Populus trichocarpa*		REM	Fair	13	1		No		
65183	Black cottonwood	*Populus trichocarpa*		REM	Good	43	1		No		

65185	Black cottonwood	*Populus trichocarpa*		REM	Fair	18	1		No	Flattened CR form	
65187	Black cottonwood	*Populus trichocarpa*		REM	Fair/Good	14	1		No	Small CR form	
65218	Oregon ash	*Fraxinus latifolia*		REM	Good	12	1		No		
65257	Black cottonwood	*Populus trichocarpa*		REM	Fair/Good	20	1		No	Standing dead tree	
65277	Black cottonwood	*Populus trichocarpa*		REM	Good	18	1		No		
65296	Oregon ash	*Fraxinus latifolia*		REM	Fair/Good	12	1		No	Thin CR	
65305	Black cottonwood	*Populus trichocarpa*		REM	Dead	18	1		No	Standing dead tree	
65307	Black cottonwood	*Populus trichocarpa*		REM	Dead	13	1		No	Standing dead tree	
65328	Black cottonwood	*Populus trichocarpa*		REM	Dead	12	1		No	Standing dead tree	
65332	Black cottonwood	*Populus trichocarpa*		REM	Dead	14	1		No	No CR	
65334	Black cottonwood	*Populus trichocarpa*		REM	Poor	28	1		No	Partial tree failure	
91753	Port Orford Cedar	*Chamaecyparis lawsoniana*		REM	Fair	13	1		No	Browning foliage. Under bridge	
91754	Port Orford Cedar	*Chamaecyparis lawsoniana*		REM	Fair	12	1		No	Browning foliage. Under bridge	
91756	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	24	1		No	Fractured stem lying within canopy	
91757	Big leaf maple	*Acer macrophyllum*		REM	Good	28	1		No		
91760	Big leaf maple	*Acer macrophyllum*		REM	Dangerous	40	1		No	Fractured stems. Remove if working near tree	
91802	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	32	1		No		
91804	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	13	1		No	No upper CR	
91805	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	29	1		No		
91883	Black cottonwood	*Populus trichocarpa*		REM	Good	15	1		No		
91895	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	15	1		No		
562651	Big leaf maple	*Acer macrophyllum*		REM	Good	26	1		No		
56401a	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	15	1		No	Group of 3 trees	
56401b	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	1		No		
56402a	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	24	1		No	Group of 3 trees	
56402b	Big leaf maple	*Acer macrophyllum*		PROTECT	Poor	14	1		No	Lost upper CR	
56403a	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	15	1		No	Group of 3 trees	
56403b	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	1		No		
56509b	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	1		No	Leaning stem	
56510a	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	1		No	Row of 3 trees	
56510b	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	12	1		No		
129	Douglas fir	*Pseudotsuga menziesii*		REM	Good	15	2		No		
131	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	19	2		No	Twin stems. Stunted development	
132	Big leaf maple	*Acer macrophyllum*		REM	Dead	15	2		No	Reduced CR size	
133	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	45	2		No	3 large stems	15-ft from s/wk
134	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	2		No		
135	Big leaf maple	*Acer macrophyllum*		REM	Fair/Poor	12	2		No	Declining CR	
136	Oregon oak	*Quercus garryana*		REM	Fair/Good	7	2		No	Ivy covered tree	
137	Incense cedar	*Calocedrus decurrens*		REM	Good	35	2		No	Multi-stem tree	15-ft from s/wk
138	Douglas fir	*Pseudotsuga menziesii*		REM	Fair	13	2		No	Low vitality	
139	Black locust	*Robinia pseudoacacia*		REM	Good/Fair	18	2		Yes		
140	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	2		No		15-ft from s/wk
141	Giant sequoia	*Sequoiadendron giganteum*	Yes	REM	Good	52	2		No		
142	Big leaf maple	*Acer macrophyllum*		REM	Fair	12	2		No	Twin stems. Thin crown	
143	Incense cedar	*Calocedrus decurrens*		REM	Good	18	2		No	Good CR form	
144	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	2		No	Twin stem tree.	
145	Incense cedar	*Calocedrus decurrens*		REM	Good	14	2		No	Twin stem tree.	
146	Incense cedar	*Calocedrus decurrens*		REM	Good	12	2		No	Excellent CR form	
147	Honey locust	*Gleditsia triacanthos*		REM	Fair	25	2		No	Multi-stem tree	
148	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	44	2		No	Twin stem tree. Spreading low flattened CR	
149	Honey locust	*Gleditsia triacanthos*		REM	Fair	24	2		No	3 stems from ground. CR decline	
150	Honey locust	*Gleditsia triacanthos*		REM	Fair	15	2		No		
151	Incense cedar	*Calocedrus decurrens*		REM	Good	26	2		No	Single stem	
152	Incense cedar	*Calocedrus decurrens*		REM	Good	33	2		No	Twin stems from ground	
153	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	22	2		No	Exhibiting stress	
154	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	2		No	Shared CR space with 155	
155	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	19	2		No	Shared CR space with 154	
156	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	2		No	Shared CR space. Small CR	
157	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	2		No	Shared CR space	
158	Ponderosa pine	*Pinus ponderosa*		REM	Good/Fair	21	2		No	Slightly thin CR	
159	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	14	2		No		
160	Ponderosa pine	*Pinus ponderosa*		REM	Good	15	2		No	On steep bank	

161	Juniper species	*Juniperus spp*		REM	Fair/Poor	12	2		No	Damaged/broken CR	
162	Juniper species	*Juniperus spp*		REM	Fair	16	2		No	Broken branches	
163	Juniper species	*Juniperus spp*		REM	Fair	19	2		No	Small CR form	
164	Juniper species	*Juniperus spp*		REM	Fair/Poor	18	2		No	Damaged/broken CR	
165	Juniper species	*Juniperus spp*		REM	Good/Fair	22	2		No		
166	Juniper species	*Juniperus spp*		REM	Poor/Fair	25	2		No	Tree breaking apart	
167	Honey locust	*Gleditsia triacanthos*		REM	Fair/Poor	14	2		No	Twin stem tree. Declining CR	
168	Incense cedar	*Calocedrus decurrens*		REM	Dying	13	2		No	Twin stem tree. Severe decline	
169	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	15	2		No	Twin stem. Exhibiting stress	
170	Incense cedar	*Calocedrus decurrens*		REM	Fair	12	2		No	One stem. Lost top of CR	
171	Incense cedar	*Calocedrus decurrens*		REM	Fair/Good	14	2		No	Twin stem tree. Exhibiting stress	
172	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	13	2		No	Twin stem tree. Exhibiting stress	
173	Incense cedar	*Calocedrus decurrens*		REM	Good	12	2		No	Semi-mature tree	
174	Juniper species	*Juniperus spp*		REM	Poor/Fair	21	2		No	Declining CR	
175	Juniper species	*Juniperus spp*		REM	Poor/Fair	13	2		No	Damaged/broken CR	
176	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	68	2		No	4 large stems from ground	
177	Juniper species	*Juniperus spp*		REM	Dead	13	2		No	Twin stems both failed	
178	Juniper species	*Juniperus spp*		REM	Fair	22	2		No	Low vigor	
179	Oregon oak	*Quercus garryana*		REM	Good	6	2		No	Young healthy tree	
180	Juniper species	*Juniperus spp*		REM	Poor/Fair	19	2		No	Declining tree	
181	Juniper species	*Juniperus spp*		REM	Fair/Poor	28	2		No	Broken stem. Low vigor	
182	Juniper species	*Juniperus spp*		REM	Poor	35	2		No	Upper CR broken out	
183	Incense cedar	*Calocedrus decurrens*		REM	Fair	28	2		No	Twin stems from 2-ft. Upper CR break outs	
184	Juniper species	*Juniperus spp*		REM	Fair/Poor	20	2		No	CR damaged. Tree stressed	
185	Oregon oak	*Quercus garryana*		REM	Good/Fair	10	2		No	Young tree. Twin stems from 1-ft	
186	Oregon oak	*Quercus garryana*		REM	Good/Fair	8	2		No	Young tree	
187	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	18	2		No		
188	Black locust	*Robinia pseudoacacia*		REM	Good/Fair	15	2		Yes		
189	Black locust	*Robinia pseudoacacia*		REM	Fair/Good	23	2		Yes	Twin stem tree. At edge of draw	
190	Black locust	*Robinia pseudoacacia*		REM	Good/Fair	15	2		Yes		
191	Black locust	*Robinia pseudoacacia*		REM	Fair	20	2		Yes	Multi-stem tree. Covered in ivy	
192	Black locust	*Robinia pseudoacacia*		REM	Fair	22	2		Yes	Twin stem tree	
193	Black locust	*Robinia pseudoacacia*		REM	Fair/Good	17	2		Yes	Twin stem tree. Low LCR	
194	Black locust	*Robinia pseudoacacia*		REM	Dying	14	2		Yes	Strong foliage dieback	
195	Black locust	*Robinia pseudoacacia*		REM	Dying	20	2		Yes	Strong foliage dieback. Twin stems	
196	Big leaf maple	*Acer macrophyllum*		REM	Fair	16	2		No	CR decline and dieback	
197	Big leaf maple	*Acer macrophyllum*		REM	Fair	25	2		No	2 large stems	
198	Big leaf maple	*Acer macrophyllum*		REM	Fair	12	2		No	Leaning stem	
199	Big leaf maple	*Acer macrophyllum*		REM	Fair	18	2		No	Ivy covered tree	
200	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	18	2		No	At bottom of slope	
201	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	16	2		No	At bottom of slope	
202	Incense cedar	*Calocedrus decurrens*		REM	Fair/Good	17	2		No	Stunted development. PL planter area	
203	Big leaf maple	*Acer macrophyllum*		PROTECT	Dying	14	2		No	No sig CR remains	
204	Big leaf maple	*Acer macrophyllum*		PROTECT	Poor	17	2		No	Declining tree	
205	Black cottonwood	*Populus trichocarpa*		REM	Dying	32	2		No	Dying tree. CR breaking apart at 40-ft	
31613	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	22	2		No	Small CR form	
31635	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	24	2		No	Twin stems. 5-ft O/S propline fence. Top steep bank	
31649	Big leaf maple	*Acer macrophyllum*		REM	Good	23	2		No	Codom stem from 4-ft. Just inside propline fence	
31662	Big leaf maple	*Acer macrophyllum*		REM	Fair	34	2		No	3 large stems/ multistem from ground. At fence	
40266	Florida dogwood	*Cornus florida*		REM	Fair/Poor	12	2		No	CR decline and dieback	
40664	Honey locust	*Gleditsia triacanthos*		REM	Fair	13	2		No		
40666	Honey locust	*Gleditsia triacanthos*		REM	Poor	15	2		No	Collapsed limbs on ground	
65520	Incense cedar	*Calocedrus decurrens*		PROTECT	Good/Fair	36	2		No	Twin stems from 2-ft.	
65524	Incense cedar	*Calocedrus decurrens*		PROTECT	Good	34	2		No	Twin stems from 2-ft	
65527	Honey locust	*Gleditsia triacanthos*		PROTECT	Fair/Poor	17	2		No	Exhibiting stress	
65530	Honey locust	*Gleditsia triacanthos*		PROTECT	Fair/Poor	16	2		No	Exhibiting stress	
65539	Incense cedar	*Calocedrus decurrens*		PROTECT	Fair	18	2		No	Exhibiting stress	
65552	Incense cedar	*Calocedrus decurrens*		PROTECT	Good	30	2		No	Twin stems. Ivy covered	
65560	Honey locust	*Gleditsia triacanthos*		PROTECT	Poor	14	2		No	Exhibiting stress	
65566	Incense cedar	*Calocedrus decurrens*		PROTECT	Good/Fair	28	2		No	Storm damage. Ivy covered	
65584	Oregon oak	*Quercus garryana*		PROTECT	Good/Fair	14	2		No	Twin stems. At edge of slope	
65586	Oregon oak	*Quercus garryana*		PROTECT	Good/Fair	8	2		No	At edge of slope	

65837	Hinoki cypress	*Chamaecyparis obtusa*		PROTECT	Fair/Good	13	2		No	Adj to s/wk	
65838	Hinoki cypress	*Chamaecyparis obtusa*		PROTECT	Fair/Good	17	2		No	Adj to s/wk	
206	Oregon oak	*Quercus garryana*		PROTECT	Good/Fair	31	3		No	Some d/wood. Partial line clearance	8-ft from property / ROW marker
207	Domestic plum	*Prunus domestica*		PROTECT	Poor	15	3		No	Mullti-stem tree. Declining	Between easement markers
208	Oregon oak	*Quercus garryana*		PROTECT	Fair	18	3		No	Sig storm damage, upper CR	On level ground
209	Ponderosa pine	*Pinus ponderosa*	Possible	PROTECT	Good	30	3		No	No defects noted. Surface roots damaging d/way	
210	Oregon oak	*Quercus garryana*		REM	Good/Fair	11	3		No		2-ft from metal fence
211	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	10	3		No	Heavily leaning stem	2-ft from metal fence
212	Pacific madrone	*Arbutus menziesii*		REM	Dying	11	3		No	Severe CR decline	
213	Big leaf maple	*Acer macrophyllum*		REM	Good	31	3		No	Three stems from 2-ft	At top of ridge
214	Pacific madrone	*Arbutus menziesii*		REM	Dying	6	3		No	Partial death of CR	
215	Big leaf maple	*Acer macrophyllum*		REM	Dying	12	3		No	Severe CR decline	
216	Oregon oak	*Quercus garryana*		REM	Good/Fair	12	3		No	2x 6-inch stems from 1-ft	
217	Oregon oak	*Quercus garryana*		REM	Good	9	3		No		
218	Oregon oak	*Quercus garryana*		REM	Good/Fair	7	3		No		
219	Oregon oak	*Quercus garryana*		REM	Good/Fair	12	3		No	Large stem to 25-ft ht	
220	Oregon oak	*Quercus garryana*		REM	Good/Fair	9	3		No	Shrubby twin stem	
221	Oregon oak	*Quercus garryana*		REM	Good	8	3		No	Shrubby form	
222	Oregon oak	*Quercus garryana*		REM	Good	46	3		No	Low shrubby form with 5 stems	
223	Big leaf maple	*Acer macrophyllum*		REM	Good	30	3		No	3 large leaders	Top of bank
224	Oregon oak	*Quercus garryana*		REM	Good/Fair	22	3		No	Multi-stem grouping - 5 stems	
225	Oregon oak	*Quercus garryana*		REM	Good/Fair	29	3		No	Thin upper CR, likley storm damage	On ROW line or adjacent
226	Oregon oak	*Quercus garryana*		PROTECT	Good	32	3		No	Large spreading CR	In FY
227	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	3		No	Good vigor	On ROW side of fence
228	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	3		No	Thin upper CR	On bank
359	Douglas fir	*Pseudotsuga menziesii*		REM	Good	17	3		No		
360	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	3		No		
361	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	3		No		
362	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	3		No		
363	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	28	3		No	Twin stems	At fence line
364	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	40	3		No	3 stems, 1 dead	
365	Douglas fir	*Pseudotsuga menziesii*		REM	Good	23	3		No		
366	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	20	3		No		
367	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	25	3		No	Twin stems	
368	Oregon oak	*Quercus garryana*		REM	Good/Fair	8	3		No		
369	Big leaf maple	*Acer macrophyllum*		REM	Good	17	3		No	Multu-stem tree	
371	Big leaf maple	*Acer macrophyllum*		REM	Good	32	3		No		
372	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	25	3		No		
373	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	40	3		No		
374	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	55	3		No		
375	Oregon oak	*Quercus garryana*		REM	Good	8	3		No		
376	Oregon oak	*Quercus garryana*		REM	Fair/Good	23	3		No		
378	Oregon oak	*Quercus garryana*		REM	Good	10	3		No		
379	Oregon oak	*Quercus garryana*		REM	Good	8	3		No		
380	Oregon oak	*Quercus garryana*		REM	Good	8	3		No		
492	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	6	3		No		
493	Pacific madrone	*Arbutus menziesii*		REM	Fair	8	3		No	CR dieback	
494	Pacific madrone	*Arbutus menziesii*		REM	Fair/Good	9	3		No		
495	Pacific madrone	*Arbutus menziesii*		REM	Dying	9	3		No	Almost zero living tissue	
496	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	10	3		No	Multi-stem tree	
497	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	12	3		No	Multi-stem tree	
499	Pacific madrone	*Arbutus menziesii*		REM	Fair/Good	9	3		No		
500	Big leaf maple	*Acer macrophyllum*		REM	Fair/Poor	20	3		No	Multi-stem tree	
501	Western black poplar	*Populus trichocarpa*		REM	Fair/Poor	14	3		No		
502	Pacific madrone	*Arbutus menziesii*		REM	Dead	10	3		No	No living tissue	
510	Oregon oak	*Quercus garryana*		REM	Good to Poor	6 to 15	3		No	245 Individual trees. Most of the trees are short shrubby and multi-stem typically growing on thin often minimal soil. Some larger specimens	Rocky upland plateau area between Willamette Falls Dr and I-205 rock cut. Area defined on plans
48403	Oregon oak	*Quercus garryana*		REM	Fair/Good	24	3		No	Heavy limb loss, storm damage	
48404	Oregon oak	*Quercus garryana*		REM	Fair	6	3		No	Reduced CR development under #48403	
48405	Oregon oak	*Quercus garryana*		REM	Good	12	3		No		
48405	Oregon oak	*Quercus garryana*		REM	Fair	6	3		No	Reduced CR development under #48403	

48406	Oregon oak	*Quercus garryana*		REM	Good/Fair	10	3		No	Twin stems from ground level	
48406	Oregon oak	*Quercus garryana*		REM	Fair/Good	10	3		No	Reduced CR development	
48407	Oregon oak	*Quercus garryana*		REM	Fair	8	3		No	Upper CR dieback	
48415	Oregon oak	*Quercus garryana*		REM	Good	12	3		No	Good CR form	Edge of slope
48427	Oregon oak	*Quercus garryana*		REM	Good	13	3		No	Twin stems from ground level	
48446	Oregon oak	*Quercus garryana*		REM	Good	12	3		No	Vertical CR development	
48447	Oregon oak	*Quercus garryana*		REM	Poor	8	3		No	Severe CR dieback and branch epicormic	
48448	Oregon oak	*Quercus garryana*		REM	Dying	7	3		No	Severe CR decline	
48449	Oregon oak	*Quercus garryana*		REM	Good/Fair	18	3		No	Stunted growth. 3 stems from ground level	
65667	Ponderosa pine	*Pinus ponderosa*		REM	Good/Fair	14	3		No	Thinning CR and foliage	At top edge of bluff
66290	Freeman's maple	*Acer x freemanii*		PROTECT	Good/Fair	26	3		No	Fastigiate. Weak CR form	PL planter
66291	Freeman's maple	*Acer x freemanii*		PROTECT	Fair	12	3		No	Fastigiate. Weak CR form	PL planter
66293	Freeman's maple	*Acer x freemanii*		PROTECT	Fair	14	3		No	Fastigiate. Weak CR form	PL planter
66294	Freeman's maple	*Acer x freemanii*		PROTECT	Good/Fair	14	3		No	Fastigiate. Weak CR form	PL planter
66545	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	16	3		No	Twin stems from 3-ft	
66548	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	14	3		No		
66551	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	16	3		No	Leaning stem	PL planter
66553	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair/Good	15	3		No	Stem lesions	PL planter
66555	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	23	3		No	Three stems	PL planter
66571	Eastern black walnut	*Juglans nigra*		PROTECT	Fair	34	3		No	Large tree. Overmaturity. Heavily pruned	
66576	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	13	3		No		
66577	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	13	3		No		On bank
66630	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	13	3		No		On bank
66631	Elm species	*Ulmus spp*		PROTECT	Fair/Good	14	3		No	Reduced CR size. Heavy leaf miner activity	
66632	Elm species	*Ulmus spp*		PROTECT	Fair/Good	15	3		No	Reduced CR size. Heavy leaf miner activity	
66633	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	17	3		No	Low CR	On bank
66743	Austrian pine	*Pinus nigra*		PROTECT	Good/Fair	12	3		No	Twin stems from 3-ft	
66809	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	13	3		No	Leaning stem	At driveway
66810	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	17	3		No	Leaning stem	At driveway
66818	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	18	3		No	Full CR	
66819	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	12	3		No	Reduced CR size	
66820	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	14	3		No		
66821	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	16	3		No	Twin stem tree	On bank
66822	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	3		No		On bank
66830	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair/Good	13	3		No	Thinning and damaged CR	
66835	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	13	3		No	Twin stems from 4-ft	
66839	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	12	3		No		
66892	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	13	3		No		
66895	Oregon oak	*Quercus garryana*		PROTECT	Good	7	3		No	Twin stems from ground level	
66896	Oregon oak	*Quercus garryana*		PROTECT	Good	6	3		No	Young tree. Good vigor	Under O/E line
67431	Douglas fir	*Pseudotsuga menziesii*		REM	Fair	19	3		No	Lost upper CR. Storm damage	
67456	Big leaf maple	*Acer macrophyllum*		REM	Good	20	3		No	Multi-stem tree	On bank
67458	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	16	3		No	Three stems	Top of bank
67462	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	26	3		No	Three stems	
85191	Oregon oak	*Quercus garryana*		PROTECT	Good	30	3		No	Large Tree in FY. Slightly thin CR	Private 14-ft from s/wk
85298	Big leaf maple	*Acer macrophyllum*		PROTECT	Good	15	3		No	NFE. Semi-mature maple	FY. Private
662292	Freeman's maple	*Acer x freemanii*		REM	Good/Fair	19	3		No	Fastigiate. Weak CR form	PL planter
229	Blue Juniper	*Juniperus spp*		PROTECT	Good	14	4		No	Good CR form Good vigor	15-ft from asphalt
230	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	62	4		No	4 large leaders from 2-6-ft. Vehicle strike	1-ft from s/wk
231	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	4		No	Lost leader uper CR	Private tree. Edge of slope
232	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No	Narrow CR, prev surrounded by trees	At edge of slope
233	Oregon oak	*Quercus garryana*		REM	Good/Fair	20	4		No	Mature tree. Shared CR space w/234	
234	Oregon oak	*Quercus garryana*		REM	Good/Fair	26	4		No	Mature tree. Shared CR space w/233. Dominant.	
235	Oregon oak	*Quercus garryana*		REM	Good/Fair	14	4		No	Under O/E power lines	
236	Big leaf maple	*Acer macrophyllum*		REM	Fair	25	4		No	Under O/E power lines. Spreading multi-stem	
237	Big leaf maple	*Acer macrophyllum*		REM	Fair	13	4		No	Under O/E power lines. Single stem	
238	Big leaf maple	*Acer macrophyllum*		REM	Fair	27	4		No	Under O/E power lines. 3 stem	
239	Big leaf maple	*Acer macrophyllum*		REM	Fair	55	4		No	10 stems clumping from ground	
240	Big leaf maple	*Acer macrophyllum*		REM	Fair	25	4		No	Multi-stem tree	
241	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	24	4		No	Large spreading CR	On steep bank
242	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	16	4		No	Large spreading CR	On steep bank
243	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	20	4		No	Large spreading CR	On steep bank

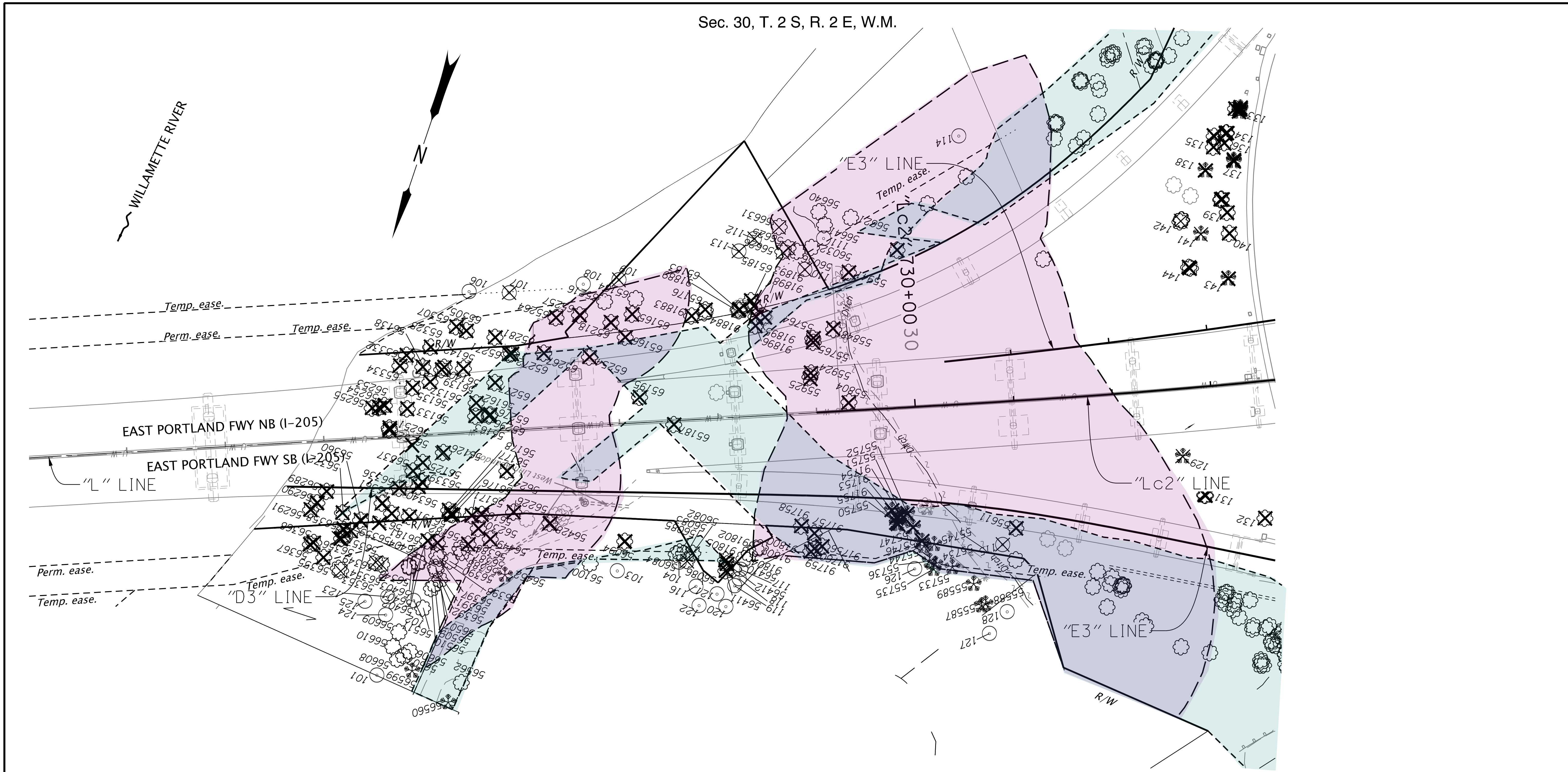
244	Big leaf maple	*Acer macrophyllum*		REM	Good	17	4		No	Mature tree	On steep bank
245	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	20	4		No		
246	Big leaf maple	*Acer macrophyllum*		REM	Good	30	4		No	Twin stems	
247	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	17	4		No		
248	Big leaf maple	*Acer macrophyllum*		REM	Good	35	4		No	Large mature tree	
249	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	4		No	Subdominant within canopy	
250	Big leaf maple	*Acer macrophyllum*		REM	Good	21	4		No		
251	Oregon oak	*Quercus garryana*		REM	Good/Fair	17	4		No	Multi-stems with tight branch unions	
252	English hawthorn	*Crataegus monogyna*		REM	Poor	12	4		Yes	Multi-stem tree. Collapsed CR	
253	Big leaf maple	*Acer macrophyllum*		REM	Fair	30	4		No	5 stems	4-ft inside ROW FL ODOT side
254	Cherry plum	*Prunus cerasifera*		REM	Fair/Poor	15	4		No	Leaning and ivy covered stem	
255	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	4		No	Narrow CR form	
256	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	4		No	Narrow CR form	
257	Big leaf maple	*Acer macrophyllum*		REM	Fair	16	4		No		
258	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	30	4		No	Twin stems, ivy covered	
259	Big leaf maple	*Acer macrophyllum*		REM	Fair	14	4		No	Lost top of leader	
260	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	15	4		No	Ivy covered tree	
261	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	16	4		No	Ivy covered tree	
262	Big leaf maple	*Acer macrophyllum*		REM	Fair/Poor	17	4		No	Damaged CR	
263	Oregon oak	*Quercus garryana*		REM	Fair/Good	27	4		No	3 stems. Line cleared under O/E	
264	Oregon oak	*Quercus garryana*		REM	Fair	19	4		No	Twin stems. Line cleared under O/E	
265	Oregon oak	*Quercus garryana*		REM	Fair	20	4		No	Twin stems. Line cleared under O/E	
266	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	33	4		No	Twin stem tree	
267	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	32	4		No	Twin stem tree	
268	Douglas fir	*Pseudotsuga menziesii*		REM	Good	34	4		No	Full CR	
269	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	4		No	Sundominant in canopy	1-ft from #268
270	Oregon oak	*Quercus garryana*		REM	Good/Fair	23	4		No	Tall tree with reduced CR	
271	Oregon oak	*Quercus garryana*		REM	Good/Fair	15	4		No		
273	Oregon oak	*Quercus garryana*		REM	Fair	8	4		No	CR top is missing	
274	Douglas fir	*Pseudotsuga menziesii*		REM	Good	37	4		No	Large canopy dominant tree	
275	Big leaf maple	*Acer macrophyllum*		REM	Fair	27	4		No	Twin stems. Suppressed. Leaning stem	Edge of bank
276	Big leaf maple	*Acer macrophyllum*		REM	Dead	20	4		No	CR is lost	Mid-bank
277	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	13	4		No		
329	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	52	4		No	4 large stems from ground	Steep slope
330	Douglas fir	*Pseudotsuga menziesii*		REM	Good	15	4		No		
331	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	4		No	Dieback of leader	Edge of Interstate cut
332	Oregon ash	*Fraxinus latifolia*		REM	Poor	12	4		No	Main stem fallen. Regrowth from bole	
334	Oregon oak	*Quercus garryana*		REM	Good	22	4		No	Twin stems from 10-ft. Thin upper CR	At fence line
335	Oregon oak	*Quercus garryana*		REM	Good	25	4		No	Widespread CR	
336	Oregon oak	*Quercus garryana*		REM	Good	28	4		No	Large thinnin, spraeading CR	
337	Oregon oak	*Quercus garryana*		REM	Fair	9	4		No	Suppressed. Ivy covered	
338	Oregon oak	*Quercus garryana*		REM	Good/Fair	31	4		No	Storm damage. Ivy covered	
339	Big leaf maple	*Acer macrophyllum*		REM	Fair	27	4		No	Stressed tree; healthy lower CR	
340	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	16	4		No	Kinked stem at former leader loss	
341	Big leaf maple	*Acer macrophyllum*		REM	Fair	35	4		No	Multi-stem tree. In decline	At fence line
342	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	12	4		No		
343	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	4		No		
344	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	4		No		
345	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	12	4		No	Lost leader upper CR	
346	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	15	4		No		
347	Big leaf maple	*Acer macrophyllum*		REM	Fair	13	4		No	Single, leaning stem	Eroding substrate at base
348	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	4		No	Stem damage	Top of bank
349	Douglas fir	*Pseudotsuga menziesii*		REM	Fair/Good	14	4		No	Stem canker	
350	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	4		No		
351	Douglas fir	*Pseudotsuga menziesii*		REM	Good	15	4		No		4-ft from fence
352	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		2-ft from fence
353	Big leaf maple	*Acer macrophyllum*		REM	Dead	18	4		No	Functionally dead. Ivu covered	
354	Big leaf maple	*Acer macrophyllum*		REM	Dying	16	4		No	Ivy covered tree	
355	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	34	4		No	3 stems. CR decline	
356	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	26	4		No	3 stems, 1 defective. CR decline	
357	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	14	4		No		
358	Douglas fir	*Pseudotsuga menziesii*		REM	Good	18	4		No	Good branch structure	Top of ridge. 7-ft from fence

370	Big leaf maple	*Acer macrophyllum*		REM	Good	15	4		No		
377	Oregon oak	*Quercus garryana*		REM	Good	14	4		No		
381	Douglas fir	*Pseudotsuga menziesii*		REM	Good	13	4		No		Top of rock cut
382	Douglas fir	*Pseudotsuga menziesii*		REM	Good	13	4		No		Top of rock cut
383	Douglas fir	*Pseudotsuga menziesii*		REM	Good	13	4		No		Top of rock cut
384	Pacific madrone	*Arbutus menziesii*		REM	Fair	8	4		No	Lost leader	
385	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	29	4		No	Large tree. Thin CR with dieback. 3 stems	
386	Douglas fir	*Pseudotsuga menziesii*		REM	Good	24	4		No		6-ft from fence line
387	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No	Partially suppressed	
388	Douglas fir	*Pseudotsuga menziesii*		REM	Good	22	4		No		
389	Douglas fir	*Pseudotsuga menziesii*		REM	Good	21	4		No		
390	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
391	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	4		No		
392	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
393	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	4		No		At fenceline
394	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
395	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	13	4		No		
396	Douglas fir	*Pseudotsuga menziesii*		REM	Good	13	4		No		
397	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
398	Ponderosa pine	*Pinus ponderosa*		REM	Fair	14	4		No	Thin CR foliage and branching	8-ft from fence line
399	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	31	4		No	Three stems	
400	Douglas fir	*Pseudotsuga menziesii*		REM	Good	22	4		No		
401	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	26	4		No		
402	Big leaf maple	*Acer macrophyllum*		REM	Fair/Poor	14	4		No	Severe CR dieback	
403	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
404	Oregon oak	*Quercus garryana*		REM	Good	48	4		No	Very large tree. Twin stems from 8-ft	
405	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	7	4		No		
406	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	13	4		No		
407	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	13	4		No		
408	Douglas fir	*Pseudotsuga menziesii*		REM	Good	22	4		No		
409	Douglas fir	*Pseudotsuga menziesii*		REM	Good	22	4		No		
410	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	6	4		No		
411	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	6	4		No		
412	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	8	4		No		
413	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	6	4		No		
414	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	10	4		No		
415	Pacific madrone	*Arbutus menziesii*		REM	Good/Fair	6	4		No		
416	Big leaf maple	*Acer macrophyllum*		REM	Fair	14	4		No	Twin stems from 3-ft	
417	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		At edge of rock cut
418	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		At edge of rock cut
419	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	4		No		
420	Pacific madrone	*Arbutus menziesii*		REM	Fair	7	4		No		
421	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
422	Douglas fir	*Pseudotsuga menziesii*		REM	Good	12	4		No		
423	Douglas fir	*Pseudotsuga menziesii*		REM	Good	14	4		No		
424	Sweet cherry	*Prunus avium cultivar*		REM	Poor/Fair	21	4		Yes	Part of tree felled	12-ft from fence line
425	Big leaf maple	*Acer macrophyllum*		REM	Fair	14	4		No	CR dieback	
426	Pacific madrone	*Arbutus menziesii*		REM	Fair	6	4		No		
427	Oregon oak	*Quercus garryana*		REM	Good/Fair	27	4		No	Canopy dominant tree	
428	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	22	4		No		
429	Pacific madrone	*Arbutus menziesii*		REM	Good	14	4		No		
430	Big leaf maple	*Acer macrophyllum*		REM	Fair	15	4		No	Suppressed. Ivy covered	
431	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	25	4		No	Thinning CR	
432	Douglas fir	*Pseudotsuga menziesii*		REM	Dead	24	4		No	Monolith remains	
433	Douglas fir	*Pseudotsuga menziesii*		REM	Dead	19	4		No	Tree failed and humg up in #427	
484	Oregon oak	*Quercus garryana*		REM	Good/Fair	20	4		No		
485	Douglas fir	*Pseudotsuga menziesii*		REM	Good	30	4		No	Canopy dominant tree	
487	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	20	4		No		
488	Douglas fir	*Pseudotsuga menziesii*		REM	Fair	14	4		No	Lost CR at 40-ft	
489	Oregon oak	*Quercus garryana*		REM	Good/Fair	23	4		No		
490	Oregon oak	*Quercus garryana*		REM	Good/Fair	18	4		No		
491	Pacific madrone	*Arbutus menziesii*		REM	Dying	15	4		No		

503	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	12	4		No	Dieback of leader	Edge of Interstate cut
506	Douglas fir	*Pseudotsuga menziesii*		REM	Good	32	4		No		
508	Big leaf maple	*Acer macrophyllum*		PROTECT	Good/Fair	17	4		No	Twin stems from 1-ft	5-ft from asphalt
509	Big leaf maple	*Acer macrophyllum*		PROTECT	Fair	12	4		No	Lost upper CR	On steep bank
57170	Big leaf maple	*Acer macrophyllum*		REM	Fair/good	12	4		No		
57171	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	13	4		No		
57178	Big leaf maple	*Acer macrophyllum*		REM	Good	24	4		No	Twin leaders from 15-ft	
57217	Douglas fir	*Pseudotsuga menziesii*		REM	Good	17	4		No	Large lower limbs	
57228	Oregon oak	*Quercus garryana*		REM	Good	18	4		No	Wide CR over street	At top of rock cut
57229	Oregon oak	*Quercus garryana*		REM	Fair	14	4		No	Thin CR Lost limbs	At top of rock cut
57231	Oregon oak	*Quercus garryana*		REM	Good/Fair	15	4		No	Thin CR	At top of rock cut
57237	Oregon oak	*Quercus garryana*		REM	Good/Fair	12	4		No	Subdominant to adjacent trees	At top of rock cut
57249	Oregon oak	*Quercus garryana*		REM	Good/Fair	24	4		No	Thin upper CR	At edge of rock cut
57254	Oregon oak	*Quercus garryana*		REM	Good	24	4		No		
57315	Oregon oak	*Quercus garryana*		REM	Good	6	4		No	Good vitality, vigor	20-ft from asphalt
57338	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	4		No	3 stems, 1 dead. Small shrubby CR	
57343	Big leaf maple	*Acer macrophyllum*		REM	Good	14	4		No	2-stems from 1-ft	
57448	Western red cedar	*Thuja plicata*		REM	Dead	15	4		No	Twin stems. No living tissue	
57450	Western red cedar	*Thuja plicata*		REM	Dying	38	4		No	Two large stems from ground. CR decline severe	
57451	Western red cedar	*Thuja plicata*		REM	Dying	17	4		No	Leaning stem. CR dieback severe	
57461	English holly	*Ilex aquifolium*		REM	Poor	19	4		Yes	Damaged stem. Upper leader lost	
57606	Oregon oak	*Quercus garryana*		REM	Good	19	4		No	Twin stem tree	
57626	Big leaf maple	*Acer macrophyllum*		REM	Good	16	4		No		
57635	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	4		No	Twin stems	
57637	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No		
57638	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	19	4		No	Twin stems	
57647	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	14	4		No		
57656	Big leaf maple	*Acer macrophyllum*		REM	Fair	17	4		No	Lost CR top. Likley storm damage	6-ft inside fence
57664	Douglas fir	*Pseudotsuga menziesii*		REM	Good	21	4		No		
57665	Douglas fir	*Pseudotsuga menziesii*		REM	Dead	26	4		No	12-ft monolith	
57677	Oregon oak	*Quercus garryana*		REM	Good/Fair	12	4		No		
57679	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No		
57684	Oregon oak	*Quercus garryana*		REM	Good	15	4		No		At top of bank
57690	Douglas fir	*Pseudotsuga menziesii*		REM	Fair	22	4		No	Headed CR at 35-ft, O/E line clearance	
57692	Big leaf maple	*Acer macrophyllum*		REM	Fair	15	4		No	Lost upper CR	
57693	Big leaf maple	*Acer macrophyllum*		REM	Poor/Fair	13	4		No	Only lower CR remains intact	
57694	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	4		No		
57698	Big leaf maple	*Acer macrophyllum*		REM	Fair/Poor	12	4		No	Two stems. Tree in decline	
57703	Douglas fir	*Pseudotsuga menziesii*		REM	Good	34	4		No	Large canopy dominant tree	
57706	Oregon oak	*Quercus garryana*		REM	Good/Fair	31	4		No	Two tightly joined stems	
57718	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	17	4		No		
57721	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	19	4		No	Twin stems. Subdominant in canopy	
57726	Oregon oak	*Quercus garryana*		REM	Good/Fair	16	4		No		
57730	Oregon oak	*Quercus garryana*		REM	Good/Fair	15	4		No		
58820	Big leaf maple	*Acer macrophyllum*		REM	Fair/Good	12	4		No		20-ft inside ROW FL ODOT side
58821	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No		20-ft inside ROW FL ODOT side
59275	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	20	4		No	Twin leaders from 4-ft	
59283	Douglas fir	*Pseudotsuga menziesii*		REM	Good	35	4		No		
59285	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	12	4		No		4-ft from FL
59289	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	18	4		No		3-ft from FL
59292	Douglas fir	*Pseudotsuga menziesii*		REM	Fair/Good	20	4		No		
59293	Douglas fir	*Pseudotsuga menziesii*		REM	Good	32	4		No		
59297	Oregon oak	*Quercus garryana*		REM	Good/Fair	17	4		No	Narrow CR form	
59299	Big leaf maple	*Acer macrophyllum*		REM	Good	16	4		No		
59301	Big leaf maple	*Acer macrophyllum*		REM	Good	17	4		No		
59303	Big leaf maple	*Acer macrophyllum*		REM	Fair	15	4		No	CR overtopped	
59307	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	15	4		No		2-ft from FL
59309	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	11	4		No		4-ft from FL
59312	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	16	4		No	Subdominant in canopy	
59316	Douglas fir	*Pseudotsuga menziesii*		REM	Dead	24	4		No	CR is lost	
59321	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	12	4		No	Thin CR	5-ft from FL
59324	Douglas fir	*Pseudotsuga menziesii*		REM	Good	25	4		No		

59341	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	4		No	Subdominant in canopy to #344	5-ft from FL
59344	Douglas fir	*Pseudotsuga menziesii*		REM	Good/Fair	15	4		No	Thin CR	4-ft from FL
59345	Big leaf maple	*Acer macrophyllum*		REM	Good	19	4		No	Wide open main crotch. Sound	
59632	Big leaf maple	*Acer macrophyllum*		REM	Good	12	4		No		
507	Red elderberry	*Sambucus racemosa*		REM	Fair	16	5		No	Mullti-stem plant.	
47186	Douglas fir	*Pseudotsuga menziesii*		REM	Fair	15	5		No	Lost top and branch breakage	
47255	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	39	5		No	Spreading CR	
47440	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	28	5		No	Multi-stem tree. Low spreading CR	
300	Oregon oak	*Quercus garryana*		REM	Good	6	6		Yes	Young tree	
301	Photinia species	*Photinia spp*		REM	Good/Fair	12	6		No	Spreading CR. Multi-stem	
302	Photinia species	*Photinia spp*		REM	Fair/Good	20	6		No	Spreading CR. Multi-stem	
303	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	15	6		No	Multi-stem tree	
304	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	17	6		No	Multi-stems tree	
305	Photinia species	*Photinia spp*		REM	Good/Fair	15	6		No	Spreading CR. Multi-stem	
43311	Douglas fir	*Pseudotsuga menziesii*		REM	Good	11	6		No	Good CR form	
43312	Incense cedar	*Calocedrus decurrens*		REM	Good/Fair	14	6		No	Low dense CR. 3 stems from 1-ft	
43315	Incense cedar	*Calocedrus decurrens*		REM	Good	15	6		No	Dense folaige	
43317	Austrian pine	*Pinus nigra*		REM	Fair	15	6		No	Stress evident. Storm damaged CR	
43318	Oregon oak	*Quercus garryana*		REM	Good/Fair	9	6		No	Semi-mature. Drought stress. Thin CR	
43319	European silver birch	*Betula pendula*		REM	Dead	12	6		Yes	No living tissue	
43320	Oregon oak	*Quercus garryana*		REM	Good	11	6		No	Strong CR development	
43321	Oregon oak	*Quercus garryana*		REM	Good	9	6		No	Strong CR development	
43322	Norway maple	*Acer platanoides*		REM	Good	12	6		Yes	Low spreading CR	
43348	Oregon oak	*Quercus garryana*		REM	Good	12	6		No	Complete CR	
43355	Oregon oak	*Quercus garryana*		REM	Good	11	6		No	Complete CR	
43656	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	12	6		No	Low spreading CR	
43665	Oregon oak	*Quercus garryana*		REM	Good	6	6		No		
43666	Oregon oak	*Quercus garryana*		REM	Fair	6	6		No	Upper CR broken out	
43667	Oregon oak	*Quercus garryana*		REM	Good	8	6		No		
43948	Oregon oak	*Quercus garryana*		REM	Good/Fair	6	6		No	Thin CR	
43949	Oregon oak	*Quercus garryana*		REM	Good/Fair	12	6		No	Flattened CR form	
43950	Oregon oak	*Quercus garryana*		REM	Good	8	6		No	Shared CR space	
43951	Oregon oak	*Quercus garryana*		REM	Good	7	6		No	Shared CR space	
44252	Jack pine	*Pinus banksiana*		REM	Fair/Good	12	6		No	Drought stress evident	
44303	Incense cedar	*Calocedrus decurrens*		REM	Good	13	6		No	Single stem tree	
44320	European silver birch	*Betula pendula*		REM	Fair/Good	12	6		Yes	Some CR damage	
44343	Incense cedar	*Calocedrus decurrens*		REM	Good	13	6		No	Single stem tree	
44345	Incense cedar	*Calocedrus decurrens*		REM	Good	14	6		No	Twin stems. Low rounded CR	
44346	European silver birch	*Betula pendula*		REM	Dead	12	6		Yes	No living tissue	
44810	Oregon oak	*Quercus garryana*		REM	Good	13	6		No	Strong CR development	
44812	Black locust	*Robinia pseudoacacia*		REM	Fair	12	6		Yes	Twin stem. Thin CR Stressed tree	
44814	Black locust	*Robinia pseudoacacia*		REM	Fair	12	6		Yes	4 stems from ground	
44815	Black locust	*Robinia pseudoacacia*		REM	Fair	12	6		Yes	Twin stem. Thin CR Stressed tree	
44816	Photinia species	*Photinia spp*		REM	Fair	12	6		No	Spreading CR. Multi-stem	
44817	Oregon oak	*Quercus garryana*		REM	Good	6	6		No	Young tree	
44817	Black locust	*Robinia pseudoacacia*		REM	Fair	14	6		Yes	Declining tree	
44818	Black locust	*Robinia pseudoacacia*		REM	Fair	14	6		Yes	Declining tree	
44820	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	18	6		No	3 stems from 1-ft	
44863	Photinia species	*Photinia spp*		REM	Fair	13	6		No	Spreading CR. Multi-stem. Declining	
44886	Photinia species	*Photinia spp*		REM	Good/Fair	23	6		No	Spreading CR. Multi-stem	
44895	Photinia species	*Photinia spp*		REM	Fair/Good	12	6		No	Spreading CR. Multi-stem	
44907	Oregon oak	*Quercus garryana*		REM	Good	9	6		No		
44933	Jack pine	*Pinus banksiana*		REM	Fair/Good	15	6		No	Leaning stem	
44975	Photinia species	*Photinia spp*		REM	Good/Fair	18	6		No	Spreading CR. Multi-stem	
44976	Photinia species	*Photinia spp*		REM	Fair	12	6		No	Spreading CR. Multi-stem	
44982	Photinia species	*Photinia spp*		REM	Fair/Good	12	6		No	Spreading CR. Multi-stem	
45005	Tree of Heaven	*Ailanthus altissima*		REM	Good/Fair	18	6		Yes	Twin stems. Spreading CR	
70242	Crabapple species	*Malus spp*		REM	Good/Fair	24	6		No	3 twisting stems	
70244	Crabapple species	*Malus spp*		REM	Good/Fair	20	6		No	3 stem tree	
70275	Oregon oak	*Quercus garryana*		REM	Good	12	6		No	Shared CR space	
70325	Oregon oak	*Quercus garryana*		REM	Fair	7	6		No	Lost upper CR	
70329	Oregon oak	*Quercus garryana*		REM	Good/Fair	16	6		No	Twining stem	

306	Oregon oak	*Quercus garryana*	Possible	REM	Good	20	7		No	No defects noted.	
307	Austrian pine	*Pinus nigra*		REM	Good/Fair	14	7		No	Twisting stem. Asymmetric CR	
308	Oregon oak	*Quercus garryana*		REM	Good/Fair	9	7		No	Thin CR	
309	Austrian pine	*Pinus nigra*		REM	Fair	12	7		No	Significant storm damage in upper CR	
310	Douglas hawthorn	*Crataegus douglasii*		REM	Good/Fair	30	7		No	12 small stems	
311	Photinia species	*Photinia spp*		REM	Fair	12	7		No	Multi-stem tree	
312	Photinia species	*Photinia spp*		REM	Good/Fair	15	7		No	Spreading CR. Multi-stem	
313	Photinia species	*Photinia spp*		REM	Good/Fair	28	7		No	Multiple large stems	
314	English hawthorn	*Crataegus monogyna*		REM	Fair	13	7		Yes	Multi-stem tree	
315	English hawthorn	*Crataegus monogyna*		REM	Fair	12	7		Yes	Multi-stem tree	
316	Photinia species	*Photinia spp*		REM	Fair/Good	14	7		No	Spreading CR. Multi-stem	
317	Photinia species	*Photinia spp*		REM	Fair/Good	13	7		No	Spreading CR. Multi-stem	
318	Photinia species	*Photinia spp*		REM	Fair/Good	14	7		No	Spreading CR. Multi-stem	
319	Photinia species	*Photinia spp*		REM	Good/Fair	30	7		No	Spreading CR. Multi-stem	
320	Photinia species	*Photinia spp*		REM	Good/Fair	34	7		No	Spreading CR. Multi-stem	
321	Photinia species	*Photinia spp*		REM	Fair/Good	16	7		No	Spreading CR. Multi-stem	
322	Photinia species	*Photinia spp*		REM	Fair/Good	18	7		No	Spreading CR. Multi-stem	
323	Oregon oak	*Quercus garryana*		REM	Good	6	7		No	Twin stems	
324	English hawthorn	*Crataegus monogyna*		REM	Fair	12	7		Yes	Multi-stem tree	
325	English hawthorn	*Crataegus monogyna*		REM	Fair	15	7		Yes	Multi-stem tree	
498	Photinia species	*Photinia spp*		REM	Good/Fair	23	7		No	Multiple large stems	
504	Photinia species	*Photinia spp*		REM	Good/Fair	16	7		No	Multiple large stems	
505	Cherry plum	*Prunus cerasifera*		REM	Fair/Poor	16	7		No	Group of stems. Significant upper CR decline	
75211	English hawthorn	*Crataegus monogyna*		REM	Good/Fair	20	7		Yes	5 stems	
75213	Photinia species	*Photinia spp*		REM	Good/Fair	25	7		No	Spreading CR. Multi-stem	
75215	Norway maple	Acer platanoides		REM	Good	18	7		Yes	Low spreading CR	
75217	Big leaf maple	*Acer macrophyllum*		REM	Good/Fair	35	7		No	Low CR multiple stems	
75222	Black locust	*Robinia pseudoacacia*		REM	Good/Fair	28	7		Yes	Strong CR development. Twin stems. Shared CR sp	
75223	Black locust	*Robinia pseudoacacia*		REM	Good/Fair	28	7		Yes	Strong CR development. Twin stems. Shared CR sp	
75229	Norway maple	Acer platanoides		REM	Good/Fair	22	7		Yes	3 codominant stems from ground	
75230	Photinia species	*Photinia spp*		REM	Good/Fair	30	7		No	Large stems from ground	
75385	Douglas fir	*Pseudotsuga menziesii*		PROTECT	Good/Fair	10	7		No	Thin CR	8-ft on DOT side of retaining wall
75507	Black locust	*Robinia pseudoacacia*		REM	Poor	18	7		Yes	Twin stems. Severe CR decline	
100637	Douglas fir	*Pseudotsuga menziesii*		REM	Dead	14	7		No	Branch structure still remains. Dead tree	
100925	Austrian pine	*Pinus nigra*		REM	Fair	19	7		No	Significant storm damage lower limbs	
100927	Austrian pine	*Pinus nigra*		REM	Good/Fair	22	7		No	Twisting stem. Large pruning cuts	
100928	Oregon oak	*Quercus garryana*		REM	Good	16	7		No	Good vigor. Strong CR development	
101200	Photinia species	*Photinia spp*		REM	Fair	23	7		No	6 stems. Declining	



LEGEND

10001 10002 Surveyed Trees

103 Tree identified during Tree Inventory, approximate location shown on plan

Tree to be Removed

HCA Buffer

WRA Buffer

HCA and WRA Buffer

Notes:

1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
3. On single-stem trees, trunk diameter is determined by measuring the total number of inches around a tree at 54-inches from grade.
4. On multi-stem trees, trunk diameter is determined by the total number of inches of all stems that a tree may have, divided by the number of stems, 54-inches from grade.

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INFORMATION ONLY

NNA Landscape Architecture

NNA Landscape Architecture
1125 SE Madison St, Suite 201
Portland, OR 97214
503.239.0600

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

TREE INVENTORY

SHEET NO. F_01

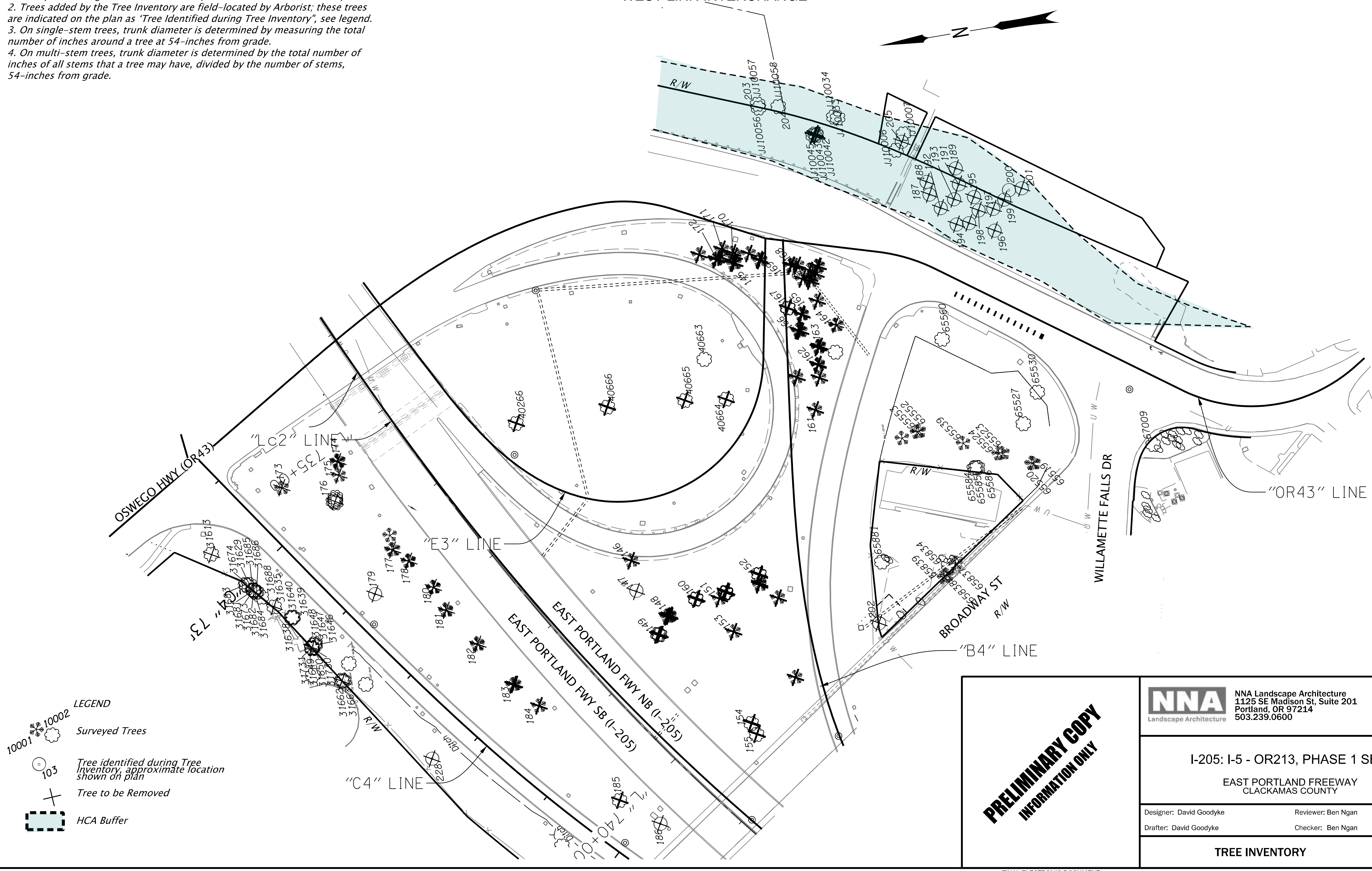
EE_K19786_NNA_TreeInventory :: F_01 8/9/2021 2:37:25 PM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431° Scale: 1"=100'

Notes:
1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
3. On single-stem trees, trunk diameter is determined by measuring the total number of inches around a tree at 54-inches from grade.
4. On multi-stem trees, trunk diameter is determined by the total number of inches of all stems that a tree may have, divided by the number of stems, 54-inches from grade.

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE



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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

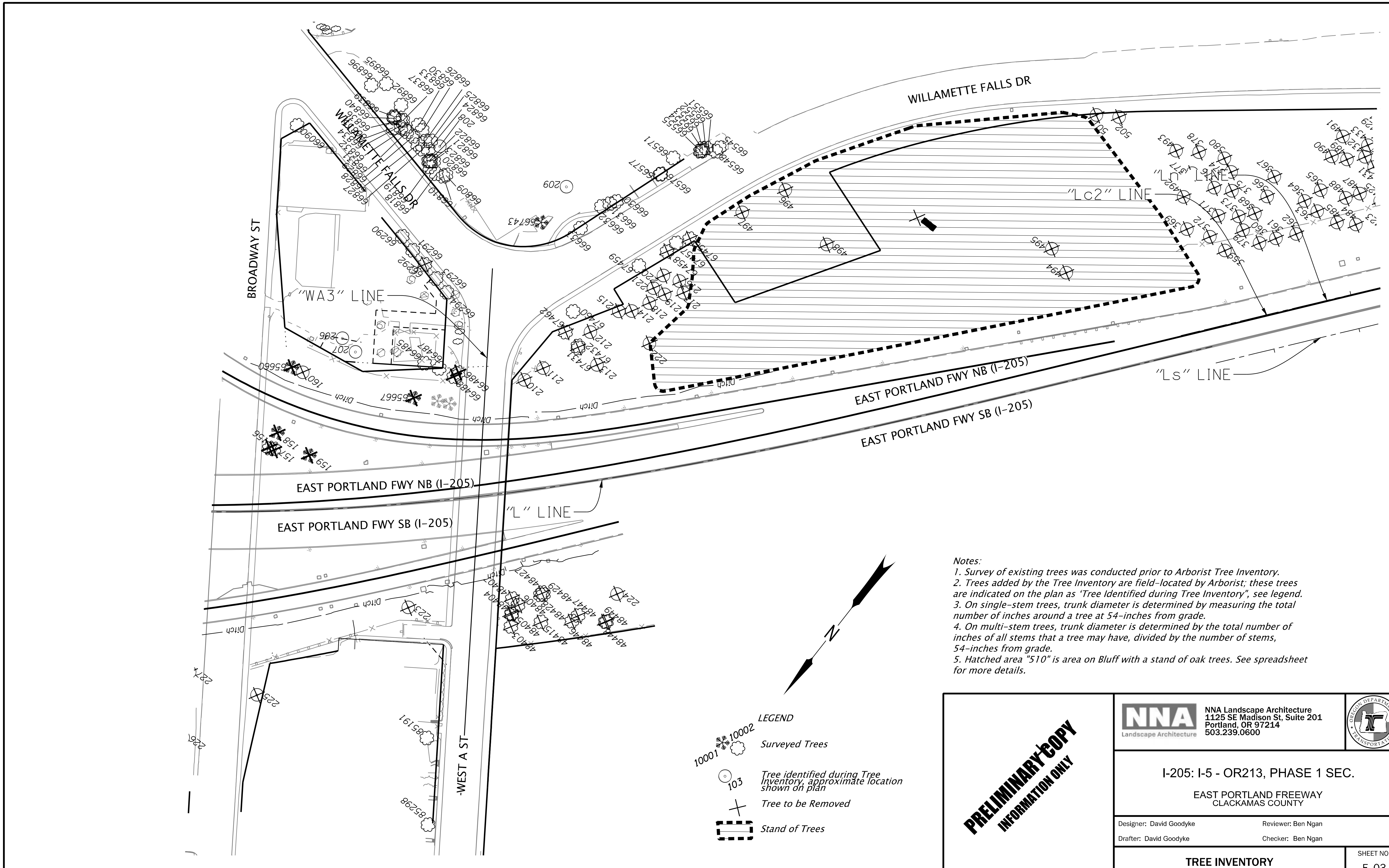
TREE INVENTORY

SHEET NO.
F_02

EE_K19786_NNA_TreeInventory :: F_02 8/9/2021 2:37:31 PM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 260.6437° Scale: 1"=100'



Notes:
1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
3. On single-stem trees, trunk diameter is determined by measuring the total number of inches around a tree at 54-inches from grade.
4. On multi-stem trees, trunk diameter is determined by the total number of inches of all stems that a tree may have, divided by the number of stems, 54-inches from grade.
5. Hatched area "510" is area on Bluff with a stand of oak trees. See spreadsheet for more details.

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke	Reviewer: Ben Ngan
Drafter: David Goodyke	Checker: Ben Ngan

TREE INVENTORY

SHEET NO. F_03

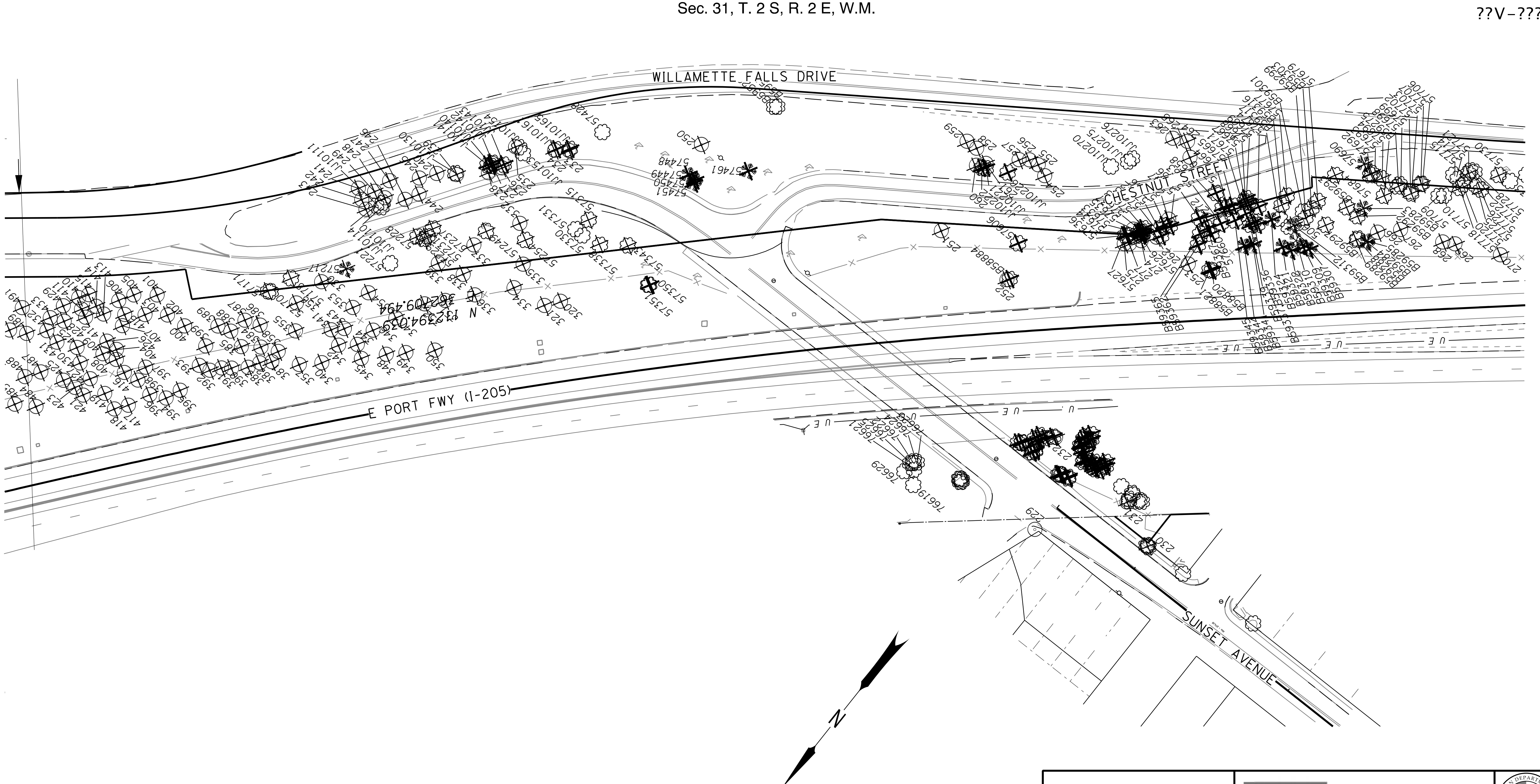
EE_K19786_NNA_TreeInventory :: F_03 8/9/2021 2:37:33 PM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.1362° Scale: 1"=100'

Sec. 31, T. 2 S, R. 2 E, W.M.

??V–???



LEGEND

10001 10002 Surveyed Trees

103 Tree identified during Tree Inventory, approximate location shown on plan

Tree to be Removed

Notes:

1. Survey of existing trees was conducted prior to Arborist Tree Inventory.

2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.

3. On single-stem trees, trunk diameter is determined by measuring the total number of inches around a tree at 54-inches from grade.

4. On multi-stem trees, trunk diameter is determined by the total number of inches of all stems that a tree may have, divided by the number of stems, 54-inches from grade.

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

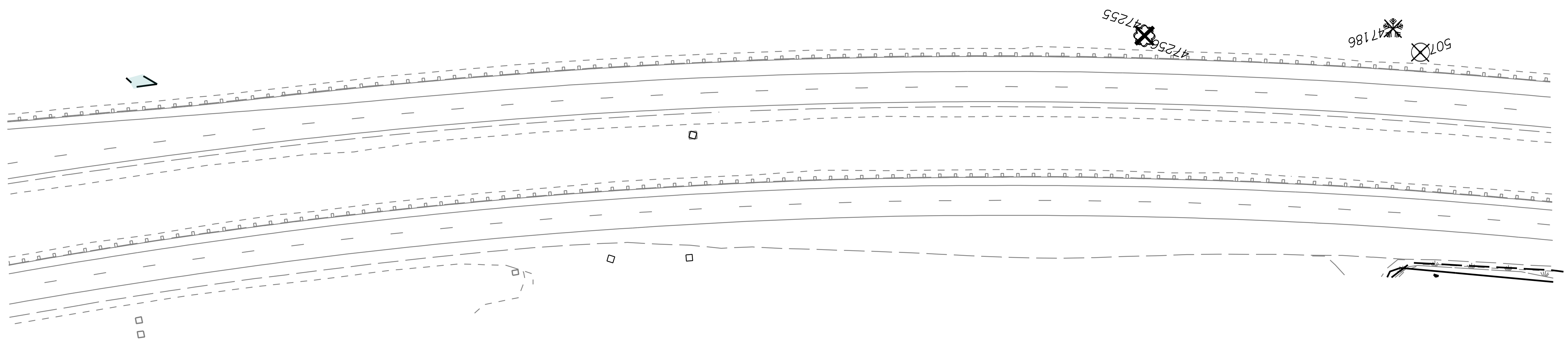
TREE INVENTORY

SHEET NO.
F_04

EE_K19786_NNA_TreeInventory :: F_04 8/9/2021 2:37:34 PM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.5198° Scale: 1"=100'



N

LEGEND

10001 10002 Surveyed Trees

103 Tree identified during Tree Inventory, approximate location shown on plan

Tree to be Removed

HCA Buffer

Notes:
1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

TREE INVENTORY

SHEET NO.
F_05

EE_K19786_NNA_TreeInventory :: F_05 8/9/2021 2:37:36 PM jane

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

Rotation: 197.6361° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE

LEGEND

10001 10002 Surveyed Trees

103 Tree identified during Tree Inventory, approximate location shown on plan

Tree to be Removed

Notes:
1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
3. On single-stem trees, trunk diameter is determined by measuring the total number of inches around a tree at 54-inches from grade.
4. On multi-stem trees, trunk diameter is determined by the total number of inches of all stems that a tree may have, divided by the number of stems, 54-inches from grade.

N

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EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke
Reviewer: Ben Ngan
Drafter: David Goodyke
Checker: Ben Ngan

TREE INVENTORY

SHEET NO.
F_06

EE_K19786_NNA_TreeInventory :: F_06 8/9/2021 2:37:37 PM jane

FINAL ELECTRONIC DOCUMENT
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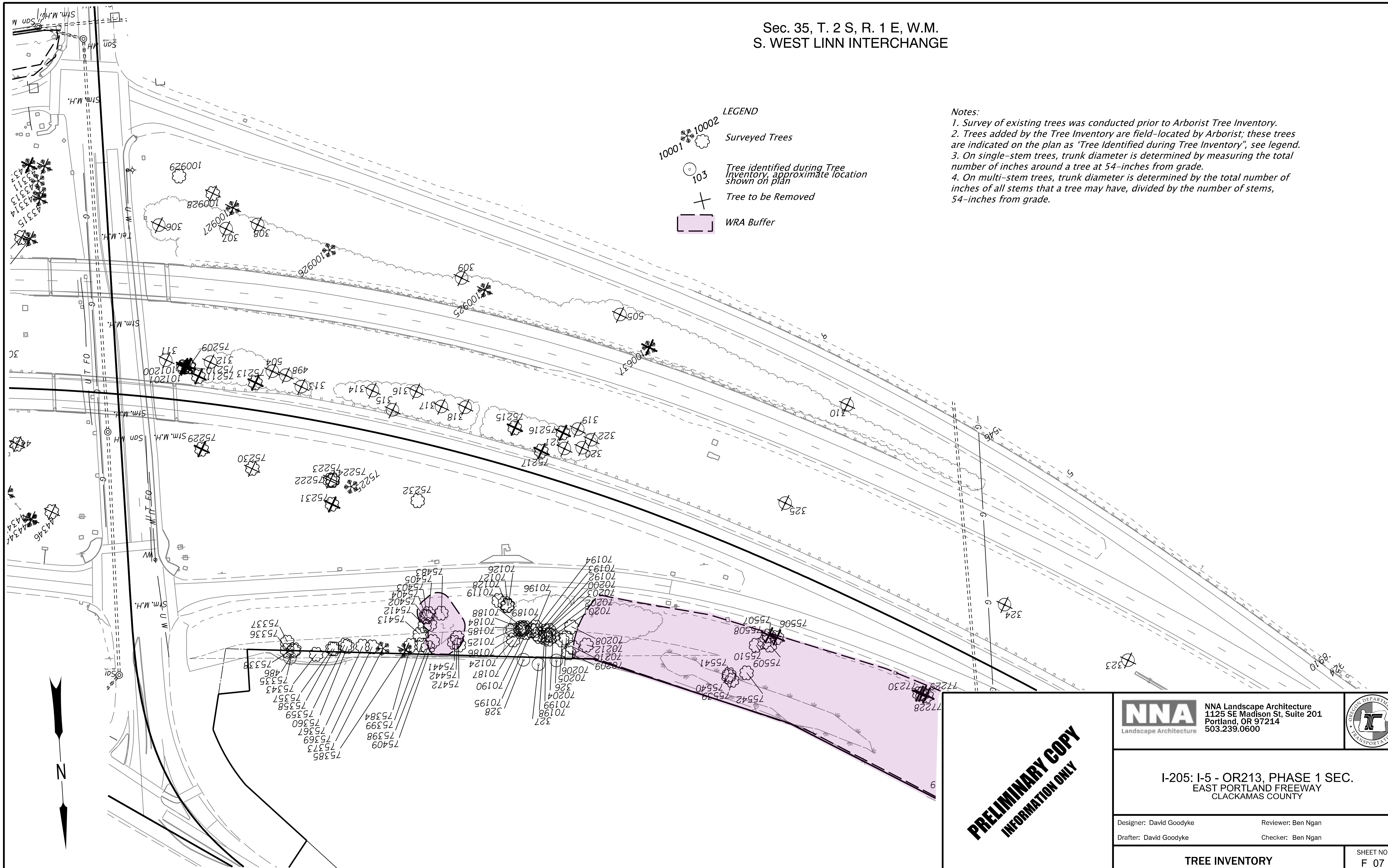
Rotation: 176.5124° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE



LEGEND

Surveyed Trees

Tree identified during Tree Inventory, approximate location shown on plan

Tree to be Removed

WRA Buffer

Notes:
1. Survey of existing trees was conducted prior to Arborist Tree Inventory.
2. Trees added by the Tree Inventory are field-located by Arborist; these trees are indicated on the plan as 'Tree Identified during Tree Inventory", see legend.
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503.239.0600

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: David Goodyke | Reviewer: Ben Ngan
Drafter: David Goodyke | Checker: Ben Ngan

TREE INVENTORY | SHEET NO. F_07

EE_K19786_NNA_TreeInventory :: F_07 8/9/2021 3:01:20 PM jane

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 176.5124° Scale: 1"=100'

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 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-laden water does not enter the roadway or drainage system, or violate applicable water standards.

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

Inlet protection for existing facilities shall be installed before construction begins and shall remain in place until all construction is completed and approved. The contractor shall protect all storm drain inlets within the work area and adjacent to the work limits within 100' outside all working, stockpile, and staging areas, including the first inlet downstream (at any distance). In the case of inlets to be removed, protection measures shall remain in place until the new inlet is constructed and connected to the drainage network, and the existing inlet has been disconnected from the existing drainage network. Inlet protection shall be installed on new inlets before they are connected to the existing drainage network.

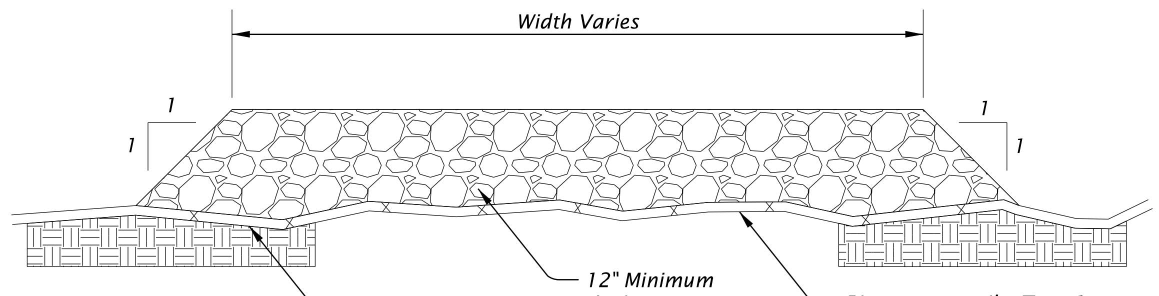
See section 00280 for material not shown in plans.

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

SEQUENCE OF WORK NOTES:

This Erosion and Sediment Control Plan has been prepared based upon the construction sequence represented in the Traffic Control Plan Sheets. This ESCP is not intended to supercede a construction sequencing plan. The ESCP is to be reviewed and revised to fit the actual construction sequence.

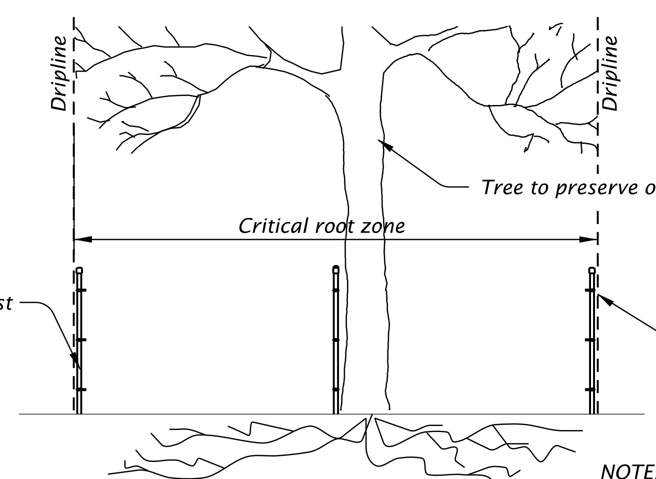


1. Existing ground shall be grubbed to a depth 6".

2. Cover existing ground under Staging Area with riprap geotextile and either chain link fence or other approved geogrid type material and cover with Base Aggregate.

3. Applies to contractor staging within environmentally sensitive and regulated work areas.

STAGING AREA DETAIL
N.T.S.

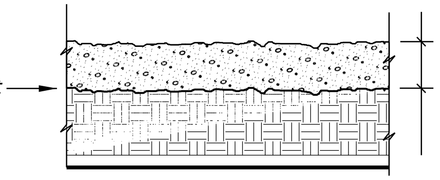


TREE PROTECTION DETAIL
N.T.S.

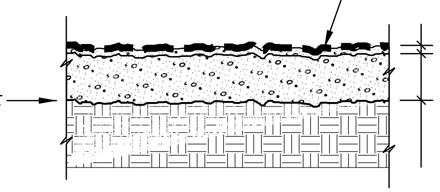
NOTE:
1. Do not work, store construction materials or park within the critical root zone of marked trees unless written approval has been obtained from the Engineer.

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

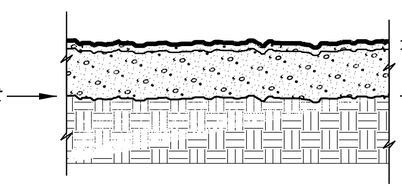
3. Place check dams in ditch sections.



APPLICATION - TEMPORARY/PERMANENT MULCHING
N.T.S.



APPLICATION - STEEP SLOPES, SHALLOW DITCHES & BIO-SWALES
N.T.S.



APPLICATION – TEMPORARY/PERMANENT VEGETATIVE COVER
N.T.S.

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

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HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

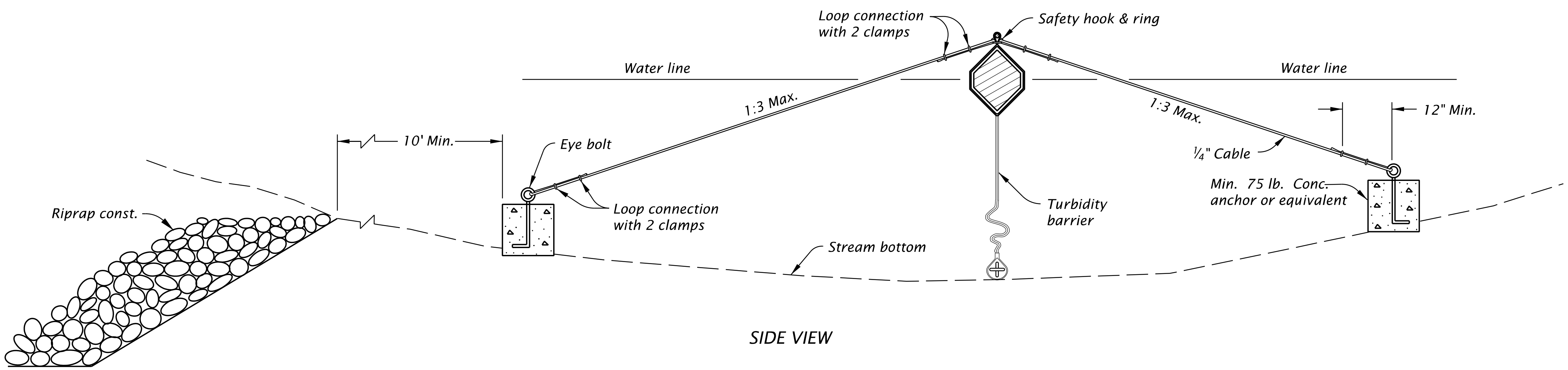
SHEET NO. FB01

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

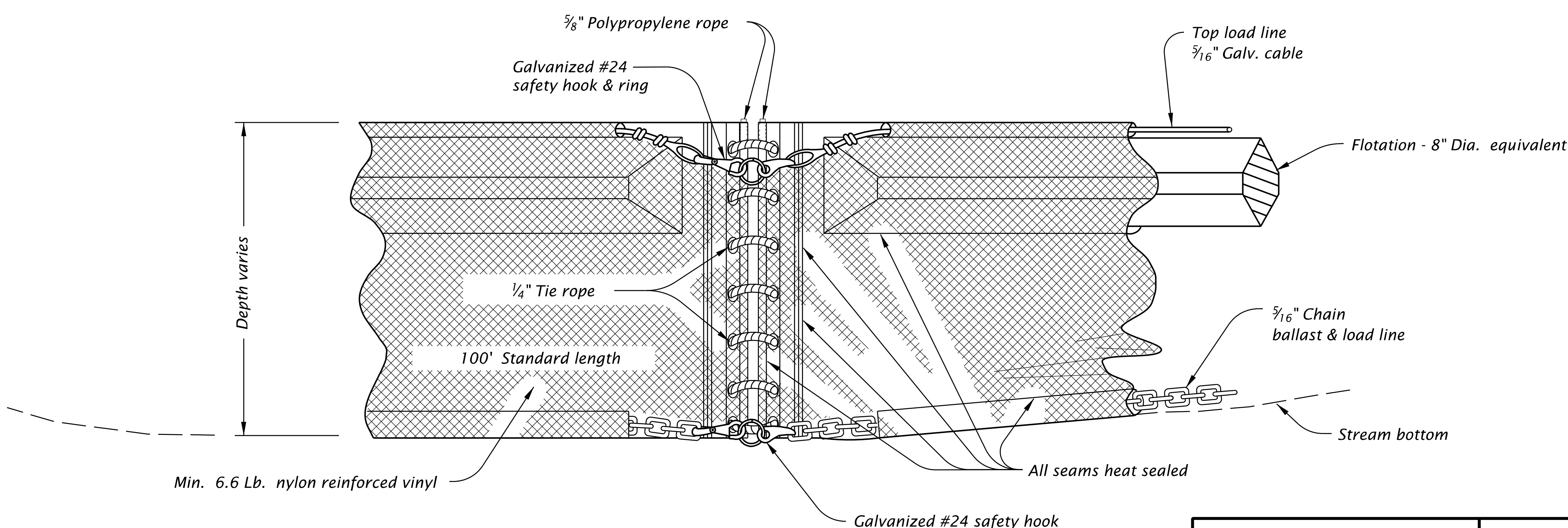
EE_K19786_HDR_ecpl_01.dgn :: FB01 3/24/2021 8:14:38 AM DRODRIGUEZ

Rotation: 0° Scale: 1"=100'

SEDIMENT BARRIER FLOATING



SIDE VIEW



ANCHOR ASSEMBLY

NOTE:

Components of this barrier may be similar or identical to proprietary designs. Any infringement on the proprietary rights of the designer shall be the sole responsibility of the contractor. Substitutions shall be as approved by the engineer.

TURBIDITY BARRIER

REGISTERED PROFESSIONAL ENGINEER
77918PE
OREGON
JAN. 4, 2011
JASON M. RAHM
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

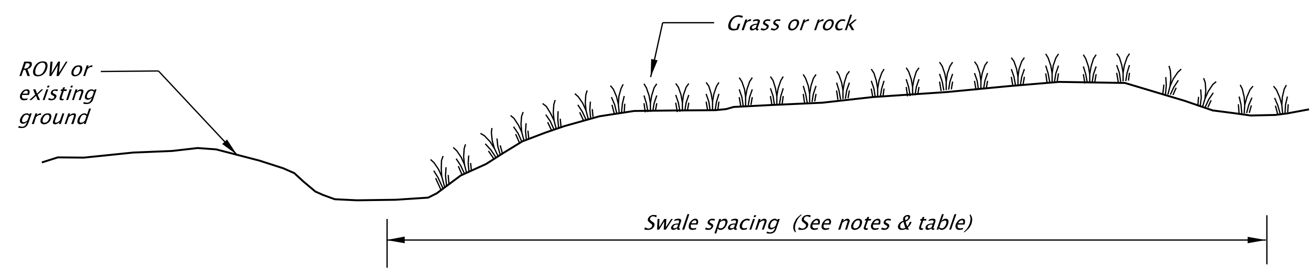
SHEET NO.
FB02

FINAL ELECTRONIC DOCUMENT
AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_01.dgn :: FB02 3/24/2021 8:14:41 AM DRODRIGUEZ

Rotation: 0° Scale: 1"=100'

TEMPORARY INTERCEPTOR SWALE
TYPE 1



SECTION

Notes:

Bottom width = 24" minimum at a 0% grade.

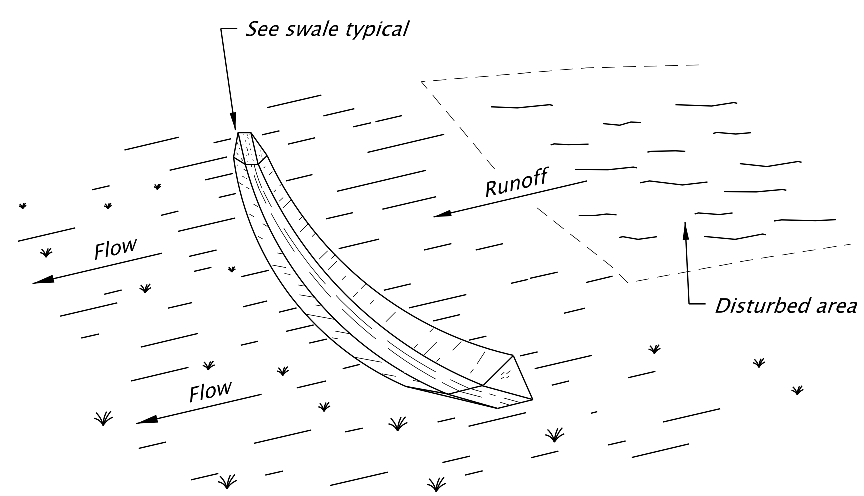
Depth = 12" minimum

Side slope = 1:2 or flatter

Grade = maximum 5 percent with positive drainage to a suitable outlet (such as sedimentation pond)

Swale Spacing

Slope	Spacing
3-5%	300'
5-10%	200'
10-25%	100'
25-50%	50'



Notes:
Discharge onto undisturbed area
or alternate sediment trapping device

REGISTERED PROFESSIONAL ENGINEER
77918PE
OREGON
JASON M. RAHM
EXPIRES: DEC. 31, 2022

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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION CONTROL DETAILS

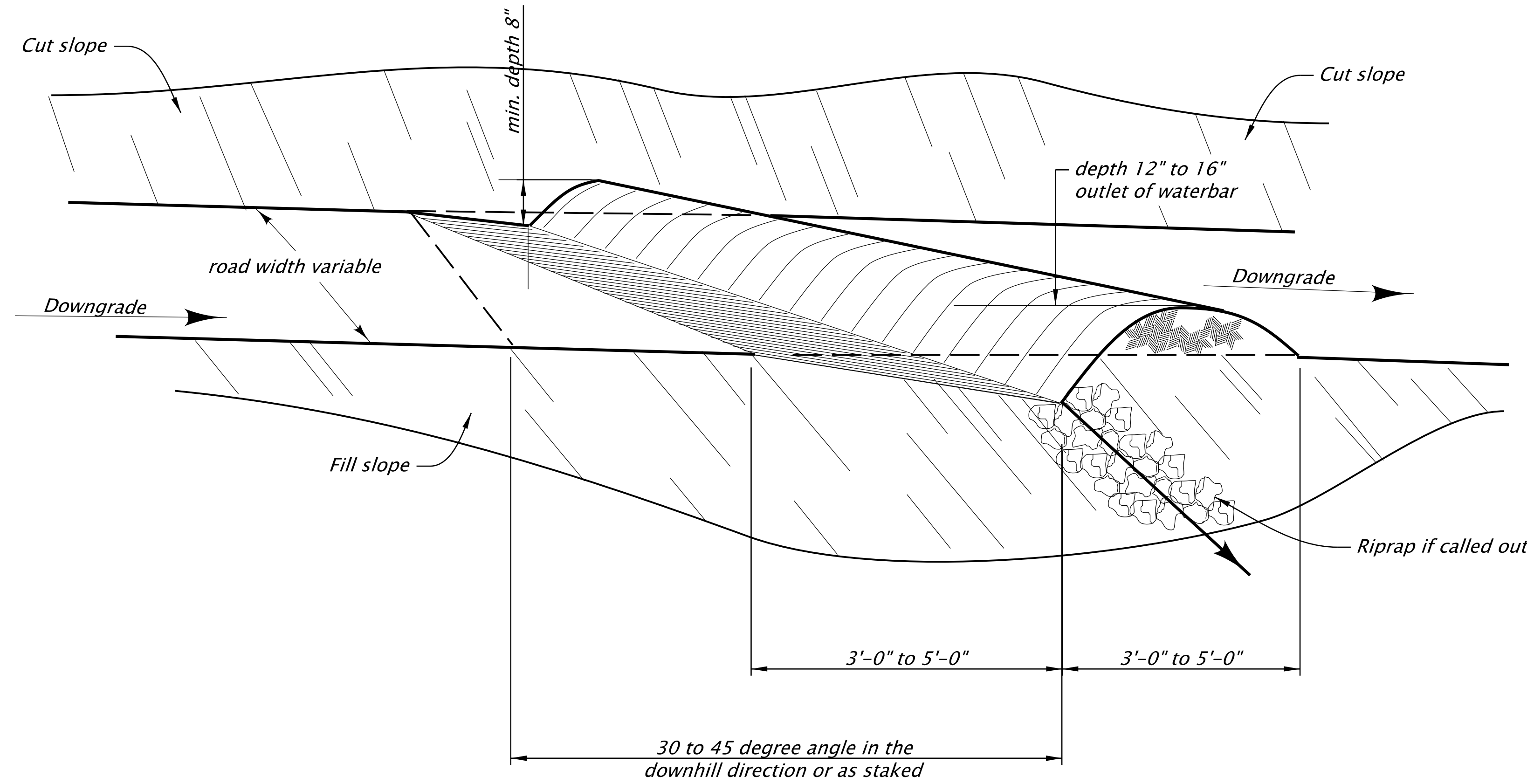
SHEET NO. FB03

EE_K19786_HDR_ecpl_01.dgn :: FB03 3/24/2021 8:14:42 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: 1"=100'

WATERBAR



NOTES:

1. *Begin waterbars at the intersection of the roadbed and cut slope, and run across the entire width of the roadbed.*
2. *Ensure waterbars have a free flowing outlet for drainage.*
3. *Ensure that waterbars allow for passage of a construction equipment.*

REGISTERED PROFESSIONAL ENGINEER 77918PE OREGON JULY 14, 2011 JASON M. RAHM

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503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION CONTROL DETAILS

SHEET NO. FB04

EE_K19786_HDR_ecpl_01.dgn :: FB04 3/24/2021 8:14:42 AM DRODRIGUEZ

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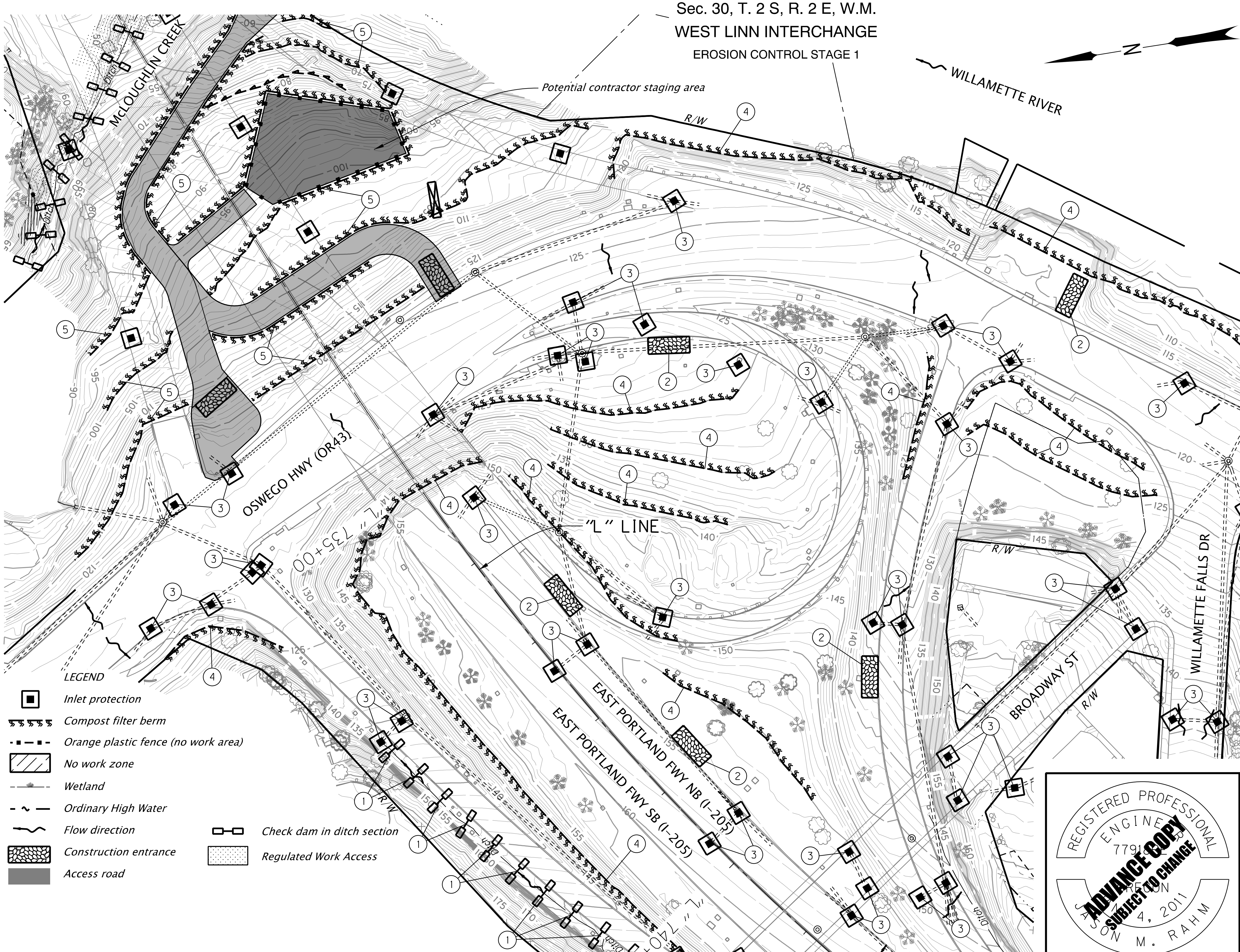
Rotation: 0° Scale: 1"=100'



1. Const. check dam (Type 1) - 9 (See drg. no. RD1005)
2. Const. construction entrance - 5 (Type 1) (See drg. no. RD1000)
3. Const. inlet protection - 45 (Type 3) (See drg. no. RD1010)
4. Install sediment barrier - 3,354' (Type 9) (See drg. no. RD1033)
5. See sht. FB11, note 4. Install sediment barrier (Type 9, Compost filter berm) (See drg. no. RD1033)

LEGEND

- Inlet protection
- Compost filter berm
- Orange plastic fence (no work area)
- No work zone
- Wetland
- Ordinary High Water
- Flow direction
- Construction entrance
- Access road
- Check dam in ditch section
- Regulated Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.
4. See sht. EA22 for access details.

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB12

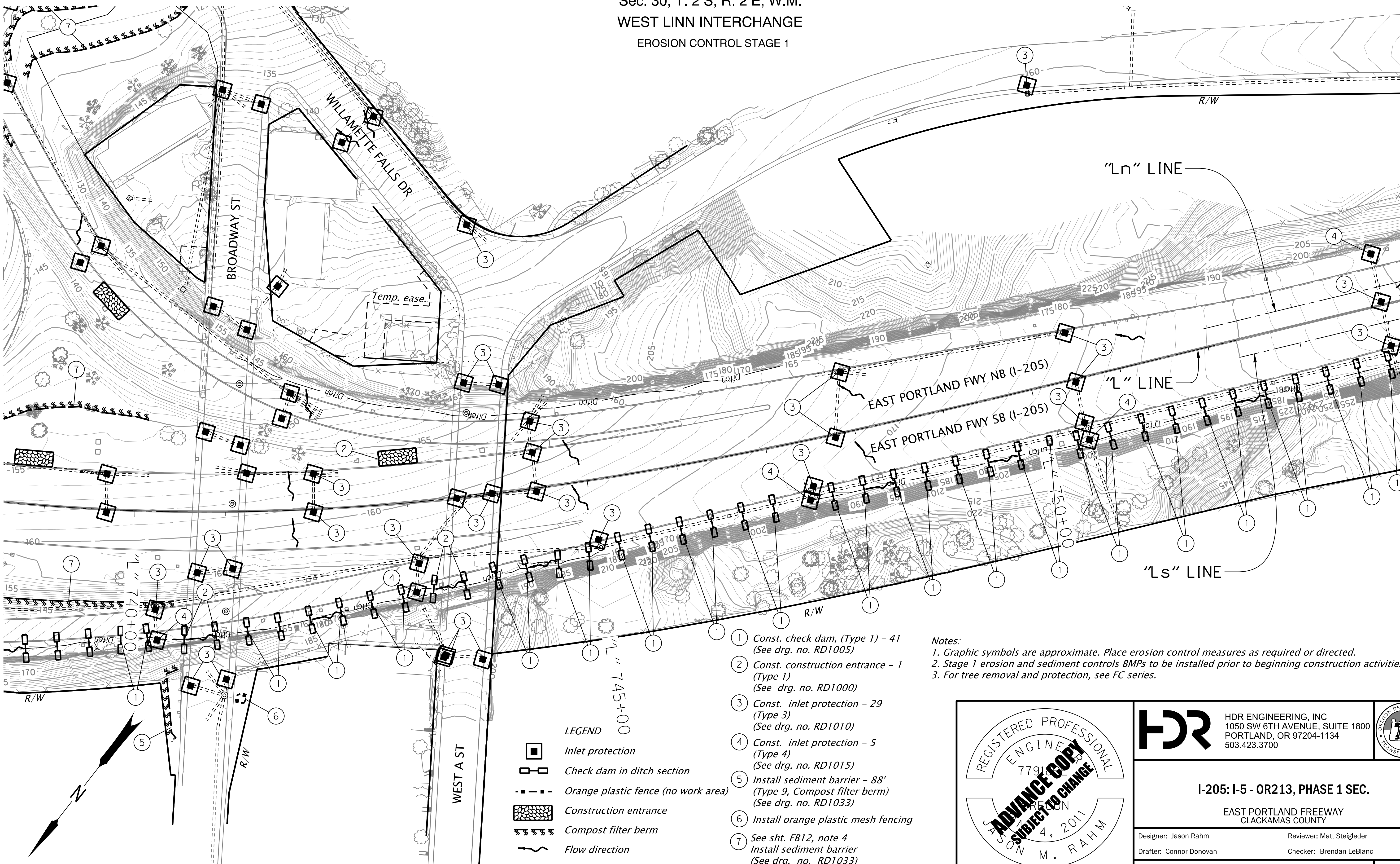
EE_K19786_HDR_ecpl_01.dgn :: FB12 3/24/2021 8:15:13 AM DRODRIGUEZ

Rotation: 260.6437° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.

WEST LINN INTERCHANGE

EROSION CONTROL STAGE 1



LEGEND

- Inlet protection
- Check dam in ditch section
- Orange plastic fence (no work area)
- Construction entrance
- Compost filter berm
- Flow direction

1. Const. check dam, (Type 1) - 41 (See drg. no. RD1005)
2. Const. construction entrance - 1 (Type 1) (See drg. no. RD1000)
3. Const. inlet protection - 29 (Type 3) (See drg. no. RD1010)
4. Const. inlet protection - 5 (Type 4) (See drg. no. RD1015)
5. Install sediment barrier - 88' (Type 9, Compost filter berm) (See drg. no. RD1033)
6. Install orange plastic mesh fencing
7. See sht. FB12, note 4 Install sediment barrier (See drg. no. RD1033)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB13

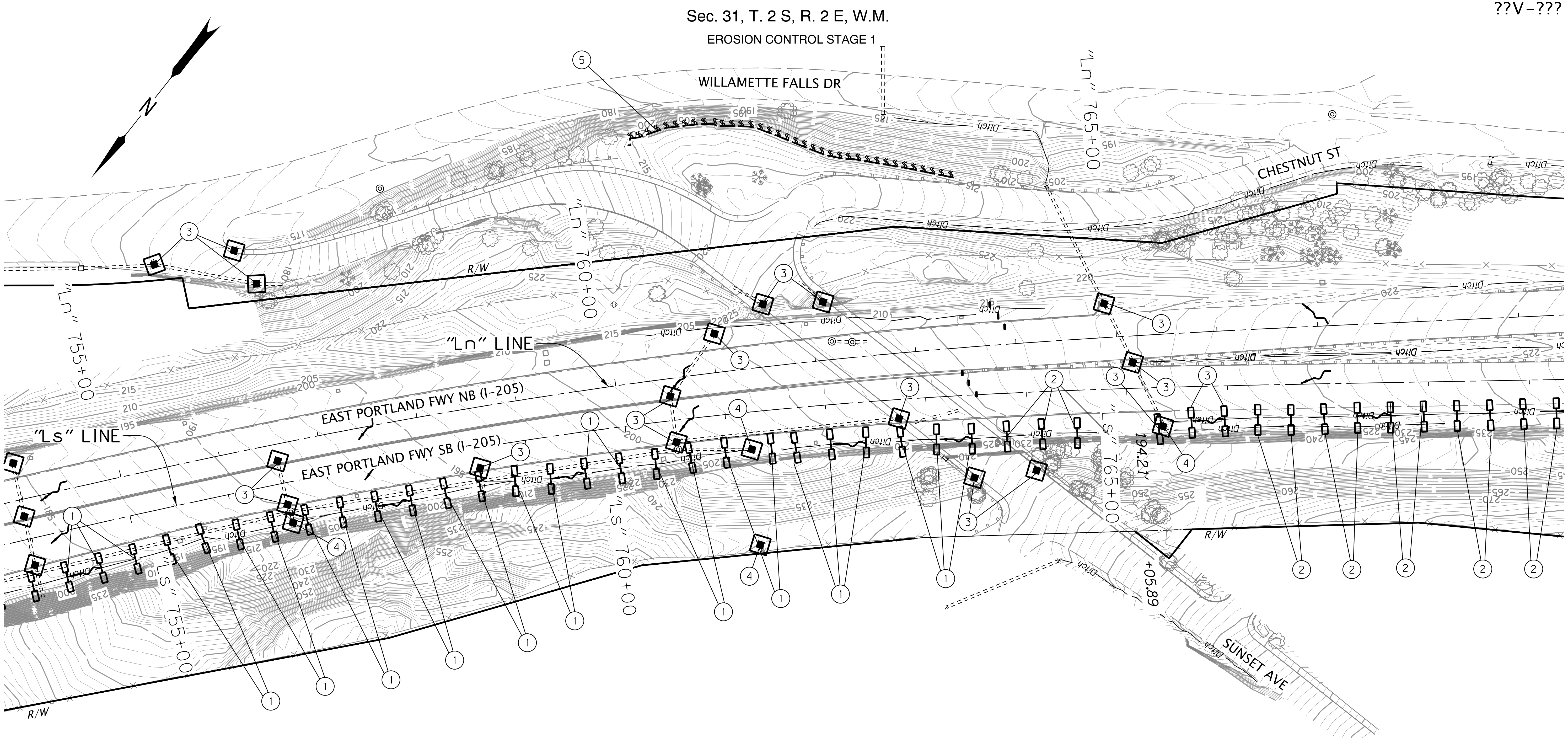
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_01.dgn :: FB13 3/24/2021 8:15:17 AM DRODRIGUEZ

Rotation: 218.1362° Scale: 1"=100'

Sec. 31, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 1



1 Const. check dam, (Type 1) – 31 (See drg. no. RD1005)

2 Const. check dam, (Type 6) – 13 (See drg. no. RD1006)

3 Const. inlet protection – 16 (Type 3) (See drg. no. RD1010)

4 Const. inlet protection – 4 (Type 4) (See drg. no. RD1015)

5 Install sediment barrier – 339' (Type 9, Compost filter berm) (See drg. no. RD1033)

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON ... 4, 2011 JASON M. RAHM

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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB14

EE_K19786_HDR_ecpl_01.dgn :: FB14 3/24/2021 8:15:19 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.5198° Scale: 1"=100'

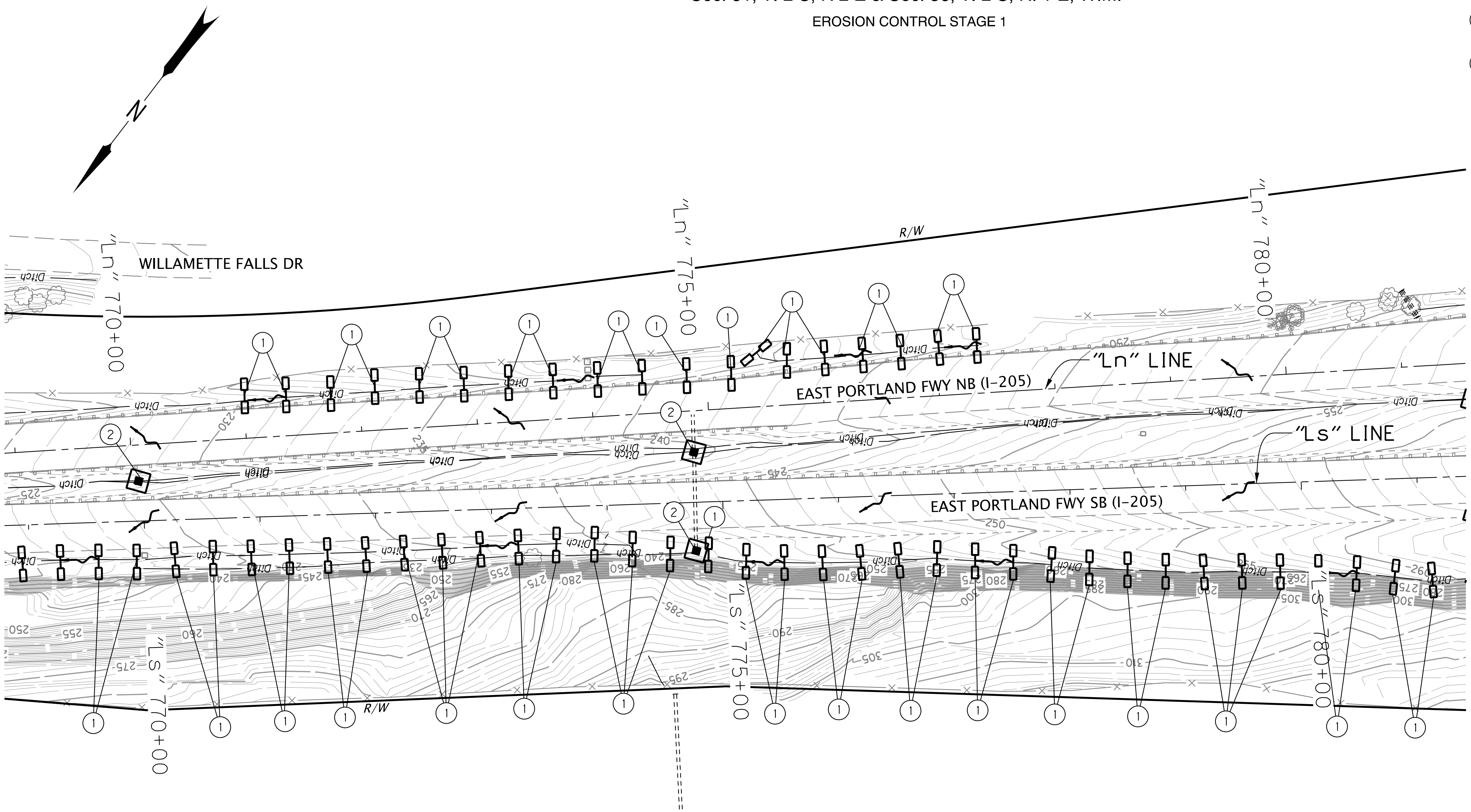
??V-???

Sec. 31, T. 2 S, R 2 E & Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

(1) *Const. check dam, (Type 6) - 55*
(See drg. no. RD1006)

(2) *Const. inlet protection - 3*
(Type 4)
(See drg. no. RD1015)



LEGEND

Inlet protection
Check dam in ditch section
Flow direction

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *For tree removal and protection, see FC series.*

REGISTERED PROFESSIONAL ENGINEER
77918
OREGON
4, 2011
JASON M. RAHM
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB15

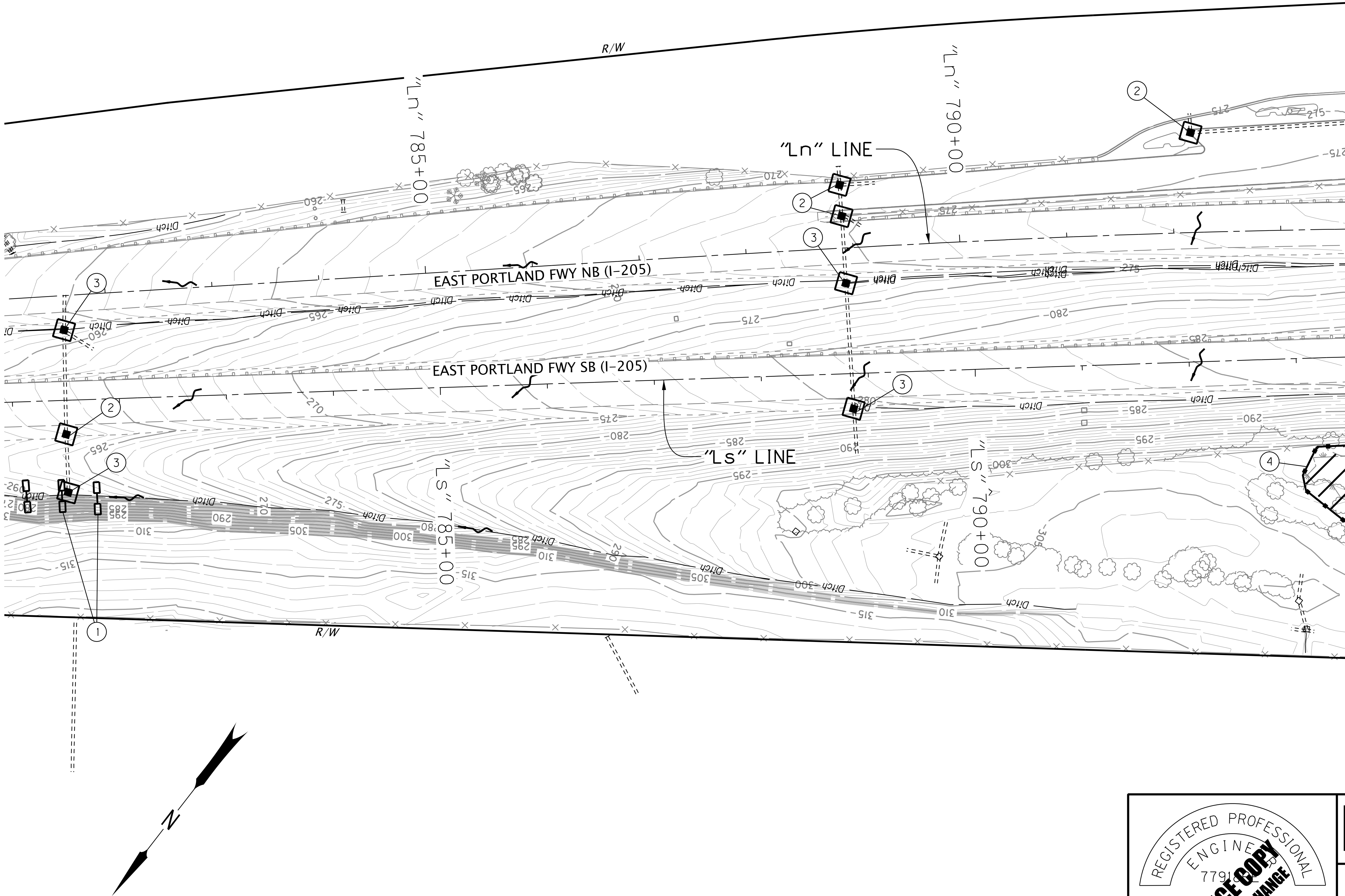
EE_K19786_HDR_ecpl_01.dgn :: FB15 3/24/2021 8:15:22 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1



1 Const. check dam, (Type 6) – 2 (See drg. no. RD1006)

2 Const. inlet protection – 4 (Type 3) (See drg. no. RD1010)

2 Const. inlet protection – 4 (Type 34) (See drg. no. RD1015)

4 Install orange plastic mesh fencing – 351'

LEGEND

- Inlet protection
- Check dam in ditch section
- Flow direction
- Orange plastic fence (no work area)
- Wetland
- Compost filter berm
- No work zone

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

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EXPIRES: DEC. 31, 2022

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

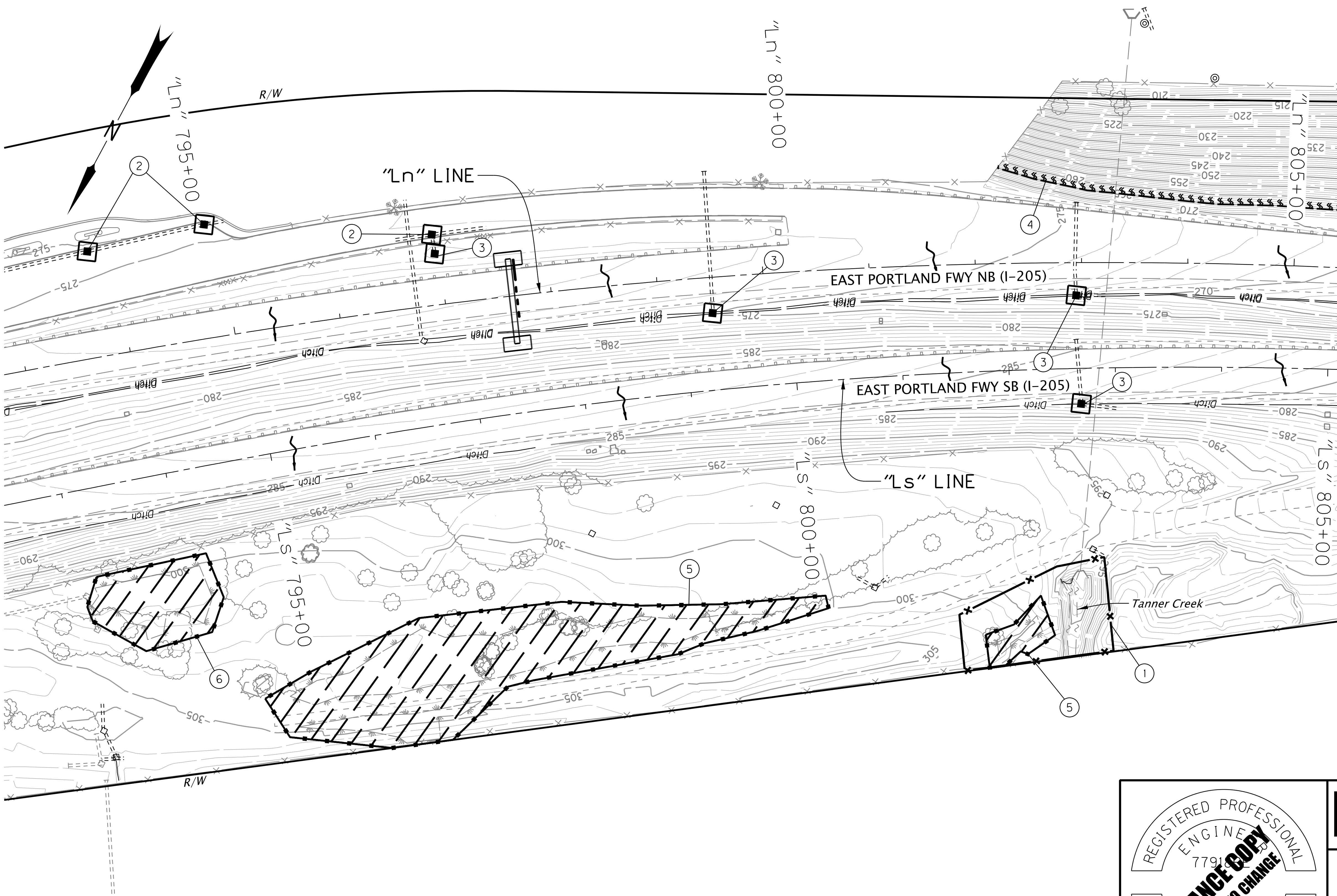
SHEET NO. FB16

EE_K19786_HDR_ecpl_01.dgn :: FB16 3/24/2021 8:15:24 AM DRODRIGUEZ

Rotation: 217.6195° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1



1. Const. temp. CL-6 fence
2. Const. inlet protection - 3 (Type 3) (See drg. no. RD1010)
3. Const. inlet protection - 4 (Type 4) (See drg. no. RD1015)
4. Install sediment barrier - 4,993' (Type 9, Compost filter berm) (See drg. no. RD1033)
5. Install orange plastic mesh fencing - 1,350'
6. See sht. FB16, note 4 Install orange plastic mesh fencing

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction
- Orange plastic fence (no work area)
- Wetland
- No work zone

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM EXPIRES: DEC. 31, 2022

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB17

EE_K19786_HDR_ecpl_01.dgn :: FB17 3/24/2021 8:15:26 AM DRODRIGUEZ

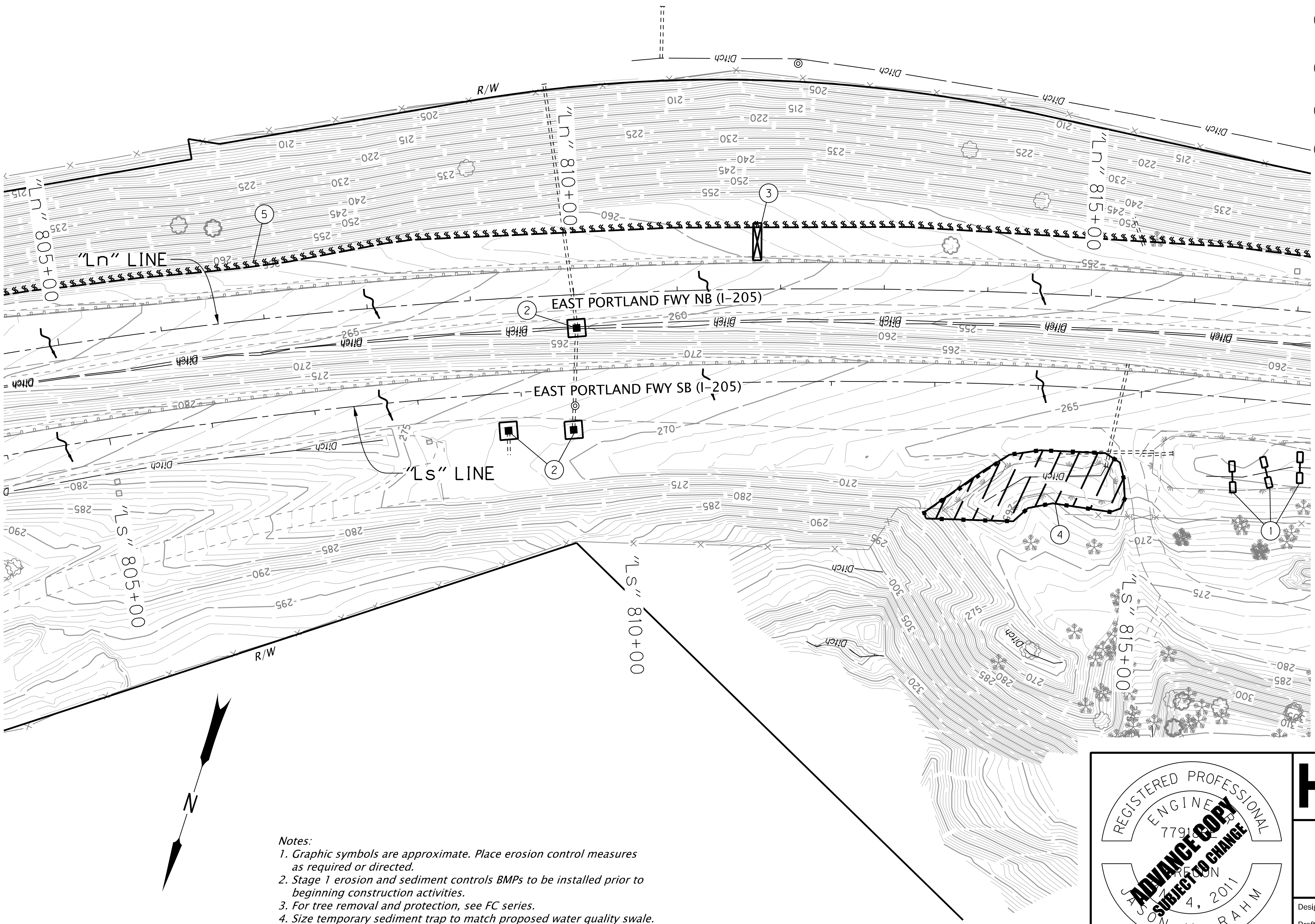
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 208.1457° Scale: 1"=100'

??V-???

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1



1. Const. check dam, (Type 6) - 3 (See drg. no. RD1006)
2. Const. inlet protection - 3 (Type 4) (See drg. no. RD1015)
3. Const. temp. sediment trap (See drg. no. RD1065)
4. Install orange plastic mesh fencing - 456'
5. See sht. FB17, note 4. Install sediment barrier (Type 9, Compost filter berm) (See drg. no. RD1033)

LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Flow direction
- Orange plastic fence (no work area)
- Sediment trap
- Wetland
- Regulated Work Access
- No work zone

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.
4. Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB18

EE_K19786_HDR_ecpl_01.dgn :: FB18 3/24/2021 8:15:29 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 197.6361° Scale: 1"=100'

??V-???

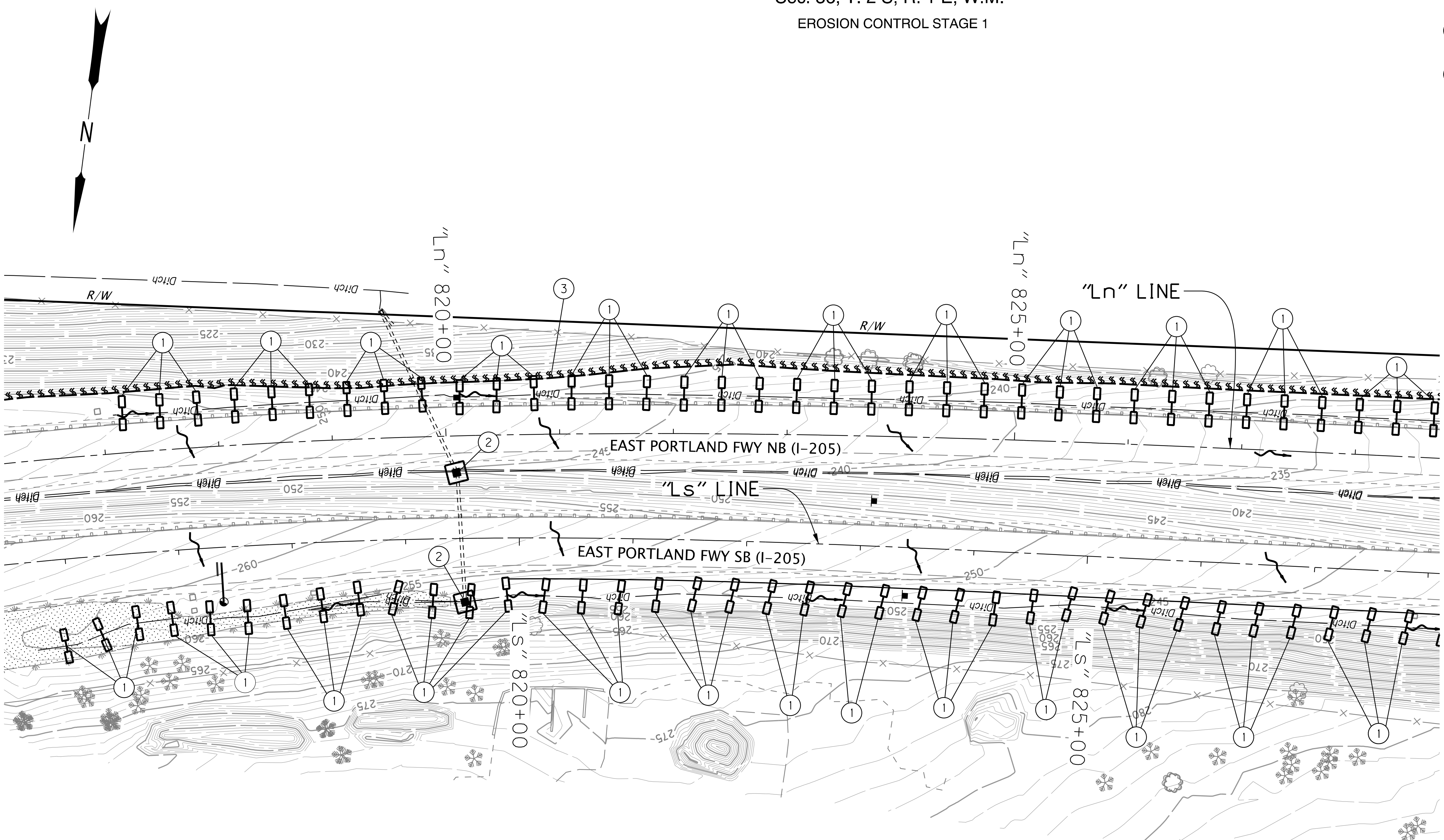
Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

(1) Const. check dam, (Type 6) - 73
(See drg. no. RD1006)

(2) Const. inlet protection - 2
(Type 4)
(See drg. no. RD1015)

(3) See sht. FB17, note 4
Install sediment barrier
(Type 9, Compost filter berm)
(See drg. no. RD1033)



LEGEND

Inlet protection

Check dam in ditch section

Compost filter berm

Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER
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JASON M. RAHM
EXPIRES: DEC. 31, 2022

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I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder

Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB19

EE_K19786_HDR_ecpl_01.dgn :: FB19 3/24/2021 8:15:31 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

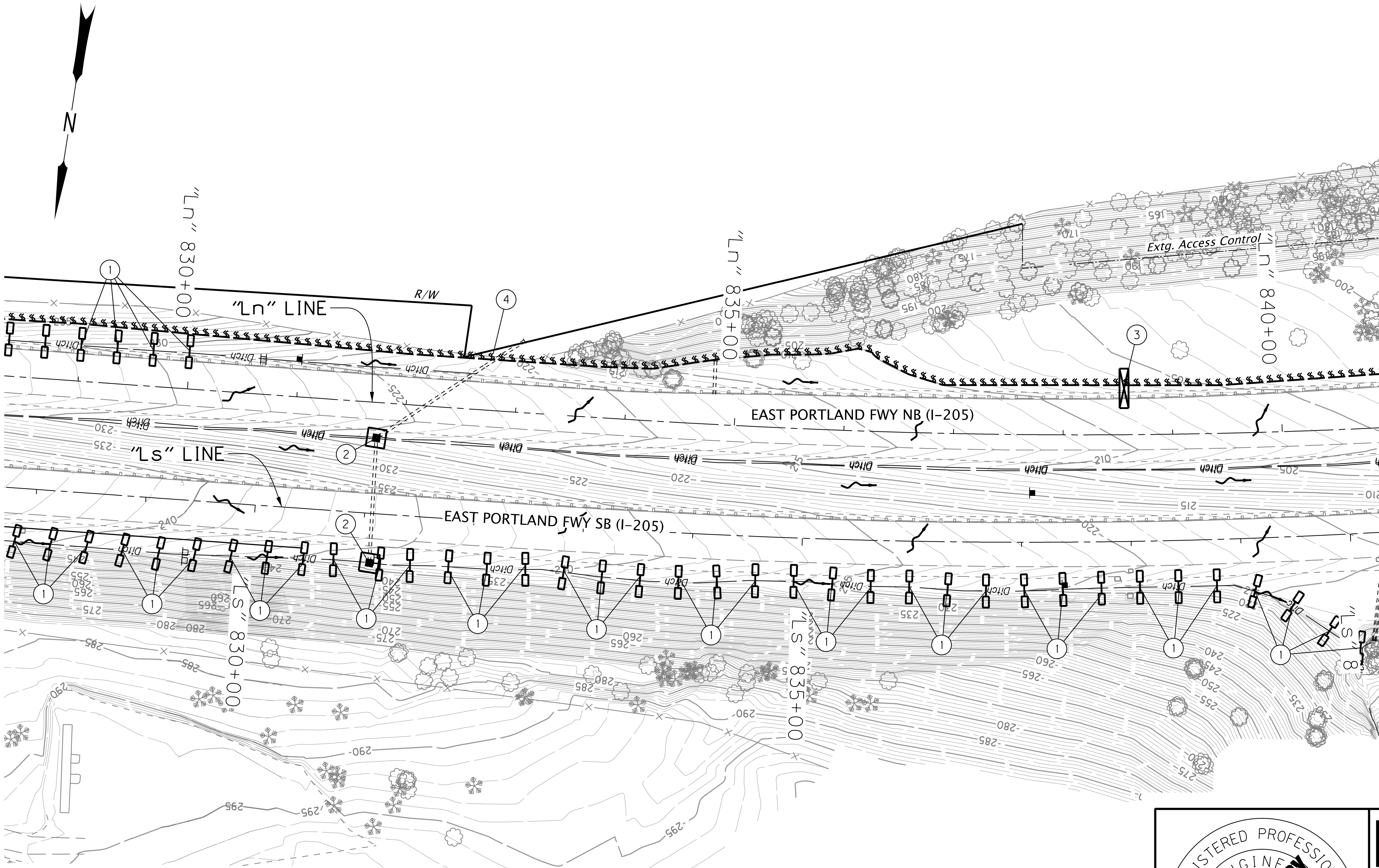
Rotation: 187.5797° Scale: 1"=100'

??V–???

Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 1

1. Const. check dam, (Type 6) – 41
   (See drg. no. RD1006)
2. Const. inlet protection – 2
   (Type 4)
   (See drg. no. RD1015)
3. Const. temp. sediment trap
   (See drg. no. RD1065)
4. See sht. FB17, note 4
   Install sediment barrier
   (Type 9, Compost filter berm)
   (See drg. no. RD1033)



LEGEND

- Inlet protection
- Check dam in ditch section
- Compost filter berm
- Sediment trap
- Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.
4. Size temporary sediment trap to match proposed water quality swale. See HA series for permanent feature size.

REGISTERED PROFESSIONAL ENGINEER
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB20

EE_K19786_HDR_ecpl_01.dgn :: FB20 3/24/2021 8:15:34 AM DRODRIGUEZ

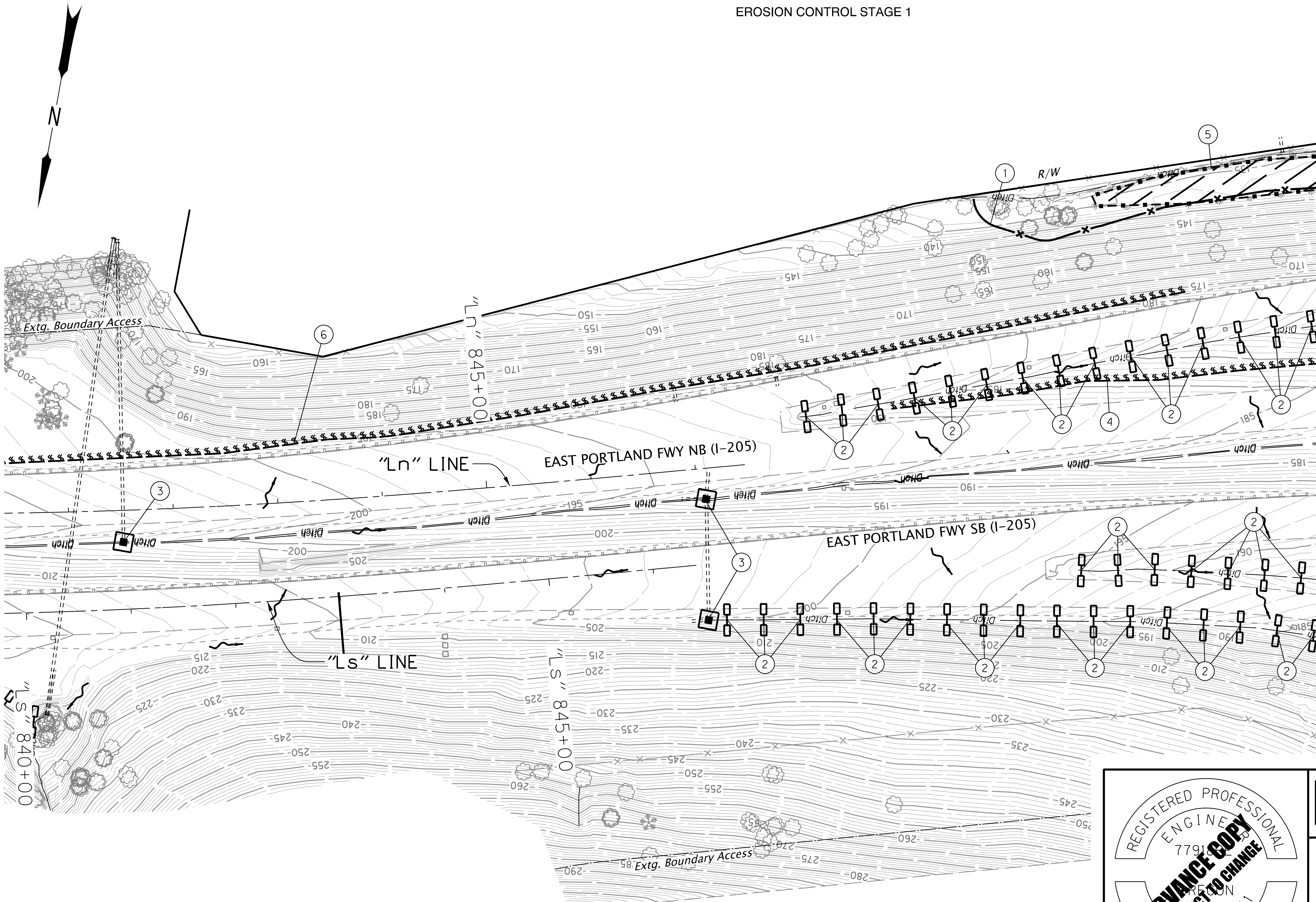
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 188.8482° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 1



1. Const. temp. CL-6 fence – 1,202'
2. Const. check dam, (Type 6) – 39 (See drg. no. RD1006)
3. Const. inlet protection – 3 (Type 4) (See drg. no. RD1015)
4. Install sediment barrier – 1,202' (Type 9, Compost filter berm) (See drg. no. RD1033)
5. Install orange plastic mesh fencing
6. See sht. FB17, note 4 Install sediment barrier (Type 9, Compost filter berm) (See drg. no. RD1033)

LEGEND

- Inlet protection
- Compost filter berm
- Check dam in ditch section
- Flow direction
- No work zone
- Wetland
- Ordinary High Water

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. Verify trees to be removed with Engineer prior to removal.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM

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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL SHEET NO. FB21

EE_K19786_HDR_ecpl_01.dgn :: FB21 3/24/2021 8:16:03 AM DRODRIGUEZ

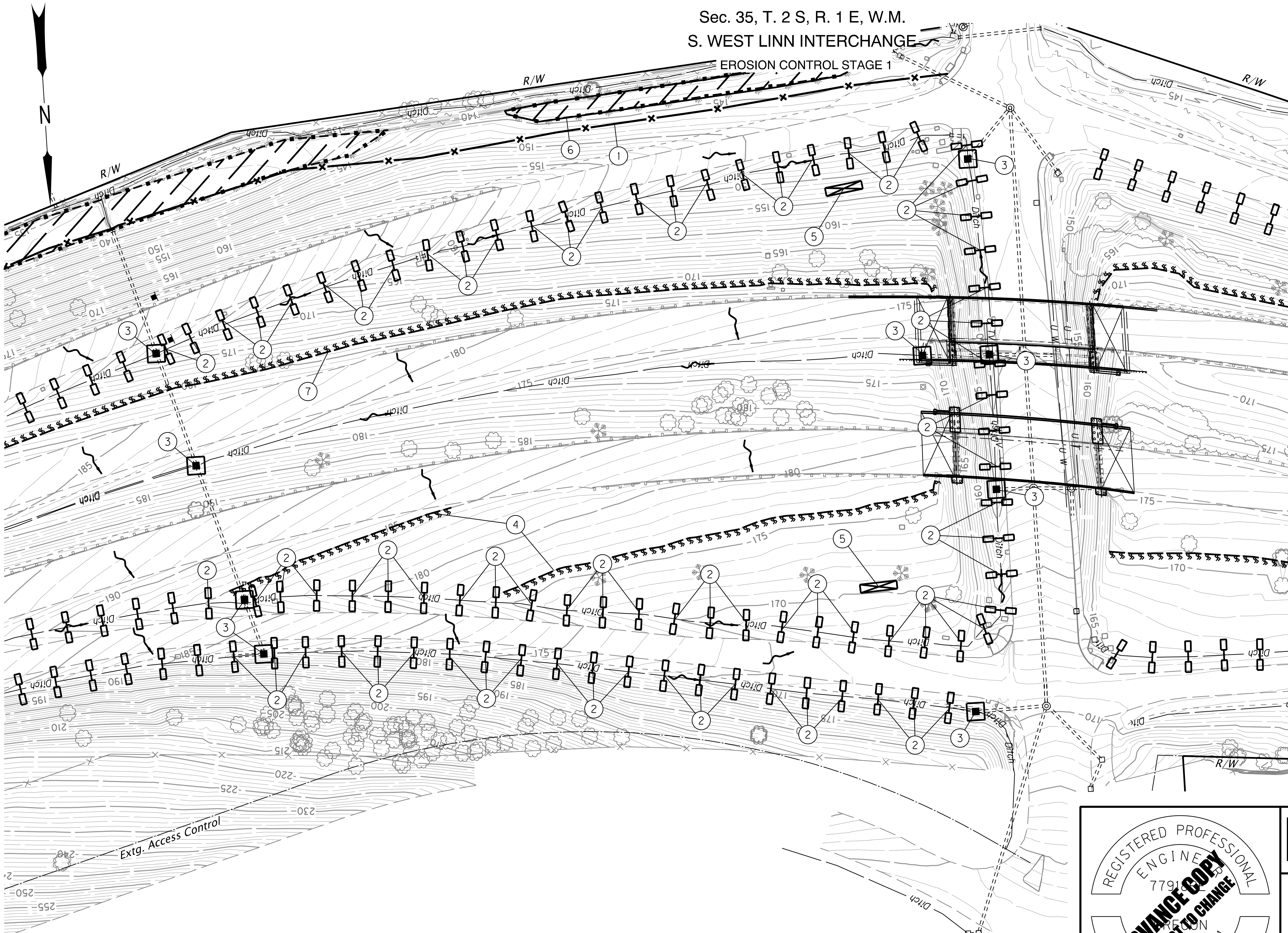
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 190.2392° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 1



1. Const. temp. CL-6 fence
2. Const. check dam, (Type 6) - 81 (See drg. no. RD1006)
3. Const. inlet protection - 9 (Type 4) (See drg. no. RD1015)
4. Install sediment barrier - 676' (Type 9, Compost filter berm) (See drg. no. RD1033)
5. Const. temp. sediment trap (See drg. no. RD1065)
6. Install orange plastic mesh fencing - 750'
7. See sht. FB21, note 4 Install sediment barrier (Type 9, Compost filter berm) (See drg. no. RD1033)
8. See sht. FB21, note 5 Install orange plastic mesh fencing

LEGEND

- Inlet protection
- Compost filter berm
- Check dam in ditch section
- Sediment trap
- Flow direction
- Wetland
- Ordinary High Water
- No work zone

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.*
3. *For tree removal and protection, see FC series.*

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JULY 14, 2011 JASON M. RAHM

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

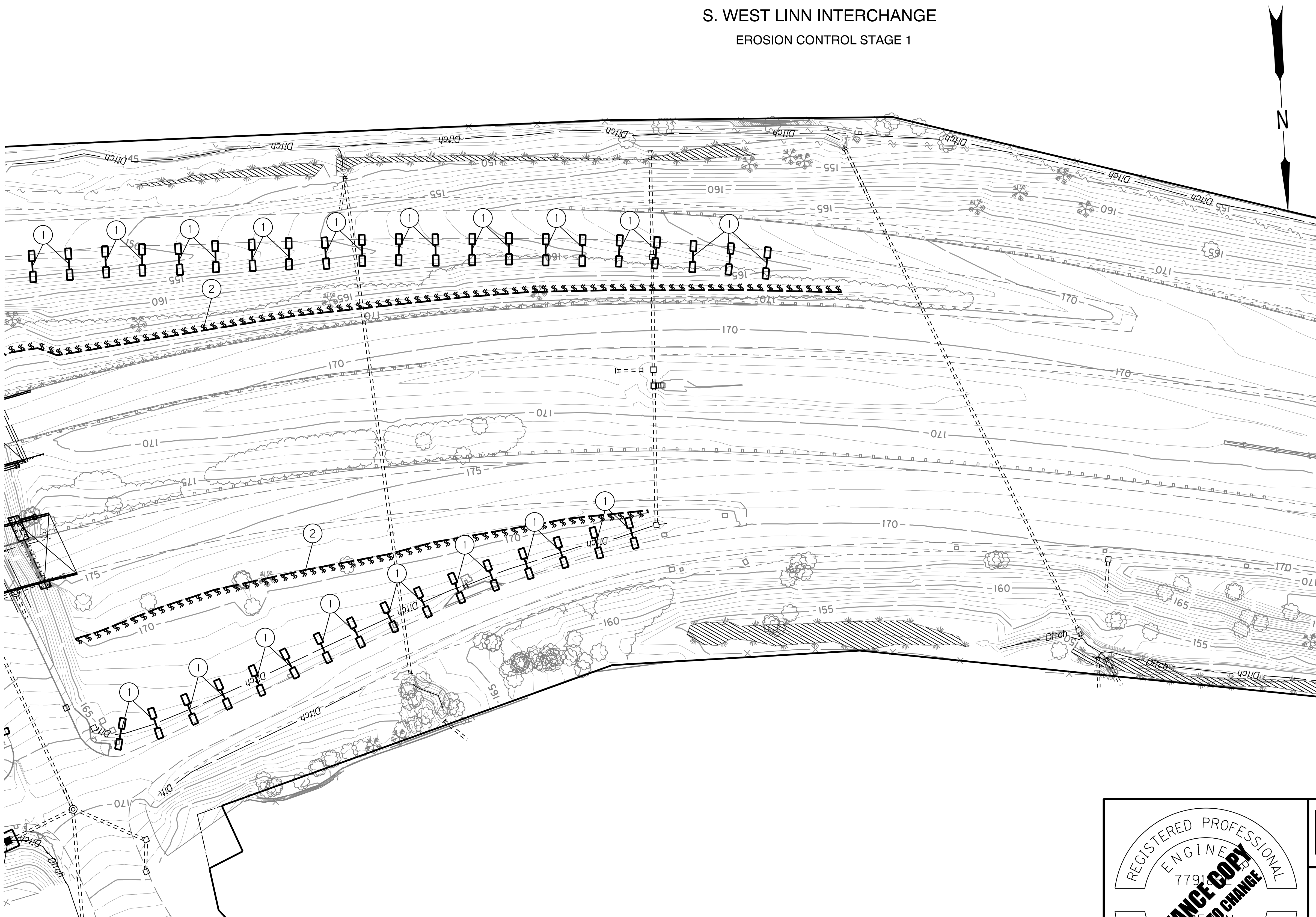
SHEET NO. FB22

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_01.dgn :: FB22 3/24/2021 8:16:07 AM DRODRIGUEZ

Rotation: 176.5124° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE
EROSION CONTROL STAGE 1



(1) *Const. check dam, (Type 6) – 37*
(See drg. no. RD1006)

(2) *Install sediment barrier – 1435'*
(Type 9, Compost filter berm)
(See drg. no. RD1033)

LEGEND

Inlet protection
Compost filter berm
Check dam in ditch section
Flow direction
No work zone

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 1 erosion and sediment controls BMPs to be installed prior to beginning construction activities.
3. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER
77918
OREGON
JULY 14, 2011
JASON M. RAHM
EXPIRES: DEC. 31, 2022

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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB23

EE_K19786_HDR_ecpl_01.dgn :: FB23 3/24/2021 8:16:09 AM DRODRIGUEZ

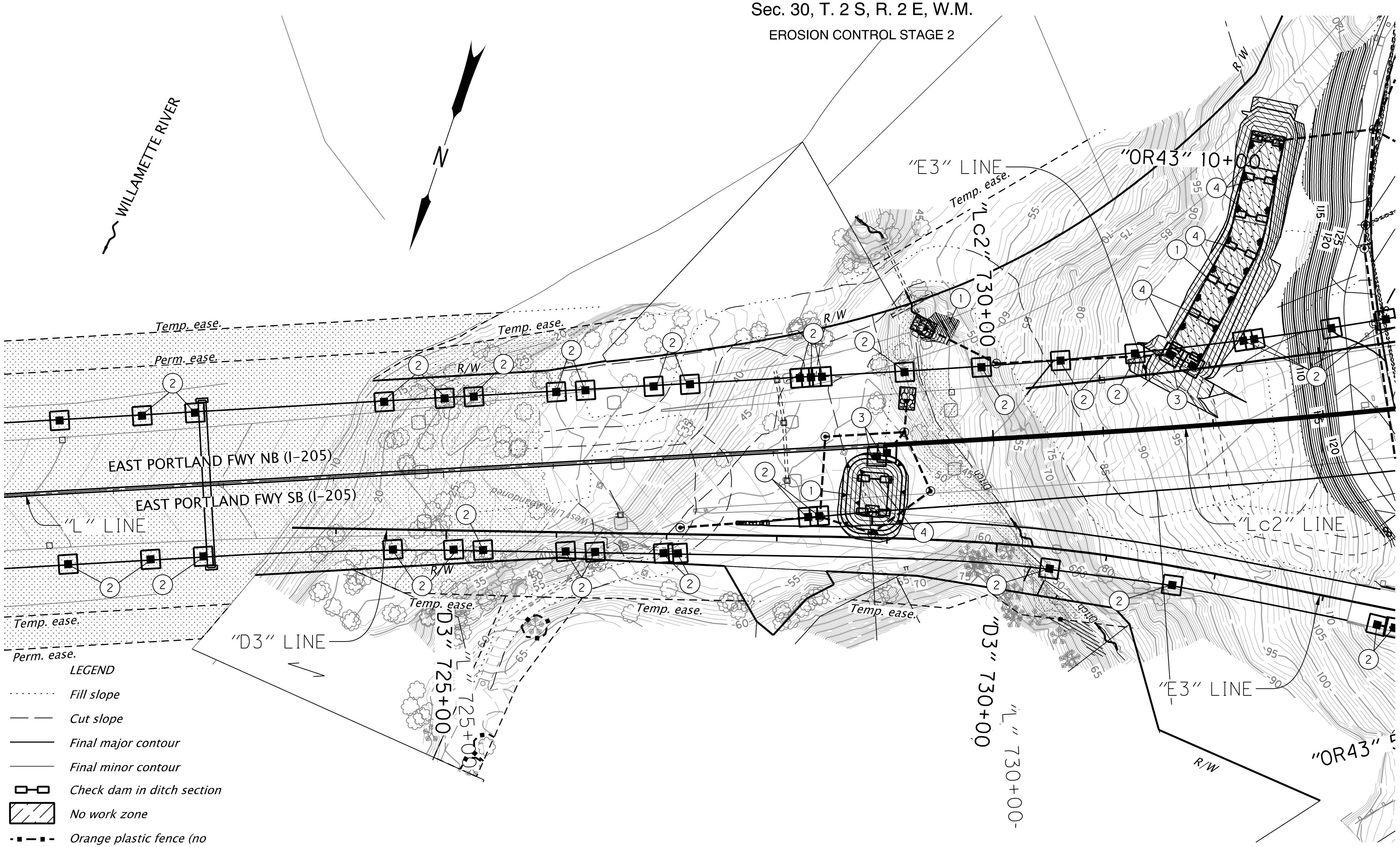
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 155.072° Scale: 1"=100'

??V–???

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



1. Install matting– 2,415 sq. yd. (Type A)
2. Const. inlet protection, (Type 3) – 36 (See drg. no. RD1010)
3. Const. inlet protection, (Type 4) – 4 (See drg. no. RD1015)
4. Const. check dam, (Type 6) – 9 (See drg. no. RD1006)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Check dam in ditch section
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Matting, Type A
- Ordinary High Water
- Wetland
- Compost blanket
- Flow direction
- Regulated Work Access
- Inlet protection

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER
77918
OREGON
4, 2011
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OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB30

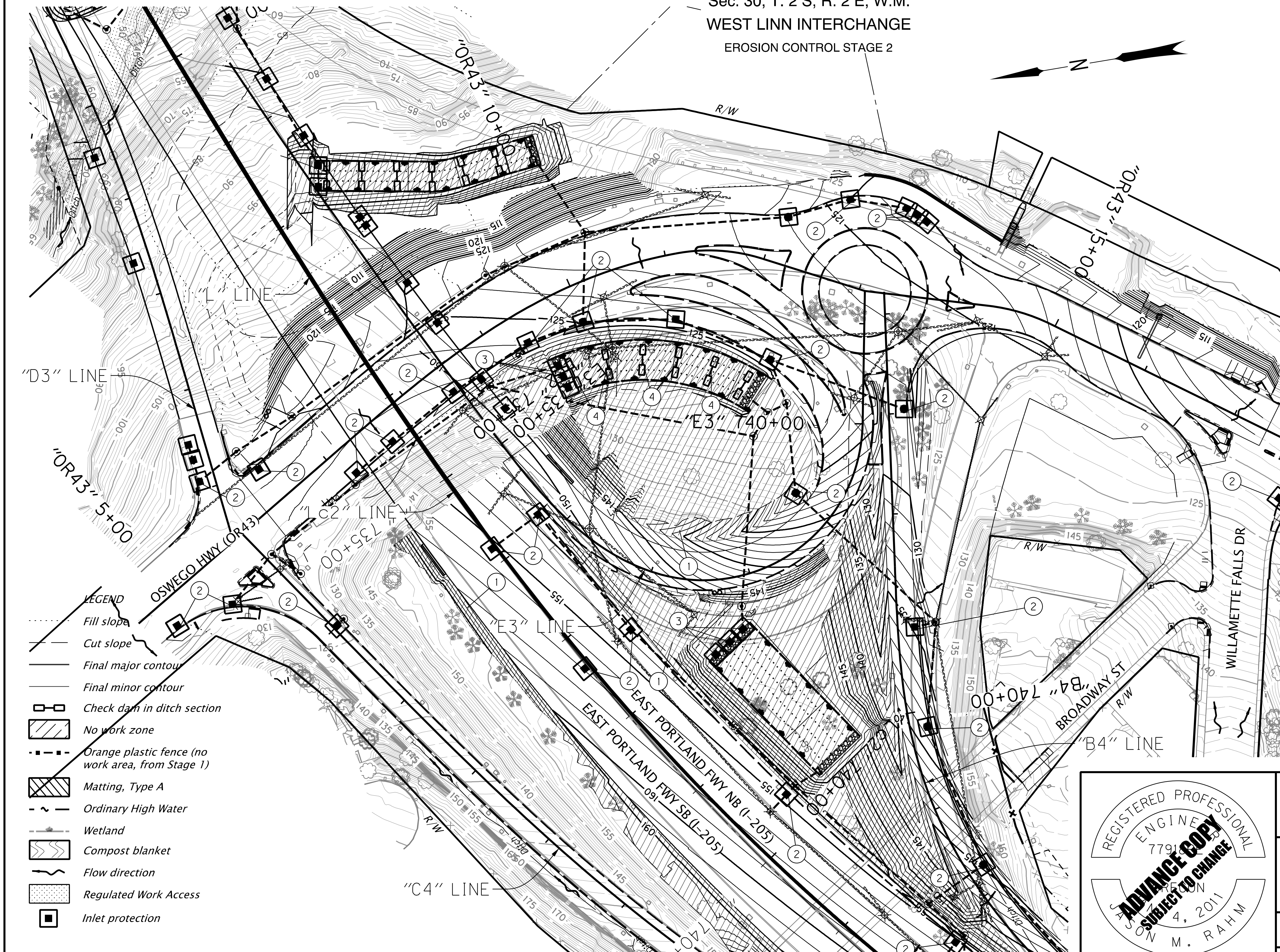
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_02.dgn :: FB30 3/24/2021 10:01:06 AM DRODRIGUEZ

Rotation: 198.4431° Scale: 1"=100'

??V–???

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 2



1. Install matting – 13,941 sq. yd. (Type A)
2. Const. inlet protection, (Type 3) – 27 (See drg. no. RD1010)
3. Const. inlet protection, (Type 4) – 6 (See drg. no. RD1015)
4. Const. check dam, (Type 6) – 10 (See drg. no. RD1006)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

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503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

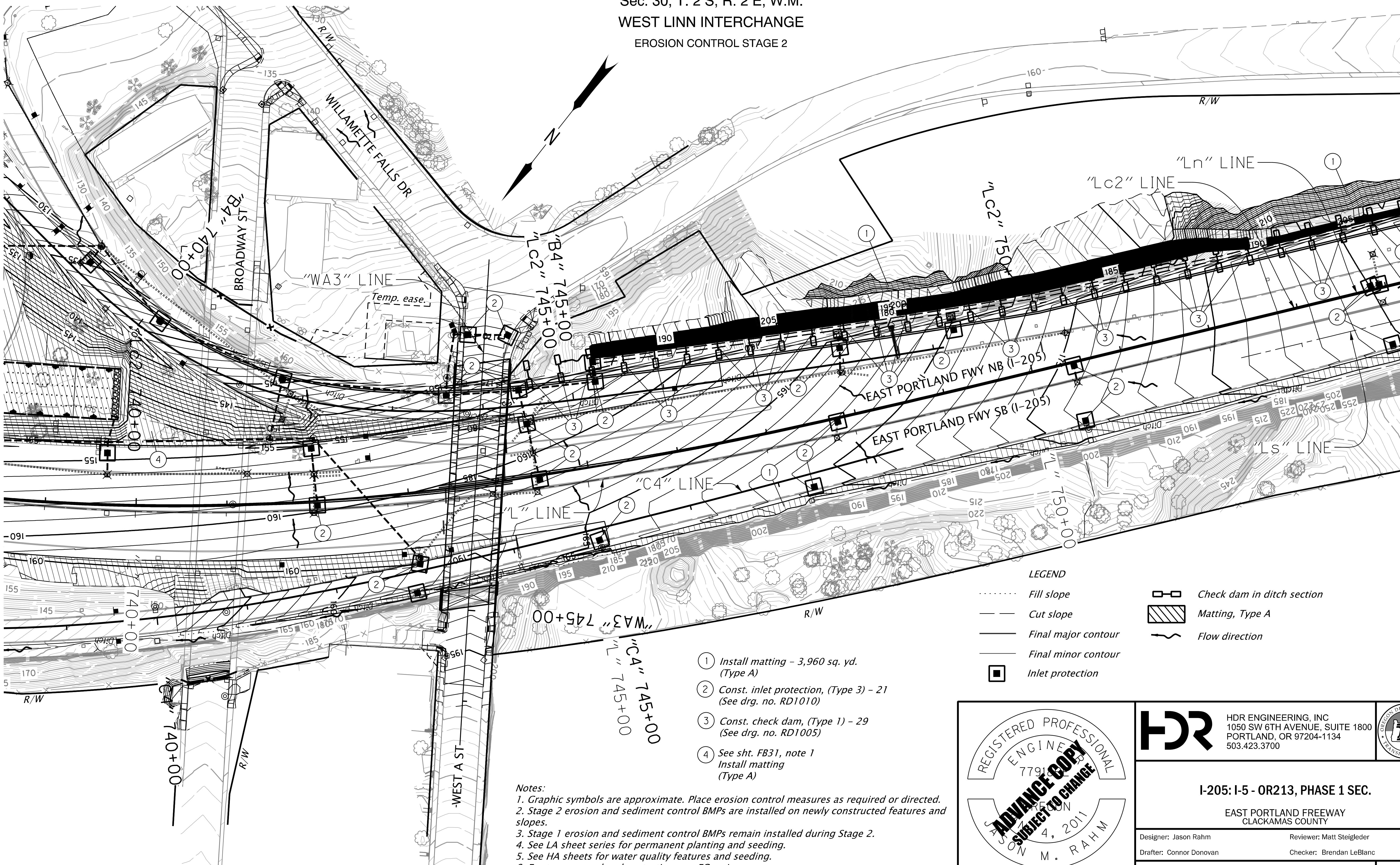
EROSION AND SEDIMENT CONTROL — SHEET NO. FB31

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_02.dgn :: FB31 3/24/2021 9:54:37 AM DRODRIGUEZ

Rotation: 260.6437° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 2



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- Check dam in ditch section
- Matting, Type A
- Flow direction

1. Install matting - 3,960 sq. yd. (Type A)
2. Const. inlet protection, (Type 3) - 21 (See drg. no. RD1010)
3. Const. check dam, (Type 1) - 29 (See drg. no. RD1005)
4. See sht. FB31, note 1 Install matting (Type A)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JULY 14, 2011 JASON M. RAHM
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503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB32

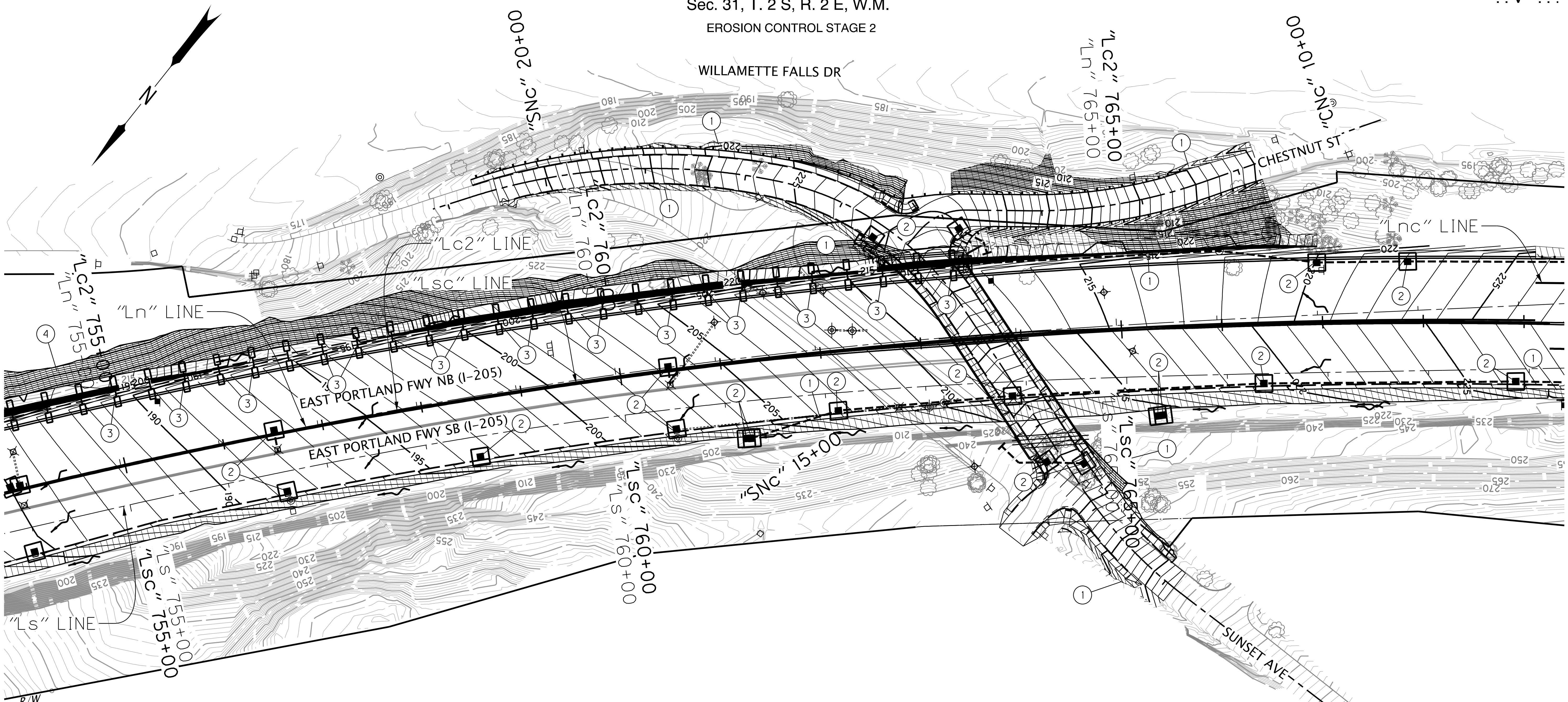
EE_K19786_HDR_ecpl_02.dgn :: FB32 3/24/2021 8:16:50 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.1362° Scale: 1"=100'

Sec. 31, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 2



1 Install matting- 6,000 sq. yd. (Type A)

2 Const. inlet protection, (Type 3) - 17 (See drg. no. RD1010)

3 Const. check dam, (Type 6) - 26 (See drg. no. RD1006)

4 See sht. FB32, note 1 Install matting (Type A)

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tree removal and protection, see FC series.*

LEGEND
- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Check dam in ditch section*
- *Flow direction*
- *Matting, Type A*

REGISTERED PROFESSIONAL ENGINEER
77918
OREGON
4, 2011
JASON M. RAHM
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: DEC. 31, 2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB33

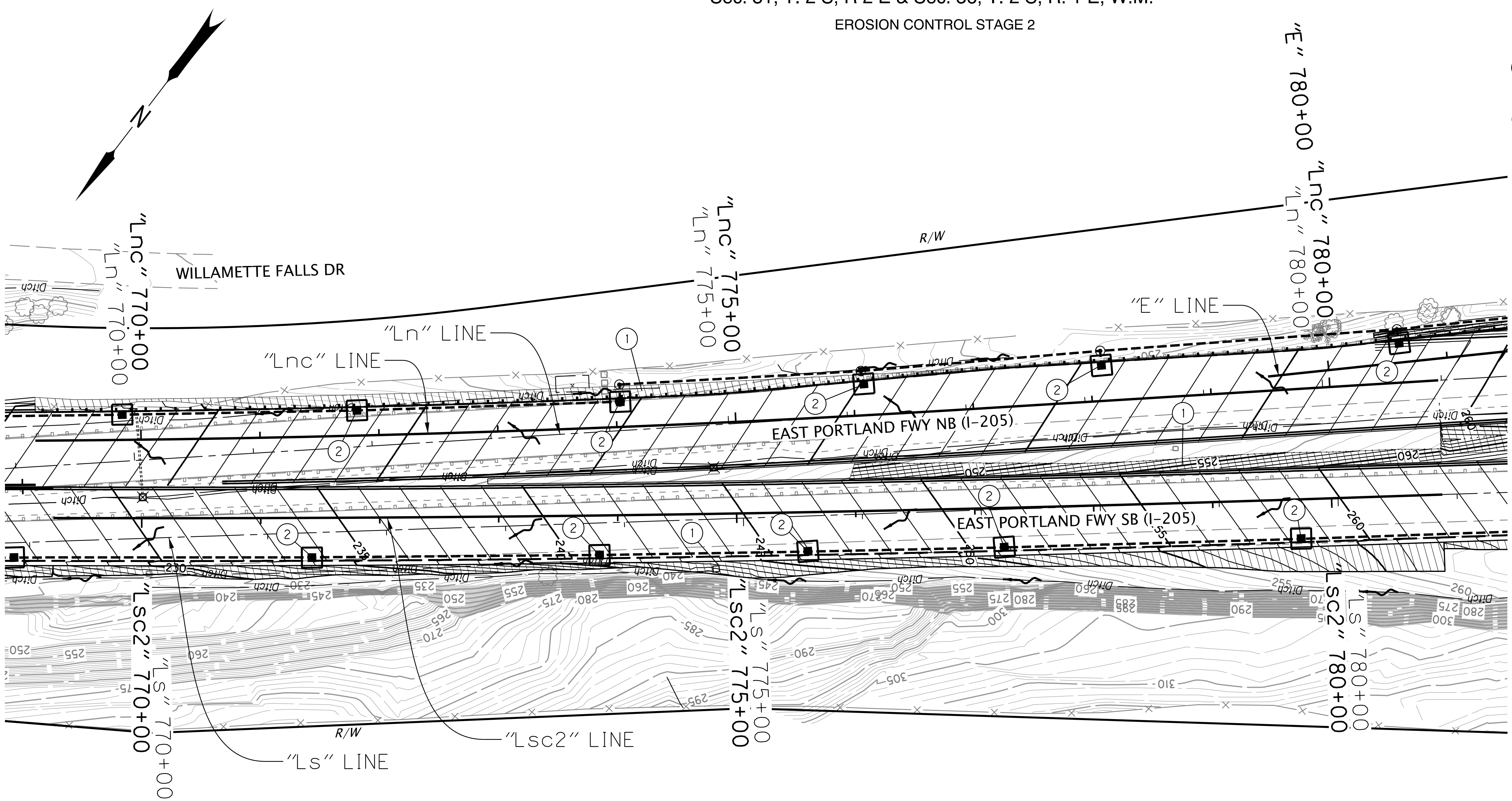
EE_K19786_HDR_ecpl_02.dgn :: FB33 3/24/2021 8:16:53 AM DRODRIGUEZ

Rotation: 218.5198° Scale: 1"=100'

??V–???

Sec. 31, T. 2 S, R 2 E & Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



(1) *Install matting - 2,915 sq. yd. (Type A)*

(2) *Const. inlet protection, (Type 3) - 10 (See drg. no. RD1010)*

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Check dam in ditch section*
- *Flow direction*
- *Matting, Type A*
- *Inlet protection*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *See FC sheets for tree removal. Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER 7791 OREGON JASON M. RAHM

ADVANCE COPY SUBJECT TO CHANGE

EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL | SHEET NO. FB34

EE_K19786_HDR_ecpl_02.dgn :: FB34 3/24/2021 8:16:56 AM DRODRIGUEZ

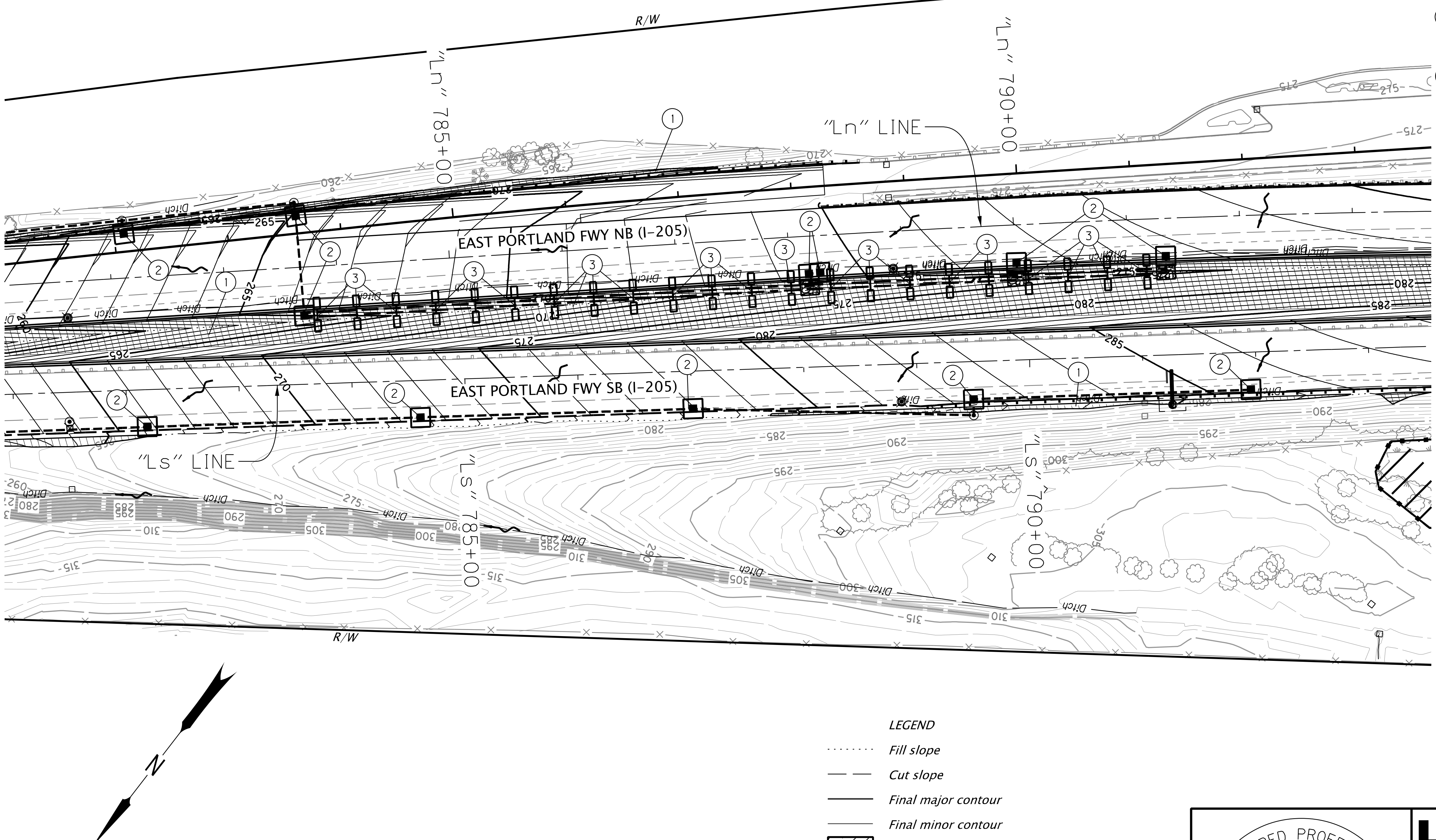
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2

1. Install matting - 15,737 sq. yd. (Type A)
2. Const. inlet protection - 11 (Type 4) (See drg. no. RD1015)
3. Const. check dam, (Type 6) - 22 (See drg. no. RD1006)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Check dam in ditch section
- Orange plastic fence (no work area, from Stage 1)
- Flow direction
- Inlet protection
- Matting, Type A

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77916 OREGON JASON M. RAHM
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HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB35

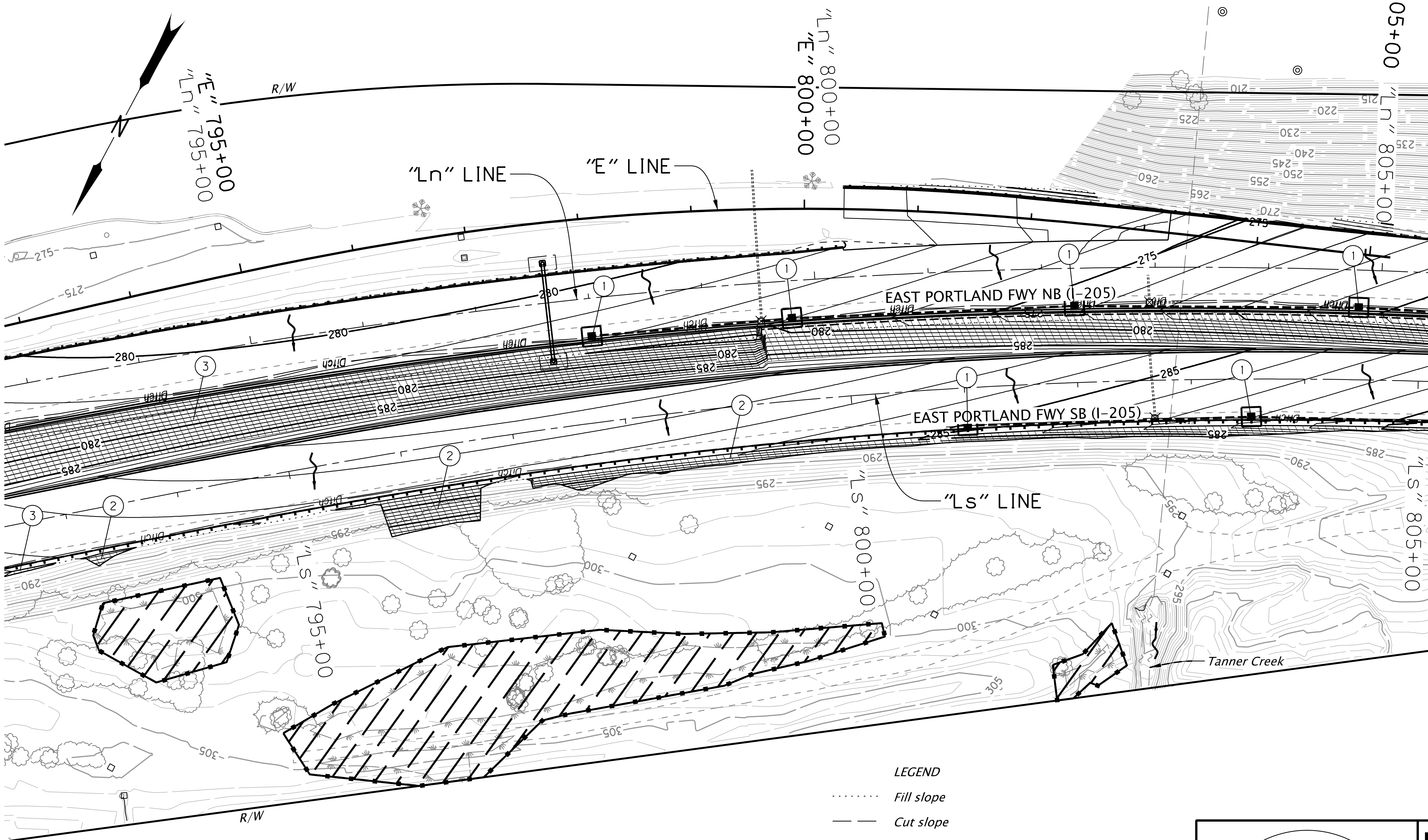
EE_K19786_HDR_ecpl_02.dgn :: FB35 3/24/2021 8:16:58 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



1. Const. inlet protection, (Type 4) - 5 (See drg. no. RD1015)
2. Install matting - 4,268 sq. yd. (Type A)
3. See sht. FB35, note 1 Install matting (Type A)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Flow direction*
- *Inlet protection*
- *Matting, Type A*

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM

ADVANCE COPY SUBJECT TO CHANGE

EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB36

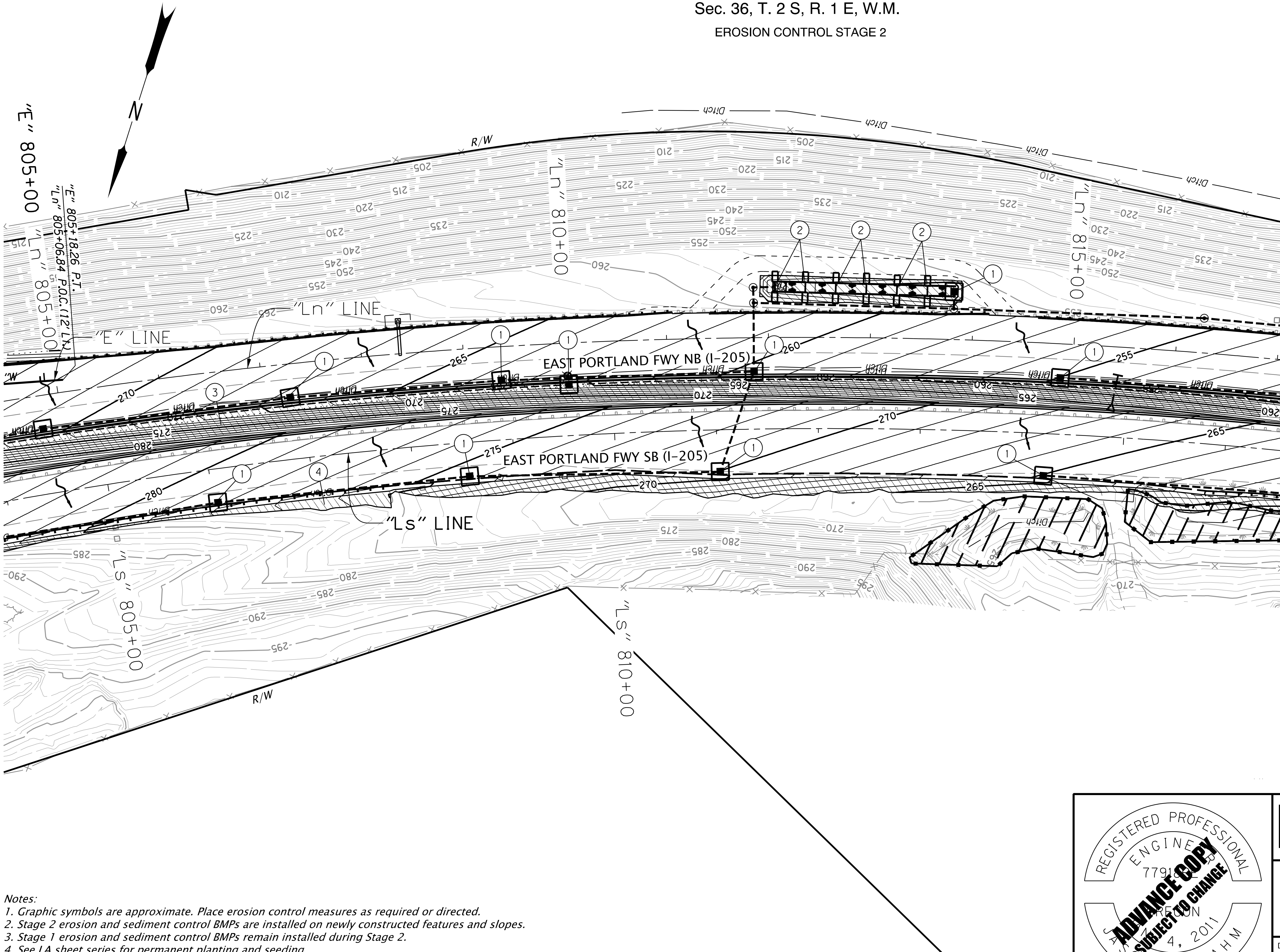
EE_K19786_HDR_ecpl_02.dgn :: FB36 3/24/2021 8:17:01 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 208.1457° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



1 Const. inlet protection - 10 (Type 4) (See drg. no. RD1015)

2 Const. check dam, (Type 6) - 6 (See drg. no. RD1006)

3 See sht. FB35, note 1 Install matting (Type A)

4 See sht. FB36, note 2 Install matting (Type A)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Check dam in ditch section
- Temporary slope drain with energy dissipator
- Wetland
- Flow direction
- Matting, Type A
- Orange plastic fence (no work area)
- Inlet protection
- Regulated Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JULY 14, 2011 JASON M. RAHM

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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB37

EE_K19786_HDR_ecpl_02.dgn :: FB37 3/24/2021 8:17:03 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 197.6361° Scale: 1"=100'

??V-???

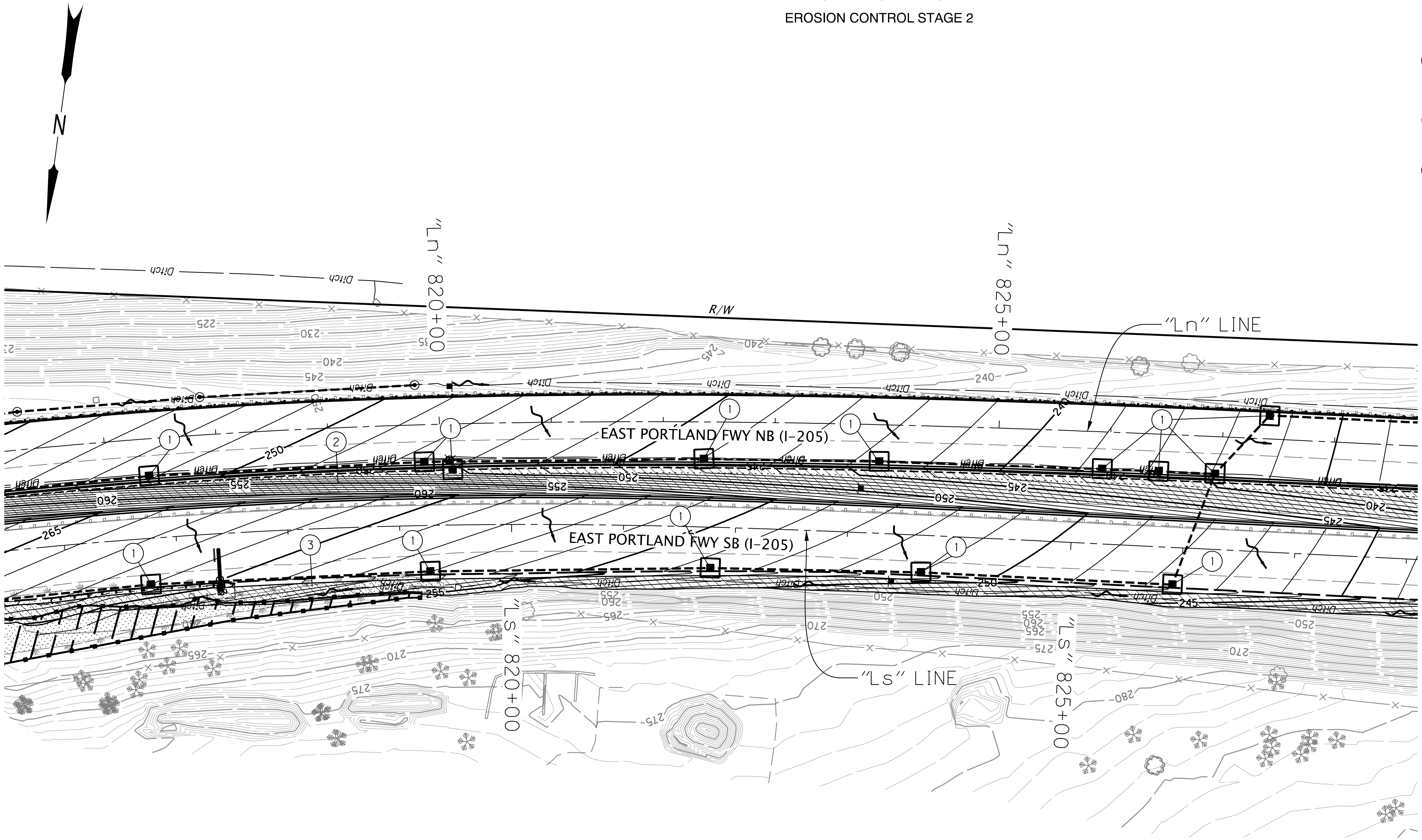
Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2

(1) Const. inlet protection - 12 (Type 3) (See drg. no. RD1010)

(2) See sht. FB35, note 1 Install matting (Type A)

(3) See sht. FB36, note 2 Install matting (Type A)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Wetland
- Flow direction
- Orange plastic fence (no work area)
- Inlet protection
- Regulated Work Access
- Matting, Type A

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM

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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB38

EE_K19786_HDR_ecpl_02.dgn :: FB38 3/24/2021 8:17:06 AM DRODRIGUEZ

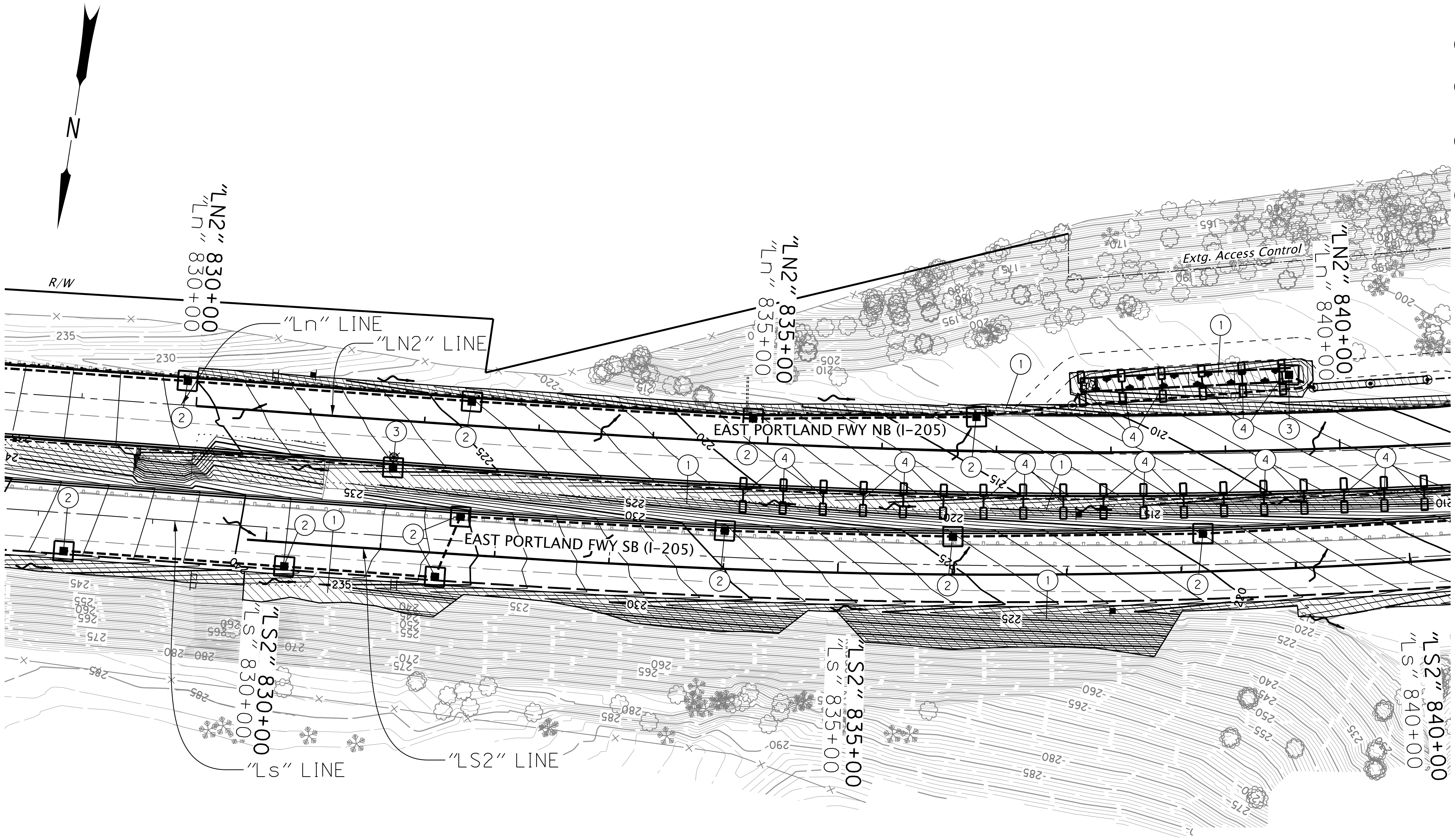
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 187.5797° Scale: 1"=100'

??V-???

Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 2



1 Install matting- 16,612 sq. yd. (Type A)

2 Const. inlet protection - 11 (Type 3) (See drg. no. RD1010)

3 Const. inlet protection - 2 (Type 4) (See drg. no. RD1015)

4 Const. check dam, (Type 6) - 24 (See drg. no. RD1006)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Check dam in ditch section
- Flow direction
- Matting, Type A
- Inlet protection

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tree removal and protection, see FC series.*

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM

ADVANCE COPY SUBJECT TO CHANGE

EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

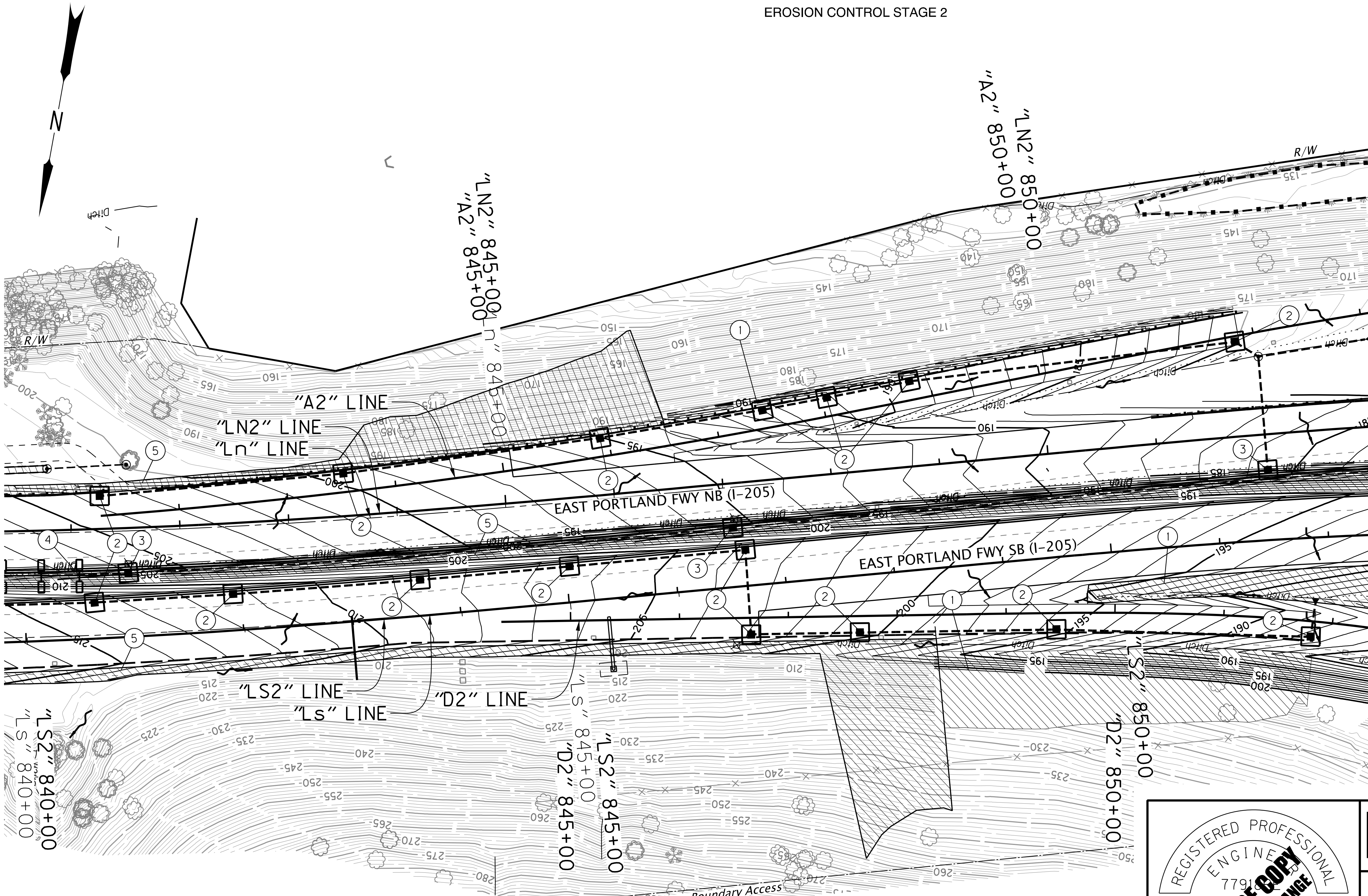
SHEET NO. FB39

EE_K19786_HDR_ecpl_02.dgn :: FB39 3/24/2021 8:17:09 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 188.8482° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE
EROSION CONTROL STAGE 2



1. Install matting- 12,500 sq. yd. (Type A)
2. Const. inlet protection - 16 (Type 3) (See drg. no. RD1010)
3. Const. inlet protection - 3 (Type 4) (See drg. no. RD1015)
4. Const. check dam, (Type 6) - 1 (See drg. no. RD1006)
5. See sht. FB39, note 1 Install matting (Type A)

LEGEND
- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Wetland
- Ordinary High Water
- Flow direction
- Matting, Type A
- Orange plastic fence (no work area, from Stage 1)
- Inlet protection

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

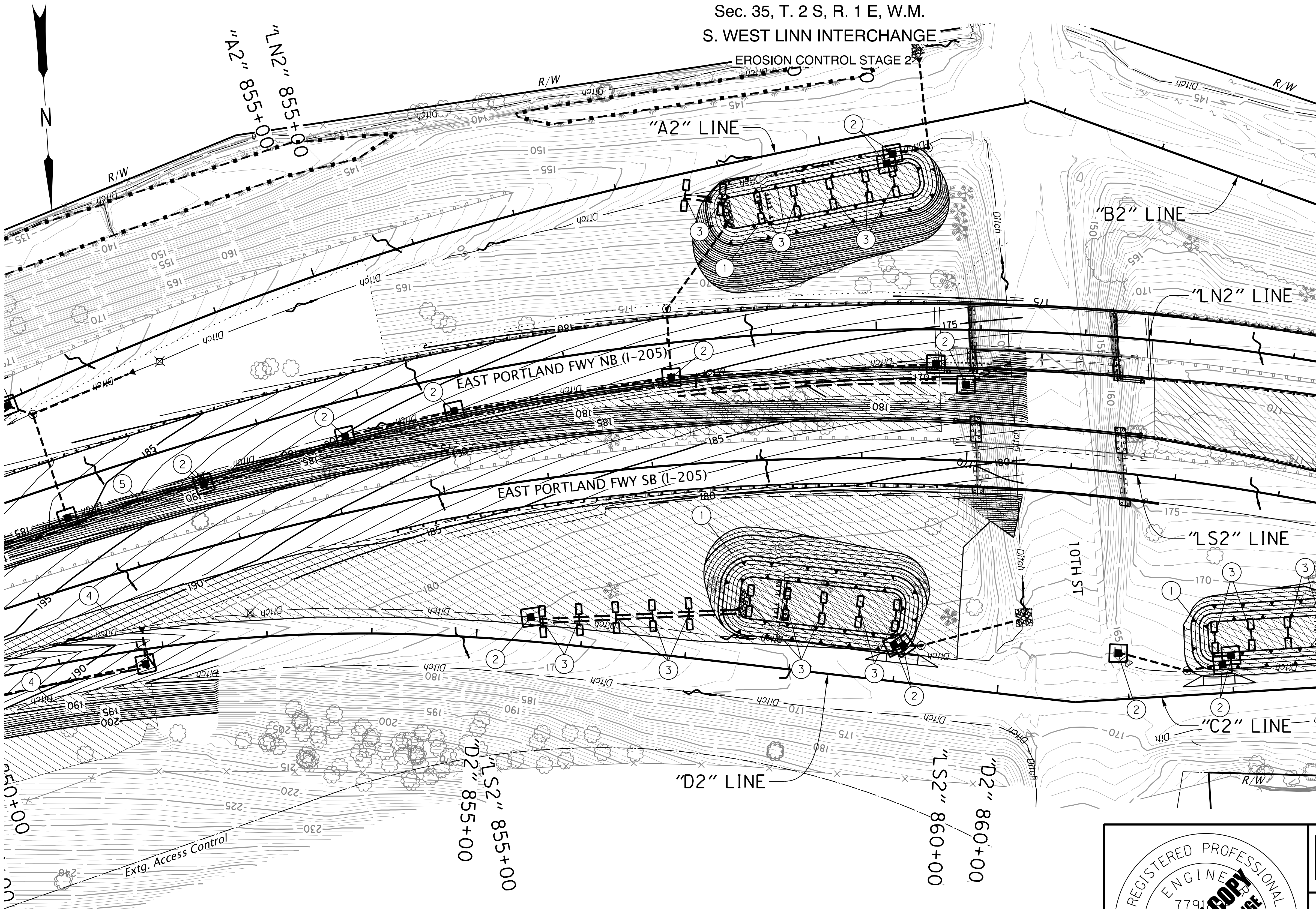
EROSION AND SEDIMENT CONTROL

SHEET NO. FB40

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

EE_K19786_HDR_ecpl_02.dgn :: FB40 3/24/2021 8:17:22 AM DRODRIGUEZ

Rotation: 190.2392° Scale: 1"=100'



??V-???

1. Install matting - 6,457 sq. yd. (Type A)
2. Const. inlet protection - 12 (Type 4) (See drg. no. RD1015)
3. Const. check dam, (Type 6) - 19 (See drg. no. RD1006)
4. See sht. FB40, note 1 Install matting (Type A)
5. See sht. FB39, note 1 Install matting (Type A)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Check dam in ditch section
- Wetland
- Ordinary High Water
- Flow direction
- Matting, Type A
- Orange plastic fence (no work area, from Stage 1)
- Inlet protection

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm
Reviewer: Matt Steigleder
Drafter: Connor Donovan
Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO.
FB41

EE_K19786_HDR_ecpl_02.dgn :: FB41 3/24/2021 8:17:24 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

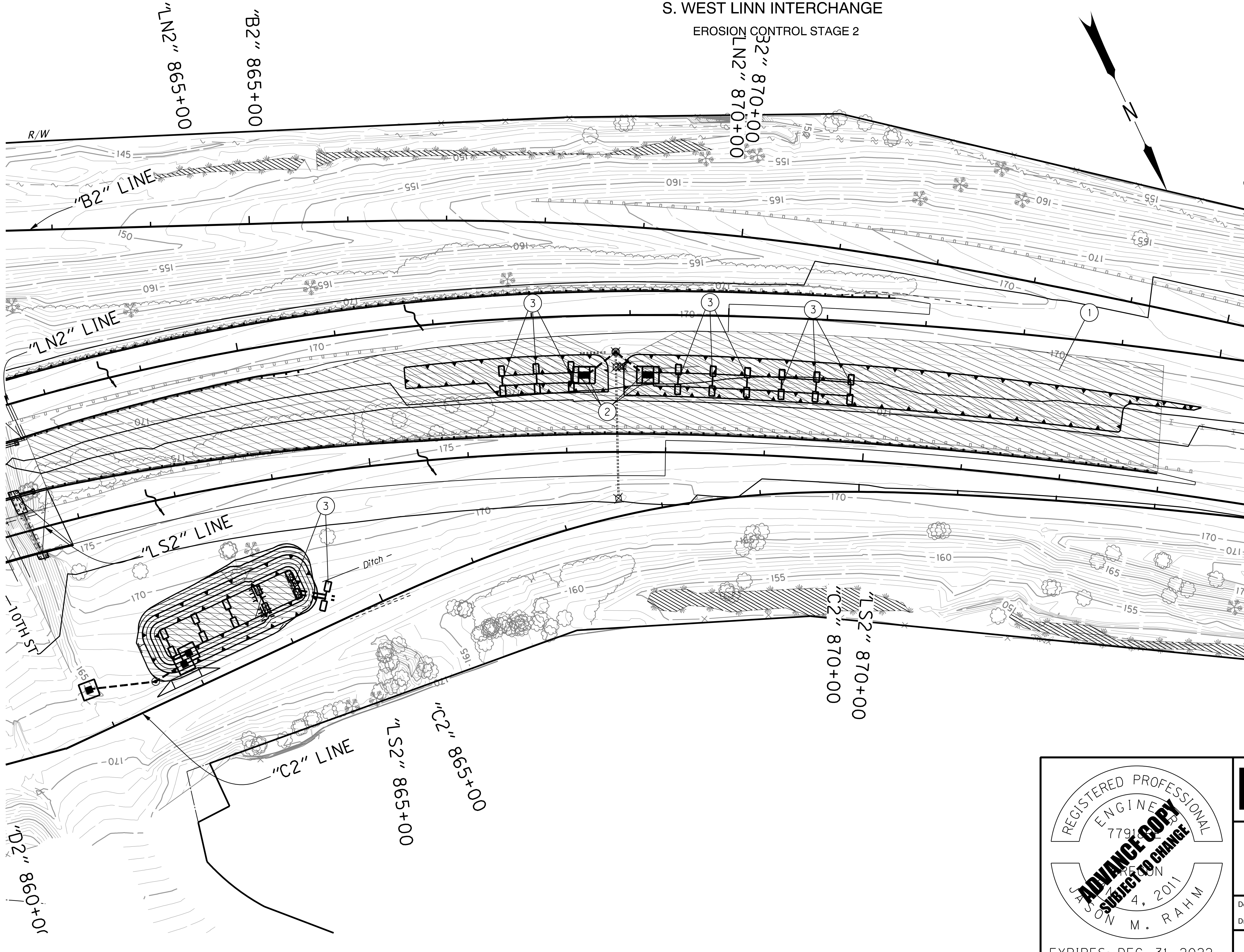
Rotation: 176.5124° Scale: 1"=100'

??V-???

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 2



1 Install matting - 13,138 sq. yd. (Type A)

2 Const. inlet protection - 4 (Type 4) (See drg. no. RD1015)

3 Const. check dam, (Type 6) - 11 (See drg. no. RD1006)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- No work zone
- Check dam in ditch section
- Wetland
- Ordinary High Water
- Flow direction
- Matting, Type A
- Inlet protection

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JULY 14, 2011 JASON M. RAHM

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EXPIRES: DEC. 31, 2022

HDR

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB42

EE_K19786_HDR_ecpl_02.dgn :: FB42 3/24/2021 8:17:27 AM DRODRIGUEZ

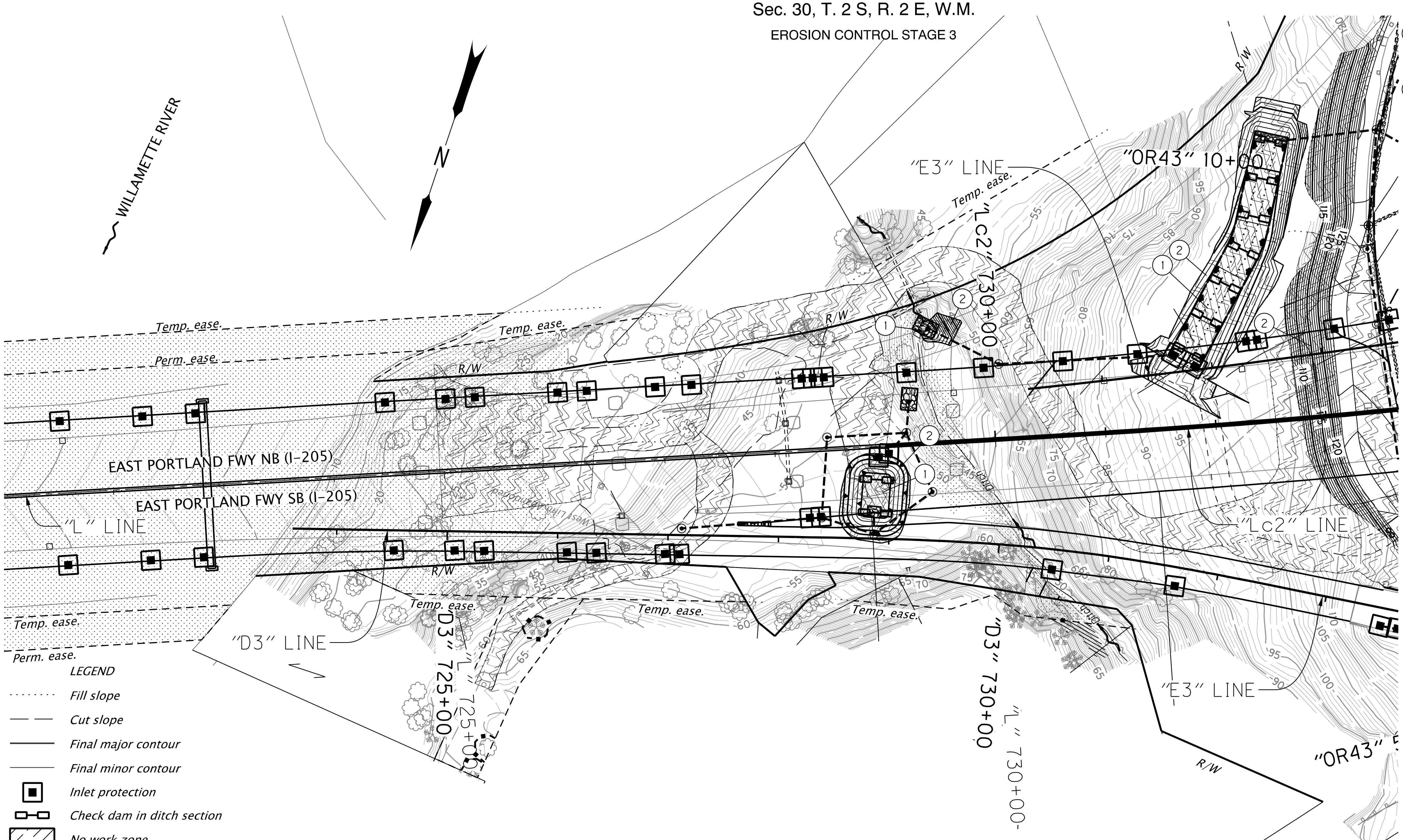
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 154.9877° Scale: 1"=100'

??V-???

Sec. 30, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 3



1. Install matting - 881 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)
2. Install compost erosion blanket - 12,395 sq. yd. (For details, see sht. FB01)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *No work zone*
- *Orange plastic fence (no work area, from Stage 1)*
- *Matting, Type F*
- *Ordinary High Water*
- *Wetland*
- *Compost blanket*
- *Flow direction*
- *Regulated Work Access*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tree removal and protection, see FC series.*
7. *See stage 2 for inlet protection callouts for new inlets.*
8. *See stage 2 for check dam callouts.*

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM 4, 2011
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

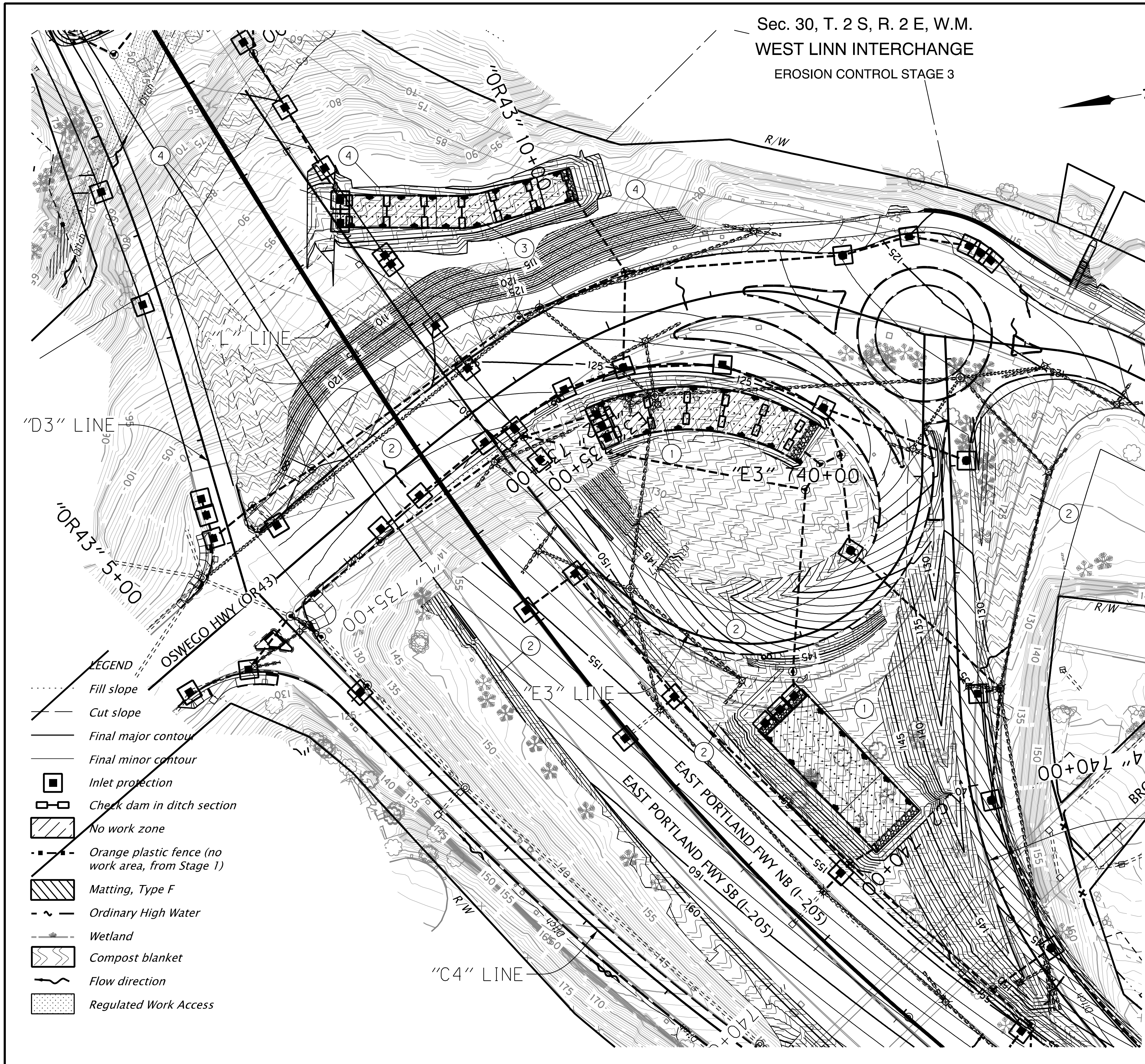
Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB49

EE_K19786_HDR_ecpl_03.dgn :: FB49 3/24/2021 10:06:12 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 198.4431° Scale: 1"=100'



??V-???

1. Install matting - 1,948 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)
2. Install compost erosion blanket - 18,290 sq. yd. (For details, see sht. FB01)
3. See sht. FB49, note 1 Install matting (Flexible channel liner, Type F) (See drg. no. RD1055)
4. See sht. FB49, note 2 Install compost erosion blanket (For details, see sht. FB01)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. Fer tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

LEGEND
- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- Check dam in ditch section
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Matting, Type F
- Ordinary High Water
- Wetland
- Compost blanket
- Flow direction
- Regulated Work Access

REGISTERED PROFESSIONAL ENGINEER 77916 OREGON ... 4, 2011 JASON M. RAHM
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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

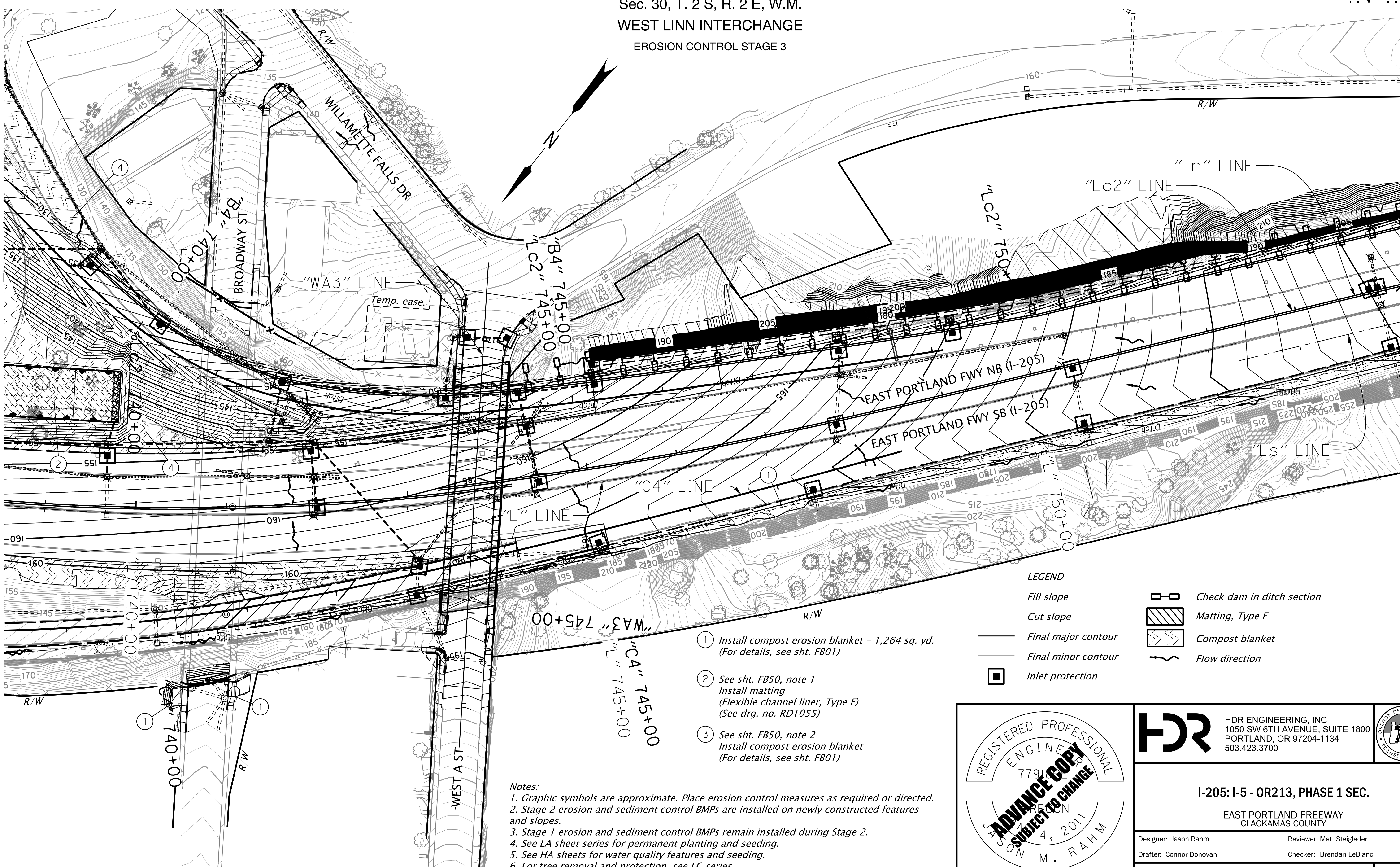
EROSION AND SEDIMENT CONTROL — SHEET NO. FB50

EE_K19786_HDR_ecpl_03.dgn :: FB50 3/24/2021 10:06:52 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 260.6437° Scale: 1"=100'

Sec. 30, T. 2 S, R. 2 E, W.M.
WEST LINN INTERCHANGE
EROSION CONTROL STAGE 3



LEGEND

Fill slope	Check dam in ditch section
Cut slope	Matting, Type F
Final major contour	Compost blanket
Final minor contour	Flow direction
Inlet protection	

(1) *Install compost erosion blanket - 1,264 sq. yd. (For details, see sht. FB01)*

(2) *See sht. FB50, note 1 Install matting (Flexible channel liner, Type F) (See drg. no. RD1055)*

(3) *See sht. FB50, note 2 Install compost erosion blanket (For details, see sht. FB01)*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tree removal and protection, see FC series.*
7. *See stage 2 for inlet protection callouts for new inlets.*
8. *See stage 2 for check dam callouts.*

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM 4, 2011
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB51

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

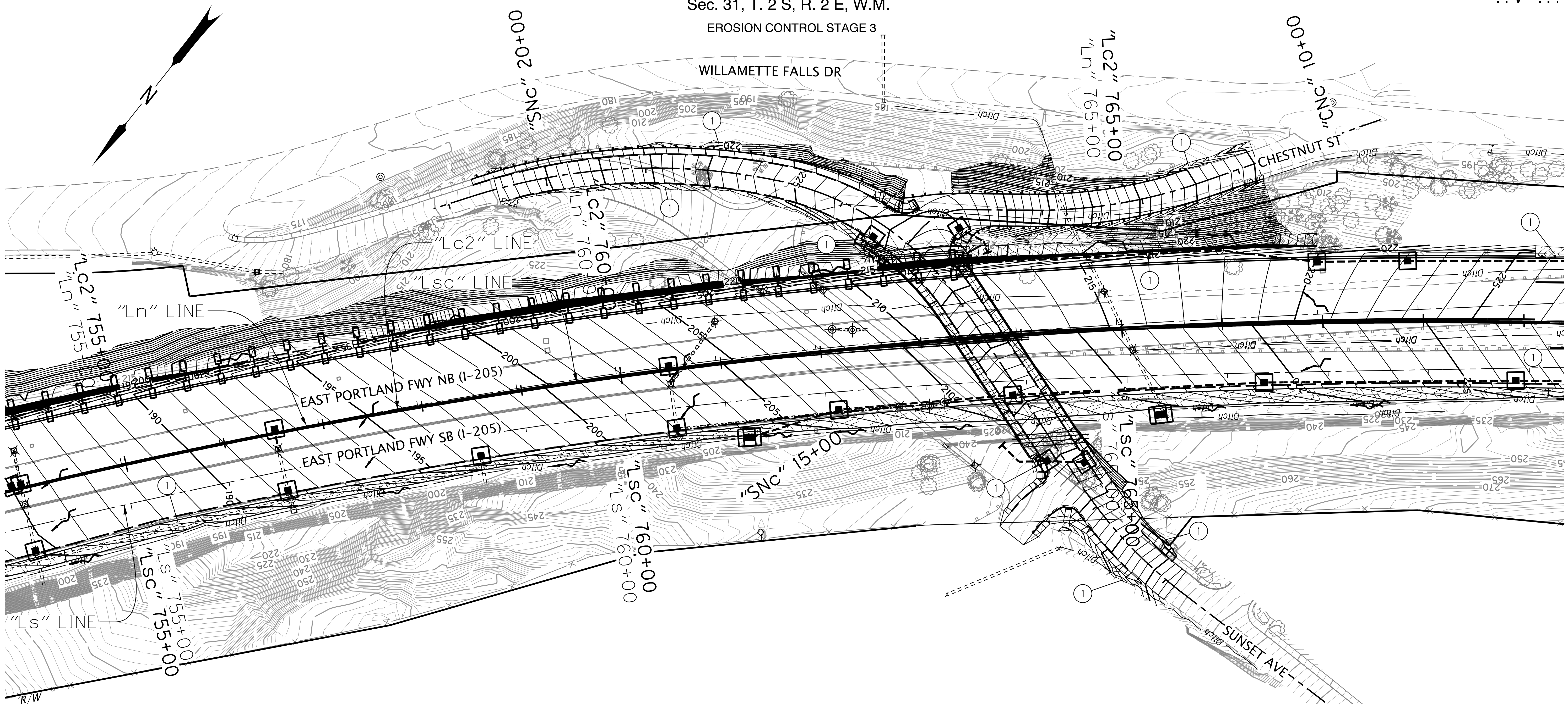
EE_K19786_HDR_ecpl_03.dgn :: FB51 3/24/2021 8:18:01 AM DRODRIGUEZ

Rotation: 218.1362° Scale: 1"=100'

??V-???

Sec. 31, T. 2 S, R. 2 E, W.M.

EROSION CONTROL STAGE 3



(1) Install compost erosion blanket - 5,688 sq. yd.
(For details, see sht. FB01)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

LEGEND
- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- Check dam in ditch section
- Compost blanket
- Flow direction

REGISTERED PROFESSIONAL ENGINEER 77913 OREGON JASON M. RAHM
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EXPIRES: DEC. 31, 2022

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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB52

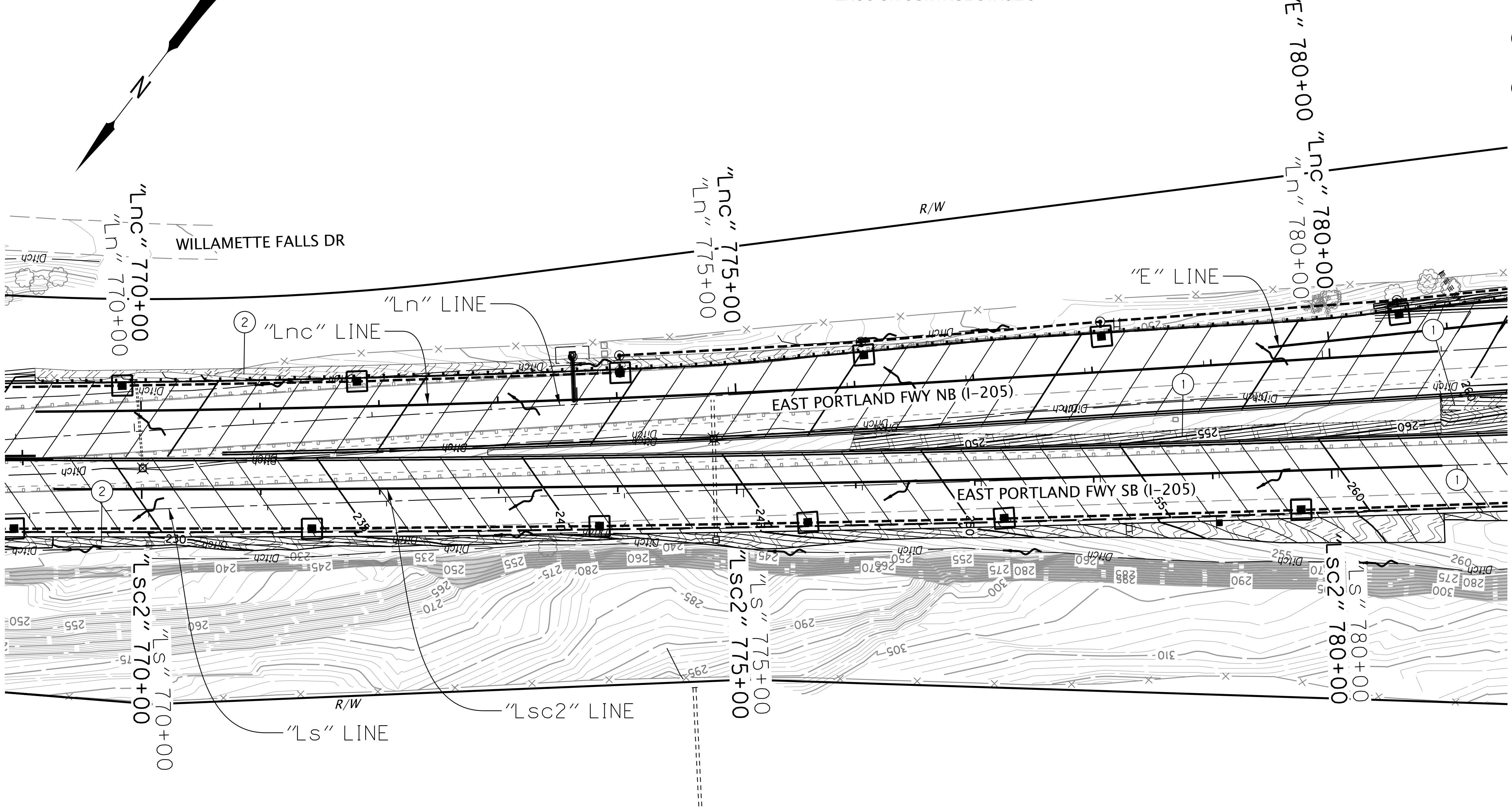
EE_K19786_HDR_ecpl_03.dgn :: FB52 3/24/2021 8:18:04 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 218.5198° Scale: 1"=100'

Sec. 31, T. 2 S, R 2 E & Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3



1 Install compost erosion blanket - 16,261 sq. yd. (For details, see sht. FB01)

2 See sht. FB52, note 1
Install compost erosion blanket
(For details, see sht. FB01)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *Check dam in ditch section*
- *Compost blanket*
- *Flow direction*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *Verify trees to be removed with Engineer prior to removal.*

REGISTERED PROFESSIONAL ENGINEER
77916
OREGON
4, 2011
JASON M. RAHM
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HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB53

EE_K19786_HDR_ecpl_03.dgn :: FB53 3/24/2021 8:18:07 AM DRODRIGUEZ

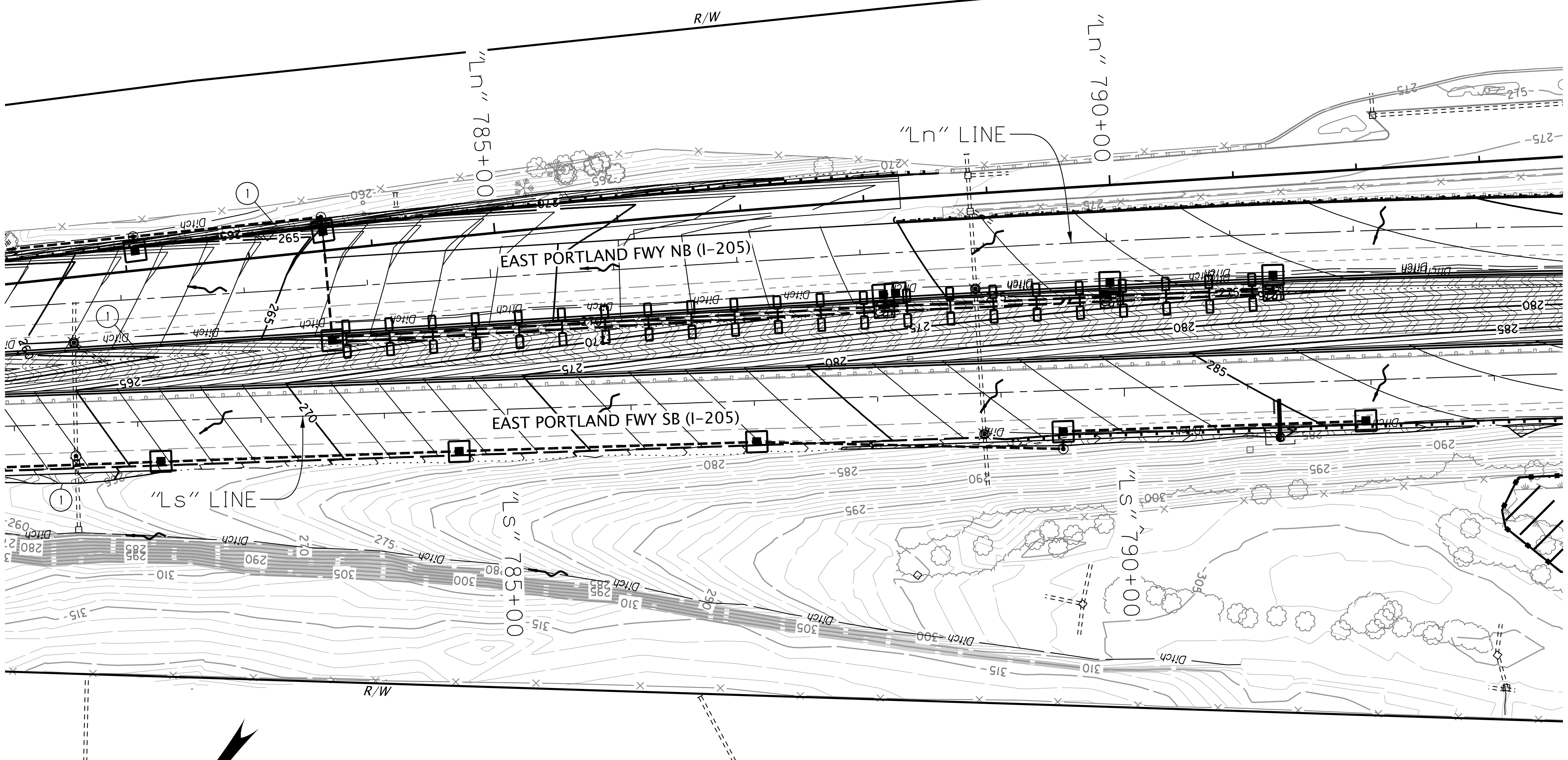
Rotation: 217.6195° Scale: 1"=100'

??V-???

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3

(1) See sht. FB53, note 1
Install compost erosion blanket
(For details, see sht. FB01)



N

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Orange plastic fence (no work area, from Stage 1)
- Compost blanket
- Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

REGISTERED PROFESSIONAL ENGINEER
77918
OREGON
JUNE 14, 2011
JASON M. RAHM
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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB54

EE_K19786_HDR_ecpl_03.dgn :: FB54 3/24/2021 8:18:09 AM DRODRIGUEZ

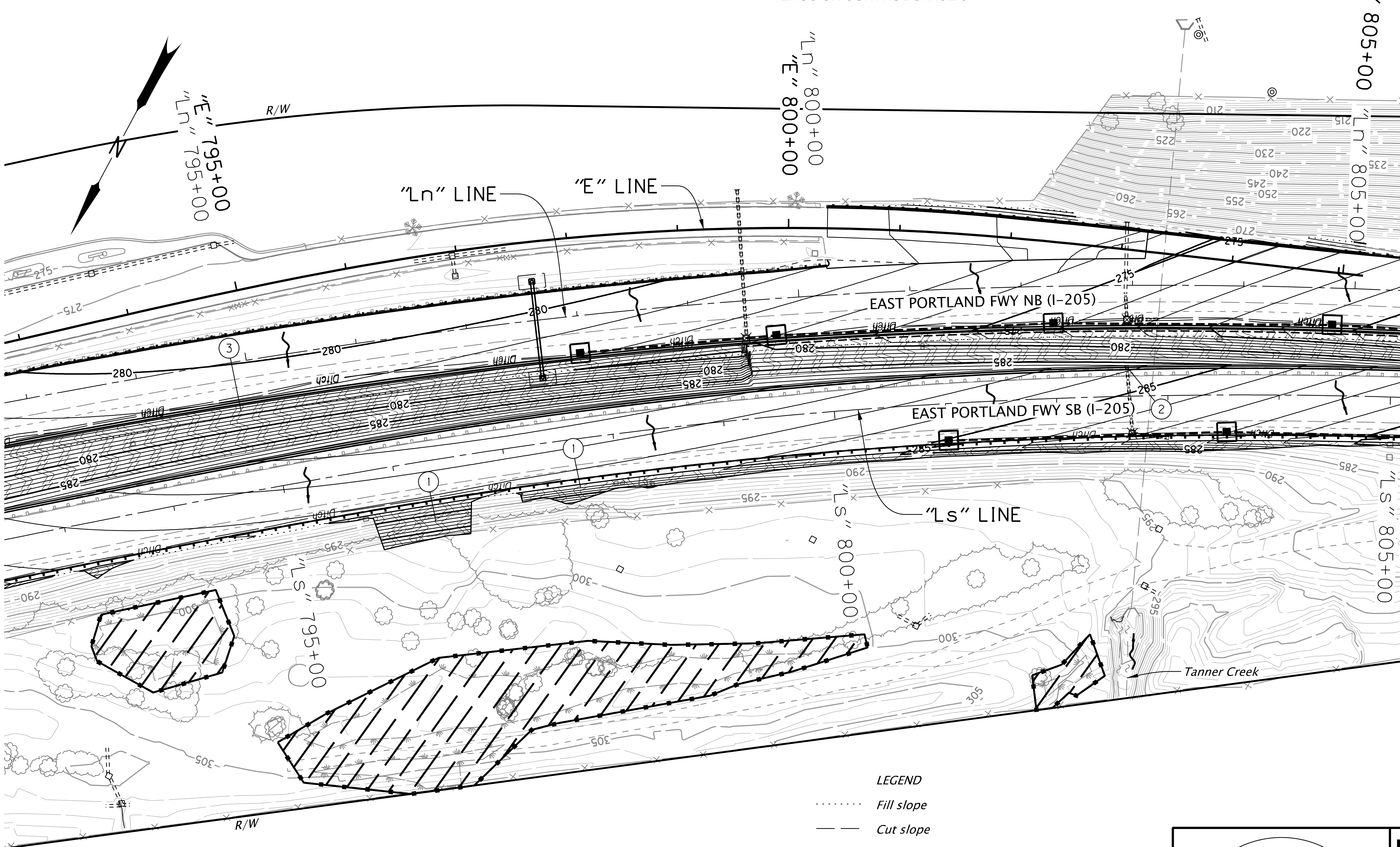
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 217.6195° Scale: 1"=100'

??V–???

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3



1. Install conpost erosion blanket – 4,268 sq. yd. (For details, see sht. FB01)
2. Const. temp. slope drain (See drg. no. RD1045)
3. See sht. FB53, note 1 Install compost erosion blanket (For details, see sht. FB01)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Orange plastic fence (no work area, from Stage 1)
- Compost blanket
- Flow direction

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM 4, 2011
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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL — SHEET NO. FB55

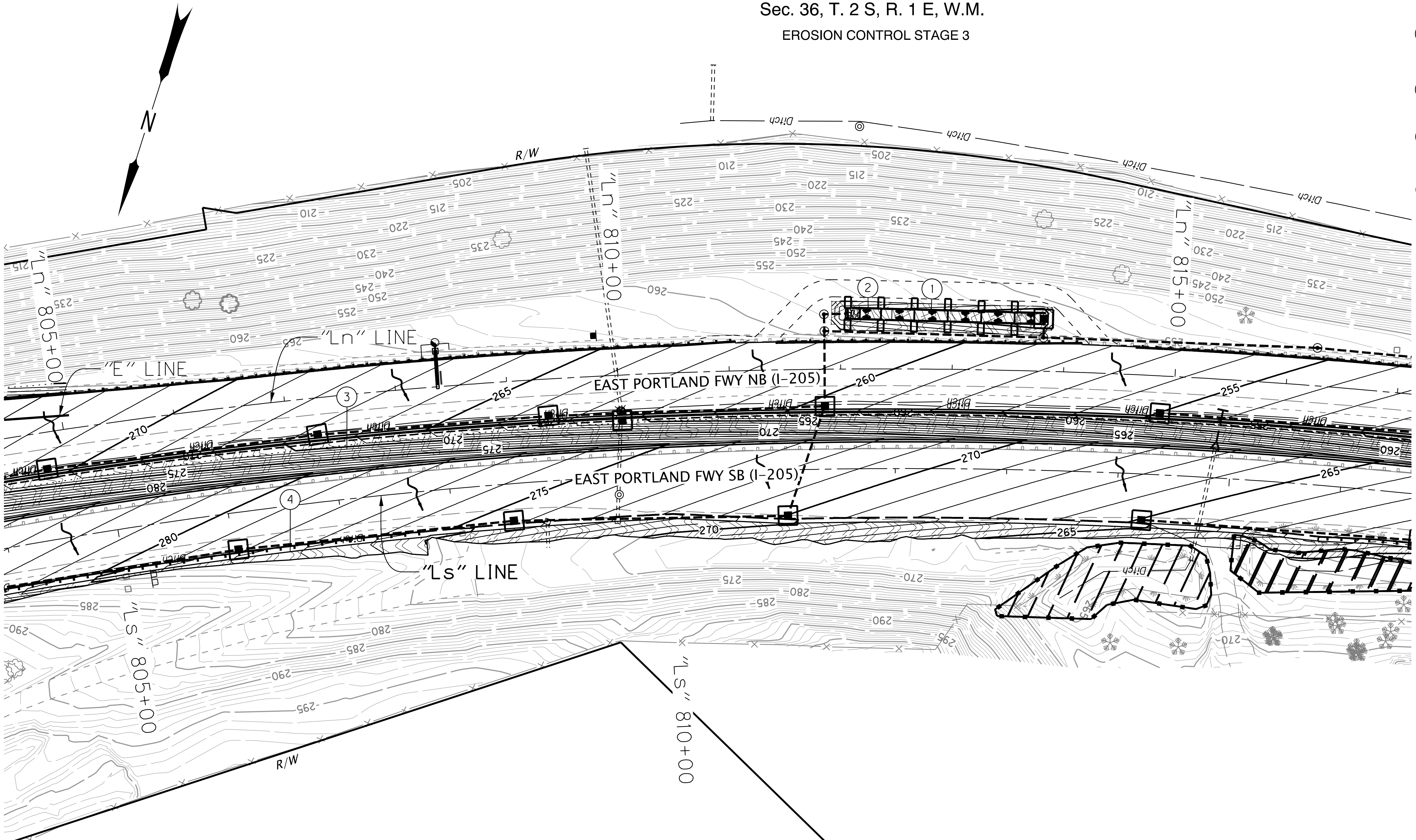
EE_K19786_HDR_ecpl_03.dgn :: FB55 3/24/2021 8:18:11 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 208.1457° Scale: 1"=100'

Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3



1. Install matting – 194 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)
2. Install compost erosion blanket – 552 sq. yd. (For details, see sht. FB01)
3. See sht. FB53, note 1. Install compost erosion blanket (For details, see sht. FB01)
4. See sht. FB55, note 1. Install compost erosion blanket (For details, see sht. FB01)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Temporary slope drain with energy dissipator
- Wetland
- Flow direction
- Compost blanket
- Matting, Type F
- Orange plastic fence (no work area)
- Regulated Work Access

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

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EXPIRES: DEC. 31, 2022

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503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL | SHEET NO. FB56

EE_K19786_HDR_ecpl_03.dgn :: FB56 3/24/2021 8:18:13 AM DRODRIGUEZ | Rotation: 197.6361° Scale: 1"=100'

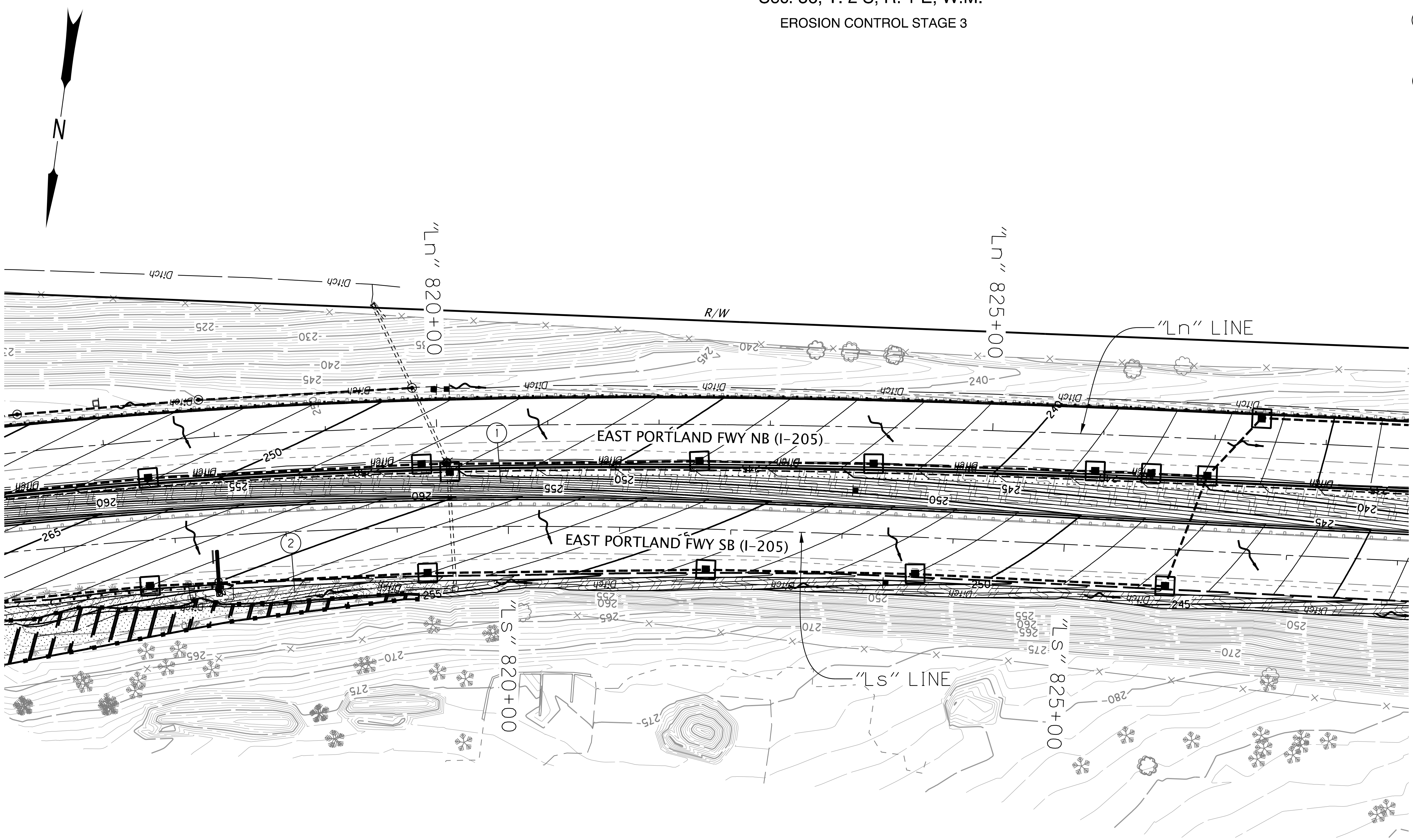
Sec. 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3

??V-???

① See sht. FB53, note 1
Install compost erosion blanket
(For details, see sht. FB01)

② See sht. FB55, note 1
Install compost erosion blanket
(For details, see sht. FB01)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Wetland
- Flow direction
- Compost blanket
- Orange plastic fence (no work area)
- No Work Access
- Regulated Work Access

Notes:

1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.

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503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB57

EE_K19786_HDR_ecpl_03.dgn :: FB57 3/24/2021 8:18:17 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 187.5797° Scale: 1"=100'

??V-???

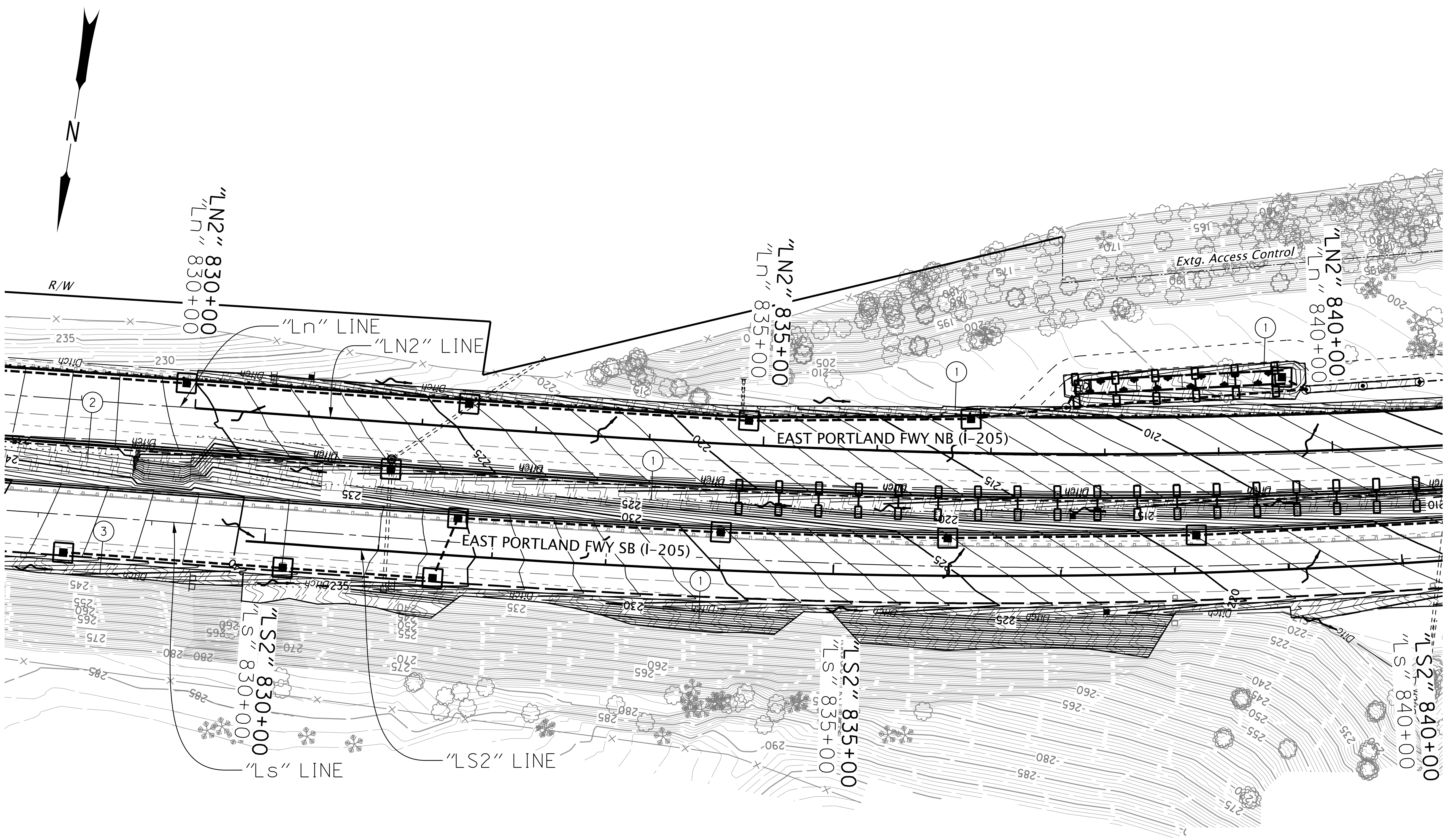
Sec. 35 & 36, T. 2 S, R. 1 E, W.M.

EROSION CONTROL STAGE 3

(1) Install compost erosion blanket - 16,611 sq. yd. (For details, see sht. FB01)

(2) See sht. FB53, note 1
Install compost erosion blanket
(For details, see sht. FB01)

(3) See sht. FB55, note 1
Install compost erosion blanket
(For details, see sht. FB01)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Flow direction
- Compost blanket
- Matting, Type F

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM
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EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
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PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm | Reviewer: Matt Steigleder
Drafter: Connor Donovan | Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB58

EE_K19786_HDR_ecpl_03.dgn :: FB58 3/24/2021 8:18:20 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

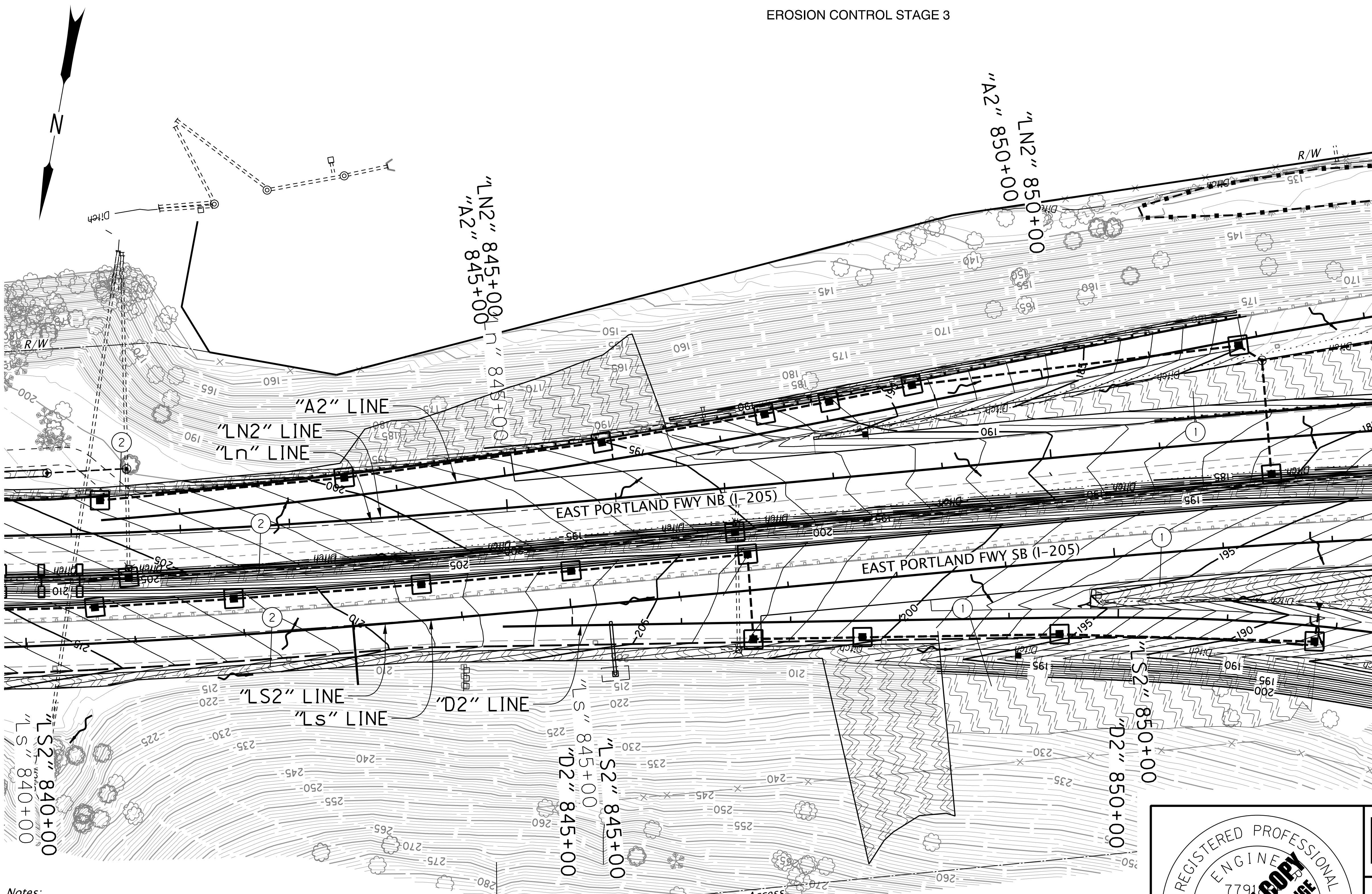
Rotation: 188.8482° Scale: 1"=100'

??V–???

Sec. 35, T. 2 S, R. 1 E, W.M.
S. WEST LINN INTERCHANGE
EROSION CONTROL STAGE 3

(1) Install compost erosion blanket – 22,778 sq. yd. (For details, see sht. FB01)

(2) See sht. FB58, note 1. Install compost erosion blanket (For details, see sht. FB01)



LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Wetland
- Ordinary High Water
- Flow direction
- Compost blanket
- Matting, Type F
- Orange plastic fence (no work area, from Stage 1)

Notes:
1. Graphic symbols are approximate. Place erosion control measures as required or directed.
2. Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.
3. Stage 1 erosion and sediment control BMPs remain installed during Stage 2.
4. See LA sheet series for permanent planting and seeding.
5. See HA sheets for water quality features and seeding.
6. For tree removal and protection, see FC series.
7. See stage 2 for inlet protection callouts for new inlets.
8. See stage 2 for check dam callouts.

REGISTERED PROFESSIONAL ENGINEER 77918 OREGON JASON M. RAHM
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4, 2011
EXPIRES: DEC. 31, 2022

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

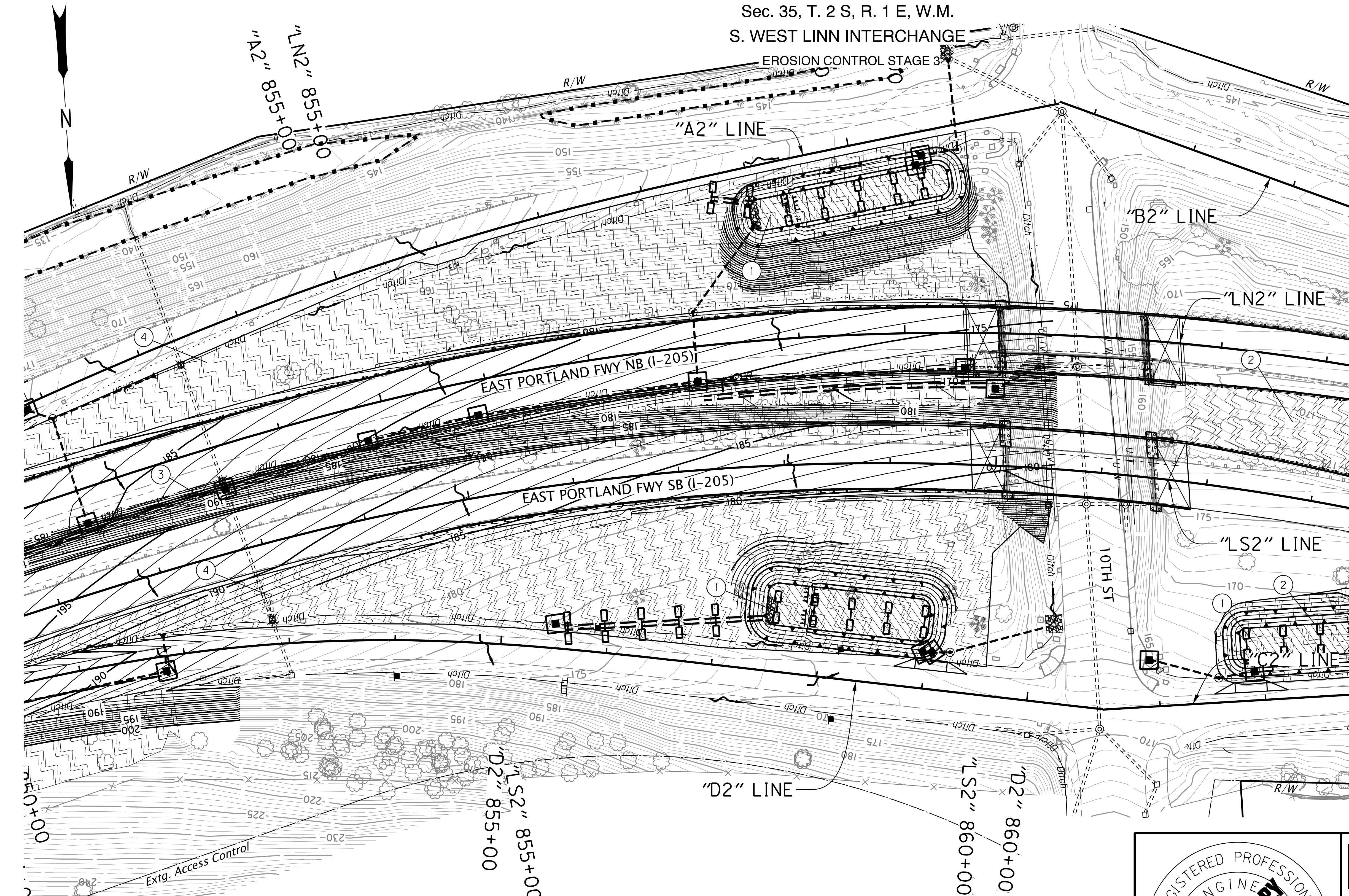
EROSION AND SEDIMENT CONTROL — SHEET NO. FB59

EE_K19786_HDR_ecpl_03.dgn :: FB59 3/24/2021 8:19:07 AM DRODRIGUEZ

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 190.2392° Scale: 1"=100'

??V-???



1. Install matting - 1,797 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)
2. Install compost erosion blanket - 13,137 sq. yd. (For details, see sht. FB01)
3. See sht. FB58, note 1 Install compost erosion blanket (For details, see sht. FB01)
4. See sht. FB59, note 1 Install compost erosion blanket (For details, see sht. FB01)

LEGEND

- *Fill slope*
- *Cut slope*
- *Final major contour*
- *Final minor contour*
- *Inlet protection*
- *No work zone*
- *Check dam in ditch section*
- *Wetland*
- *Ordinary High Water*
- *Flow direction*
- *Compost blanket*
- *Matting, Type F*
- *Orange plastic fence (no work area, from Stage 1)*

Notes:
1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tere removal and protection, see FC series.*
7. *See stage 2 for inlet protection callouts for new inlets.*
8. *See stage 2 for check dam callouts.*

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EXPIRES: DEC. 31, 2022

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PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Jason Rahm
Reviewer: Matt Steigleder
Drafter: Connor Donovan
Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB60

EE_K19786_HDR_ecpl_03.dgn :: FB60 3/24/2021 8:19:16 AM DRODRIGUEZ

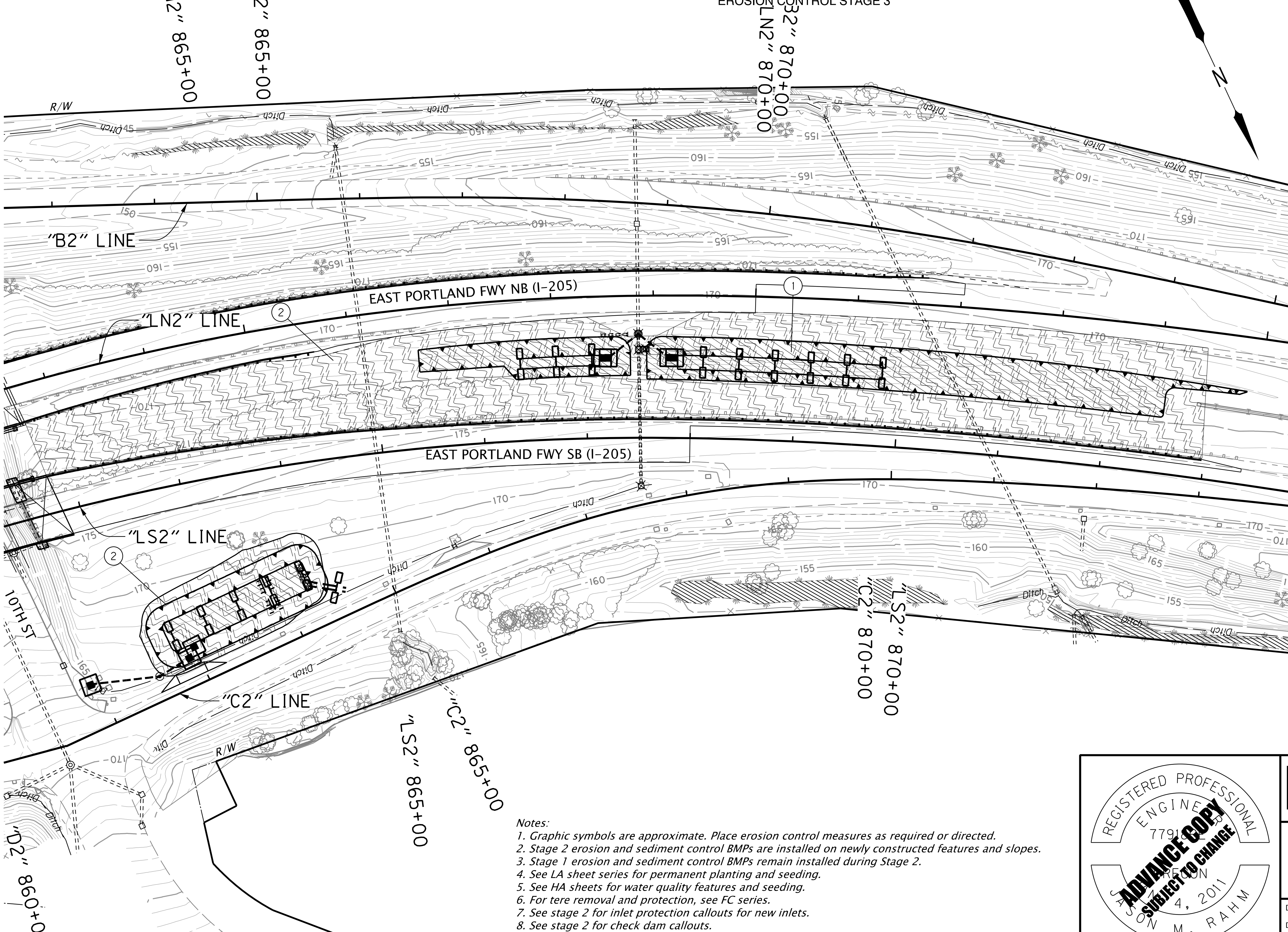
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 176.5124° Scale: 1"=100'

Sec. 35, T. 2 S, R. 1 E, W.M.

S. WEST LINN INTERCHANGE

EROSION CONTROL STAGE 3



1. Install matting - 3,082 sq. yd. (Flexible channel liner, Type F) (See drg. no. RD1055)

2. See sht. FB60, note 1 Install compost erosion blanket (For details, see sht. FB01)

LEGEND

- Fill slope
- Cut slope
- Final major contour
- Final minor contour
- Inlet protection
- No work zone
- Check dam in ditch section
- Wetland
- Ordinary High Water
- Flow direction
- Compost blanket
- Matting, Type F

Notes:

1. *Graphic symbols are approximate. Place erosion control measures as required or directed.*
2. *Stage 2 erosion and sediment control BMPs are installed on newly constructed features and slopes.*
3. *Stage 1 erosion and sediment control BMPs remain installed during Stage 2.*
4. *See LA sheet series for permanent planting and seeding.*
5. *See HA sheets for water quality features and seeding.*
6. *For tere removal and protection, see FC series.*
7. *See stage 2 for inlet protection callouts for new inlets.*
8. *See stage 2 for check dam callouts.*

REGISTERED PROFESSIONAL ENGINEER 77916 OREGON JASON M. RAHM

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EXPIRES: DEC. 31, 2022

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

HDR ENGINEERING, INC
1050 SW 6TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

I-205: I-5 - OR213, PHASE 1 SEC.

EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

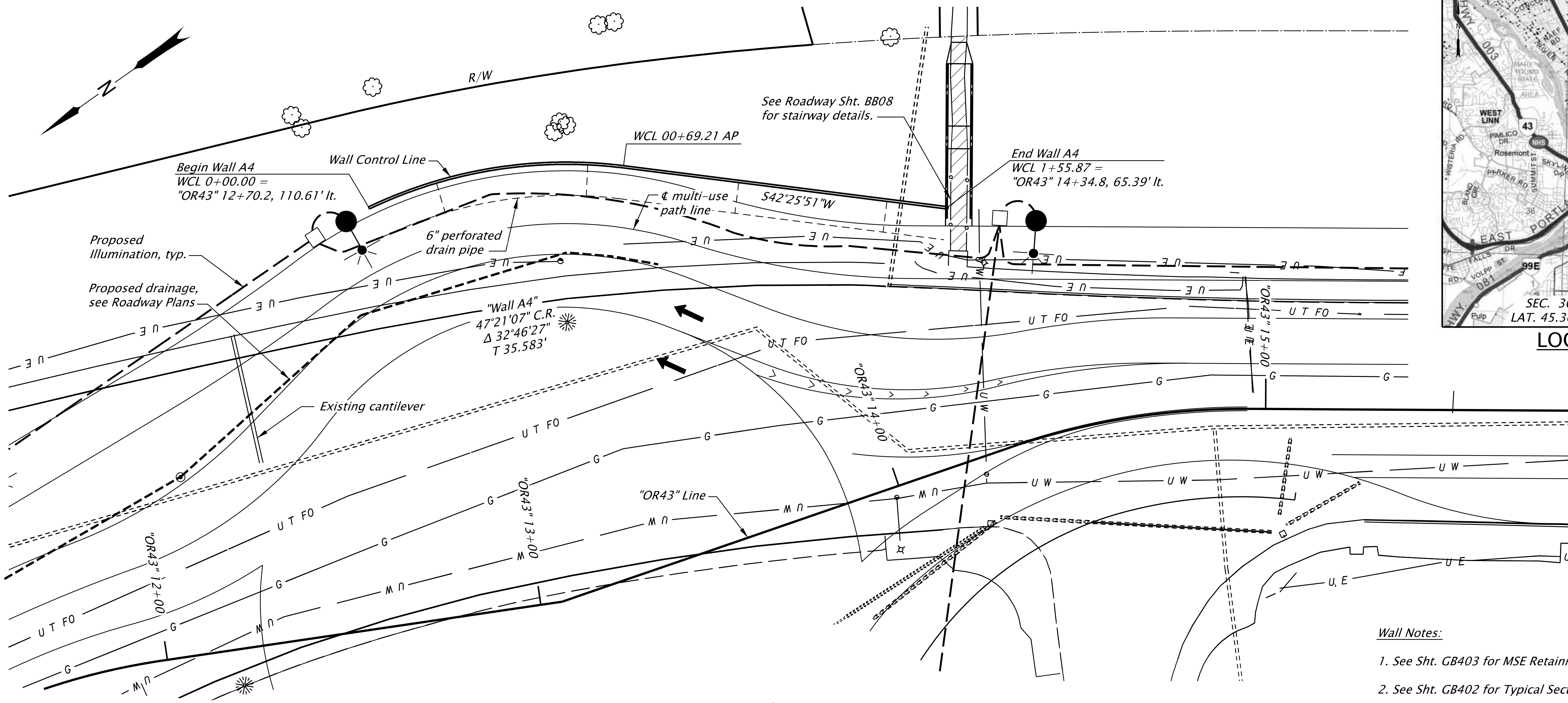
Designer: Jason Rahm	Reviewer: Matt Steigleder
Drafter: Connor Donovan	Checker: Brendan LeBlanc

EROSION AND SEDIMENT CONTROL

SHEET NO. FB61

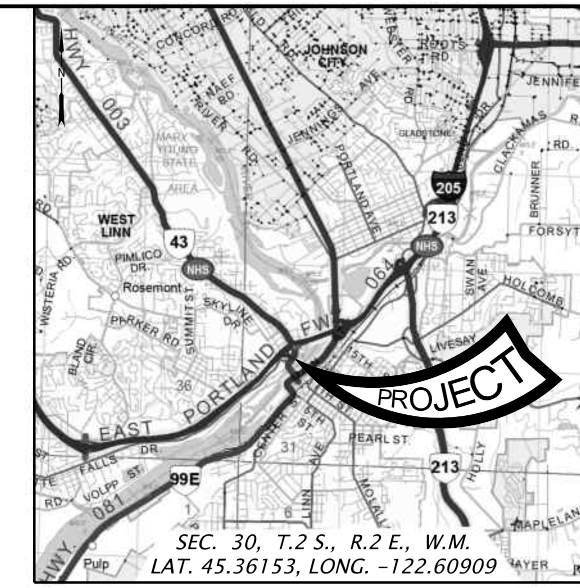
EE_K19786_HDR_ecpl_03.dgn :: FB61 3/24/2021 8:19:26 AM DRODRIGUEZ

Rotation: 154.9877° Scale: 1"=100'



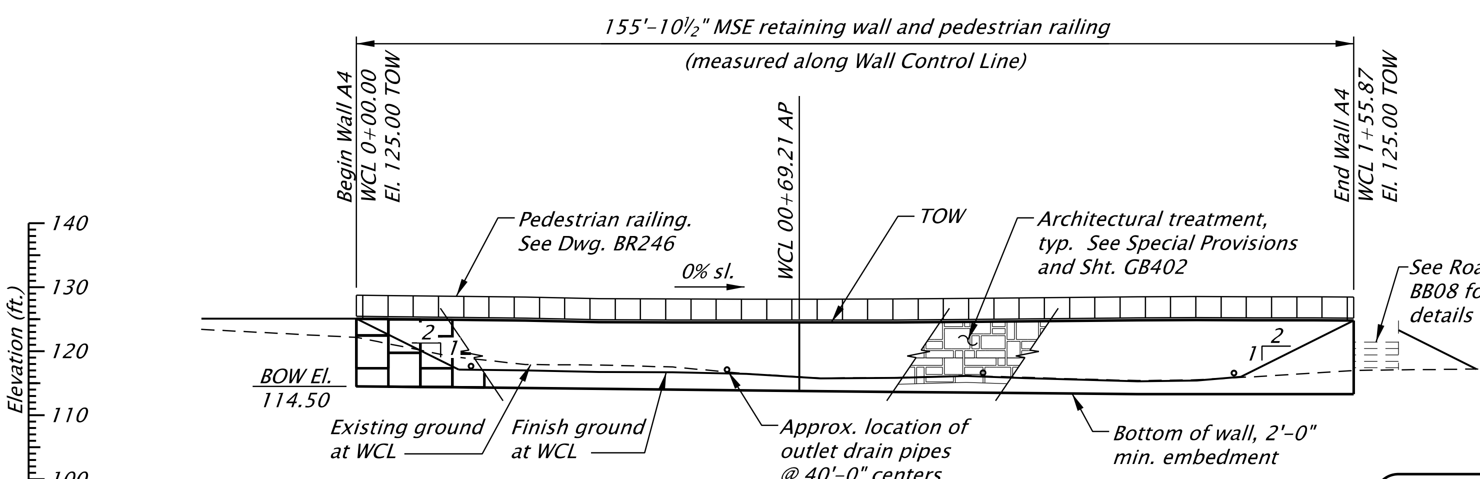
PLAN - WALL A4

Scale: 1"=30'



LOCATION MAP

No Scale



DEVELOPED ELEVATION - WALL A4

Scale: 1"=30'

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

Notes:

TOW = Top of wall
BOW = Bottom of wall
AP = Angle point
WCL = Wall Control Line

Wall Notes:

1. See Sht. GB403 for MSE Retaining Wall General Notes.
2. See Sht. GB402 for Typical Section.
3. Wall Control Line, stationing and offset shown are referenced to the "OR43" Line.
4. Contractor shall field verify existing ground elevations at face of wall to assure the minimum embedment required is provided.
5. See Sht. GA401 for Geotechnical Data.
6. Locate, preserve and protect all utilities unless otherwise noted.

SCALE WARNING
IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
BDS DWG NO.	00000
CALC. BOOK	0000
HWY: 064 M.P.: 11.2	
COUNTY	Clackamas
DATE	04/21

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON PETER GLEN SLOCUM
ADVANCE COPY SUBJECT TO CHANGE
EXPIRES: 06/30/

DOWL WWW.DOWL.COM
rtw_OR43_ES_45.36153/-122.60909

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Wyatt Dean, E.I. Reviewer: Peter G. Slocum, P.E., S.E.
Drafter: Yuka Garzenelli Checker: Peter G. Slocum, P.E., S.E.

RETAINING WALL - WALL A4
SHEET NO. GB401

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

A_GB401_Plan Sheets - DOWL :: GB401 3/23/2021 4:53:28 PM ygarzenelli Rotation: 234.784° Scale: 1"=30'

Notes:

Design loading will include (as listed in the Special Provisions and listed on the Wall Loading Conditions on Sht. GB403):
- Earth pressures.
- Live load surcharges.
- Seismic loads.

MSE retaining wall design is based on the following soil properties per ODOT GDM and recommendations by the geotechnical team:

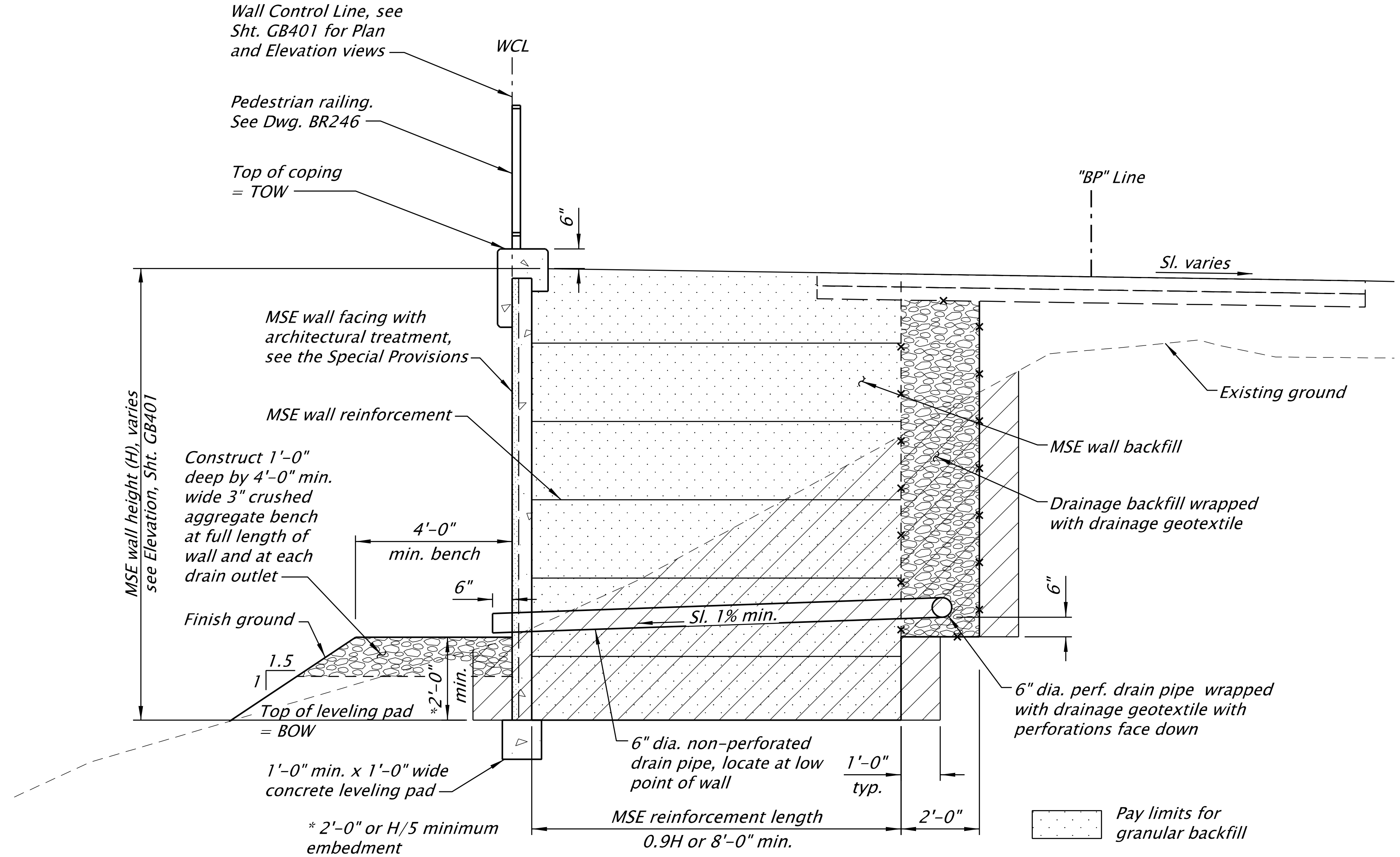
Soil Retained by Wall:
Soil angle of internal friction = 32°
Soil cohesion = 0 psf
Soil density = 125 pcf
Coefficient of friction = 0.55

Granular Wall Backfill:
Soil angle = 34°
Soil density = 130 pcf

The internal and external stability for overturning and sliding, and the overall stability, bearing resistance and settlement will be addressed in site specific design. The contractor's engineer for the proprietary wall shall complete calculations and selection of strap length, strap selection, internal wall stability, external sliding and overturning and final wall configuration.

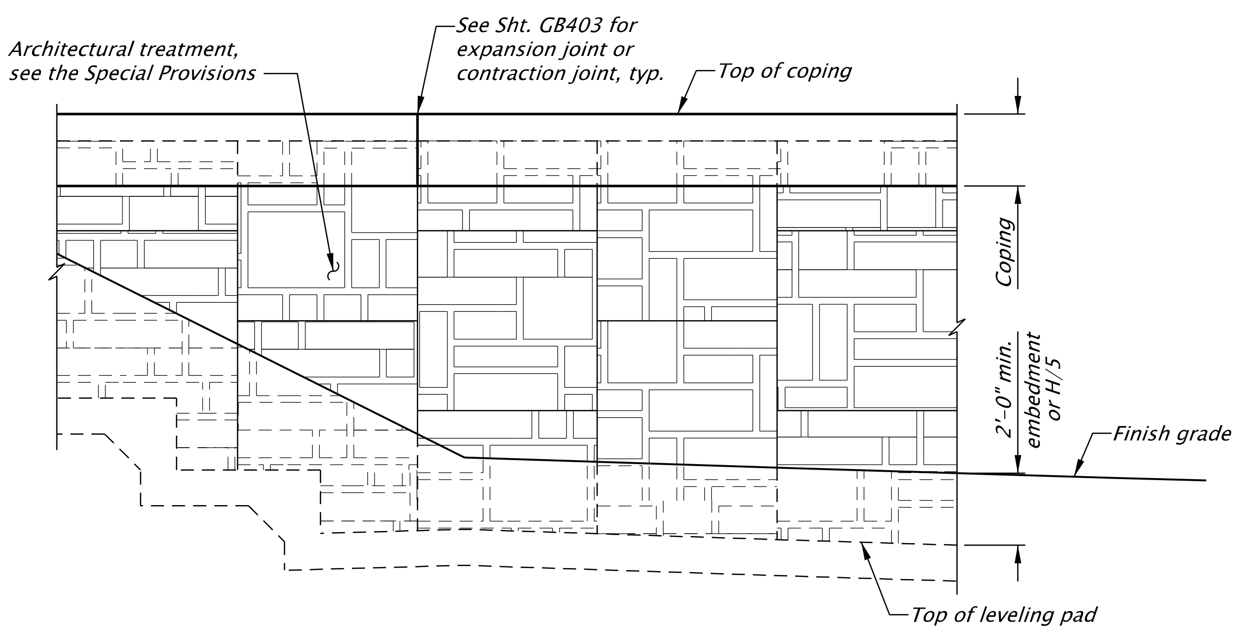
Only preapproved MSE walls are allowed as listed in ODOT's Geotechnical Design Manual (GDM) Chapter 15 Appendix D.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.



TYPICAL SECTION AND PAY LIMITS

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



RETAINING WALL A4 ARCHITECTURAL TREATMENT

Scale: 3/16"=1'-0"

SCALE WARNING

IF THIS SCALE LINE DOES NOT MEASURE ONE INCH, THEN DRAWING IS NOT TO SCALE

STRUCTURE NO.	00000
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COUNTY	Clackamas
DATE	04/21

STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 58385 PE OREGON MAY 10, 2005 PETER GLEN SLOCUM

ADVANCE COPY SUBJECT TO CHANGE

EXPIRES: 06/30/

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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OREGON DEPARTMENT OF TRANSPORTATION

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I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
CLACKAMAS COUNTY

Designer: Wyatt Dean, E.I. — Reviewer: Peter G. Slocum, P.E., S.E.
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RETAINING WALL - WALL A4 — SHEET NO. GB402

A_GB402_Detail Sheets - DOWL :: GB402 3/15/2021 5:46:42 PM ygarzenelli — Rotation: 0° Scale: Full Size 1=1

General Notes:

Provide all materials and perform all work according to the Oregon Standard Specifications for Construction 2018 and the Special Provisions.

Design MSE retaining wall in accordance with the "2017 AASHTO LRFD Bridge Design Specification", 8th Edition, as modified by the "ODOT Geotechnical Design Manual", 2018. Seismic design is for 1000-year return (Life Safety) period criteria. The horizontal peak ground acceleration coefficients (PGA) is 0.255 based on 2014 USGS seismic hazard maps. The site is defined as a site Class C with site factor (Fpga) of 1.2.

Provide a minimum service life of 75 years for all components.

Provide all reinforcing steel according to ASTM Specification A706 or A615, Grade 60. Provide field-bent or welded reinforcement according to ASTM Specification A706. Splice reinforcing steel at alternate bars, staggered at least one splice length or as far as possible, unless shown otherwise. Provide the following splice lengths, unless shown otherwise:

Reinforcing Splice Length (Class B. Uncoated) Grade 60, f'c = 4.0 ksi											
Bar Size	#3	#4	#5	#6	#7	#8	#9	#10	#11	#14	#18
Uncoated Splice Length	1'-4"	1'-7"	2'-0"	2'-5"	2'-9"	3'-2"	3'-7"	4'-0"	4'-5"	Not Permitted	

Place bars 2" clear of the nearest face of concrete unless shown otherwise.

Do not backfill wall until all trenching that may be necessary in front of the wall is backfilled and compacted, and compacted toe fill is in place to top of subgrade.

Provide Class 4000 - ¾" concrete for the precast wall panels and the coping.

Provide commercial grade concrete for the leveling pads.

The location/stationing of steps in the foundation must maintain the cover shown in the plans. Any deviation requires approval by the Engineer.

Contractor shall include details to avoid utilities in working drawing submittal.

Field verify elevation of top of coping prior to construction of coping. Keep coping depth smooth and uniform.

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. Provide extra bent bars on each side of joints. Align coping joints with vertical wall joints.

Provide an architectural finish on all wall facing panels. See the Special Provisions.

Oregon law requires the rules set forth in OAR 952-001-0010 through 952-001-0090, adopted by the Oregon Utility Notification Center, to be observed. Copies of these rules may be obtained from the Center by calling 1-800-332-2344 or 811.

Construct retaining walls according to manufacturer's recommendations.

Only hand operated compaction equipment allowed within 3'-0" of wall. Field verify obstructions prior to shop drawing submittal.

Provide threaded rods for the resin-bonded anchors according to ASTM F1554 Grade 55. Provide threaded rods threaded full length. The minimum pull-out strength is 19,600 lbs. Install resin-bonded anchors according to the manufacturer's instructions. Alternatively, provide hex head cast-in-place bolts according to ASTM F1554 Grade 55. Cast-in-place bolts shall be ⅝" diameter and embedded 6½" minimum.

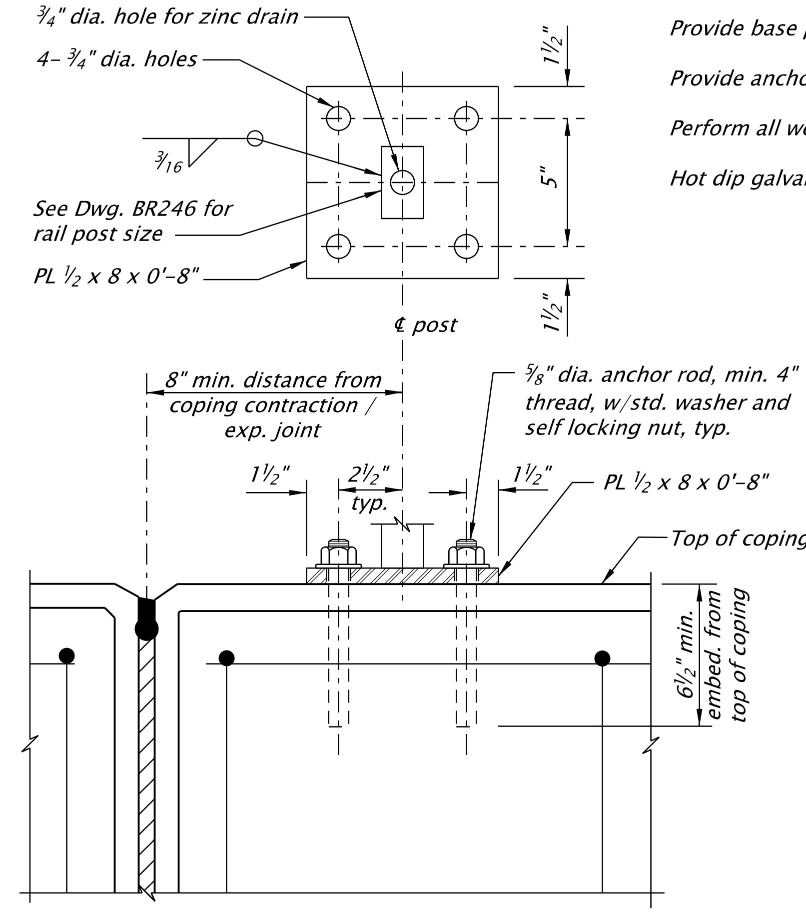
Base Plate Notes:

Provide base plates conforming to ASTM Specification A36.

Provide anchor rods conforming to ASTM F1554 Grade 55 and high strength epoxy.

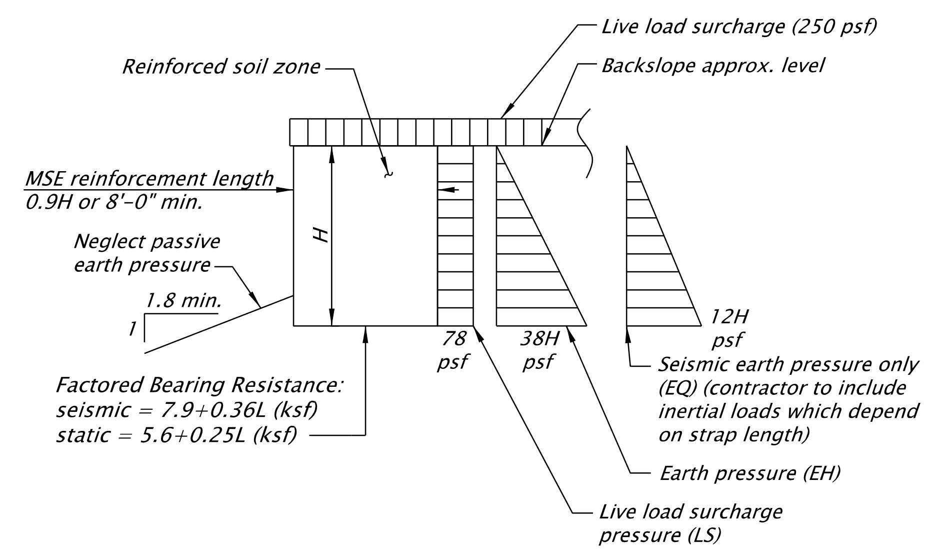
Perform all welding according to the 2015 American Welding Society AWS D1.1.

Hot dip galvanize base plates, pipes, anchor rods and associated hardware after fabrication.



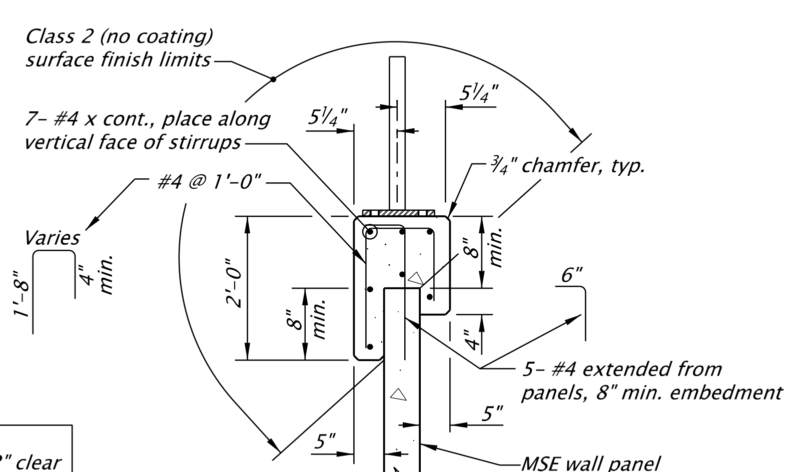
Note:
For details not shown of the pedestrian rail, see Dwg. BR246.

PEDESTRIAN RAIL CONNECTION DETAIL
No Scale



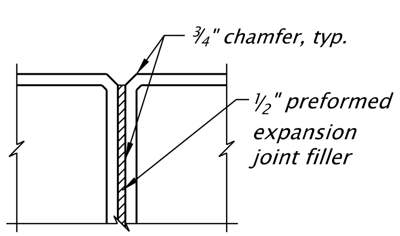
WALL LOADING CONDITIONS
No Scale

Note:
Stop longitudinal reinforcing steel 2" from expansion joints

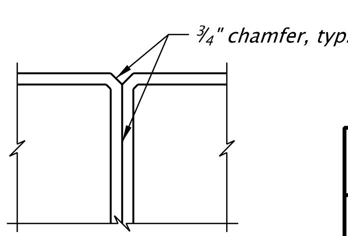


Coping Notes:
Stop longitudinal bars 2" clear of coping end, typ.

COPING DETAIL
No Scale



COPING EXPANSION JOINT DETAIL
No Scale



COPING CONTRACTION JOINT DETAIL
No Scale

SCALE WARNING

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STRUCTURE NO.	00000
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STRUCTURAL REGISTERED PROFESSIONAL ENGINEER OREGON 10, 2005 PETER GLEN SLOCUM
ADVANCE COPY SUBJECT TO CHANGE
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OREGON DEPARTMENT OF TRANSPORTATION

rtw_OR43_ES_45.36153/-122.60909

I-205: I-5 - OR213, PHASE 1 SEC.
EAST PORTLAND FREEWAY
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Designer: Wyatt Dean, E.I. Reviewer: Peter G. Slocum, P.E., S.E.
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RETAINING WALLS - WALL A4

SHEET NO. GB403

A_GB403_Detail Sheet - DOWL :: GB403 3/23/2021 4:49:34 PM ygarzenelli

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

Rotation: 0° Scale: Full Size 1=1

EXHIBIT PD-2 PUBLIC COMMENT

SAVANNA OAKS NEIGHBORHOOD ASSOCIATION

September 8, 2021

Mayor Jules Walters and City Council
City of West Linn
22500 Salamo Road
West Linn, Oregon 97068

Re: WAP-21-01/WRG-21-01/MISC-21-02, Water Resource Area permit, a Willamette River Greenway permit, and a Flood Management Area permit to widen I-205 from the 10th Street interchange to the Abernathy Bridge and perform a Phase II seismic retrofit of the bridge.

Dear Mayor Walters and City Council,

At last evening's meeting of the Savanna Oaks Neighborhood Association (SONA), it was unanimously directed by the members that I send this letter to Council requesting that the subject application be heard by the Planning Commission for a decision instead of the Planning Manager.

This application is nearly 700 pages in length and includes the following items:

- widening I-205,
- seismic retrofit of the Abernathy Bridge,
- reconfiguration of Hwy 43/I-205 off ramps,
- blasting of rock along I-205,
- and the removal of the Broadway St. bridge.

Currently, this is set to be a planning manager's decision only. This means there will be no public hearing on such a large project. With a planning manager decision, only those who live within 500 feet of the proposed project will be notified about the project. The rest of the public are not being notified about the upcoming decision and are not aware that they can provide input on this project. SONA members believe that a project of this size and scope should be heard by the Planning Commission so that all West Linn citizens are given better notice and have a chance to make public comments about this project.

Therefore, SONA requests that the City Council ask for this project to be sent to the Planning Commission, instead of it just being a planning manager decision. We believe that this will make for a more public process in reviewing such a large project.

Regards,

Ed Schwarz

Ed Schwarz, President
Savanna Oaks Neighborhood Association

EXHIBIT PD-3 CITY ATTORNEY MEMO

Reply to Lake Oswego Office

Two Centerpointe Dr., 6th Floor
Lake Oswego, OR 97035

503-598-7070

www.jordanramis.com

LEGAL MEMORANDUM

TO: Jerry Gabrielatos, City Manager

FROM: Tim Ramis, City Attorney

DATE: September 20, 2021

RE: **West Linn Community Development Code Chapter 99 – Decision Authority**

This memorandum addresses the authority of the City Council to take authority for land use decision-making in a specific land use application from the Planning Director and place it with the Planning Commission or City Council. This memorandum will also describe when the City Council has authority to review a decision of the Planning Director.

SUMMARY

A land use application has been filed by ODOT for various environmental reviews associated with a larger project that will provide seismic upgrades to the I-205 Abernethy Bridge. The local land use application is limited to review of impacts on water resource area, 100-year floodway, and the Willamette River Greenway. The land use application is identified as WAP-21-01/WRG-21-01/MISC-21-02. The Savanna Oaks Neighborhood Association (SONA) has requested that the City Council send the application to the Planning Commission for review rather than allow the Planning Manager (acting in the capacity defined by the Community Development Code) to review the application and render a decision. The request is to provide for more public process in reviewing the application.

The application has three components which are all listed under CDC 99.060 A. Planning Director Authority:

- 99.060. A. 1. o. Flood Management – Chapter 27
- 99.060. A. 1. r. Water Resource Area Permit – Chapter 32
- 99.060. A. 1. t. Willamette River Greenway – Chapter 28

The Planning Director has authority under the CDC to review the three applications together and render a decision that is final unless appealed or called up for review by the City Council as provided by CDC 99.160.

50015-36842 4834-2046-9755.1

Questions Presented

Questions presented to this office are:

1. Can the City Council direct that a land use application filed within the authority of the Planning Director to decide under CDC Chapter 99 be called up before a decision has been made?
2. If a Planning Director issues a decision under CDC Chapter 99, can the Planning Commission or City Council order a review of the decision?

Question 1 – The City Council does not have authority under CDC Chapter 99 to take an application from the Planning Director that has not been reviewed resulting in a decision. The SONA request is for the initial review to be moved to the Planning Commission level where a public hearing would be conducted. The CDC is clear that only a decision of the Director may be appealed or called up for review. The Planning Director is charged with comparing the application to all approval criteria within the CDC and making a decision. CDC 99.160 provides that the Director's decision is final unless;

1. A party to the action files a written appeal with the Director within 14 days of the final decision pursuant to CDC 99.240; or
2. A majority of the members of the Commission or the Council order a review within 14 days of the final decision pursuant to CDC 99.240.

The Planning Commission may review matters over which it has original jurisdiction as established under the CDC.

Question 2 – The CDC is clear that a land use application reviewed with a decision rendered under the Director's authority may be appealed to the City Council under authority stated in CDC 240. Some language in this section was revised in 2001. A review of the legislative record of the adoption of Ordinance 1474 indicates that the City Council added language that gave it authority to review the decisions of the Planning Director, Planning Commission, and Historic review Board, with some limited exceptions. The language of the code took authority away from the Planning Commission to order the review of a Planning Director's final decision, so only the City Council can review a Planning Director's decision in a land use application. The 2002 language is inconsistent with the language in CDC 99.160 C.2. which states that the Planning Commission may order review of a Director's decision. It appears the practice since 2001 has been to only allow the City Council to order the review of a Director's decision.

EXHIBIT PD-4 COMPLETENESS LETTER

City of West Linn

August 16, 2021

Mandy Putney
Oregon Dept. of Transportation
123 NW Flanders Street
Portland, OR 97209

SUBJECT: WAP-21-01/WRG-21-01/MIS-21-02 Application for a Water Resource Area review, Willamette River Greenway review, and Flood Management Area review for future widening of I-205 from 10th Street to the Willamette River and seismic retrofit of the Abernathy Bridge.

Greetings:

You submitted this application on February 24, 2021. The Planning and Engineering Departments found that this application was incomplete on March 24, 2021. All required information was subsequently provided on August 10, 2021 and the application has now been deemed **complete.**
The City has 120 days to exhaust all local review; that period ends December 8, 2021.

Please be aware that determination of a complete application does not guarantee a recommendation of approval from staff for your proposal as submitted – it signals that staff believes you have provided the necessary information for the Planning Director to render a decision on your proposal.

A 20-day public notice will be prepared and mailed. This notice will identify the earliest potential decision date by the Planning Director.

Please contact me at 503-742-6064, or by email at dwyss@westlinnoregon.gov if you have any questions or comments.

Sincerely,

Darren Wyss
Planning Manager

EXHIBIT PD-5 AFFIDAVIT AND NOTICE PACKET

CITY OF West Linn

AFFIDAVIT OF NOTICE
500-foot Notice

We, the undersigned do hereby certify that, in the interest of the party (parties) initiating a proposed land use, the following took place on the dates indicated below:

PROJECT
File No.: **WAP-21-01/WRG-21-01/MISC-21-02** Applicant's Name: **ODOT**
Development Name: **I-205 Widening from the 10th Street interchange to the Abernathy Bridge**
Scheduled Decision Date: **Planning Manager Decision no earlier than 9/9/21**

MAILED NOTICE
Notices were mailed at least 20 days prior to the scheduled hearing date per Section 99.080 of the Community Development Code to:

1	Mandy Putney, ODOT, applicant	8/20/21	Lynn Schroder
2	Metro	8/20/21	Lynn Schroder
3	Tri-Met	8/20/21	Lynn Schroder
4	Clackamas County	8/20/21	Lynn Schroder
5	Division of State Lands	8/20/21	Lynn Schroder
6	US Army Corps of Engineers	8/20/21	Lynn Schroder
7	Brian Bauman, HDR, applicant representative	8/20/21	Lynn Schroder
8	Property owners of record within 500 feet	8/20/21	Lynn Schroder
9	All Neighborhood Associations	8/20/21	Lynn Schroder

WEBSITE
Notice was posted on the City's website at least 20 days prior to the scheduled hearing date.

8/17/21	Lynn Schroder

SIGN
At least 10 days prior to the schedule hearing, a sign was posted on the property per Section 99.080 of the Community Development Code.

8/30/2021	Darren Wyss

FINAL DECISION notice mailed to applicant, parties with standing, and, if zone change, the County surveyor's office per Section 99.040 of the Community Development Code.

10/08/2021	Darren Wyss

CITY OF WEST LINN
NOTICE OF UPCOMING
PLANNING MANAGER DECISION
FILE NO. WAP-21-01/WRG-21-01/MISC-21-02

The West Linn Planning Manager is considering a request for a Water Resource Area permit, a Willamette River Greenway permit, and a Flood Management Area permit to widen I-205 from the 10th Street interchange to the Abernathy Bridge and perform a Phase II seismic retrofit of the bridge.

The decision will be based on the approval criteria in Chapters 27, 28, and 32 of the Community Development Code (CDC). The approval criteria from the CDC are available for review at City Hall, at the City Library, and at http://www.westlinnoregon.gov/cdc.

You have been notified of this proposal because County records indicate you own property within 500 feet of the proposed improvements or as otherwise required by Chapter 99 of the CDC.

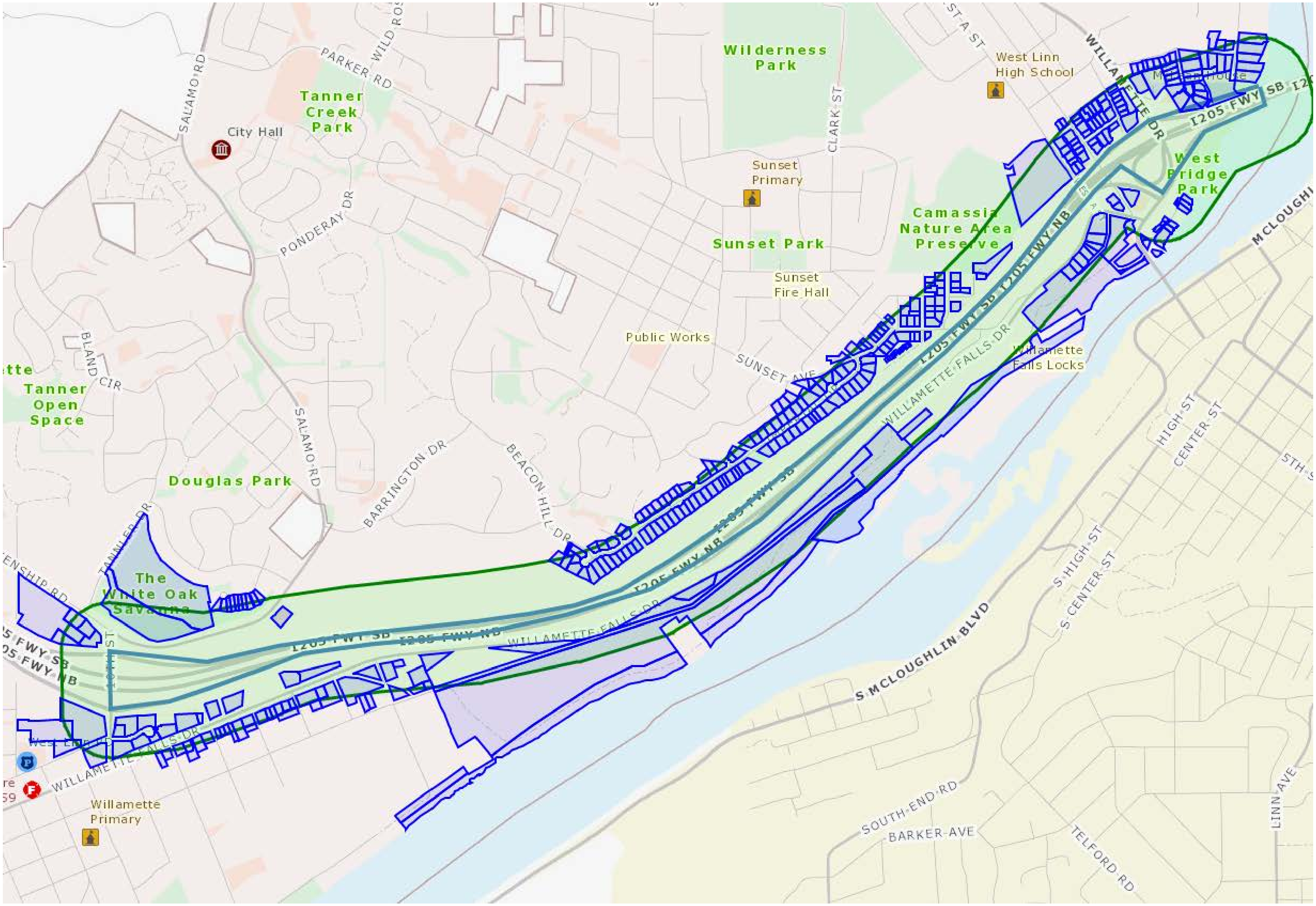
The application is posted on the project web site https://westlinnoregon.gov/planning/i-205-corridor-improvements-water-resource-area-protection-willamette-river-greenway-and Alternately, the application, all documents or evidence relied upon by the applicant and applicable criteria are available for inspection at no cost at City Hall. Copies may be obtained for a reasonable fee.

A public hearing will not be held on this decision. **Anyone wishing to present written testimony for consideration on this matter shall submit all material before 4:00 p.m. on September 9, 2021.** Persons interested in party status should submit a letter outlining any concerns related to the proposal by the comment deadline. For further information, please contact Darren Wyss, Planning Manager, City Hall, 22500 Salamo Rd., West Linn, OR 97068, (503) 742-6064, dwyss@westlinnoregon.gov.

It is important to submit all testimony in response to this notice. All comments submitted for consideration of this application should relate specifically to the applicable criteria. Failure to raise an issue in person or by letter, or failure to provide sufficient specificity to afford the decision-maker an opportunity to respond to the issue, precludes the raising of the issue at a subsequent time on appeal or before the Land Use Board of Appeals.

The final decision will be posted on the website and available at City Hall. Persons with party status may appeal the decision by submitting an appeal application to the Planning Department within 14 days of the final decision pursuant to CDC 99.240.

WAP-21-01 Properties within 500 feet of the I205 Project Area



City of West Linn

COMMUNITY DEVELOPMENT

NOTICE OF UPCOMING PLANNING MANAGER DECISION

PROJECT # WAP-21-01/WRG-21-01/MISC-21-02

MAIL: 08/20/21 TIDINGS: N/A

CITIZEN CONTACT INFORMATION

To lessen the bulk of agenda packets and land use application notice, and to address the concerns of some City residents about testimony contact information and online application packets containing their names and addresses as a reflection of the mailing notice area, this sheet substitutes for the photocopy of the testimony forms and/or mailing labels. A copy is available upon request.