OPERATION & MAINTENANCE MANUAL

Water Quality Biofiltration Swale

Manual prepared: July/2020

DFI No. D01258

Figure 1: DFI No. D01258, looking south

Identification

Drainage Facility ID (DFI):	D01258
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Numbers) 54V-007
Location:	District: 2B
	Highway No.: 064, Division & Powell Conn. #4
	Mile Post: 19.65, [Left]

1. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions.

2. Facility Location

The location map below details the facility location. The highway, mile posts, side streets, access location, and stormwater flow directions are noted on the map.

Facility location type: Off ramp

Flow direction: West

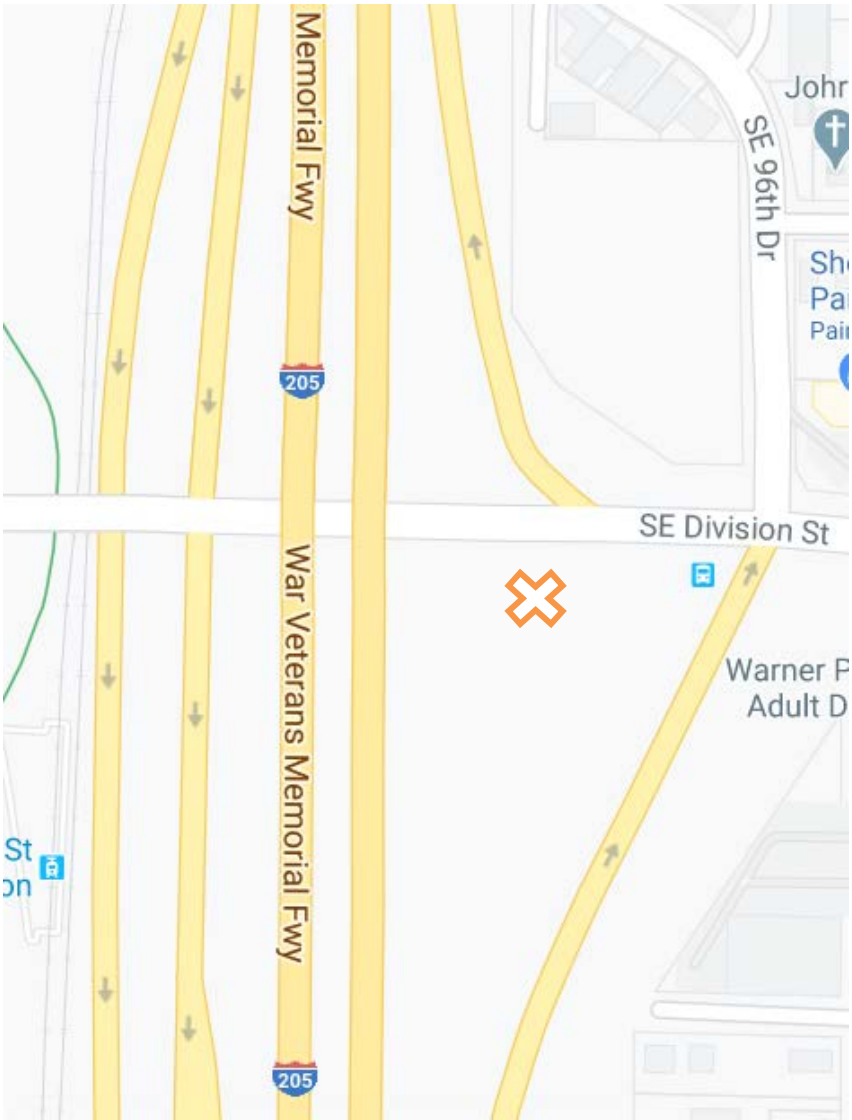


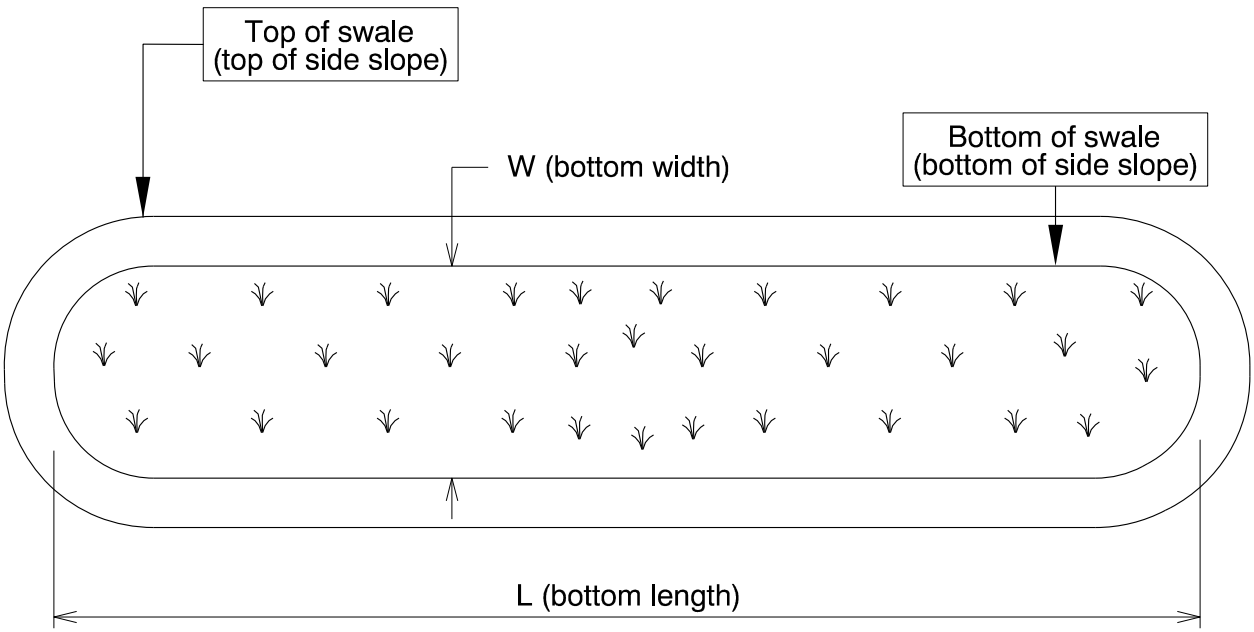
Figure 2: Facility location map

3. Facility Summary

The length and width of a swale is based on the bottom dimensions.

The bottom length and bottom width of the swale is:

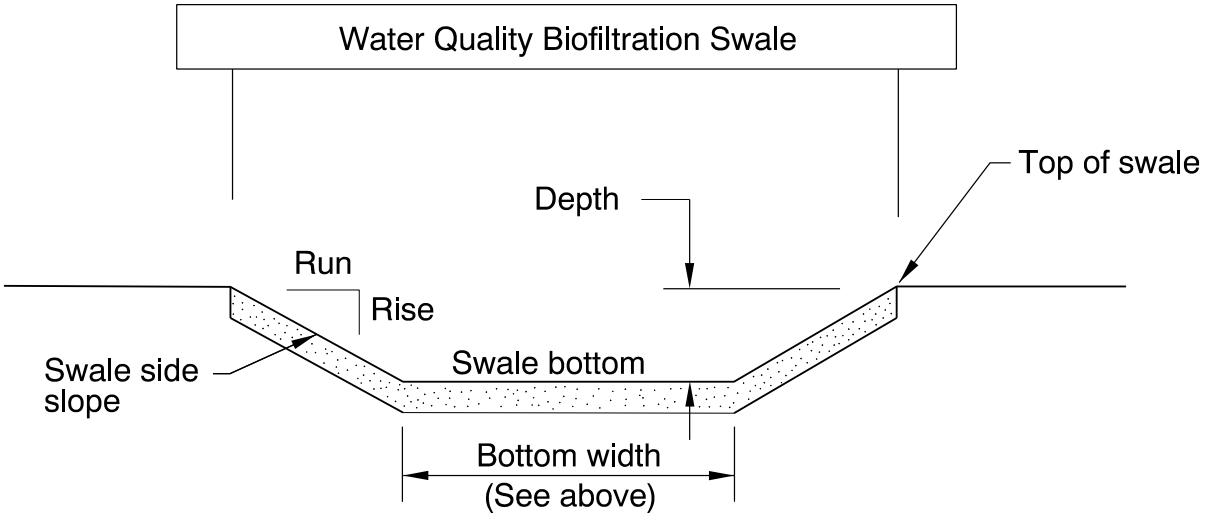
Bottom Length (feet)	Bottom Width (feet)
140	8



The depth of the swale is the vertical distance measured from the bottom of the swale to the top. The slope of the swale sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

Depth (feet)	Rise (feet)	Run (feet)
5	1	3



Site Specific Information:

The treatment area includes 0.79 acres of I-205 NB exit ramp, 0.18 acres of SE Division St., and 2.0 acres of I-205 mainline. Flow enters the southeast corner and exit to the northwest. The facility is most easily accessed from the I-205 northbound exit ramp to SE Division St.

4. Facility Access

Maintenance access to the facility:

☐Roadside pad	☒Roadside shoulder
☐Access road with Gate	☒Access road without Gate

Figure 3: [insert post construction facility access photo and caption text]

5. Operational Components / Maintenance Items

Classification

This facility is classified as an:

☒ On-line Swale	☐ Off-line Swale
A swale that does not include a high flow bypass component; flow drains into and through the facility	**A swale that treats low/small flows and diverts high flows using a bypass component**

Bypass Component

This facility includes a high flow bypass component:

☒ No	☐ Yes
There is no bypass component. High flows drains into and through the facility	**There is a bypass component. Only low/small flows drain into the swale. High flows are diverted around the swale using a bypass component**

Operational Components

A swale has many components that assist with treatment, conveyance, and reducing flow velocity to minimize erosion. The components in use can vary depending if the facility was designed to operate on-line or off-line. The facility components table (**Table 1**) has been provided to highlight the applicable components for this facility. The component is in use when the box contains an "x" (e.g. ☒).

The Standard Operation Manual for Water Quality Biofiltration Swales (implemented March 2017) outlines facility operation, typical footprint configuration, and component definitions and details. A link to the manual is attached to the feature marker in TransGIS.
https://gis.odot.state.or.us/TransGIS/

Operational Plan

The applicable standard operational plan for this facility is:

☐ Operational Plan A	☒ Operational Plan B	☐ Operational Plan C
An on-line swale with roadside ditches	**An on-line swale with piped inlets and outlets**	**An off-line swale with a piped high flow bypass**
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A, B, C) are provided in the Standard Operation Manual.		

See Appendix A for the site specific operational plan.

Maintenance Items

Operational components marked in **Table 1** should be inspected and maintained according to Section 7. Each facility component is defined and detailed in the Standard Operation Manual using the associated ID number indicated below.

Table 1: Swale Components		ID #
Manholes/Structures		
Pre-treatment manhole	☐	**S1**
Weir type flow splitter/flow splitter manhole	☐	**S2**
Orifice type flow splitter/flow splitter manhole	☐	**S3**
Standard manhole	☐	**S4**
Swale Inlet		
Pavement sheet flow	☐	**S5**
Inlet Pipe (s)	☒	**S6**
Open channel inlet	☐	**S7**
Riprap pad	☒	**S8**
Ground Cover		
Grass bottom	☒	**S9**
Grass side slopes	☒	**S10**
Granular drain rock	☒	**S11**
Plantings	☐	**S12**
Underground Components		
Geotextile fabric	☒	**S13**
Water quality mix	☒	**S14**
Perforated pipe	☒	**S15**
Porous pavers (access grid)	☐	**S16**
Flow Spreader		
Rock basin (used at inlet)	☐	**S17**
Anchored board (midpoint of swale or every 50 feet along swale bottom)	☒	**S18**
Other:	☐	**S19**
Swale Outlet		
Catch basin with grate	☒	**S20**
Outlet Pipe (s)	☐	**S21**
Open channel outlet	☐	**S22**
Auxiliary Outlet: Type D Inlet, Overflow	☒	**S23**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐**O**	**S24**
Ditch	☐	**S25**
Storm drain system	☒	**S26**
Outfall Components		
Riprap pad	☐	**S27**
Riprap bank protection	☐	**S28**

6. Maintenance

Maintenance Frequency/Maintain Records

a. Inspect annually. Preferably prior to the rainy season.
b. Clean and maintain as necessary. Refer to Activity 125 for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

Maintenance Guide/Maintenance Actions

The ODOT Routine Road Maintenance Water Quality and Habitat Guide (the *Blue Book*) outlines the standard maintenance actions for water quality facilities under Activity 125.

There are standard maintenance tables for standard ODOT designs. The maintenance tables describe the maintenance component, the defect or problem, the condition when maintenance is needed, and the recommended maintenance to correct the problem. Use the following tables to maintain ODOT swales:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 3 (Maintenance of Water Quality or Biofiltration Swales): Contains maintenance information for swales

The *Blue Book* can be viewed at the following website:
http://www.oregon.gov/ODOT/Maintenance/Documents/blue_book.pdf

7. Limitations

Access grid installed:

☒ No	☐ Yes
There are (no, light, med., heavy) porous pavers installed in this swale	

Swales are designed to allow equipment access along the bottom. If an access grid is **NOT** installed, vehicles entering the swale can create depressions (tire ruts), damage vegetation, and damage structural components (e.g. flow spreaders). These conditions may result in poor treatment and drainage performance.

Equipment wheels should be kept on the tops and side slopes. Mower arms may be run along the swale bottom.

8. Waste Material Handling

Material removed from the facility is defined as waste by the Department of Environmental Quality (DEQ). Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options:

http://www.oregon.gov/ODOT/Maintenance/Documents/ems_manual.pdf

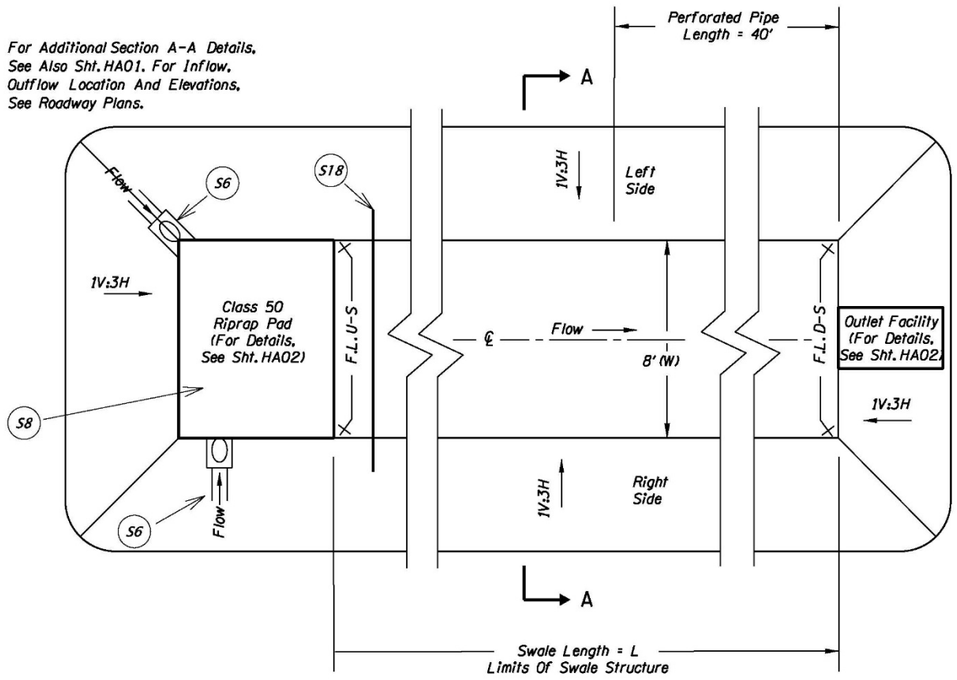
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 667-7442
ODOT Region 1 Hazmat Coordinator	(503) 731-8290
ODOT Region 2 Hazmat Coordinator	(503) 986-2647
ODOT Region 3 Hazmat Coordinator	(541) 957-3594
ODOT Region 4 Hazmat Coordinator	(541) 388-6186
ODOT Region 5 Hazmat Coordinator	(541) 963-1590
ODEQ Northwest Region Office	(503) 229-5263

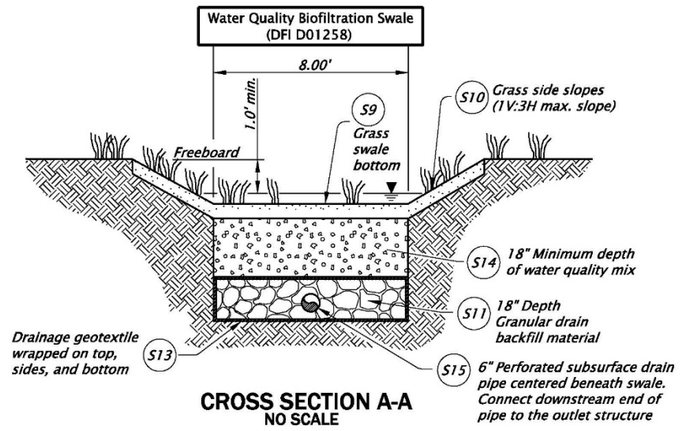
A Appendix A – Site Specific Operational Plan

Contents:

Operational Plan: DFI D01258



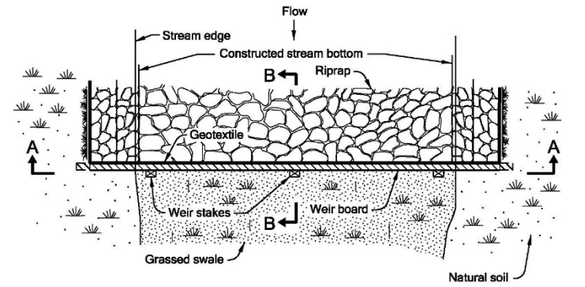
PLAN



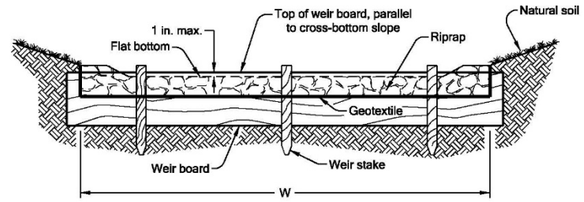
CROSS SECTION A-A
NO SCALE

LEGEND:

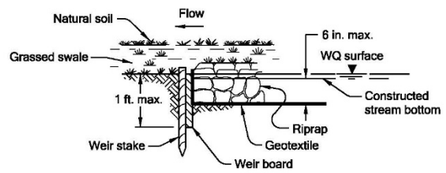
- X# — Facility Component (see table 1 in O&M Manual)
- and/or — Manhole
- and/or — Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path
- Traffic Flow Direction



Plan



Section A-A



Section B-B

TYPICAL MID-SWALE CHANNEL FLOW SPREADER

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 01 of 03

Prepared By: Alan Babicky

Drafted By: Alan Babicky

DFI D01258
MAINTENANCE DISTRICT 2B HWY 064
Biofiltration Swale
HIGHWAY MP 19.65
CLACKAMAS COUNTY

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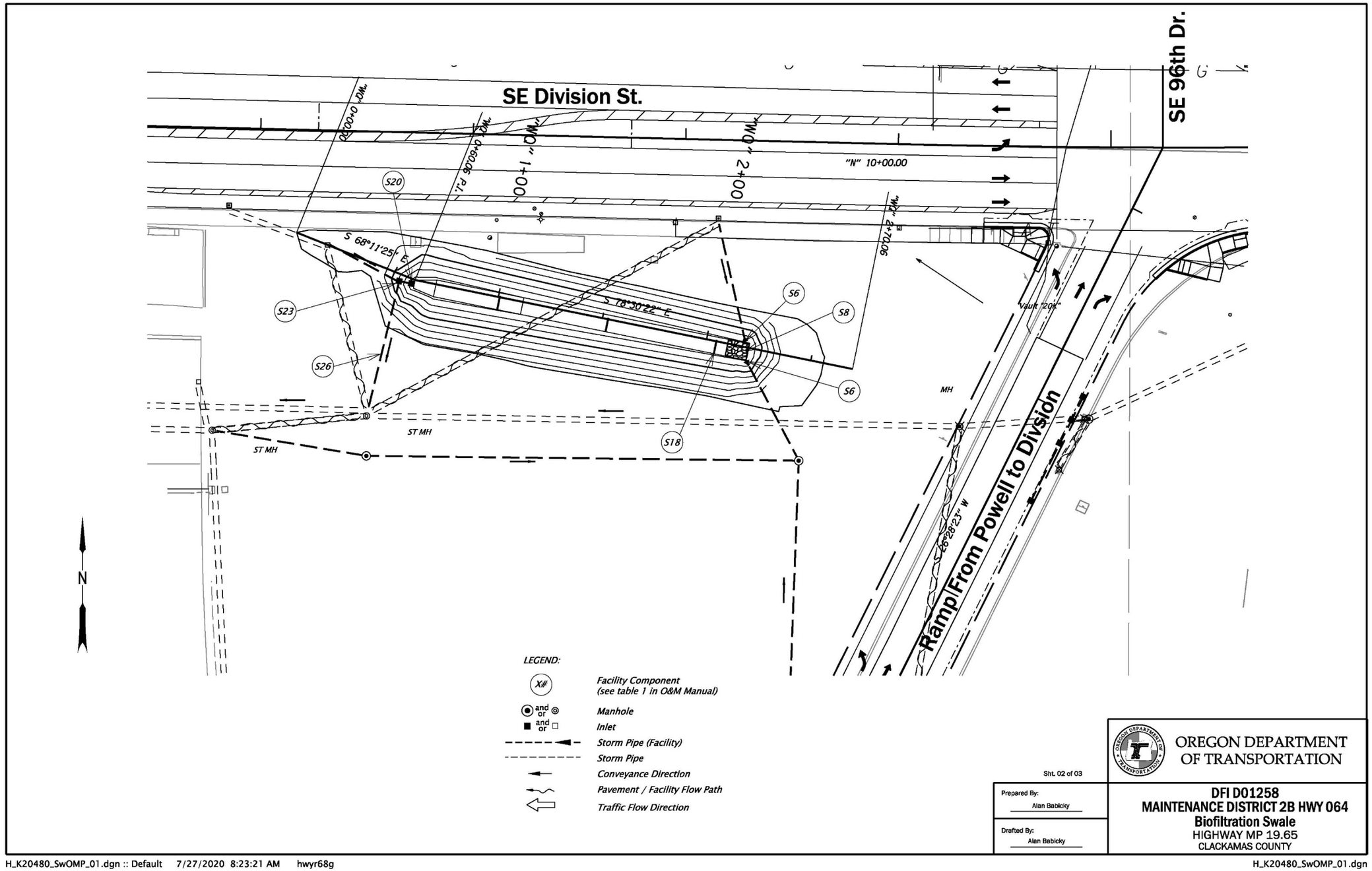
SE Division St.
SE 96th Dr.
"N" 10+00.00
"WQ" 0+00.00
"WQ" 0+60.06 P.I.
"WQ" 1+00
"WQ" 2+00
"WQ" 2+71.06
S20
S23
S26
S6
S8
S18
S 68°11'25" E
S 18°30'22" E
ST MH
ST MH
MH
Vault "20k"
Ramp From Powell to Division
26°29'23" W
N
LEGEND:
X#
Facility Component
(see table 1 in O&M Manual)
and or
Manhole
and or
Inlet
Storm Pipe (Facility)
Storm Pipe
Conveyance Direction
Pavement / Facility Flow Path
Traffic Flow Direction
OREGON DEPARTMENT OF TRANSPORTATION
Sht. 02 of 03
Prepared By:
Alan Babicky
Drafted By:
Alan Babicky
DFI D01258
MAINTENANCE DISTRICT 2B HWY 064
Biofiltration Swale
HIGHWAY MP 19.65
CLACKAMAS COUNTY
H_K20480_SwOMP_01.dgn :: Default 7/27/2020 8:23:21 AM hwyr68g
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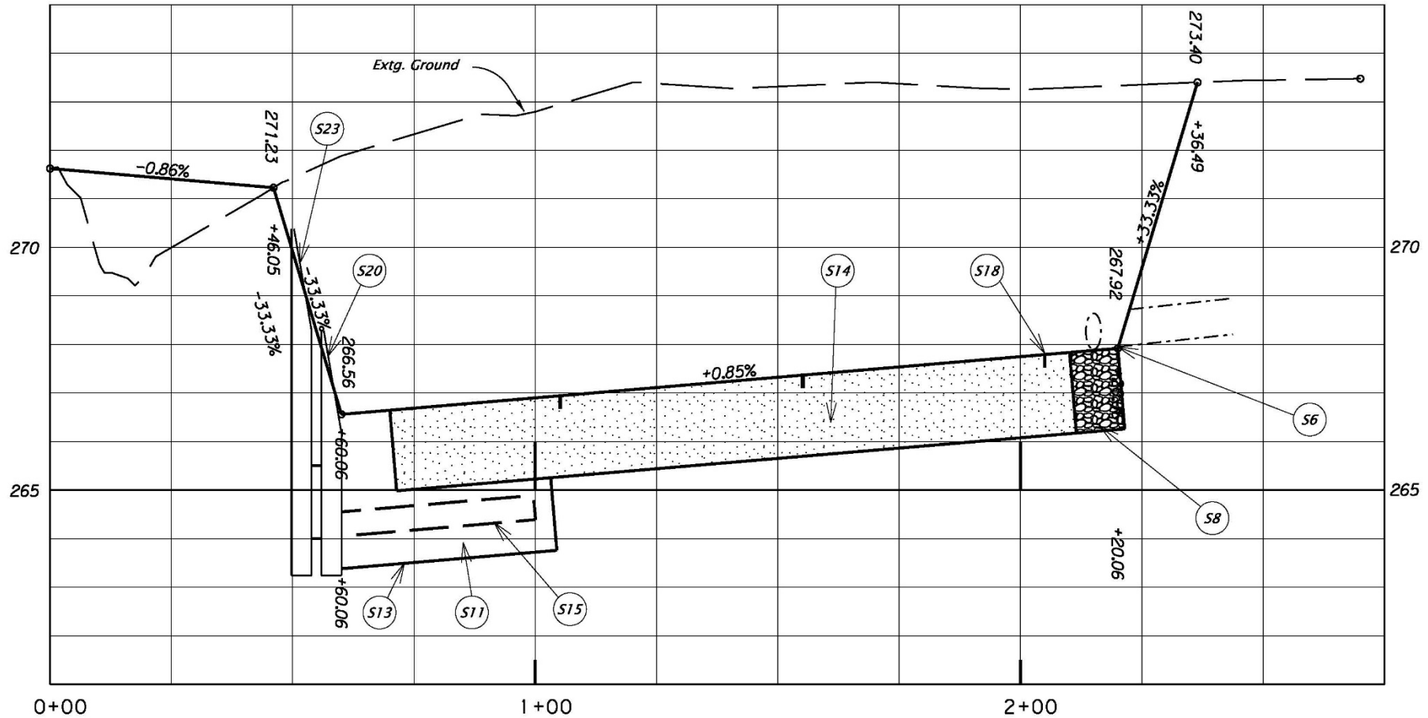
Profile "WQ" Bio-Swale



LEGEND:

- *X#* — *Facility Component (see table 1 in O&M Manual)*
- *Manhole*
- *Inlet*
- *Storm Pipe (Facility)*
- *Storm Pipe*
- *Conveyance Direction*
- *Pavement / Facility Flow Path*
- *Traffic Flow Direction*

Sht. 03 of 03

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Alan Babicky

Drafted By: Alan Babicky

DFI D01258
MAINTENANCE DISTRICT 2B HWY 064
Biofiltration Swale
HIGHWAY MP 19.65
CLACKAMAS COUNTY

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B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 54V-007

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A01	Title Sheet
A02	Index Of Sheets Cont'd. & Std. Drg. Nos.
A03	Plan Sheet Layout

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, PAVING, SIGNING, & SIGNALS

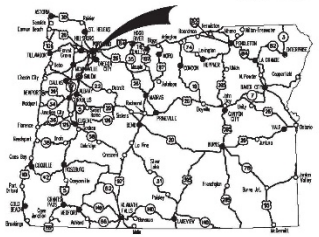
I-205 EXIT RAMPS AT SE DIVISION ST PROJ.

EAST PORTLAND FREEWAY

MULTNOMAH COUNTY

JANUARY 2021

??V-???



Overall Length Of Project – 0.32 Miles

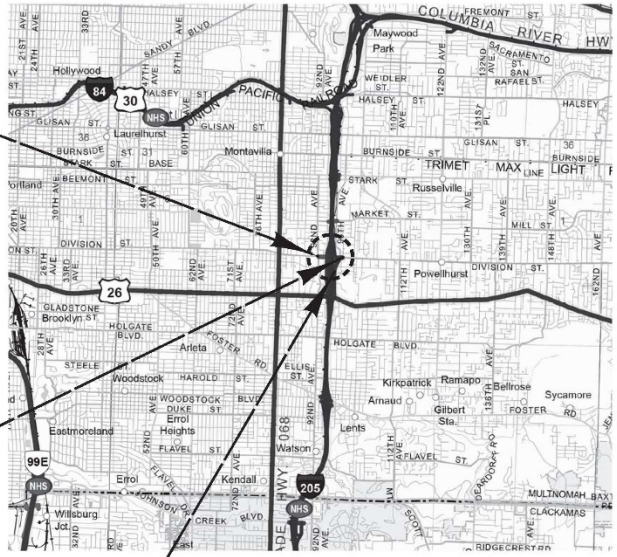
ATTENTION:
Oregon Law Requires You To Follow Rules Adopted By The Oregon Utility Notification Center. Those Rules Are Set Forth In OAR 952-001-0010 Through OAR 952-001-0090. You May Obtain Copies Of The Rules By Calling The Center. (Note: The Telephone Number For The Oregon Utility Center Is (503) 232-1987.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

BEGINNING OF PROJECT
STA. "DV" 42+59.38 (M.P. 19.77)

END OF PROJECT
STA. "DV" 50+93.59 (M.P. 19.61)

END OF PROJECT
STA. "PD" 411+30.00 (M.P. 19.46)



T. 1 S., R. 2 E., W.M.

OREGON TRANSPORTATION COMMISSION

Bob Van Brocklin	CHAIR
Sharon Smith	COMMISSIONER
Alando Simpson	COMMISSIONER
Julie Brown	COMMISSIONER
Martin Callery	COMMISSIONER
Kris Strickler	DEPUTY DIRECTOR OF TRANSPORTATION

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

Approving Authority: _____
Eduardo Miranda, PE, CPM,
Technical Center Manager, Region 1

_____
Concurrence by ODOT Chief Engineer

I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	S064(058)	A01

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

PE002808-000

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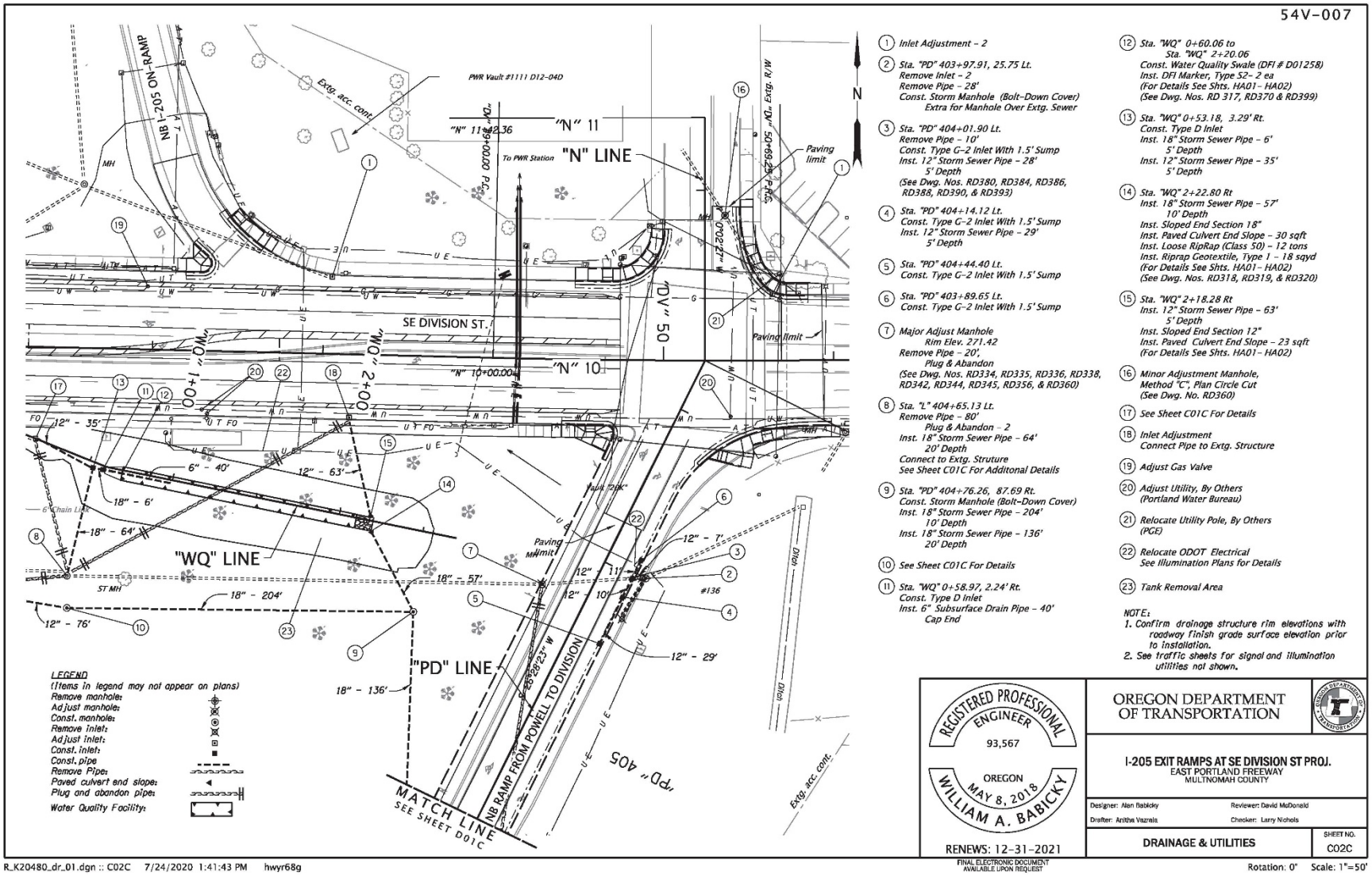
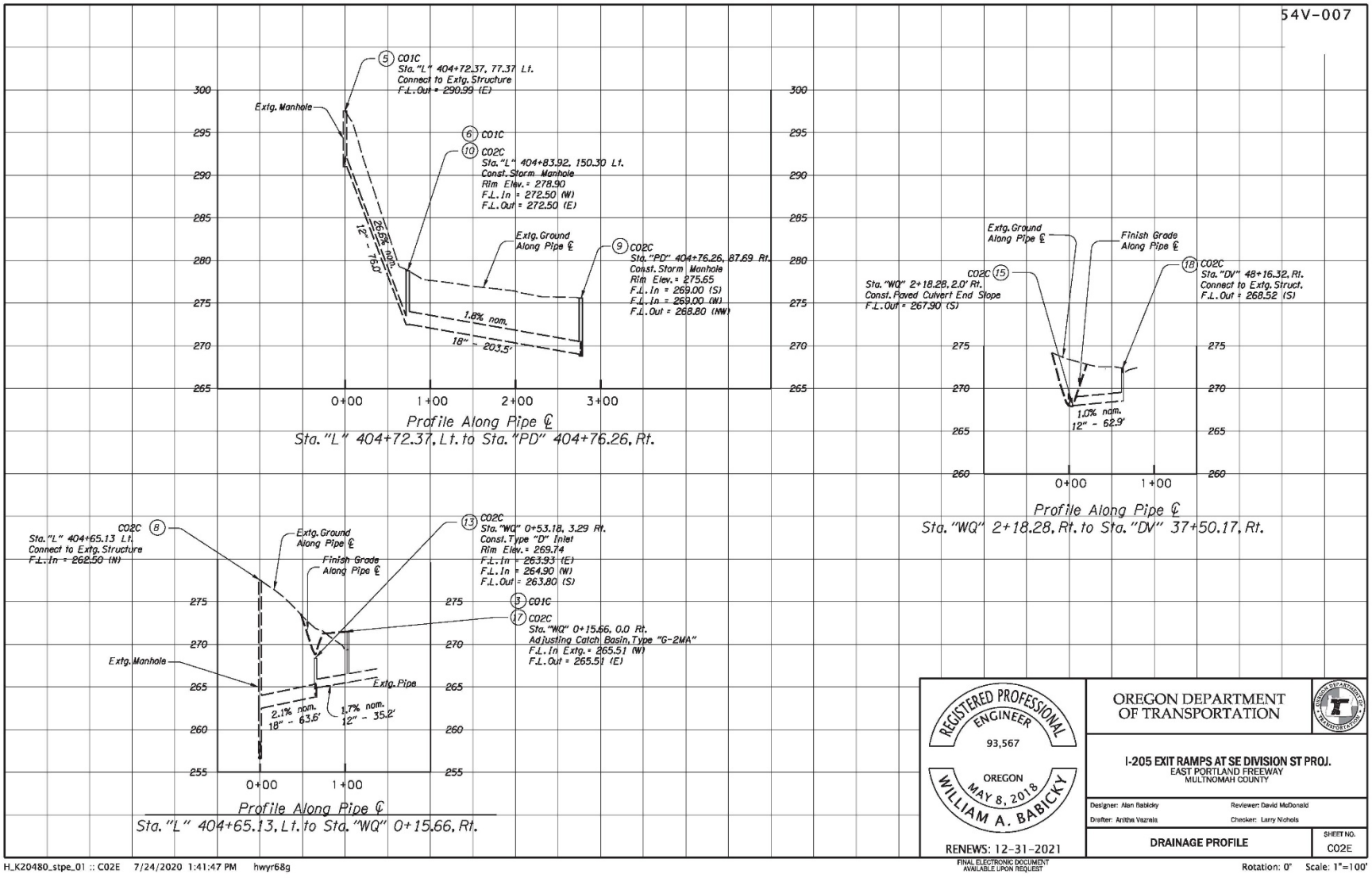
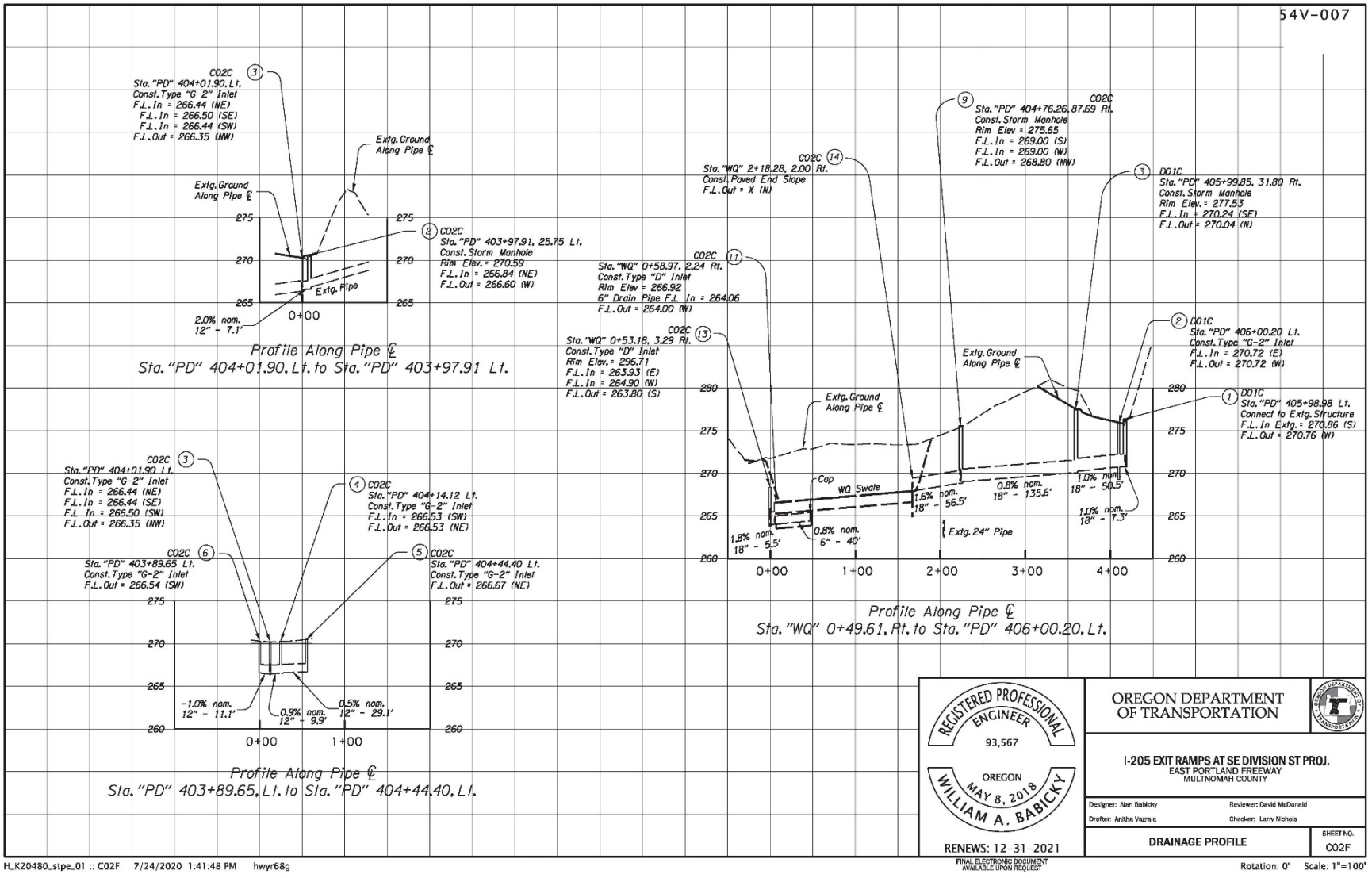
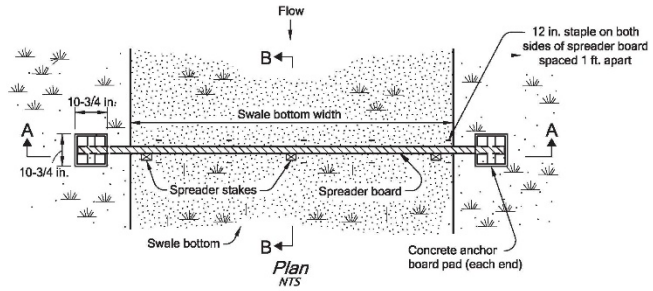

54V-007
NB I-205 ON-RAMP
Extg. acc. cont.
PWR Vault #1111 D12-04D
"N" 11
"N" 11+42.36
To PWR Station
"N" LINE
Paving limit
SE DIVISION ST.
"WQ" 1+00
"WQ" 2+00
"N" 10+00.00
"N" 10
"DV" 50
"WQ" LINE
"PD" LINE
"PD" 405
NB RAMP FROM POWELL TO DIVISION
MATCH LINE
SEE SHEET D01C
12" - 35'
6" - 40'
12" - 63'
18" - 6'
18" - 64'
18" - 57'
18" - 204'
12" - 76'
18" - 136'
12" - 7'
12" - 29'
#136
N
LEGEND
(Items in legend may not appear on plans)
Remove manhole:
Adjust manhole:
Const. manhoole:
Remove inlet:
Adjust inlet:
Const. inlet:
Const. pipe
Remove Pipe:
Paved culvert end slope:
Plug and abandon pipe:
Water Quality Facility:
1 Inlet Adjustment - 2
2 Sta. "PD" 403+97.91, 25.75 Lt.
Remove Inlet - 2
Remove Pipe - 28'
Const. Storm Manhole (Bolt-Down Cover)
Extra for Manhole Over Extg. Sewer
3 Sta. "PD" 404+01.90 Lt.
Remove Pipe - 10'
Const. Type G-2 Inlet With 1.5' Sump
Inst. 12" Storm Sewer Pipe - 28'
5' Depth
(See Dwg. Nos. RD380, RD384, RD386, RD388, RD390, & RD393)
4 Sta. "PD" 404+14.12 Lt.
Const. Type G-2 Inlet With 1.5' Sump
Inst. 12" Storm Sewer Pipe - 29'
5' Depth
5 Sta. "PD" 404+44.40 Lt.
Const. Type G-2 Inlet With 1.5' Sump
6 Sta. "PD" 403+89.65 Lt.
Const. Type G-2 Inlet With 1.5' Sump
7 Major Adjust Manhole
Rim Elev. 271.42
Remove Pipe - 20',
Plug & Abandon
(See Dwg. Nos. RD334, RD335, RD336, RD338, RD342, RD344, RD345, RD356, & RD360)
8 Sta. "L" 404+65.13 Lt.
Remove Pipe - 80'
Plug & Abandon - 2
Inst. 18" Storm Sewer Pipe - 64'
20' Depth
Connect to Extg. Struture
See Sheet C01C For Additonal Details
9 Sta. "PD" 404+76.26, 87.69 Rt.
Const. Storm Manhole (Bolt-Down Cover)
Inst. 18" Storm Sewer Pipe - 204'
10' Depth
Inst. 18" Storm Sewer Pipe - 136'
20' Depth
10 See Sheet C01C For Details
11 Sta. "WQ" 0+58.97, 2.24' Rt.
Const. Type D Inlet
Inst. 6" Subsurface Drain Pipe - 40'
Cap End
12 Sta. "WQ" 0+60.06 to
Sta. "WQ" 2+20.06
Const. Water Quality Swale (DFI # D01258)
Inst. DFI Marker, Type S2- 2 ea
(For Details See Shts. HA01- HA02)
(See Dwg. Nos. RD 317, RD370 & RD399)
13 Sta. "WQ" 0+53.18, 3.29' Rt.
Const. Type D Inlet
Inst. 18" Storm Sewer Pipe - 6'
5' Depth
Inst. 12" Storm Sewer Pipe - 35'
5' Depth
14 Sta. "WQ" 2+22.80 Rt
Inst. 18" Storm Sewer Pipe - 57'
10' Depth
Inst. Sloped End Section 18"
Inst. Paved Culvert End Slope - 30 sqft
Inst. Loose RipRap (Class 50) - 12 tons
Inst. Riprap Geotextile, Type 1 - 18 sqyd
(For Details See Shts. HA01- HA02)
(See Dwg. Nos. RD318, RD319, & RD320)
15 Sta. "WQ" 2+18.28 Rt
Inst. 12" Storm Sewer Pipe - 63'
5' Depth
Inst. Sloped End Section 12"
Inst. Paved Culvert End Slope - 23 sqft
(For Details See Shts. HA01- HA02)
16 Minor Adjustment Manhole,
Method "C", Plan Circle Cut
(See Dwg. No. RD360)
17 See Sheet C01C For Details
18 Inlet Adjustment
Connect Pipe to Extg. Structure
19 Adjust Gas Valve
20 Adjust Utility, By Others
(Portland Water Bureau)
21 Relocate Utility Pole, By Others
(PGE)
22 Relocate ODOT Electrical
See Illumination Plans for Details
23 Tank Removal Area
NOTE:
1. Confirm drainage structure rim elevations with roadway finish grade surface elevation prior to installation.
2. See traffic sheets for signal and illumination utilities not shown.
REGISTERED PROFESSIONAL ENGINEER
93,567
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWS: 12-31-2021
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
OREGON DEPARTMENT OF TRANSPORTATION
I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY
Designer: Alan Babicky
Reviewer: David McDonald
Drafter: Anitha Vazrala
Checker: Larry Nichols
DRAINAGE & UTILITIES
SHEET NO. C02C
R_K20480_dr_01.dgn :: C02C 7/24/2020 1:41:43 PM hwyr68g
Rotation: 0° Scale: 1"=50'

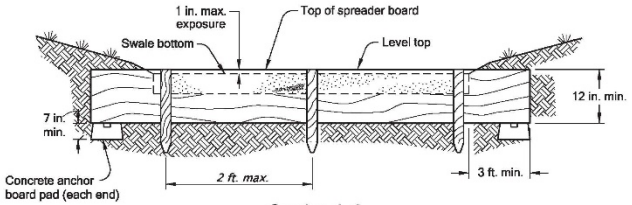

54V-007
5 C01C
Sta. "L" 404+72.37, 77.37 Lt.
Connect to Extg. Structure
F.L. Out = 290.99 (E)
Extg. Manhole
6 C01C
10 C02C
Sta. "L" 404+83.92, 150.30 Lt.
Const. Storm Manhole
Rim Elev. = 278.90
F.L. In = 272.50 (W)
F.L. Out = 272.50 (E)
Extg. Ground
Along Pipe ℄
9 C02C
Sta. "PD" 404+76.26, 87.69 Rt.
Const. Storm Manhole
Rim Elev. = 275.65
F.L. In = 269.00 (S)
F.L. In = 269.00 (W)
F.L. Out = 268.80 (NW)
26.5% nom.
12" - 76.0'
1.8% nom.
18" - 203.5'
Profile Along Pipe ℄
Sta. "L" 404+72.37, Lt. to Sta. "PD" 404+76.26, Rt.
Extg. Ground
Along Pipe ℄
Finish Grade
Along Pipe ℄
C02C 15
Sta. "WQ" 2+18.28, 2.0' Rt.
Const. Paved Culvert End Slope
F.L. Out = 267.90 (S)
18 C02C
Sta. "DV" 48+16.32, Rt.
Connect to Extg. Struct.
F.L. Out = 268.52 (S)
1.0% nom.
12" - 62.9'
Profile Along Pipe ℄
Sta. "WQ" 2+18.28, Rt. to Sta. "DV" 37+50.17, Rt.
C02C 8
Sta. "L" 404+65.13 Lt.
Connect to Extg. Structure
F.L. In = 262.50 (N)
Extg. Ground
Along Pipe ℄
Finish Grade
Along Pipe ℄
13 C02C
Sta. "WQ" 0+53.18, 3.29 Rt.
Const. Type "D" Inlet
Rim Elev. = 269.74
F.L. In = 263.93 (E)
F.L. In = 264.90 (W)
F.L. Out = 263.80 (S)
3 C01C
17 C02C
Sta. "WQ" 0+15.66, 0.0 Rt.
Adjusting Catch Basin, Type "G-2MA"
F.L. In Extg. = 265.51 (W)
F.L. Out = 265.51 (E)
Extg. Manhole
Extg. Pipe
2.1% nom.
18" - 63.6'
1.7% nom.
12" - 35.2'
Profile Along Pipe ℄
Sta. "L" 404+65.13, Lt. to Sta. "WQ" 0+15.66, Rt.
REGISTERED PROFESSIONAL ENGINEER
93,567
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWS: 12-31-2021
OREGON DEPARTMENT OF TRANSPORTATION
I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY
Designer: Alan Rabicky
Reviewer: David McDonald
Drafter: Anitha Vazrala
Checker: Larry Nichols
DRAINAGE PROFILE
SHEET NO.
C02E
H_K20480_stpe_01 :: C02E 7/24/2020 1:41:47 PM hwyr68g
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
Rotation: 0° Scale: 1"=100'


54V-007
C02C
Sta. "PD" 404+01.90, Lt.
Const. Type "G-2" Inlet
F.L. In = 266.44 (NE)
F.L. In = 266.50 (SE)
F.L. In = 266.44 (SW)
F.L. Out = 266.35 (NW)
Extg. Ground Along Pipe ℄
Extg. Ground Along Pipe ℄
C02C
Sta. "PD" 403+97.91, 25.75 Lt.
Const. Storm Manhole
Rim Elev. = 270.59
F.L. In = 266.84 (NE)
F.L. Out = 266.60 (W)
Extg. Pipe
2.0% nom.
12" - 7.1'
0+00
Profile Along Pipe ℄
Sta. "PD" 404+01.90, Lt. to Sta. "PD" 403+97.91 Lt.
C02C
Sta. "PD" 404+01.90 Lt.
Const. Type "G-2" Inlet
F.L. In = 266.44 (NE)
F.L. In = 266.44 (SE)
F.L. In = 266.50 (SW)
F.L. Out = 266.35 (NW)
C02C
Sta. "PD" 404+14.12 Lt.
Const. Type "G-2" Inlet
F.L. In = 266.53 (SW)
F.L. Out = 266.53 (NE)
C02C
Sta. "PD" 403+89.65 Lt.
Const. Type "G-2" Inlet
F.L. Out = 266.54 (SW)
C02C
Sta. "PD" 404+44.40 Lt.
Const. Type "G-2" Inlet
F.L. Out = 266.67 (NE)
-1.0% nom.
12" - 11.1'
0.9% nom.
12" - 9.9'
0.5% nom.
12" - 29.1'
0+00
1+00
Profile Along Pipe ℄
Sta. "PD" 403+89.65, Lt. to Sta. "PD" 404+44.40, Lt.
C02C
Sta. "WQ" 2+18.28, 2.00 Rt.
Const. Paved End Slope
F.L. Out = X (N)
C02C
Sta. "WQ" 0+58.97, 2.24 Rt.
Const. Type "D" Inlet
Rim Elev = 266.92
6" Drain Pipe F.L. In = 264.06
F.L. Out = 264.00 (W)
C02C
Sta. "WQ" 0+53.18, 3.29 Rt.
Const. Type "D" Inlet
Rim Elev. = 296.71
F.L. In = 263.93 (E)
F.L. In = 264.90 (W)
F.L. Out = 263.80 (S)
C02C
Sta. "PD" 404+76.26, 87.69 Rt.
Const. Storm Manhole
Rim Elev = 275.65
F.L. In = 269.00 (S)
F.L. In = 269.00 (W)
F.L. Out = 268.80 (NW)
D01C
Sta. "PD" 405+99.85, 31.80 Rt.
Const. Storm Manhole
Rim Elev. = 277.53
F.L. In = 270.24 (SE)
F.L. Out = 270.04 (N)
D01C
Sta. "PD" 406+00.20 Lt.
Const. Type "G-2" Inlet
F.L. In = 270.72 (E)
F.L. Out = 270.72 (W)
D01C
Sta. "PD" 405+98.98 Lt.
Connect to Extg. Structure
F.L. In Extg. = 270.86 (S)
F.L. Out = 270.76 (W)
Extg. Ground Along Pipe ℄
Extg. Ground Along Pipe ℄
Cap
WQ Swale
1.8% nom.
18" - 5.5'
0.8% nom.
6" - 40'
1.6% nom.
18" - 56.5'
0.8% nom.
18" - 135.6'
1.0% nom.
18" - 50.5'
1.0% nom.
18" - 7.3'
Extg. 24" Pipe
0+00
1+00
2+00
3+00
4+00
Profile Along Pipe ℄
Sta. "WQ" 0+49.61, Rt. to Sta. "PD" 406+00.20, Lt.
REGISTERED PROFESSIONAL ENGINEER
93,567
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWS: 12-31-2021
OREGON DEPARTMENT OF TRANSPORTATION
I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY
Designer: Alan Babicky
Reviewer: David McDonald
Drafter: Anitha Vazrala
Checker: Larry Nichols
DRAINAGE PROFILE
SHEET NO.
C02F
H_K20480_stpe_01 :: C02F 7/24/2020 1:41:48 PM hwyr68g
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
Rotation: 0° Scale: 1"=100'

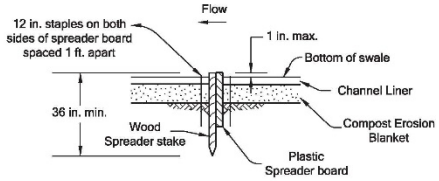
Plastic Board Flow Spreader



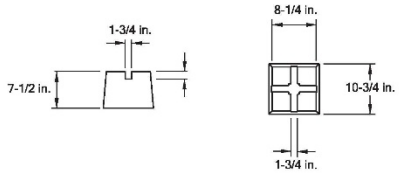
Plan
NTS



Section A-A
NTS

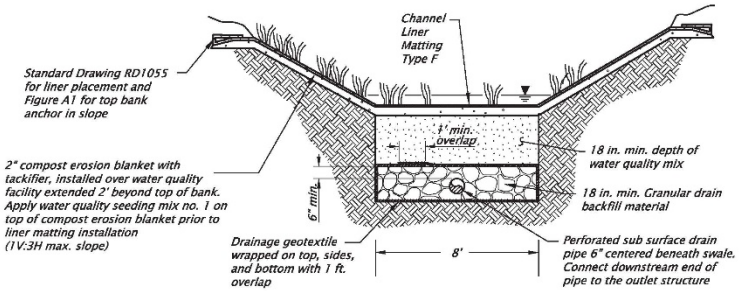


Section B-B
NTS



Concrete Anchor Board Pad, or Similar
NTS

Water Quality Biofiltration Swale



Cross Section A-A
NTS

FACILITY ID MARKER TABLE

FACILITY LOCATION		DFI #	TYPE S2 MARKER		TYPE S1 MARKER	
STATION	MP		BEGIN	END	RED	GREEN
"WQ" 0+48, 9' Lt.	19.69	D01258		✓		
"WQ" 2+35, 15' Lt.	19.65	D01258	✓			

✓ Check where appropriate
Red = Beginning of facility
Green = End of facility

REGISTERED PROFESSIONAL ENGINEER
93,567
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWS: 12-31-2021
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY

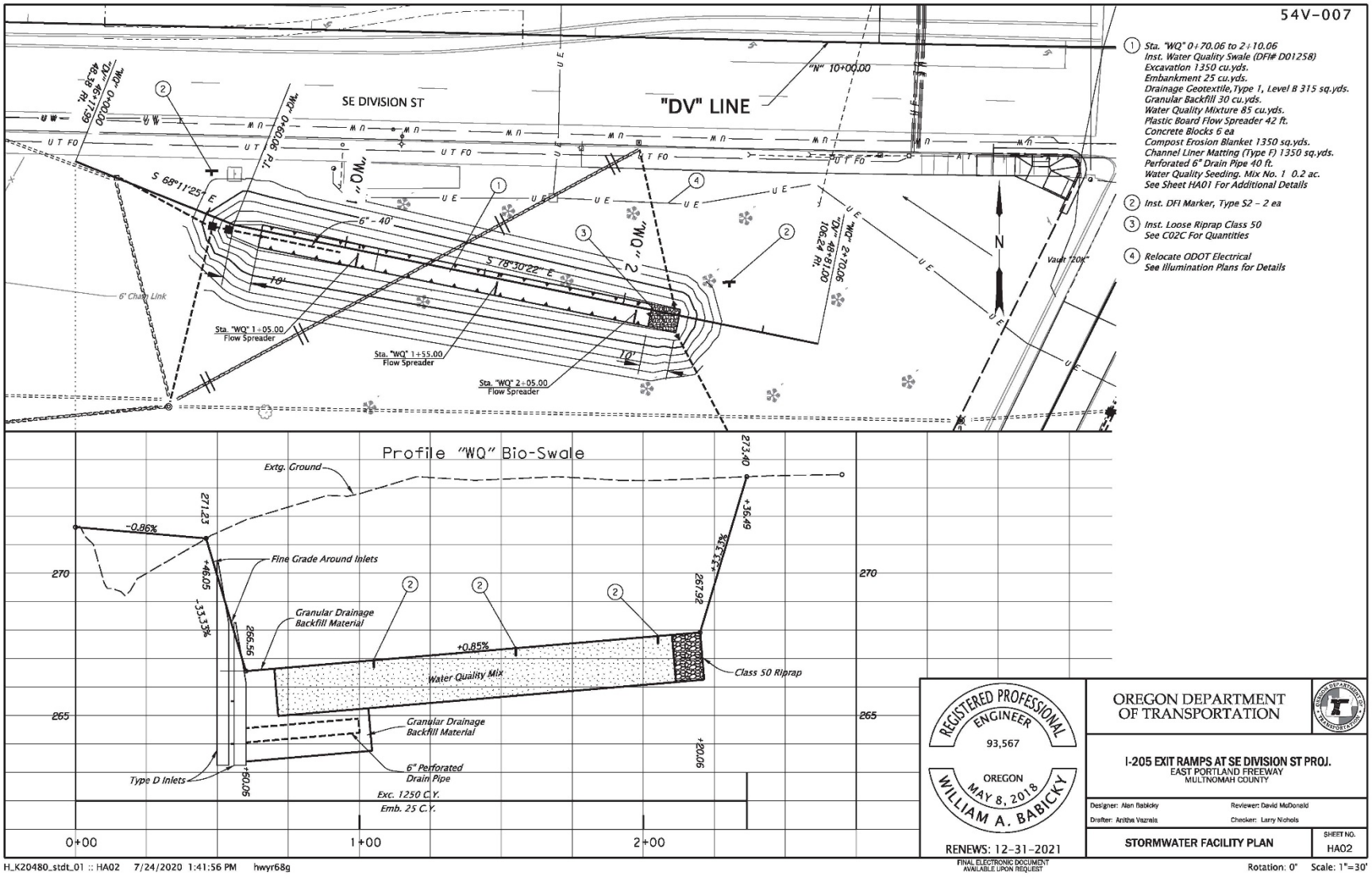
Designer: Alan Rabicky | Reviewer: David McDonald
Drafter: Anitha Vazrala | Checker: Larry Nichols

STORMWATER FACILITY PLAN

SHEET NO. HA01

H_K20480_stdt_01 :: HA01 7/24/2020 1:41:56 PM hwyr68g

Rotation: 0° Scale: 1"=100'


54V-007
SE DIVISION ST
"DV" LINE
"N" 10+00.00
S 68°11'25" E
S 18°30'22" E
6" - 40'
10'
Sta. "WQ" 1+05.00
Flow Spreader
Sta. "WQ" 1+55.00
Flow Spreader
Sta. "WQ" 2+05.00
Flow Spreader
6" Chain Link
Vault "20K"
N
1) Sta. "WQ" 0+70.06 to 2+10.06
Inst. Water Quality Swale (DFI# D01258)
Excavation 1350 cu.yds.
Embankment 25 cu.yds.
Drainage Geotextile, Type 1, Level B 315 sq.yds.
Granular Backfill 30 cu.yds.
Water Quality Mixture 85 cu.yds.
Plastic Board Flow Spreader 42 ft.
Concrete Blocks 6 ea
Compost Erosion Blanket 1350 sq.yds.
Channel Liner Matting (Type F) 1350 sq.yds.
Perforated 6" Drain Pipe 40 ft.
Water Quality Seeding, Mix No. 1 0.2 ac.
See Sheet HA01 For Additional Details
2) Inst. DFI Marker, Type S2 - 2 ea
3) Inst. Loose Riprap Class 50
See C02C For Quantities
4) Relocate ODOT Electrical
See Illumination Plans for Details
Profile "WQ" Bio-Swale
Extg. Ground
271.23
-0.86%
+46.05
-33.33%
266.56
Fine Grade Around Inlets
Granular Drainage Backfill Material
+0.85%
Water Quality Mix
Class 50 Riprap
Granular Drainage Backfill Material
6" Perforated Drain Pipe
Exc. 1250 C.Y.
Emb. 25 C.Y.
Type D Inlets
+50.06
+20.06
267.92
+33.33%
+36.49
273.40
270
265
0+00
1+00
2+00
REGISTERED PROFESSIONAL ENGINEER
93,567
OREGON
MAY 8, 2018
WILLIAM A. BABICKY
RENEWS: 12-31-2021
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST
OREGON DEPARTMENT OF TRANSPORTATION
I-205 EXIT RAMPS AT SE DIVISION ST PROJ.
EAST PORTLAND FREEWAY
MULTNOMAH COUNTY
Designer: Alen Rabicky
Reviewer: David McDonald
Drafter: Anitha Vazrala
Checker: Larry Nichols
STORMWATER FACILITY PLAN
SHEET NO. HA02
H_K20480_stdt_01 :: HA02 7/24/2020 1:41:56 PM hwyr68g
Rotation: 0° Scale: 1"=30'