OPERATION & MAINTENANCE MANUAL

DFI No. : D01168
Facility Type: Drywell

September 2018

INDEX

1. Identification

Drainage Facility ID (DFI):	**D01168**
Facility Type:	Drywell
Construction Drawings:	(V-File Number) 52V-005
Location:	District: 2B
	Highway No.: 026
	Mile Post: 7.31 (beg./end)
	Description: This facility is located along the south side of SE Powell Boulevard approximately 70 feet east of the intersection with 124th Avenue.

2. Facility Contact Information

Contact the Engineer of Record, Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

Geo-Environmental Senior Hydraulics Engineer (503) 986-3365.

3. Construction

Engineer of Record:

ODOT Designer – Region 1 Hydraulics, Bruce Council, PE, (503) 731-8319

Consultant Designer – HDR, Christine Higgins, PE, (503) 423-3700

Facility construction:	2019
Contractor:	To be Determined

4. Storm Drain System and Facility Overview

Drywells are structural subsurface facilities with perforated sides or bottom used to dispose/infiltrate stormwater into the ground. Drywells are usually configured with an upstream sedimentation manhole as a form of pretreatment. Drywells have been designed to fully store and infiltrate the volume of runoff from the 25-year, 24-hour rainfall event.

This facility is located along the south side of SE Powell Boulevard approximately 70 feet east of the intersection with 124th Avenue in the buffer stripe between the sidewalk and roadway. This facility's access manhole lid is flush with the adjacent ground, with 3 feet of drain rock surrounding the precast perforated drywell sections.

The drywell is the end point for the stormwater conveyance system. Runoff is collected with a curb inlet conveyed to a sedimentation manhole, and then discharged into the drywell where the water is infiltrated into the groundwater.

A. Maintenance equipment access:
The facility can be accessed from SE Powell Boulevard.

B. Heavy equipment access into facility:

☒ Allowed (no limitations)
☐ Allowed (with limitations)
☐ Not allowed

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains

5. Maintenance Requirements

Routine maintenance table for non-proprietary stormwater treatment and storage/detention facilities have been incorporated into ODOT's Maintenance Guide. These tables summarize the maintenance requirements for ponds, swales, filter strips, bioslopes, and detention tanks and vaults. Special maintenance requirements in addition to the routine requirements are noted below when applicable.

The ODOT Maintenance Guide can be viewed at the following website:

https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/Stormwater.aspx

The stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual:

Mark as Required and always include Table 1:

- ☒ Table 1 (general maintenance)
- ☐ Table 2 (stormwater ponds)
- ☐ Table 3 (water quality biofiltration swales)
- ☐ Table 4 (water quality filter strips)
- ☐ Table 5 (water quality bioslopes)
- ☐ Table 6 (detention tank)
- ☒ Table 7 (detention vault)
- ☐ Appendix C (proprietary structure)

6. Waste Material Handling

Material removed from the facility is defined as waste by DEQ. Refer to the Roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options:
https://www.oregon.gov/ODOT/Maintenance/Documents/ems_manual.pdf

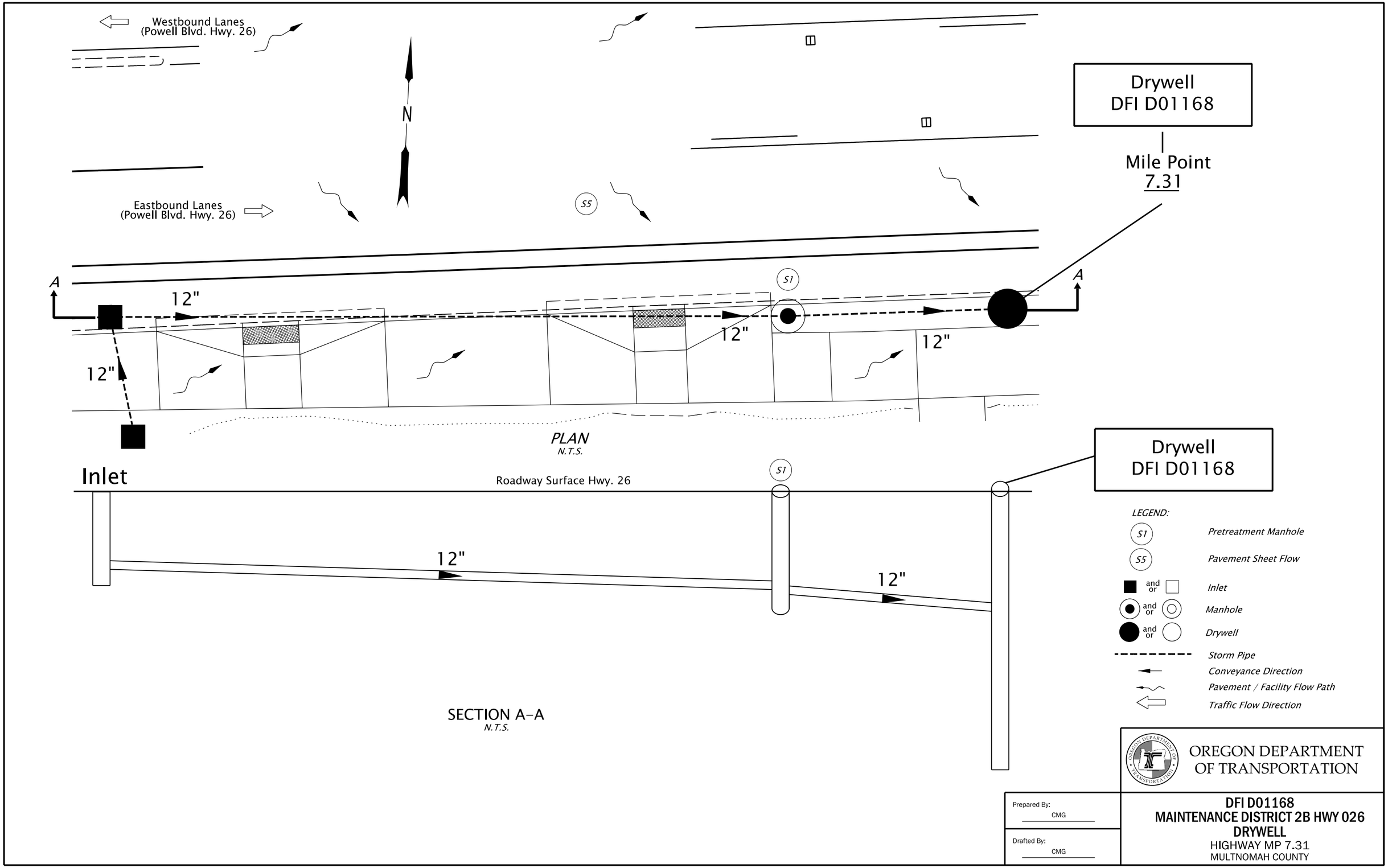
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region 1 Hazmat Coordinator	(503) 731-8290
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

Content:

- **Operational Plan and Profile Drawing(s)**



OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: CMG

Drafted By: CMG

DFI D01168
MAINTENANCE DISTRICT 2B HWY 026
DRYWELL
HIGHWAY MP 7.31
MULTNOMAH COUNTY

R_19690_dt11.dgn :: Drywell O_M Figures 8/30/2018 9:53:18 AM CGIESEKE

Appendix B

Content:

- **ODOT Project Plan Sheets**
  - ***Cover/Title Sheet***
  - ***Water Quality/Detention Plan Sheets***
  - ***Other Details***

52V-005

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A01	Title Sheet
A02	Index Of Sheets, Cont.
A03	Standard Drawing Numbers
A04	Plan Sheet Layout
A05 thru A07	Control Data

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

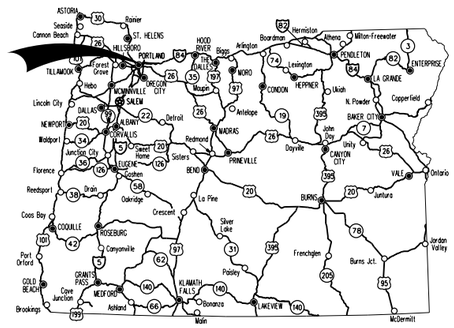
GRADING, PAVING, DRAINAGE, SIGNING, ILLUMINATION, SIGNALS, AND ROADSIDE DEVELOPMENT

US26 (POWELL BLVD): SE 122ND AVE - SE 136TH AVE SEC.

MT. HOOD HIGHWAY

MULTNOMAH COUNTY

DECEMBER 2018

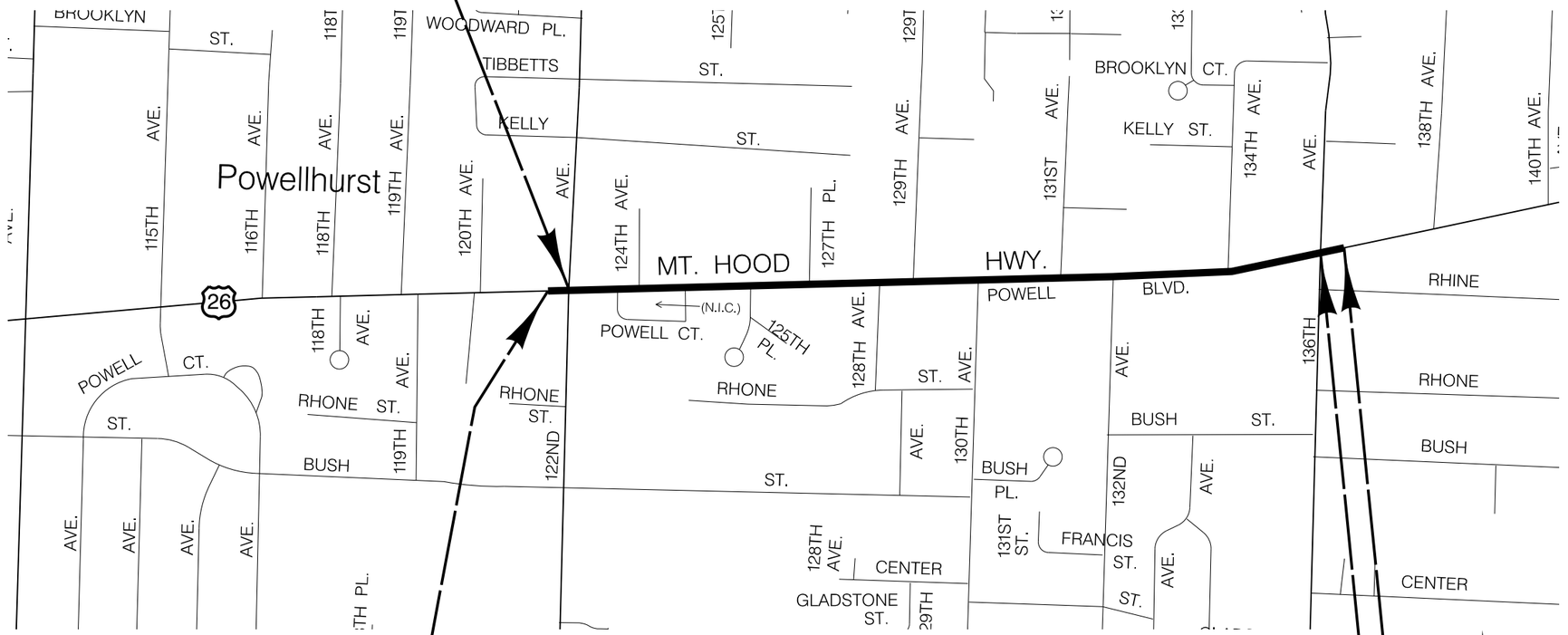


Overall Length Of Project - 0.93 Miles

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. "P" 1106+29.96 (M.P. 7.21)



BEGINNING OF PAVING
STA. "P" 1103+68.00 (M.P. 7.16)

END OF PROJECT
STA. "P" 1142+67.74 (M.P. 7.90)

END OF PAVING
STA. "P" 1145+25.00 (M.P. 7.95)

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

OREGON TRANSPORTATION COMMISSION

Tammy Baney	CHAIR
David Lohman	COMMISSIONER
Paula Brown	COMMISSIONER
Alando Simpson	COMMISSIONER
Sean O'Hollaren	COMMISSIONER
Matthew L. Garrett	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.

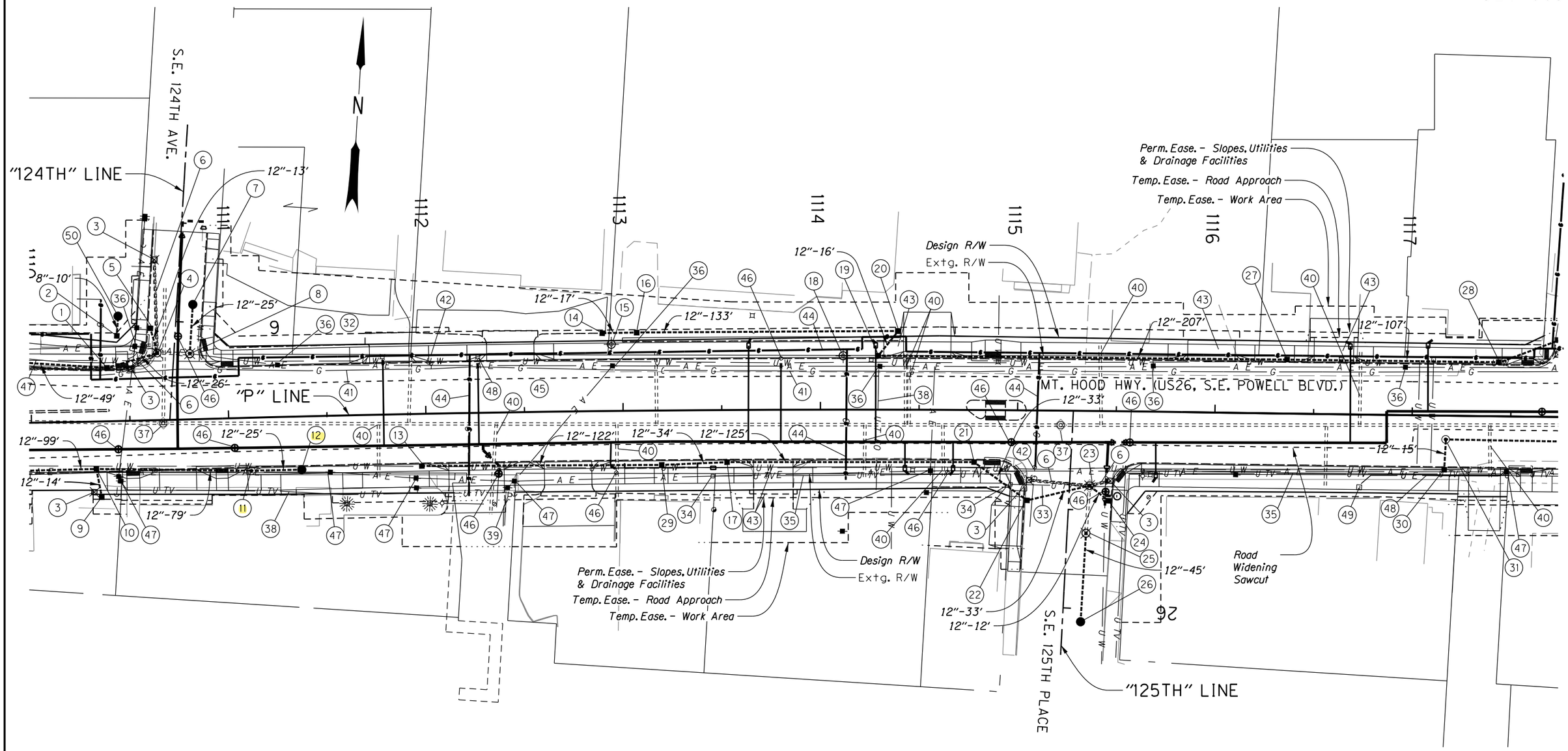
Approving Authority: _____
Signature & date

_____
Print name and title

_____
Concurrence by ODOT Chief Engineer

US26 (POWELL BLVD): SE 122ND AVE - SE 136TH AVE SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HSIP-S026(126)	A01



General Notes:

See sheets RA01 to RA14 for the relocation of the PWB water system.
PWB will install the water meter in the water meter box installed by the Contractor.

The road widening sawcut line does not reflect the sawcutting for trench resurfacing.

REGISTERED PROFESSIONAL ENGINEER
585[illegible]
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
EXPIRES: JUNE 30, 2019

FINAL REVIEW PLANS

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

US26 (POWELL BLVD):
SE 122ND AVE - SE 136TH AVE SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

Designer: Cory Gieseke | Reviewer: Christine Higgins
Drafter: Cory Gieseke | Checker: Kyle Donovan

DRAINAGE AND UTILITIES - PLANS

SHEET NO. C03C

(1) Sta. 1110+39.14, Lt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 49'
5' depth

(2) Sta. 1110+44.72, 43.46' Lt.
Const. area drain
Rim Elev. 254.00
(See drg. no. RD374)

(3) Remove inlet - 5

(4) Sta. 1110+64.93, 34.07' Lt.
Inst. 12" storm sew. pipe - 13'
5' depth
Inst. 12" storm sew. pipe - 26'
5' depth
Minor adjust manhole
Method "B"
Connect to extg. storm sew. manhole - 2
(See drg. no. RD345)

(5) Sta. "124TH" 6+04.22, Rt.
Const. type "CG-2" inlet with sump

(6) Remove pipe - 104'

(7) Sta. "124TH" 5+90.88, 8.11' Lt.
Const. drywell
Inst. 12" storm sew. pipe - 25'
10' Depth
(For details, see sht. HA02)

(8) Sta. 1110+81.29, 33.31' Lt.
Connect to extg. drywell
Minor adjust manhole
Method "B"
Inst. field facility marker (Type S3) - 1
DFI no. D01167

(9) Sta. 1110+34.51, 38.00' Rt.
Const. "G-1" inlet
(See drg. no. RD364)

(10) Sta. 1110+32.33, Rt.
Const. type "CG-2" inlet with sump
Inst. 12" storm sew. pipe - 14', S=-0.71%
5' depth
Inst. 12" storm sew. pipe - 99'
5' depth

(11) Sta. 1111+10.84, 26.83' Rt.
Const. sedimentation manhole
Inst. 12" storm sew. pipe - 79'
10' depth
(For details, see sht. HA01)

(12) Sta. 1111+36.53, 26.96' Rt.
Const. drywell
Inst. 12" storm sew. pipe - 25'
10' depth
Inst. field facility marker (Type S3) - 1
DFI no. D01168
(For details, see sht. HA02)

(13) Sta. 1111+97.29, Rt.
Const. type "CG-3" inlet with sump

(14) Sta. 1112+89.95, 39.49' Lt.
Const. area drain

(15) Sta. 1112+94.30, 33.72' Lt.
Decommission underground injection control system

(16) Sta. 1113+07.43, 39.62' Lt.
Const. area drain
Inst. 12" storm sew. pipe - 17'
5' depth

(17) Sta. 1113+52.45, Rt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 34'
5' depth

(18) Sta. 1114+11.57, 27.32' Lt.
Decommission underground injection control system

(19) Sta. 1114+29.35, Lt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 16'
5' depth

(20) Sta. 1114+39.51, 39.97' Lt.
Const. area drain
Inst. 12" storm sew. pipe - 133'
5' depth

(21) Sta. 1114+78.04, Rt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 125'
5' depth

(22) Sta. "125TH" 25+46.64, Rt.
Const. type "CG-2" inlet with sump
Inst. 12" storm sew. pipe - 33'
5' depth

(23) Sta. "125TH" 25+37.46, 10.18', Lt.
Minor adjust manhole
Method "B"
Inst. 12" storm sew. pipe - 12'
5' depth
Inst. 12" storm sew. pipe - 33'
5' depth
Connect to extg. manhole - 2

(24) Sta. "125TH" 25+44.49, 20.03' Lt.
Const. type "CG-2" inlet with sump

(25) Sta. "125TH" 25+61.62, 9.62' Lt.
Connect to extg. drywell
Minor adjust manhole
Method "B"

(26) Sta. "125TH" 26+06.80, 9.40' Lt.
Const. drywell
Inst. 12" storm sew. pipe - 45'
10' depth
Trench resurfacing - 18 sq. yd.
(For details, see sht. HA02)

(27) Sta. 1116+36.08, Lt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 207'
5' depth

(28) Sta. 1117+43.51, Lt.
Const. type "CG-3" inlet with sump
Inst. 12" storm sew. pipe - 107'
5' depth

(29) Sta. 1113+19.42, 27.59', Rt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 122'
5' depth

(30) Sta. 1117+16.55, Rt.
Const. type "CG-3" inlet with sump

(31) Sta. 1117+17.19, 12.05' Rt.
Const. storm sewer manhole
Inst. 12" storm sew. pipe - 15'
10' depth
(See drg. nos. RD335, RD336, RD344, RD345, RD356)

(32) Maintain and protect PWB Conduit No. 3
Water pipes over 12-inch in diameter are
not shown for confidentiality. Contact
Portland Water Bureau for locations.

(33) Relocate CTL underground communication
line (by others)

(34) Relocate CTL communications riser (by others)

(35) Maintain and protect extg. CTL underground
communication line

(36) Relocate CTL pole (by others)

(37) Adjust BES sanitary manhole to finish grade
Minor Adjust Manhole - 2
Method "B"

(38) Relocate Comcast underground communication
line (by others)

(39) Relocate Comcast communications riser (by others)

(40) Maintain and protect BES sanitary line

(41) Relocate NWN gas line (by others)

(42) Adjust NWN gas valve box to finish grade - 2

(43) Locate buried NWN gas valve box and adjust to
finish grade - 5

(44) Maintain and protect NWN gas line

(45) Pothole buried PWB manhole - 1

(46) Adjust PWB water valve box to finish grade - 10

(47) Relocate PGE pole (by others)

(48) Relocate PGE underground electric line (by others)

(49) Relocate PGE transformer (by others)

(50) Sta. 1110+45.61, 43.46' Lt.
Const. private drywell
Top Elev. 250.63
Bottom Elev. 245.63
Inst. 8" storm sew. pipe - 10', S=-2.00%
5' depth
(For details, see sht. HA05)

REGISTERED PROFESSIONAL ENGINEER
585[illegible]
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
FINAL REVIEW PLANS
EXPIRES: JUNE 30, 2019

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

US26 (POWELL BLVD):
SE 122ND AVE - SE 136TH AVE SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

Designer: Cory Gieseke
Drafter: Cory Gieseke
Reviewer: Christine Higgins
Checker: Kyle Donovan

DRAINAGE AND UTILITIES - NOTES

SHEET NO.
C03D

"P" LINE

+34.51 Area Drain (9)
Rim Elev. 253.13'
F.L. 250.10 Out (N)

+64.93 Extg. Sed MH (4)
Rim Elev. 254.06
F.L. 249.50 In (SW)
F.L. 249.50 In (N)
F.L. 249.24 Out (E) (Extg.)
Sump 244.03

+32.33 Inlet (10)
F.L. 250.00 In (W)
F.L. 250.00 In (S)
F.L. 249.80 Out (E)
Sump 248.80

+81.29 Extg. Drywell (8)
Rim Elev. 254.09
F.L. 246.89 In (W) (Extg.)
F.L. 246.70 Out (N)
Bottom Elev. 234.35

+10.84 Sed MH (11)
Rim Elev. 254.18
F.L. 249.30 In (W)
F.L. 249.10 Out (E)
Bottom Elev. 246.40

+07.43 Area Drain (16)
Rim Elev. 252.27
F.L. 249.00 In (W)
F.L. 249.00 Out (E)

+89.95 Area Drain (14)
Rim Elev. 252.51
F.L. 249.20 Out (E)

+19.42 Inlet (29)
Rim Elev. 251.98
F.L. 249.02 In (W)
F.L. 249.02 Out (E)

+29.35 Inlet (19)
F.L. 248.20 In (NE)
F.L. 248.00 Out (E)
Sump 247.00

+52.45 Inlet (17)
F.L. 248.80 In (W)
F.L. 248.60 Out (E)
Sump 247.60

+39.51 Area Drain (20)
Rim Elev. 251.29
F.L. 248.30 In (W)
F.L. 248.30 Out (SW)

+78.04 Inlet (21)
F.L. 247.80 In (W)
F.L. 247.60 Out (SE)
Sump 246.60

+36.08 Inlet (27)
F.L. 246.70 In (W)
F.L. 246.55 Out (E)
Sump 245.55

+43.51 Inlet (28)
F.L. 245.90 In (W)
F.L. 245.70 Out (N)
Sump 244.70

+16.55 Inlet (30)
F.L. 247.00 Out (N)
Sump 246.00

+39.14 Inlet (1)
F.L. 250.00 In (W)
F.L. 249.90 Out (NE)
Sump 248.90

+97.29 Inlet (13)
F.L. 249.80 Out (E)
Sump 248.80

+36.53 Drywell (12)
Rim Elev. 253.86
F.L. 248.60 In (W)
Bottom Elev. 223.86

+17.19 Storm Sewer MH (31)
Rim Elev. 250.83
F.L. 246.80 In (S)
F.L. 246.60 Out (E)

254.34

+80.00

150' V.C.
100' V.C.
200' V.C.

-0.30%
-0.63%
12" - 79'
-1.54%
12" - 26'
-0.61%
12" - 49'
-1.01%
12" - 99'
-2.00%
12" - 25'
-0.64%
12" - 122'
-1.18%
12" - 17'
-0.65%
12" - 34'
-0.53%
12" - 133'
-0.64%
12" - 125'
+0.63%
12" - 16'
-0.59%
-0.63%
12" - 207'
-1.33%
12" - 15'
-0.61%
12" - 107'

"P1" 1110+70.21
"124th_CL" 6+49.93

Extg. grnd. @ ℄

Profile grade @ ℄
"P" 1115+28.25
"125th" 25+00.00

Approx. top of extg. waterline

Extg. 12"

Exc. See sht. C02E
Emb. See sht. C02E

260
255
250
245
240
235
230
225
220

1110 1111 1112 1113 1114 1115 1116 1117

Note:
Maintain and protect Portland Water Bureau conduit No. 3
Location shown is approximate. Actual depth may vary.
Field verify actual depth prior to excavation.
PWB inspectors will need to be on-site prior
to any potholing of waterlines.

REGISTERED PROFESSIONAL ENGINEER
91263PE
OREGON
MAY 10, 2016
MICHAEL HUNT BERTRAM
EXPIRES 12/31/2019

FINAL REVIEW PLANS

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

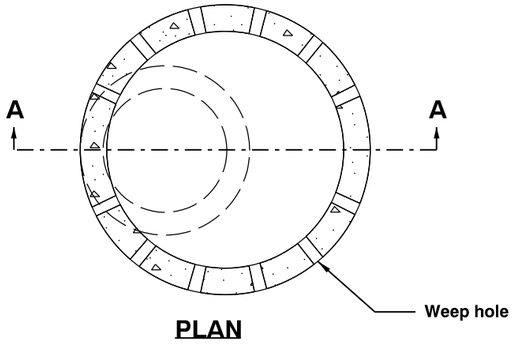
OREGON DEPARTMENT OF TRANSPORTATION

US26 (POWELL BLVD):
SE 122ND AVE - SE 136TH AVE SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

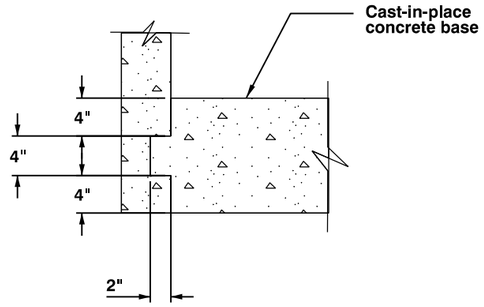
Designer: Mark Taylor
Drafter: Mark Taylor
Reviewer: John Wolf
Checker: Dustin Cooley

PROFILE

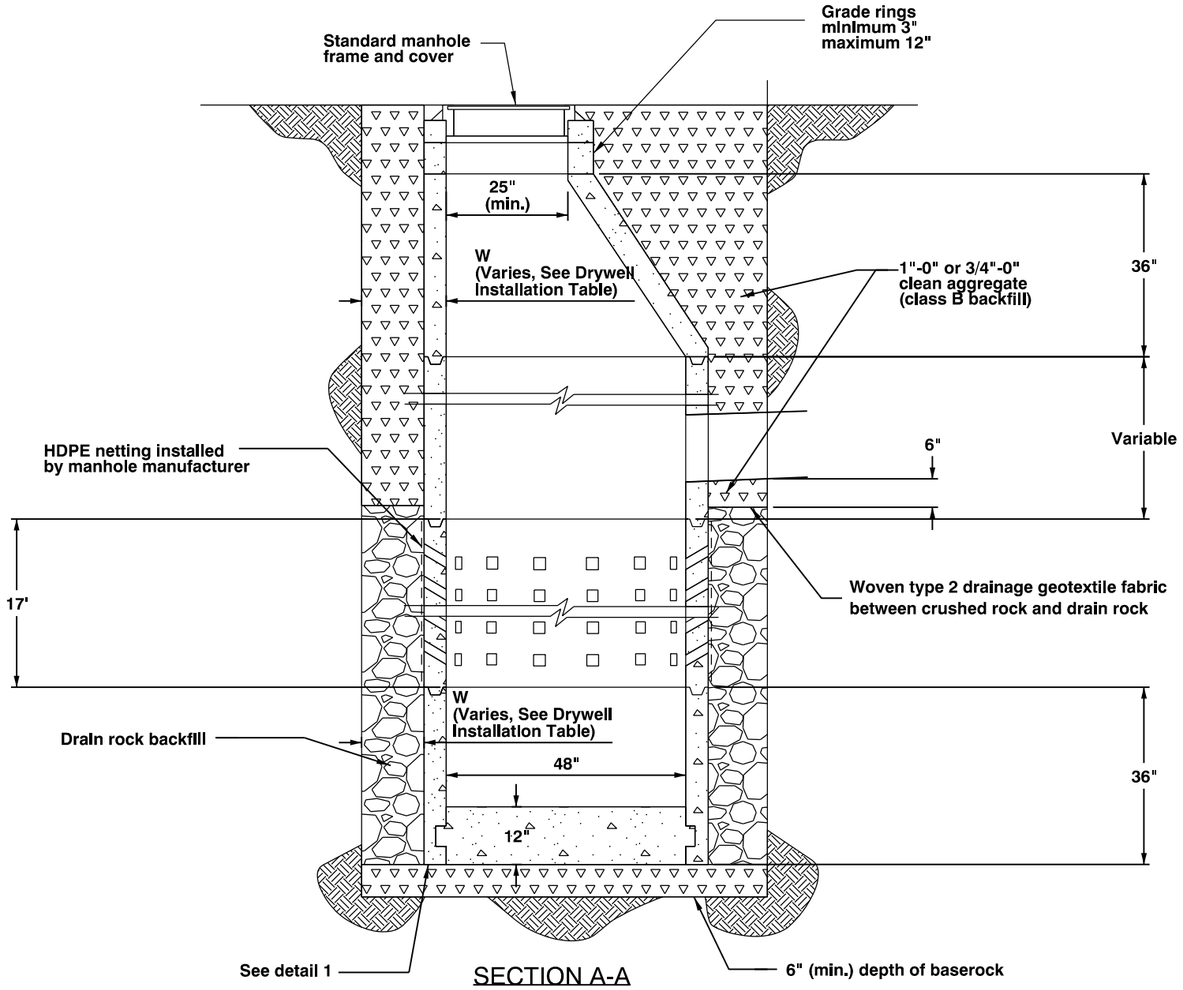
SHEET NO. C03E



PLAN



DETAIL 1



SECTION A-A

DRYWELL

DRYWELL INSTALLATION TABLE						
DRAWING REFERENCE	STATIONING	OFFSET	DFI no.	W (FT)	DEPTH (FT)	MIN. INFILTRATION CAPACITY REQUIRED
C02C	Sta. 1105+22.92	51.89' Lt.	D01165	3.00	30.00	90 GPM
C02C	Sta. "122ND" 8+50.45	34.99' Rt.	N/A	4.00	30.00	110 GPM
C02C	Sta. "123RD" 15+66.59	5.51' Lt.	N/A	3.00	30.00	90 GPM
C03C	Sta. "124TH" 5+90.88	8.11' Lt.	N/A	3.00	30.00	90 GPM
C03C	Sta. 1111+36.53	26.96' Rt.	D01168	3.00	30.00	90 GPM
C03C	Sta. "125TH' 26+06.80	9.40' Lt.	N/A	3.00	30.00	90 GPM
C04C	Sta. "127TH" 7+49.75	6.69' Rt.	N/A	4.50	30.00	120 GPM
C04C	Sta. "127TH" 7+24.75	6.65' Rt.	N/A	4.50	30.00	120 GPM
C04C	Sta. 1118+85.31	13.18' Rt.	D01170	3.00	30.00	90 GPM
C04C	Sta. "128TH" 5+69.93	3.92' Rt.	N/A	3.00	30.00	90 GPM
C04C	Sta. "129TH" 10+70.21	4.91' Lt.	N/A	4.00	30.00	110 GPM
C05C	Sta. "130TH" 30+72.83	6.64' Rt.	N/A	4.00	30.00	110 GPM
C05C	Sta. "131ST" 5+43.36	6.32' Lt.	N/A	4.50	30.00	120 GPM
C06C	Sta. "132ND" 10+71.74	6.31' Lt.	N/A	3.00	30.00	90 GPM
C06C	Sta. "132ND" 10+96.94	6.30' Lt.	N/A	3.00	30.00	90 GPM
C06C	Sta. 1133+69.50	39.33' Lt.	D01174	3.00	30.00	90 GPM
C06C	Sta. 1133+94.50	39.65' Lt.	D01175	3.00	30.00	90 GPM
C06C	Sta. 1135+50.50	12.08' Rt.	D01176	3.00	30.00	90 GPM
C06C	Sta. 1136+86.40	34.93' Rt.	D01177	3.00	30.00	90 GPM
C06C	Sta. 1137+97.55	41.77' Lt.	D01178	4.50	30.00	120 GPM
C07C	Sta. 1140+78.84	42.65' Lt.	D01180	3.00	30.00	90 GPM
C07C	Sta. 1141+03.92	42.67' Lt.	D01181	3.00	30.00	90 GPM
C07C	Sta. 1144+04.38	42.38' Rt.	D01183	3.00	30.00	90 GPM

NOTES:

1. All precast products shall conform to requirements of ASTM C478.
2. See Std. Drg. RD336 for manhole steps details.
3. Provide a flexible joint for all connected pipes:
   - Rigid pipe ∆ 36 inches - 18 inches (max.) from outside wall.
   - Flexible pipe - 18 inches (max.) from the outside wall unless a flexible joint fitting is installed and accepted.
4. Provide 12 inches (min.) of separation between a section joint and the outer edge of any opening.

REGISTERED PROFESSIONAL ENGINEER
585[illegible]E
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
EXPIRES: JUNE 30, 2019

FINAL REVIEW PLANS

HDR ENGINEERING, INC
1001 SW 5TH AVENUE, SUITE 1800
PORTLAND, OR 97204-1134
503.423.3700

OREGON DEPARTMENT OF TRANSPORTATION

US26 (POWELL BLVD):
SE 122ND AVE - SE 136TH AVE SEC.
MT. HOOD HIGHWAY
MULTNOMAH COUNTY

Designer: Cory Gieseke | Review: Christine Higgins
Drafter: Ryan Sheean | Checker: Kyle Donovan

DRAINAGE DETAILS

SHEET NO. HA02