OPERATION & MAINTENANCE MANUAL

Detention Tank

Manual prepared: July 2019

DFI No. D00726

Figure 1: DFI No. D00726, Access to the detention tank flow control manhole at the outlet

1. Identification

Drainage Facility ID (DFI):	D00726
Facility Type:	Detention Tank
Construction Drawings:	(V-File Numbers) 46V-51
Location:	District: 3
	Highway No.: 140
	Mile Post: 36.29 to 36.34, Right

2. Manual Purpose

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

3. 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: Roadway shoulder

Flow direction: East to West

Figure 2: Hillsboro – Silverton Hwy.

4. Facility Summary1

The length, width, and depth of the detention tank is based on the dimensions referenced in Figure 3. The depth is the vertical distance measured from the bottom of the detention facility to the rim of the access opening.

The dimensions of the detention facility are:

Facility Type	Length (feet)	Depth (feet)	Number of tanks/pipes	Tank/Pipe Diameter (inches)
Detention Tank	**250**	**20**	**1**	**48**

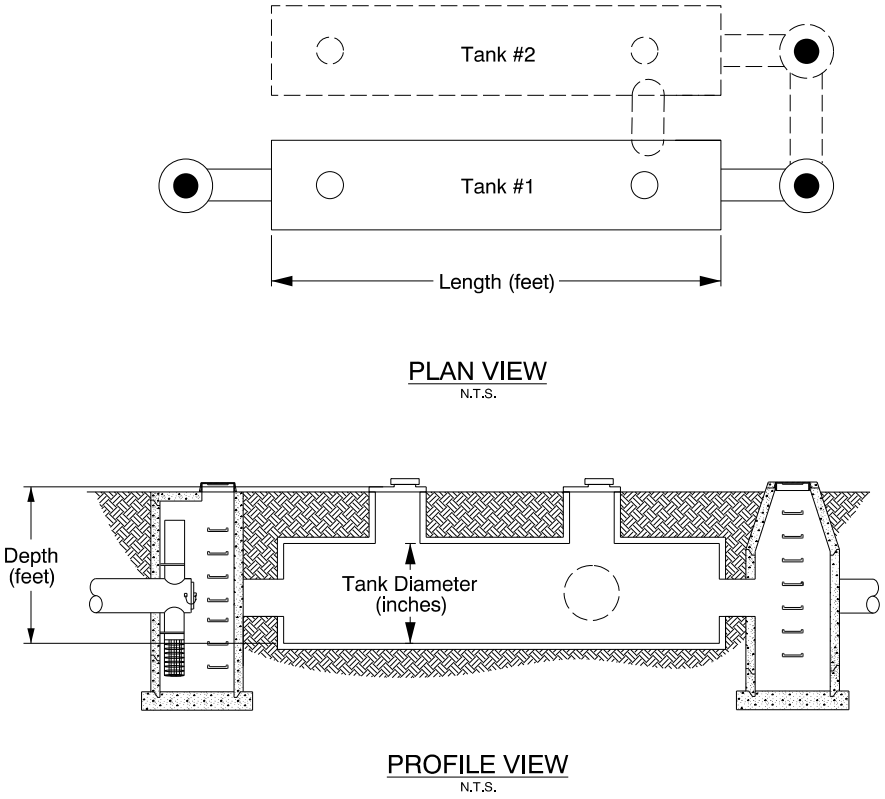


Figure 3: Reference dimensions for a detention tank

Site Specific Information: Stormwater entering the detention tank is being pre-treated by DFI D00692 a Filterra planter boxe along the Hillsboro-Silverton Hwy.

5. Facility Access

Maintenance access to the facility:

☐Roadside pad	☒Roadside shoulder
☐Access road with Gate	☐Access road without Gate
☐Confined Space Entry	☐Lane Closure needed

Figure 4: Roadside shoulder on Hillsboro-Silverton Hwy.

6. Operational Components / Maintenance Items

Classification and Standard Operational (Op) Plan:

This facility is classified as a:

☒ **Operational Plan A** Detention Tank	☐ **Operational Plan B** Detention Vault	☐ **Operational Plan C** Manifold Detention System

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.

Key Features/Items:

☐ This facility has a bypass component (T2). T2 is a(n):

☐ **Weir type flow splitter**	☐ **Orifice type flow splitter**	☐ **Other:** **Describe type**

☒ This facility has a Pre-treatment Manhole (T1). T1 is a(n):

☐ **ODOT Pollution control manhole**
☐ **CDS (Continuous Deflective Separator)**
☐ **Downstream Defender**
☒ **Filterra(s)**
☐ **Bayfilter**

Include manufacturer's Operaion and Maintenance manual as part of this document. Attach as Appendix C.

Operational Components

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 detention tanks/vaults, implemented October 2018, 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/

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: Detention Tank/Vault Components		ID #
Manholes		
Pre-Treatment Manhole/Inlets	☒	**T 1**
Flow Splitter Manhole	☐	**T 2**
Flow Control Manhole	☒	**T 3**
Standard Manhole	☒	**T 4**
Sump	☒	**T 5**
Facility Inlet		
Inlet Pipe: 2-12” & 18”	☒	**T 6**
Facility Structures		
Main Tank/Vault	☒	**T 7**
Additional Back-Up Tank	☐	**T 8**
Manifold Pipe	☐	**T 9**
Connecting Pipe	☒	**T 10**
Access Opening	☒	**T 11**
Facility Outlet		
Outlet Flow Control	☒	**T 12**
Drainage Mechanism	☒	**T 13**
Outlet Pipe: 18”	☒	**T 14**
Outfall Type		
Outfall (Waterbody, **C**reek/**L**ake/**O**cean)	☐**C** ☐**L** ☐**O**	**T 15**
Ditch	☐	**T 16**
Storm Drain System	☒	**T 17**
Outfall Components		
Riprap Bank Protection	☐	**T 18**

7. Maintenance

Maintenance Frequency/Maintain Records

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

Maintenance Guide/Maintenance Actions

The Maintenance Guide 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 detention tanks or vaults:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality and detention facilities
- Table 6 (Detention Vaults): Contains maintenance information for detention vaults
- Table 7 (Detention Tanks): Contains maintenance information for detention tanks and large diameter pipe

For this facility,

☒ **Jet Rodding is allowed**	☐ **Jet rodding in NOT allowed**

The ODOT Maintenance Guide can be viewed at the following website:
http://www.oregon.gov/ODOT/HWY/OOM/pages/mguide.aspx

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

8. Limitations

Care should be taken when vehicles enter the facility to prevent the creation of depressions (tire ruts) and limit damage to vegetation and structural components. Maintenance vehicles should remain upon provided access areas.

9. Waste Material Handling

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

http://www.oregon.gov/ODOT/HWY/OOM/pages/ems.aspx

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

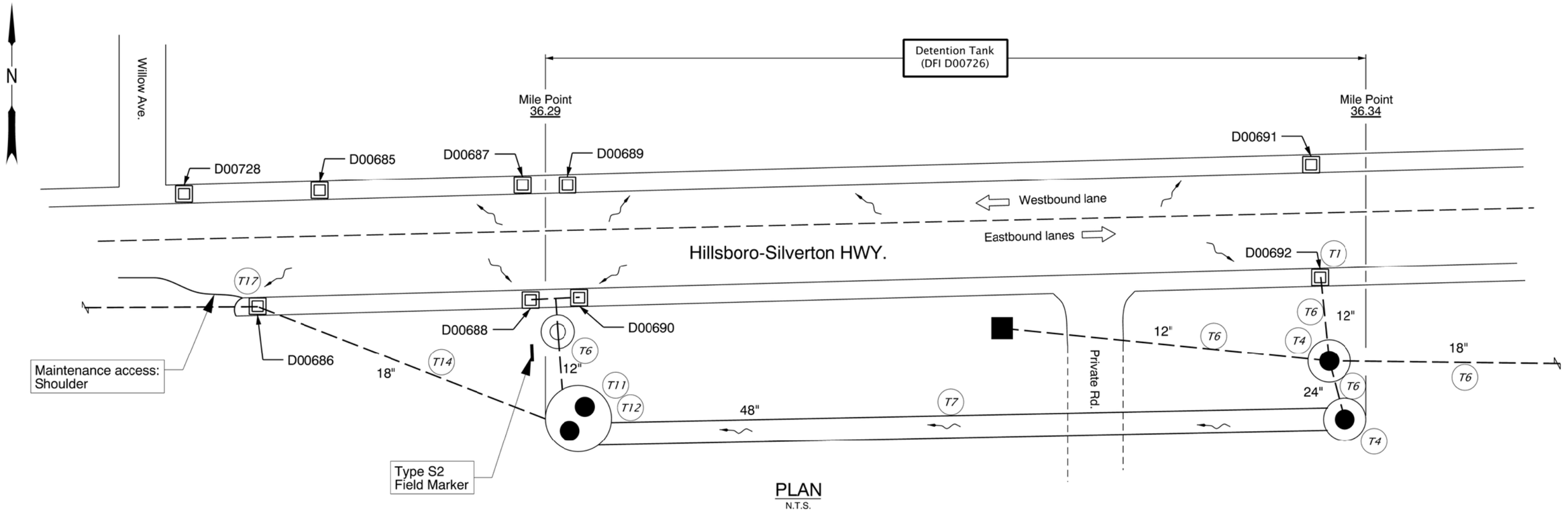
Contents:

Operational Plan: DFI D00726

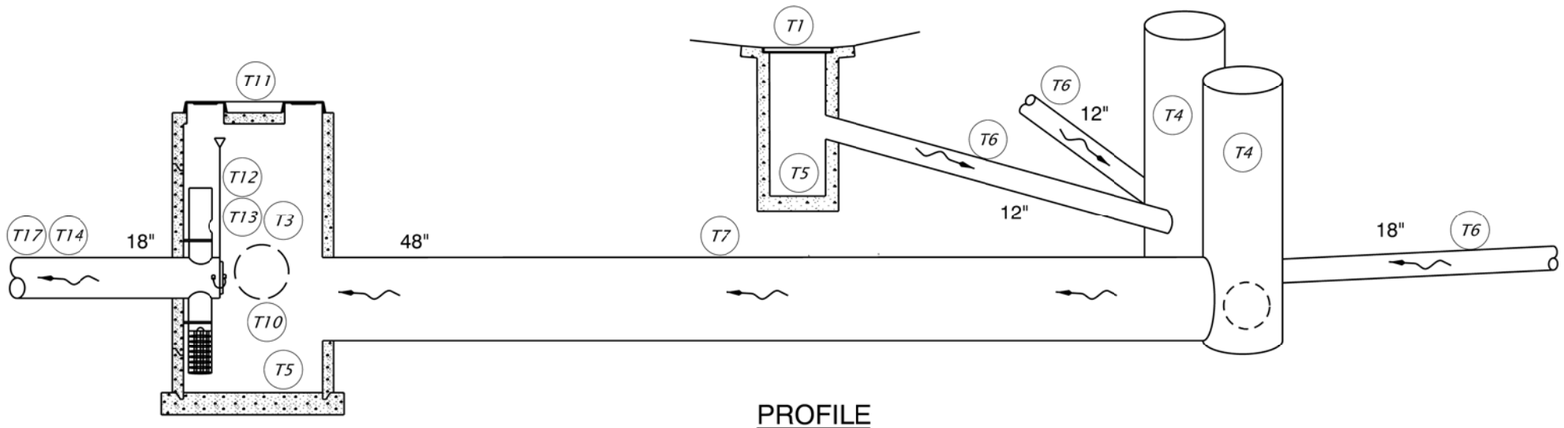
B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 46V-51



PLAN
N.T.S.



PROFILE
N.T.S.

LEGEND

- Stormwater Flow Path
- Manhole
- Filtera
- Traffic Flow Direction
- Storm Pipe Flow Direction

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Ramiro Perez

Drafted By: Serge Chernishoff

DFI D00726
MAINTENANCE DISTRICT 3 HWY 140
DETENTION TANK
HIGHWAY MP 36.29-36.34
Marion County

DFI_D00726.dgn

C Appendix C – Proprietary Manufacturer's O&M Manual

Contents:

Manufacturer's Operation & Maintenance Manual

46V-51

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1	Title Sheet
1A	Index Of Sheets Contd.
1A-2	Index Of Sheets Contd.
1A-3	Standard Drg. Nos.

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

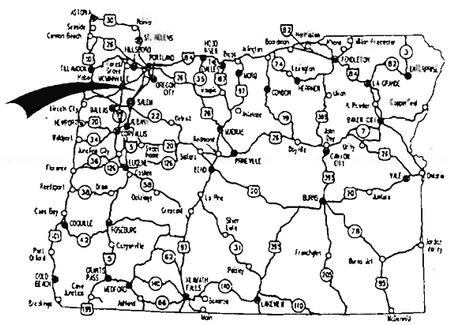
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNAL & ROADSIDE DEVELOPMENT

FFO - I-5 @ OR214 INTERCHANGE (WOODBURN) DEVELOPMENT SEC.

HILLSBORO - SILVERTON HIGHWAY

MARION COUNTY

△6 JUNE 2013



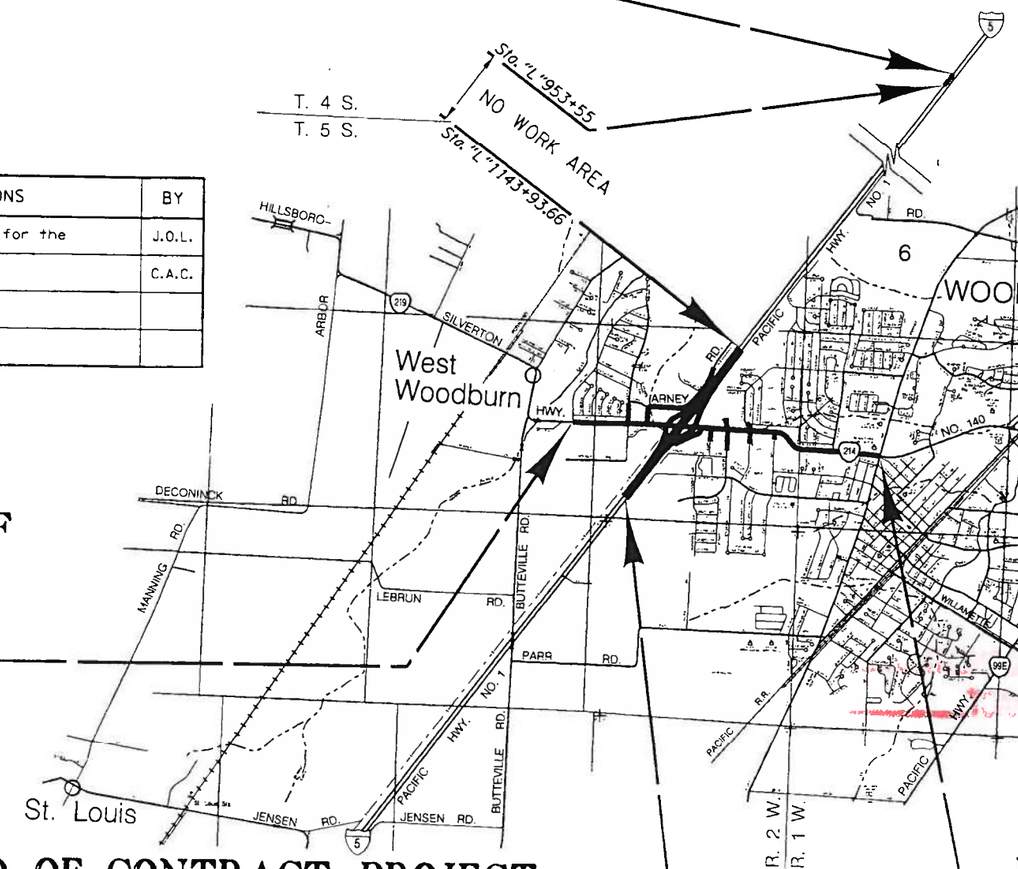
Overall Length Of Project - 2.76 Miles

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.)

REVISED AS CONSTRUCTED
CONTRACT
PROJ. MGR. 10/26/17

No.	DATE	REVISIONS	BY
△1	4-18-13	Edited station & MP for the end of contract	J.O.L.
△6	5-16-13	Changed date	C.A.C.

BEGINNING OF CONTRACT PROJECT
STP-S140(045)
STA. "L"952+05 (M.P. 276.01)



T. 5 S., R. 1 & 2 W., W.M.

BEGINNING OF PROJECT
STP-S140(045)
STA. "HSc"477+21
(M.P. 36.24)

END OF CONTRACT PROJECT
STP-S140(045)
△1 **STA. "L"1199+66.06 (M.P. 271.35)**

END OF PROJECT
STP-S140(045)
STA. "HSc"562+67.5 (M.P. 37.87)

OREGON TRANSPORTATION COMMISSION

Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tammy Baney	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.

By: _____ 5-20-13
Signature & date

Michael T. Long - R2 Tech Center Manager
Print name and title

Concurrence by ODOT Chief Engineer

FFO - I-5 @ OR214 INTERCHANGE
(WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S140(045)	1

PE00 0559 010

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1/972 BL - 001

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2C-4 Thru 2C-18 Incl.	Traffic Control Plans
2C-18A Thru 2C-20 Incl.	Shts. Removed
2C-21 Thru 2C-30 Incl.	Traffic Control Plans
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2C-35 Thru 2C-67 Incl.	Traffic Control Plans
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8B	Drainage & Utilities
8B-2 & 8B-3	Drainage Notes
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11	General Construction
12	General Construction
13	General Construction
13A	Drainage & Utilities
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17	General Construction

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GB-2 Thru GB-13 Incl.	Geotechnical Data
GC	Retaining wall no. 1 plan and elevation
GC-2	Retaining wall no. 1 details
GC-3	Retaining wall no. 2 plan and elevation
GC-4 & GC-5	Retaining wall no. 2 details
GC-6 & GC-7	Retaining wall no. 3 plan and elevation
GC-8	Retaining wall no. 3 details
	OTAK INC.
GC-9 & GC-10	Retaining wall 4 plan
GC-11	Retaining wall 4 details
GD	Sound Wall Layout & Index
GD-2 Thru GD-7 Incl.	Sound Wall Plan & Elevation
GD-8	Sound Wall Details
GD-9 Thru GD-17 Incl.	Sound Wall Plan & Elevation
GD-18 Thru GD-20 Incl.	Sound Wall Details
	OTAK INC.
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GD-22	Soundwall details
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	OTAK INC.
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91383	Temporary Concrete Barrier Details
91384	End Panel Replacement Staging
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91387	Deck Plan - Spans 1 & 2
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91390	Deck Reinforcement Over Interior Bents
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91405	Sidewalk South Side Detail
	OTAK INC.
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91407	Bridge Rail Panel Details
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91409	Bridge Rail Typical Arch Elevation
91410	Bridge Rail Arches Details
91411	Bridge Rail Misc. Details
91412	Bridge Rail South Side Plan & Elevation
91413	Bridge Rail South Side Plan & Elevation
91414	Bridge Rail South Side Plan & Elevation
91415	Bridge Rail North Side Plan & Elevation
91416	Bridge Rail North Side Plan & Elevation
91417	Bridge Rail North Side Plan & Elevation

NOT REVISED AS CONSTRUCTED
CONTRACT 14581

No.	DATE	REVISIONS	BY
1	4-18-13	Removed shts. 2A-26 & 16C Added sht. 2B-25	J.O.L.
2	4-23-13	Sheet added	C.A.C.
3	5-3-13	Removed shts.	D.R.M.
7	5-21-13	Removed 2 shts. & renumbered the GA series	D.R.M.

FFO - I-5 @ OR214 INTERCHANGE
(WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION		1A

11209 BL - 002

2/972

Sec. 11, T. 5 S., R. 2 W., W.M.

46V-51

N

THOMAS ROY
DLC NO. 82

"WL" LINE

WILLOW AVE.

SYCAMORE AVE.

PALM AVE.

MYRTLE ST.

"SW1" 480 "HSc"

"HSc" 475

6"-260'

12"-13'

HILLSBORO - SILVERTON HWY.

"HSc" LINE
(For Profile, See Shts. 3B & 3C)

"SW1" LINE
(For Profile, See Shts. GD-2, GD-3 & GD-4)

REVISED AS CONSTRUCTED
CONTRACT

Plug and abandon extg. pipe shown thus:

D00726

BEGINNING OF PROJECT
STP-S140(045)
STA. "HSc" 477+21 (M.P. 36.24)

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

FFO-I-5 @ OR214 INTERCHANGE
(WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Charlotte Gerken

DRAINAGE & UTILITIES

SHEET NO. 3A

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT

RENEWS: 12-31-2013

\\wpdotclrl004\R_VMP6_USERSENG\hwye07w\ODOT_DATA\projects\12518Woodburn\12518f.drl :: Default 2/28/2013 8:10:28 AM hwye07w

1:1200_BL - 001

(1) Sta. "HSc" 477+55 to Sta. "HSc" 478+63.8 Lt.
Const. type "CG-2" Mod. inlet
Adjust inlet
Inst. 12" storm sew. pipe - 109'
5' depth
(For details, see sht. 2B-15)
(See drg. nos. RD300, RD326, RD366, RD376, RD380, RD384, RD386, RD388, RD390, RD391 & RD393)

(2) Sta. "HSc" 478+63.8 to Sta. "HSc" 480+00, Lt.
Const. type "CG-2" Mod. inlet
Adjust inlet
Inst. 12" storm sew. pipe - 136'
5' depth
(For details, see sht. 2B-15)

(3) Sta. "HSc" 480+00 to Sta. "HSc" 482+50.3, Lt.
Const. type "CG-2" Mod. inlet
Adjust inlet
Inst. 12" storm sew. pipe - 250'
5' depth
(For details, see sht. 2B-15)

(1) (4) Sta. "HSc" 478+68.8
Remove extg. inlet
Const. type "CG-2" Mod. inlet
Adjust inlet
(For details, see sht. 2B-15)

(5) Const. water quality structure - 9
Connect to inlet
(For details, see shts. GJ-10 & GJ-11)

(6) Sta. "HSc" 482+50, Lt.
Remove extg. pipe - 74'
Const. manhole
Step orientation - 312°
~~Minor~~ adjust manhole
Inst. 18" storm sew. pipe - 87'
10' depth
Connect to extg. manhole
(See drg. nos. RD335, RD336, RD344, RD356 & RD360)

D00726

(7) (7) Sta. "HSc" 478+63.5 to Sta. "HSc" 480+00.3, Rt.
Const. flow control manhole 84" dia.
Connect to extg. manhole
Inst. 18" storm sew. pipe - 138'
20' depth
(For details, see shts. GJ-7 & GJ-8)
(See drg. nos. RD340 & RD346)

(7) (8) Sta. "HSc" 480+00.3 to Sta. "HSc" 482+50, Rt.
Const. manhole, 84" dia.
Step orientation - 180°
Inst. 48" storm sew. pipe - 250'
20' depth
(For details, see sht. GJ-7)

(9) Sta. "HSc" 480+00, Rt.
minor ~~Major~~ adjust manhole
Inst. 12" storm sew. pipe - ~~13'~~ 12'
5' depth
(For details, see sht. GJ-7)

(10) Sta. "HSc" 481+38.5, Rt.
Adjust inlet
(See drg. no. RD376)
INST. 6" STORM SEW. PIPE -10'

(11) Sta. "HSc" 482+50, Rt.
Major adjust manhole
Inst. 24" storm sew. pipe - ~~8~~ 7'
5' depth

(12) Sta. "HSc" 477+40 to Sta. "HSc" 479+99.8, Lt.
Const. 24" area drainage basin, without apron
Inst. 6" subsurface drain pipe - ~~260'~~ 263'
5' depth
Inst. 12" storm sew. pipe - 13'
5' depth
Drainage geotextile type "1" - 240 sq. yd.
(See drg. nos. RD312 & RD374)

(13) Sta. "HSc" 480+03 to Sta. "HSc" 484+00, Lt.
Inst. 6" subsurface drain pipe - ~~400'~~ 397'
5' depth
Drainage geotextile type "1" - 370 sq. yd.

(14) Sta. "HSc" 482+45 to Sta. "HSc" 482+50.3, Lt.
Const. type "CG-2" Mod. inlet
Adjust inlet
Inst. 12" storm sew. pipe - 5'
5' depth
(For details, see sht. 2B-15)

(1) (15) Sta. "HSc" 482+50, Rt.
Remove extg. inlet
Const. type "CG-2" Mod. inlet
Adjust inlet
Inst. 12" storm sew. pipe - 15'
5' depth
(For details, see sht. 2B-15)

(16) Sta. "HSc" 482+50.3 to Sta. "HSc" 484+05.7, Lt.
Inst. 12" storm sew. pipe - 155'
10' depth

(1) (17) Sta. "HSc" 480+05.6
Remove extg. inlet
Const. type "CG-2" Mod. inlet
Adjust inlet
(For details, see sht. 2B-15)

(18) Sta. "HSc" 478+63.5, Rt.
Major adjust manhole

REVISED AS CONSTRUCTED
CONTRACT

No.	DATE	REVISIONS	BY
1	4-18-13	Edited text	J.O.L.
7	5-21-13	Edited text	C.A.C.

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

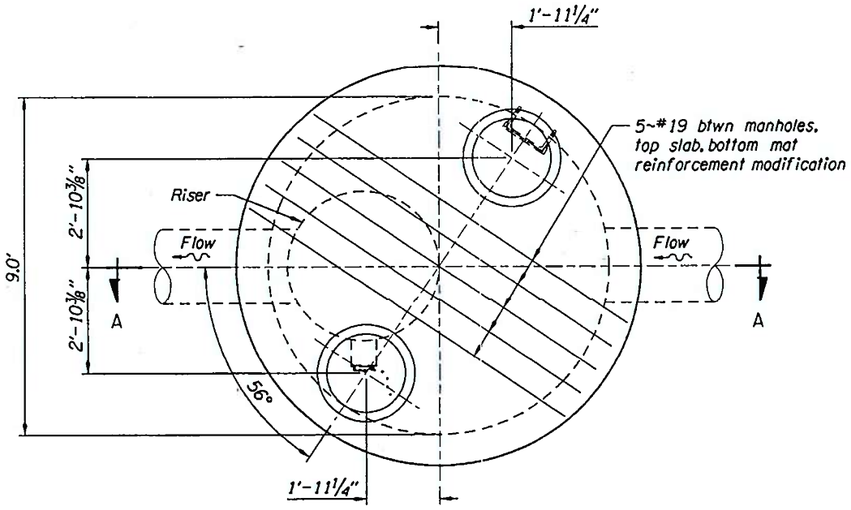
REGION 2 TECH CENTER

FFO - I-5 @ OR214 INTERCHANGE
(WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

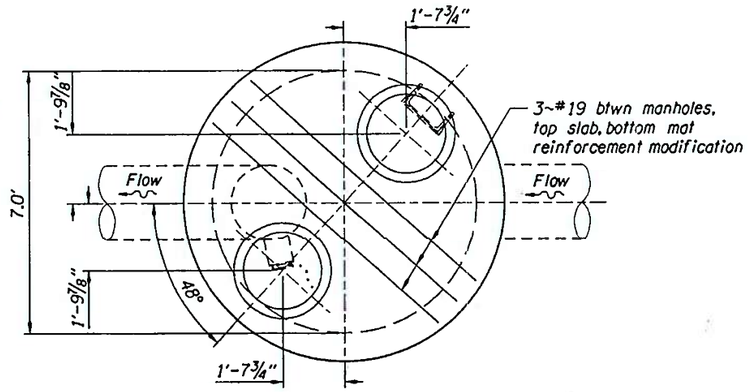
Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Charlotte Gerken

DRAINAGE NOTES

SHEET NO. 3A-2



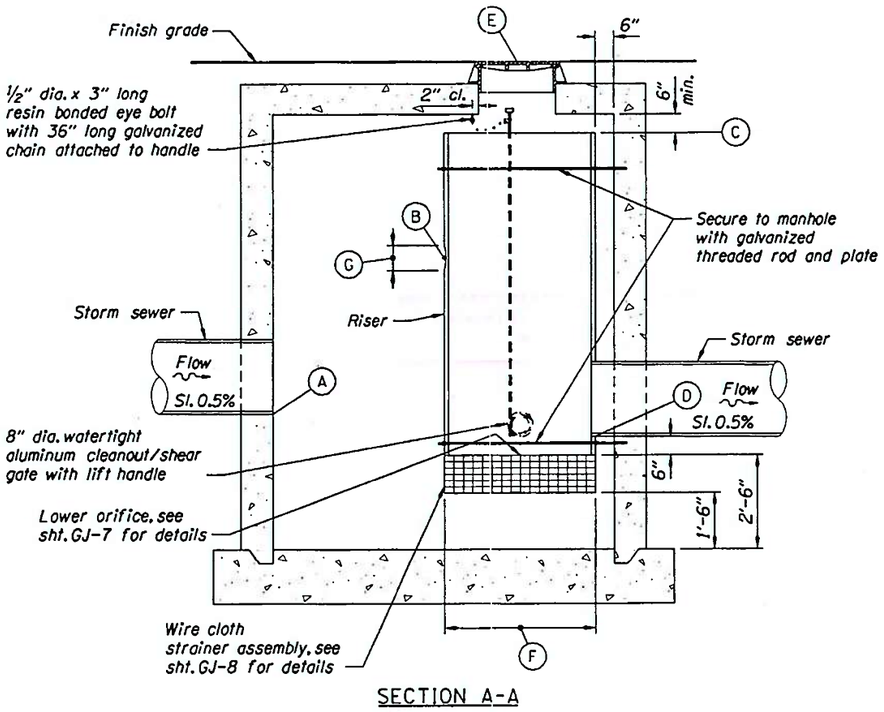
PLAN
STA. "D2"67+46.00



PLAN
STA. "HSc"479+85.98
Storage pond No.00726

MANHOLE INLET AND OUTLET TABLE

STATION	OFFSET (Ft.)	INVERT EL. (A) (Ft.)	UPPER ORIFICE CTR. EL. (B) (Ft.)	RISER RIM EL. (C) (Ft.)	INVERT EL. (D) (Ft.)	TOP OF MANHOLE COVER EL. (E) (Ft.)	RISER DIA. (F) (In.)	UPPER ORIFICE DIA. (G) (In.)
"D2"67+46.00	33.22 lt.	175.15	177.32	179.65	175.15	190.80	48	16.0
"HSc"479+85.98	58.63 rt.	173.56	180.61	182.08	173.49	185.70	24	4.5



SECTION A-A

NOTES:
For manhole details not shown, see dwgs. RD336, RD344, RD346 & RD356.

Riser and outlet pipe identical materials.

NOT REVISED AS CONSTRUCTED
CONTRACT

REGISTERED PROFESSIONAL ENGINEER
17807
OREGON
JULY 25, 1995
CHRIS CARMAN
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

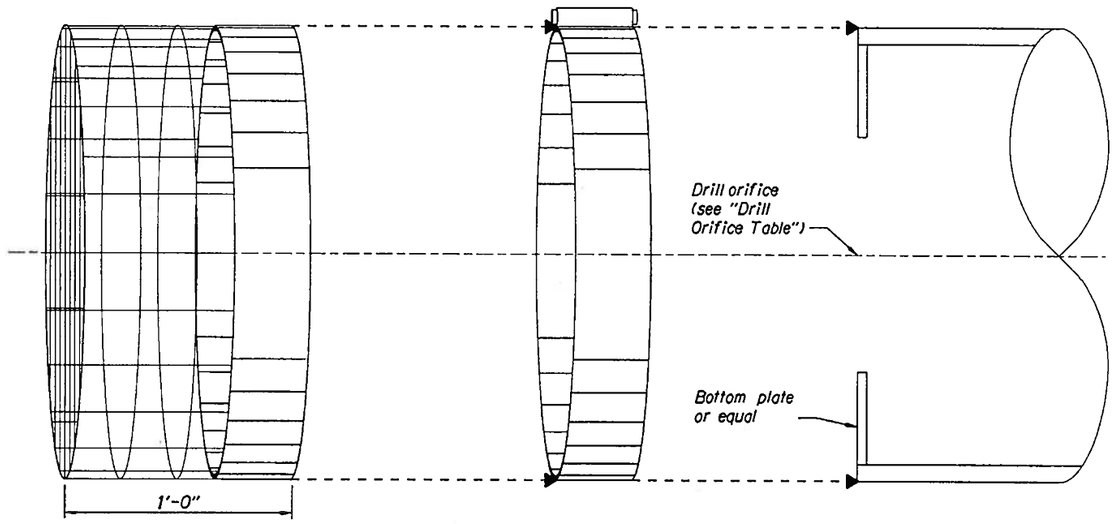
REGION 2 TECH CENTER

FFO-I-5 @ OR214 INTERCHANGE (WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

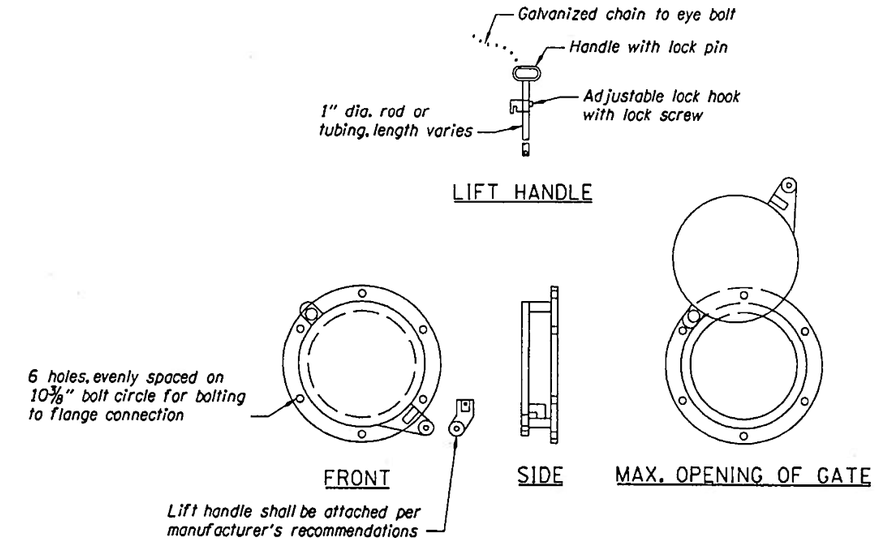
Reviewed By - Bruce Carmichael
Designed By - Chris Carman
Drafted By - Sandra Gish

STORMWATER STORAGE POND DETAILS

SHEET NO. GJ-7



FLOW CONTROL MANHOLE
WIRE STRAINER ASSEMBLY



CLEANOUT/SHEAR GATE DETAILS

FLOW CONTROL MANHOLE
WIRE STRAINER ASSEMBLY

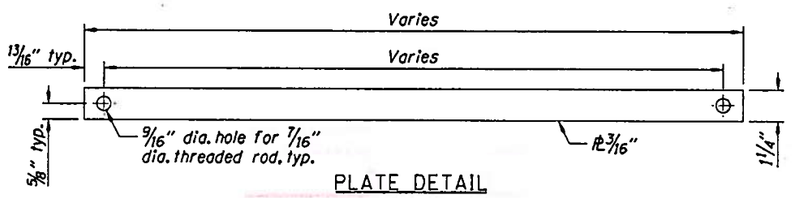
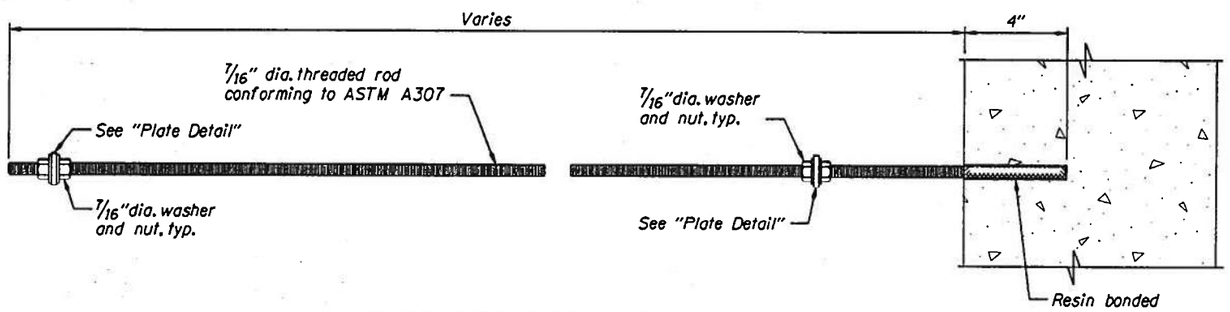


PLATE DETAIL



THREADED ROD AND PLATE DETAILS

DRILL ORIFICE TABLE

STATION	OFFSET (Ft.)	DIAMETER (In.)
"D2"67+46.00	33.22 lt.	10 1/2
"HSc"479+85.98	58.63 rt.	3 1/2

CLEANOUT/SHEAR GATE NOTES:
Cleanout/shear gate shall be aluminum alloy per ASTM B-26-2C-32.

Lift handle either solid or tubing with adjustable hook as required.

Neoprene rubber gasket required between riser mounting flange and gate flange.

Mating surfaces of lid and body to be machined for proper fit.

Flange mounting bolts shall be 3/8" diameter stainless steel.

Gate shall not open beyond the clear opening by limited hinge movement, stop pad, or some other device.

REGISTERED PROFESSIONAL ENGINEER
1780
OREGON
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RENEWS: 12-31-2013

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STORMWATER STORAGE POND DETAILS

SHEET NO. GJ-8