OPERATION & MAINTENANCE MANUAL

Manual prepared: August 2017

DFI No. D00643

Figure 1: Detention Pond / Water Quality Biofiltration Swale Combo (D00643)

1. Identification

Drainage Facility ID (DFI):	D00643
Facility Type:	Detention Pond / Water Quality Biofiltration Swale Combo
Construction Drawings:	(V-File Numbers): 46V-51
Location:	District: 3 Highway No.: 140 Mile Post: 36.87 to 36.89, 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.

Flow direction: West

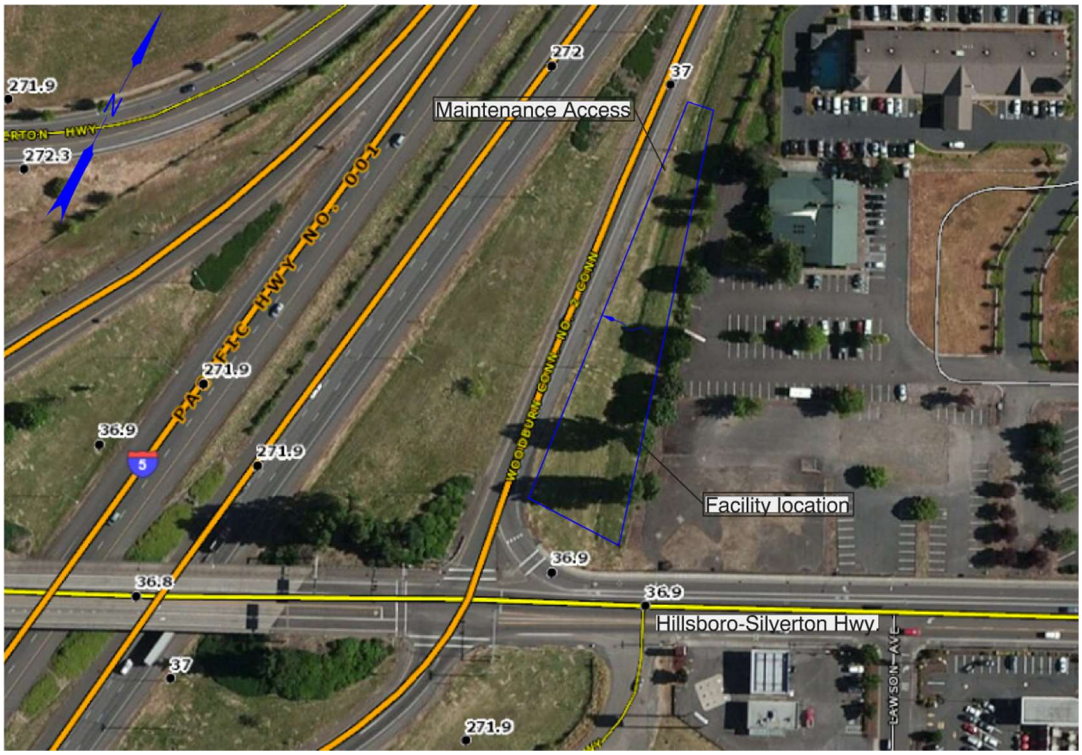


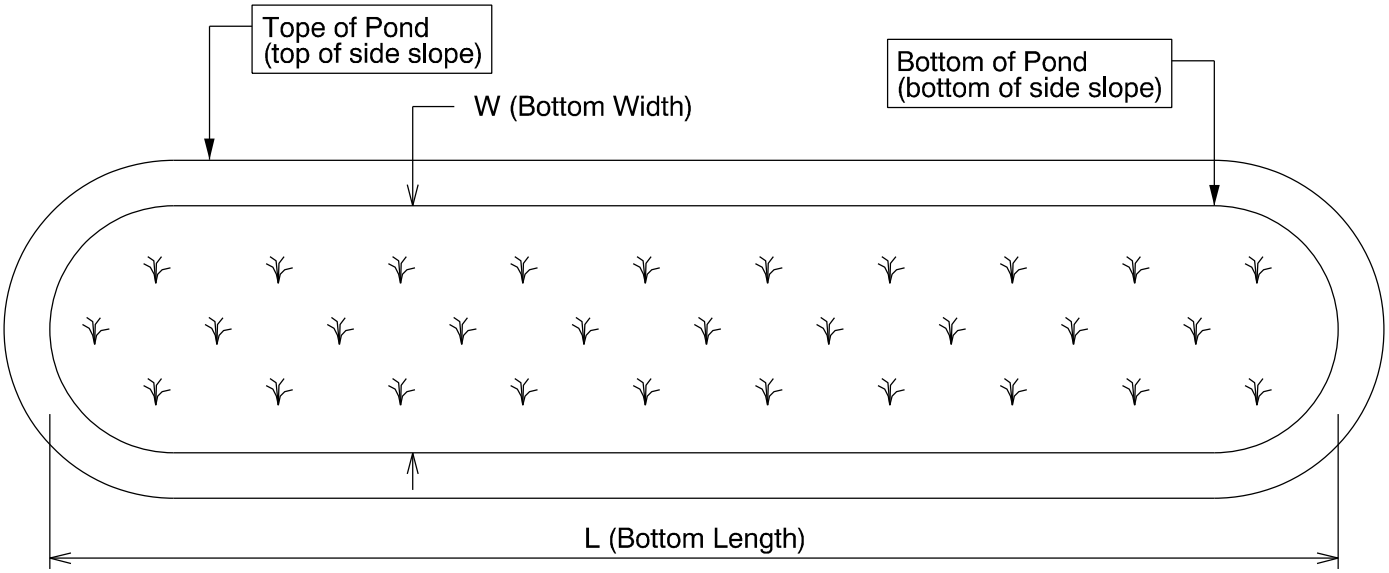
Figure 2: Hillsboro-Silverton Hwy.

4. Facility Summary

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

The bottom length and bottom width of the pond is:

Bottom Length (feet)	Bottom Width (feet)
155	Varies between 20-40

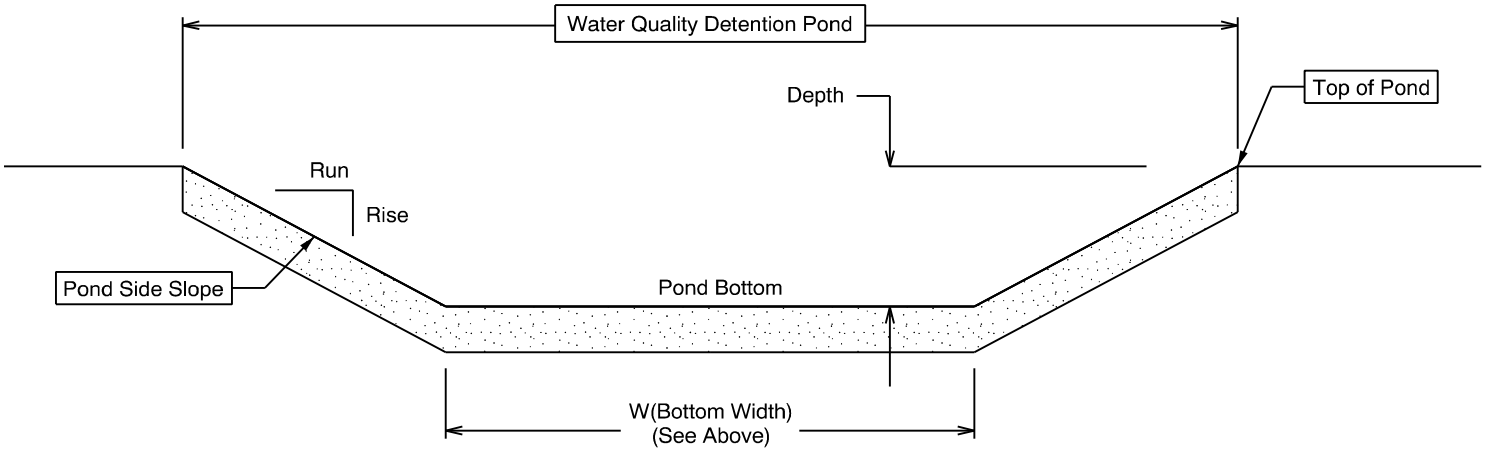


The depth of the pond is the vertical distance measured from the bottom of the pond to the top. The slope of the pond sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

Depth (feet)
14.5

Side Slope	
Rise (feet)	1
Run (feet)	3



Site Specific Information: A flow splitter manhole is utilized in this facility to divert low flows into the swale and high flows into the detention pond. The flow splitter manhole does not use a weir or orifice. Rather, low flows enter the small-diameter pipe located at a lower elevation than the high flow large-diameter pipe (Appendix B, GJ-9). The swale and pond are separated by an earth berm.

5. Facility Access

Maintenance access to the facility:

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

Figure 3: Roadside shoulder on I-5 ramp

6. Operational Components / Maintenance Items

High Flow Bypass Component

This facility includes the following 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 pond. High flows are diverted around the pond using a bypass component**

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 Ponds (implemented August 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 (Detention)** ☐ **Operational Plan B (Bioretention)**	☐ **Operational Plan C (Extended Detention Dry Pond)** ☒ **Operational Plan D (Detention Pond/Biofiltration Swale Combo)**
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A,B,C,D) are provided in the Standard Operation Manual.	

See Appendix A of this O& M Manual for 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: Facility Components		ID #
Upstream Manholes/Structures		
Pre-treatment Manhole	☐	**P1**
Flow Splitter Manhole	☒	**P2**
Standard Manhole	☒	**P3**
Sediment Basin/Forebay	☐	**P4**
Forebay Dewatering Riser Pipe (outlet)	☐	**P5**
Facility Inlet		
Pavement Sheet Flow	☐	**P6**
Inlet Pipe(s)	☒	**P7**
Open Channel Inlet	☒	**P8**
Riprap Pad (Energy Dissipater)	☐	**P9**
Ground Cover		
Grass Bottom	☒	**P10**
Grass Side Slopes	☒	**P11**
Granular Drain Rock	☐	**P12**
Plantings	☐	**P13**
Underground Components		
Geotextile Fabric	☐	**P14**
Impermeable Liner	☐	**P15**
Water Quality Mix	☒	**P16**
Perforated Pipe	☐	**P17**
Bottom Marker (ex. Porous Pavers)	☐	**P18**
Flow Spreader		
Anchored Board (midpoint of pond or every 50 feet along pond bottom)	☐	**P19**
Other: Earth Berm	☒	**P20**
Facility Outlet		
Catch Basin with Grate	☐	**P21**
Outlet Pipe(s)	☒	**P22**
Outlet/Flow Control Structure	☒	**P23**
Auxiliary Outlet	☒	**P24**
Hazmat Control Valve	☐	**P25**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐ **O**	**P26**
Ditch	☐	**P27**
Storm Drain System	☒	**P28**
Outfall Components		
Riprap Pad	☐	**P29**
Riprap Bank Protection	☐	**P30**

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 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 Ponds:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 2 (Maintenance of Stormwater Ponds): Contains maintenance information for ponds

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

8. Limitations

Access grid installed:

☒ No	☐ Yes
There is no indication of porous pavers installed in this pond	

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

If no access grid then: Equipment wheels should be kept on the tops and side slopes. Mower arms may be run along the pond bottom.

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

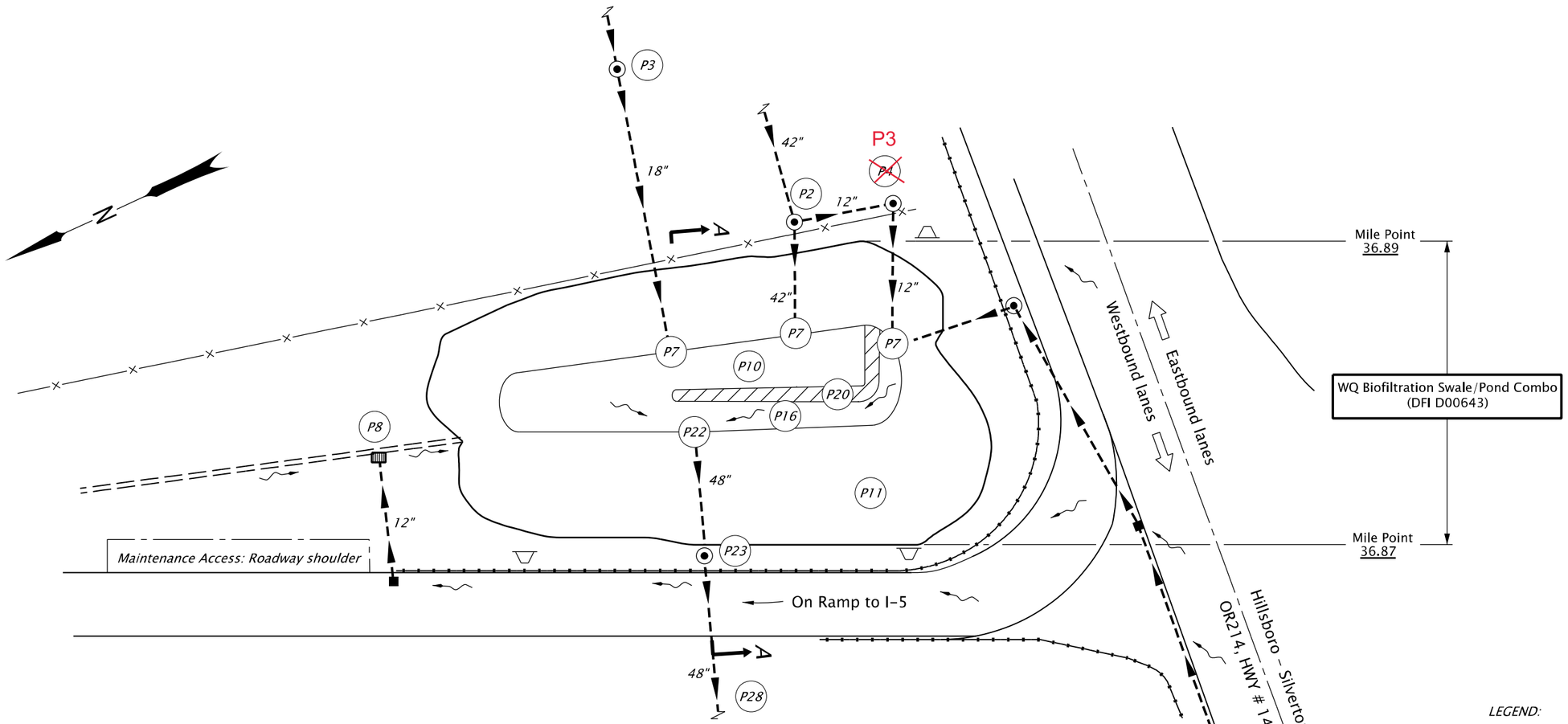
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 986-2647
ODEQ Northwest Region Office	(503) 229-5263

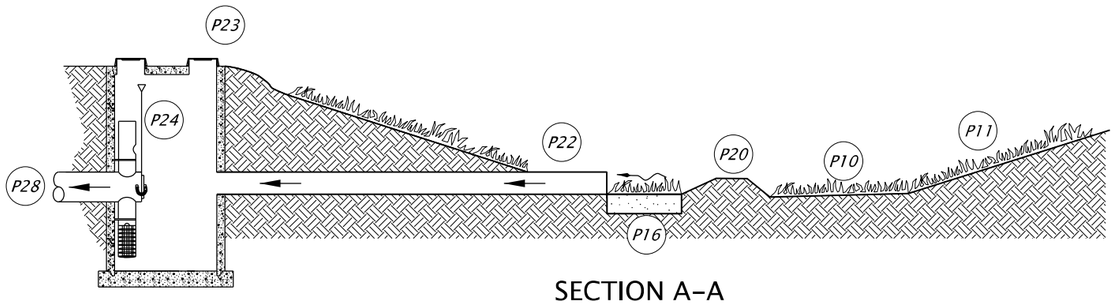
A Appendix A – Site Specific Operational Plan

Contents:

Operational Plan: DFI D00643



PLAN
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

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

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Chabeli Arreola

Drafted By: Ian Kintz-Stormo

DFI D00643
MAINTENANCE DISTRICT 3 HWY 140
WQ BIOFILTRATION SWALE/DETENTION POND
HIGHWAY MP 36.87 - 36.89
MARION COUNTY

DFI_D00643.dgn

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 46V-51

46V-51

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
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

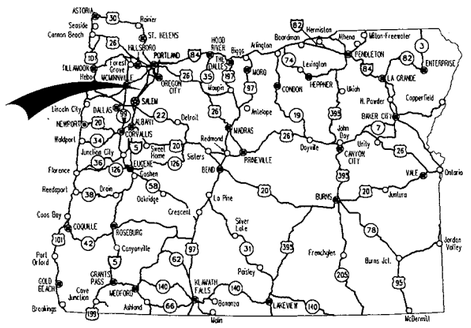
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNAL & ROADSIDE DEVELOPMENT

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

HILLSBORO - SILVERTON HIGHWAY

MARION COUNTY

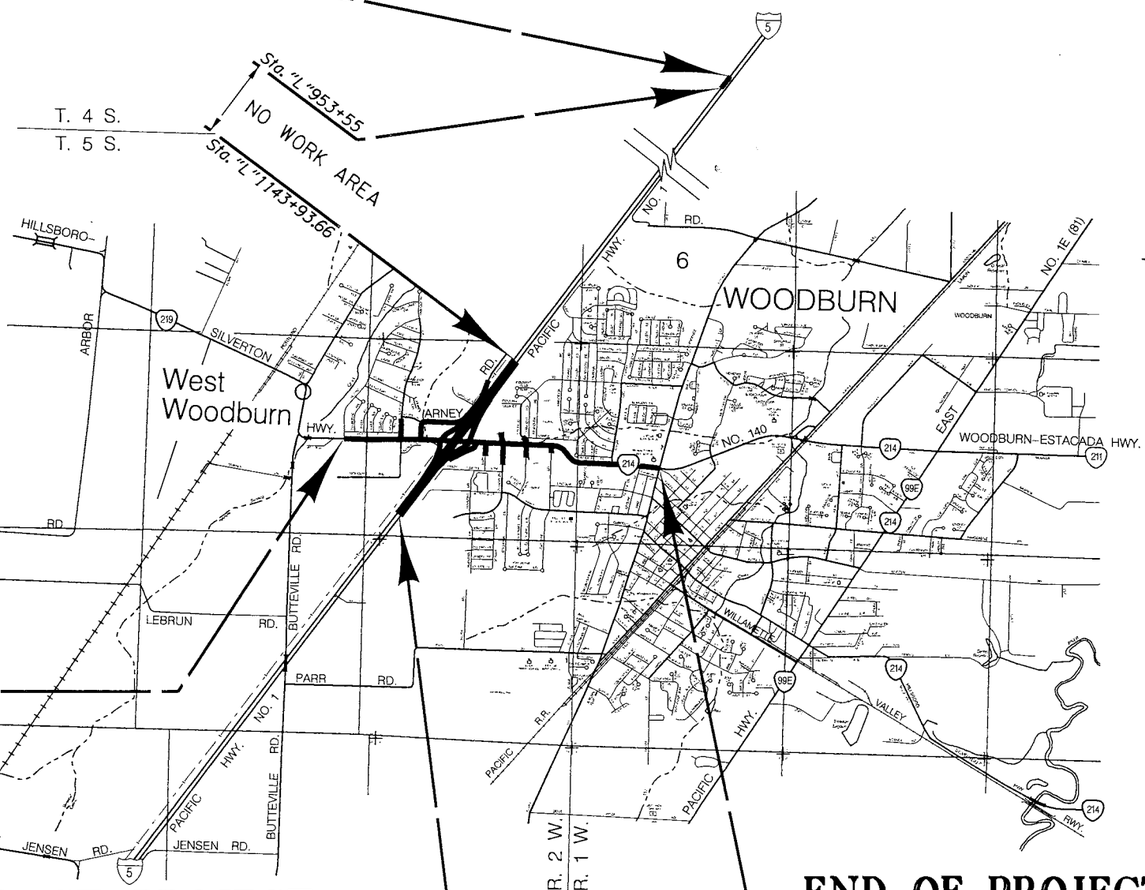
⑥ JUNE 2013



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.)

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



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)

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.

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 040

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46V-51

INDEX OF SHEETS, CONTD.

SHEET NO.	DESCRIPTION
2, 2A Thru 2A-25 Incl.	Typical Sections
2B Thru 2B-25 Incl.	Details
2C Thru 2C-3 Incl.	Traffic Control Details
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
2C-31 Thru 2C-34 Incl.	Shts. Removed
2C-35 Thru 2C-67 Incl.	Traffic Control Plans
2D Thru 2D-9 Incl.	Pipe Data Sheet
3	General Construction
3A	Drainage & Utilities
3A-2	Drainage Notes
3B & 3C	"HSc" Profile
4	Alignment
4A	General Construction
4A-2	Construction Notes
4B	Drainage & Utilities
4B-2	Drainage Notes
4C, 4D & 4E	"HSc" & "WD" Profiles
5	Alignment
5A	General Construction
5A-2	Construction Notes
5B	Drainage & Utilities
5B-2	Drainage Notes
5C, 5D & 5E	"HSc" & "AR" Profiles
6	Alignment
6A	General Construction
6A-2	Construction Notes
6B	Drainage & Utilities
6B-2	Drainage Notes
6C, 6D, 6E, 6F, 6G, 6H, 6J, 6K, 6L, 6M, 6N, 6P & 6Q	"HSc", "A2", "B2", "C2", "D2", "G2", "J2", "NB", "SB", "BT", "CT" & "DT" Profiles
7	Alignment
7A	General Construction
7A-2	Construction Notes
7B	Drainage & Utilities
7B-2 & 7B-3	Drainage Notes
7C, 7D, 7E & 7F	"HSc", "LA" & "ER" Profiles

INDEX OF SHEETS, CONTD.

SHEET NO.	DESCRIPTION
8	Alignment
8A	General Construction
8A-2	Construction Notes
8B	Drainage & Utilities
8B-2 & 8B-3	Drainage Notes
8C, 8D, 8E & 8F	"HSc", "OW", "T" & "CD" Profiles
9	Alignment
9A	General Construction
9B	Drainage & Utilities
9B-2	Drainage Notes
9C & 9D	"HSc" Profiles
10	General Construction
10A	"HSc" Profile
11	General Construction
12	General Construction
13	General Construction
13A	Drainage & Utilities
13B	"NB" Profile
14	Alignment
14A	General Construction
14B	Drainage & Utilities
14B-2	Drainage Notes
14C, 14D & 14E	"AR", "NB" & "SB" Profiles
15	Alignment
15A	General Construction
15B	Drainage & Utilities
15B-2	Drainage Notes
15C & 15D	"NB" & "SB" Profiles
16	General Construction
16A	Drainage & Utilities
16A-2	Drainage Notes
16B	"SB" Profile
16C	Sht. Removed
17	General Construction

INDEX OF SHEETS, CONTD.

SHEET NO.	DESCRIPTION
	GEO/HYDRO
GA Thru GA-3 Incl.	Erosion Control Details
GA-4 Thru GA-13 Incl.	Erosion Control Plans
GB	Geotechnical Data Layout
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.
GD-21	Block Pattern Details
GD-22	Soundwall details
GJ Thru GJ-4 Incl.	Stormwater Plan
GJ-5 Thru GJ-11 Incl.	Stormwater Details
	OTAK INC.
GN Thru GN-86 Incl.	Roadside Development

INDEX OF SHEETS, CONTD.

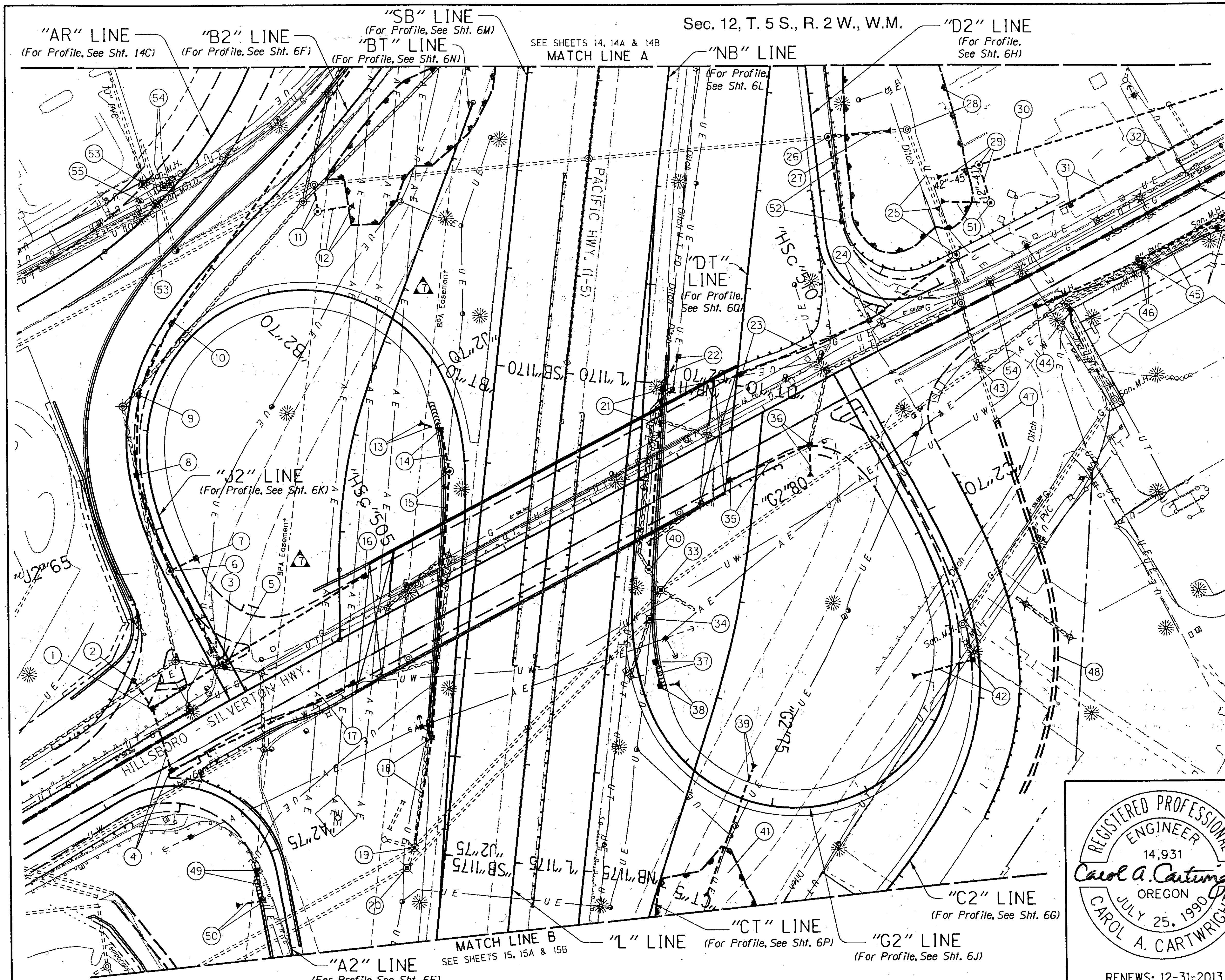
SHEET NO.	DESCRIPTION
	STRUCTURE NO. 07802A
91378	Plan & Elevation
91379	General Notes & Permit Loading
91380	Construction Sequence & Misc. Details
91381	Foundation Data
91382	Staging
91383	Temporary Concrete Barrier Details
91384	End Panel Replacement Staging
91385	Footing Plan
91386	Spiral Splice & Pile Splice Details
91387	Deck Plan - Spans 1 & 2
91388	Deck Plan - Spans 3 & 4
91389	Typical Deck Section
91390	Deck Reinforcement Over Interior Bents
91391	Girder Schedule & Details
91392	Girder Details
91393	Bent 1 Plan & Elevation (Bent 5 Similar)
91394	Bent 1 Details (Bent 5 Similar)
91395	Bent 1 Section (Bent 5 Similar)
91396	Bent 2 Plan & Elevation (Bent 4 Similar)
91397	Bent 2 Details (Bent 4 Similar)
91398	Bent 2 Section (Bent 4 Similar)
91399	Bent 3 Plan & Elevation
91400	Bent 3 Details
91401	Bent 3 Section
91402	Column Footing Details
91403	Wingwall & Slope Paving Retaining Wall Details
91404	Luminaire Base Details
91405	Sidewalk South Side Detail
	OTAK INC.
91406	Bridge Rail Typical Panel Elevation
91407	Bridge Rail Panel Details
91408	Bridge Rail Post And Ponel Details
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

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

46V-51



No.	DATE	REVISIONS	BY
7	5-21-13	Added BPA Easement	C.A.C.

Plug and abandon extg. pipe shown thus:

Remove extg. inlet shown thus:

Remove extg. manhole shown thus:

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

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

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

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

DRAINAGE & UTILITIES

SHEET NO. 6B

(1) See sht. 5B-2, note 17
Const. inlet
Inst. pipe

(2) See sht. 5B-2, note 18
Const. inlet
Inst. pipe

(3) See sht. 5B-2, note 19
Const. manhole
Inst. pipe

(4) See sht. 5B-2, note 32
Const. inlet
Inst. pipe

(5) See sht. 5B-2, note 25
Const. inlet
Inst. pipe

(6) See sht. 5B-2, note 20
Const. manhole
Inst. pipe

(7) See sht. 5B-2, note 24
Const. inlet
Inst. pipe

(8) See sht. 5B-2, note 21
Const. inlet
Inst. pipe

(9) See sht. 5B-2, note 22
Const. inlet
Inst. pipe

(10) See sht. 5B-2, note 23
Const. inlet
Inst. pipe

(11) Sta. "B2"68+85.2 to Sta. "B2"68+67.6, Lt.
Const. manhole
Step orientation - 267°
Inst. 12" storm sew. pipe - 28'
5' depth
Connect to extg. manhole

(12) Sta. "B2"68+85.2 to Sta. "B2"68+66.3, Lt.
Const. stormwater quality biofiltration swale no. 00642
Inst. 12" storm sew. pipe - 39'
5' depth
Const. paved end slope, Lt.
(For details, see sht. GJ- 2)
(See drg. nos. RD318, RD319 & RD320)

(13) Sta. "J2"70+50.6 to Sta. "J2"70+63.9, Rt.
Inst. 15" storm sew. pipe - 22'
5' depth
Const. paved end slope, Rt.

(14) Sta. "J2"70+63.9 to Sta. "J2"71+10, Rt.
Const. type "G-2" inlet
Inst. 15" storm sew. pipe - 42'
5' depth

(15) Sta. "J2"71+10 to Sta. "J2"71+10, Rt.
Const. shallow manhole
Inst. 15" storm sew. pipe - 268'
5' depth

(16) Sta. "B2"74+52.7 to Sta. "HSc"504+60.6, Lt.
Const. type "CG-2" inlet
Inst. 12" storm sew. pipe - 170'
5' depth

1 (17) Sta. "HSc"501+91.5 to Sta. "HSc"503+98.5, Lt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 205'
5' depth
(For details, see sht. 2B-15)

(18) Sta. "J2"73+79.7 to Sta. "J2"74+95.2, Rt.
Const. type "G-2" inlet
Inst. 15" storm sew. pipe - 116'
5' depth
Connect to extg. manhole

(19) Sta. "J2"74+95.2, Rt.
Minor adjust manhole

(20) Sta. "J2"75+16.1, Rt.
Minor adjust manhole

(21) Sta. "G2"70+05.4 to Sta. "G2"71+90.2, Lt.
Const. type "G-2" inlet
Inst. 18" storm sew. pipe - 183'
5' depth
Connect to extg. manhole

(22) Sta. "G2"69+71.7 to Sta. "G2"70+05.4, Lt.
Const. type "D" inlet
Inst. 18" storm sew. pipe - 34'
5' depth
(See drg. no. RD370)

(23) Sta. "HSc"508+95.2 to Sta. "HSc"510+36.4, Lt.
Const. type "CG-2" inlet
Inst. 12" storm sew. pipe - 143'
5' depth

(24) Sta. "HSc"510+36.4 to Sta. "HSc"511+45.1, Lt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 111'
5' depth
(For details, see sht. 2B-15)

1 (25) Sta. "HSc"511+45.1, Lt.
Const. manhole, 72" dia. with tamperproof cover
Step orientation - 180°
Minor adjust manhole
48" conc. storm sew. pipe - 165' (In pl.)
Remove 95' Lt.
Extend 12', 10' depth
Const. paved end slope, Lt.

(26) Sta. "D2"67+46, Lt.
Const. flow control manhole, 108" dia.
Connect to extg. storm sew. pipe
(For details, see shts. GJ-7 & GJ-8)

7 (27) Sta. "D2"67+46 to Sta. "D2"67+47.2, Lt.
Remove extg. pipe - 64'
Inst. 48" storm sew. pipe - 65'
20' depth
Const. paved end slope, Lt.
(For details, see sht. GJ-3)

(28) Sta. "D2"66+42 to Sta. "D2"69+94, Lt.
Remove extg. manhole
Const. stormwater control pond no. 00643
(For details, see sht. GJ-3)

(29) Sta. "HSc"511+63.2 to Sta. "HSc"512+08.5, Lt.
Const. flow control manhole
Inst. 12" storm sew. pipe - 41'
10' depth
Inst. 42" storm sew. pipe - 45'
10' depth
Const. paved end slope, Lt.
(For details, see sht. GJ-9)

(30) Sta. "HSc"512+06.5 to Sta. "HSc"514+72.1, Lt.
Inst. 42" storm sew. pipe - 265'
10' depth

(31) Sta. "HSc"512+73.5 to Sta. "HSc"513+66.4, Lt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 92'
5' depth
(For details, see sht. 2B-15)

(32) Sta. "HSc"513+66.4 to Sta. "HSc"514+58.8, Lt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 92'
5' depth
(For details, see sht. 2B-15)

(33) Sta. "G2"72+11.2, Lt.
Major adjust manhole

(34) Sta. "G2"72+42.2, Lt.
Major adjust manhole

1 (35) Sta. "HSc"508+34.2 to Sta. "HSc"509+23.7, Rt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 90'
5' depth
(For details, see sht. 2B-15)

1 (36) Sta. "HSc"509+08.7 to Sta. "HSc"509+23.7, Rt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 31'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 2B-15)

(37) Sta. "G2"72+88.4 to Sta. "G2"73+15.8, Lt.
Const. type "G-2" inlet
Inst. 12" slotted drain pipe - 25'
5' depth
(See drg. no. RD328)

(38) Sta. "G2"73+15.8 to Sta. "G2"73+20, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 20'
5' depth
Const. paved end slope

(39) Sta. "G2"74+69.3
Inst. 18" culv. pipe - 142'
5' depth
Const. paved end slope, Lt. & Rt.

(40) Sta. "G2"71+90.2, Lt.
Const. shallow manhole
Connect to extg. storm sew.

(41) Sta. "C2"74+38 to Sta. "C2"78+35, Rt.
Const. stormwater quality biofiltration swale no. 00641
(For details, see sht. GJ)

(42) Sta. "G2"77+40, Lt. to Sta. "C2"71+60.7, Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 63'
5' depth
Const. paved end slope

(43) Sta. "HSc"511+14.5, Rt.
Major adjust manhole

1 (44) Sta. "HSc"511+93.7 to Sta. "HSc"513+08, Rt.
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 115'
5' depth
(For details, see sht. 2B-15)

(45) Sta. "HSc"513+08 to Sta. "HSc"514+03.7, Rt.
Const. manhole
Step orientation - 269°
Inst. 12" storm sew. pipe - 96'
5' depth

1 (46) Sta. "HSc"513+08 to Sta. "HSc"513+08.4, Rt.
Remove extg. inlet
Const. type "CG-2" inlet
Adjust inlet
Inst. 12" storm sew. pipe - 7'
5' depth
(For details, see sht. 2B-15)

(47) Sta. "HSc"511+14.5, Rt.
Adjust inlet

(48) Sta. "C2"69+53.5 to Sta. "C2"73+70, Lt.
Const. ditch
3' flat bottom, 1:4 slopes
Dt. exc. - 54 cu. yd.
(For details, see sht. 2B-12)

(49) Sta. "A2"75+15.4 to Sta. "A2"75+47.4, Rt.
Const. type "G-2" inlet
Inst. 12" slotted drain pipe - 31'
5' depth

(50) Sta. "A2"75+47.4, Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 28'
5' depth
Const. paved end slope, Rt.

(51) Sta. "HSc"511+55.7 to Sta. "HSc"512+01.5, Lt.
Const. manhole
Step orientation - 224°
Inst. 12" storm sew. pipe - 51'
10' depth
Const. paved end slope, Lt.
(For details, see sht. GJ-3)

(52) Sta. "D2"67+46 to Sta. "D2"68+33.2, Lt.
Const. type "CG-2" inlet
Inst. 12" storm sew. pipe - 87'
5' depth

(53) Minor adjust manhole - 2
(For details, see sht. 2B-23)

(54) Adjust manhole - 3 (By others)

(55) Adjust water valve box
(For details, see sht. 2B-22)

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

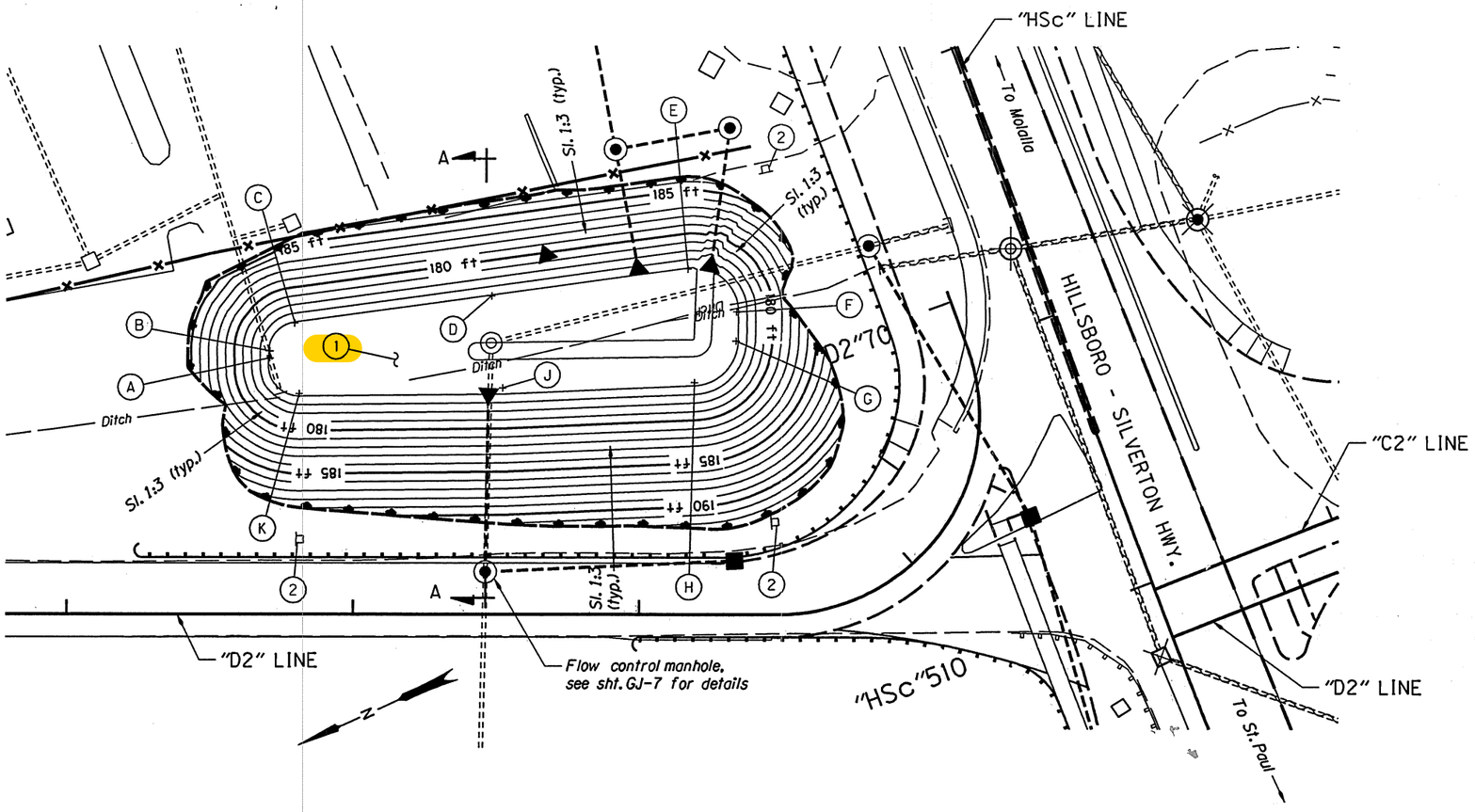
REGION 2 TECH CENTER

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

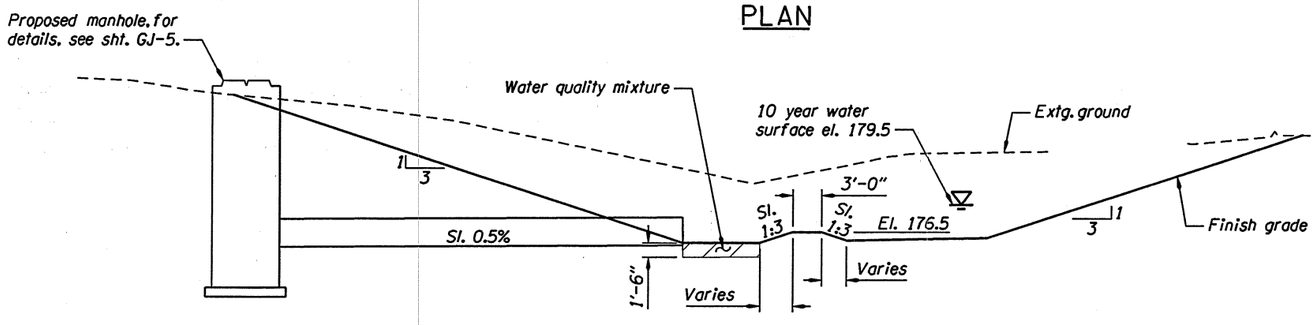
Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Charlotte Gerken

DRAINAGE NOTES

SHEET NO. 6B-2



PLAN



SECTION A-A

(1) Sta. "D2" 66+42 lt. to Sta. "D2" 69+65 lt.
Const. stormwater storage pond no. 00643
Water quality mixture – 50 cu. yd.
Gen. exc. – 4,100 cu. yd.

(2) Stormwater facility marker
(See "Pond No. 00643 Marker Table")
(See dwg. RD399)

POND NO. 00643 MARKER TABLE

TYPE				LOCATION	
S1	S2	RED	GREEN	NORTHING	EASTING
	✓			550338.25	7589445.44
✓			✓	550540.09	7589394.80
✓		✓		550386.68	7589331.19

ELEVATION TABLE

	NORTHING	EASTING	ELEVATION (Ft.)
A	550523.11	7589457.06	175.84
B	550522.05	7589459.33	175.86
C	550510.11	7589464.65	175.90
D	550443.72	7589444.67	175.90
E	550377.33	7589424.69	175.90
F	550368.17	7589403.88	175.82
G	550372.58	7589394.70	175.77
H	550391.92	7589387.46	175.63
J	550453.70	7589413.65	175.30
K	550519.02	7589441.35	175.74

NOTE:
Slopes are shown as vertical to horizontal.

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

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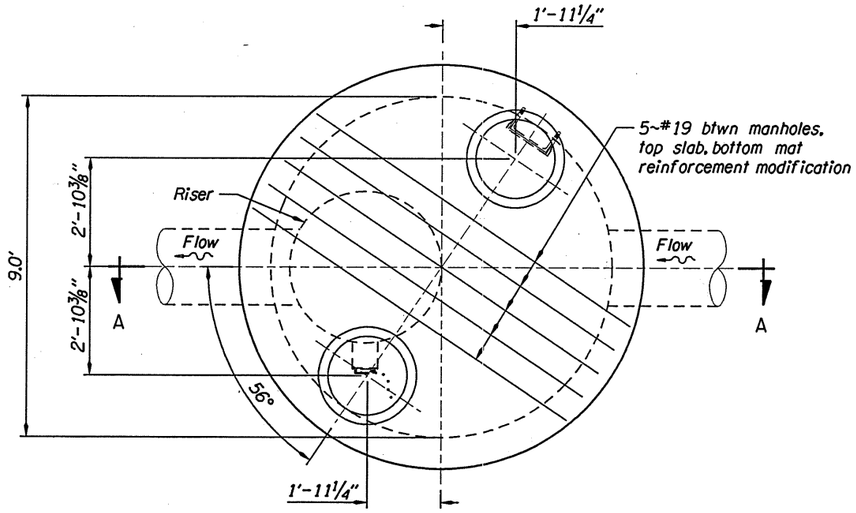
FFO - I-5 @ OR214 INTERCHANGE (WOODBURN) DEVELOPMENT SEC.
HILLSBORO - SILVERTON HIGHWAY
MARION COUNTY

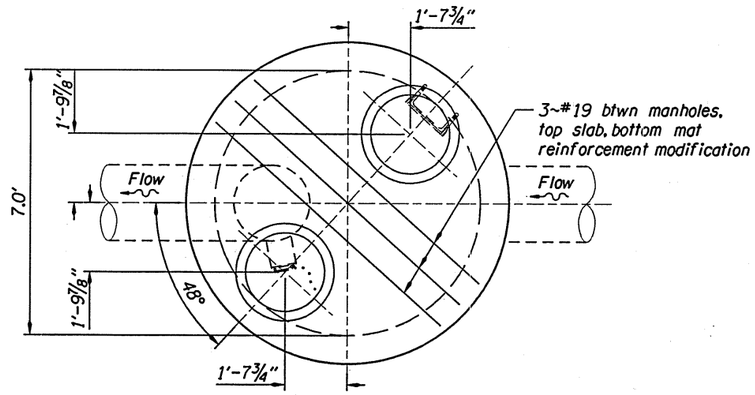
Reviewed By - Bruce Carmichael
Designed By - Jamie Schmidt
Drafted By - Sandra Gish

STORMWATER STORAGE POND NO. 00643 PLAN

SHEET NO. GJ-3



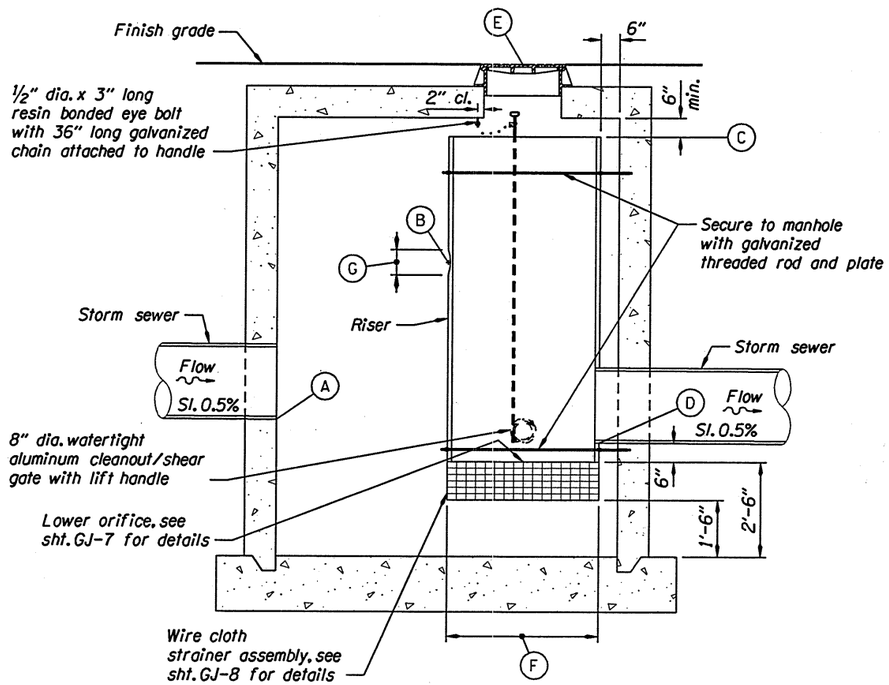
PLAN
STA. "D2"67+46.00



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

MANHOLE INLET AND OUTLET TABLE

STATION	OFFSET (Ft.)	INVERT EL. Ⓐ (Ft.)	UPPER ORIFICE CTR. EL. Ⓑ (Ft.)	RISER RIM EL. Ⓒ (Ft.)	INVERT EL. Ⓓ (Ft.)	TOP OF MANHOLE COVER EL. Ⓔ (Ft.)	RISER DIA. Ⓕ (In.)	UPPER ORIFICE DIA. Ⓖ (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.

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

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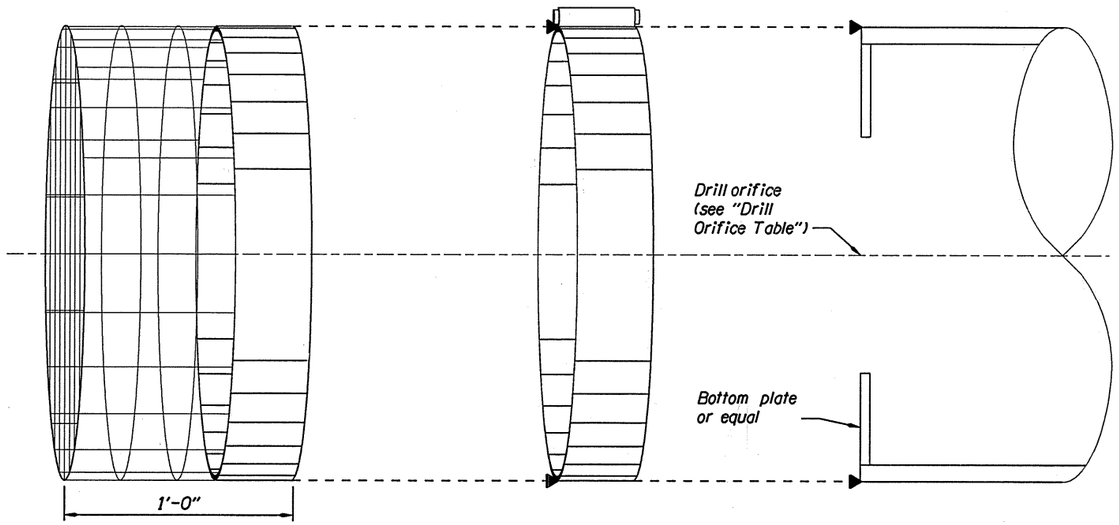
MARION COUNTY

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

STORMWATER STORAGE POND DETAILS

SHEET NO. GJ-7

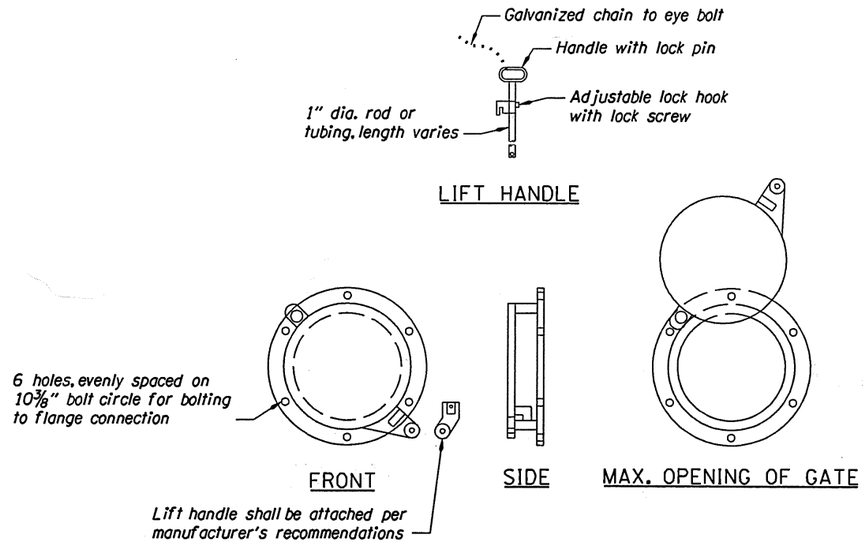


FLOW CONTROL MANHOLE
WIRE STRAINER ASSEMBLY

FLOW CONTROL MANHOLE
WIRE STRAINER ASSEMBLY

DRILL ORIFICE TABLE

STATION	OFFSET (Ft.)	DIAMETER (In.)
"D2"67+46.00	33.22 lt.	10½
"HSc"479+85.98	58.63 rt.	3½



CLEANOUT/SHEAR GATE DETAILS

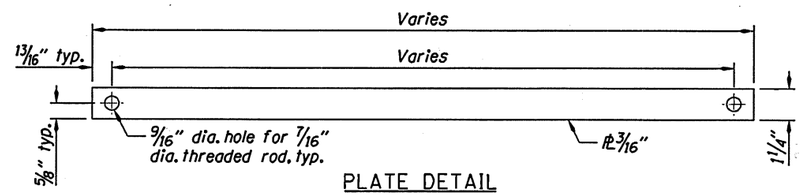
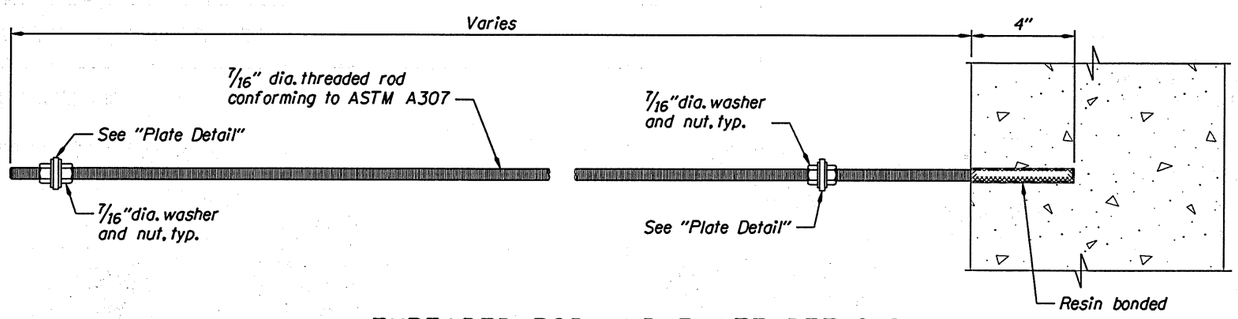


PLATE DETAIL



THREADED ROD AND PLATE DETAILS

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 ⅜" diameter stainless steel.

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

REGISTERED PROFESSIONAL ENGINEER
17801
OREGON
JULY 25, 1995
CHRIS CARMAN
RENEWS: 12-31-2013

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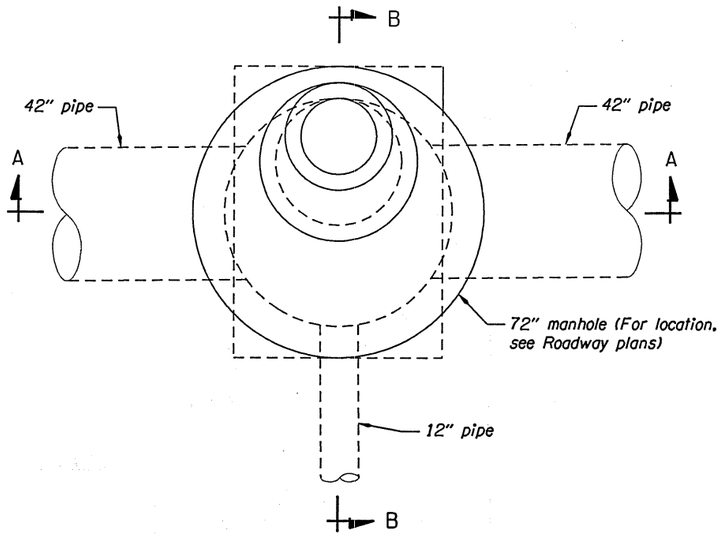
REGION 2 TECH CENTER

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

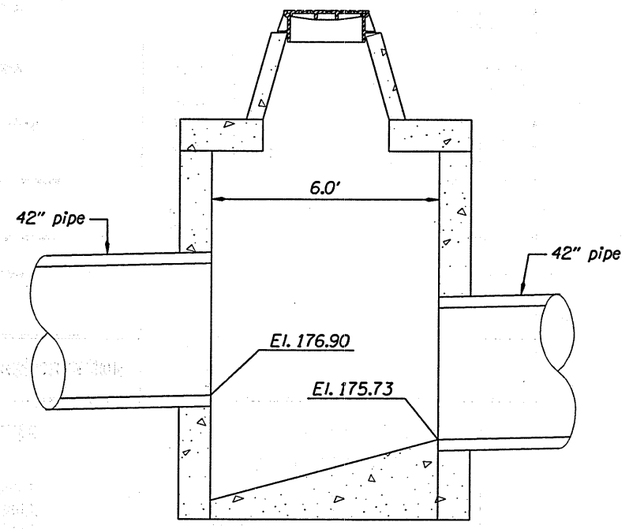
Reviewed By - Bruce Carmichael
Designed By - Chris Carman
Drafted By - Sandra Gish

STORMWATER STORAGE POND DETAILS

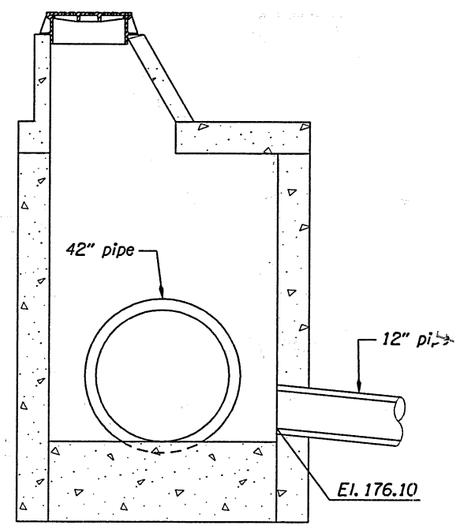
SHEET NO. GJ-8



PLAN
STA. "HSC"512+08.55, 123.20' lt.



SECTION A-A



SECTION B-B

NOTE:
For details not shown, see dwg. RD346.

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

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MARION COUNTY

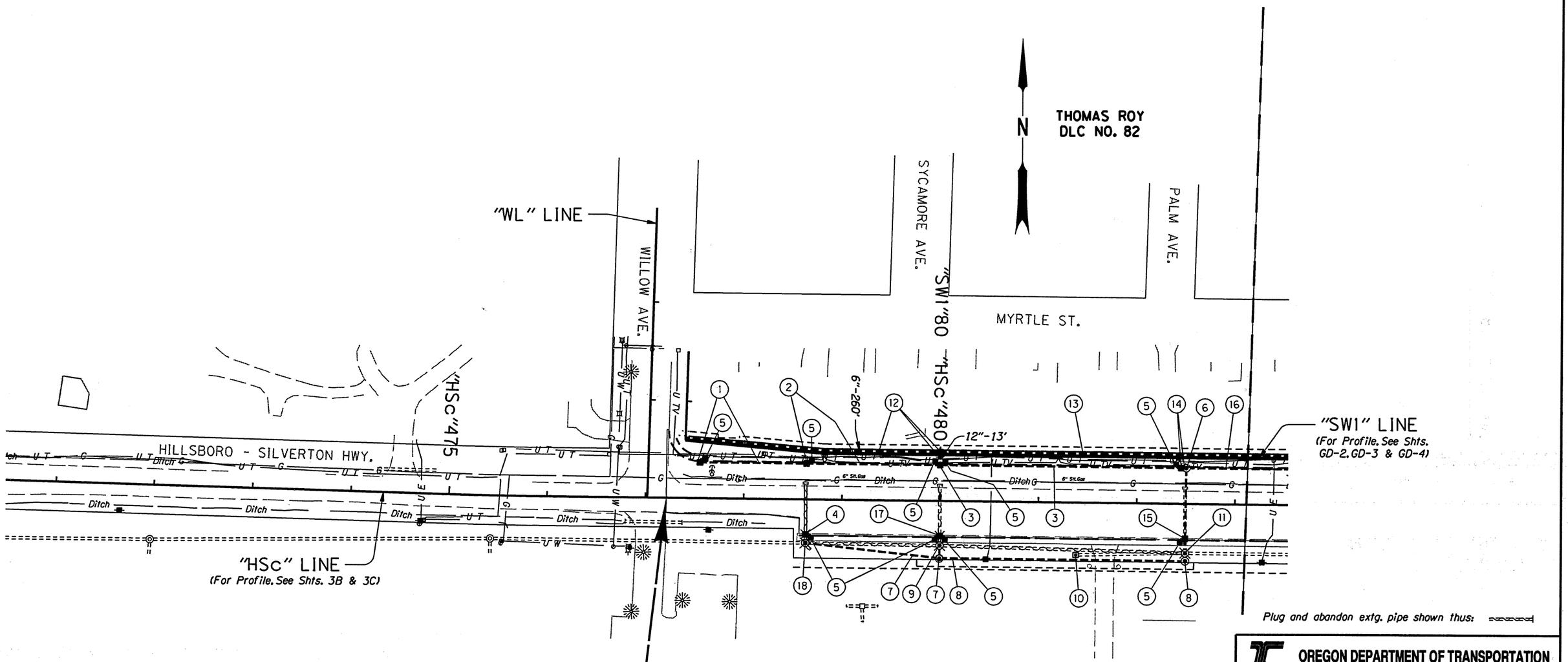
Reviewed By - Bruce Carmichael
Designed By - Chris Carman
Drafted By - Sandra Gish

STORMWATER STORAGE POND DETAILS

SHEET NO. GJ-9

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

46V-51



Plug and abandon extg. pipe shown thus:

OREGON DEPARTMENT OF TRANSPORTATION

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

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REGION 2 TECH CENTER

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Designed By - John Lucas
Drafted By - Charlotte Gerken

DRAINAGE & UTILITIES

SHEET NO. 3A