OPERATION & MAINTENANCE MANUAL

Water Quality Biofiltration Swale

Manual prepared: April 2019

DFI No. D00641

Figure 1: DFI No. D00641, looking (looking East)

Identification

Drainage Facility ID (DFI):	D00641
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Numbers) 46V-51
Location:	District: 3
	Highway No.: 1
	Mile Post: 271.75 to 271.80, [right]

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: Roadway shoulder

Flow direction: Southwest

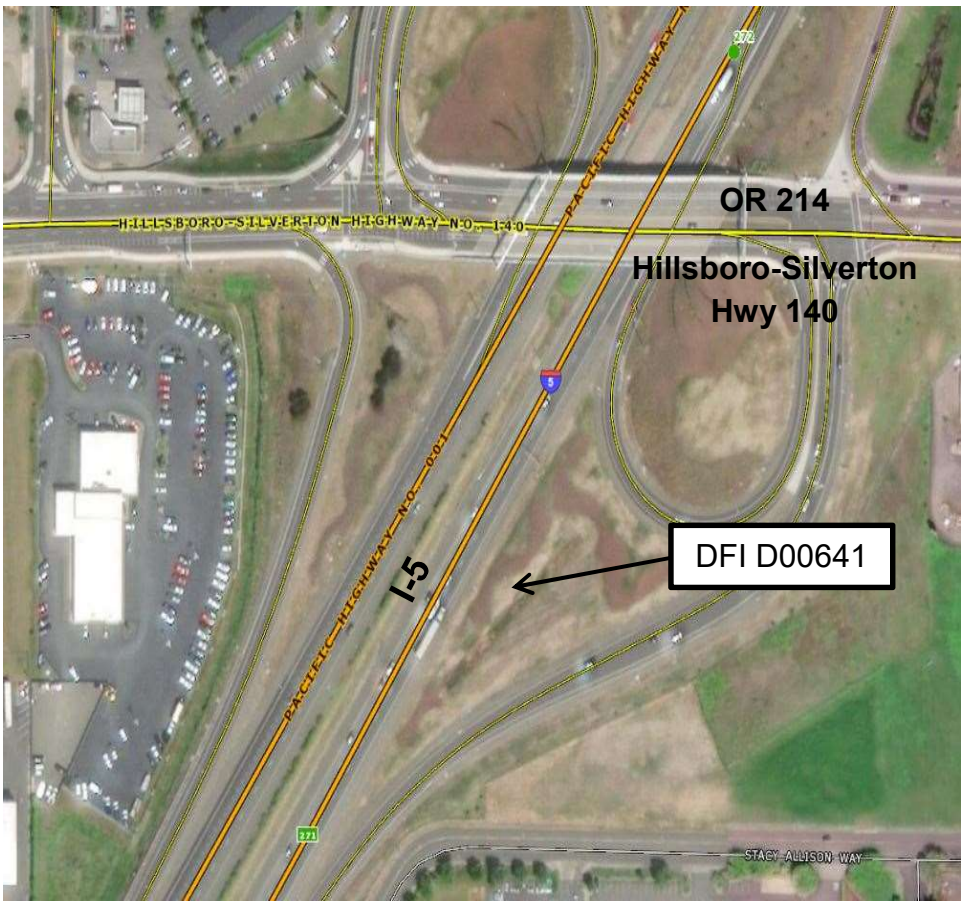


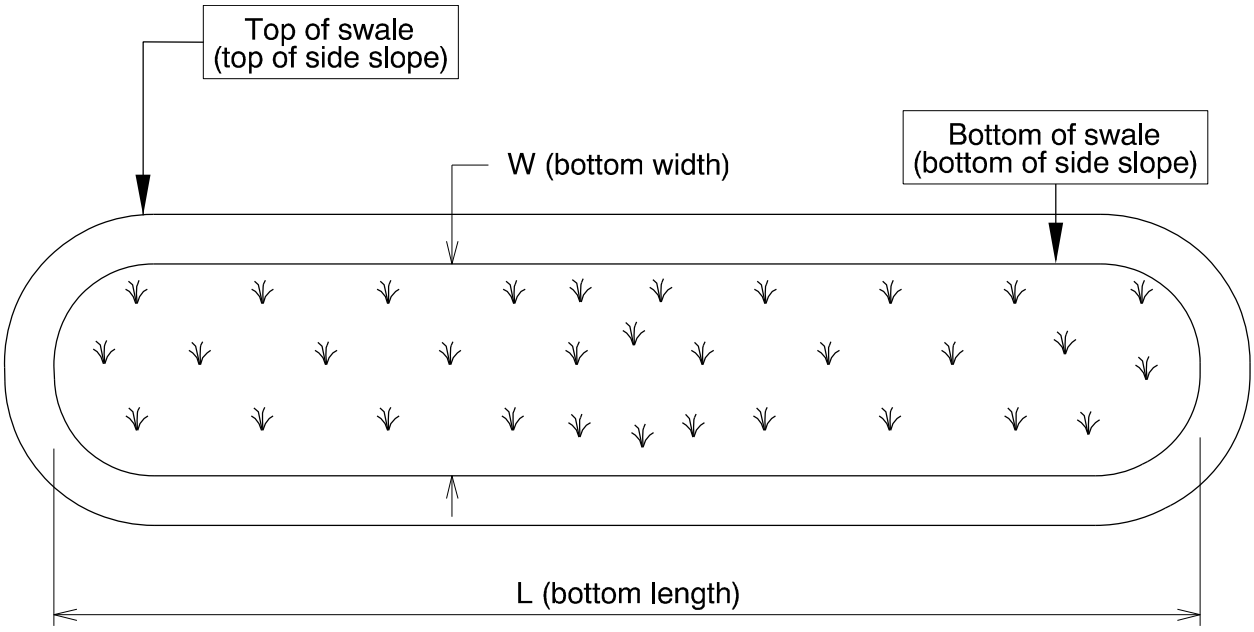
Figure 2: Facility location map

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:

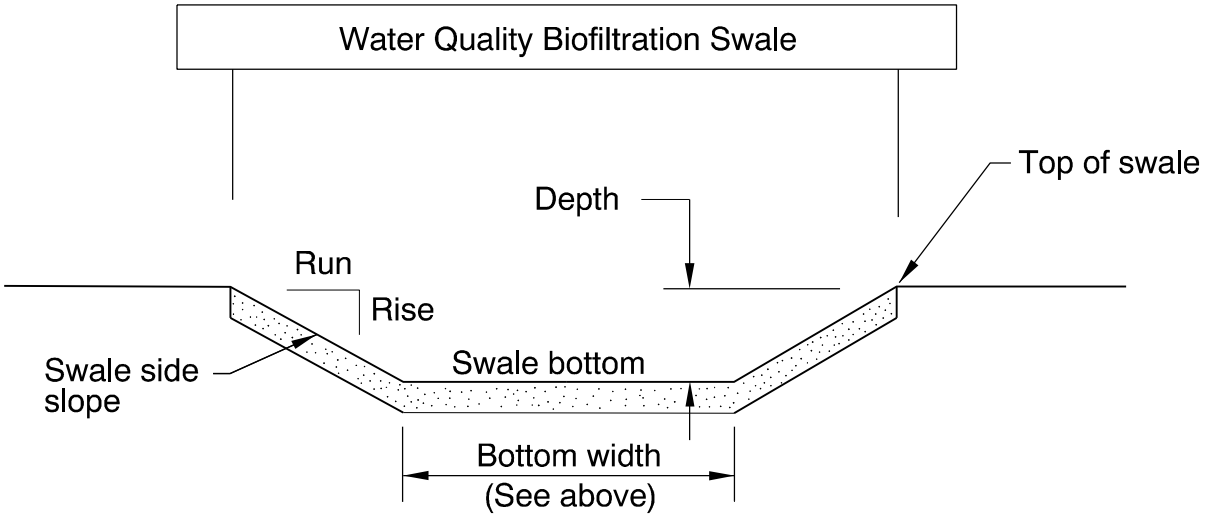
Bottom Length (feet)	Bottom Width (feet)
280	6



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)
6	1	6



Site Specific Information:

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:	☐	**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 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

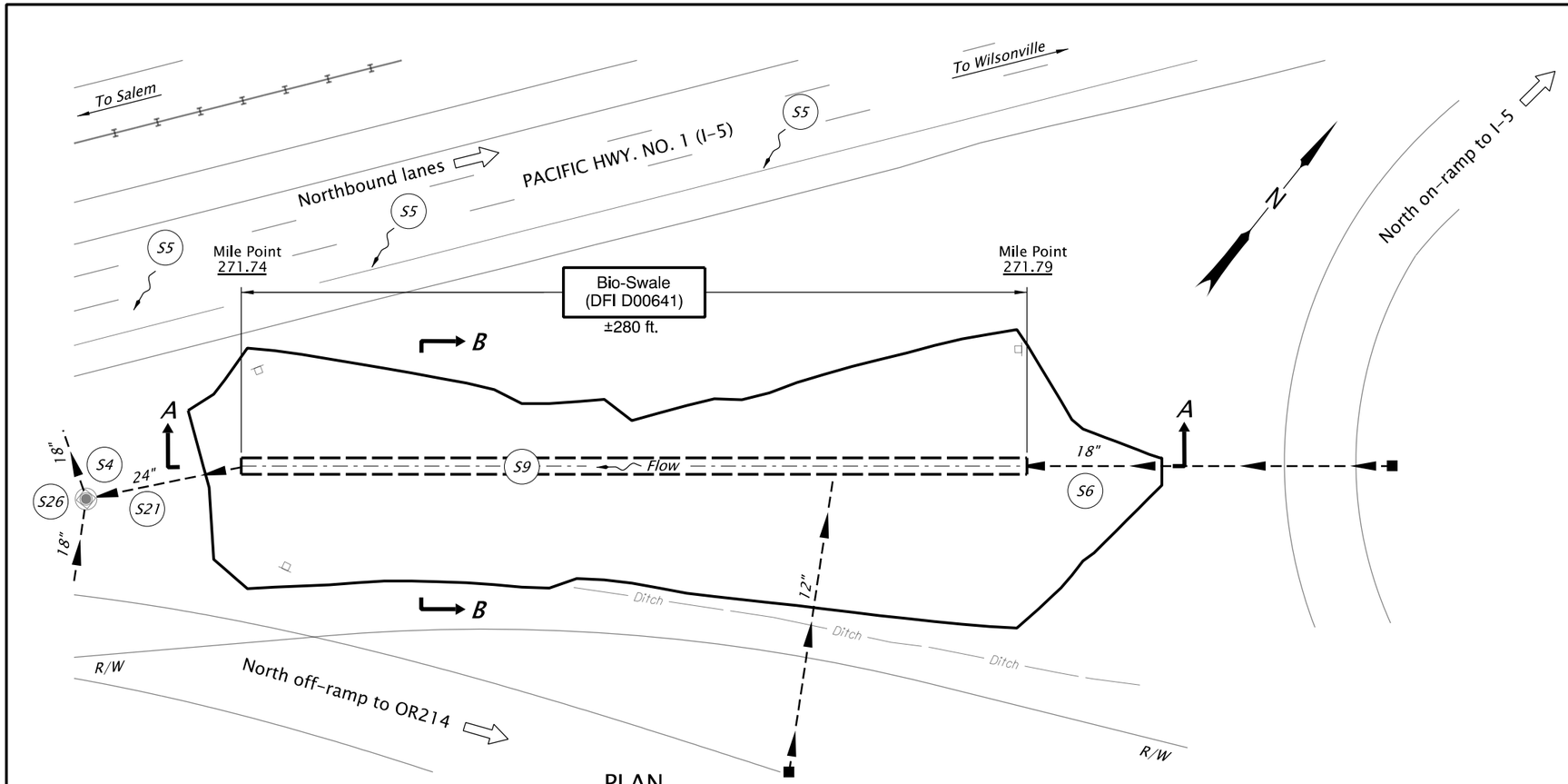
Contact any of the following for more detailed information about management of waste materials found on site:

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

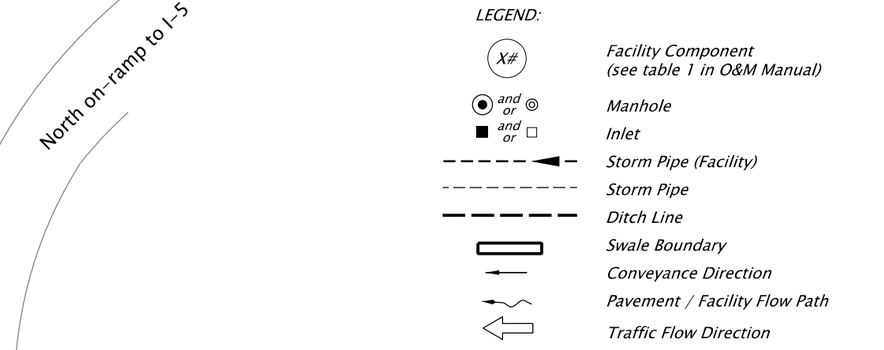
A Appendix A – Site Specific Operational Plan

Contents:

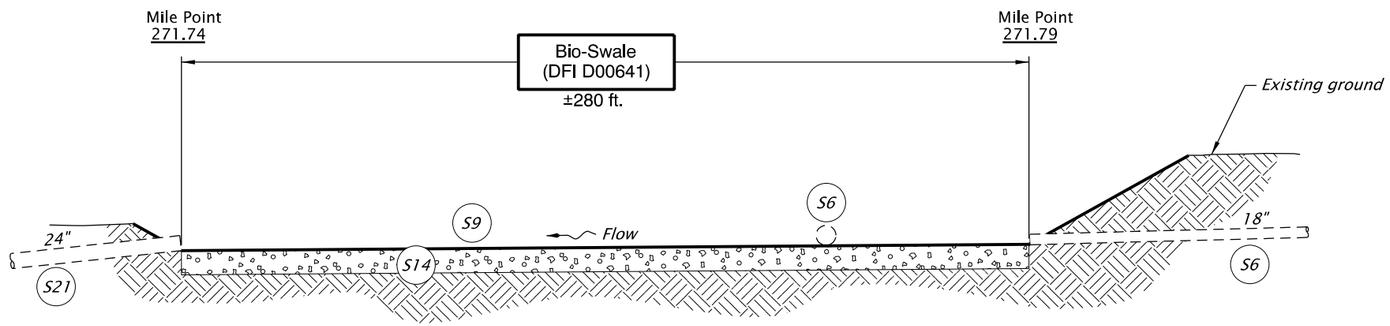
Operational Plan: DFI D00641



PLAN
N.T.S.



SECTION B–B
N.T.S.



SECTION A–A
N.T.S.

LEGEND:

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

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00641
MAINTENANCE DISTRICT 3 I-5 @ OR214
WATER QUALITY BIOFILTRATION SWALE
HILLSBORO-SILVERTON HIGHWAY MP 271.74
MARION COUNTY

DFI_00641.dgn :: Default 4/17/2019 12:08:10 PM hwyr64u

Rotation: 0° Scale: 1"=30'

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 46V-51

[14575] 14581 Contract Plans

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

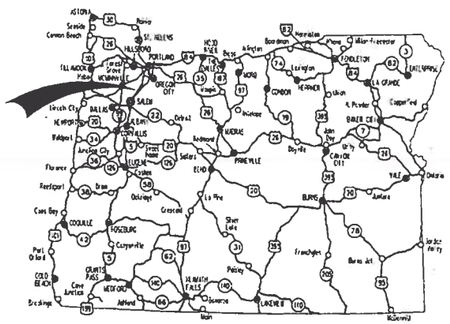
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNAL & ROADSIDE DEVELOPMENT

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

HILLSBORO - SILVERTON HIGHWAY

MARION COUNTY

⑥ JUNE 2013



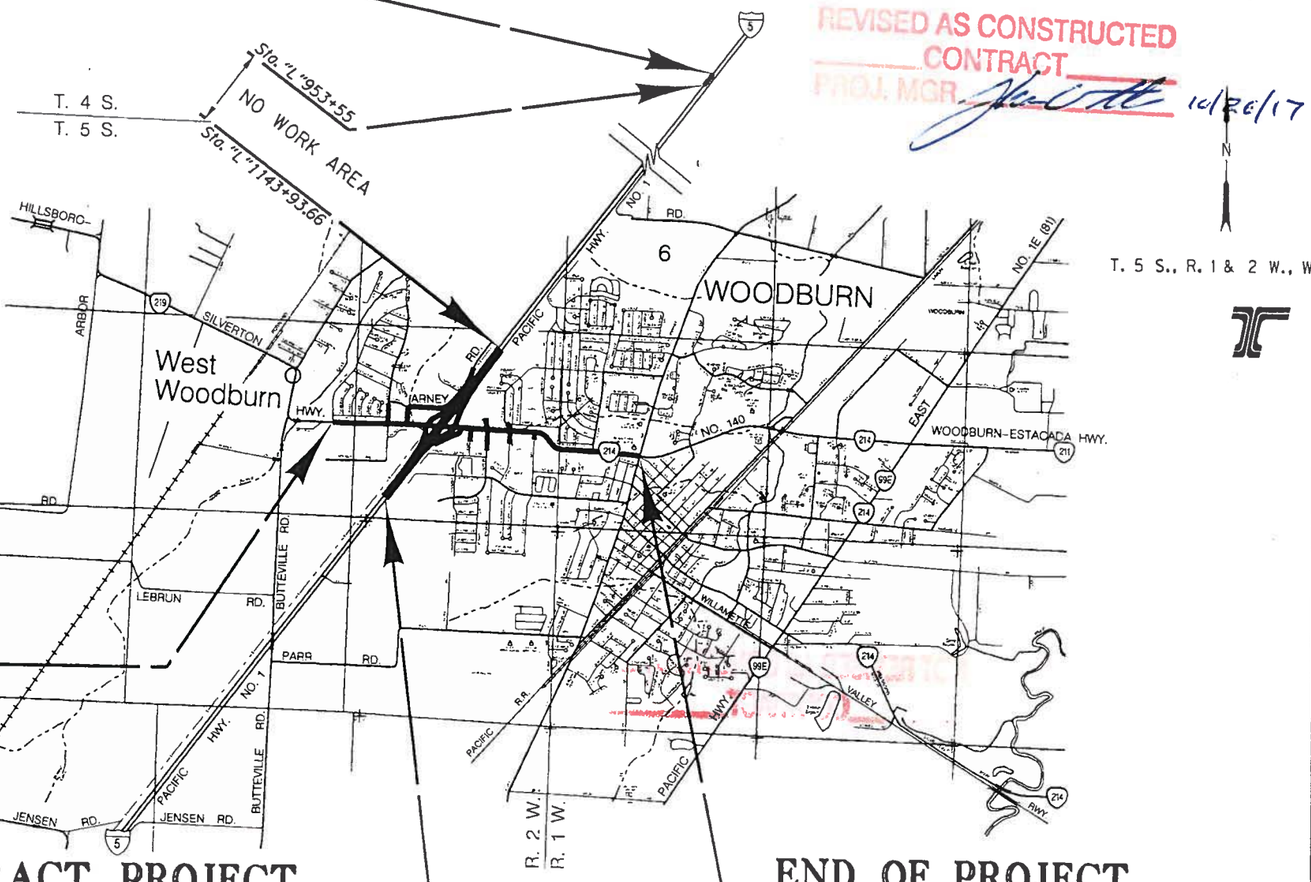
Overall Length Of Project - 2.76 Miles

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

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. (Notes The Telephone Number For The Oregon Utility Center Is (503) 232-1987.)

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)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

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

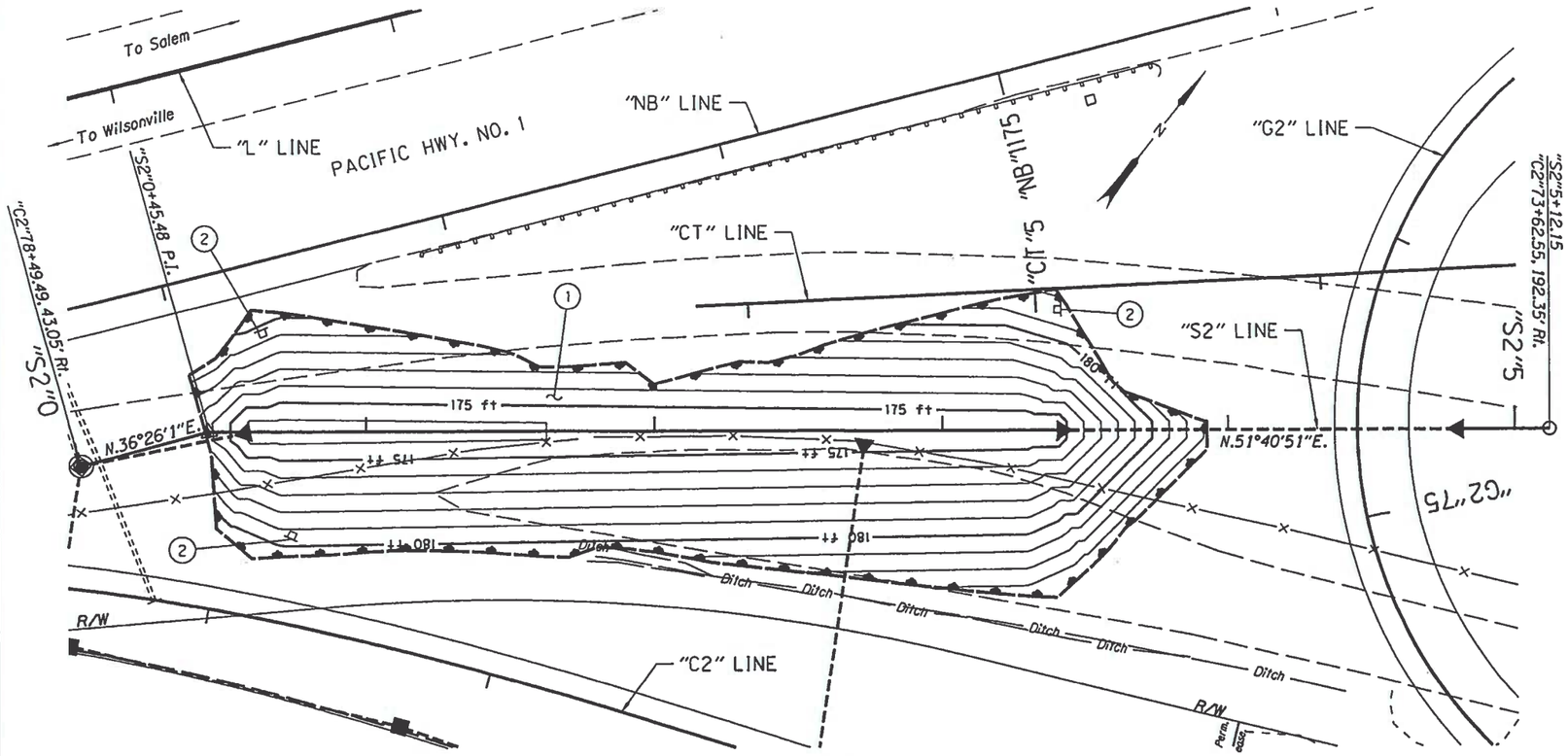
F:\ODOT_DATA\Projects\12518_Woodburn\12518r2.tsl :: Default 5/14/2013 8:54:45 AM tdb081

1/972 BL - 001

46V-51

(1) Sta. "S2"0+41.70 to Sta. "S2"3+95.86
Const. water quality biofiltration swale no. 00641
Water quality mixture - 250 cu. yd.
Gen. exc. - 3,200 cu. yd.

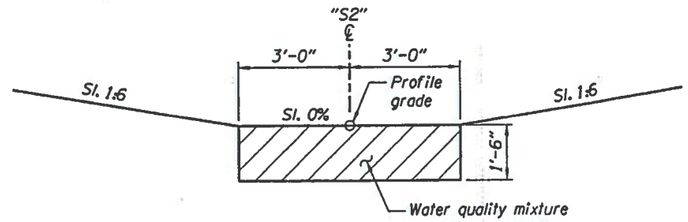
(2) Stormwater facility marker
(See "Swale No. 00641 Marker Table")
(See dwg. RD399)



PLAN

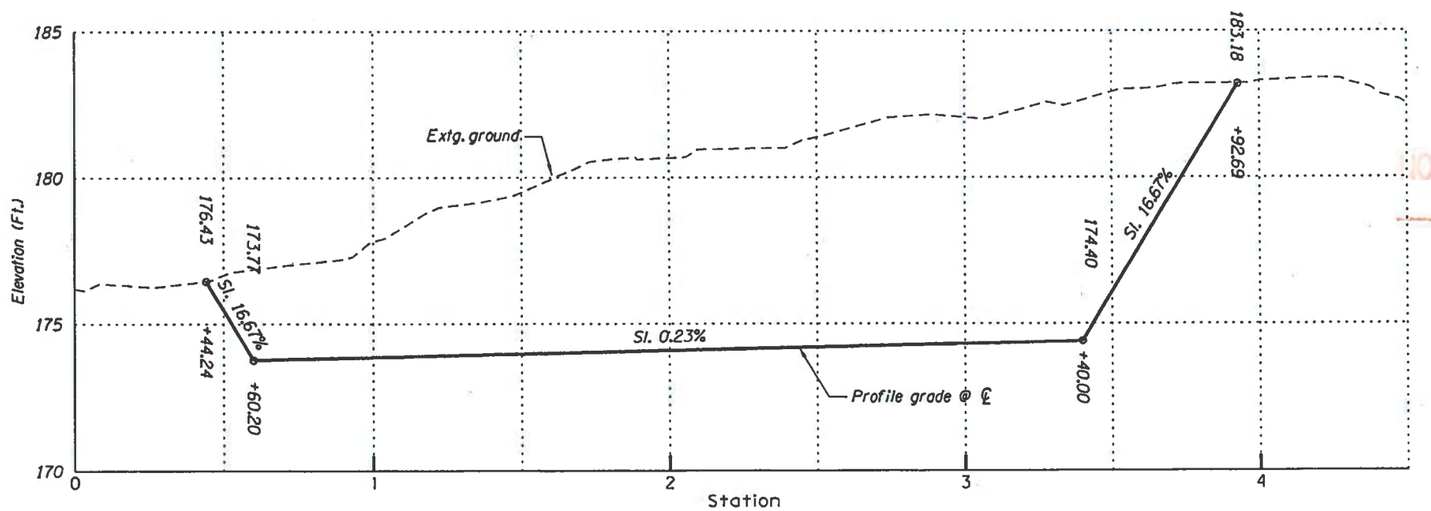
SWALE NO. 00641 MARKER TABLE

TYPE				LOCATION	
S1	S2	RED	GREEN	NORTHING	EASTING
	✓			549699.52	7588663.15
✓		✓		549749.06	7588611.12
✓			✓	549925.43	7588823.81



STA. "S2"0+60.20 To STA. "S2"3+40.00

TYPICAL SECTION



Elevations shown are based on North American Vertical Datum (1988)

PROFILE AT "S2" LINE

NOT REVISED AS CONSTRUCTED CONTRACT

NOTE:
Slopes are shown as vertical to horizontal.

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 NO. 00641 PLAN

SHEET NO. GJ

46V-51

"AR" LINE (For Profile, See Sht. 14C)
"B2" LINE (For Profile, See Sht. 6F)
"SB" LINE (For Profile, See Sht. 6M)
"BT" LINE (For Profile, See Sht. 6N)
SEE SHEETS 14, 14A & 14B MATCH LINE A
Sec. 12, T. 5 S., R. 2 W., W.M.
"NB" LINE (For Profile, See Sht. 6L)
"D2" LINE (For Profile, See Sht. 6H)
"HSc" LINE (For Profile, See Shts. 6C & 6D)
"DT" LINE (For Profile, See Sht. 6Q)
"J2" LINE (For Profile, See Sht. 6K)
"A2" LINE (For Profile, See Sht. 6E)
"L" LINE (For Profile, See Sht. 6P)
"CT" LINE (For Profile, See Sht. 6P)
"G2" LINE (For Profile, See Sht. 6J)
"C2" LINE (For Profile, See Sht. 6G)
MATCH LINE B SEE SHEETS 15, 15A & 15B
PACIFIC HWY. (I-5)
HILLSBORO - SILVERTON HWY.
BPA Easement

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

REVISED AS CONSTRUCTED CONTRACT

Plug and abandon exist. pipe shown thus:
Remove exist. inlet shown thus:
Remove exist. manhole shown thus:

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 & UTILITIES

SHEET NO. 6B

46V-51

(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'~~ 38'
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'~~ 23'
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'~~ 44'
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"~~ G-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'~~ 185'
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'~~ 37'
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, 48" 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.
INST. 18" STORM SEW PIPE - 62'

(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)

⚠2 (27) Sta. "D2"67+46 to Sta. "D2"67+47.2, Lt.
Remove extg. pipe - 64'
Inst. 48" storm sew. pipe - ~~65'~~ 46'
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'~~ 41'
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'~~ 270'
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
MINOR

⚠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"~~ G-2 inlet
Adjust inlet
Inst. 12" storm sew. pipe - ~~31'~~ 33'
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.~~
INST 12" STORM SEW PIPE - 23'

(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
MINOR AD. MH

(56) "L" 118+05 to "L" 1170+17(?)
12" storm sewer - 212'
G2MA INLET

⚠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 - [illegible] - "AR" 112+21.6
(For details, see sht. 2B-23)
MAJOR ADJ MH "AR" 112+15 RT

(54) Adjust manhole - 3 (By others)

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

REVISED AS CONSTRUCTED
CONTRACT

No.	DATE	REVISIONS	BY
⚠1	4-18-13	Edited text	J.O.L.
⚠2	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

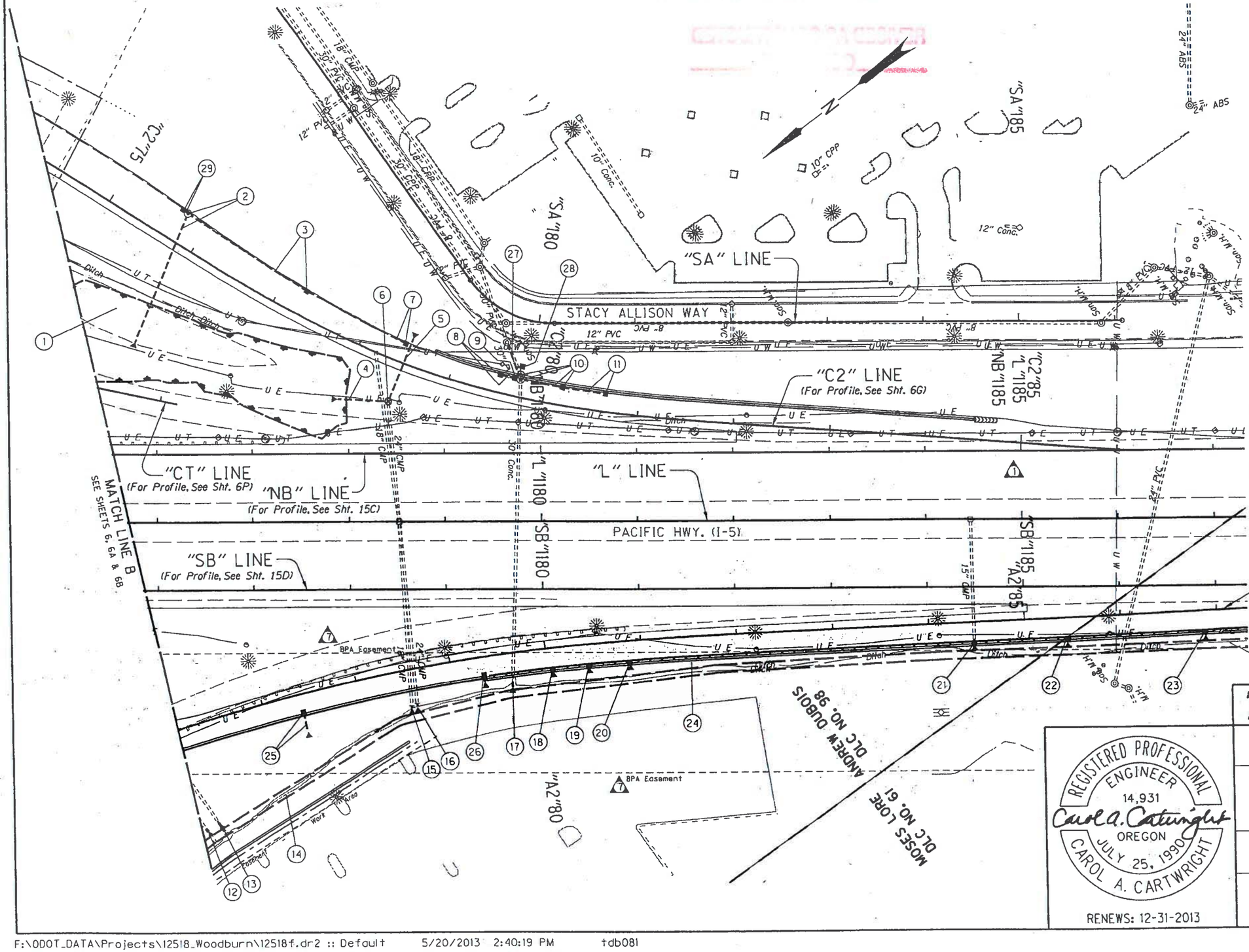
Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Charlotte Gerken

DRAINAGE NOTES

SHEET NO. 6B-2

Sec. 12, T. 5 S., R. 2 W., W.M.

46V-51



NOT REVISED AS CONSTRUCTED CONTRACT

No.	DATE	REVISIONS	BY
1	4-18-13	Removed detour features	J.O.L.
7	5-21-13	Added BPA Easement	C.A.C.

OREGON DEPARTMENT OF TRANSPORTATION

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MARION COUNTY

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

DRAINAGE & UTILITIES

SHEET NO. 15B

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

F:\ODOT_DATA\Projects\12518_Woodburn\12518f.dr2 :: Default 5/20/2013 2:40:19 PM tdb081

(1) See sht. 6B-2. note 41
Const. swale

(2) Sta. "C2" 75+76 to Sta. "C2" 76+00.9, Lt. & Rt.
Const. manhole
Step orientation - 51°
Inst. 12" storm sew. pipe - ~~152'~~ 154'
10' depth
Const. paved end slope, Rt.

(3) Sta. "C2" 75+76 to Sta. "C2" 77+26, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - ~~148'~~ 150'
10' depth

(4) Sta. "NB" 1177+82.9 to Sta. "NB" 1178+42.5, Lt.
Inst. 24" storm sew. pipe - 60'
5' depth
Const. paved end slope, Lt.

(5) Sta. "C2" 78+51.1, Lt. & Rt.
Inst. 18" storm sew. pipe - 77'
5' depth
Const. paved end slope, Lt.

(6) Sta. "C2" 78+49.5, Rt.
Remove extg. inlet
Const. shallow manhole
Connect to extg. storm sew. pipe

(7) Sta. "C2" 77+26 to Sta. "C2" 78+45.5, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - ~~117'~~ 120'
5' depth

(8) Sta. "C2" 79+51.2 to Sta. "C2" 79+66.6, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - ~~18'~~ 15'
5' depth

(9) Sta. "C2" 79+66.6 to Sta. "C2" 79+72, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - ~~8'~~ 6'
5' depth

(10) Sta. "C2" 79+72 to Sta. "C2" 80+17.6, Lt.
Remove extg. manhole
Const. manhole 60" dia.
Step orientation - 61°
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 44'
5' depth
Connect to extg. storm sew.

(11) Sta. "C2" 80+17.6 to Sta. "C2" 80+63.1, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 45'
5' depth

(12) Sta. "A2" 76+10.0, Rt.
30" storm sew. pipe - 280' (In pl.)
Remove - 18' Rt.
Extend - 10' Rt., 5' depth
Const. paved end slope, Rt.

(13) Sta. "A2" 76+24.2, Rt.
30" storm sew. pipe - 262' (In pl.)
Remove - 16' Rt.
Extend - 10' Rt., 5' depth
Const. paved end slope, Rt.

(14) Const. channel change
8' bottom, 1:2 slopes
Ditch exc. - 1,574 cu. yd.
(For details, see sht. 2B-14)

(15) Sta. "A2" 78+51.3, Rt.
18" storm sew. pipe - 192' (In pl.)
~~Remove - 3' Rt.~~
~~Extend - 12' Rt., 5' depth~~
~~Const. paved end slope, Rt.~~

(16) Sta. "A2" 78+57.5, Rt.
24" storm sew. pipe - 315' (In pl.)
~~Remove - 3' Rt.~~
~~Extend - 13' Rt., 5' depth~~
~~Const. paved end slope, Rt.~~

(17) Sta. "A2" 79+60.3, Rt.
30" storm sew. pipe - 313' (In pl.)
~~Remove - 3' Rt.~~
Extend - ~~19'~~ Rt., 5' depth 16'
Const. paved end slope, Rt.

(18) Sta. "A2" 80+05.1, Rt.
Const. type "G-2M" inlet
Inst. 12" storm sew. pipe - 16'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)
(See drg. no. RD364)

(19) Sta. "A2" 80+42.9, Rt.
Const. type "G-2M" inlet
Inst. 12" storm sew. pipe - 15'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)

(20) Sta. "A2" 80+90, Rt.
Const. type "G-2M" inlet
Inst. 12" storm sew. pipe - 13'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)

(21) Sta. "A2" 84+46.5, Rt.
Const. type "G-2M" inlet
15" storm sew. pipe 127' (In pl.)
Extend 2' Rt., 5' depth
Inst. 15" storm sew. pipe - 7'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)

(22) Sta. "A2" 85+43.9, Rt.
Const. type "G-2M" inlet
Inst. 12" storm sew. pipe - 8'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)

(23) Sta. "A2" 86+87.6, Rt.
Const. type "G-2M" inlet
Inst. 12" storm sew. pipe - 9'
5' depth
Const. paved end slope, Rt.
(For details, see sht. 1A)

(24) Const. water quality mixture
Connect to inlets
(For details, see sht. GC-8)

(25) Sta. "A2" 77+38.7, Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 27'
5' depth
Const. paved end slope, Rt.

(26) Sta. "A2" 79+32.8, Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 13'
5' depth
Const. paved end slope, Rt.

(27) Sta. "C2" 79+49.5 to Sta. "C2" 79+72.9, Lt.
Inst. 30" storm sew. pipe - ~~41'~~ 42'
10' depth
Connect to extg. manhole

(28) Sta. "C2" 79+65.8 to Sta. "C2" 79+71.9, Lt.
Const. type "G-2MA" inlet
Inst. 12" storm sew. pipe - 6'
5' depth
INST. 12" PIPE TEE - 1

(29) Sta. "C2" 75+70 to Sta. "C2" 75+76, Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 6'
5' depth

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