OPERATION & MAINTENANCE

MANUAL

Manual prepared: June 2017

DFI No. D00107

Figure 1: DFI No. D00107, looking North

1. Identification

Drainage Facility ID (DFI):	D00107
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Numbers) 44V-027
Location:	District: 2B
	Highway No.: 001
	Mile Post: 286.920 to 286.940

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 points, side streets, access location, and stormwater flow direction is noted on the map.

Flow direction: South

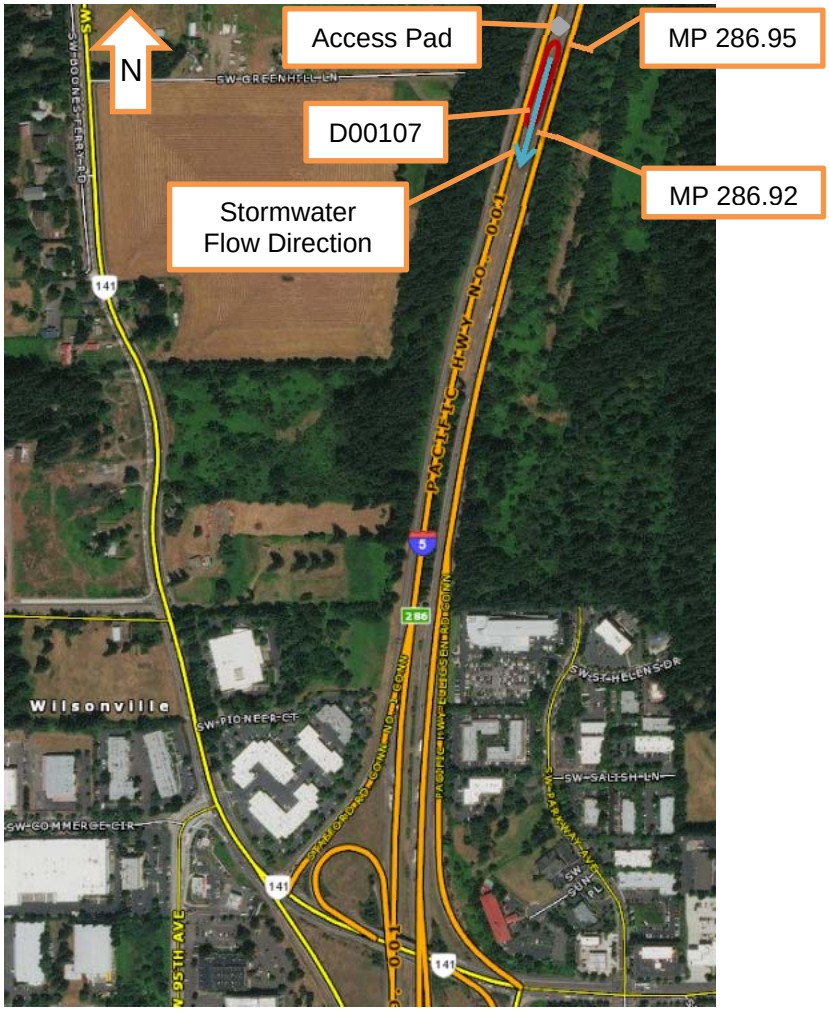


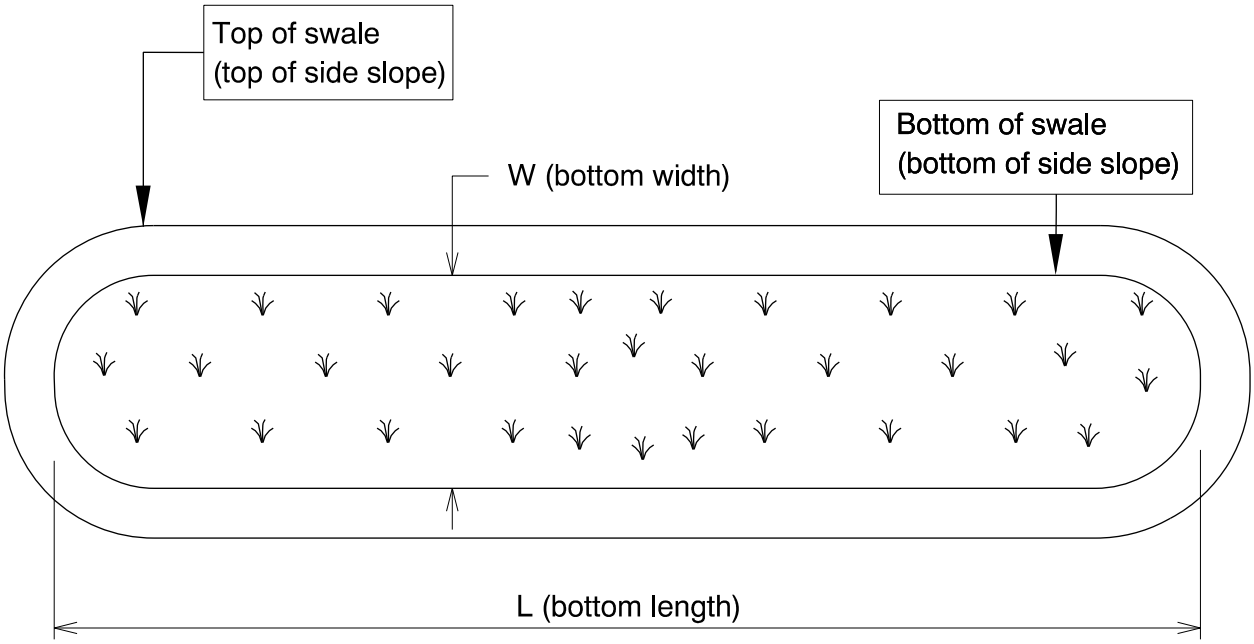
Figure 2: Facility Location Map

4. 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)
105	**6**

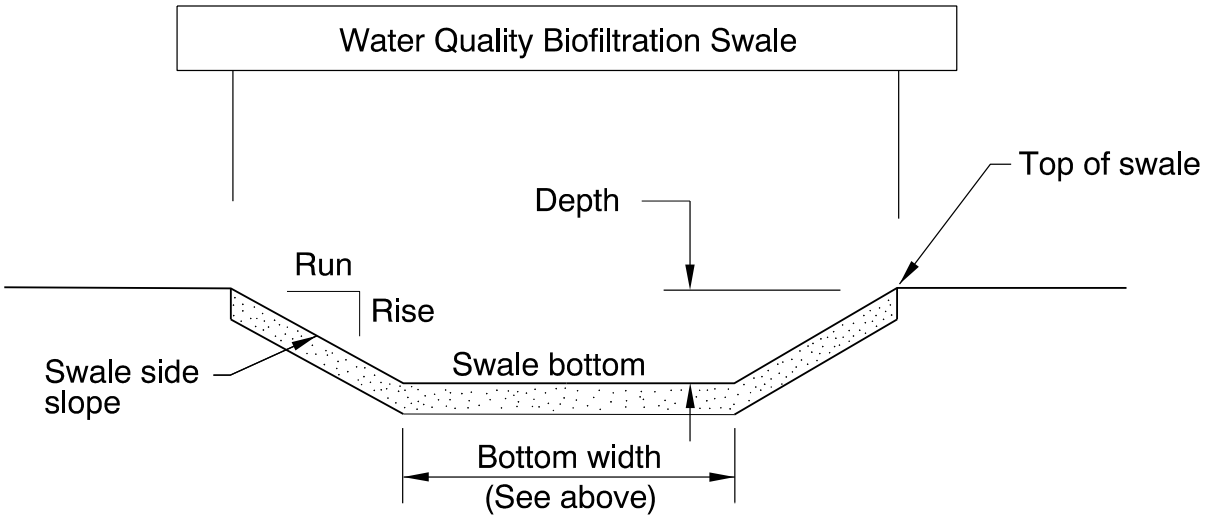


The depth of the swale is the vertical distance measured from the bottom of the swale to the top. The slope of the swale sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

Depth (feet)
2.5

Side slope	
Rise (feet)	**1**
Run (feet)	**4**



5. Facility Access

Maintenance access to the swale:

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

Figure 3: Facility access pad at inlet

6. 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 table below titled "Swale Components" has been provided to highlight the applicable components for this facility. The component is in use when the box contains an "x" (e.g. ☒).

How a swale operates, typical footprint configuration, and component definitions and details are outlined in the Standard Operation Manual for Water Quality Biofiltration Swales (implemented March 2017). A link to the Manual is attached to the feature marker in TransGIS.

Operational Plan

The applicable standard operational plan for this facility is:

☐ Operational Plan A ☒ Operational Plan B	☐ Operational Plan C
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 of this O& M Manual for site specific operational plan.

Maintenance Items

Operational components marked in the "Swale Components" table should be inspected and maintained according to Section 5. Each swale component is defined and detailed in the Standard Operation Manual using the associated "ID" number noted below.

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**
Storm drain 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: Rock flow spreader	☒	**S19**
Swale Outlet		
Catch basin with grate	☒	**S20**
Storm drain outlet pipe	☐	**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**

7. Maintenance

Maintenance Frequency/Maintain Records

a. Inspect annually. Preferably prior to the rainy season.

b. Clean and maintain as necessary. Refer to the 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 and detention facilities under Activity 125.

There are standard maintenance tables for standard ODOT designs. The maintenance tables describe the following (a) conditions when maintenance is needed (b) recommended maintenance to correct the condition. 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 and detention facilities
- Tables 3 (Maintenance of Water Quality or Biofiltration Swales): Contains maintenance information for swales

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

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

8. Limitations

Access grid installed:

☐ No	☒ Yes
There are (light, med., heavy) duty 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, or 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.

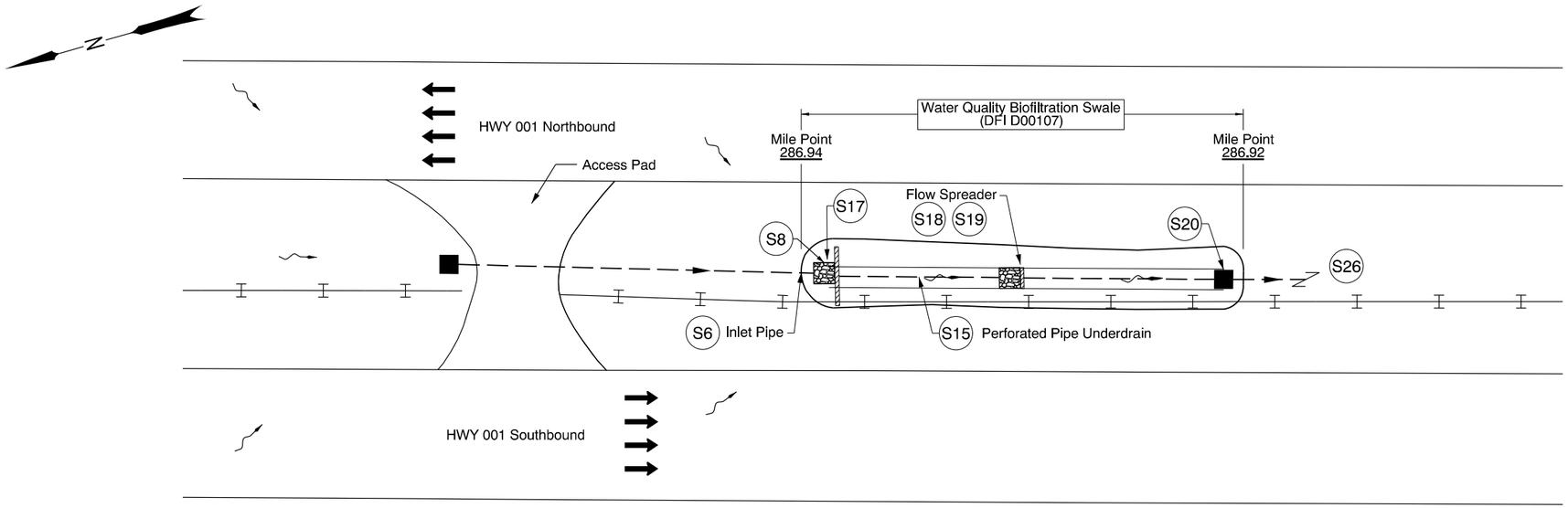
9. Waste Material Handling

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:

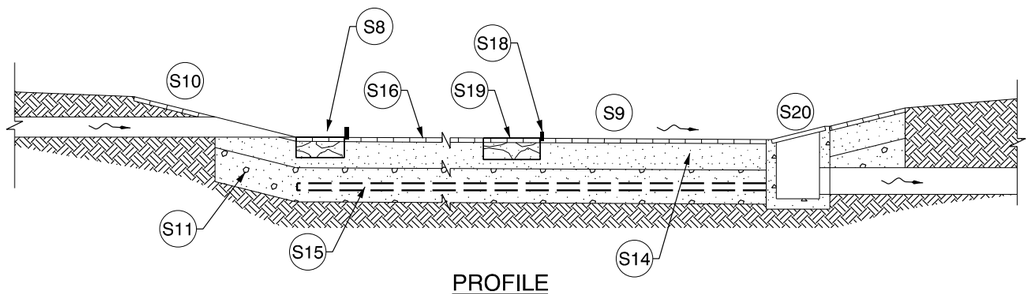
http://www.oregon.gov/ODOT/HWY/OOM/pages/ems.aspx

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

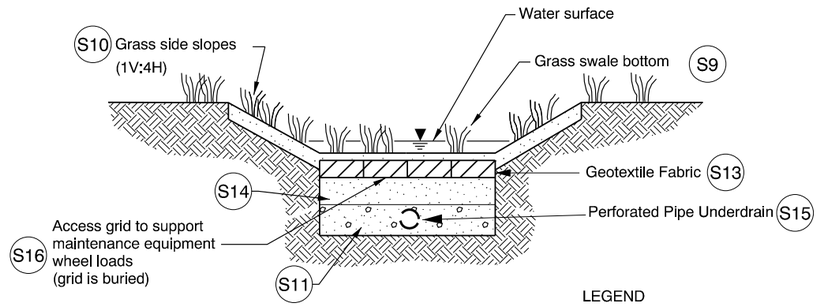
ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 986-2647
ODEQ Northwest Region Office	(503) 229-5263



PLAN
N.T.S.



PROFILE
N.T.S.



CROSS SECTION A-A
N.T.S.

LEGEND

- Stormwater Flow Path
- Manhole
- Catch Basin
- Storm Pipe
- Cable Barrier
- S# Table 1: Facility Components

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Brooklyn Scholz

Drafted By: Brooklyn Scholz

DFI D00107
MAINTENANCE DISTRICT 2B HWY 001
WATER QUALITY BIOFILTRATION SWALE
HIGHWAY MP 286.94
CLACKAMAS

DFI_D00107.dgn

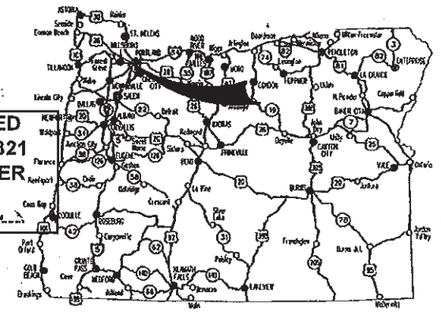
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

NOT REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler



Overall Length Of Project - 2.27 Miles

GRADING, DRAINAGE, PAVING, & SIGNING

I-5 AT I-205 INTERCHANGE PROJECT

PACIFIC HIGHWAY

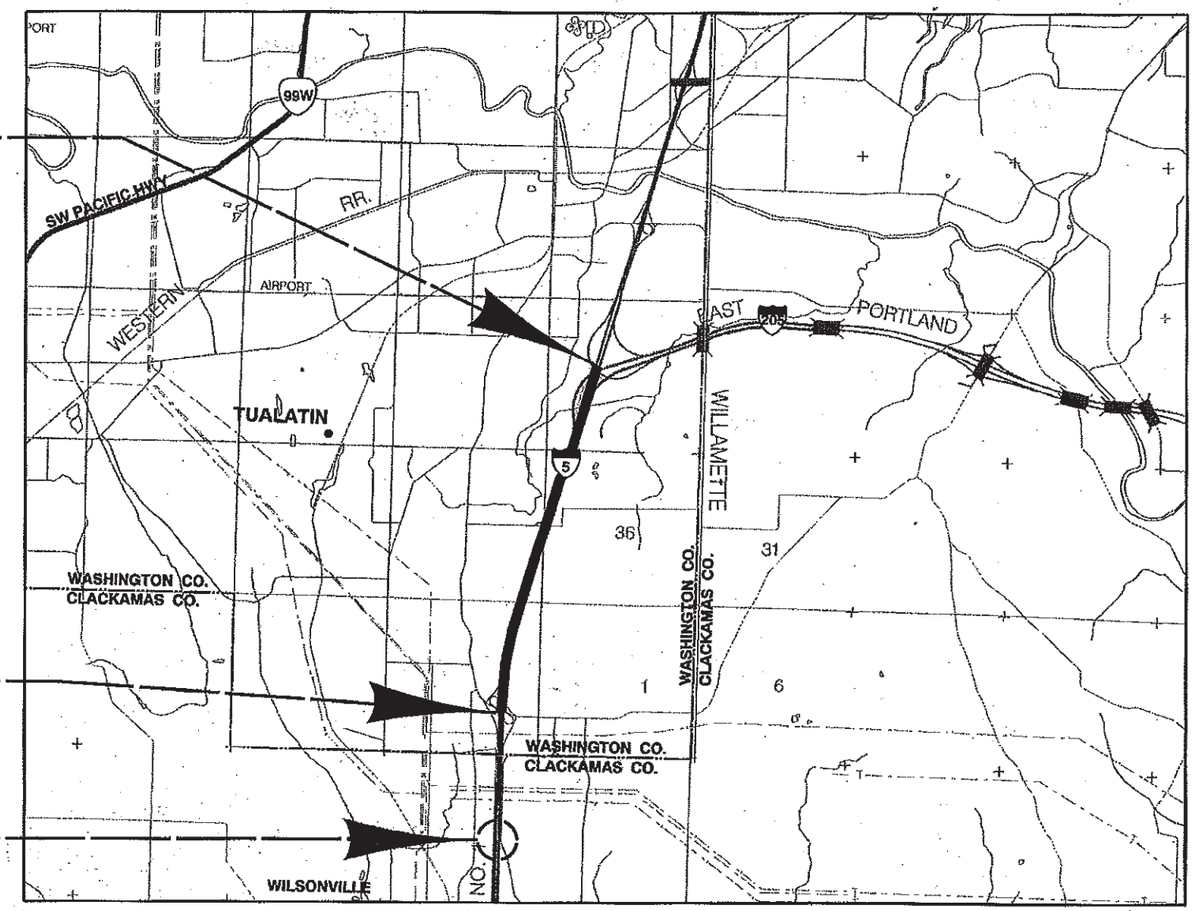
WASHINGTON & CLACKAMAS COUNTIES

⚠ APRIL 2011

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. "L6" 296+70 (M.P. 288.40)



END OF PROJECT
STA. "L6" 416+59 (M.P. 286.13)

PROJECT SITE 2
(M.P. 285.28)

No.	DATE	REVISIONS	BY
⚠1	03-24-11	Addenda #6 - Changed month to match new bid date	G.N.L.

T. 2S., T. 3S., R. 1E., R 1W., W.M.

OREGON TRANSPORTATION COMMISSION

Gail Achterman	CHAIR
Michael Nelson	VICE-CHAIR
Mary F. Olson	COMMISSIONER
Alan Brown	COMMISSIONER
David Lohman	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION
BY:
MURRAY, SMITH & ASSOC., INC.

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: K. M. Topp 3/24/11
Signature & date
KEVIN THOM, PRJ. MGR.
Print name and title
Concurrence by ODOT Chief Engineer

I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

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

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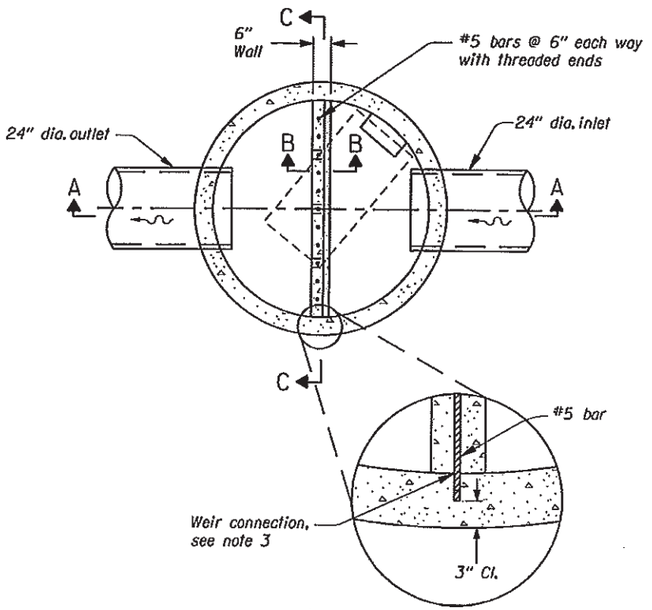
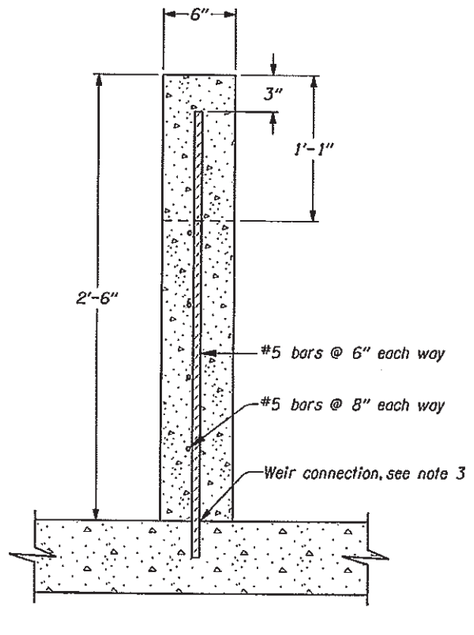
DRAINAGE DETAILS
72" Flow Control Manhole

44V-027

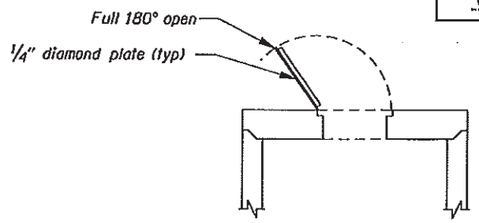
REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne L Statler



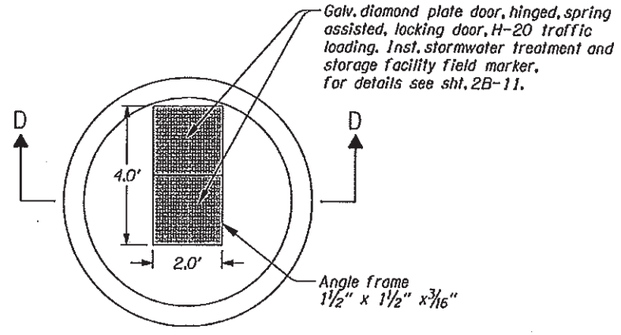
PLAN



SECTION B-B

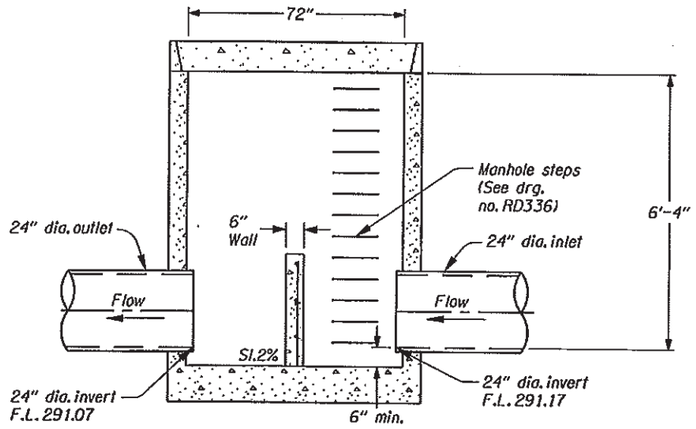


SECTION D-D

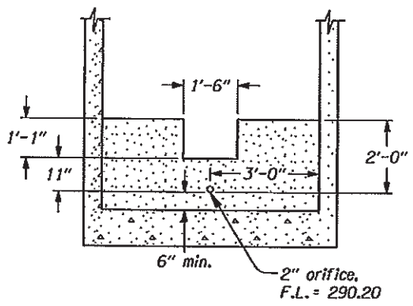


PLAN

MANHOLE TOP SLAB



SECTION A-A



SECTION C-C

NOTES:

1. *All bars shall be placed 2" clear of the nearest face of concrete unless shown otherwise.*
2. *For details not shown, see std. drg. no. RD346.*
3. *Weir connection to pre-cast manhole base and walls to include embedding #5 bars into base/wall half way, seal joint with epoxy*

REGISTERED PROFESSIONAL ENGINEER
72,619
Tamara S Connolly
OREGON
JUNE 11, 2008
TAMARA S. CONNOLLY
RENEWS: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

Murray, Smith & Associates, Inc.
121 S.W. Salmon, Suite 900, Portland, Oregon 97204-2919
503.225.9010

MSA

I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Tamara S. Connolly
Designed By - Edward P. Kreipe
Drafted By - Harry C. Marx

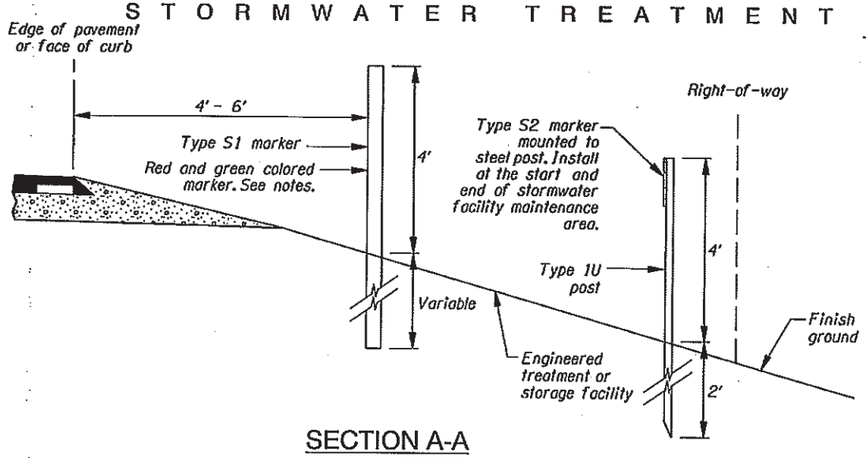
DETAILS

SHEET NO. 2B-8

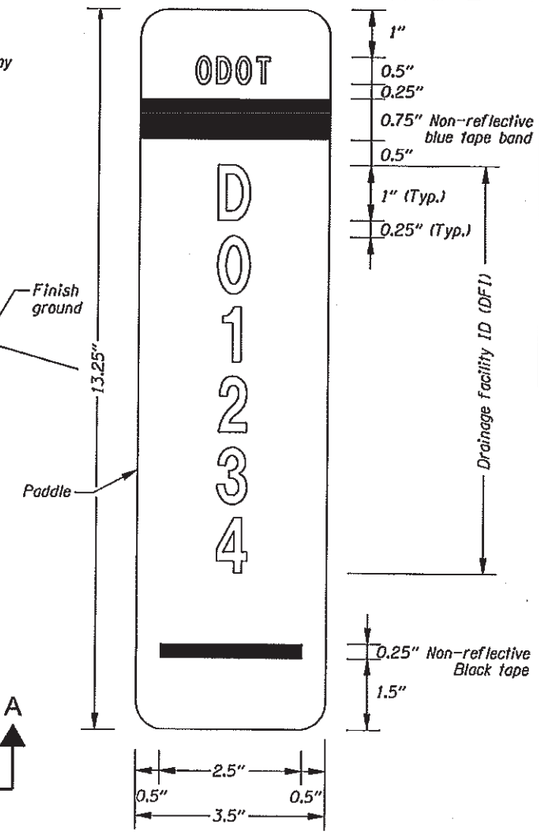
STORMWATER TREATMENT AND STORAGE FACILITY FIELD MARKERS

44V-027

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler



SECTION A-A

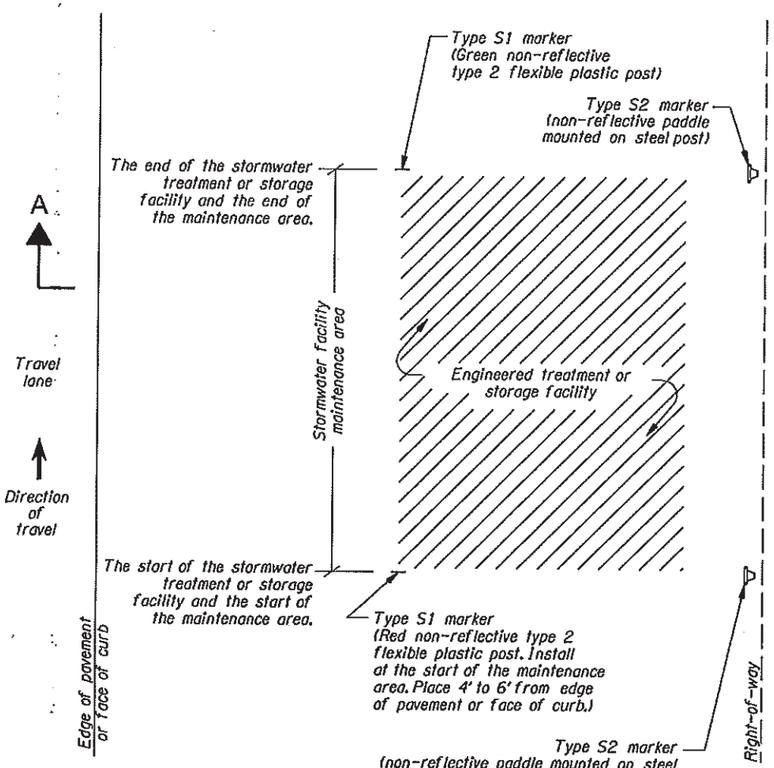


TYPE S2 MARKER
(STATE SUPPLIED ITEM)

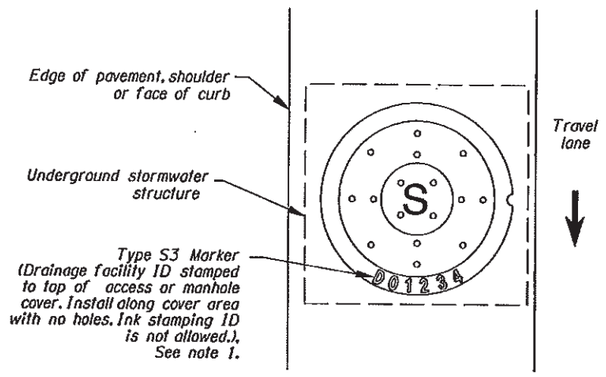
MARKER TABLE

FACILITY NAME	FACILITY LOCATION STATION	FACILITY LOCATION MP	DFI #	TYPE S2 MARKER LOCATION BEGIN	TYPE S2 MARKER LOCATION END	TYPE S1 MARKER RED	TYPE S1 MARKER GREEN	TYPE S3 MARKER
Water quality swale - "SW1"	"L6" 311+30	288.12	D00106	✓		✓		
	"L6" 309+30	288.16	D00106		✓		✓	
Bioslope	"L6" 348+80	287.41	D00108	✓		✓		
	"L6" 343+45	287.52	D00108		✓		✓	
Underground detention	"L6" 367+20 to "L6" 369+24	287.02 to 287.07	D00109					✓(X4)
Water quality swale - "SW2"	"L6" 374+75	286.92	D00107	✓		✓		
	"L6" 373+60	286.94	D00107		✓		✓	

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



TYPE S1 & S2 MARKERS INSTALLATION DETAIL



TYPE S3 MARKER INSTALLATION DETAIL

Notes:

Stormwater Facility Field Marker Type S1:
1. See Standard Drawing TM570 for Type 2 flexible plastic post dimensions. Do not mount reflective sheeting to flexible plastic post.
2. A red Type S1 marker is used to mark the start of a stormwater facility maintenance area. A green Type S1 marker is used to mark the end of a stormwater facility maintenance area.
3. Place 4 to 6 feet from edge of pavement or face of curb.
4. See marker table for installation locations.

Stormwater Facility Field Marker Type S2:
1. Paddle:
   - Aluminum sheet, nominal thickness 0.050"
   - White non-reflective background
   - Mount paddle to one (1) Type 1U steel post using 3/16" diameter aluminum blind rivets and washers. See Standard Drawing TM 570 detail labeled "Steel Posts" for mounting a traffic target. Install paddle onto Type 1U steel post using the same hole pattern.
   - Text and numbers are Type C font in non-reflectorized black
   - Band is non-reflective blue tape
   - Do not mount paddle to other highway signing posts
   - Install paddle parallel to travel lane
   - Prepare paddle for each "DFI" noted in the marker table
2. Steel Posts:
   - See Standard Drawing TM571 for Type 1U steel post dimensions

Stormwater Facility Field Marker Type S3:
1. The top of manhole cover shall be stamped with the drainage facility ID. The top of manhole hatch shall be bead welded lettering with the drainage facility ID. Ink stamping ID is not allowed.

REGISTERED PROFESSIONAL ENGINEER
70,713
OREGON
JULY 11, 2006
GABRIEL E. CROP
RENEWS: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Gabriel E. Crop
Designed By - Gwenyth N. Linscheid
Drafted By - Susan K. Wentz

DETAILS

SHEET NO. 2B-11

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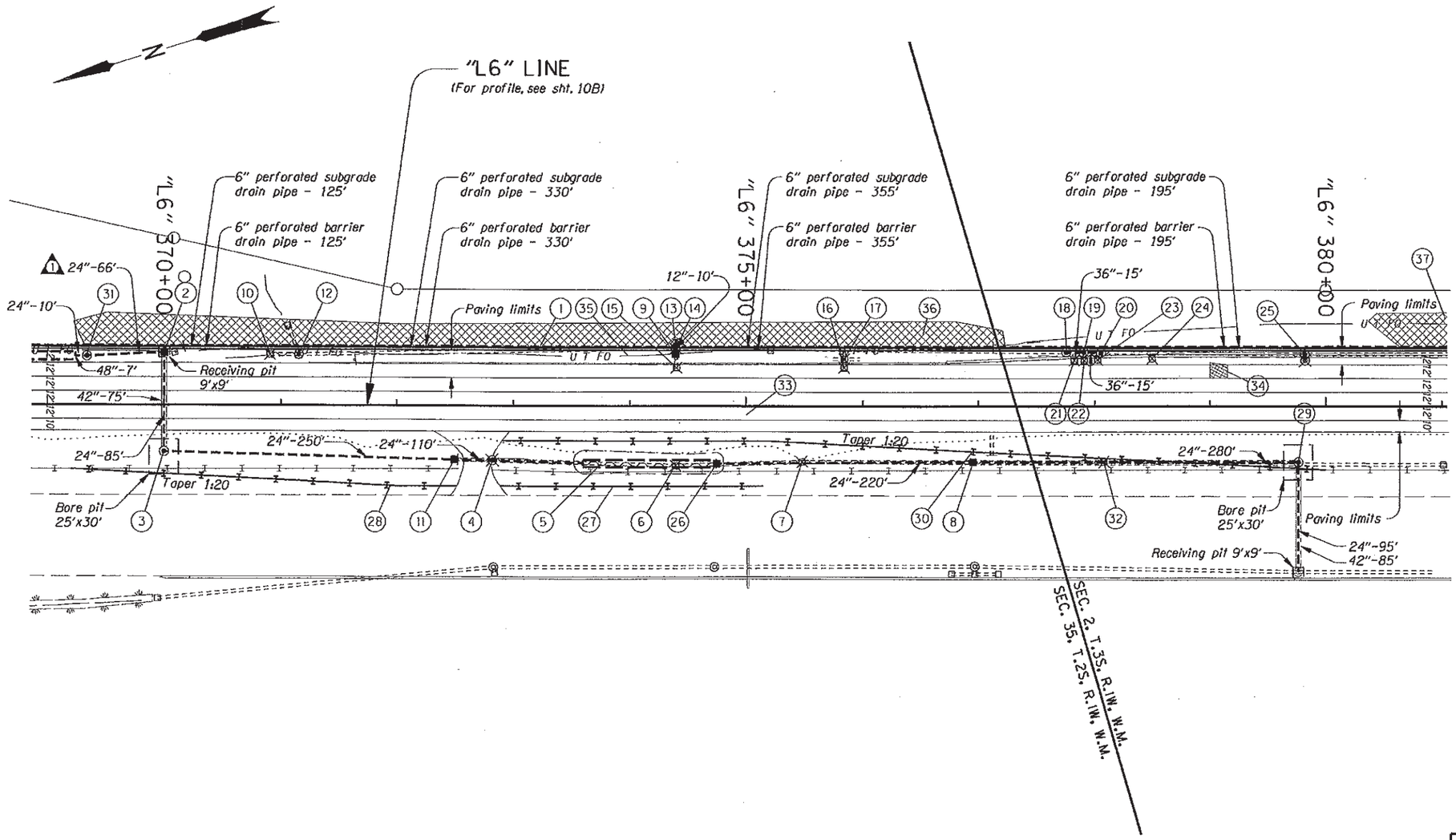
44V-027

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler



No work zone shown thus:
Weed control area shown thus:
South 14 ft to 12 ft pavement transition shown thus:
Plug and abandon or remove extg. pipe shown thus:
Remove inlet shown thus:
Remove manhole shown thus:

No.	DATE	REVISIONS	BY
1	03-11-11	Addendo #2 - Changed pipe length	G.N.L.

REGISTERED PROFESSIONAL ENGINEER
70,713
OREGON
JULY 11, 2006
GABRIEL E. CROP
RENEWS: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

Murray, Smith & Associates, Inc.
121 S.W. Salmon, Suite 900, Portland, Oregon 97204-2919
503.225.9010

I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Gabriel E. Crop
Designed By - Gweyth N. Linscheid
Drafted By - Harry C. Marx

ALIGNMENT & GENERAL CONSTRUCTION

SHEET NO. 10

44V-027

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler

(1) See sht. 9, note 10
Const. tall conc. shldr. barrier
Remove extg. conc. shldr. barrier - 2025'

(2) Sta. "L6" 370+00, lt.
Const. type "G-2" inlet (against barrier)
Inst. 24" storm sew. pipe - 66'
5' depth
Inst. 6" perforated subgrade drain pipe - 305'
Inst. 6" perforated barrier drain pipe - 305'
Drainage geotextile, type 1 - 627 sq. yd.
(For details, see sht. 2B-6)

(3) Sta. "L6" 370+00, 40' rt.
Const. 60" storm sew. manhole
Inst. 42" steel casing pipe - 75'
10' depth
Inst. 24" storm sew. carrier pipe inside casing - 85'
(See drgs. nos. RD308, RD336, RD344 & RD356)

(4) Sta. "L6" 372+82, 47' rt.
Remove extg. manhole
Remove extg. pipe

(5) Const. water quality swale "SW2"
(For details, see sht. GJ-8)

(6) Sta. "L6" 374+40.5, 51' rt.
Remove extg. inlet
Remove extg. pipe

(7) Sta. "L6" 375+48, 48' rt.
Remove extg. inlet
Remove extg. pipe

(8) Sta. "L6" 376+95, 48' rt.
Const. type "G-2MA" inlet
(1) Inst. 24" storm sew. pipe - 220'
5' depth

(9) Sta. "L6" 374+39, lt.
Const. type "G-2" inlet (against barrier)
Inst. 12" storm sew. pipe - 10'
5' depth

(10) Sta. "L6" 370+90, 44' lt.
Remove extg. inlet
Plug extg. pipe

(11) Sta. "L6" 372+49.52 lt.
Const. type "G-2MA" inlet
Inst. 24" storm sew. pipe - 250'
10' depth
Inst. 24" storm sew. pipe - 110'
5' depth
Inst. 24" sloped end section
Const. paved end slope
(See drgs. nos. RD318, RD320 & RD374)

(12) Sta. "L6" 371+15, lt.
Remove extg. manhole
Const. storm sew. manhole
Connect to extg. sew. pipe
Inst. 6" perforated subgrade drain pipe -125'
Inst. 6" perforated barrier drain pipe - 125'
Drainage geotextile, type 1 - 257 sq. yd.
(For details, see sht. 2B-6)
(See drg. no. RD348)

(13) Sta. "L6" 374+39, 52' lt.
Remove extg. manhole
Const. 72" storm sew. manhole with inlet
Connect to extg. sew. pipe
Inst. 6" perforated subgrade drain pipe - 330'
Inst. 6" perforated barrier drain pipe - 330'
Drainage geotextile, type 1 - 679 sq. yd.
(For details, see sht. 2B-6)

(14) Sta. "L6" 374+42, 55' lt.
Remove extg. inlet
Plug extg. pipe

(15) Sta. "L6" 374+40, 33' lt.
Remove extg. inlet
Plug extg. pipe

(16) Sta. "L6" 375+84, 33' lt.
Remove extg. inlet
Remove extg. pipe

(17) Sta. "L6" 375+84, 41' lt.
Remove extg. inlet
Plug extg. pipe

(18) Sta. "L6" 377+75, lt.
Const. 72" storm sew. manhole with inlet (against barrier)
Connect to extg. sew. pipe

(19) Sta. "L6" 377+90, lt.
Const. 72" storm sew. manhole with inlet (against barrier)
Inst. 36" storm sew. pipe - 15'
5' depth
Inst. 6" perforated subgrade drain pipe - 550'
Inst. 6" perforated barrier drain pipe - 550'
Drainage geotextile, type 1 - 1131 sq. yd.
(For details, see sht. 2B-6)

(20) Sta. "L6" 378+05, lt.
Const. 72" storm sew manhole with inlet (against barrier)
Connect to extg. sew. pipe
Inst. 36" storm sew. pipe -15'
5' depth

(21) Sta. "L6" 377+82.5, 39' lt.
Remove extg. inlet
Remove extg. pipe

(22) Sta. "L6" 377+91, 39' lt.
Remove extg. inlet
Plug extg. pipe

(23) Sta. "L6" 378+02.5, 40' lt.
Remove extg. inlet
Remove extg. pipe

(24) Sta. "L6" 378+50, 41' lt.
Remove extg. inlet
Plug extg. pipe

(25) Sta. "L6" 379+82, lt.
Const. major manhole adjustment
Inst. 6" perforated subgrade drain pipe - 305'
Inst. 6" perforated barrier drain pipe - 305'
Drainage geotextile, type 1 - 627 sq. yd.
(For details, see shts. 2B-6 & 2B-9)

(26) Sta. "L6" 374+75, 49' rt.
Const. type "D" inlet

(27) Sta. "L6" 372+90 to Sta. "L6" 375+15, rt.
Remove extg. cable barrier - 710'
Const. cable barrier - 225'
Const. cable barrier terminal - 2

(28) Sta. "L6" 369+20 to Sta. "L6" 372+50, rt.
Remove extg. cable barrier - 335'
Const. cable barrier - 330'
Const. cable barrier terminal
Connect to extg. cable barrier

(29) Sta. "L6" 379+76, 48' rt.
Const. 60" storm sew. manhole
Inst. 24" storm sew. pipe - 280'
10' depth
Inst. 42" steel casing pipe - 85'
10' depth
Inst. 24" storm sew. carrier pipe inside casing - 95'
Connect to extg. manhole

(30) Sta. "L6" 372+90 to Sta. "L6" 380+00, rt.
Const. cable barrier - 970'
Const. cable barrier terminal
Connect to extg. cable barrier

(31) Sta. "L6" 369+34, 42' lt.
Const. 72" flow control manhole
Inst. 24" storm sew. pipe - 10'
5' depth
Inst. stormwater treatment and storage facility field marker
(For details, see shts. 2B-8 & 2B-11)

(32) Sta. "L6" 378+08, 48' rt.
Remove extg. inlet
Remove extg. pipe

(33) Sta. "L6" 369+50 to Sta. "L6" 380+00
Const. subsidence area repair
(For details, see sht. 2B-5)

(34) Const. South 14 ft to 12 ft pavement transition
(For details, see shts. 2B-2, 2B-3 & 2B-4)

(35) Relocate extg. underground fiber optics
(For drg. nos., see sht. 1A)

(36) Weed control area - 0.42 ac.

(37) Weed control area - 0.40 a.c.

No.	DATE	REVISIONS	BY
1	03-11-11	Addenda #2 - Changed pipe length	G.N.L.

REGISTERED PROFESSIONAL ENGINEER
70,713
OREGON
JULY 11, 2006
GABRIEL E. CROP
RENEWS: 12-31-2011

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

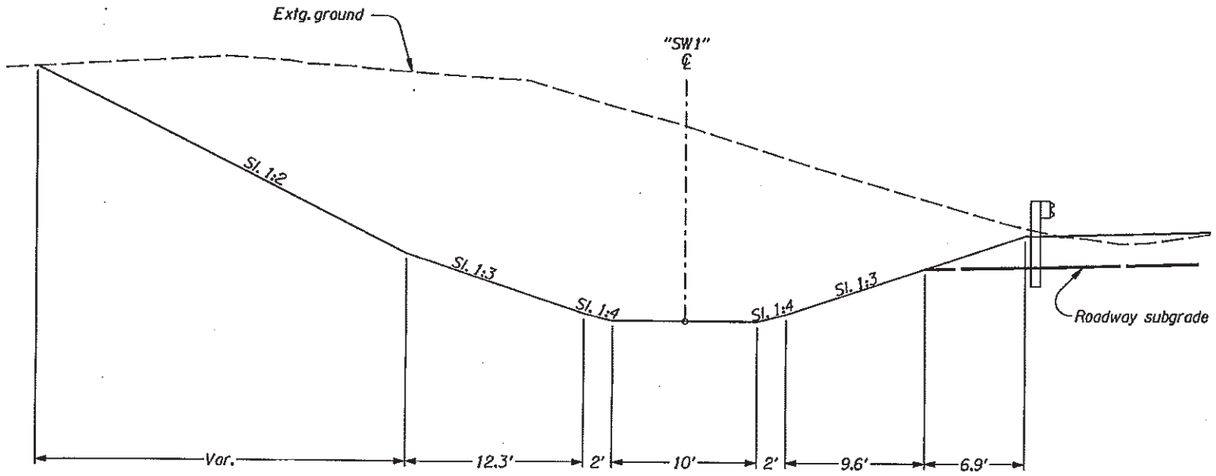
Reviewed By - Gabriel E. Crop
Designed By - Gweyth N. Linscheid
Drafted By - Harry C. Marx

ALIGNMENT & GENERAL CONSTRUCTION

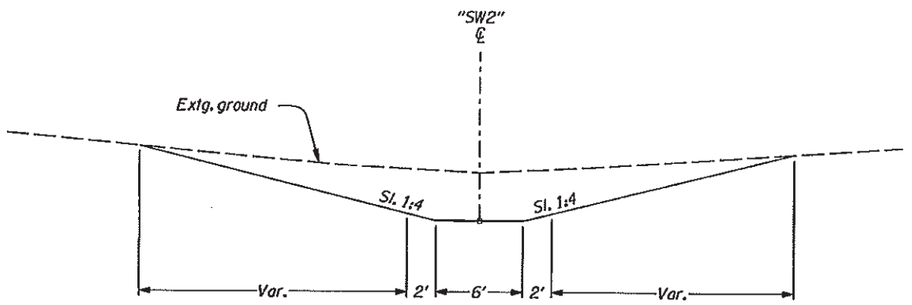
SHEET NO. 10A

WATER QUALITY SWALE DETAILS

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler



STA. "SW1" 0+50 To STA. "SW1" 2+50



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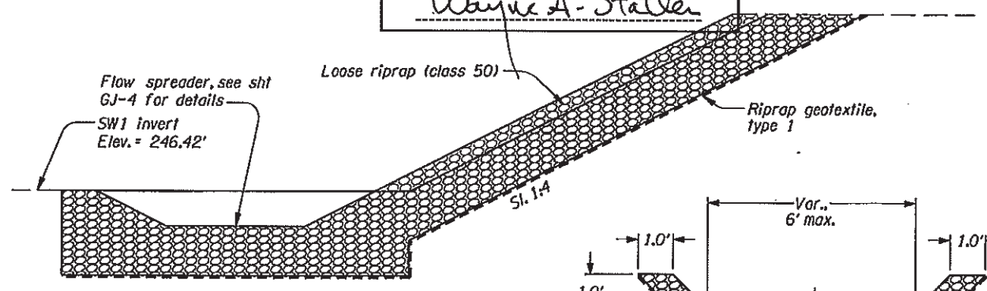
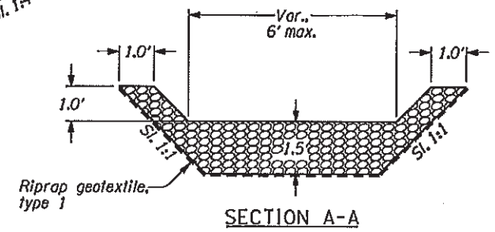


SECTION B-B



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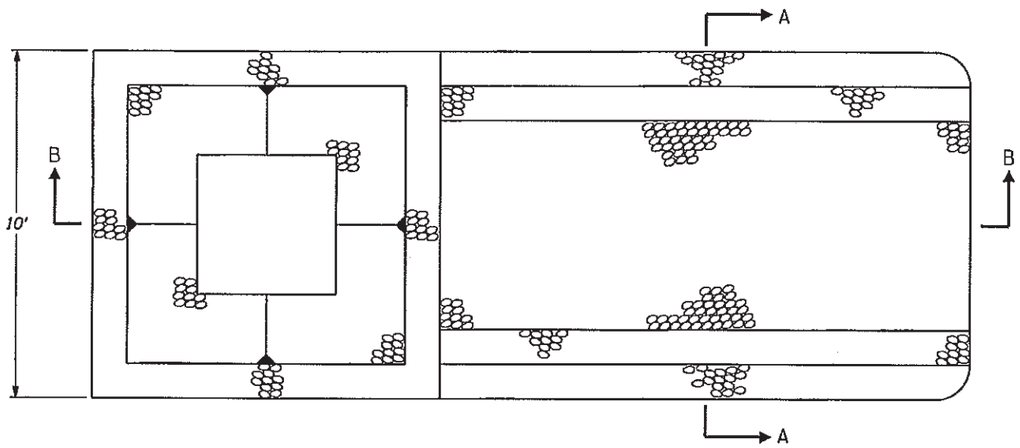

PLAN

"SW1" INLET PROTECTION, TYPE 5
NTS

REGISTERED PROFESSIONAL ENGINEER
72,619
OREGON
JUNE 11, 2008
TAMARA S. CONNOLLY
Tamara Connolly
RENEWS: 12-31-2011

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Tamara S. Connolly
Designed By - Edward P. Kreipe
Drafted By - Harry C. Marx

WATER QUALITY DETAILS

SHEET NO. GJ-2

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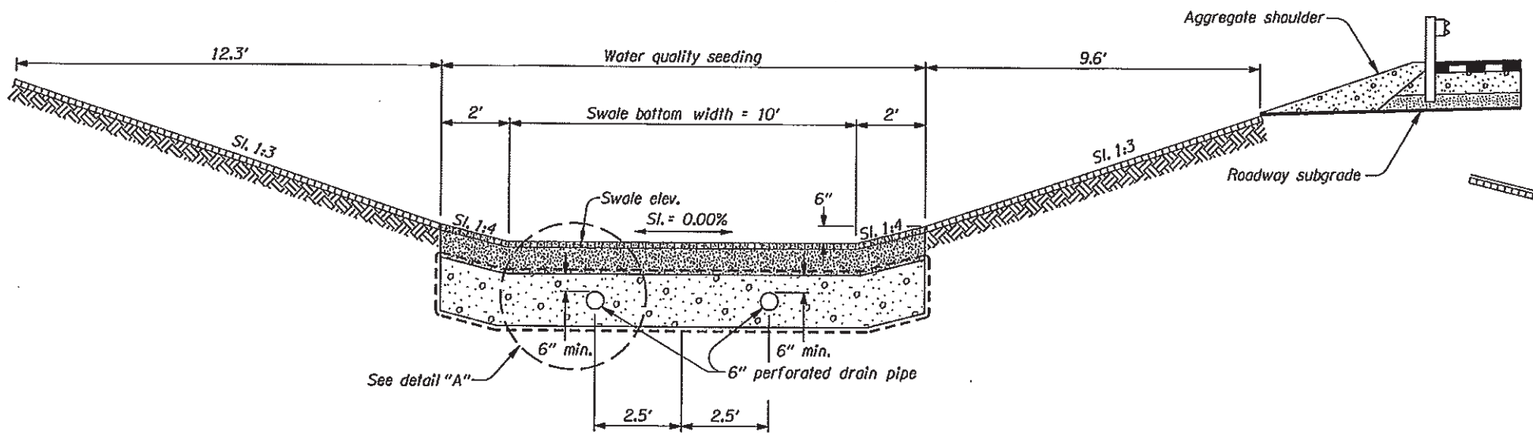
WATER QUALITY SWALE DETAILS

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ.MGR. WAYNE STATLER
Wayne A. Statler



"SW1" SECTION
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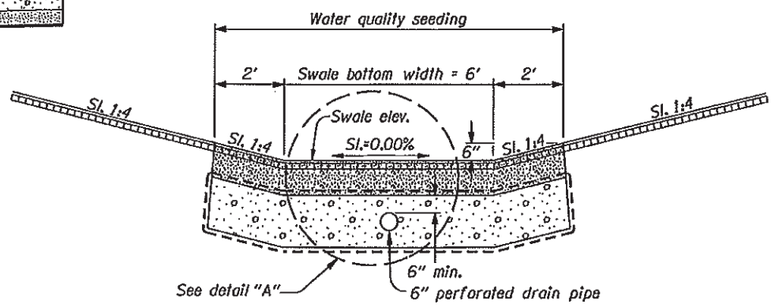

"SW2" SECTION
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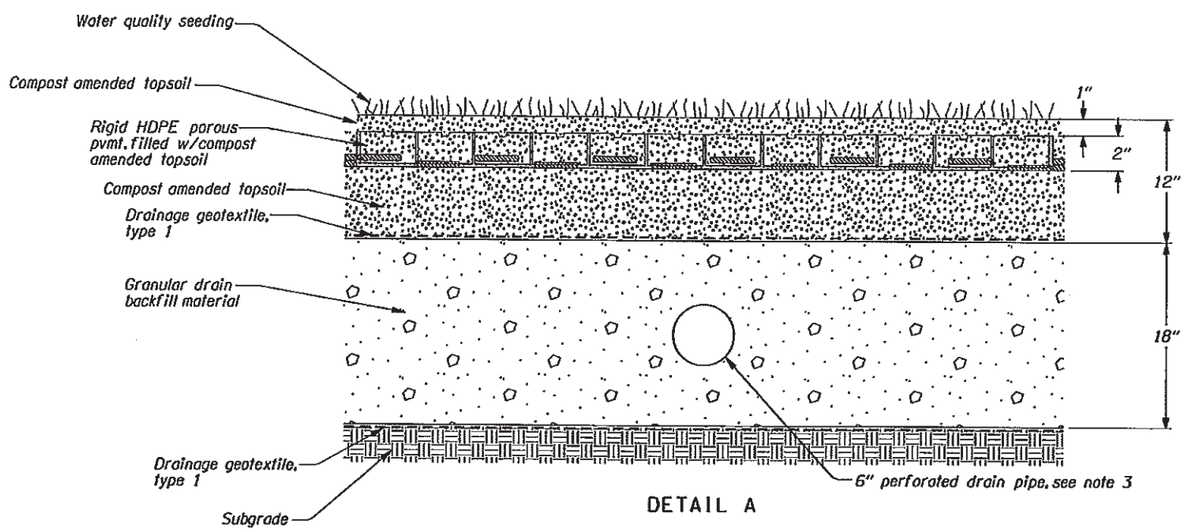

DETAIL A

Notes:

1. Base agregate, ¾"-0", per Sec. 00641
2. Swale elevation called out on plans is at top of rigid HDPE porous pvmt.
3. Perforations shall only be on the top half of the pipe.

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PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Tamara S. Connolly
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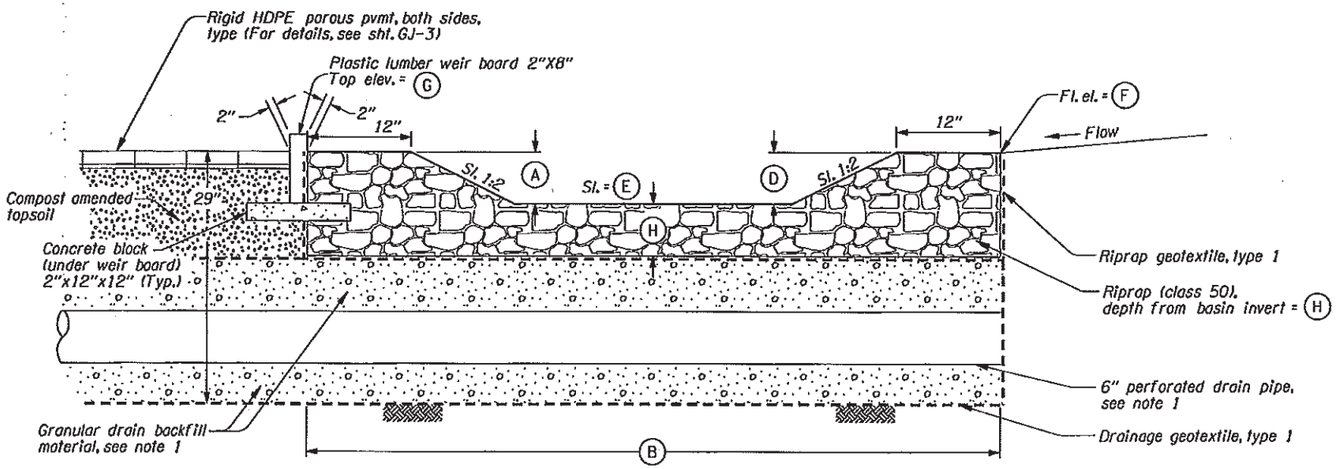
WATER QUALITY DETAILS

SHEET NO. GJ-3

FLOW SPREADER



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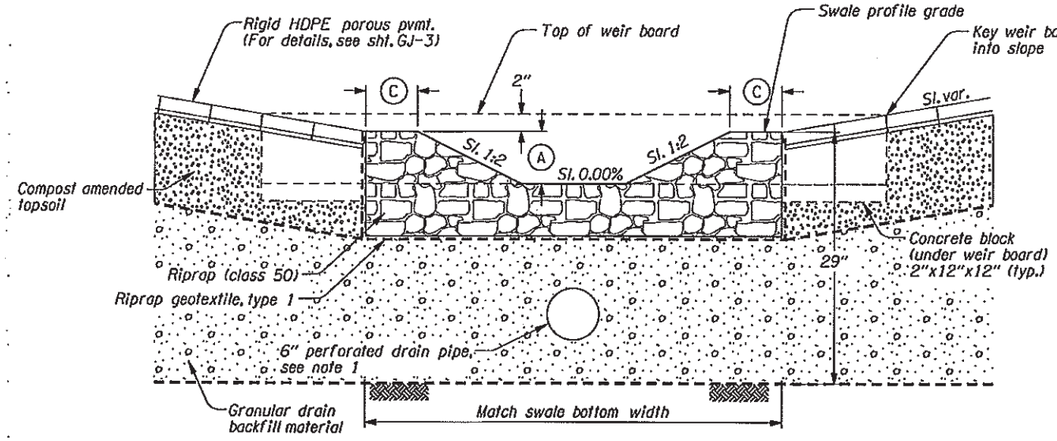
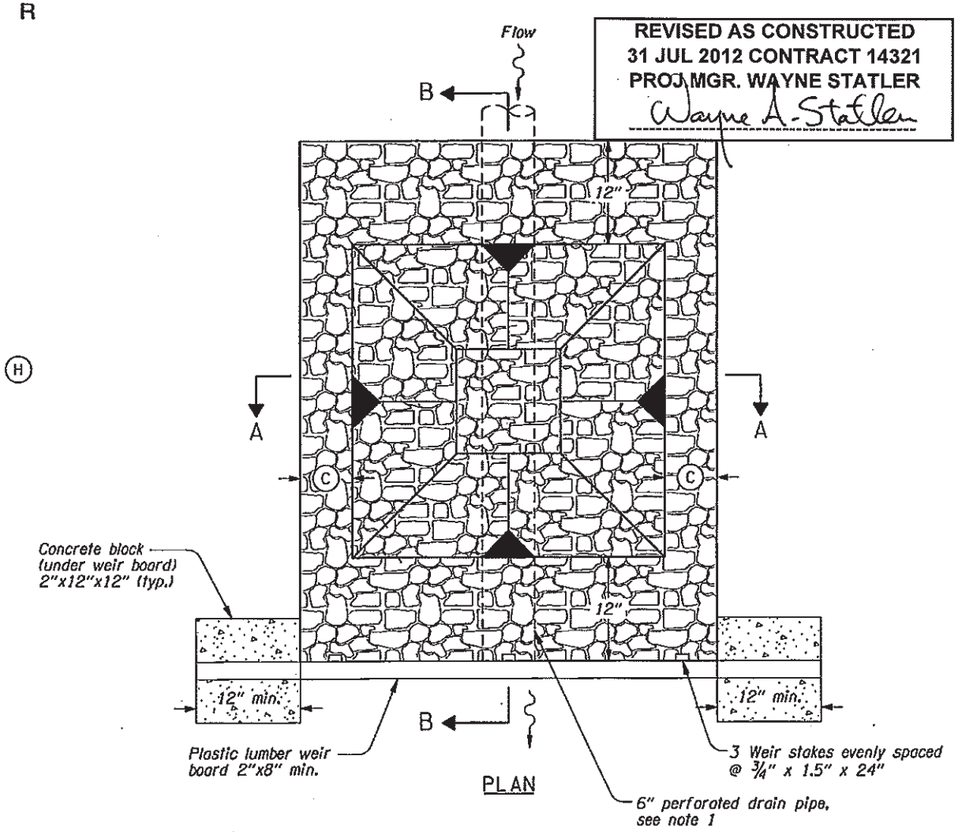


SECTION A-A



PLAN

REVISED AS CONSTRUCTED
31 JUL 2012 CONTRACT 14321
PROJ. MGR. WAYNE STATLER
Wayne A. Statler

Notes:

1. Omit perforated drain pipe and granular drain backfill material in flow spreaders at "SW1" 2+30 to "SW1" 2+50. and "SW2" 0+50 to "SW2" 0+60.

FLOW SPREADER TABLE

Station	A	B	C	D	E	F	G	H
"SW1" 2+30 to 2+50	12"	20'	12"	17½"	0.00%	246.88	246.59	17"
"SW2" 0+50 to 0+60	8"	10'	6"	11"	0.00%	289.16	289.07	21"
"SW1" 1+80 to 1+75.5	6"	4'-6"	6"	6"	2.24%	245.30	245.37	6"
"SW1" 1+30 to 1+25.5	6"	4'-6"	6"	6"	2.24%	244.18	244.25	6"
"SW1" 0+80 to 0+75.5	6"	4'-6"	6"	6"	2.24%	243.06	243.13	6"
"SW2" 1+10.5 to 1+15	6"	4'-6"	6"	6"	0.50%	288.65	288.80	6"

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

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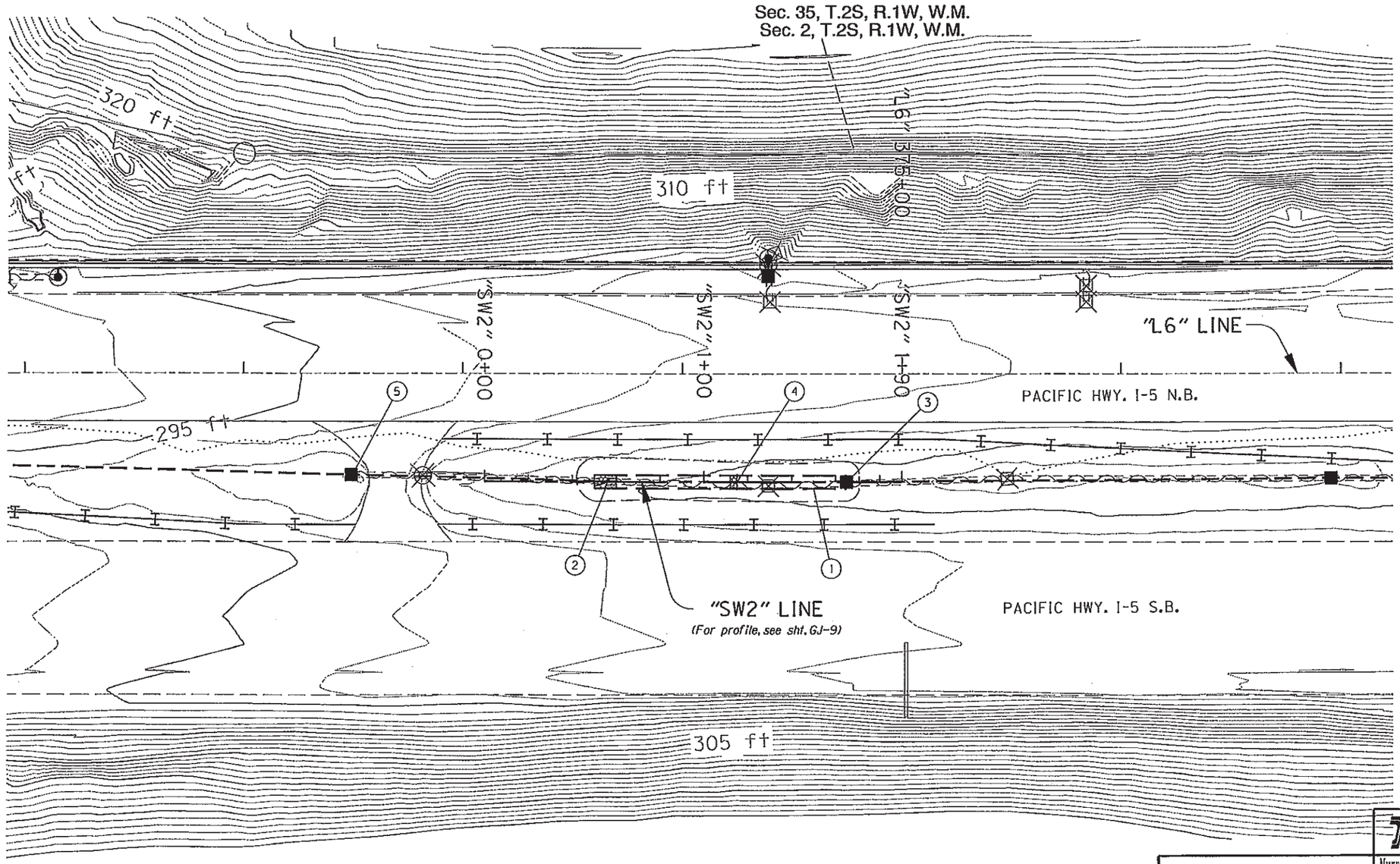
WATER QUALITY DETAILS

SHEET NO. GJ-4

44V-027



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31 JUL 2012 CONTRACT 14321
PROJ. MGR. WAYNE STATLER
Wayne A. Statler

(1) *Sta. "SW2" 0+60 to Sta. "SW2" 1+65*
Const. water quality swale "SW2" - 105'
HDPE porous pavers - 140 sq. yd.
Drainage geotextile - 350 sq. yd.
Granular drain backfill material - 70 cu. yd.
Compost amended topsoil - 47 cu. yd.
Exc. - 205 cu. yd.
6" drain pipe - 105'
(For details, see sht. GJ-2, GJ-3, GJ-4 & GJ-9)

(2) *Sta. "SW2" 0+50 to Sta. "SW2" 0+60*
Const. flow spreader - 10'
Riprap, class 50 - 5 cu. yd.
Riprap geotextile, type 1 - 15 sq. yd.
(For details, see sht. GJ-4)

(3) *See sht. 10, note 26*

(4) *Sta. "SW2" 1+15*
Const. flow spreader
Riprap, class 50 - 2 cu. yd.
Riprap geotextile, type 1 - 5 sq. yd.
(For details, see sht. GJ-4)

(5) *See sht. 10, note 11*

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

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WATER QUALITY PLAN

SHEET NO. GJ-8

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44V-027

"SW2" LINE

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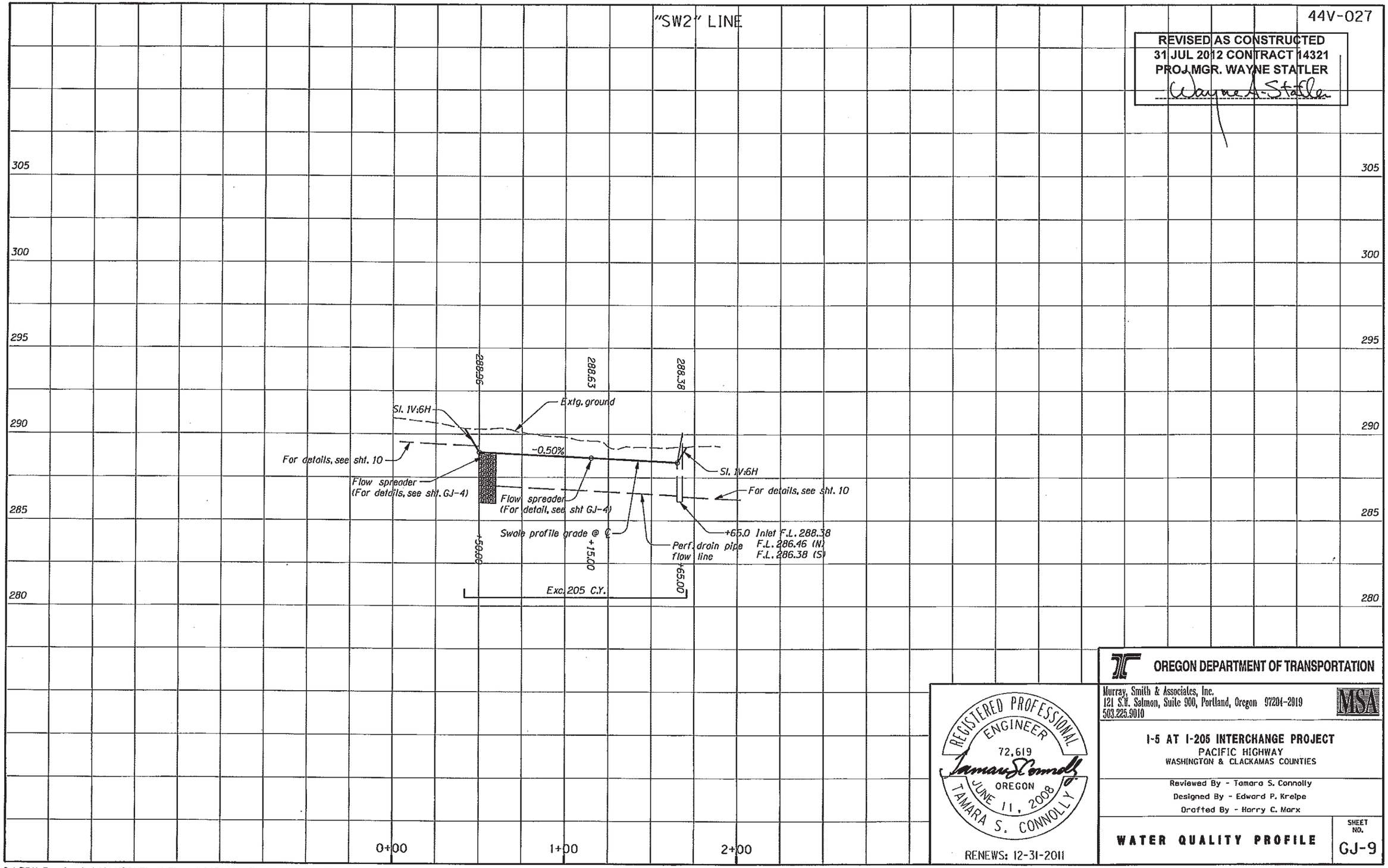
PROJ MGR. WAYNE STATLER
Wayne A. Statler



OREGON DEPARTMENT OF TRANSPORTATION

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RENEWS: 12-31-2011

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I-5 AT I-205 INTERCHANGE PROJECT
PACIFIC HIGHWAY
WASHINGTON & CLACKAMAS COUNTIES

Reviewed By - Tamara S. Connolly
Designed By - Edward P. Krelpe
Drafted By - Harry C. Marx

WATER QUALITY PROFILE

SHEET NO. GJ-9

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