

OPERATION & MAINTENANCE MANUAL

DFI No. : D00775

**Facility Type: Water Quality
Biofiltration Swale**

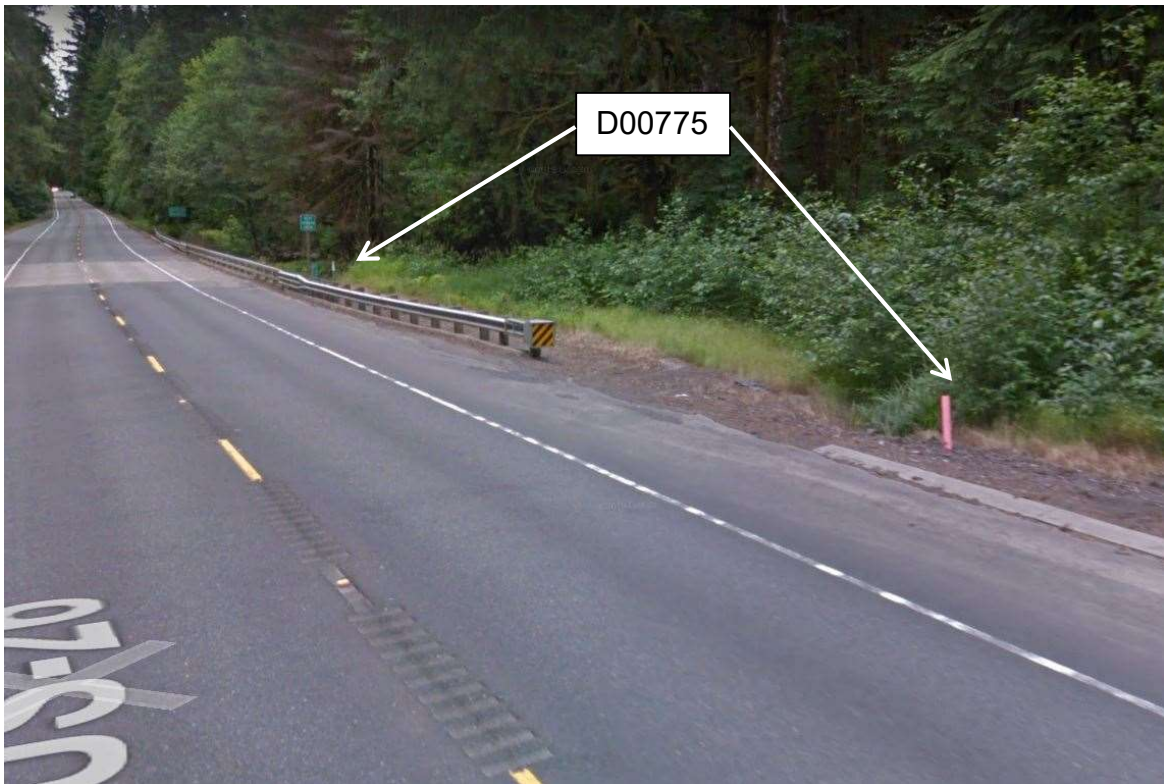


Figure 1: DFI No. D00775, Looking Southeast

[September 2014]

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1. Identification

Drainage Facility ID (DFI): **D00775**
Facility Type: Water Quality Biofiltration Swale
Construction Drawings: (V-File Number) 46V-125
Location: District: 1
Highway No.: 047
Mile Post: 16.23;16.26 (beg./end), Right
Description: This facility is located on the south side of Sunset Highway at the west end of the West Humbug Creek Bridge (No. 22057).

2. Facility Contact Information

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

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

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

3. Construction

Engineer of Record: Consultant Designer – [OBEC Consulting Engineers, Amy Jones, 971-634-2005]

Facility construction: 2014

Contractor: Oregon State Bridge Construction

4. Storm Drain System and Facility Overview

A water quality swale is a flat-bottomed open channel designed to treat stormwater runoff from highway pavement areas. This type of facility is lined with grass. Treatment by trapping sedimentation occurs when stormwater runoff flows through the grass.

This biofiltration swale is designed to treat runoff from the water quality design storm and provide infiltration prior to entering West Humbug Creek. It is located on the south side of Sunset Highway, west of the bridge.

The stormwater runoff sheet flows from paved areas along the south side of Sunset Highway (US 26) Alignment to a drainage curb on the south side of the roadway. A curb opening inlet has been constructed to direct the flows from the Highway and into the swale. The location of this is noted on the Operation Plan as point A in Appendix A. The stormwater runoff sheet flows on the north side of Sunset highway, off the roadway to a v-ditch, and then inlets; which conveys the runoff to the swale and outfalls to point A in the swale.

Runoff exits the swale through a combination of sheet flow, infiltration, and a 6-inch underdrain pipe. See Figure 3 and Point B on the Operational Plan in Appendix A.

The receiving waterway for the runoff is West Humbug Creek.

A. Maintenance equipment access:

The swale and can be accessed directly from the shoulder of the Sunset Highway eastbound lane.

B. Heavy equipment access into facility:

- Allowed (no limitations)
- Allowed (with limitations)
- Not allowed

C. Special Features:

- Amended Soils
- Porous Pavers
- Liners
- Underdrains

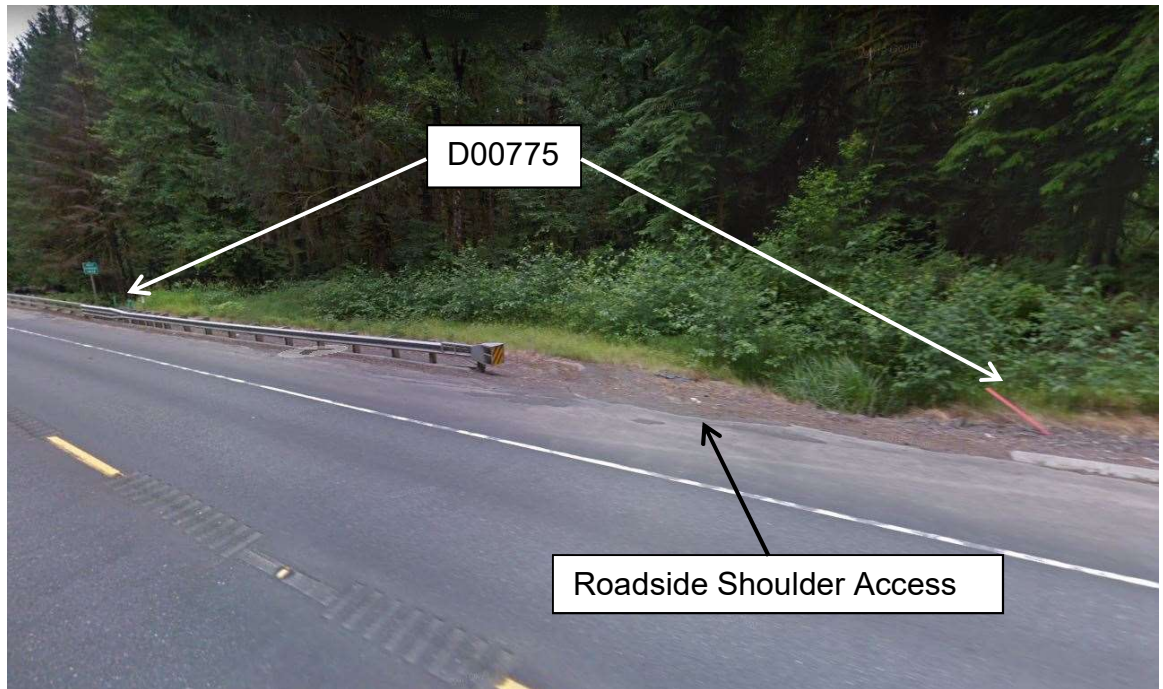


Figure 2: Looking South



Figure 3: Looking West

5. Facility Haz Mat Spill Feature(s)

The ditch on the north side of Sunset Highway conveyed to the swale can be used to store a volume of liquid by blocking the 12-inch diameter pipe outfall to the swale at the west end of the swale for spills in the westbound lane of the Highway. For spills in the eastbound lane of the Highway, a board can be placed to block the curb opening that outfalls to the swale.

6. Auxiliary Outlet (High Flow Bypass)

There is no auxiliary outlet provided for the water quality swale. Storm events larger than the water quality storm will overtop the swale and sheet flow to the creek downstream of the swale.

7. Maintenance Requirements

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

The ODOT Maintenance Guide can be viewed at the following website, under the **Operations and Maintenance Manuals and Maintenance Tables** section:

<https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/Stormwater.aspx>
[X](#)

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

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

- Appendix C (proprietary structure)
- Special Maintenance requirements:

8. Waste Material Handling

Material removed from the facility is defined as waste by DEQ. Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options: <http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml>

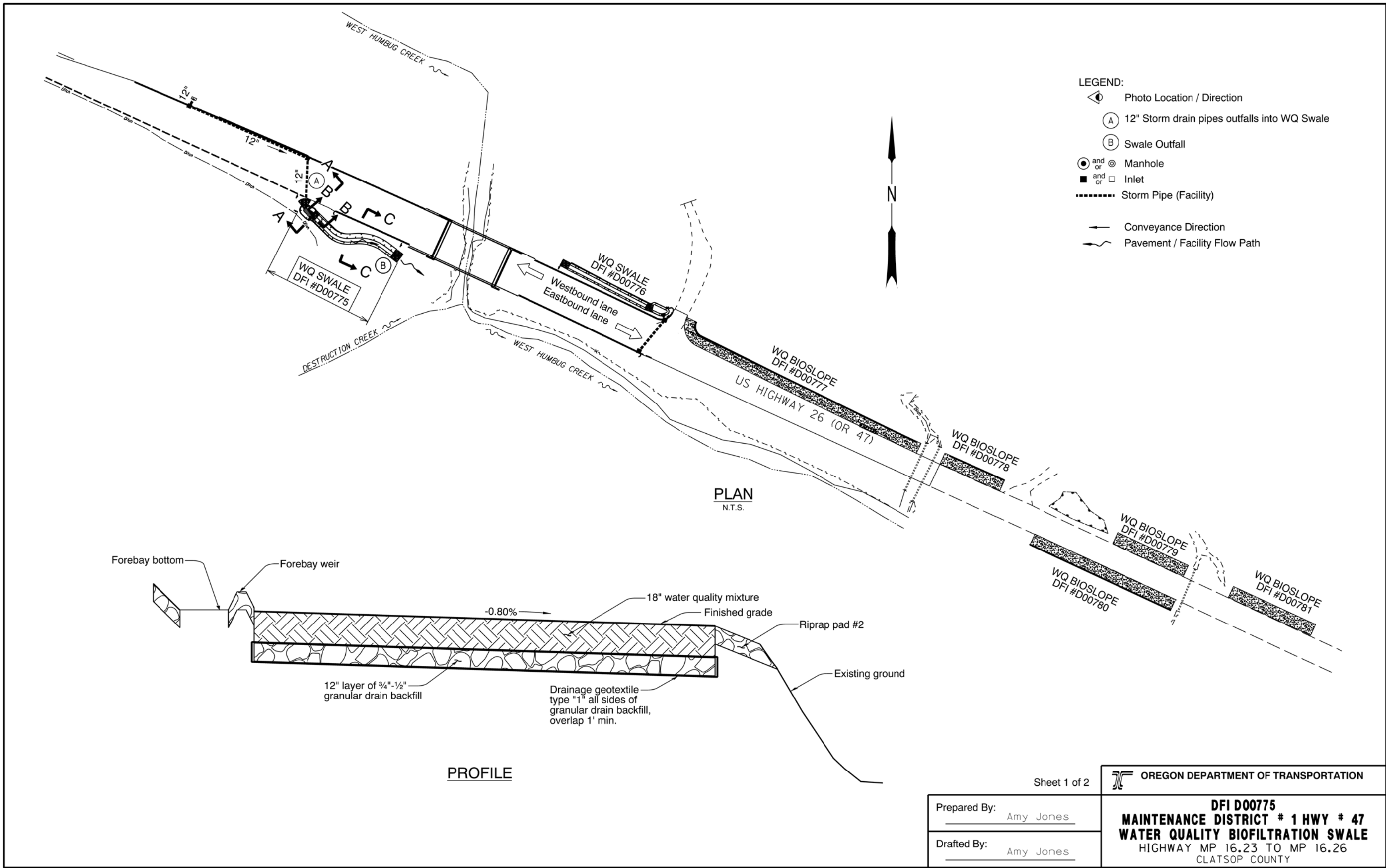
Contact any of the following for more detailed information about management of waste materials found on site:

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

Appendix A

Content:

- **Operational Plan and Profile Drawing**

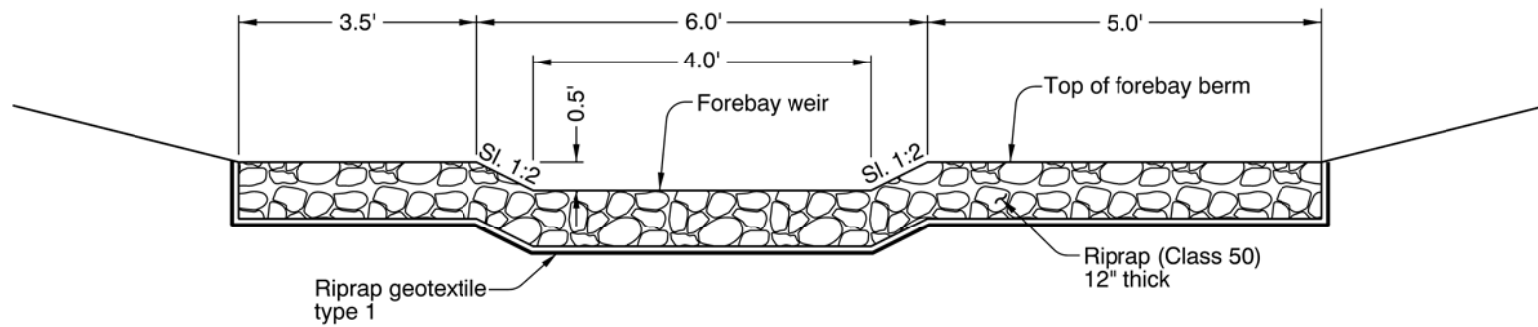


Sheet 1 of 2

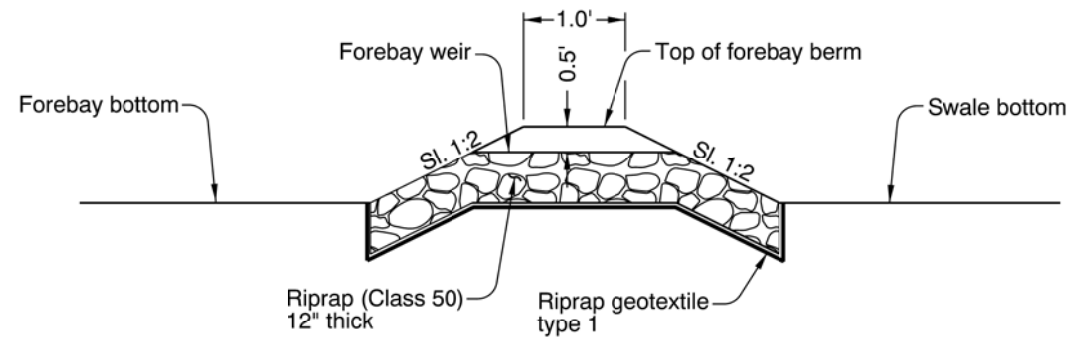
OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Amy Jones
 Drafted By: Amy Jones

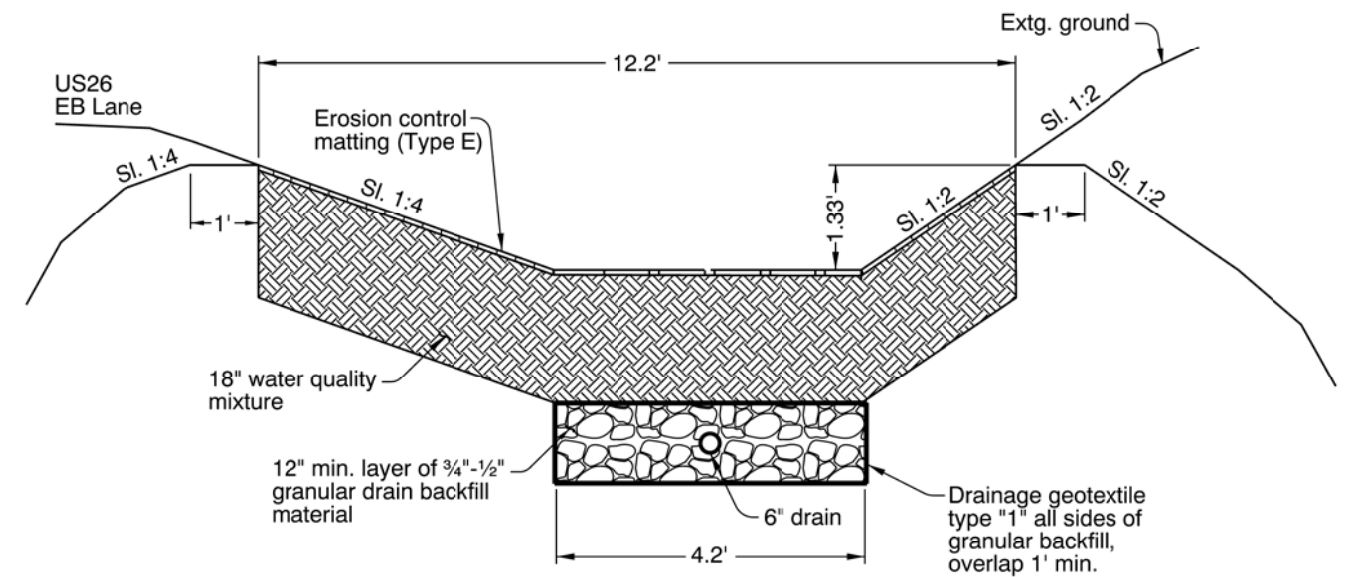
DFI D00775
MAINTENANCE DISTRICT # 1 HWY # 47
WATER QUALITY BIOFILTRATION SWALE
 HIGHWAY MP 16.23 TO MP 16.26
 CLATSOP COUNTY



SECTION A-A



SECTION B-B



SECTION B-B

Appendix B

Content:

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

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES & PAVING

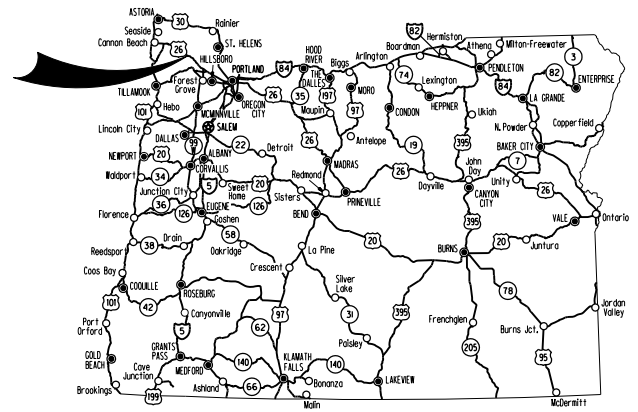
US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT

SUNSET HIGHWAY

CLATSOP COUNTY

JANUARY 2014

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



Overall Length Of Project - 0.23 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.)

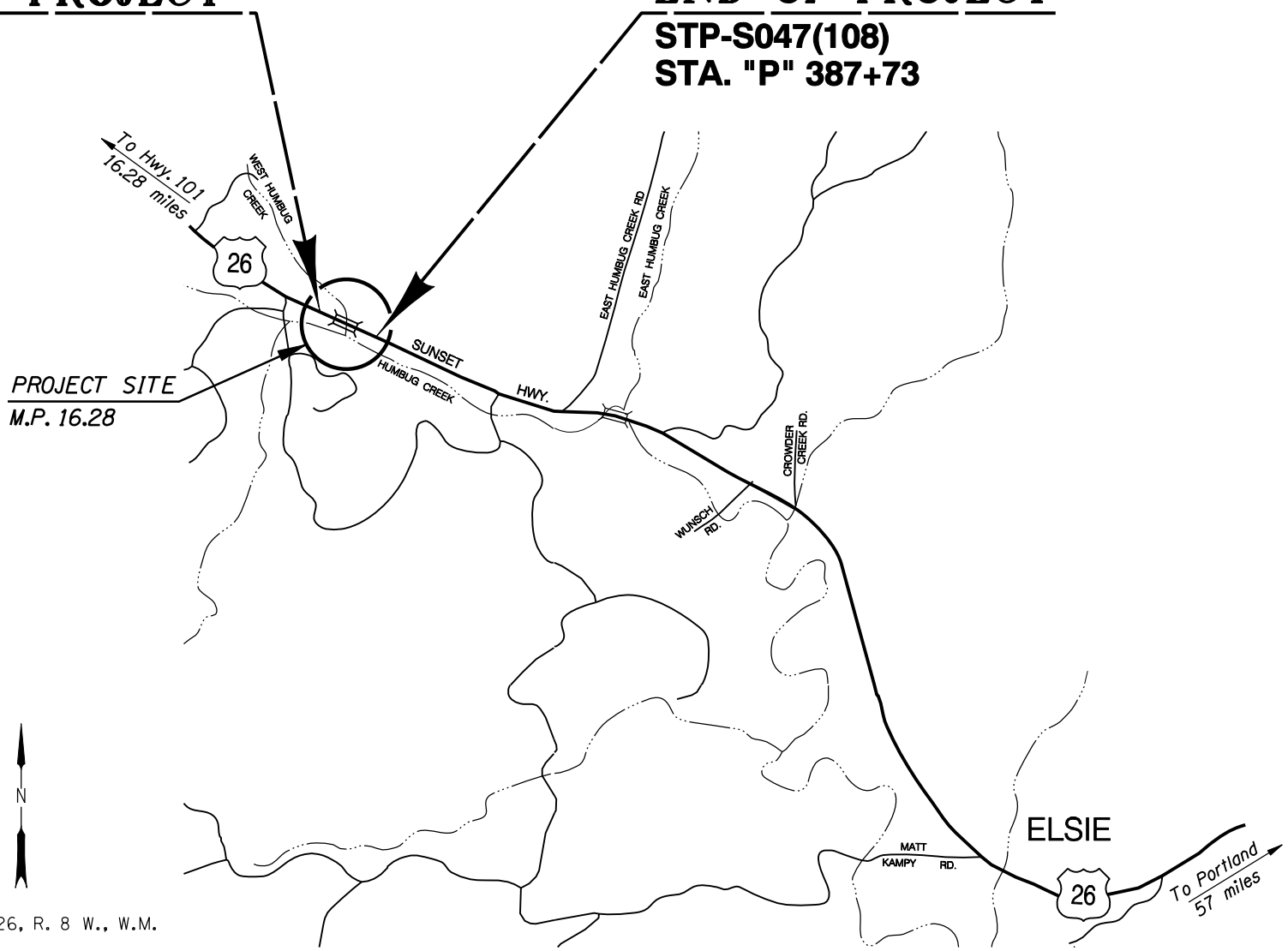


BEGINNING OF PROJECT

STP-S047(108)
STA. "P" 371+00

END OF PROJECT

STP-S047(108)
STA. "P" 387+73



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

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
CORPORATE OFFICE: 920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
REGIONAL OFFICES: LAKE OSHEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON
www.obec.com

These plans were developed using AASHTO design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

Approving Authority: _____
Signature & date
BOB GOODRICH - PROJECT MANAGER
Print name and title

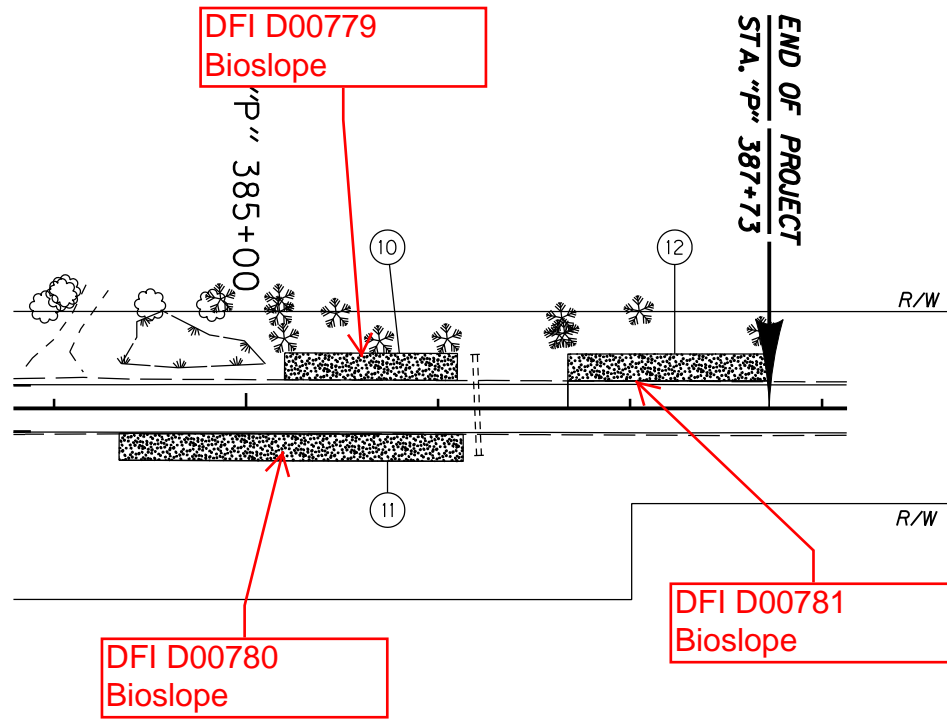
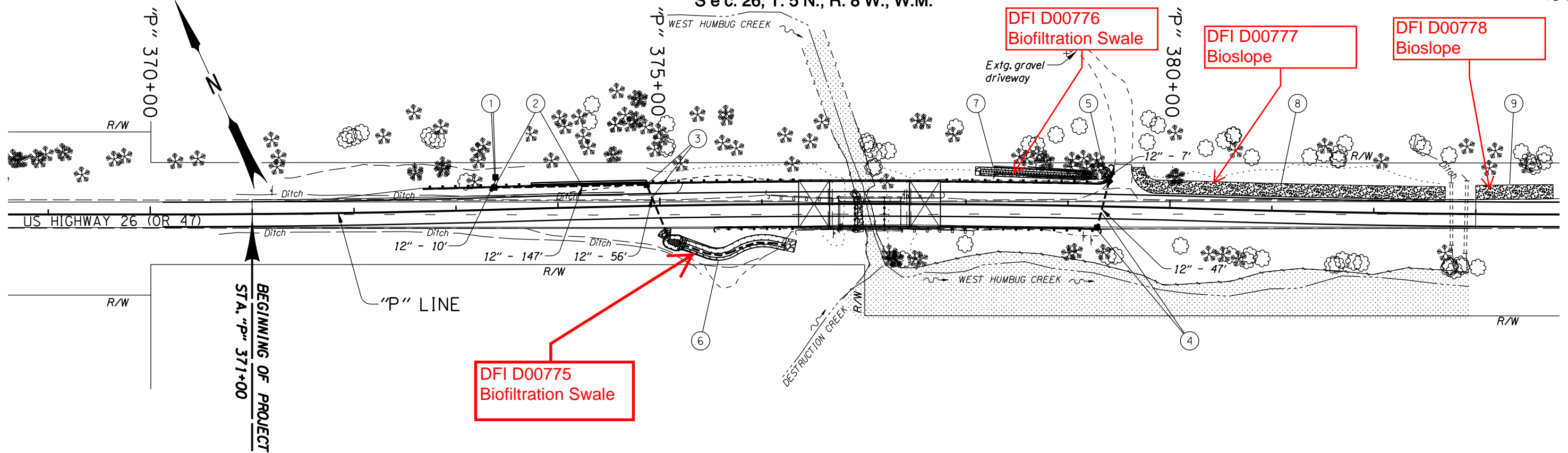
Concurrence by ODOT Chief Engineer

US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT
SUNSET HIGHWAY
CLATSOP COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S047(108)	1



Sec. 26, T. 5 N., R. 8 W., W.M.



- ① Sta. "P" 373+39.53, 31.9' Lt.
Const. type "M-E" inlet
Inst. 12" storm sew. pipe - 10'
5' depth
(See drg. no. RD368)
- ② Sta. "P" 373+38.08, 21.7' Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 147'
5' depth
(See drg. no. RD364)
- ③ Sta. "P" 374+87.39, 20.7' Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 56'
5' depth
- ④ Sta. "P" 379+29.19, 20.7' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 47'
5' depth
- ⑤ Sta. "P" 379+39.92, 24.8' Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 7'
5' depth
- ⑥ Const. water quality swale, D00775
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ)
- ⑦ Const. water quality swale, D00776
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-2)
- ⑧ Const. water quality bioslope, D00777
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-3)
- ⑨ Const. water quality bioslope, D00778
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-3)
- ⑩ Const. water quality bioslope, D00779
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-3)
- ⑪ Const. water quality bioslope, D00780
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-3)
- ⑫ Const. water quality bioslope, D00781
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-3)

LEGEND

Regulated work area

REGISTERED PROFESSIONAL
ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/

OREGON DEPARTMENT OF TRANSPORTATION

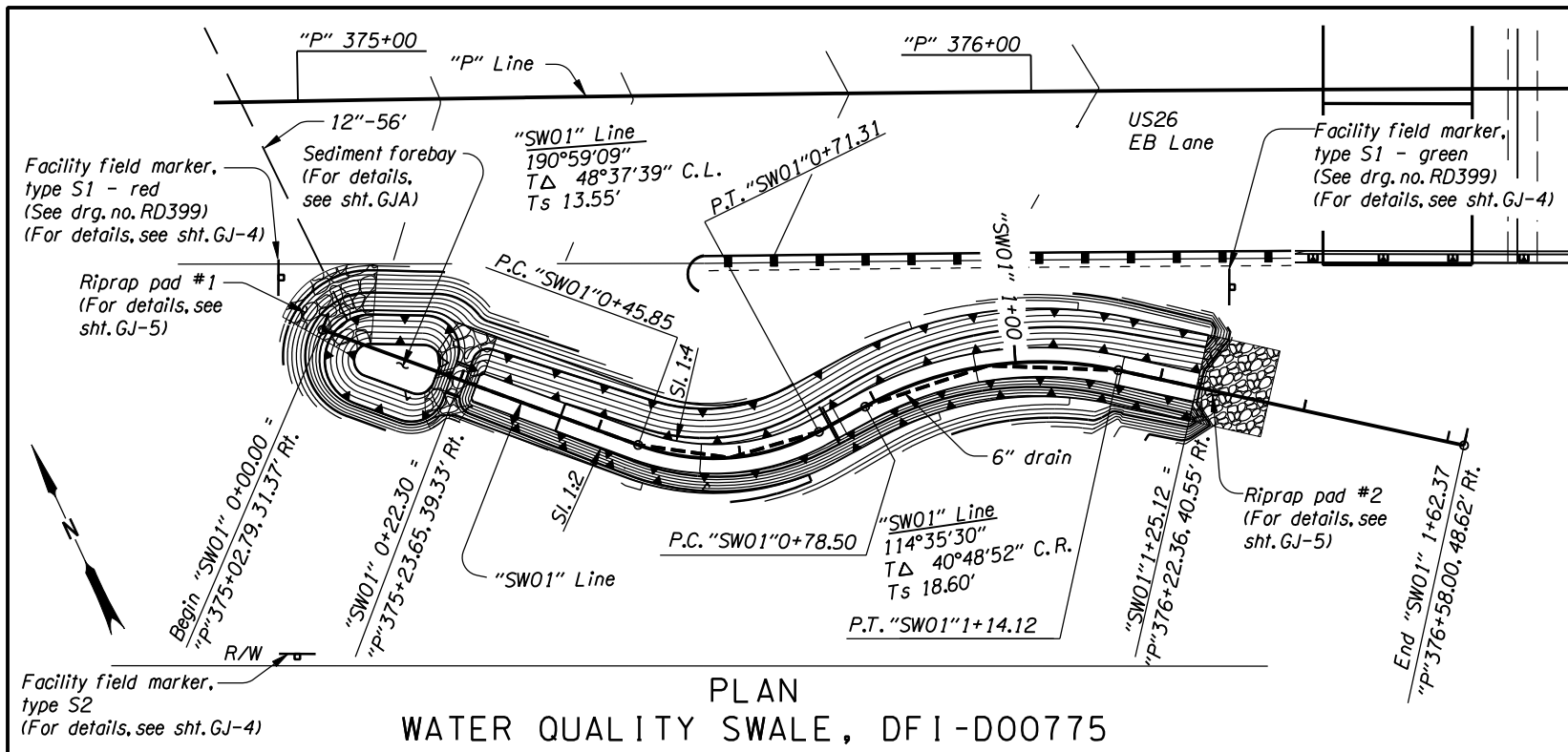
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SUNSET HIGHWAY
CLATSOP COUNTY

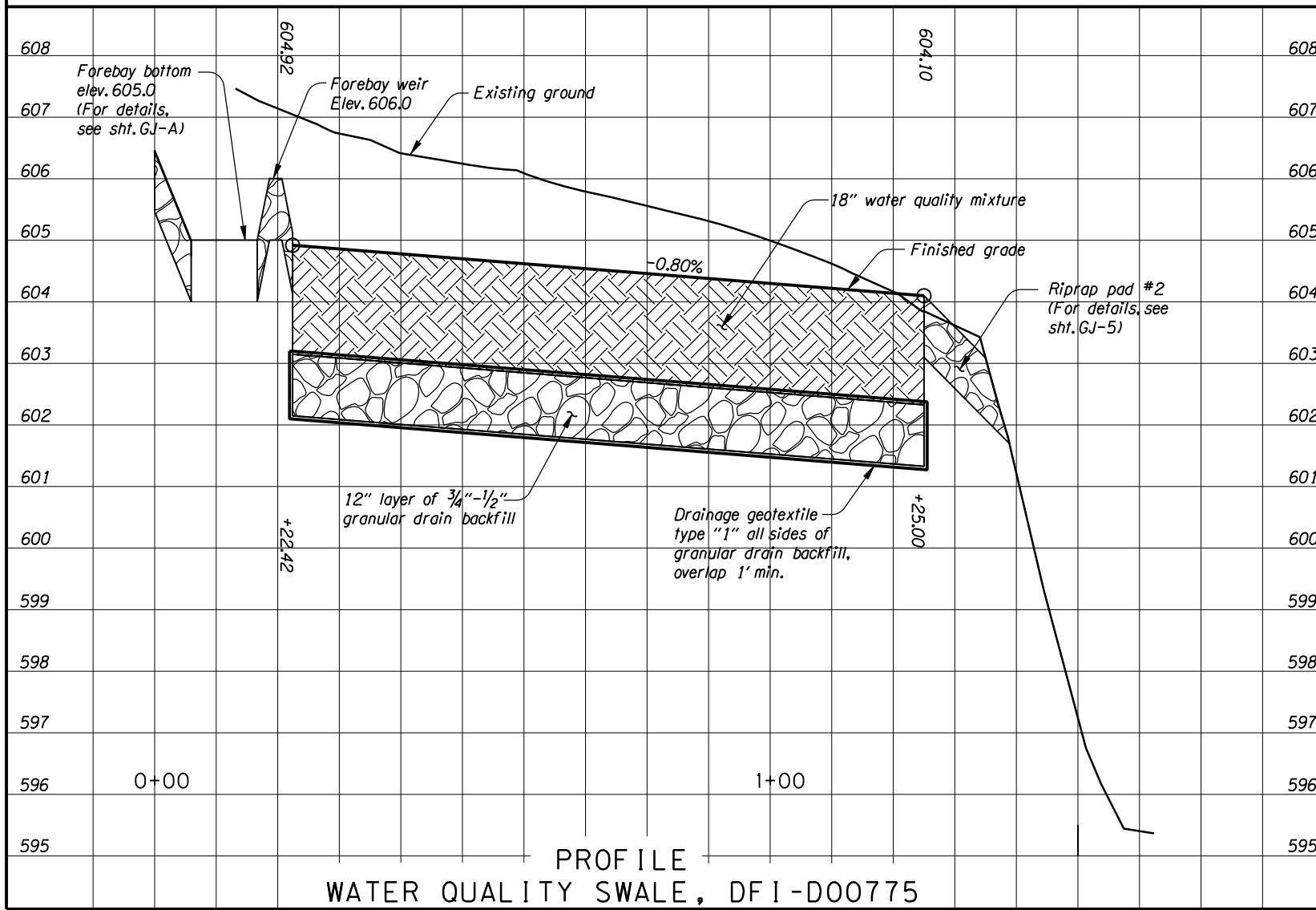
Designed By - Amy Jones
Checked By - Ben Wewerka
Drafted By - Rodney Odear/Rodney Schultz

DRAINAGE PLAN AND NOTES

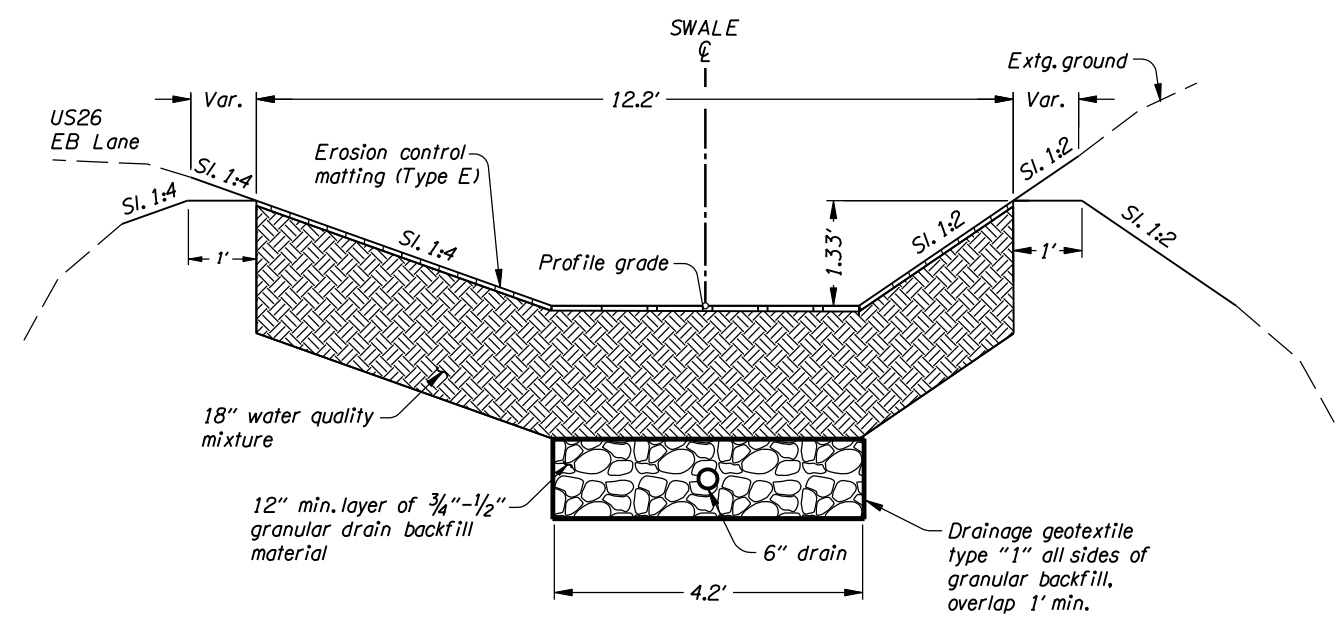
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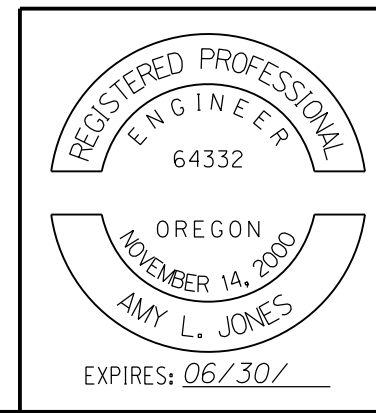
PLAN
WATER QUALITY SWALE, DFI-D00775



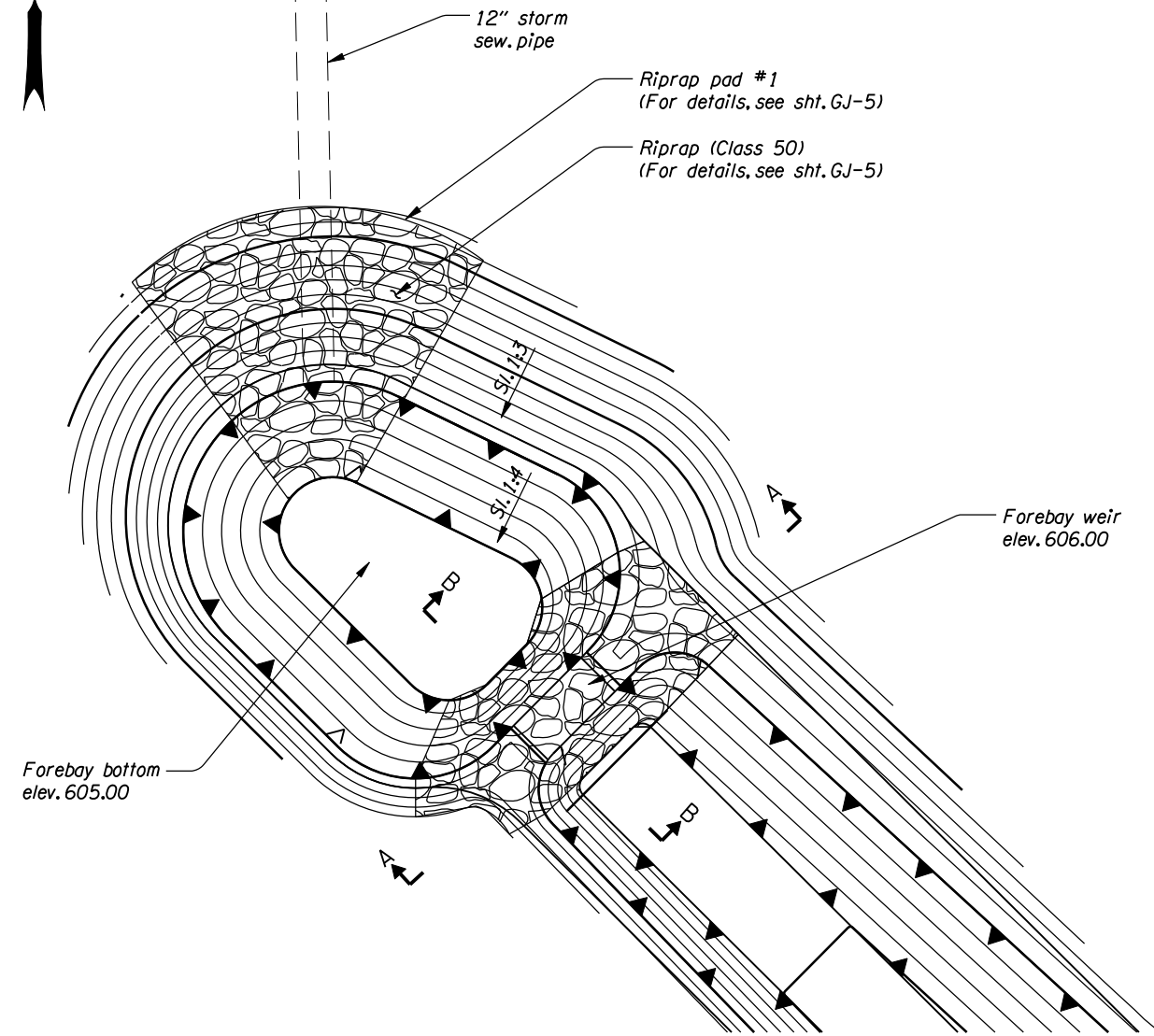
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WATER QUALITY SWALE, DFI-D00775



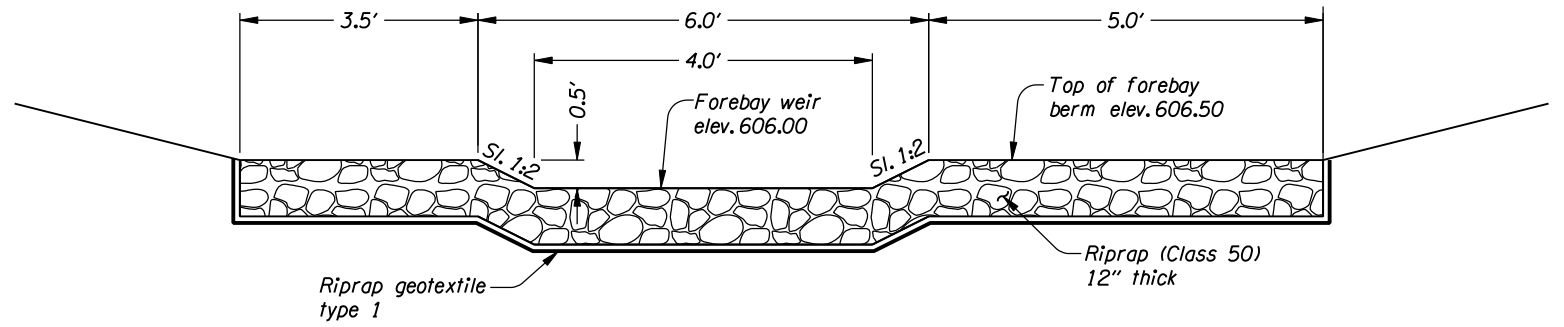
BIOFILTRATION SWALE TYPICAL SECTION, DFI-D00775



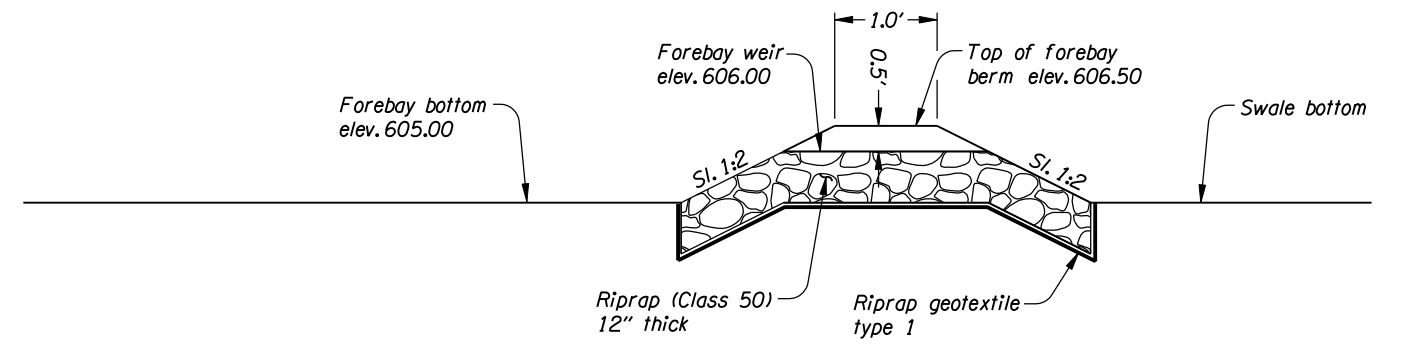
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US26: WEST HUMBURG CREEK BRIDGE REPLACEMENT SUNSET HIGHWAY CLATSOP COUNTY	
Designed By - Amy Jones Checked By - Ben Wewerka Drafted By - Rodney Odear/Rodney Schultz	
STORMWATER DETAILS	SHEET NO. GJ



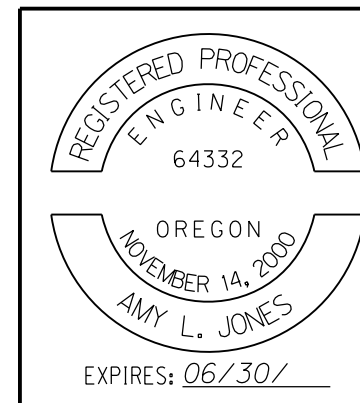
FOREBAY DETAILS
WATER QUALITY SWALE, DFI-D00775



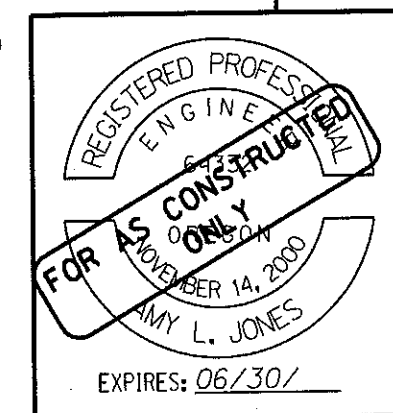
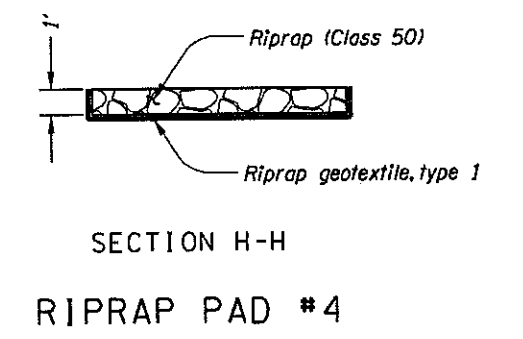
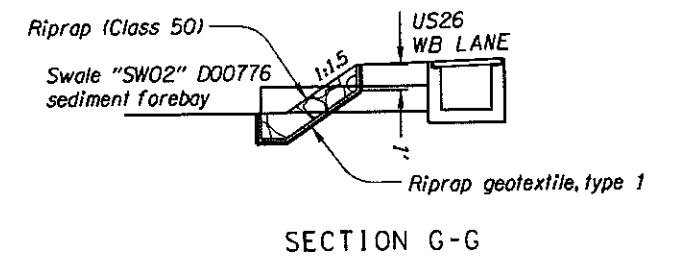
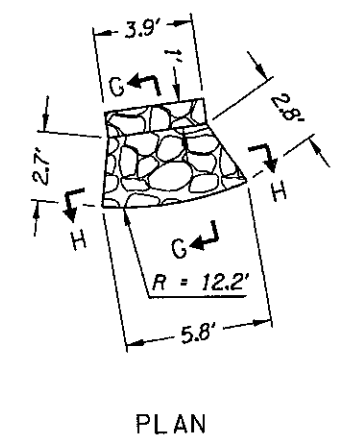
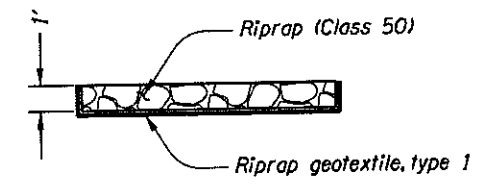
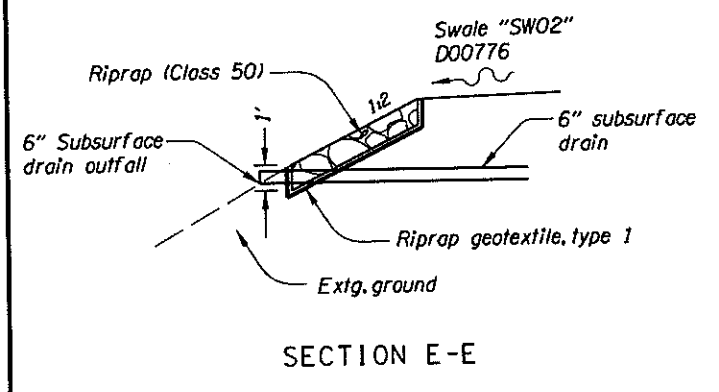
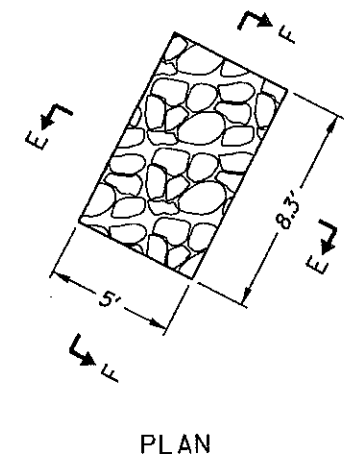
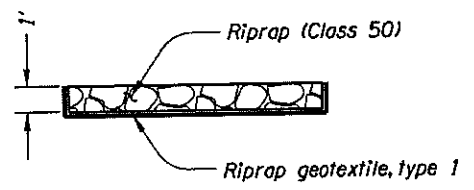
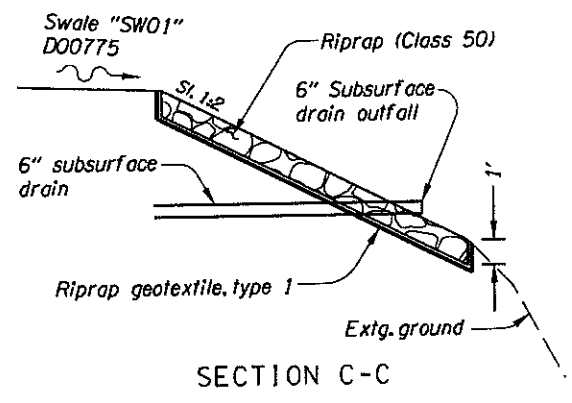
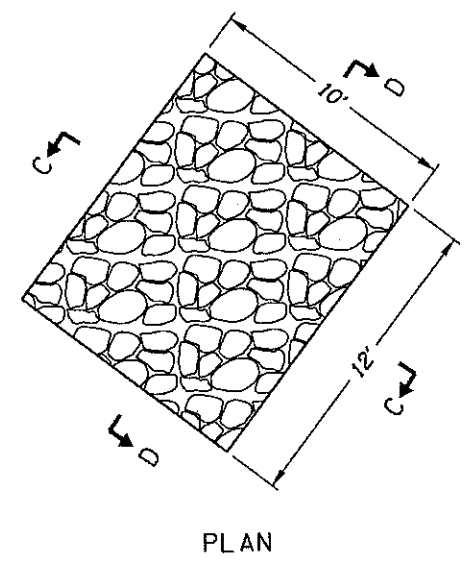
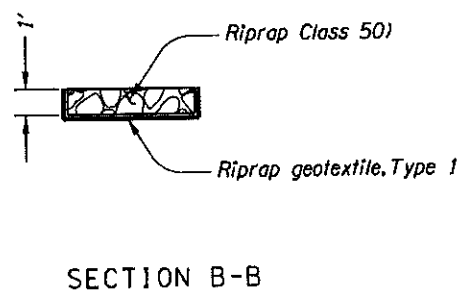
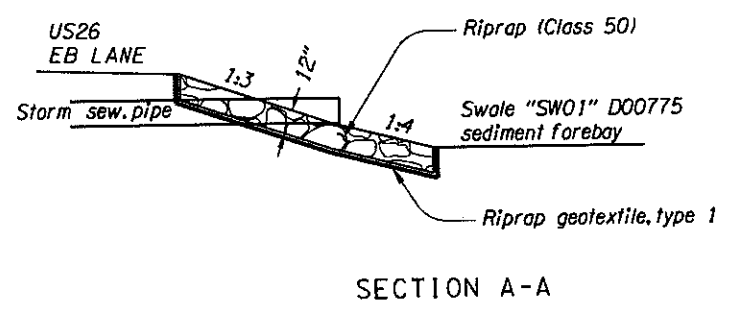
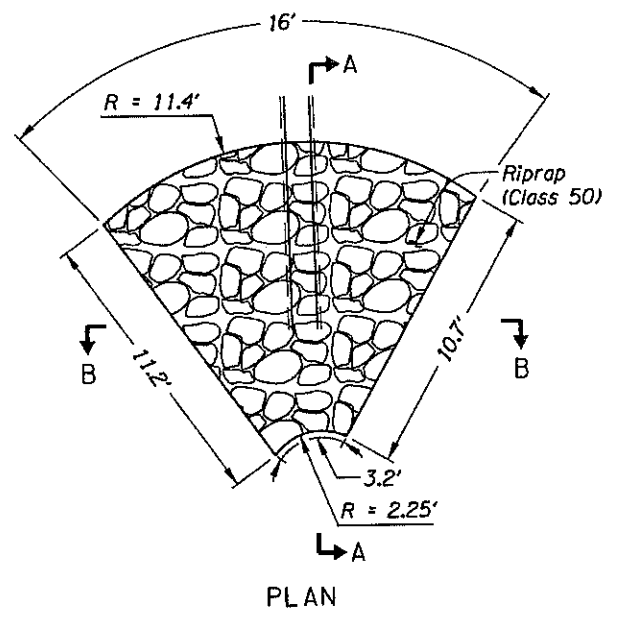
SECTION A-A



SECTION B-B



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