

OPERATION & MAINTENANCE MANUAL

**DFI No. : D00777, D00778, D00779,
D00780, D00781**

Facility Type: Water Quality Bioslope

Please include .dgn and site photo.



**[Insert Facility Photograph Here and Delete
Background Graphic]**

September, 2014

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1. Identification

Drainage Facility ID (DFI): **D00777**
Facility Type: Water Quality Bioslope
Construction Drawings: (V-File Number) 46V-125
Location: District: 1
Highway No.: 047
Mile Post: 16.32;16.38 (beg./end) Left
Description: This facility is located on the north side of Sunset Highway (US26) east of the West Humbug Creek Bridge (No. 22057).

Drainage Facility ID (DFI): **D00778**
Facility Type: Water Quality Bioslope
Construction Drawings: (V-File Number) 46V-125
Location: District: 1
Highway No.: 047
Mile Post: 16.39;16.4 (beg./end) Left
Description: This facility is located on the north side of Sunset Highway (US26) east of the West Humbug Creek Bridge (No. 22057).

Drainage Facility ID (DFI): **D00779**
Facility Type: Water Quality Bioslope
Construction Drawings: (V-File Number) 46V-125
Location: District: 1
Highway No.: 047
Mile Post: 16.43;16.45 (beg./end) Left
Description: This facility is located on the north side of Sunset Highway (US26) east of the West Humbug Creek Bridge (No. 22057).

Drainage Facility ID (DFI): **D00780**
Facility Type: Water Quality Bioslope
Construction Drawings: (V-File Number) 46V-125

Location:	District: 1
	Highway No.: 047
	Mile Post: 16.41;16.45 (beg./end) Right
	Description: This facility is located on the south side of Sunset Highway (US26) east of the West Humbug Creek Bridge (No. 22057).
Drainage Facility ID (DFI):	D00781
Facility Type:	Water Quality Bioslope
Construction Drawings:	(V-File Number) 46V-125
Location:	District: 1
	Highway No.: 047
	Mile Post: 16.462;16.48 (beg./end) Left
	Description: This facility is located on the north side of Sunset Highway (US26) east 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

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

Facility construction: 2014

Contractor: Oregon State Bridge Construction

5. Storm Drain System and Facility Overview

Bioslopes are flow-through stormwater treatment facilities incorporated into roadside embankments and placed between pavement and a downstream conveyance system. These facilities utilize physical straining or filtration, sorption, carbonate precipitation, vegetative uptake and microbial degradation to provide stormwater treatment. Bioslopes are recommended for highway application because of their minimal right-of-way requirements and maintenance schedule. Other names for bioslopes that have been used include ecology embankment and media filter drain.

These Bioslopes are designed to treat sheet flow from an adjacent impervious surface. These bioslopes have the following facility features and components:

- **Vegetated filter strip** – It is provided upstream of the bioslope to evenly distribute flow into the treatment zone, reduce the runoff velocity, and provide pretreatment.
- **Treatment Zone using Ecology mix** – It is provided to remove pollutants as stormwater runoff drains through this zone. The ecology mix is a mixture of aggregate, dolomite, gypsum, and perlite.
- **Sub surface drain** – it is provided to allow positive outflow for runoff at the toe of the bioslope.

The stormwater runoff sheet flows from paved areas along the Sunset Highway (US 26) Alignment directly to the bioslope. The location of the bioslopes D00777, D00778, D00779, D00780, and D00781 are noted on the Operation Plan as points A, B, C, D, and E, respectively in Appendix A.

Runoff exits the bioslopes through a combination of sheet flow, infiltration, and a 6-inch underdrain pipe.

The receiving waterway for the runoff is West Humbug Creek.

A. Maintenance equipment access:
The bioslope and can be accessed directly from the shoulder of the Sunset Highway lanes.

B. Heavy equipment access into facility:

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

C. Special Features:

- Amended Soils
- Porous Pavers
- Liners
- Underdrains

[INSERT Photographs and captions as needed. Example provided below]



Photo 1: Extended Detention Dry Pond looking north. I-5 is located to the right.

6. Facility Haz Mat Spill Feature(s)

The bioslope does not have provisions for Haz Mat spills.

7. Auxiliary Outlet (High Flow Bypass)

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

8. 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:

<http://www.oregon.gov/ODOT/HWY/OOM/MGuide.shtml>

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:

9. 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>

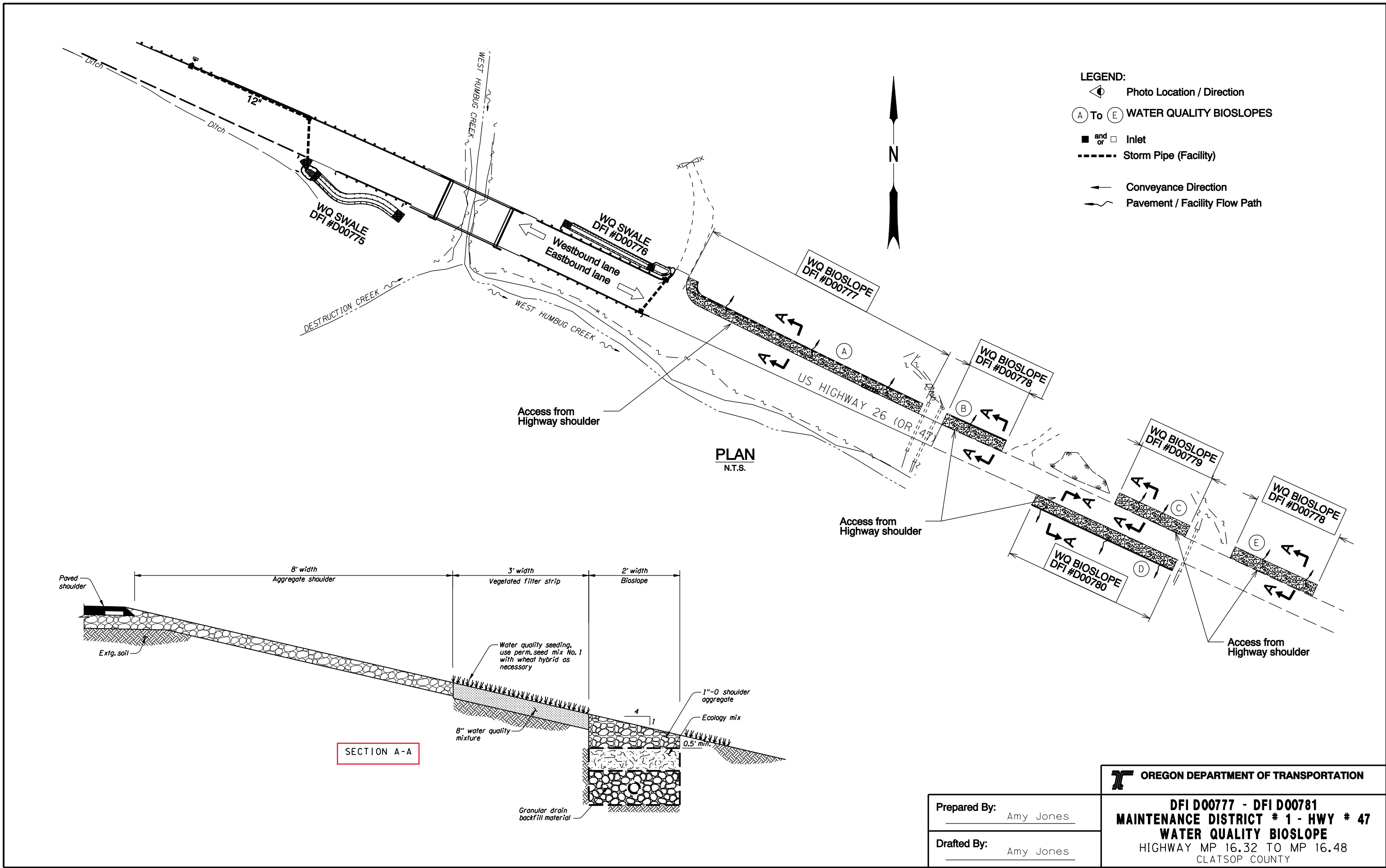
Contact any of the following for more detailed information about management of waste materials found on site:

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**



OREGON DEPARTMENT OF TRANSPORTATION	
Prepared By: <u>Amy Jones</u>	DFI D00777 - DFI D00781 MAINTENANCE DISTRICT # 1 - HWY # 47 WATER QUALITY BIOSLOPE HIGHWAY MP 16.32 TO MP 16.48 CLATSOP COUNTY
Drafted By: <u>Amy Jones</u>	

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

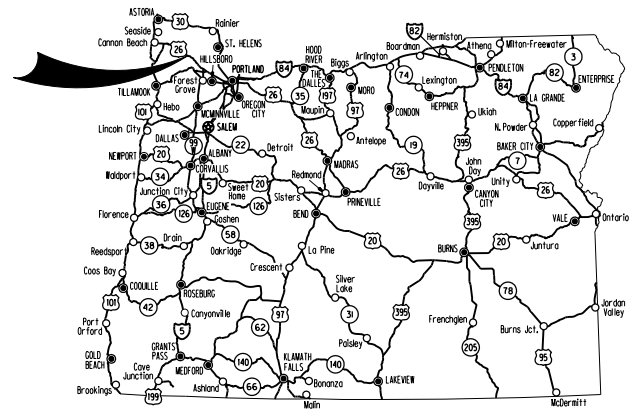
US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT

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.)

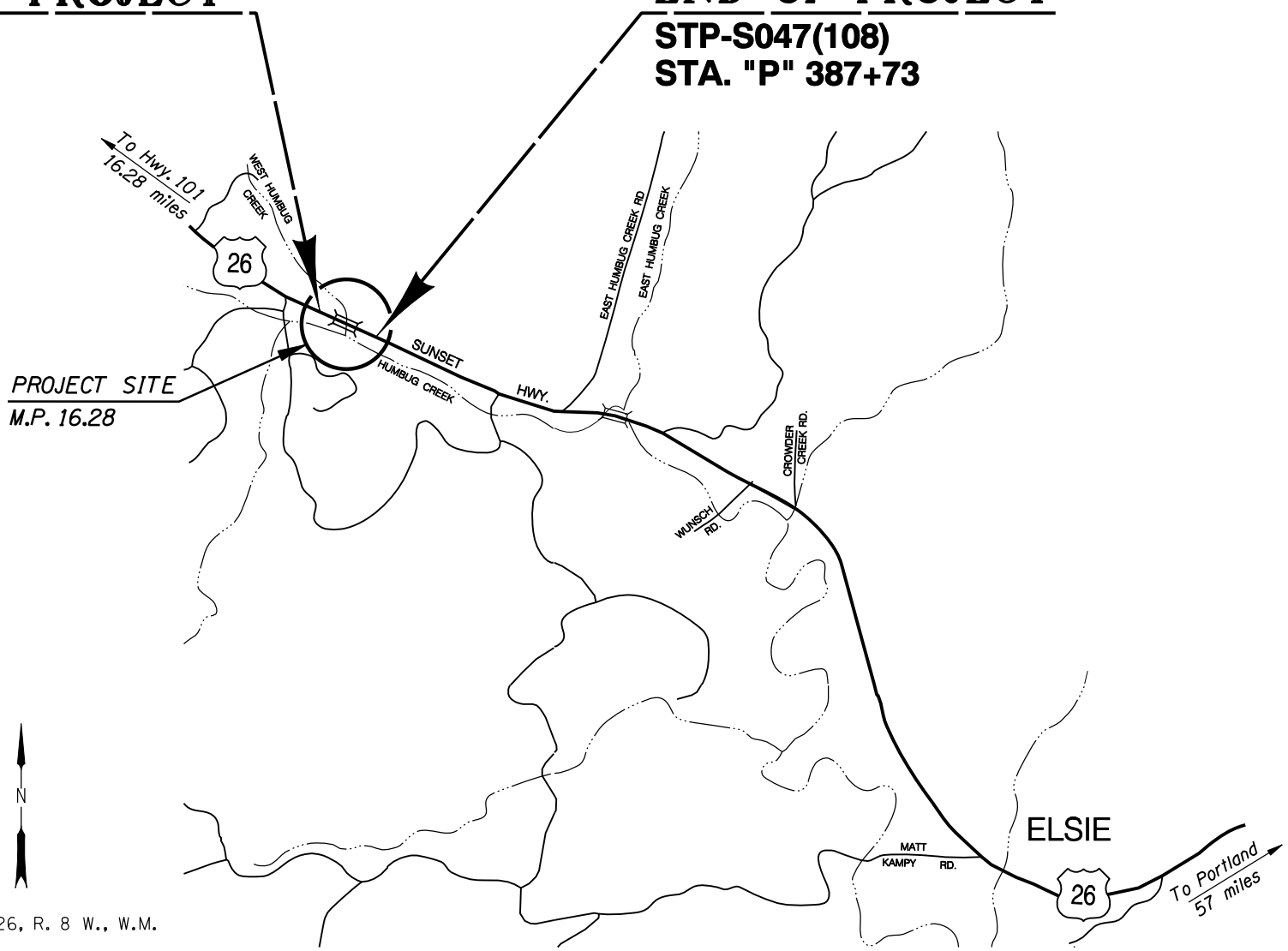


BEGINNING OF PROJECT

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



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.

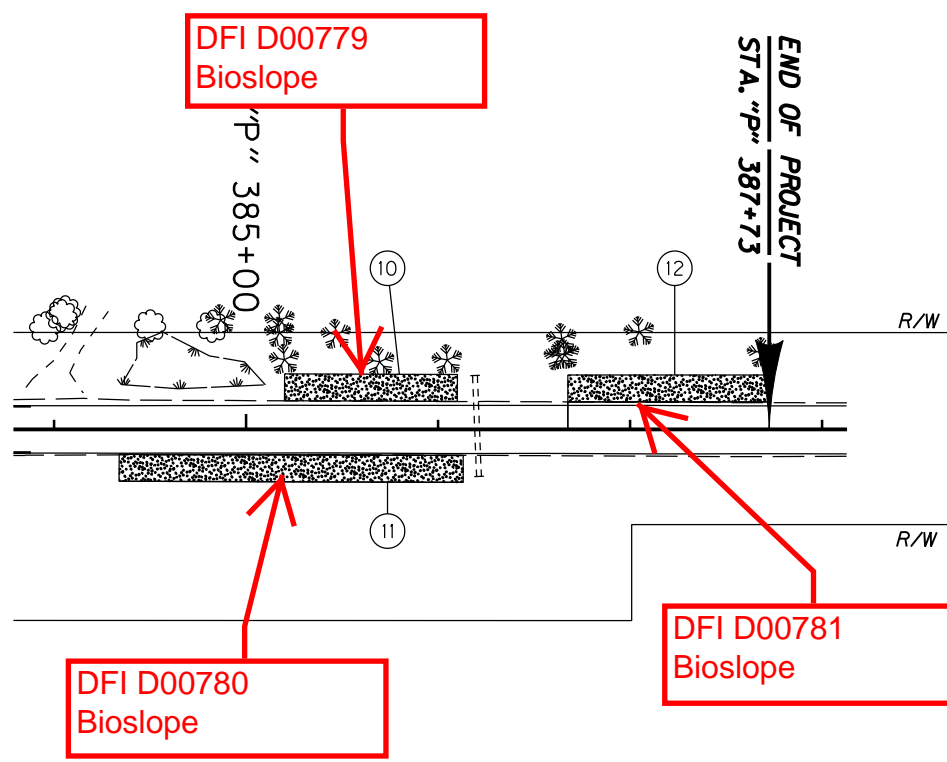
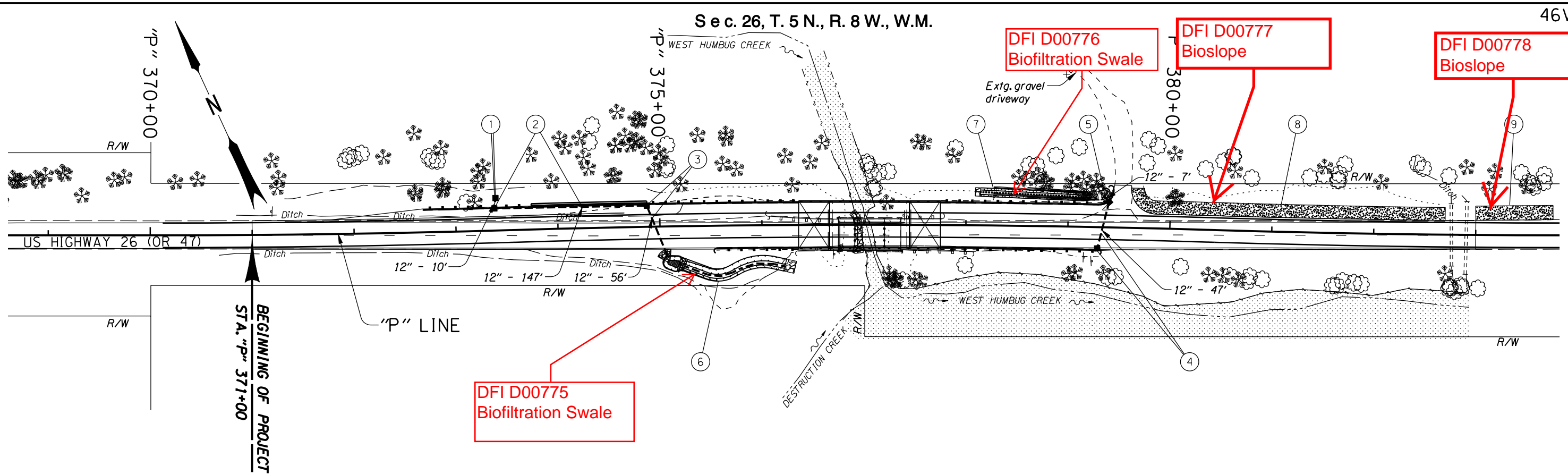
Approving Authority: _____
Signature & date
BOB GOODRICH - PROJECT MANAGER
Print name and title

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





- 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

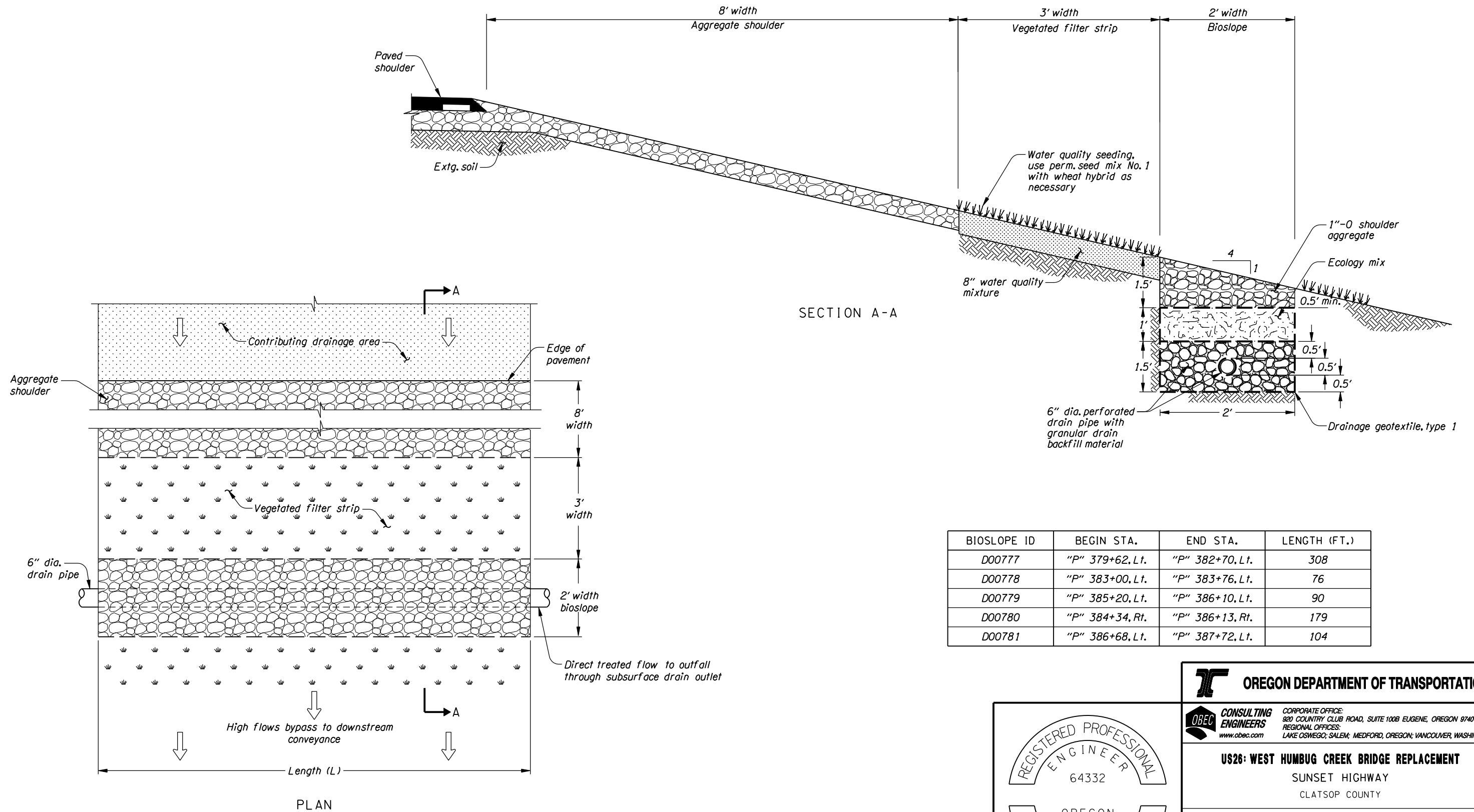
OBEC CONSULTING ENGINEERS
CORPORATE OFFICE: 920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-6089
REGIONAL OFFICES: LAKE OSWEGO, SALEM, MEDFORD, OREGON; VANCOUVER, WASHINGTON
www.obec.com

US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT
SUNSET HIGHWAY
CLATSOP COUNTY

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

DRAINAGE PLAN AND NOTES

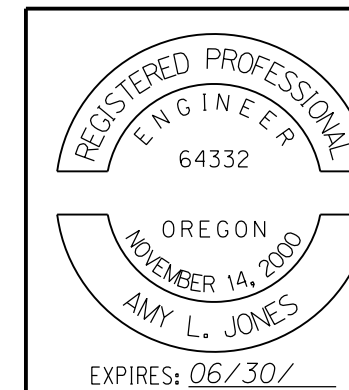
SHEET NO. 3A-2



SECTION A-A

BIOSLOPE ID	BEGIN STA.	END STA.	LENGTH (FT.)
D00777	"P" 379+62, Lt.	"P" 382+70, Lt.	308
D00778	"P" 383+00, Lt.	"P" 383+76, Lt.	76
D00779	"P" 385+20, Lt.	"P" 386+10, Lt.	90
D00780	"P" 384+34, Rt.	"P" 386+13, Rt.	179
D00781	"P" 386+68, Lt.	"P" 387+72, Lt.	104

BIOSLOPE DETAIL



OREGON DEPARTMENT OF TRANSPORTATION

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DRAINAGE DETAILS

SHEET NO. GJ-3