OPERATION & MAINTENANCE MANUAL

DFI No. : D00900
Facility Type: Water Quality
Biofiltration Swale

December, 2018

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00900**
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	43V-169
Location:	District: 07
	Highway No.: 241
	Mile Post: 0.60/0.62 (beg./end), Left
	Description: This facility is located along the east shoulder of OR 241 southbound behind concrete barrier.

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: Chris Blevins – Region 3 Tech Center, Roseburg

Facility construction: 2010

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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 facility is located along the east should of southbound OR 241. Access for this facility is available from the roadside shoulder and a nearby vehicle pullout. Stormwater enters the facility via roadway runoff and stormwater inlets located along the eastern side of southbound OR 241. As the water flows north it is treated as it slows and spreads out within the swale before out falling into Isthmus Slough.

A. Maintenance equipment access:
   This facility can be accessed from the southbound OR 241 shoulder and nearby vehicle pull out.

B. Heavy equipment access into facility:

   ☐ Allowed (no limitations)
   ☒ Allowed (with limitations)
   ☐ Not allowed

C. Special Features:

   ☒ Amended Soils
   ☐ Porous Pavers
   ☐ Liners
   ☐ Underdrains

5. Facility Hazmat Spill Feature(s)

The water quality biofiltration swale can be used to store a volume of liquid by blocking the facility outlet through use of sandbags.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure cannot safely pass the projected high flows. Broad-crested spillway weirs and over flow risers are the two most common auxiliary outlets used in stormwater treatment facility design. The auxiliary outlet feature is either a part of the facility or an additional storm drain feature/structure.

The auxiliary outlet feature for this facility is:

☐ Designed into facility

☒ Other
There are no auxiliary outlets built into this facility. In the event that flows exceed design flows the water will overtop 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:

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

Maintenance requirements for proprietary structures, such as underground water quality manholes and/or vaults with filter media are noted in Appendix C when applicable.

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual or follow the Maintenance requirements outlined in Appendix C when proprietary structure is selected below:

☒ 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:

Note: Special maintenance Requirements Require Concurrence from ODOT SR Hydraulics Engineer.

8. Waste Material Handling

Material removed from the facility is defined as waste by the Department of Environment 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/Maintenance/Documents/ems_manual.pdf

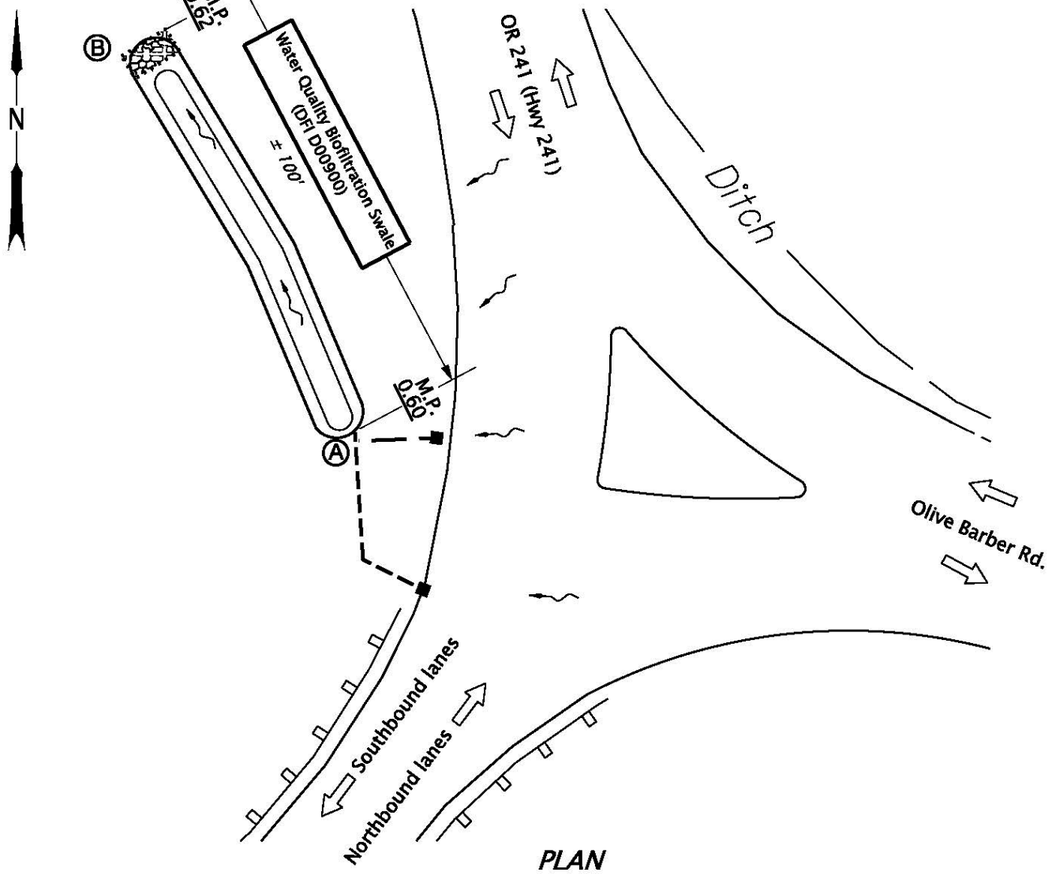
Contact any of the following for more detailed information about management of waste materials found on site:

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

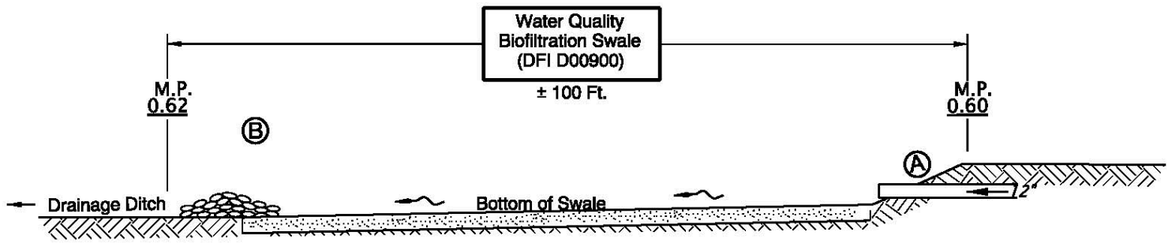
Appendix A

Content:

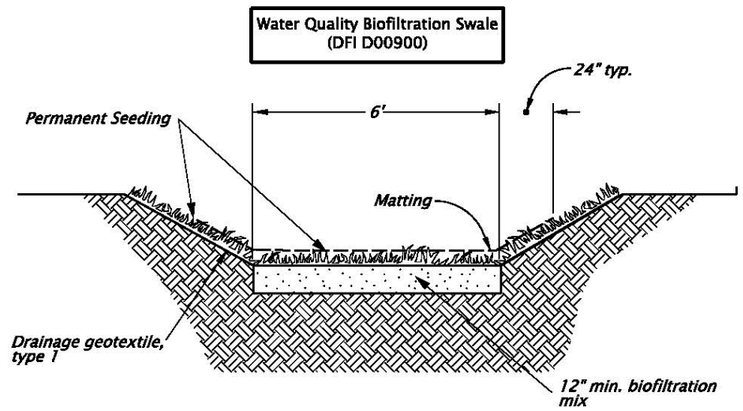
- **Operational Plan and Profile Drawing(s)**



PLAN
N.T.S.



PROFILE
N.T.S.



SECTION A–A
N.T.S.

LEGEND:

- Swale Inlet w/Flow Spreader
- Swale Outlet
- Inlet
- Manhole
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

Prepared By: D. Cutsforth

Drafted By: D. Cutsforth

OREGON DEPARTMENT OF TRANSPORTATION

DFI D00900
MAINTENANCE DISTRICT 7 HWY 241
WATER QUALITY BIOFILTRATION SWALE
HIGHWAY MP 0.51
COOS COUNTY

D00900_OperationalPlan.dgn :: Default 6/24/2019 3:44:28 PM hwye30p

D00900_OperationalPlan.dgn

Appendix B

Content:

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

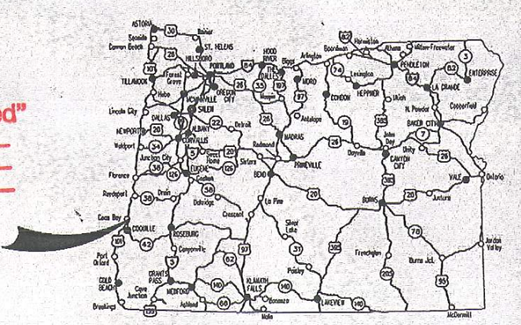
43V-169

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

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

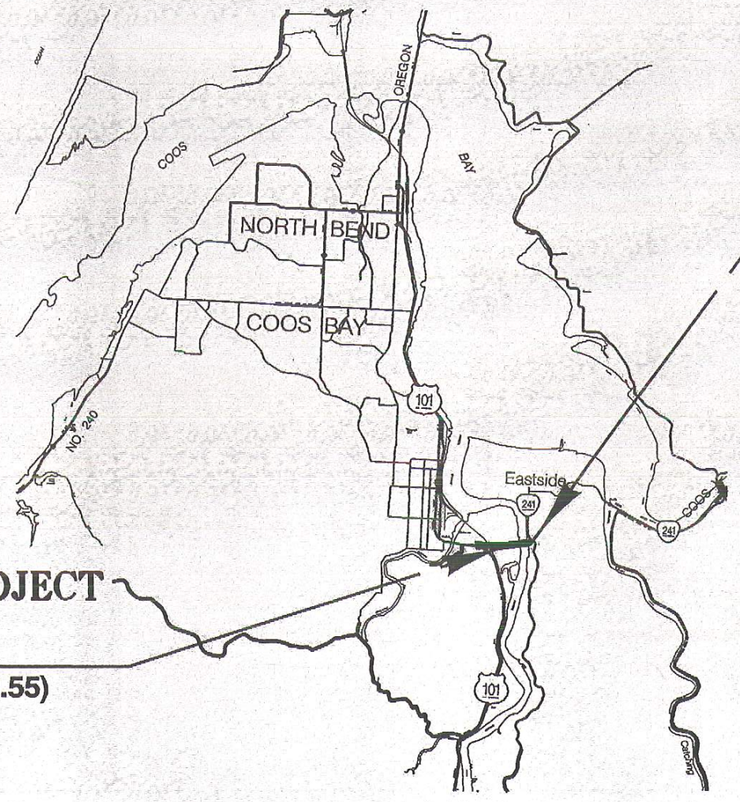
"Not Revised As Constructed"
Date: 3/5/12
Signature:
Print Name:

STRUCTURE
OR241: ISTHMUS SLOUGH, EAST APPROACH BR #01132F
COOS RIVER HIGHWAY
COOS COUNTY
SEPTEMBER 2010



Overall Length Of Project - 0.09 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
X-BHO-S241 (004)
STA. "CR" 28+27.50 (M.P. 0.55)

END OF PROJECT
X-BHO-S241 (004)
STA. "CR" 32+94.70 (M.P. 0.64)

N

T. 25 S., R. 13 W., W.M.

OREGON TRANSPORTATION COMMISSION

Gail Achterman	CHAIR
Michael Nelson	VICE-CHAIR
Mary Olson	COMMISSIONER
Alan Brown	COMMISSIONER
David Lohman	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.

Approving Authority: M. L. Thompson
Signature & date 7-28-10

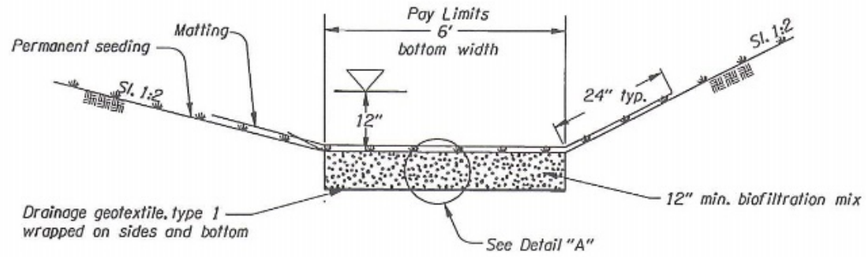
Mark Thompson Reg. 3 Tech. Ctr. Mgr.
Print name and title

Concurrence by ODOT Chief Engineer

OR241: ISTHMUS SLOUGH, EAST APPROACH BR #01132F
COOS RIVER HIGHWAY
COOS COUNTY

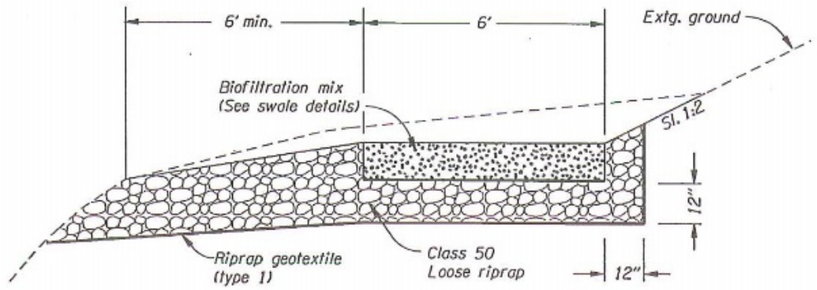
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	X-BHO-S241 (004)	1

1:1200 - 001



BIOFILTRATION SWALE

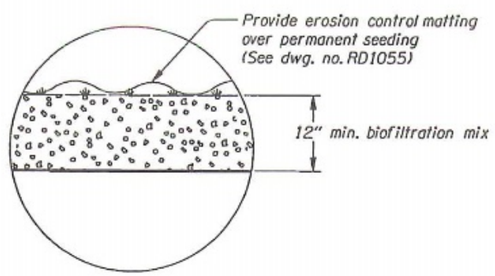
Not to scale



RIPRAP DETAIL

(Located at terminus of biofiltration swale)

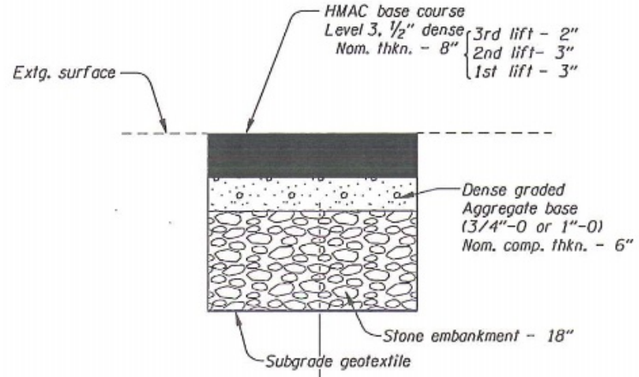
Not to scale



DETAIL "A"

Not to scale

"Not Revised As Constructed"
Date: 3/5/12
Signature:
Print Name: Don Dorsey



32" ASPHALT CONCRETE
PAVEMENT REPAIR

(Locations as directed by the Engineer)

REGISTERED PROFESSIONAL ENGINEER
64309PE
OREGON
MAY 9, 2000
JAMES PATRIC BURFORD

EXPIRES: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

**OR241: ISTHMUS SLOUGH,
EAST APPROACH BR #01132F**
COOS RIVER HIGHWAY
COOS COUNTY

Design Team Leader - James P. Burford
Designed By - Chris Blevins
Drafted by - Linda K. Coffel

DETAILS

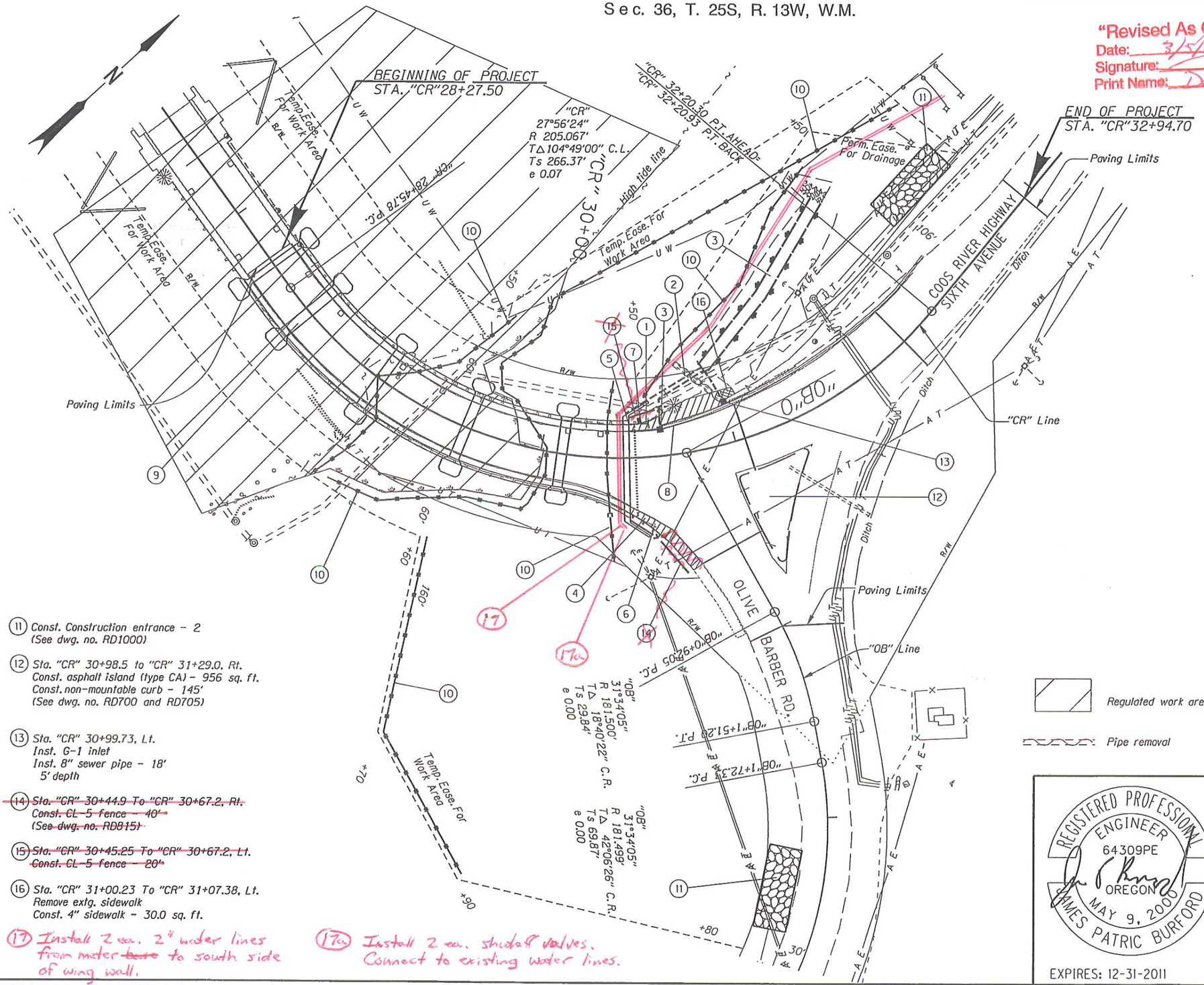
SHEET NO. 2B

1:1200 - 002

Sec. 36, T. 25S, R. 13W, W.M.

43V-169

"Revised As Constructed"
Date: 3/5/12
Signature: Dan Durig
Print Name: Dan Durig



(1) Remove retaining wall

(2) Sta. "CR"30+43.58 to "CR"30+92.33, Lt.
Inst. 6" galvanized pipe - 45'

(3) Sta. "CR"30+62.12, 12.0' Lt.
Inst. G-1 inlet
Inst. 12" storm sew. pipe - 43'
5' depth
Const. biofiltration swale - 68 sq. yds.
Const. loose riprap, Class 50 - 10 C.Y.
(For details see sht. 2B)
(See dwg. nos. RD300, RD326, RD364)

(4) Sta. "CR"30+44.97 to "CR" 30+~~73.32~~ 40, Rt.
Remove extg. sidewalk
Const. monolithic curb & sidewalk - 245 sq. ft.
(See dwg. nos. RD700 & RD720)

(5) Sta. "CR"30+45.20 to 31+00.23, Lt.
Remove extg. sidewalk
Const. monolithic curb & sidewalk - 344 sq. ft.

(6) Sta. 30+44.5 to "CR"30+56.97, Rt.
Const. guardrail bridge transition
Inst. guardrail end piece (type C)
(For details see sht. 2B-3)
(See dwg. no. RD405, RD410 & RD415)

(7) Sta. "CR"30+44.68 to "CR"30+63.84, Lt.
Const. guardrail bridge transition
Inst. guardrail end piece (type C)
(For details see shts. 2B-3)

(8) Sta. "CR" 30+63.64 To "CR" 31+45.5, Lt.
Const. conc. barrier - 50.0'
Const. conc. barrier terminal
(See dwg. nos. RD500, RD510)

(9) Const. bridge #01132F
(For details see sht. 1A for dwg. nos.)

(10) Const. sediment fence supported
(See dwg. no. RD1040)

(11) Const. Construction entrance - 2
(See dwg. no. RD1000)

(12) Sta. "CR" 30+98.5 to "CR" 31+29.0, Rt.
Const. asphalt island (type CA) - 956 sq. ft.
Const. non-mountable curb - 145'
(See dwg. no. RD700 and RD705)

(13) Sta. "CR" 30+99.73, Lt.
Inst. G-1 inlet
Inst. 8" sewer pipe - 18'
5' depth

~~(14) Sta. "CR" 30+44.9 To "CR" 30+67.2, Rt.~~
~~Const. CL-5 fence - 40'~~
~~(See dwg. no. RD815)~~

~~(15) Sta. "CR" 30+45.25 To "CR" 30+67.2, Lt.~~
~~Const. CL-5 fence - 20'~~

(16) Sta. "CR" 31+00.23 To "CR" 31+07.38, Lt.
Remove extg. sidewalk
Const. 4" sidewalk - 30.0 sq. ft.

(17) Install 2 ea. 2" water lines from meter ~~base~~ to south side of wing wall.

(17a) Install 2 ea. shutoff valves. Connect to existing water lines.

Regulated work area.

Pipe removal

REGISTERED PROFESSIONAL ENGINEER
64309PE
OREGON
MAY 9, 2006
JAMES PATRIC BURFORD
EXPIRES: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

OR241: ISTHMUS SLOUGH,
EAST APPROACH BR #01132F
COOS RIVER HIGHWAY
COOS COUNTY

Design Team Leader - James P. Burford
Designed By - Chris Blevins
Drafted by - Linda K. Coffel

GENERAL CONSTRUCTION

SHEET NO. 3

F:\ODOT_DATA\Projects\15846 Isthmus slough\15846LKC_Isthmus.PLI :: Default 5/24/2010 2:46:21 PM hwye32v

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43V-169

"CR" LINE

FULL DEPTH REBUILD

2" GRIND/INLAY AND 2" OVERLAY

2" OVERLAY LEVELING AS REQUIRED

43.70

42.60

43.50

44.47

44.02

43.72

0.00%

-1.74%

60' V.C.

6' V.C.

+28.18

+91.42

0.52%

STRUCTURE #01132F

40' V.C.

1.98%

+13.98

58' V.C.

-0.52%

-0.26%

Finish grade @ ℄

Extg. surface

+94.07

8" storm sewer pipe - 18'
Outfall elev. 39.50'

Biofiltration Swale

+64.77

+100

+43.60 Left
6" galv. pipe - length 44.95'
Flow line elev. 40.05'

+62.12 Left
12" sewer pipe - length 42.41'
Inst. 120° elbow at angle point
Flow line elev. 40.50'

+93.25 Left
6" galv. pipe
Flow line elev. 39.50'

+93.25 Left
12" sewer pipe
Flow line elev. 39.50'

"CR" 30+62.12 - 13.5' Lt.
G-1 Inlet
Gutter Elev. 42.84'
Pipe Flowline Elev. 40.50'

"CR" 30+99.73 - 21.0' Lt.
G-1 Inlet
Gutter Elev. 42.88'
Pipe Flowline Elev. 40.00'

High tide line

Exc. 150 C.Y.
Emb. 105 C.Y.

27+00

30+00

35+00

"Not Revised As Constructed"
Date: 3/5/12
Signature:
Print Name: Don Darby

"SWALE" LINE

Outfall of 6", 8" and 12" pipes

39.50

38.90

Extg. surface

Flowline of swale

-0.50%

+46.00

+66.05

Exc. 33 C.Y.
Emb. 5 C.Y.

0+00

4+00

REGISTERED PROFESSIONAL ENGINEER
64309PE
OREGON
MAY 9, 2000
JAMES PATRIC BURFORD
EXPIRES: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

OR241: ISTHMUS SLOUGH, EAST APPROACH BR #01132F
COOS RIVER HIGHWAY
COOS COUNTY

Design Team Leader - James P. Burford
Designed By - Chris Blevins
Drafted by - Linda K. Coffel

PROFILE

SHEET NO. 3A

1:1200 - 002