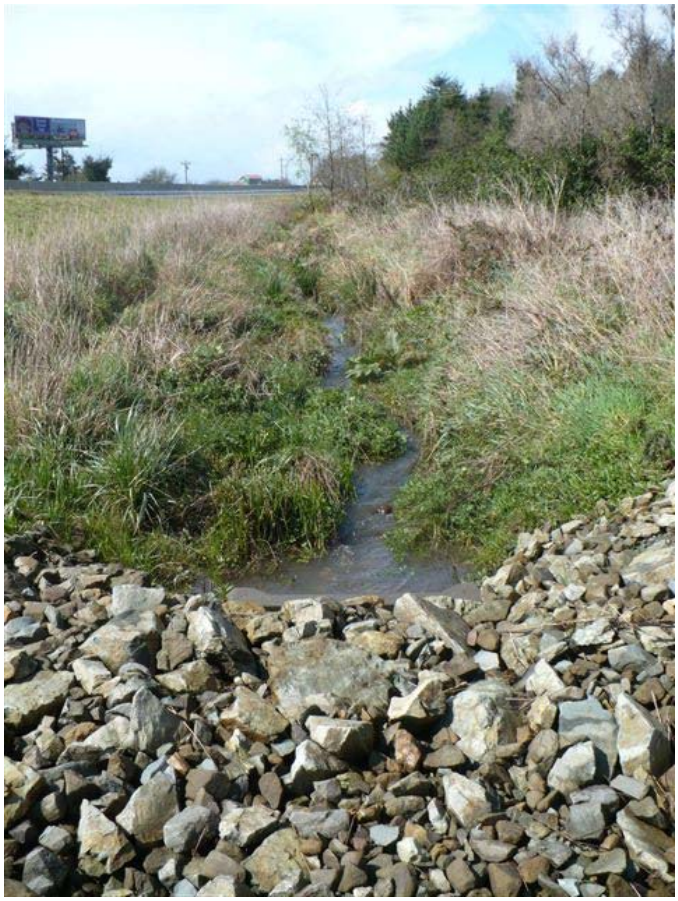
OPERATION & MAINTENANCE MANUAL

DFI No.: D00403
Facility Type: Detention Pond/Water Quality Biofiltration Swale Combo



MARCH, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00403**
Facility Type:	Detention Pond/Water Quality Biofiltration Swale Combo
Construction Drawings:	(V-File Number) 42V-062
Location:	District: 7
	Highway No.: 009
	Mile Post: 361.21 / 361.25 (beg./end)
	Description: This facility is located on the eastern side of US101 (Hwy 009, Oregon Coast Highway). Access to the facility can be obtained from the McVay Weigh Station.

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 Hydraulics Engineer (541) 957-3693

Or

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

3. Construction

Engineer of Record:	ODOT Designer – Region 3 Tech. Center, Chris Zelmer, 541-957-3573
Facility construction:	2009
Contractor:	Tidewater Contractors, Inc. Construction Co.

4. Storm Drain System and Facility Overview

A detention pond/water quality biofiltration swale combo (referred to from this point forward as a pond/swale combo) combines the forms and functions of a water quality swale and a detention pond. In a pond/swale combo, the biofiltration swale is situated within the bottom confines of the detention facility. The facility provides water quality treatment of the smaller storm events and detention of the larger storm events.

The biofiltration swale is designed as if it was a separate facility and consists of a grassy-lined facility with a flat trapezoidal cross section and gradual slope. Treatment is provided through sedimentation and filtration processes. If amended soils are present, additional treatment is obtained through infiltration through the amended soil media.

When the flows exceed the water quality flows, the pond/swale combo facility begins to provide detention. Detention is required to reduce or mitigate the increases in discharge, resulting from development. The facility is designed to store and gradually release (or attenuate) stormwater runoff via a control structure or release mechanism, then releasing it slowly over a more extended period of time. The flow control mechanism for McVay Weigh Station facility, in particular, involves a 3-inch orifice surrounded by a wirecloth strainer assembly. When flows exceed the water quality design flow, the orifice restricts the flow causing the water to backup within the facility.

The McVay Weigh Station detention pond/water quality biofiltration swale combo facility was constructed along with the McVay Weigh Station in the summer of 2009 as a part of the US101 @ Constitution Way intersection improvement project. The detention pond has two functions: 1) storm water detention and 2) water quality treatment. The pond was designed to meet the requirements established by the Curry County Planning Commission regarding the conditional use approval of the proposed McVay Weigh Station project. Maintenance of the storm water conveyance & detention facilities by ODOT forces was included as a condition of the requirements outlined in the agreement between the County and the State.

The proper operation, performance, structural integrity, and aesthetics of the detention pond are dependent on routine inspection and adequate maintenance. The facility inspection schedule and maintenance guidelines are summarized within this manual and are intended to assist personnel who maintain the facility.

The detention pond includes a 120 ft. long, six foot wide flat bottom that is lined with an amended topsoil material. The amended topsoil is a water

quality treatment feature that is designed to promote infiltration, heavy metal sedimentation, and facilitate water filtration.

Stormwater is conveyed into the pond by a 12-inch storm pipe that collects runoff from the McVay Weigh station. The facility's outlet control structure/device is a Type "D" inlet with a 6-inch diameter pipe that regulates the flow discharge from the pond at a designed rate of 0.40 cubic feet per second. This discharge rate corresponds to the calculated 2 yr. 24 hour peak run-off for the pre-construction conditions. The pond includes a riprap lined spillway that will pass storm flows that exceed the 2 yr. 24 hour event (greater than 5.0 inches of rainfall within 24 hours). The storage capacity of the pond is 1248 cu. ft.

A. Maintenance equipment access:

   Maintenance crew can access the facility from the McVay Weigh Station.

B. Heavy equipment access into facility:

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

C. Special Features:

   ☒ Amended Soils
   ☐ Porous Pavers
   ☐ Liners
   ☐ Underdrains

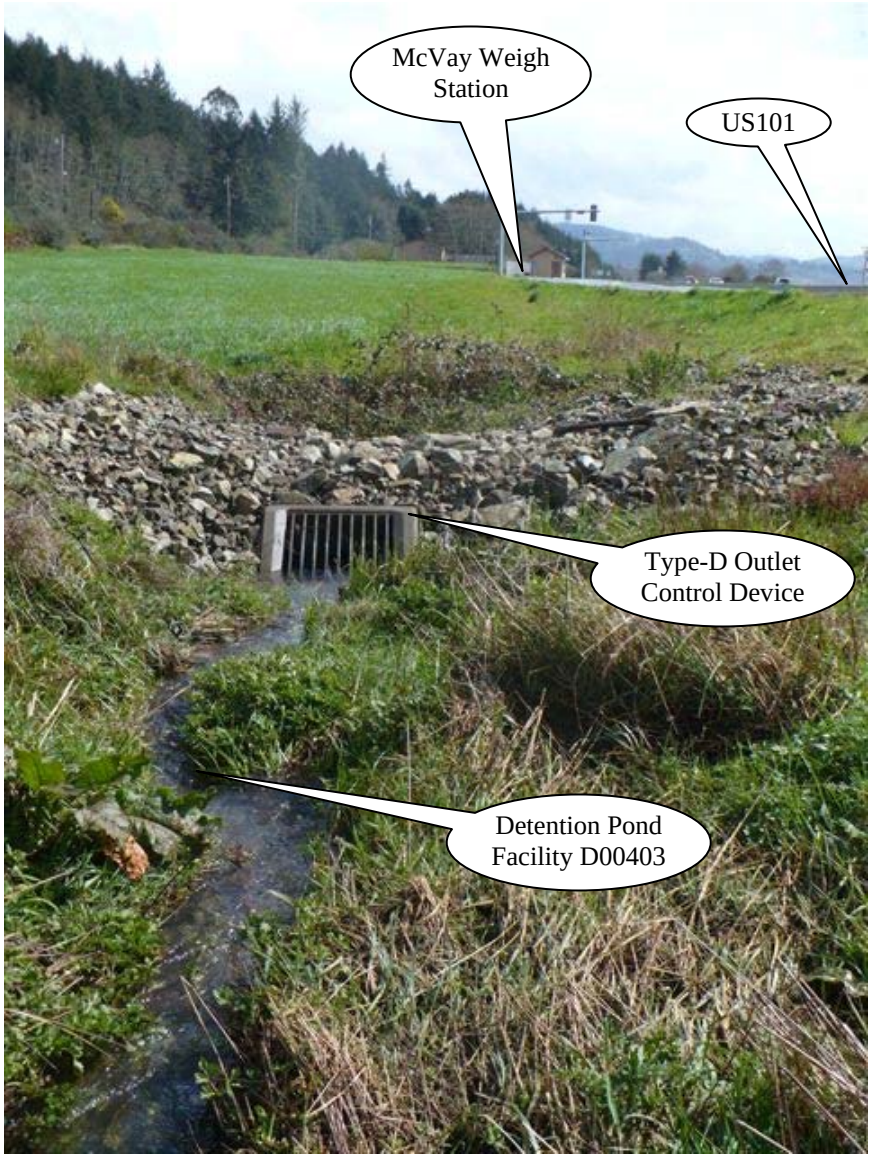


Photo 1: Looking south, stormwater is flowing from the bottom of the picture towards into the outlet control device, shown. During High flow events stormwater will be detained in the pond and released at a controlled rate through a 6-inch pipe located in the Type-D inlet.

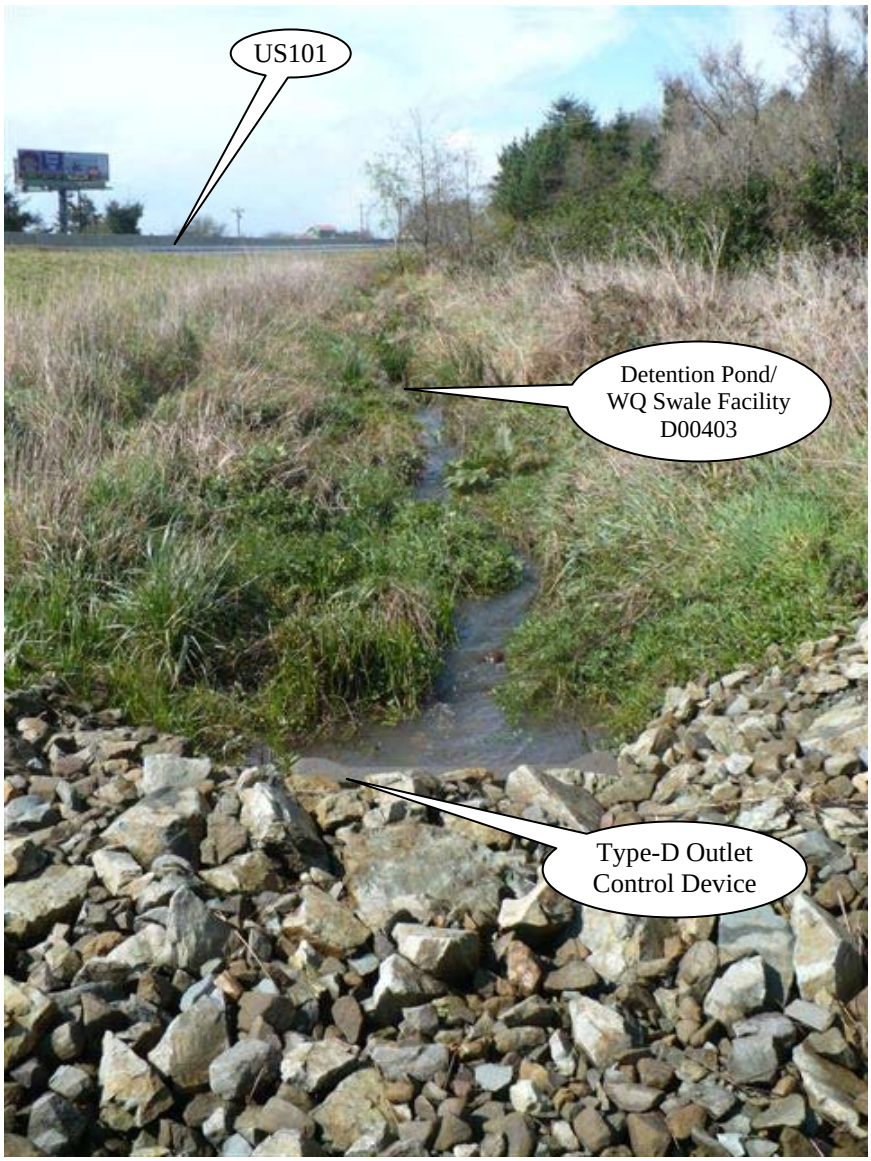


Photo 2: Looking north, stormwater is flowing from the top of the picture towards into the outlet control device, shown. During High flow events stormwater will be detained in the pond and released at a controlled rate through a 6-inch pipe located in the Type-D inlet.

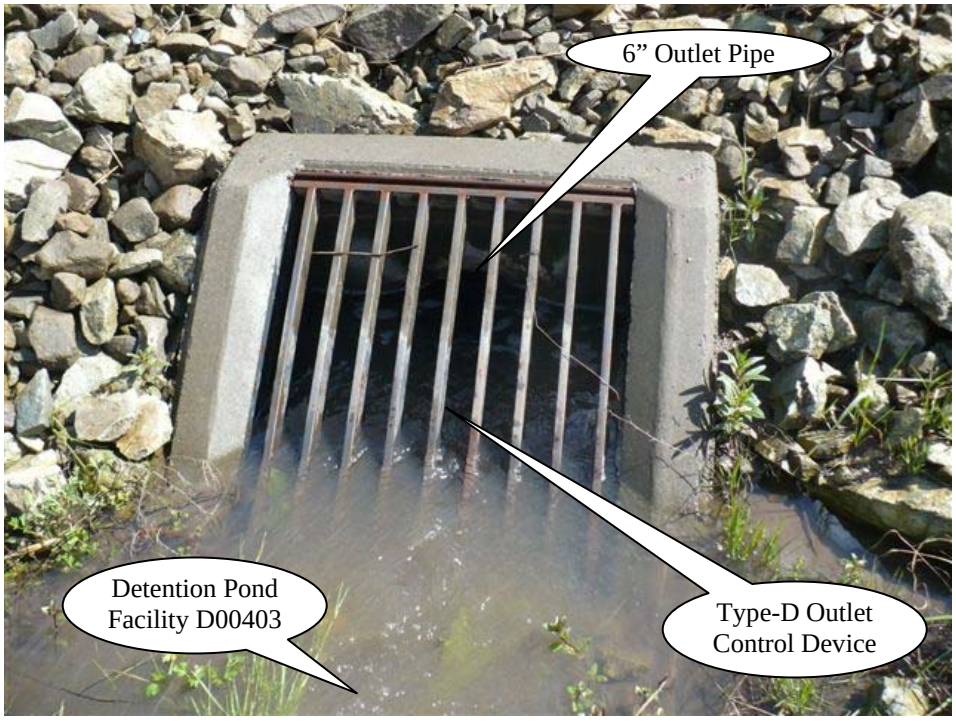


Photo 3: Looking south, stormwater is flowing from the bottom of the picture towards into the outlet control device, shown. During High flow events stormwater will be detained in the pond and released at a controlled rate through a 6-inch pipe located in the outlet control device.

5. Facility Haz Mat Spill Feature(s)

The Detention Pond/Water Quality Biofiltration Swale Combo facility can be used to store a volume of liquid by blocking the 6-inch diameter outlet pipe located at the outlet control device (Type-D inlet) of the pond/swale combo facility. Sandbags and/or a steel plate may be considered as part of this effort. See the Operational Plan, Appendix A, and Photo 3 for further information.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure can not 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, as noted below

There is no auxiliary outlet for this facility.

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 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	(541) 957-3594
ODEQ Northwest Region Office	(503) 229-5263

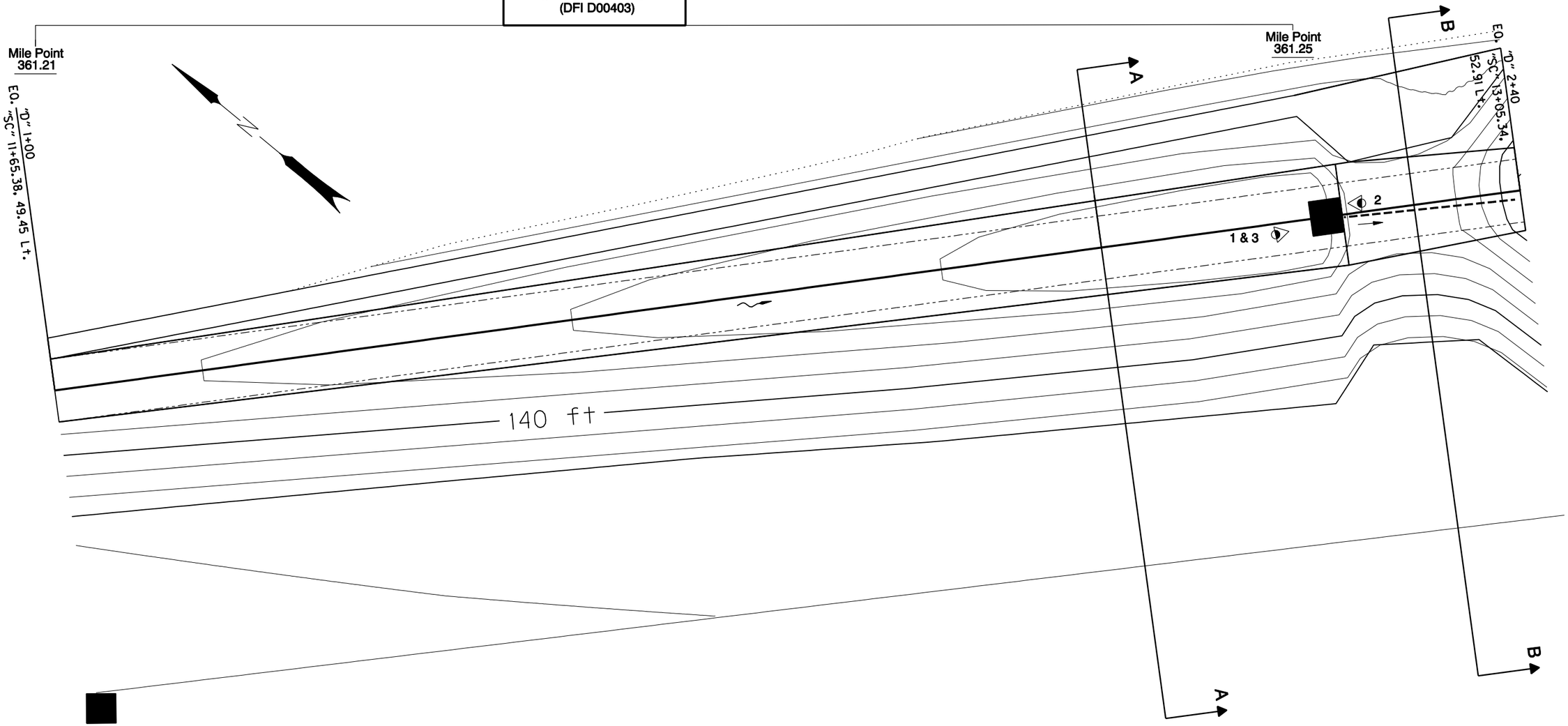
Appendix A

Content:

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

Sec. 15, T. 41 S, R. 13 W, W.M.

WQ DETENTION POND
(DFI D00403)



PLAN
N.T.S.

LEGEND:

- Photo Location / Direction
- ■ and/or □ Inlet
- Storm Pipe (Facility)
- Conveyance Direction
- Pavement / Facility Flow Path

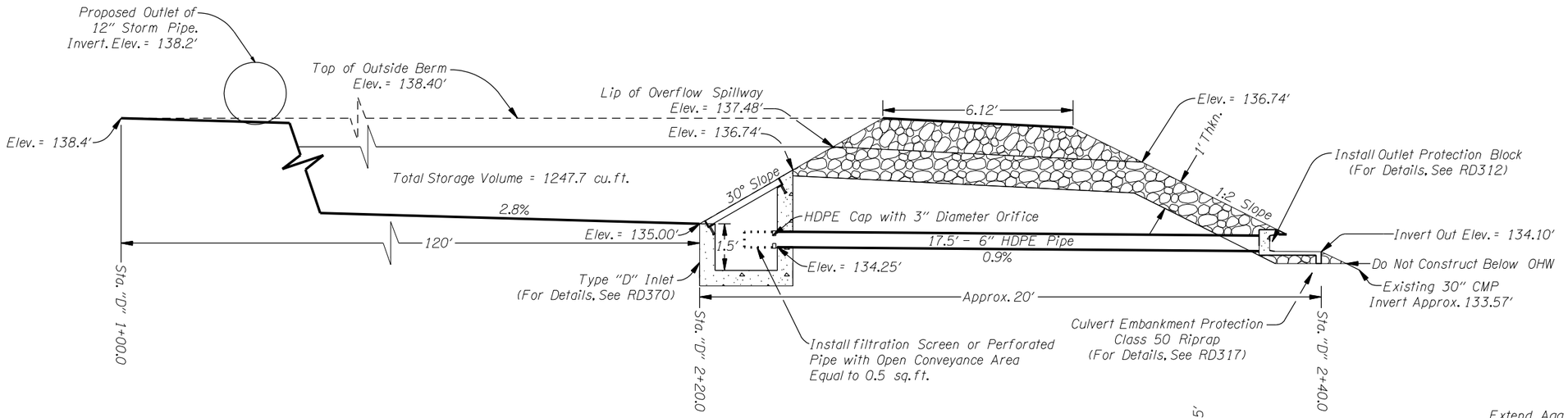
OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: J. Carpenter

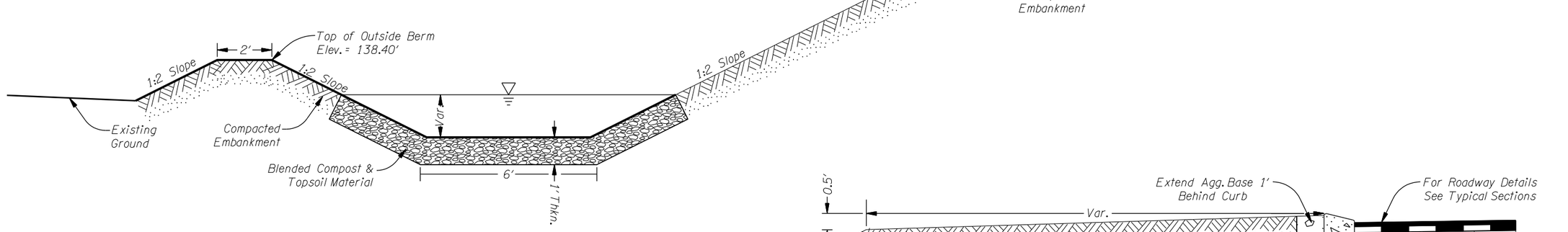
Drafted By: L. Coffel

DFI D00403
MAINTENANCE DISTRICT 7 HWY 009
DETENTION POND
OREGON COAST HIGHWAY MP 361.21/361.25
CURRY COUNTY

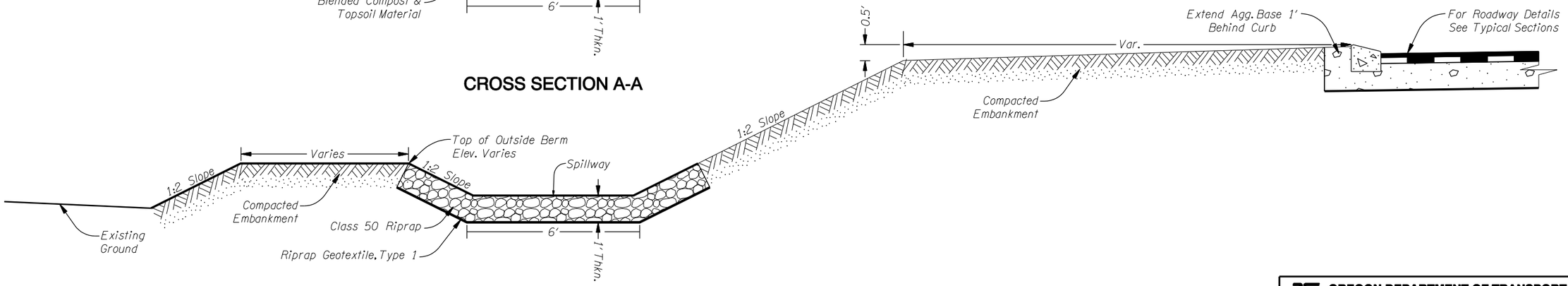
Sec. 15, T. 41 S, R. 13 W, W.M.



PROFILE



CROSS SECTION A-A



CROSS SECTION B-B

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: J. Carpenter

Drafted By: L. Coffel

DFI D00403
MAINTENANCE DISTRICT 7 HWY 009
DETENTION POND
OREGON COAST HIGHWAY MP 361.21/361.25
CURRY COUNTY

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DFI00403A

Appendix B

Content:

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

42V-62

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

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

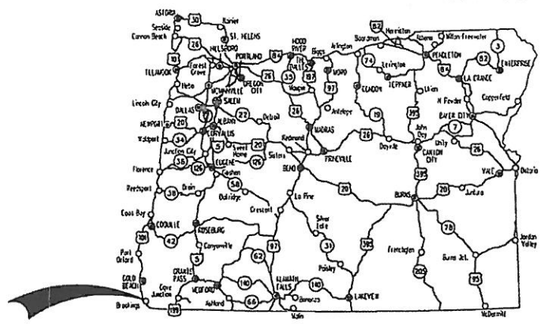
PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS & BUILDING

US 101 @ CONSTITUTION WAY

OREGON COAST HIGHWAY

CURRY COUNTY
APRIL 2009



Overall Length Of Project - .43 Miles

END OF PROJECT
X-NH-S009(329)
STA. "OC" 45+01.95 (M.P. 357.85)

BEGINNING OF PROJECT
X-NH-S009(329)
STA. "OC" 36+79.61 (M.P. 357.69)

BEGINNING OF PROJECT
X-NH-S009(329)
STA. "SC" 9+46.06 (M.P. 361.00)

END OF PROJECT
X-NH-S009(329)
STA. "SC" 37+08.86 (M.P. 361.52)

T. 41S., R.13W., S. 05., W.M.
T. 41S., R.13W., S. 15., W.M.
T. 41S., R.13W., S. 22., W.M.

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

OREGON TRANSPORTATION COMMISSION

Gail Achterman	CHAIR
Michael Nelson	VICE-CHAIR
Janice Wilson	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. Thomp
Signature & date 3/10/09

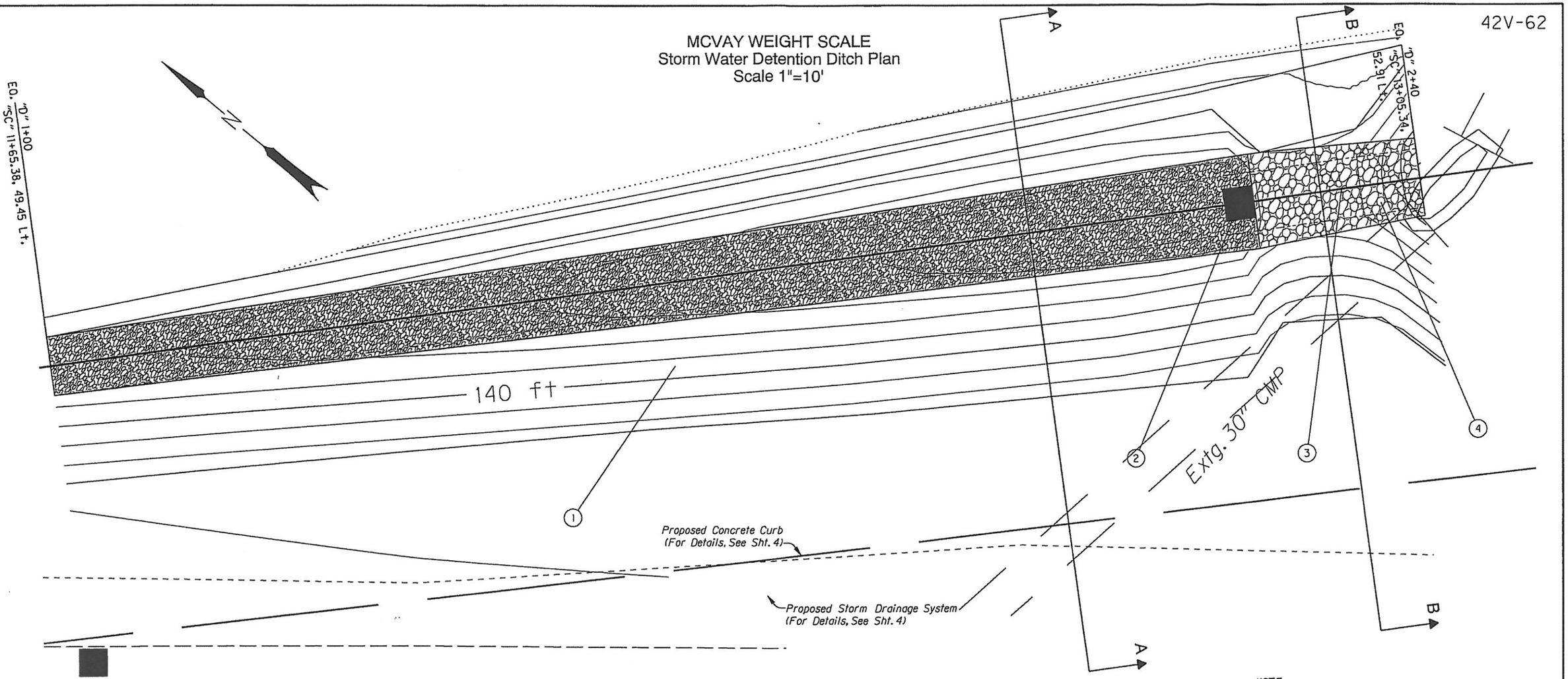
MARK THOMPSON - TECH.CENTER MANAGER
Print name and title

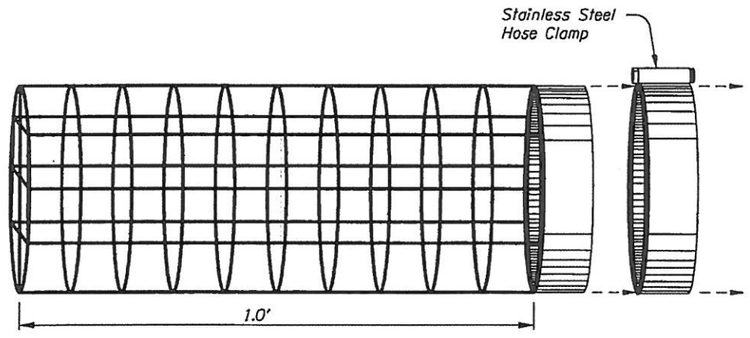
B Johnson
Concurrence by ODOT Chief Engineer

US 101 @ CONSTITUTION WAY
OREGON COAST HIGHWAY
CURRY COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	X-NH-S009(329)	1

MCVAY WEIGHT SCALE
Storm Water Detention Ditch Plan
Scale 1"=10'





WIRE CLOTH STRAINER ASSEMBLY

(Stainless Steel or Bronze) Wire Cloth
Mesh Opening Size: 2" [Must Be Orifice 4.5"Dia. Or Smaller]

1. *Construct Storm Water Detention Ditch To Contours Shown.*
   Embankment - 233 cu. yds.
   Blended Compost & Topsoil - 92 cu. yds.
   (For Details, See Sht. GJ-2)
2. *Sta. "D" 220+01.50*
   Const. Type "D" Inlet
3. *Sta. "D" 220+01.50 to "D" 240+00.00*
   Inst. 6" HDPE Pipe - 18'
   Const. Outlet Protection Block
   (For Details, See RD312)
4. *Construct Emergency Spillway*
   Loose Riprap (Class 50) - 24 cu. yds.
   Riprap Geotextile (Type 1) - 205 sq. yds.
   (For Details, See Sht. GJ-2 & RD317)

NOTE:
1. *Side-slopes are shown as vert. to horiz.*
2. *All dimensions are in feet (Ft.) unless otherwise noted.*
3. *Contour lines shown on 1 ft. intervals.*

REGISTERED PROFESSIONAL ENGINEER
63,243
OREGON
JULY 9, 2001
CHRIS R. ZELMER

RENEWAL DATE: June-30-2008

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

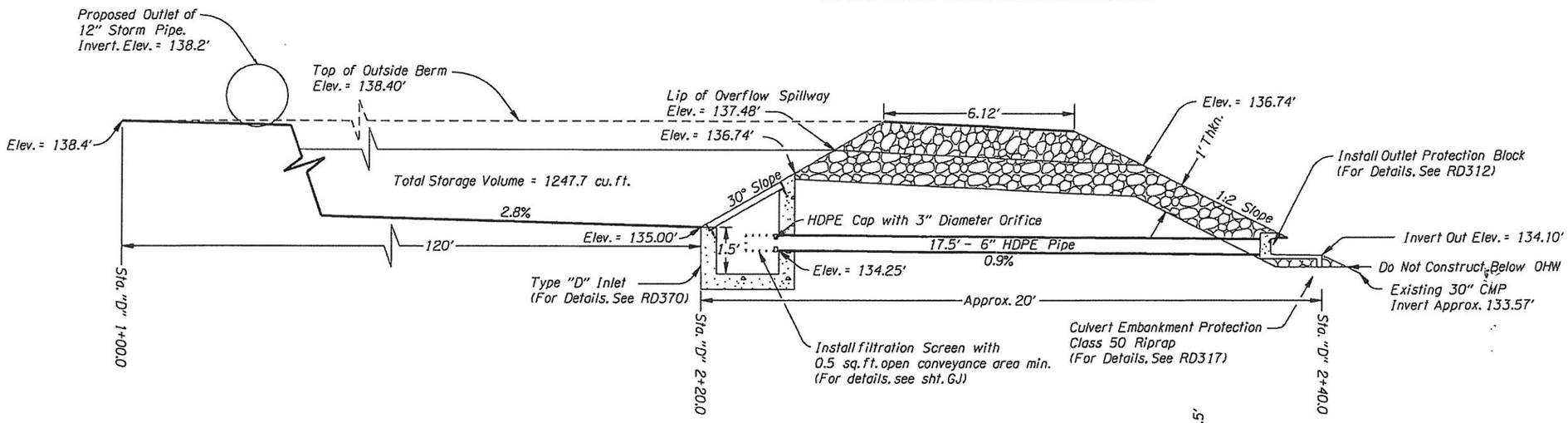
US 101 @ CONSTITUTION WAY
OREGON COAST HIGHWAY
CURRY COUNTY

Design Team Leader - Chris Zelmer
Designed By - Jered Carpenter
Drafted By - Jered Carpenter

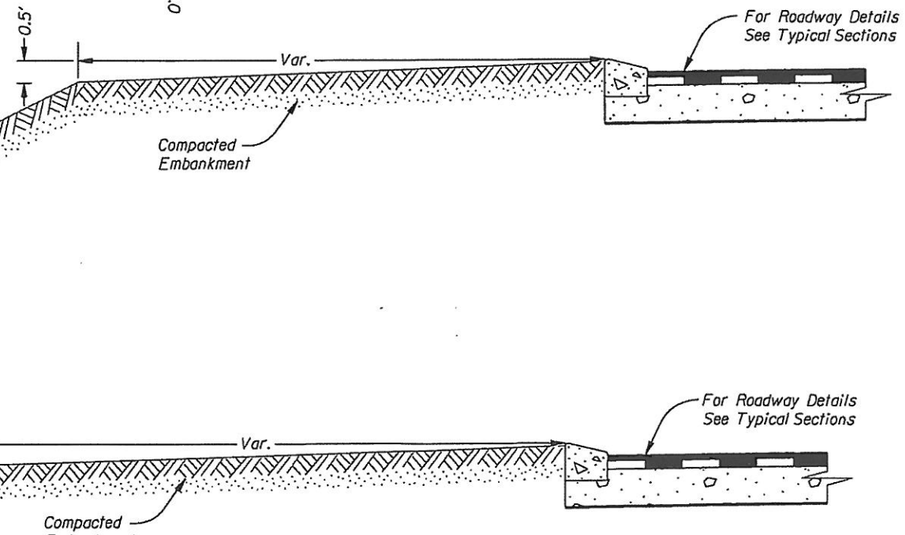
WATER QUALITY PLAN

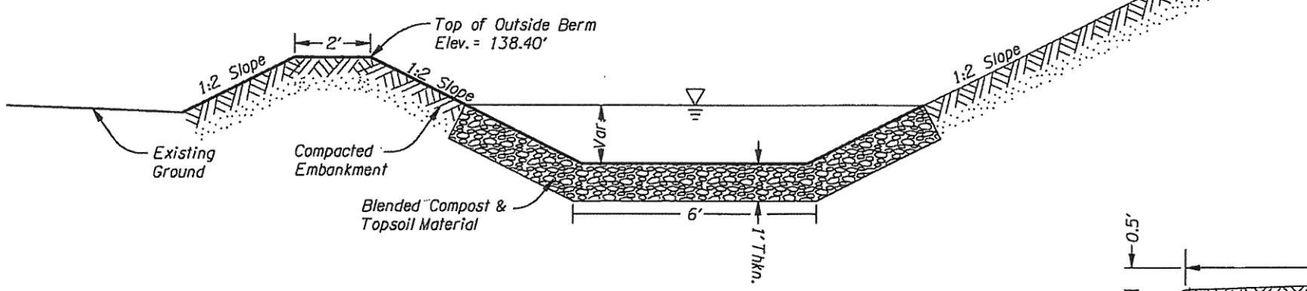
SHEET NO. GJ

Storm Water Detention Ditch Details

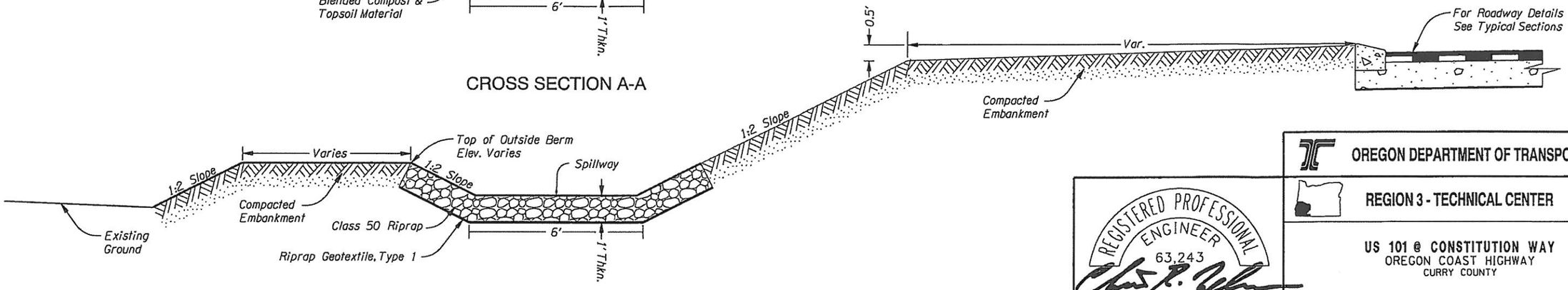


PROFILE





CROSS SECTION A-A



CROSS SECTION B-B

NOTE:
1. Side-slopes are shown as vert. to horiz.
2. All dimensions are in feet (Ft.) unless otherwise noted.
3. Pipes connecting to the inlet shall have a flexible, gasketted, and unrestrained joint within 18" of the inlet wall.

REGISTERED PROFESSIONAL ENGINEER
63,243
OREGON
JULY 9, 2001
CHRIS R. ZELMER

RENEWAL DATE: June-30-2008

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

US 101 @ CONSTITUTION WAY
OREGON COAST HIGHWAY
CURRY COUNTY

Design Team Leader - Chris Zelmer
Designed By - Jared Carpenter
Drafted By - Jared Carpenter

WATER QUALITY DETAIL

SHEET NO. GJ-2