OPERATION & MAINTENANCE MANUAL

DFI No.: D00918

Facility Type: Water Quality Detention Pond/Swale Combination

JULY 2016

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00918**
Facility Type:	Water Quality Detention Pond/Biofiltration Swale Combination
Construction Drawings:	(V-File Number) 47V-177
Location:	District: 7
	Highway No.: 001
	Mile Post: 161.39/161.44 (beg./end)
	Description: This facility is located on the western side of I-5 (Hwy 001, Pacific Highway). Access can be obtained from the highway shoulder and access pad at the north end of the facility.

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) 957-3570

Or

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

3. Construction

Engineer of Record:	Wade R. Holaday
ODOT Designers:	Region 3 Tech. Center, Phone no. 541-957-3570
Facility construction:	2016
Contractor:	K&A Construction, Inc.

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.

Stormwater for the facility is collected by the roadside ditch (Point A) in addition to sheet flow from the adjacent lanes of I-5. Refer to the Operational Plan in Appendix A for the point locations. Water conveyed into the detention pond/swale undergoes treatment as it flows through the length of the channel. The treated water flows out of the swale through the flow control structure an outlets into and existing ditch to the west of the facility. The ditch flows into an existing 36" culvert which flows to the east, under the facility and I-5. This storm system directs the flow into Buck Creek.

A. Maintenance equipment access:

Maintenance crew can access the facility from the highway shoulder on the western side of I-5 and the access pad at the north end of the facility.

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 Haz Mat Spill Feature(s)

The pond/swale can be used to store a volume of liquid by blocking the outlet structure at the north end of the facility. (Point B)

6. Auxiliary Outlet (High Flow Bypass)

7. This facility has a high flow bypass structure for larger storm events. This structure is a Type "D" inlet with a flow control orifice plate. If the inlet is blocked the excess flow will overtop the primary outlet and continue to flow through the secondary outlet. If both outlet structures are blocked,

the flow will overtop the access pad and flow into the existing roadside ditch the next 18” cross culvert.

The auxiliary outlet feature for this facility is:

☒ Designed into facility

☐ Other, as noted below

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

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:N/A

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

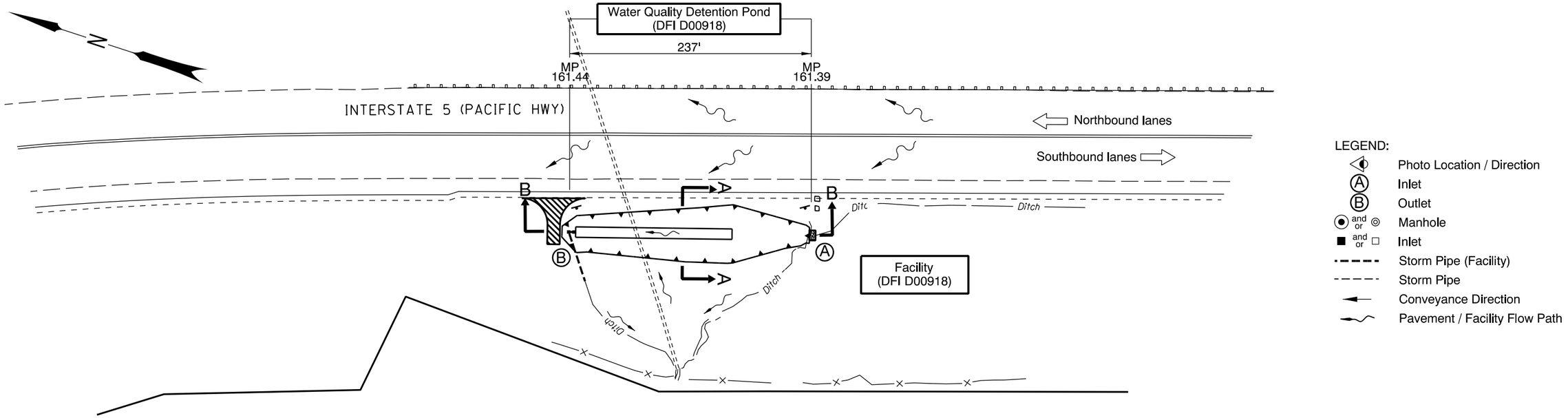
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(541) 957-3594
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

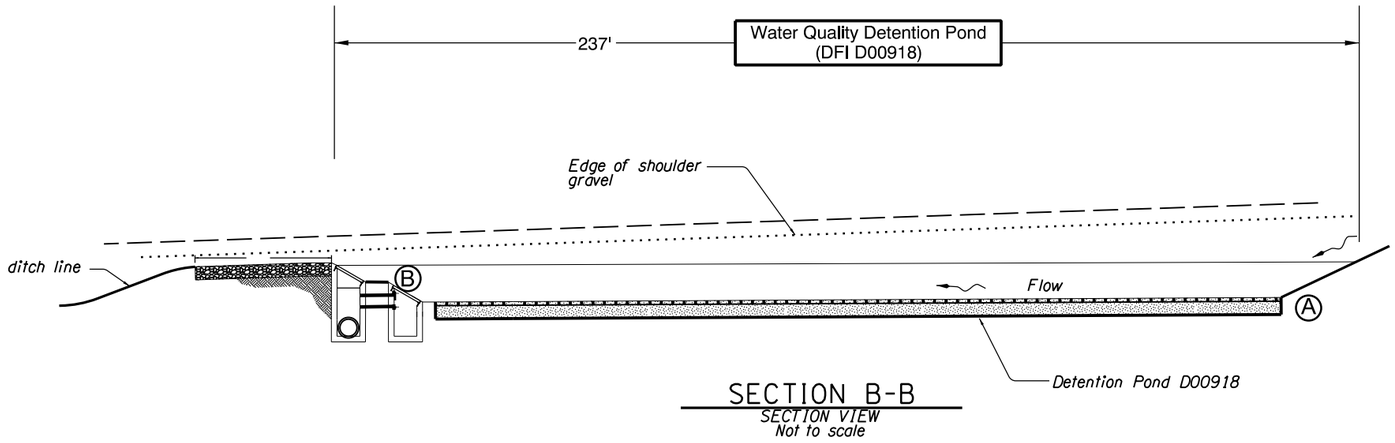
Content:

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

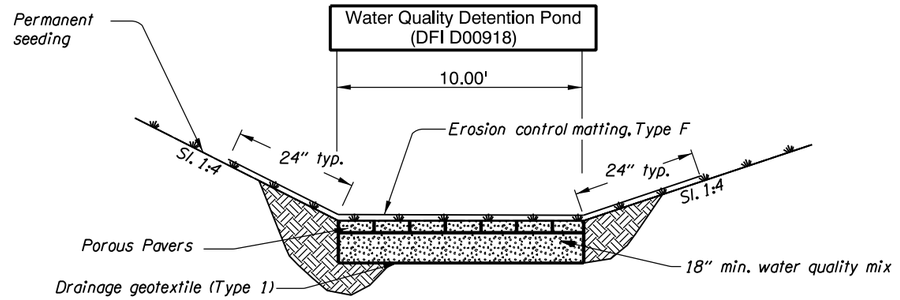


LEGEND:

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



SECTION B-B
SECTION VIEW
Not to scale



SECTION A-A
SECTION VIEW
Not to scale

Sheet 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Wade Holaday

Drafted By: Wade Holaday

DFI D00918
MAINTENANCE DISTRICT 7 HWY 001
WATER QUALITY DETENTION POND
HIGHWAY MP 161.39
DOUGLAS COUNTY

F:\ODOT_DATA\Projects\16269_Anlauf_Elkhead\O-M_Files\DFI_D00918\DFI_D00918.dgn :: Default 7/7/2016 12:05:11 PM hwyr33e

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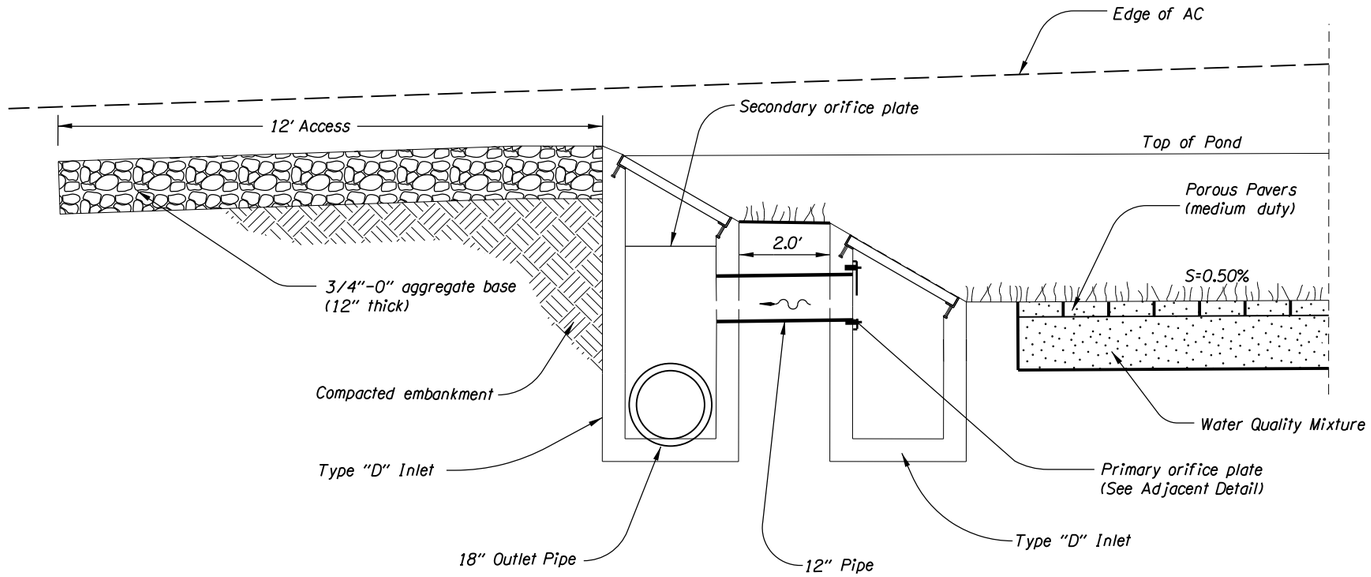
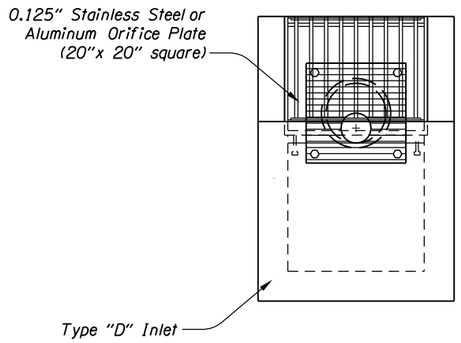


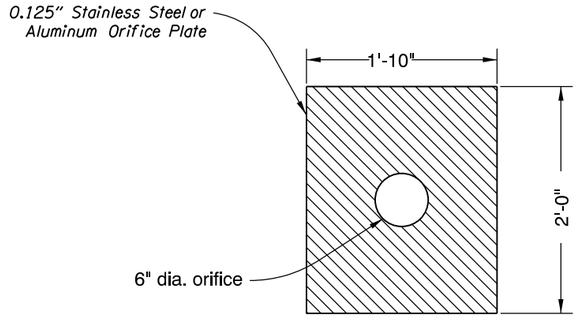
FLOW CONTROL STRUCTURE DETAIL

Storage Pond "D00918"



FRONT VIEW

Primary Orifice Plate Detail



TOP VIEW

Secondary Orifice Plate Detail

Sheet 2 of 2

Prepared By: Wade Holaday

Drafted By: Wade Holaday

OREGON DEPARTMENT OF TRANSPORTATION

DFI D00918
MAINTENANCE DISTRICT 7 HWY 001
WATER QUALITY DETENTION POND
HIGHWAY MP 161.39
DOUGLAS COUNTY

Appendix B

Content:

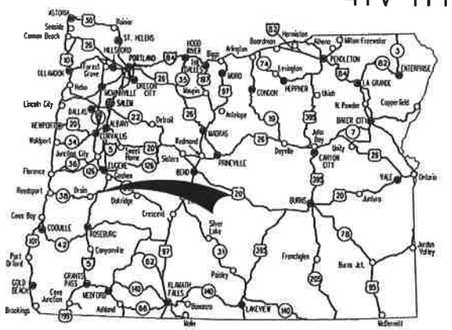
- **ODOT Project Plan Sheets**
  - ***Cover/Title Sheet***
  - ***Water Quality/Detention Plan Sheets***
  - ***Other Details***

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont. & Std. Drg. Nos.
1A-2	Layout Sheet

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

PAVING

47V-177



Overall Length Of Project - 7.66 Miles

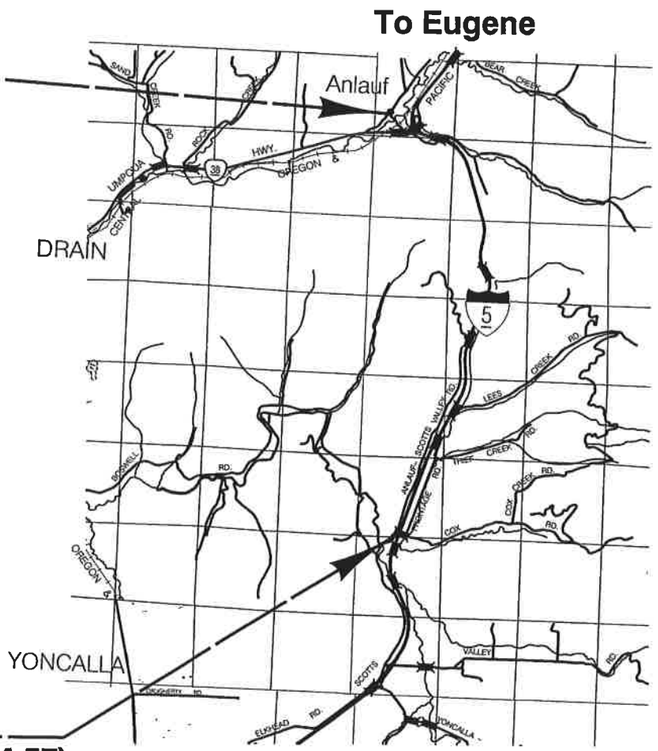
I-5: ANLAUF - ELKHEAD RD PAVING

PACIFIC HIGHWAY
DOUGLAS COUNTY
FEBRUARY, 2015

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
NHPP-S001(457)
STA. "LC" 303+37.46 (M.P. 162.23)



END OF PROJECT
NHPP-S001(457)
STA. "LN" 710+00.77 (M.P. 154.57)

N

T. 21 S., R. 4 W., W.M.
T. 22 S., R. 4 W., W.M.

OREGON TRANSPORTATION COMMISSION

Catherine Mater	CHAIR
Tammy Baney	COMMISSIONER
David Lohman	COMMISSIONER
Susan Morgan	COMMISSIONER
Alando Simpson	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. Thom 12-9-2014
Signature & date

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

Concurrence by ODOT Chief Engineer

I-5: ANLAUF - ELKHEAD RD PAVING
PACIFIC HIGHWAY
DOUGLAS COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	NHPP-S001(457)	1

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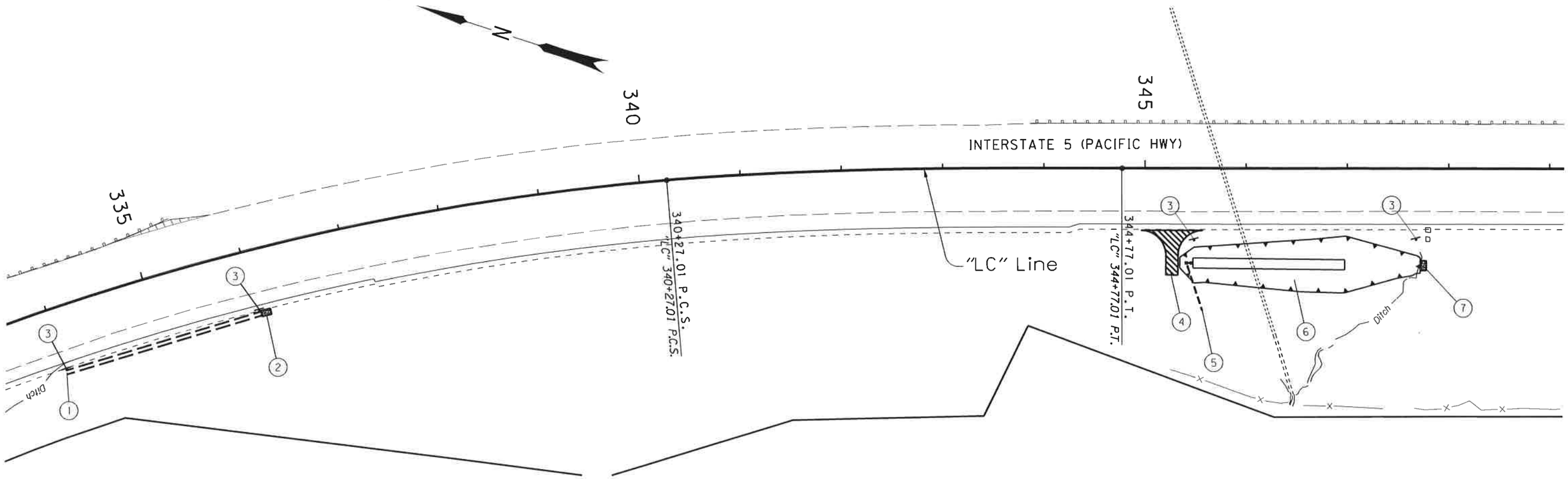
47V-177

Sec. 5, T. 22 S, R. 4 W, W.M.



(1) *Sta. "LC" 334+00.05, Rt. to "LC" 336+05.27, Rt.*
Const. biofiltration swale D00917
(see detail Sht. GJ)

(2) *Sta. "LC" 336+05.27, Rt.*
Gen. exc. - 1.5 cy
Const. loose rip-rap, Class 50 - 1.5 cy

(3) *Install field facility marker, Type S2 - 4 ea*
(for details, see sht. GJ-6)

(4) *Sta. "LC" 345+26.27*
Const. gravel access
Gen. exc. - 30 cy
¾" - 0" aggregate base - 70 tn.
12" min. thickness

(5) *Sta. "LC" 345+42.45 Rt.*
Const. 18" storm pipe - 50 lf
5' depth
Const. Class 50 rip-rap outlet protection - 5 cy
(see drg. no RD317)

(6) *Sta. "LC" 345+34.38 Rt. to "LC" 347+71.58 Rt.*
Const. Storage pond D00918
(see details Shts. GJ-4 & GJ-5)

(7) *Sta. "LC" 347+71.58, Rt.*
Gen. exc. - 2 cy
Const. loose rip-rap, Class 50 - 2 cy

REGISTERED PROFESSIONAL ENGINEER
19202
OREGON
JULY 15, 1997
WADE RYDER HOLADAY
EXPIRES: JUNE 30, 2017

OREGON DEPARTMENT OF TRANSPORTATION

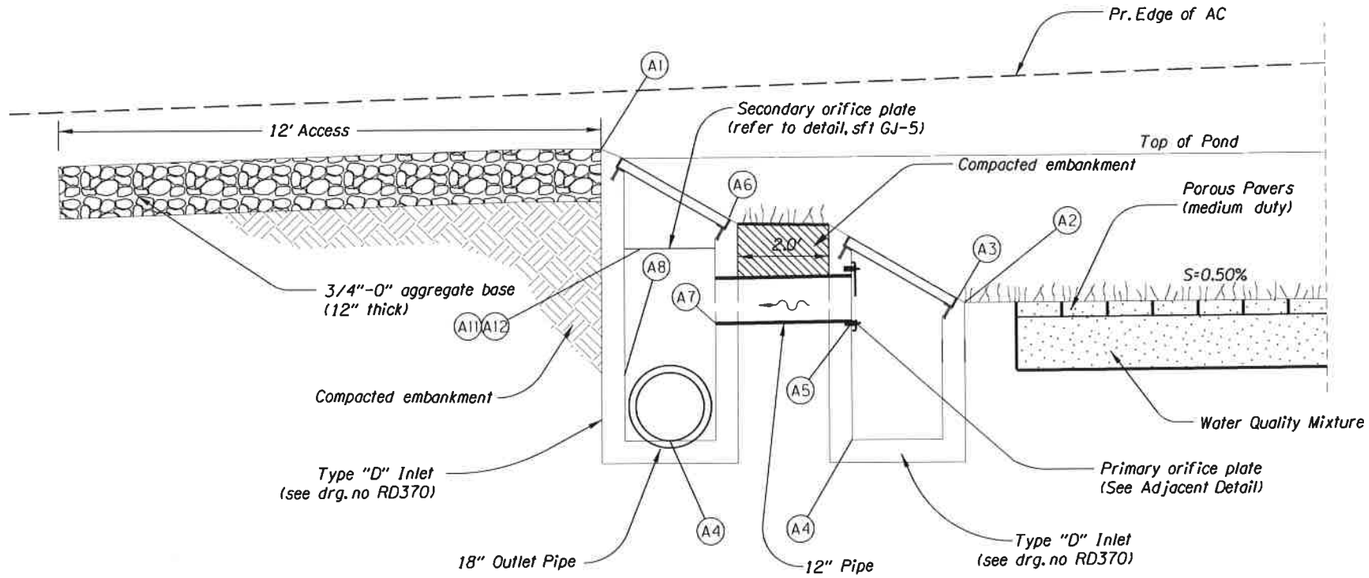
REGION 3 - TECHNICAL CENTER

I-5: ANLAUF - ELKHEAD RD PAVING
PACIFIC HIGHWAY
DOUGLAS COUNTY

Designed By - Wade Holaday
Reviewed By - DeLonie Cutsforth
Drafted By - Wade Holaday

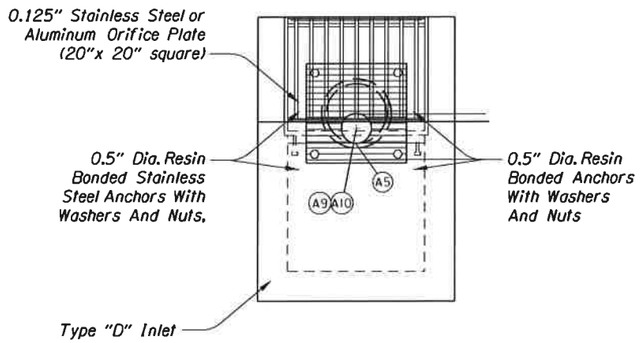
STORMWATER PLANS

SHEET NO. GJ-3



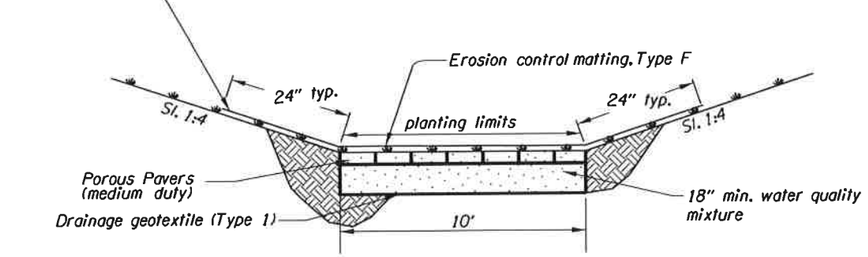
FLOW CONTROL STRUCTURE DETAIL

Storage Pond "D00918"



FRONT VIEW

Primary Orifice Plate Detail



SECTION VIEW

Storage Pond "D00918"
NTS

Detention/Biofiltration Swale "D00916"

	DIMENSION	DESCRIPTION
A1	527.79'	Top of Berm Elevation
A2	524.00'	Bottom of Pond Minimum Elevation
A3	524.08'	Elev. Of Lip Of Lower Type "D" Inlet
A4	520.66'	Max. Sump Elevation Of Type "D" Inlets
A5	523.72'	Invert-Out Elevation of 12" Pipe
A6	525.81'	Elev. Of Lip Of Upper Type "D" Inlet
A7	523.62'	Invert-In Elevation Of 12" Pipe
A8	520.82'	Invert-Out Elevation of 18" Pipe
A9	523.97'	Primary Orifice Center Elevation
A10	6"	Primary Orifice Diameter (vertical)
A11	525.48'	Secondary Orifice Elevation
A12	6"	secondary Orifice Diameter (horizontal)

PLANTING TABLE

Common Name	Type	Density
Dense Sedge	plug	2 per sq.ft.
Creeping Spikebrush	plug	
Poverty Rush	plug	
Seep Monkeyflower	plug	

NOTES:
Plant an equal mix of all listed plant species, as shown, at a density of 2 plants per square foot.

REGISTERED PROFESSIONAL ENGINEER
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OREGON DEPARTMENT OF TRANSPORTATION

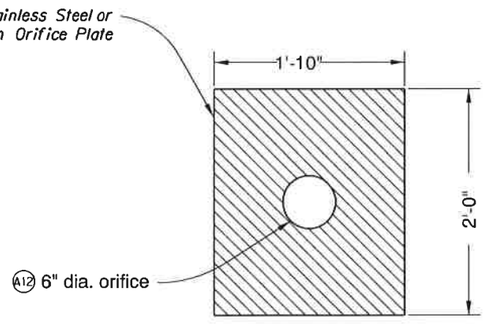
REGION 3 - TECHNICAL CENTER

I-5: ANLAUF - ELKHEAD RD PAVING
PACIFIC HIGHWAY
DOUGLAS COUNTY

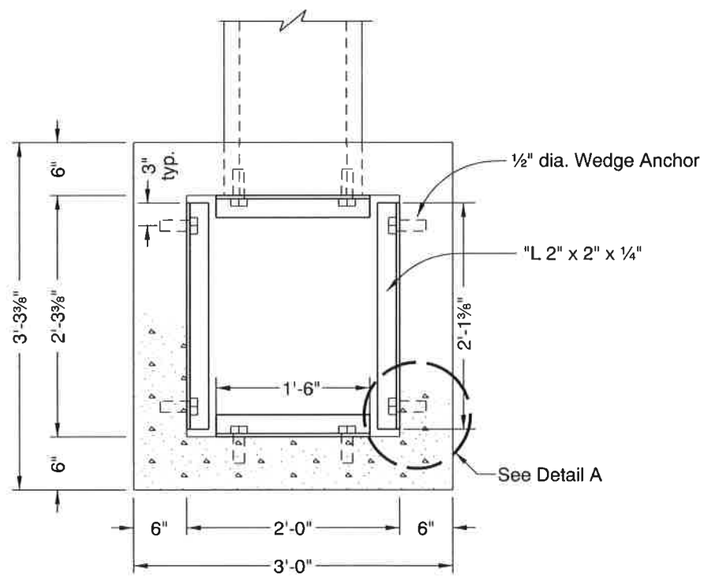
Designed By - Wade Holaday
Reviewed By - DeLanie Cutsforth
Drafted By - Wade Holaday

STORAGE POND DETAILS

SHEET NO. GJ-4

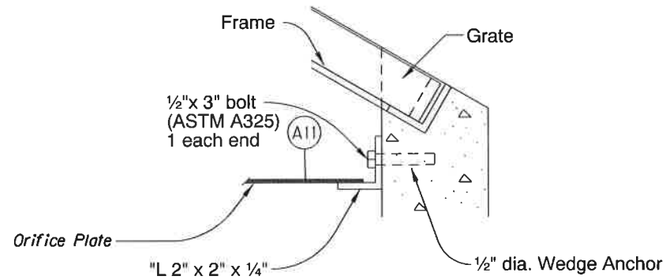


ORIFICE PLATE



PLAN VIEW

Secondary Orifice Plate Detail



DETAIL A

REGISTERED PROFESSIONAL ENGINEER
19202
OREGON
JULY 15, 1997
WADE RYDER HOLADAY

EXPIRES: JUNE 30, 2017

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

I-5: ANLAUF - ELKHEAD RD PAVING
PACIFIC HIGHWAY
DOUGLAS COUNTY

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STORAGE POND DETAILS

SHEET NO. GJ-5