OPERATION & MAINTENANCE MANUAL

DFI No.: D00760
Facility Type: Water Quality Extended Detention Dry Pond

MAY, 2017

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00760**
Facility Type:	Water Quality Extended Detention Dry Pond
Construction Drawings:	46V-113
Location:	District: 08
	Highway No.: 001
	Mile Post: MP 24.45 to MP 24.51
	Description: This facility is located along the east side of northbound I-5.

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:	ODOT Designer – Geo-Environmental Section, DeLaine Cutsforth, P.E. (541) 774-6326
Facility construction:	2016
Contractor:	

4. Storm Drain System and Facility Overview

A water quality extended detention dry pond is a basin that is designed to detain stormwater for a sufficient time to allow particles and attached pollutants to settle. The outlet control structure limits the rate of runoff leaving the pond by using an orifice. These facilities are designed to completely drain over a 48 hour period. The size of these facilities depends on the location and the amount of contributing impervious area.

The extended detention dry pond is located on the east side of I-5 adjacent to the North Phoenix Road On-Ramp. The drainage is collected by a series of inlets and conveyed to the facility by a 12”, 18”, and a 36” storm pipe. The drainage area includes the northbound on-ramp and the northbound lanes of I-5 from approximately MP 24.36 to 24.51.

All stormwater is into the Extended Dry Detention Pond. Once in the facility the water is conveyed to a type D outlet structure; see the Operational Plan, Appendix A. The Type D outlet structure is engineered to route the outfall into a 48” dia. stormwater pipe.

A. Maintenance equipment access:
The facility can be accessed for maintenance along I-5 (Hwy 001) for inspection and use of hand equipment. Heavy equipment access is a problem due to the concrete barrier. See Photo 4

B. Heavy equipment access into facility:

☐ Allowed (no limitations)
☒Allowed (with limitations) – See Maintenance Equipment Access
☐ Not allowed

C. Special Features:

☐ Amended Soils
☒ Porous Pavers
☐ Liners
☐ Underdrains

5. Facility Haz Mat Spill Feature(s)

The water quality extended detention dry pond can be used to store a volume of liquid by blocking the Type D outlet structure.

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

High flows can leave the facility via an auxiliary ditch that conveys the flows to a swale further along I-5 at approximately MP 24.8.

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 or 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

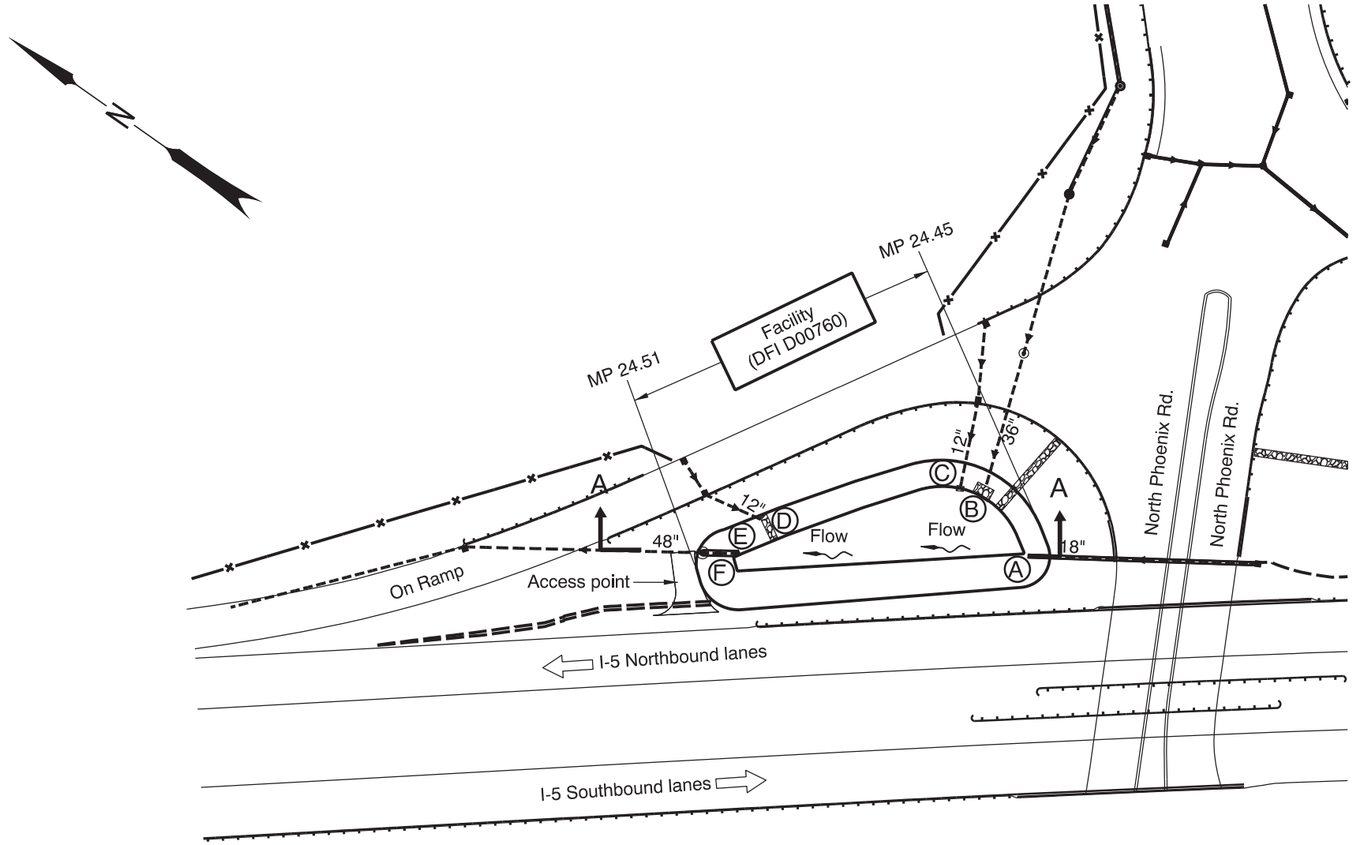
Contact any of the following for more detailed information about management of waste materials found on site:

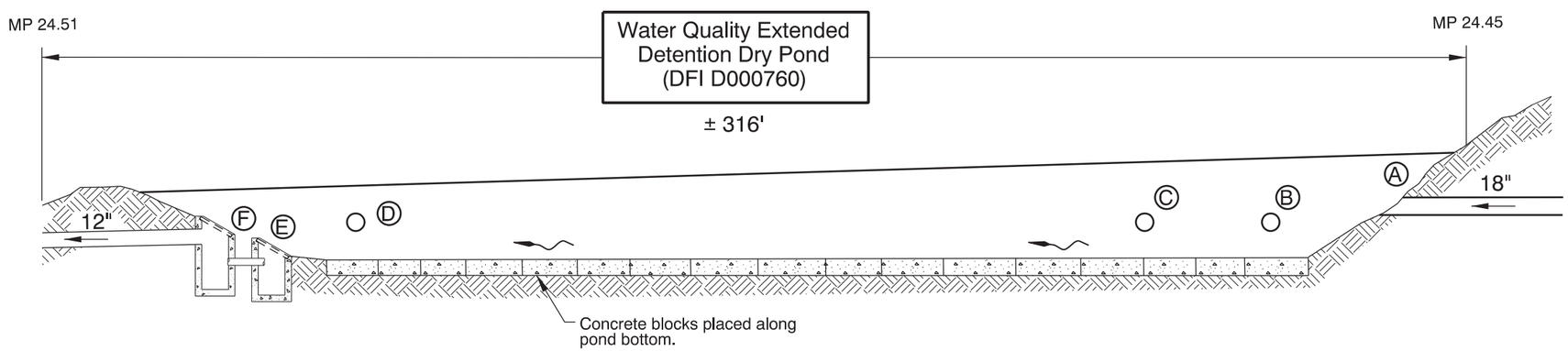
ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 731-8304
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

Content:

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





SECTION A-A

N.T.S.

LEGEND:

- Ⓐ-Ⓓ Pond Inlet
- Ⓔ Pond Outlet
- Ⓕ Flow Control Structure
- ◉ and/or ◎ Manhole
- ■ and/or □ Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: T. BURRIER

Drafted By: T. BURRIER

DFI D00760
MAINTENANCE DISTRICT 08 HWY 001
WATER QUALITY DRY DETENTION POND
HIGHWAY MP 24.45
JACKSON

DFI_D00000.dgn

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'd.
1A-2, 1A-3	Standard Dwg. Nos.
1A-4	Layout Sheet

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

PAVING, GRADING, DRAINAGE, STRUCTURES, SIGNING & ROADSIDE DEVELOPMENT

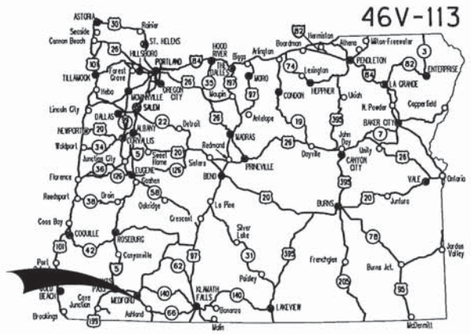
FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2

PACIFIC HIGHWAY

JACKSON COUNTY

NOVEMBER 2013

1



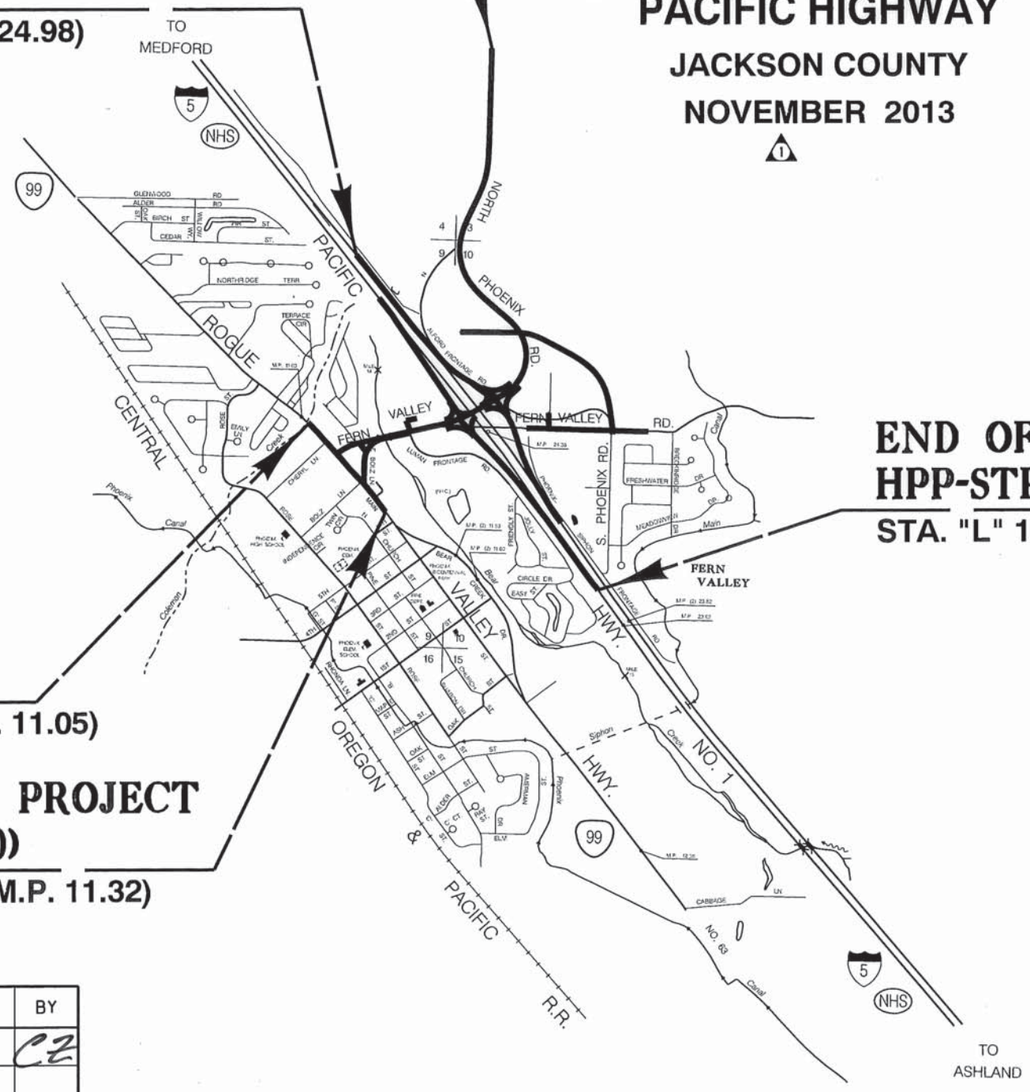
Overall Length Of Project - 1.02 Miles

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.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

END OF PROJECT
HPP-STP-S001(410)
STA. "NP" 74+00 (M.P. 1.21)

BEGINNING OF PROJECT
HPP-STP-S001(410)
STA. "L" 1002+00 (M.P. 24.98)



END OF PROJECT
HPP-STP-S001(410)
STA. "L" 1054+35 (M.P. 23.96)

END OF PROJECT
HPP-STP-S001(410)
STA. "RVH" 381+27 (M.P. 11.05)

BEGINNING OF PROJECT
HPP-STP-S001(410)
STA. "RVH" 366+25 (M.P. 11.32)

No.	DATE	REVISIONS	BY
1	10-31-13	Bid date was October 2013	CZ

N

Sec. 03, T.38S, R. 1W, W.M.
Sec. 09, T.38S, R. 1W, W.M.
Sec. 10, T.38S, R. 1W, W.M.
Sec. 15, T.38S, R. 1W, W.M.

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

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. J. Thompson 11-4-2013
Signature & date

MARK THOMPSON, TECH. CENTER MGR.
Print name and title

Concurrence by ODOT Chief Engineer

FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HPP-STP-S001(410)	1

F:\ODOT_DATA\Projects\12723_Fern_Valley_Interchange\01_Working\Sheets_Title\12723r3.tsl :: Default 10/31/2013 10:08:46 AM hwye33g

46V-113

INDEX OF SHEETS, CONT'D.

SHEET NO.	DESCRIPTION
1B	Prospective Staging Area
1B-2, 1B-3	Right of Way Hold-Outs
1C, 1C-2	Survey Control Sheet
2 thru 2A-41	Typical Sections
2B thru 2B-42	Details
2C thru 2C-13E	Traffic Control Plans
2D thru 2D-8	Pipe Data Sheet
2E thru 2E-5	Concrete Joint Layout
3 thru 15*	Alignment
1 3A thru 15A-2*	General Construction
3B thru 15B-2*	Drainage & Utilities
3C thru 15C-2*	Profiles
W1 thru W13	Waterline Plans
D1 thru D10	Waterline Details

*For a detailed list of sheets, see Plan Sheet Index on see sht. 1A-4

SHEET NO.	DESCRIPTION
	GEO/HYDRO
GA	Erosion Control Notes
GA-2 thru GA-7	Erosion Control Details
GA-8 thru GA-63	Erosion Control Plan
GH, GH-2	Bank Protection
GJ thru GJ-10	Stormwater

SHEET NO.	DESCRIPTION
	LANDSCAPE
GN thru GN-15	Planting Plan

SHEET NO.	DESCRIPTION
	AESTHETIC
2F thru 2F-25	Bridge Aesthetic Details

DRAWING NO.	DESCRIPTION
	BRIDGE
92015	General Layout and Index
	GRAVITY WALL #22074
92016	Plan and Elevation
	GRAVITY WALL #21728
92017	Plan and Elevation
	GRAVITY WALL #21919
92018	Plan and Elevation
	BEAR CREEK BRIDGE #21382
92019	Plan and Elevation
92020	General Notes
92021 thru 92023	Foundation Data Sheet
92024	Stage Construction
92025	Footing Plan
92026	Deck Plan
92027	Typical Deck Section
92028	Bulb I Girder Schedules
92029	Deck Elevations: Spans 1&2
92030 thru 92032	Bent 1, Bent 2 and Bent 3
92033	Bent Details
92034	Bearings
92035	Shearlug & Misc.
92036	Wingwalls
92037	Sign Support at Bent 2
92038	Barrier Notes and Misc. Details
92039	Temporary Precast Barriers
92040	Bridge End Pylon
92041	Bridge Monument
92042	Utility Detail
92043	Avista Gas Casing Installation
92044	Retaining Wall Design
92045	MSE Wall Design
92046	MSE Wall Design cont.
	MSE WALL 1 #21729
92047	Plan and Elevation
92048	Foundation Data
92049	MSE Wall Design
92050	Combination Rail Coping Detail
92051	Coping Mount Sign Support
	MSE WALL 2 #21730
92052	Plan and Elevation
92053	Foundation Data
92054	MSE Wal Design
92055	Coping Mount Sign Support

DRAWING NO.	DESCRIPTION
	BRIDGE (cont'd)
	I-5 INTERCHANGE BRIDGE #21383
92056	Plan and Elevation
92057	General Notes
92058 thru 92061	Foundation Data Sheet
92062	Footing Plan
92063	Deck Plan
92064	Typical Deck Section
92065	Deck Elevations: Spans 1 & 2
92066 & 92067	Prestressed Box Girder Details (1&2)
92068	Bent 1
92069	Bent 2
92070	Bent 3
92071	Bent Details
92072	Drilled Shaft Detail
92073	Bearing Pad
92074	Wingwalls
92075	Rail Monument Layout
92076 & 92077	Pedestrian Corridor Monuments
92078 & 92079	Bridge Rail Monuments
92080	Protective Screening Layout
92081	Post Details (Protective Screening)
92082	Retaining Wall Layout
92083 & 92084	MSE Wall Design
	MSE WALL 3 #21731
92085	Plan and Elevation
92086	Foundation Data
92087	MSE Wall Design
92088	Type F Rail Cloping Detail

SHEET NO.	DESCRIPTION
	PERMANENT PAVEMENT MARKINGS
ST & ST-2	Striping Details
ST-3 thru ST-16	Striping Plan

SHEET NO.	DESCRIPTION
	PERMANENT SIGNING
S-14146 thru S-14171	Signing Plans
S-14172 thru S-14184	Signing Details
S-14185 thru S-14196	Sign & Post Data Table

SHEET NO.	DESCRIPTION
	PERMANENT SIGN SUPPORT STRUCTURES
	SIGN STRUCTURE #21718
S-14198	Cantilever Sign Support
	SIGN STRUCTURE #21719
S-14199	Cantilever Sign Support
	SIGN STRUCTURE #21720
S-14200	Cantilever Sign Support
	SIGN STRUCTURE #21721
S-14201	Cantilever Sign Support
	SIGN STRUCTURE #21722
S-14202	Cantilever Sign Support
	SIGN STRUCTURE #21723
S-14203	Truss Type Sign Bridge
	SIGN STRUCTURE #21724
S-14204	Truss Type Sign Bridge
	SIGN STRUCTURE #21725
S-14205	Cantilever Sign Support

SHEET NO.	DESCRIPTION
	ILLUMINATION
I-02138 thru I-02151	Illumination Plans

SHEET NO.	DESCRIPTION
	TRAFFIC SIGNALS
16976 thru 17037, 17326	Signal Plans
17053	Din Rail Section and Details
17054	Din Rail Assembly
ITS-1410, ITS-1411	Fiber Optic Cable Splice Diagram
ITS-1412	Handhole and Traffic Cabinet Details
ITS-1413	Camera Cabinet Details
ITS-1414 thru ITS-1416	Traffic Camera Pole (3 sheets)

For List Standard Dwg. Nos., see shts. 1A-2 & 1A-3

No.	DATE	REVISIONS	BY
1	10-21-13	Added sheet 15A-2	CZ

Standard Drawings located on the web at:
http://www.oregon.gov/ODOT/HWY/ENGSERVICES/standard_drawings_home.shtml

FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HPP-STP-S001(410)	1A

46V-113

Sec. 09, T. 38S, R. 1W, W.M.
Sec. 10, T. 38S, R. 1W, W.M.
FERN VALLEY INTERCHANGE

SEE SHEET 11B MATCH LINE E

"SRH" LINE
For Profile, See sht. 5C-4

"A" LINE
For Profile, See sht. 15C-2

"SRA" LINE
For Profile, See sht. 5C-3

"NBON" LINE
For Profile, See sht. 5C-2

"NBOFF" LINE
For Profile, See sht. 5C-2

"SRG" LINE
For Profile, See sht. 5C-4

"NP" LINE
For Profile, See sht. 5C-5

"SD1" LINE
For Profile, See sht. 5C-5

"SRB" LINE
For Profile, See sht. 5C-3

"L-NB" LINE
For Profile, See sht. 5C

"L" LINE

"L-SB" LINE
For Profile, See sht. 5C

"SRF" LINE
For Profile, See sht. 5C-4

"SRC" LINE
For Profile, See sht. 5C-3

"SBON" LINE
For Profile, See sht. 5C-2

"SBOFF" LINE
For Profile, See sht. 5C-2

"SRD" LINE
For Profile, See sht. 5C-3

"SRE" LINE
For Profile, See sht. 5C-4

SEE ENLARGED VIEW "A" SEE SHEET 5B-4

SEE SHEET 15B

SEE SHEET 6B

SEE SHEET 4B

SEE SHEET 10B MATCH LINE D

I-5 PACIFIC HWY

N. PHOENIX RD

Access Control Line

Exist. Access Control Line

Exist. R/W

Farm Ease.

Temp. Ease.

Inst. water line (For dwg. nos., see sht. 1A)

Ditch

D00760

D00761

Notes:
1. Station/Offset/Elevations callouts for type "CG-2," and "CG-3" inlets are to top face of curb.
2. Station/Offset/Elevation callouts for type "G-2" inlets are to back of grate.
3. Station/Offset/Elevation callouts for type "G-2MA" inlets are to center of structure.
4. Top of curb (T.C.) and Top of Grate (Gr.) elevations are approximate. (T.C.) and (Gr.) elevations shall match finish grade surface at inlet.

Remove or abandon extg. pipe shown thus:
Remove extg. inlet shown thus:
Remove extg. monhole shown thus:

No.	DATE	REVISIONS	BY
1	10-22-13	Added Manholes and Utility Conduit	N

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

REGISTERED PROFESSIONAL ENGINEER
63243
OREGON
JULY 9, 2001
CHRIS R. ZELMER
EXPIRES: JUNE 30, 2014

FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

Designed By - Roy Blower
Reviewed by - Rich Coffel
Drafted By - Judy Hardin

DRAINAGE & UTILITIES

SHEET NO. 5B

\\wpdotfpsr821\userseng\hwye33g\ODOT_DATA\Projects\12723_Fern_Valley_Interchange\01_Working\Sheets_Drainage\12723.dri :: Default 10/23/2013 8:01:59 AM hwye33g

(1) Sta. "SRC" 301+05.00, 14.61' Rt.
Const. type "G-2" inlet
Gr.=1492.25
F.L.=1488.48

(2) Sta. "NP" 26+11.00, 24.60' Lt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 92'
5' depth
S=1.93%
T.C.=1491.95
F.L.=1486.70 (12" thru)
(See drg. nos. RD371 & RD372)

(3) Sta. "SBOFF" 1024+50.00, 45.60' Lt.
Remove inlet
Const. type "D" inlet
Remove pipe - 62' (18" dia.)
Const. loose riprap (Class 50) - 4 cu. yd.
(Loose riprap pad)
Riprap geotextile - 5 sq. yd.
Gr.=1466.32
F.L.=1463.15
(For details, see sht. 2B)
(See drg. no. RD370)

(4) Sta. "SBOFF" 1024+61.80, 24.14' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 226'
5' depth
S=8.02%
Inst. 18" storm sew. pipe - 68'
10' depth
S=1.00%
Inst. 18" storm sew. pipe - 19'
10' depth
S=0.40%
Gr.=1475.13
F.L.=1462.47 (all)

(5) Sta. "SBOFF" 1024+57.69, 41.78' Rt.
Const. type "D" inlet
Gr.=1466.00
F.L.=1462.54

(6) Sta. "SBOFF" 1026+88.92, 28.00' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 45'
5' depth
S=1.31%
Gr.=1484.75
F.L.=1480.60 (12" thru)

(7) Sta. "SRE" 501+22.37, 22.00' Rt.
Const. type "G-2" inlet
T.C.=1489.26
F.L.=1485.57

(8) Sta. "NP" 26+08.00, 23.51' Rt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 51'
5' depth
S=2.86%
Inst. 12" storm sew. pipe - 82'
5' depth
S=4.63%
Inst. 12" storm sew. pipe - 69'
5' depth
S=0.48%
T.C.=1491.86
F.L.=1485.24 (12" all)

(9) Sta. "NP" 26+83.00, 48.57' Rt.
Const. type "CG-3" inlet
T.C.=1493.70
F.L.=1489.04

(10) Sta. "SBOFF" 1027+18.92, 8.00' Lt.
Const. type "G-2" inlet
Gr.=1486.16
F.L.=1481.19

(11) Sta. "NP" 31+20.00, Rt.
Const. loose riprap (Class 50) in
riprap slope drain - 41.2 cu. yd.
Riprap geotextile - 54 sq. yd.
(For details, see sht. 2B-8)

(12) Sta. "SBON" 1032+42.52, 27.87' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 33'
5' depth
S=0.45%
Gr.=1490.20
F.L.=1485.85 (12" thru)

(13) Sta. "SBON" 1032+42.52, 8.00' Lt.
Const. Type "G-2" inlet
Gr.= 1490.27
F.L.=1486.00

(14) Sta. "L-SB" 1030+90.44, 54.73' Rt.
Const. type "G-2MA" inlet
Const. loose riprap (Class 50) - 4 cu. yd.
(Loose riprap pad)
Gr.= 1469.16
F.L.= 1467.37
(For details, see sht. 2B)

(15) Sta. "L-SB" 1029+04.06, 45.57' Rt.
Inst. 18" storm sew. pipe - 186'
5' depth
S=0.50%
Const. sloped end section, Rt.
Const. paved end slope, Rt.
Const. loose riprap (Class 50) - 4 cu. yd.
(Loose riprap pad)
Riprap geotextile - 5 sq. yd.
Gr.= 1466.44
(For details, see sht. 2B)

(16) Bioretention Pond, south, outlet
(For details, see sht. GJ-3)

(17) Sta. "NBON" 1026+28.85, 50.25' Rt.
Const. manhole 84" dia.
F.L.=1460.00
(For details, see sht. GJ-2)

(18) Sta. "SRA" 100+99.22, 22.33' Rt.
Const. type "G-2" inlet
Gr.=1490.93
F.L.=1486.57

(19) Sta. "NP" 33+50.00 24.00' Lt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 47'
5' depth
S=4.70%
T.C.=1492.10
F.L.=1484.36 (12" thru)

(20) Sta. "NP" 34+09.97, 43.03' Rt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 101'
5' depth
S=0.50%
T.C.=1491.11
F.L.=1479.90 (12" thru)

(21) Sta. "NP" 33+52.53, 22.94' Rt.
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 50'
5' depth
S=9.54%
Inst. 12" storm sew. pipe - 63'
5' depth
S=0.49%
T.C.=1492.08
F.L.=1479.59 (all)

(22) Sta. "SRG" 701+48.00, 10.72' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 99'
5' depth
S=5.00%
Inst. 18" storm sew. pipe - 112'
5' depth
S=0.48%
(1) Gr.=1490.66
F.L.=1480.86 (12" NE)
F.L.=1479.05 (18" thru)

(23) Sta. "SRG" 702+04.15, 85.2' Lt.
Inst. 18" storm sew. pipe - 91'
5' depth
S=1.16%
Const. sloped end section, Rt.
Const. loose riprap (Class 50) - 4 cu. yd.
(Loose riprap pad)
Riprap geotextile - 5 sq. yd.
F.L.=1478.00
(For details, see sht. 2B)

(24) Sta. "NBOFF" 1033+59.00, 84.3' Lt.
24" storm sew. pipe - 122'
5' depth
S=3.93%
Const. sloped end section, Rt.
Const. loose riprap (Class 100) - 10 cu. yd.
(Loose riprap pad)
Riprap geotextile - 9 sq. yd.
F.L.=1478.00
(For details, see sht. 2B)

(25) Sta. "SRH" 801+72.97, 18.00' Lt.
Const. type "G-2" inlet
T.C.=1940.41
F.L.=1485.92

(26) Sta. "SRH" 801+89.12, 18.00" Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 15'
5' depth
S=0.80%
T.C.=1490.34
F.L.=1485.80 (12" thru)

(27) Sta. "SRH" 802+05.28, 18.00' Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 15'
5' depth
S=0.87%
T.C.=1490.35
F.L.=1485.67 (12" thru)

(28) Sta. "NBOFF" 1033+73.00, 38.00' Lt.
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 213'
5' depth
S=0.50%
Gr.=1487.60
F.L.=1482.92 (24" thru)

No.	DATE	REVISIONS	BY
(1)	10-03-13	Revised Gr. on notes 1 and 22	

REGISTERED PROFESSIONAL ENGINEER
63243
OREGON
JULY 9, 2001
CHRIS R. ZELMER
EXPIRES: JUNE 30, 2014

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

FFO-I-5: FERN VALLEY
INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

Designed By - Roy Olower
Reviewed by - Rich Coffel
Drafted By - Judy Hardin

DRAINAGE & UTILITIES

SHEET NO. 5B-2

(29) Sta. "NBOFF" 1032+42.20, 73.00' Lt. to
Sta. "NBOFF" 1035+53.00, 87.00' Lt.
Inst. 48" culvert pipe - 311'
20' depth
S=0.40%
Const. sloped end section
Const. paved end slope, Lt.
Const. safety end section, Rt. (1:6)
Const. loose riprap (Class 100) - 78 cu.yd.
Riprap geotextile - 72 sq.yd.
F.L.=1479.05 (48" N)
F.L.=1477.81 (48" S)
(See dwg. no. RD324)

(30) Sta. "L-NB" 1030+89.35, 57.08' Lt.
Const. type "G-2MA" inlet
Gr.=1472.06
F.L.=1464.90

(31) Const. Bioretention Pond, north
(For details, see sht. GJ-2)

(32) Const. Bioretention Pond, south
(For details, see sht. GJ-3)

(33) Sta. "L-NB" 1029+00.11, 71.4' Lt.
Inst. 24" storm sew. pipe - 191'
10' depth
S=1.00%
Const. sloped end section, Lt.
F.L.=1463.00

(34) Sta. "SRB" 201+93.14, 74.73' Lt.
Inst. 36" storm sew. pipe - 251'
10' depth
S=0.32%
Const. sloped end section, Lt.
Const. loose riprap (Class 100) - 30 cu.yd.
(Loose riprap pad)
Riprap geotextile - 27 sq.yd.
F.L.=1464.61
(For details, see sht. 2B)

(35) Sta. "SRB" 202+38.75, 80' Lt.
Inst. 12" storm sew. pipe - 72'
5' depth
S=31.46%
Const. sloped end section, Lt.
Const. loose riprap (Class 50) - 9 cu.yd.
(Loose riprap pad)
Riprap geotextile - 12 sq.yd.
F.L.=1463.00
(For details, see sht. 2B)

(36) Sta. "NBON" 1026+85.09, 46.41' Rt.
Inst. 12" storm sew. pipe - 55'
5' depth
S=15.14%
Const. sloped end section, Rt.
Const. loose riprap (Class 50) - 11 cu.yd.
(Loose riprap pad)
Riprap geotextile - 14 sq.yd.
F.L.=1466.50
(For details, see sht. 2B)

(37) Sta. "NBON" 1026+50.46, 8.00' Rt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 35'
5' depth
S=4.68%
Gr.=1480.99
F.L.=1474.37 (12" thru)

(38) Sta. "NBON" 1026+45.47, 28.00' Lt.
Const. type "G-2" inlet
Gr.=1480.33
F.L.=1476.00

(39) Sta. "SRB" 202+30.00, 10.44' Lt.
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 67'
5' depth
S=0.76%
Gr.=1490.59
F.L.=1485.37 (12" thru)

(40) Sta. "SRA" 103+14.00, 16.00' Rt.
Const. type "G-2" inlet
Gr.=1490.68
F.L.=1485.87

(41) Sta. "SRA" 100+32.95, 49.34' Rt.
Connect to extg.
Const. manhole 84" dia.
Inst. 24" storm sew. pipe - 317'
10' depth
S=1.07%
Rim=1477.76
F.L.=1465.70 (all)
(See drg. no. RD358)

(42) Sta. "SRA" 101+70.85, 64.60' Rt.
Const. manhole 72" dia. with type "G-2" inlet
Const. manhole slope protector
Inst. 36" storm sew. pipe - 99'
10' depth
S=0.30%
Gr.=1469.55
F.L.=1465.40 (36" thru)
(See dwg. no. RD358)

(43) Sta. "SRB" 201+50.00, Lt.
Const. loose riprap (Class 50) in
riprap slope drain - 27.6 cu.yd.
Riprap geotextile - 36 sq.yd.
(For details, see sht. 2B-8)

(44) Sta. "NBON" 1024+48.00, 28.00' Lt.
Const. manhole 84" dia. with type "G-2" inlet
Inst. 48" storm sew. pipe - 197'
10' depth
S=0.25%
Gr.=1471.20
F.L.=1459.51 (48" thru)

(45) Sta. "SRH" 803+07.33, 52.53' Lt. to
Sta. "A" 101+24.84, 93.79' Lt.
Const. ditch
4' flat bottom, 1:2 slopes
Ditch exc. - 36 cu.yd.

(46) Const. waterline
(For drg. nos., see sht. 1A)

(1) (47) Sta. "NP" 26+42.00, 42.50' Lt.
Const. manhole 48" dia.
Inst. 12" storm sew. pipe - 137'
5' depth
(Future utility conduit)

(1) (48) Sta. "NP" 31+00.00, 54.00' Lt.
Const. manhole 48" dia.
Inst. 12" storm sew. pipe - 85'
5' depth
(Future utility conduit)

(49) Bioretention Pond, north, outlet
(For details, see sht. GJ-2)

(50) Sta. "SRH" 803+33.44, Lt. to
Sta. "NP" 38+04.68, Rt.
Const. loose riprap (Class 50) in
riprap lined ditch - 218 cu.yd.
Riprap geotextile - 327 sq.yd.
(For details, see sht. 2B-4)

(1) (51) Sta. "SRA" 101+64.88, 30.58' Rt.
Inst. 12" storm sew. pipe - 115"
5' depth
Cap end

(1) (52) Sta. "SRD" 401+15.63, 39.18' Lt.
Inst. 12" storm sew. pipe - 203"
5' depth
Cap end

No.	DATE	REVISIONS	BY
1	10-22-13	Added Manholes and Utility Conduit	

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

REGISTERED PROFESSIONAL ENGINEER
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OREGON
JULY 9, 2001
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EXPIRES: JUNE 30, 2014

FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

Designed By - Roy Blower
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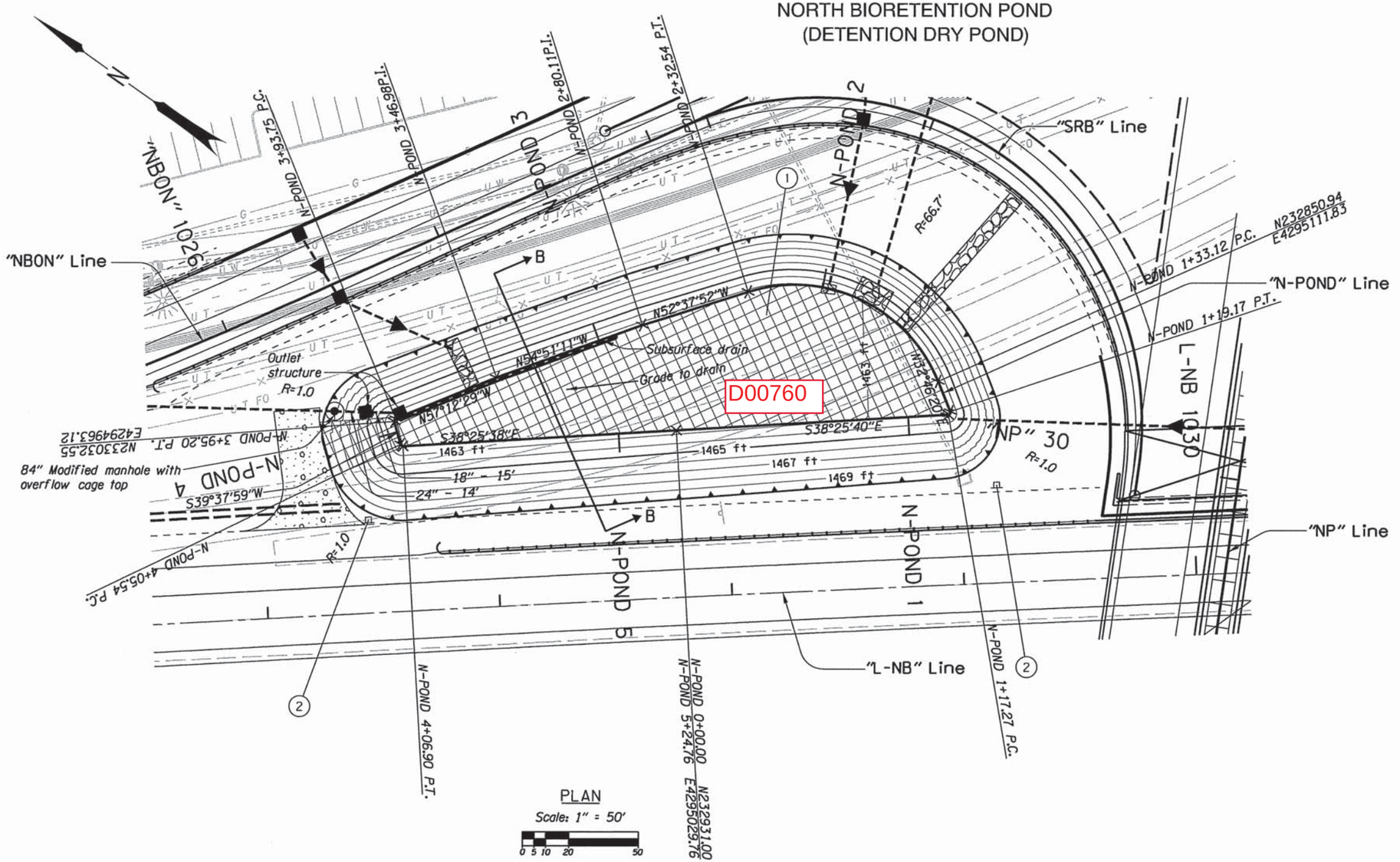
Drafted By - Judy Hardin

DRAINAGE & UTILITIES

SHEET NO. 5B-3

NORTH BIORETENTION POND
(DETENTION DRY POND)

46V-113



PLAN

Scale: 1" = 50'

0 5 10 20 50

1) Const. bioretention pond, North
(For details, see sheets: GJ-5, GJ-7 & GJ-8)

2) Inst. field facility marker, type "S2" - 2
(For details, see sheet GJ-10)

HYDRAULIC DATA		
WATER SURFACE Elevation	STORAGE VOLUME	BASE FLOOD
1462.77' - Water Quality	0.184 Acre-Ft.	50% of 2-Yr.
1463.43' - Lower Control Structure Flow	0.369 Acre-Ft.	2-Yr.
1464.14' - Upper Control Structure Flow	0.586 Acre-Ft.	10-Yr.

Top of Pond

North Pond Access Road

Porous Pavers

Notes:
1) Elevations shown are based on NAVD 1988 datum.
2) All dimensions shown are in feet unless otherwise noted.
3) For drainage details not shown, see sht. 5B.

REGISTERED PROFESSIONAL ENGINEER
65698PE
OREGON
JULY 12, 2005
DELANIE L. CUTSFORTH

EXPIRES: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

FFO-I-5:FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

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

STORMWATER

SHEET NO. GJ-2

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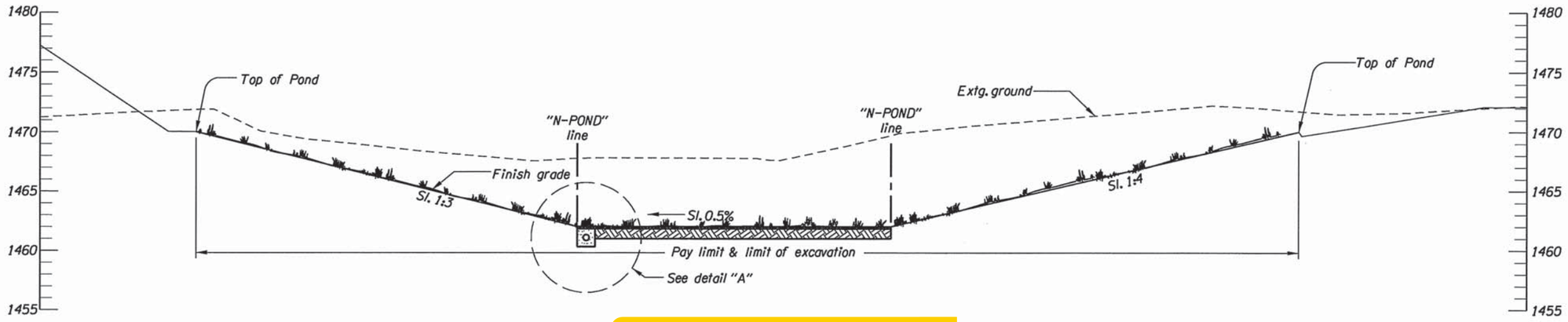
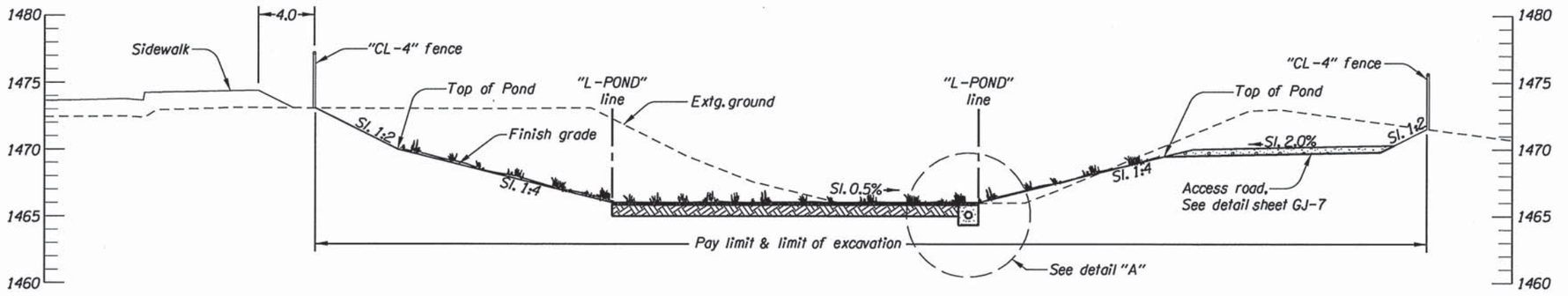
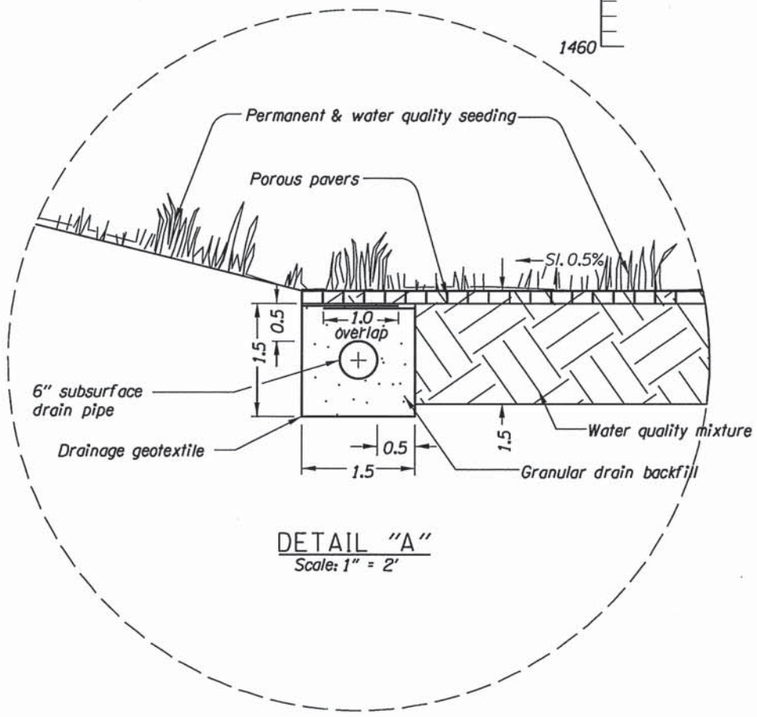
46V-113



NORTH POND TYPICAL SECTION B-B
Scale: 1" = 10'



LUMAN POND TYPICAL SECTION A-A
Scale: 1" = 10'



DETAIL "A"
Scale: 1" = 2'

Water quality mixture
Aggregate base
Granular drain backfill

Notes:
1) Elevations shown are based on NAVD 1988 datum.
2) All dimensions shown are in feet unless otherwise noted.

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REGION 3 - TECHNICAL CENTER

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JACKSON COUNTY

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Drafted By - DeLanie Cutsforth

STORMWATER

SHEET NO. GJ-5

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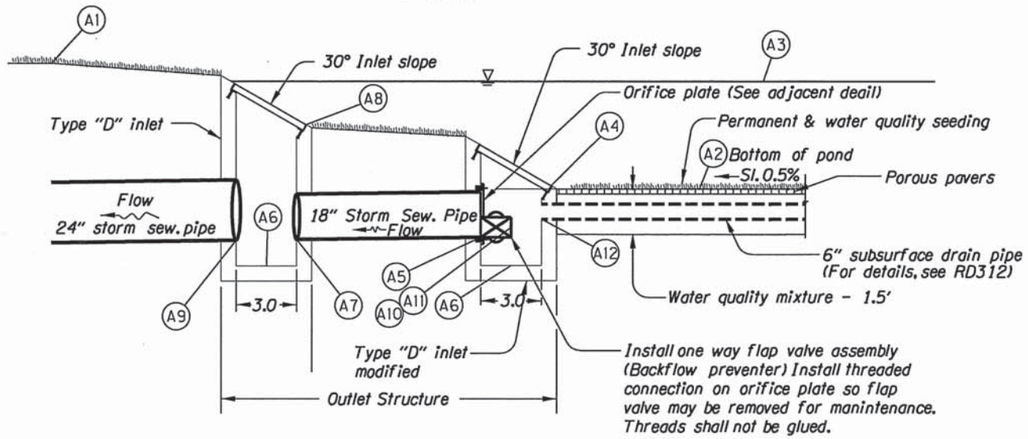
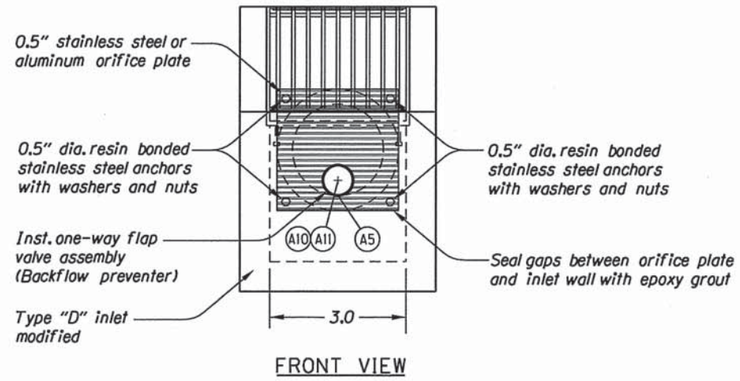
Rotation=0° Scale: 1"=10'

46V-113

OUTLET STRUCTURE
(not to scale)



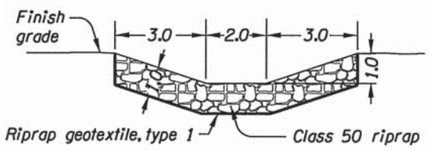


FRONT VIEW

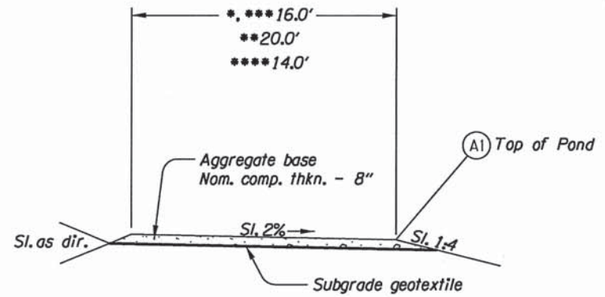
ORIFICE PLATE DETAIL

	ELEVATION			DESCRIPTION
	Luman Pond	North Pond	South Pond	
A1	1470.00'	1470.00'	1482.00'	Top of berm elev.
A2	1466.00'	1462.00'	1478.00'	Bottom of pond min. elev.
A3	1469.00'	1469.00'	1481.00'	Max. water surface elev.
A4	1466.50'	1462.20'	1478.50'	Elev. of lip of lower type "D" inlet
A5	1464.00'	1460.29'	1476.68'	Invert-in elev. of 18" storm sew. pipe
A6	1461.50'	1458.00'	1474.55'	Max. sump elev. of type "D" inlet
A7	1463.54'	1460.14'	1476.60'	Invert-out elev. of 18" storm sew. pipe
A8	1468.50'	1464.50'	1480.00'	Elev. of lip of upper type "D" inlet
A9	1463.54'	1460.14'	1476.55'	Invert-in elev. of outlet pipe
A10	1464.42'	1460.70'	1477.10'	Orifice center elev.
A11	2.5"	8"	10"	Orifice diameter
A12	1465.00'	1461.00'	1477.00'	Invert-out elev. of 6" subsurface drain pipe

To be accompanied by drg. nos. RD300, RD326, RD370, RD380, RD384, RD386 & RD390

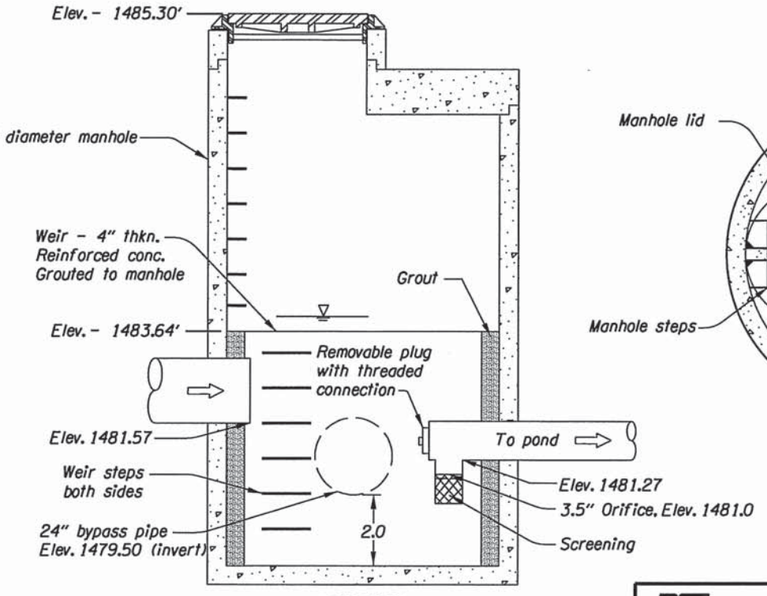


RIPRAP CHANNEL

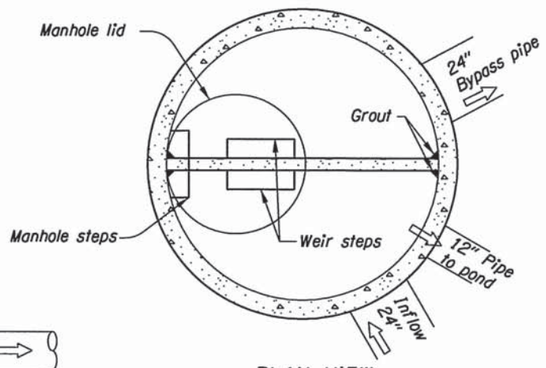


POND ACCESS ROAD TYPICAL SECTION
(See drg. no. RD715)

*Luman (See sht. GJ)
**North (See sht. GJ-2)
***South (See sht. GJ-3)
****Bolz (See sht. GJ-4)



SECTION



PLAN VIEW

FLOW SPLITTER MANHOLE

To be accompanied by drg. nos. RD335, RD336, RD346 & RD356.

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JULY 12, 2005
DELANIE L. CUTSFORTH

EXPIRES: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

FFO-I-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

Designed By - DeLanie Cutsforth
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Drafted By - DeLanie Cutsforth

STORMWATER DETAILS

SHEET NO. GJ-7

F:\ODOT_DATA\Projects\12723_Fern_Valley_Interchange\12723_Inroads&Microstation\Hydro_Plans\12723.gjl :: 1 to 100 7/17/2013 9:29:35 AM hwye32o

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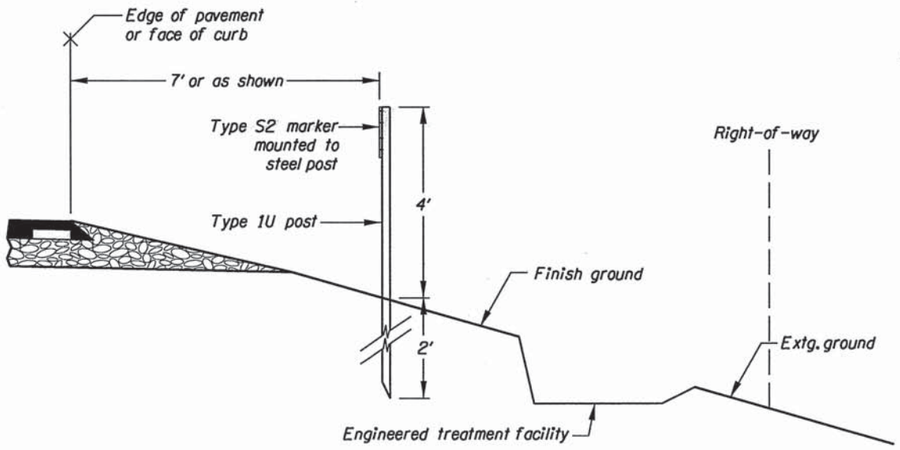
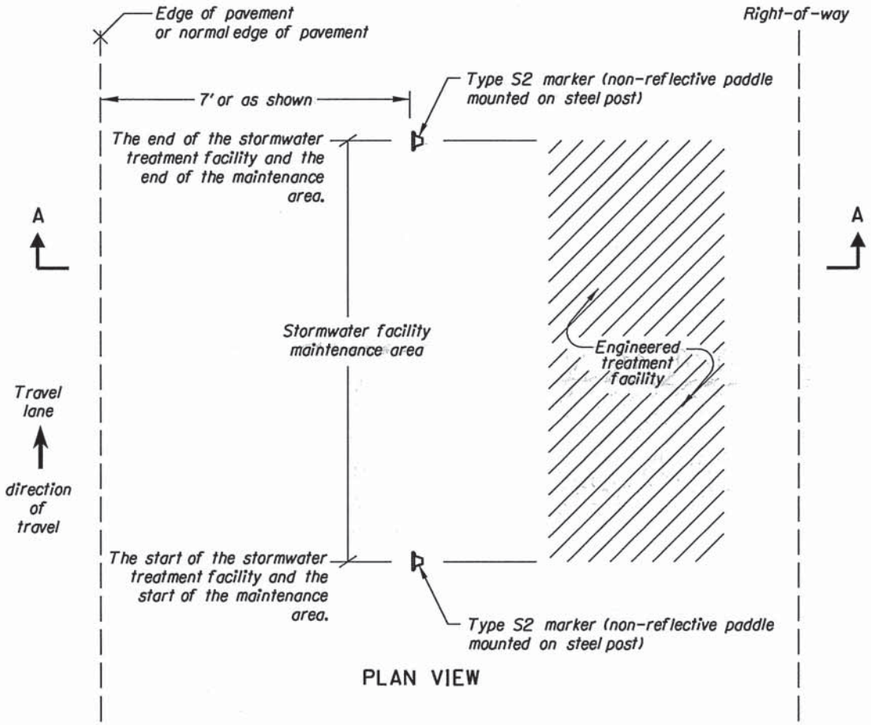
FIELD FACILITY MARKERS

46V-113

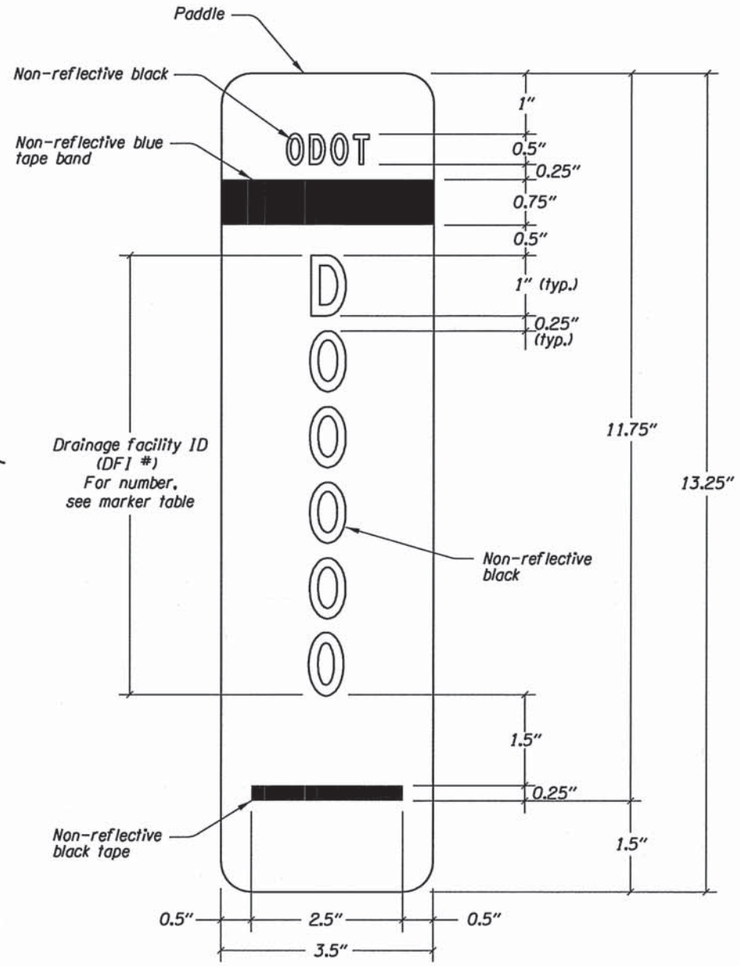


SECTION A-A



PLAN VIEW

INSTALLATION DETAIL



TYPE S2 MARKER

MARKER TABLE

FACILITY NAME	FACILITY LOCATION	DFI #	TYPE S2 MARKER	
	STATION		BEGIN	END
WQ SWALE #7	"NBOFF" 1038+85.0, Rt.	D00765		✓
WQ SWALE #7	"NBOFF" 1039+85.0, Rt.	D00765	✓	
WQ SWALE #9	"SBON" 1034+45.0, Rt.	D00767	✓	
WQ SWALE #9	"SBON" 1035+45.0, Rt.	D00767		✓
WQ SWALE #8	"SBON" 1036+00.0, Rt.	D00768	✓	
WQ SWALE #8	"SBON" 1037+05.0, Rt.	D00768		✓
WQ SWALE #5	"L" 1010+08.0, Rt.	D00763	✓	
WQ SWALE #5	"L" 1011+60.0, Rt.	D00763		✓
WQ SWALE #6	"L" 1008+35.0, Lt.	D00762		✓
WQ SWALE #6	"L" 1009+35.0, Lt.	D00762	✓	
NORTH POND	"L" 1026+44.0, Lt.	D00760		✓
NORTH POND	"L" 1029+17.0, Lt.	D00760	✓	
SOUTH POND	"L" 1031+65.0, Lt.	D00761		✓
SOUTH POND	"L" 1034+60.0, Lt.	D00761	✓	
SWALE #10	"L" 1038+30.0, Lt.	D00764		✓
SWALE #10	"L" 1039+30.0, Lt.	D00764	✓	
BOLZ POND	"B" 53+67.0, Rt.	D00770	✓	
BOLZ POND	"B" 55+22.0, Rt.	D00770		✓
LUMAN POND	"LU" 167+24.0, Rt.	D00766	✓	
LUMAN POND	"LU" 168+94.0, Rt.	D00766		✓
WQ SWALE #11	"GR" 412+68.0, Rt.	D00769	✓	
WQ SWALE #11	"GR" 413+99.0, Rt.	D00769		✓

Notes:

1. Paddle:
   - Aluminum sheet, nominal thickness 0.050"
   - White non-reflective background
   - Mount paddle to one (1) type 1U steel post using 3/16" diameter aluminum blind rivets and washers. See standard drawing TM570 detail labeled "Steel Posts" for mounting a traffic target. Install paddle onto Type 1U steel post using same hole pattern.
   - Text and numbers are type C font in non-reflectorized black
   - Band is non-reflective blue tape
   - Do not mount paddle to other highway signing posts
   - Install paddle parallel to travel lane
   - Prepare paddle for each "DFI" noted in the marker table
2. Steel Posts:
   - See drg. no. TM571 for type 1U steel post dimensions
3. Place 7 feet from edge of pavement or as directed.
4. See marker table for installation locations.

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OREGON DEPARTMENT OF TRANSPORTATION

REGION 3 - TECHNICAL CENTER

FFO-1-5: FERN VALLEY INTERCHANGE, UNIT 2
PACIFIC HIGHWAY
JACKSON COUNTY

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Drafted By - DeLanie Cutsforth

STORMWATER DETAILS

SHEET NO. GJ-10

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