OPERATION & MAINTENANCE MANUAL

Water Quality Extended Detention Dry Pond

Manual prepared: December 2018

DFI No. D00772

Figure 1: DFI No. D00772, looking

1. Identification

Drainage Facility ID (DFI):	D00772
Facility Type:	Water Quality Extended Detention Dry Pond
Construction Drawings:	(V-File Numbers) 46V-060
Location:	District: 2B
	Highway No.: 047
	Mile Post: 61.01-61.08 (Left Side)

2. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions for stormwater ponds.

3. Facility Location

The location map below details the facility location. The highway, mile posts, side streets, access location, and stormwater flow directions are noted on the map.

Facility location type: Off ramp

Flow direction: West

Figure 2: Facility location map

4. Facility Summary

The pond size is based on storage volume, the bottom and top surface areas and the depth are used for this measurement.

The pond for this water quality facility is not uniformly shaped and the sides vary, as shown below.

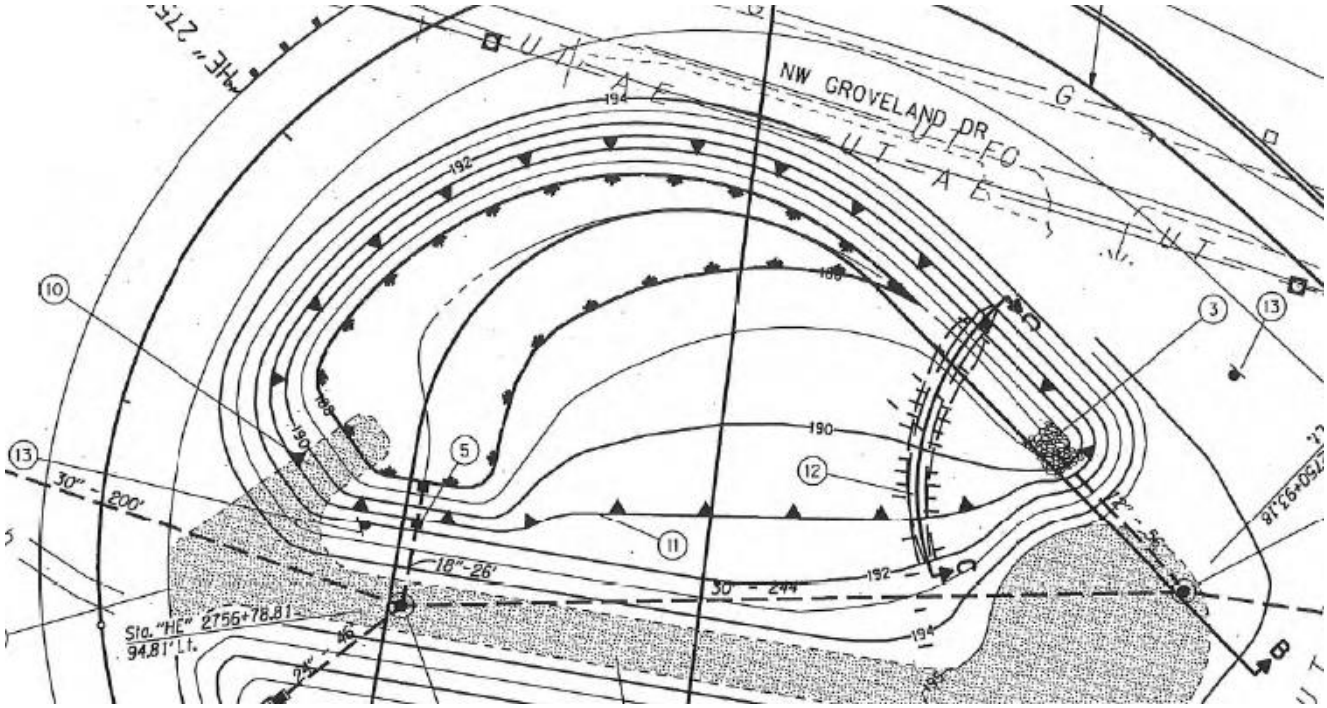


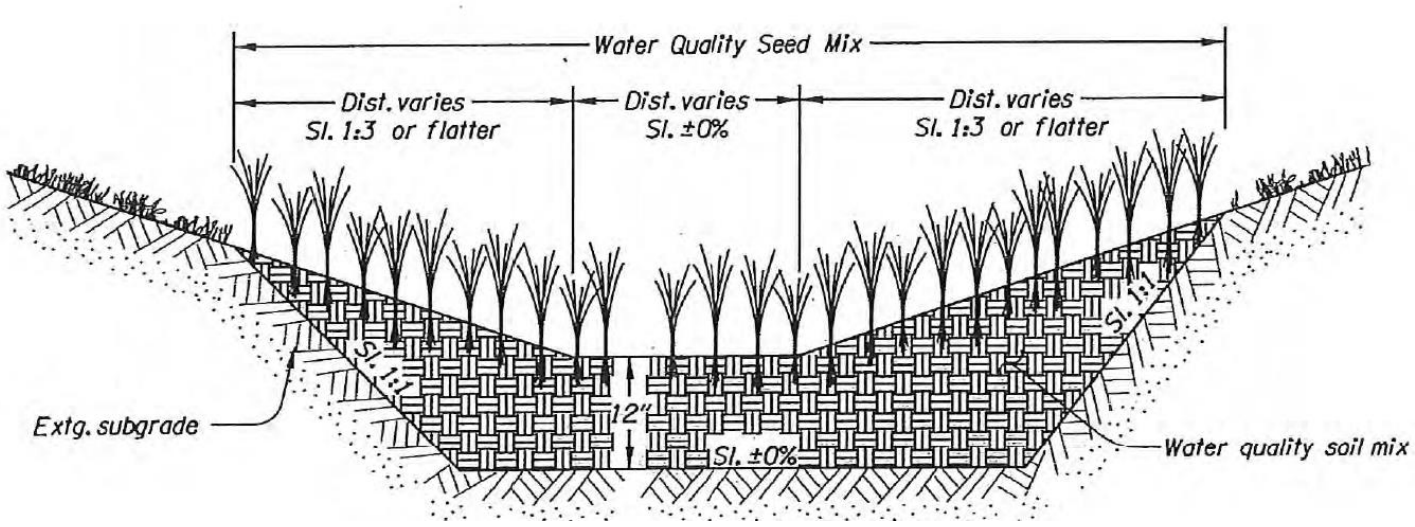
Figure 3: Site plan of detention pond

The depth of the pond is the vertical distance measured from the bottom of the pond to the top. The slope of the pond sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

	Side slope*	
Depth (feet)	**Rise (feet)**	**Run (feet)**
1	1	3

***The side slope varies (shown below) between 1:3 or flatter**



Site Specific Information: Stormwater enters this facility through a piped inlet with a flow splitter manhole. This manhole (Appendix A, page 2) allows low flows through the detention pond. There is a high flow bypass in the manhole that diverts the stormwater into a stormwater sewer system. The water exits the detention pond through an outlet control system (Appendix A, page 2) with 2 “D” type inlets. The water then flows through a storm sewer system. This sewer system exits into a nearby ditch.

5. Facility Access

Maintenance access to the facility:

☐Roadside pad	☐Roadside shoulder
☒Access road with Gate	☐Access road without Gate

Figure 3: Maintenance Access

Operational Components / Maintenance Items

Classification and Standard Operational (Op) Plan:

This facility is classified as a:

☐ Detention Pond (Op Plan A)	☐ WQ Bioretention Pond (Op Plan B)	☒ WQ Extended Detention Dry Pond (Op Plan C)	☐ WQ Detention Pond/Biofiltration Swale Combo (Op Plan D)
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A,B,C,D) are provided in the Standard Operation Manual.			

See Appendix A for the site specific operational plan.

Key Features/Items:

This facility is classified as a:

☒ Dry Pond	☐ Wet Pond
The pond is wet during storm events and dries during periods of no precipitation.	**The pond has constant presence of water year round. A portion of the pond dries during periods of no precipitation.**

This facility includes a **high flow bypass component**:

☐ No	☒ Yes
There is no bypass component. High flows drains into and through the facility	**There is a bypass component. Only low/small flows drain into the pond. High flows are diverted around the pond using a bypass component**

This facility includes a **proprietary structure(s)**:

☒ No	☐ Yes (DXXXXX)
There are no proprietary structures associated with this facility.	**A proprietary structure is used in the operation of this facility. The proprietary structure is a/an:** describe

Operational Components

The facility components table (**Table 1**) has been provided to highlight the applicable components for this facility. The component is in use when the box contains an "x" (e.g. ☒).

The Standard Operation Manual for Ponds outlines facility operation, typical footprint configuration, and component definitions and details. A link to the manual is attached to the feature marker in TransGIS.
https://gis.odot.state.or.us/TransGIS/

Maintenance Items

Operational components marked in **Table 1** should be inspected and maintained according to Section 7. Each facility component is defined and detailed in the Standard Operation Manual using the associated ID number indicated in the table below.

Table 1: Stormwater Pond Components		ID #
Upstream Manholes/Structures		
Pre-treatment Manhole Type: describe	☐	**P1**
Water Quality Manhole Type: describe	☐	**P2**
Flow Splitter Manhole (Weir/Orifice)	☒	**P3**
Standard Manhole	☐	**P4**
Sediment Basin/Forebay	☐	**P5**
Forebay Dewatering Riser Pipe (outlet)	☐	**P6**
Facility Inlet		
Pavement Sheet Flow	☐	**P7**
Inlet Pipe(s)	☒	**P8**
Open Channel Inlet	☐	**P9**
Riprap Pad (Energy Dissipater)	☒	**P10**
Ground Cover		
Grass Bottom	☒	**P11**
Grass Side Slopes	☒	**P12**
Granular Drain Rock	☐	**P13**
Plantings	☐	**P14**
Underground Components		
Geotextile Fabric: Specify Type	☐	**P15**
Impermeable Liner	☐	**P16**
Water Quality Mix	☒	**P17**
Perforated Pipe	☐	**P18**
Bottom Marker (ex. Porous Pavers)	☐	**P19**

Flow Spreader		
Anchored Board (midpoint of pond or every 50 feet along pond bottom)	☐	**P20**
Other: describe	☐	**P21**
Facility Outlet		
Catch Basin with Grate	☐	**P22**
Outlet Pipe(s)	☐	**P23**
Outlet/Flow Control Structure	☒	**P24**
Auxiliary Outlet	☐	**P25**
Hazmat Control Valve: Specify make/model	☐	**P26**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐ **O**	**P27**
Ditch	☒	**P28**
Storm Drain System	☐	**P29**
Outfall Components		
Riprap Pad	☐	**P30**
Riprap Bank Protection	☐	**P31**

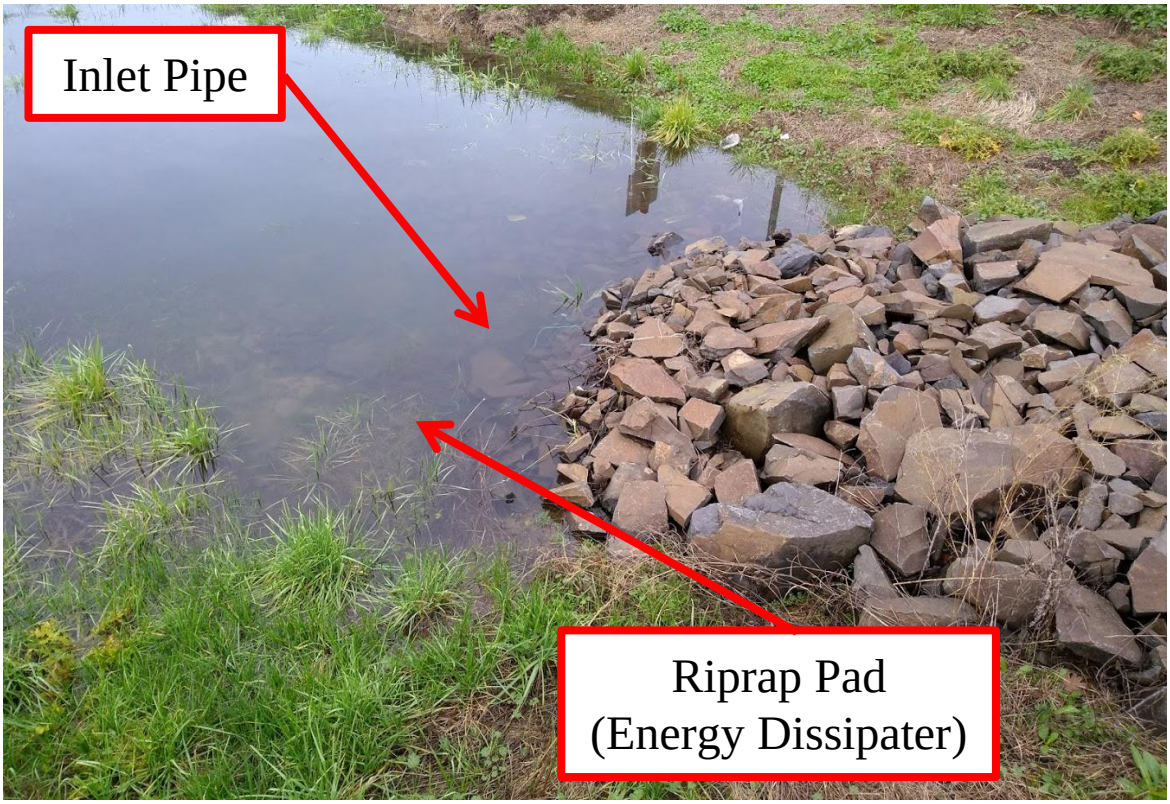


Figure 4: Piped Inlet and Energy Dissipater

Figure 5: Components of detention pond

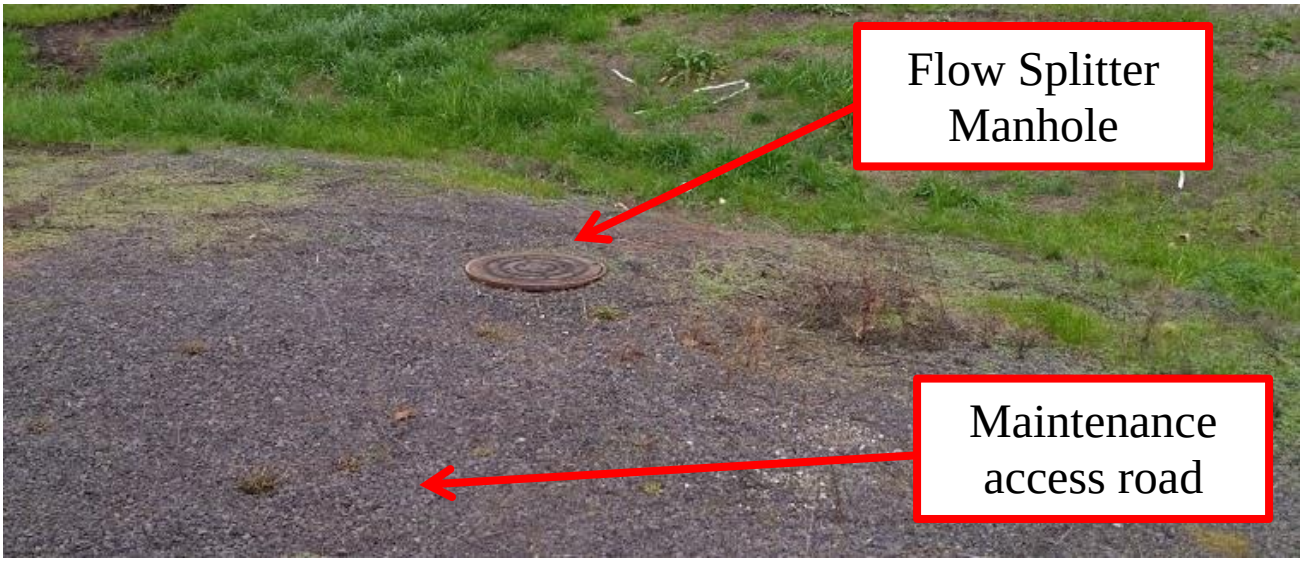


Figure 6: Flow Splitter Manhole on Maintenance Access Road

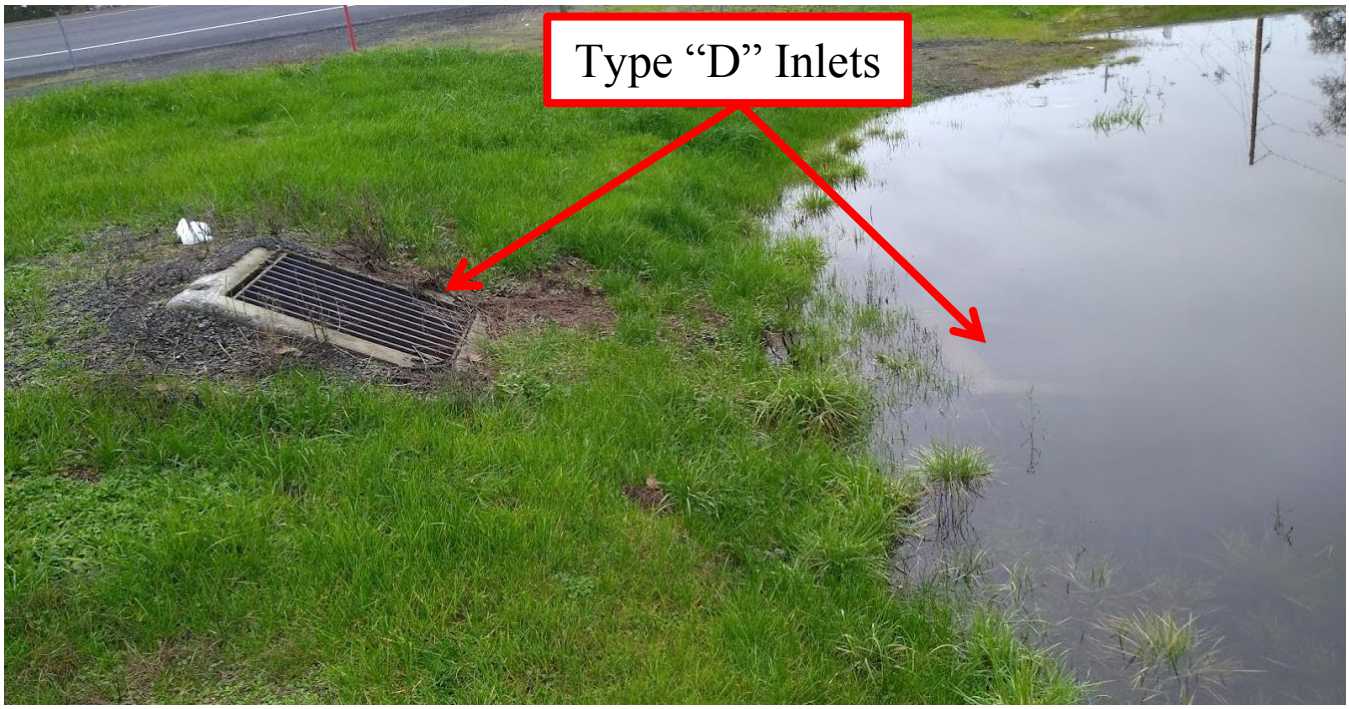


Figure 7: Outlet Control System

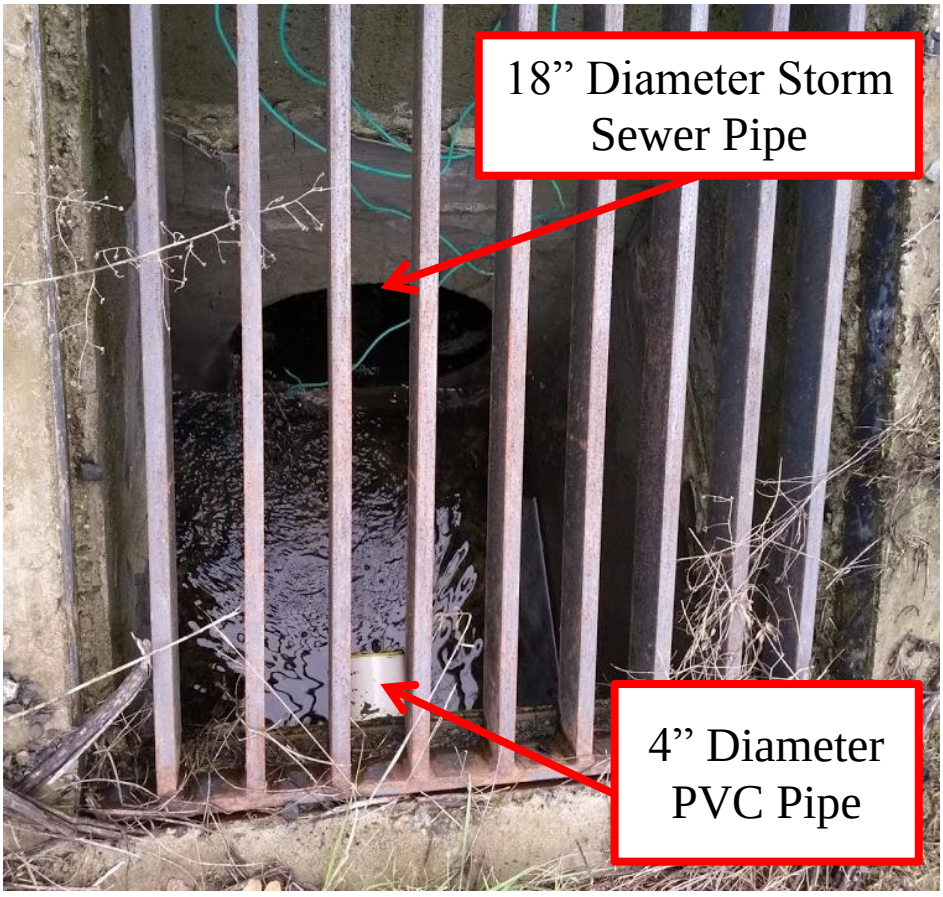


Figure 8: Inside Type “D” Inlet

6. Maintenance

Maintenance Frequency/Maintain Records

a. Inspect annually. Preferably prior to the rainy season.
b. Clean and maintain as necessary. Refer to Activity 125 in the Maintenance Guide for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

Maintenance Guide/Maintenance Actions

The Maintenance Guide outlines the standard maintenance actions for water quality facilities under Activity 125.

There are standard maintenance tables for standard ODOT designs. The maintenance tables describe the maintenance component, the defect or problem, the condition when maintenance is needed, and the recommended maintenance to correct the problem. Use the following tables to maintain ODOT Ponds:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 2 (Maintenance of Stormwater Ponds): Contains maintenance information for ponds

The ODOT Maintenance Guide can be viewed at the following website:
http://www.oregon.gov/ODOT/HWY/OOM/pages/mguide.aspx

The Blue Book can be viewed at the following website:
http://www.oregon.gov/ODOT/Maintenance/Documents/blue_book.pdf

7. Limitations

There are access limitations for this facility:

☐ No	☒ Yes
There are no duty porous pavers installed in this pond.	

Ponds are designed to allow equipment access along the bottom if an access grid is installed. If an access grid is NOT installed, vehicles entering the pond can create depressions (tire ruts), damage vegetation, or damage structural components (e.g. flow spreaders). These conditions may result in poor treatment and drainage performance.

If no access grid then: Equipment wheels should be kept on the tops and side slopes. Mower arms may be run along the pond bottom.

8. Waste Material Handling

Material removed from the facility is defined as waste by the Department of Environmental 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/HWY/OOM/pages/ems.aspx

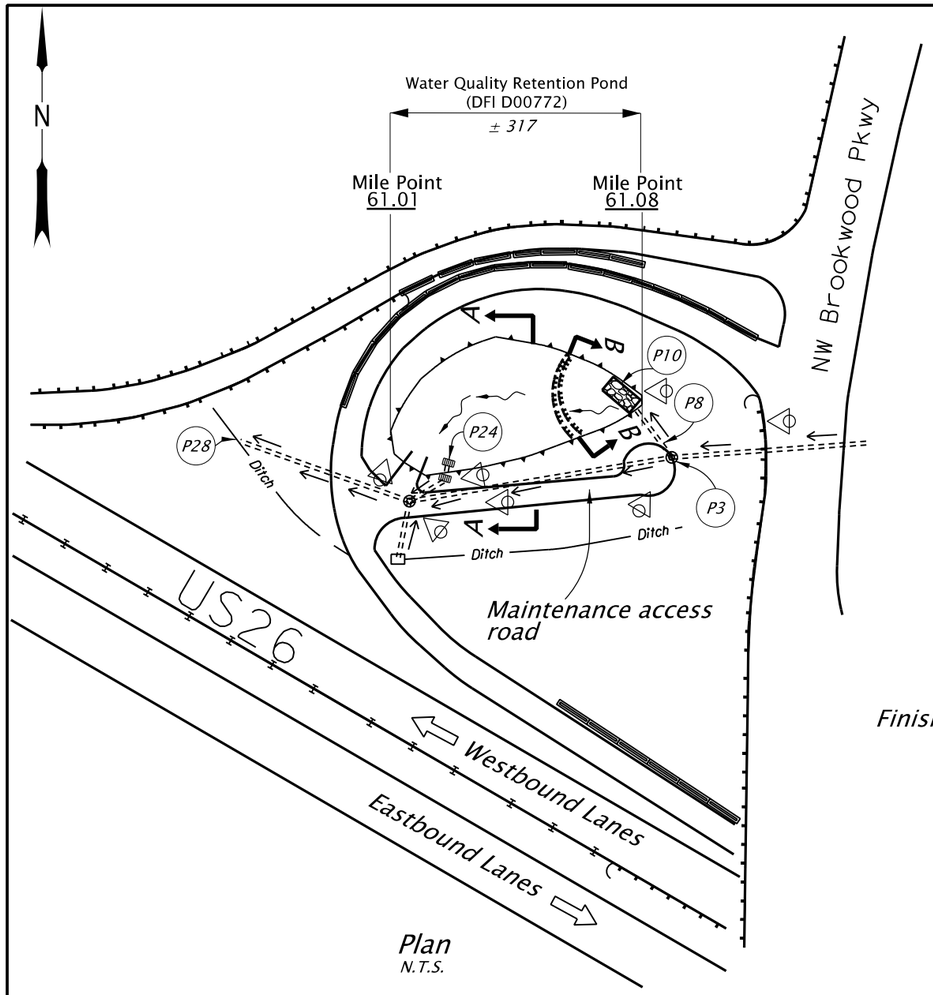
Contact any of the following for more detailed information about management of waste materials found on site:

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

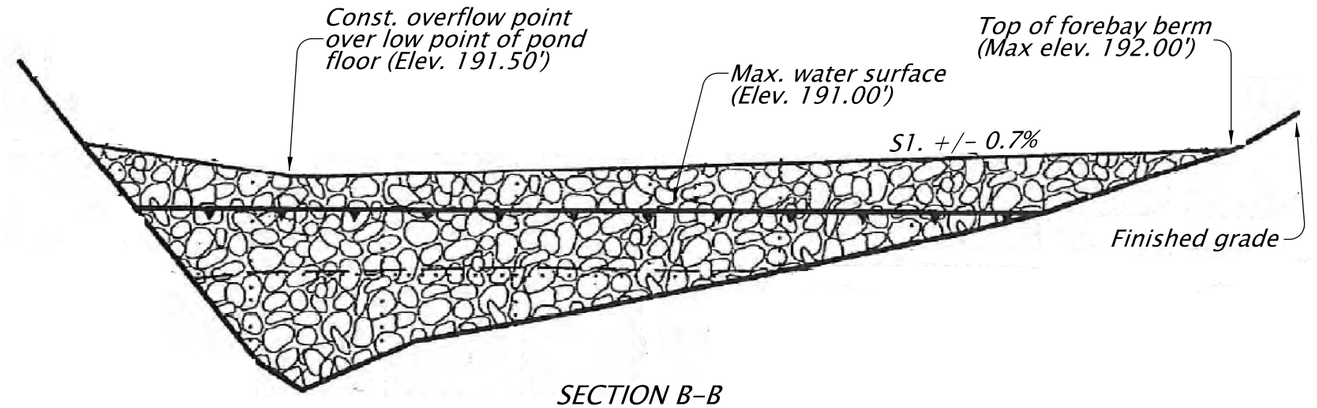
A Appendix A – Site Specific Operational Plan

Contents:

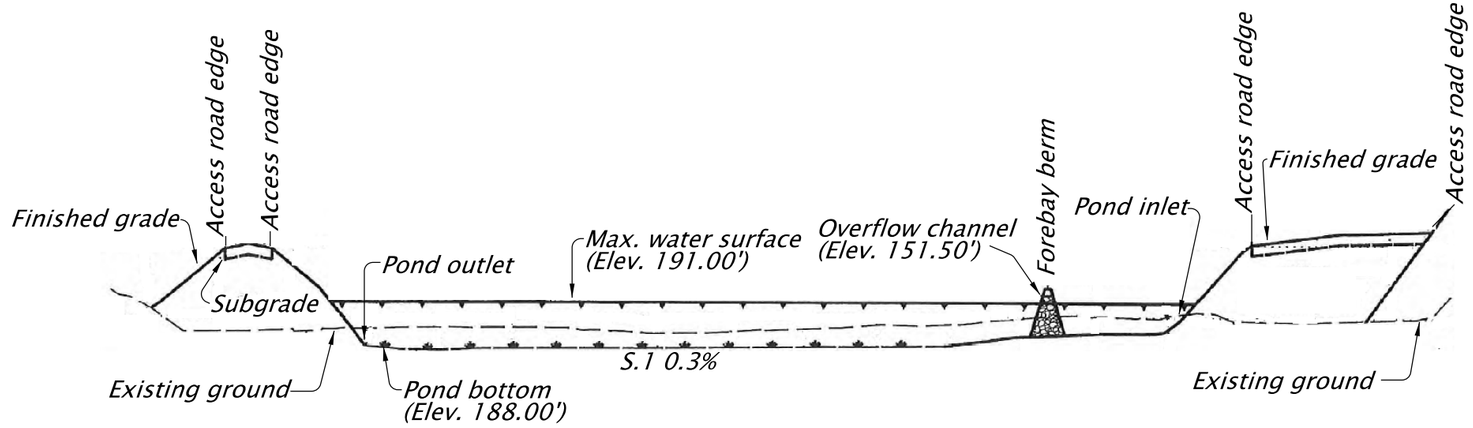
Operational Plan: DFI D00772



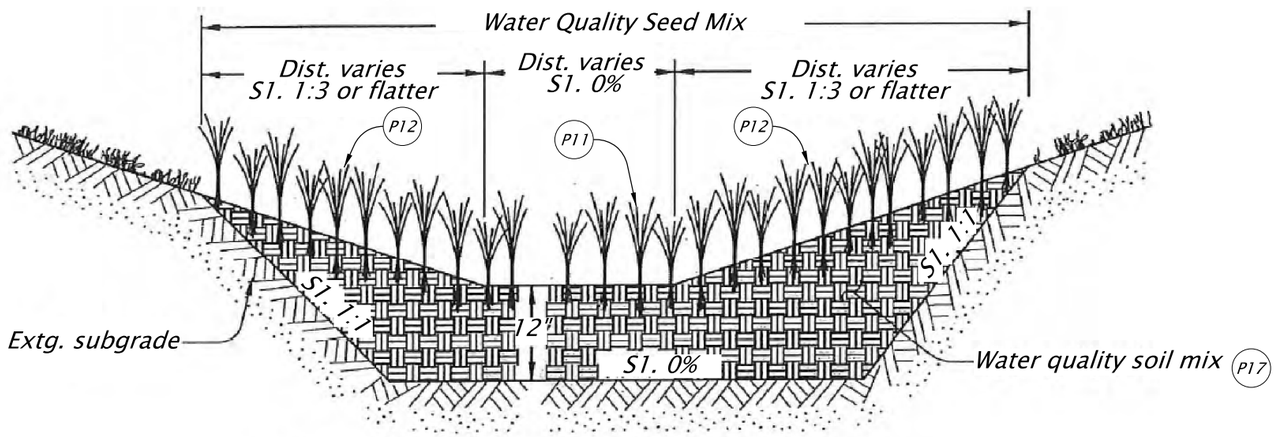
Plan
N.T.S.



SECTION B-B
N.T.S.



PROFILE
N.T.S.



SECTION A-A
N.T.S.

Legend

- Photo Location/Direction
- Storm Pipe (Facility)
- Conveyence Direction
- Water Flow Direction
- Traffic Flow Direction
- Inlet
- Forebay berm
- Manhole
- Type "D" Inlet

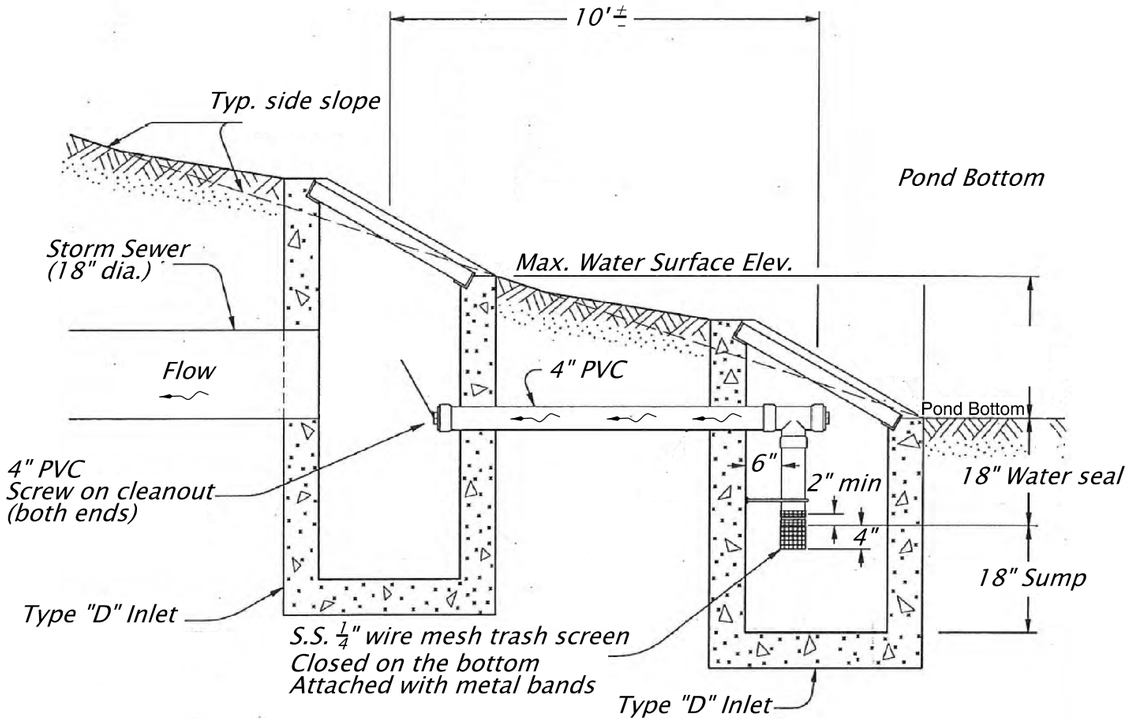
Sht. 01 of 02

Prepared By:
Katrina Sepulveda

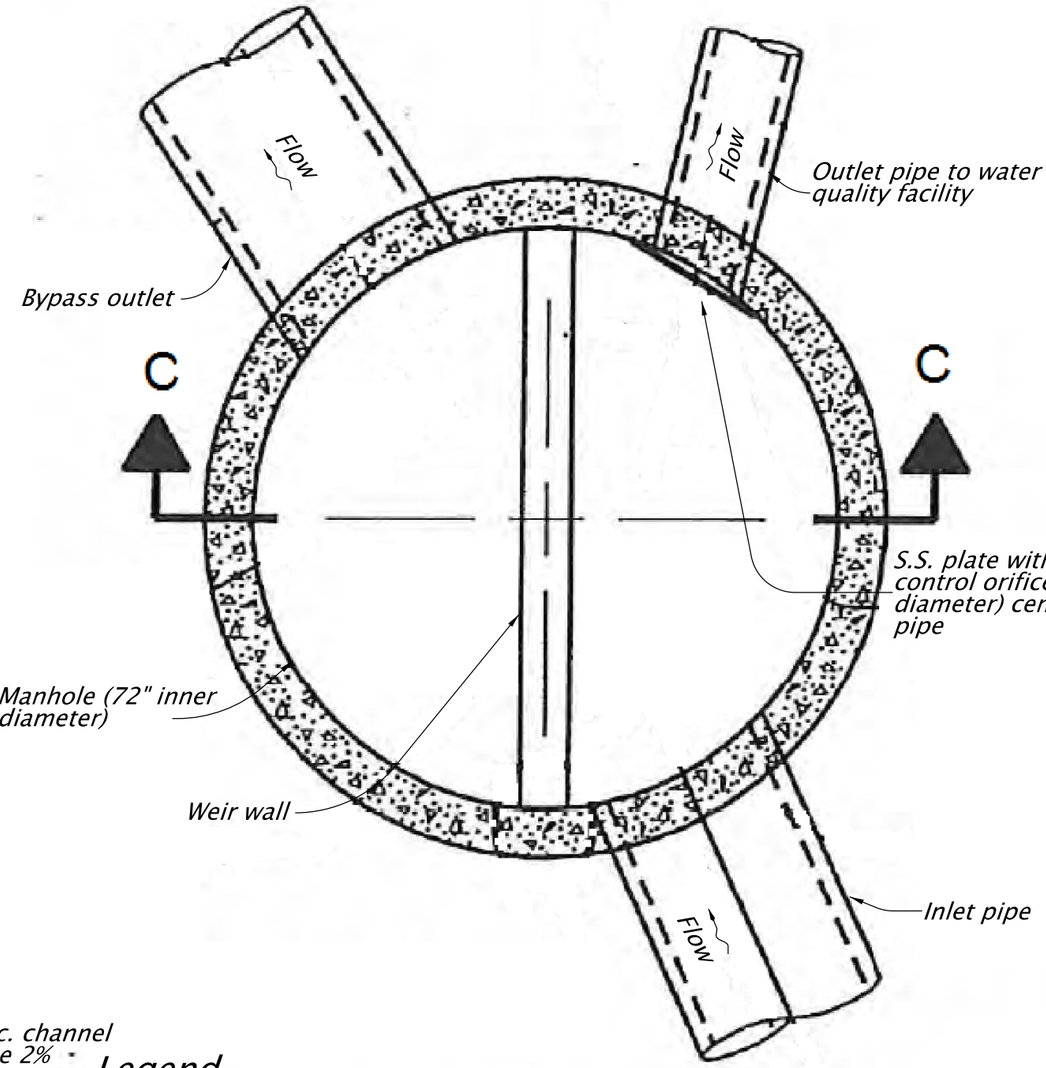
Drafted By:
Katrina Sepulveda

OREGON DEPARTMENT
OF TRANSPORTATION

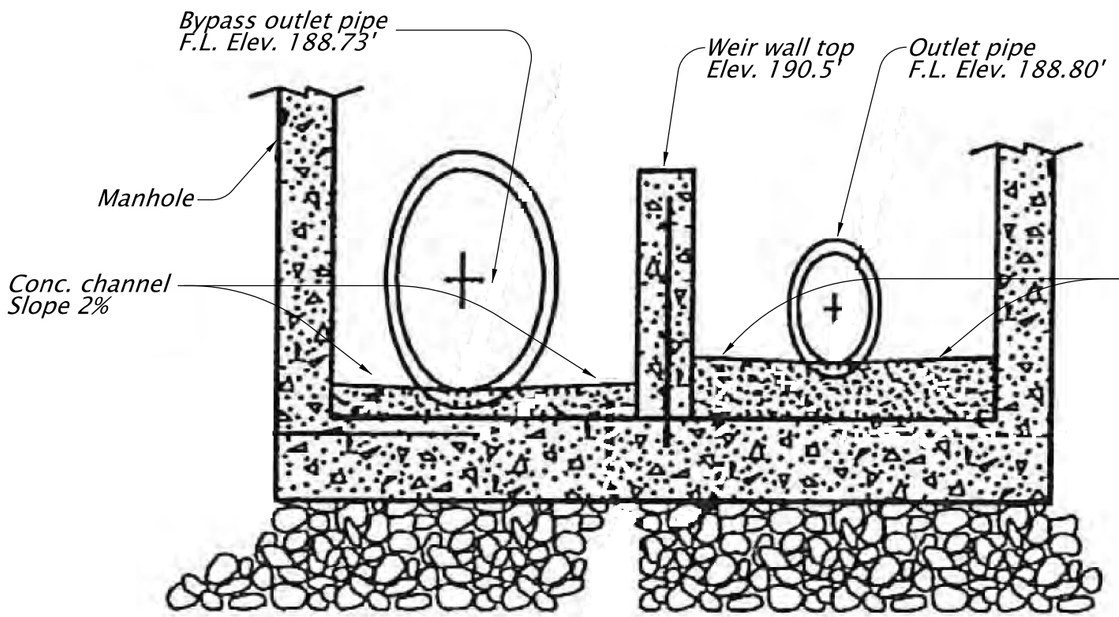
DFI D00772
MAINTENANCE DISTRICT 2B HWY 047
Water Quality Extended Detention Dry Pond
SUNSET HIGHWAY MP 61.01 - 61.08
Washington County



OUTLET CONTROL STRUCTURE P24



FLOW CONTROL MANHOLE



SECTION C-C
N.T.S.

Legend

- Photo Location/Direction
- Storm Pipe (Facility)
- Conveyence Direction
- Water Flow Direction
- Traffic Flow Direction
- Inlet
- Forebay berm
- Manhole
- Type "D" Inlet

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 02 of 02

Prepared By: Katrina Sepulveda

Drafted By: Katrina Sepulveda

DFI D00772
MAINTENANCE DISTRICT 2B HWY 047
Water Quality Extended Detention Dry Pond
SUNSET HIGHWAY MP 61.01 - 61.08
Washington County

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 46V-060

46V-060

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index of Sheets Cont'd.
1A-2	Std. Drg. Nos.
1B	Sheet Layout

"NOT REVISED AS CONSTRUCTED"
Tom Lawson
PROJECT MANAGER
8/22/17
DATE

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

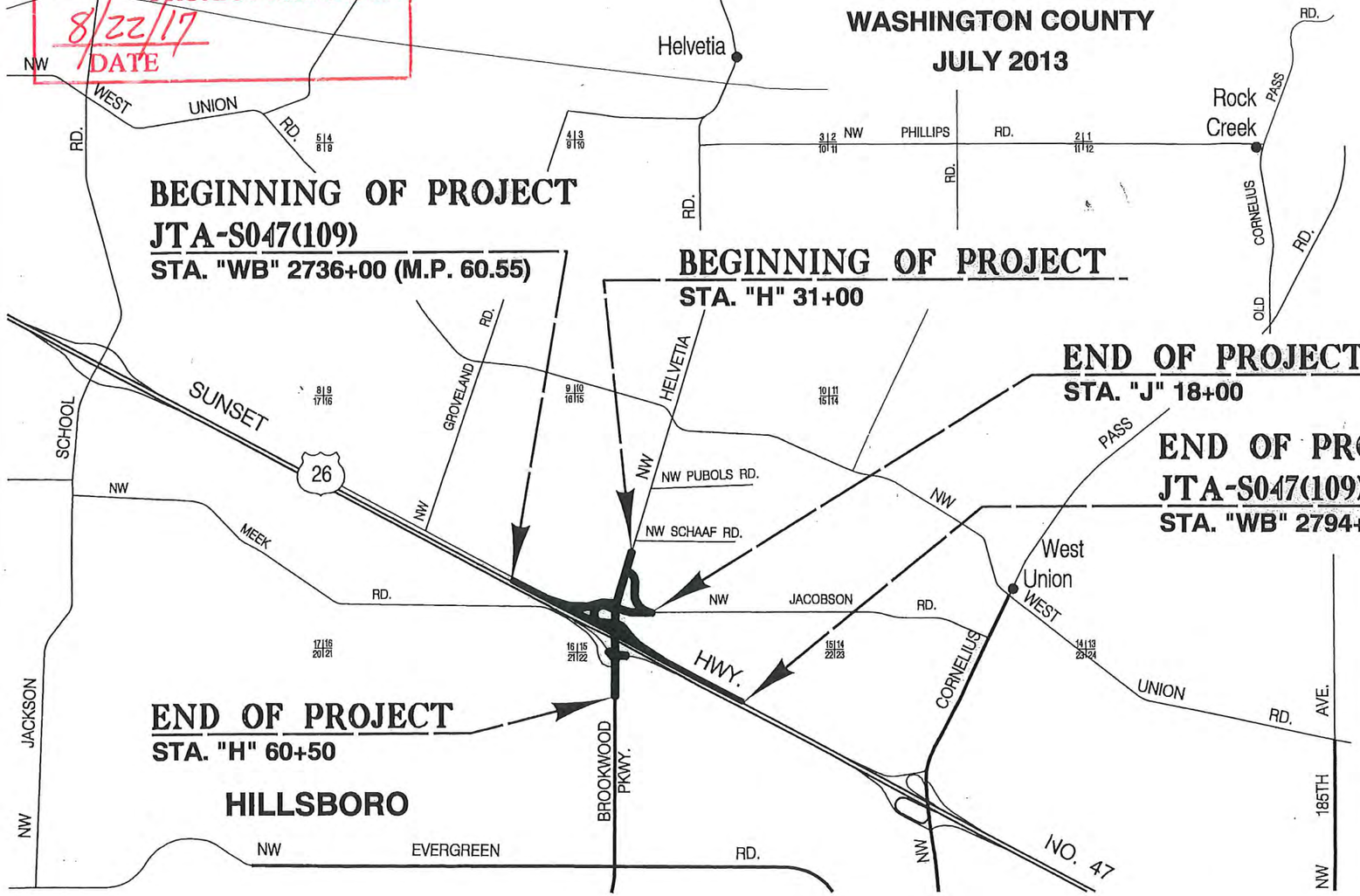
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION AND SIGNALS

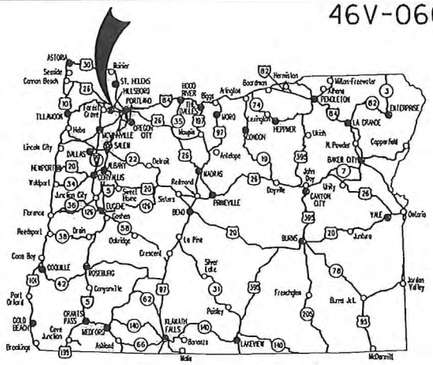
US26 @ BROOKWOOD / HELVETIA (SHUTE RD) PROJECT

SUNSET HIGHWAY

WASHINGTON COUNTY

JULY 2013





Overall length of project: 1.1 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

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: Naveen G. Chandra
Naveen G. Chandra, Reg. 1 Project Delivery Mgr.
6/11/13

Concurrence by ODOT Chief Engineer

Sections 15, 16 & 22
T. 1 N., R. 2 W., W.M.

US26 @ BROOKWOOD / HELVETIA (SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STATE	1

PE001829

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SHEET NO.	DESCRIPTION
	ROADWAY
~~2, 2A Thru 2A-12 Incl.~~	Typical Sections
~~2B Thru 2B-7 Incl.~~	Details
2C Thru 2C-57 Incl.	Traffic Control Plans
2D & 2D-2	Pipe Data Sheet
3	General Construction
4	General Construction
5	Alignment & R/W
5A	General Construction
5B	Drainage & Utilities
5B-2	Drainage & Utilities Notes
5C	Profile
6	Alignment & R/W
6A	General Construction
6A-2	Construction Notes
6B	Drainage & Utilities
6B-2	Drainage & Utilities Notes
6C	Profile
7	General Construction
8	Alignment & R/W
8A	General Construction
8A-2	Construction Notes
9	Alignment & R/W
9A	General Construction
9A-2	Construction Notes
9B	Drainage & Utilities
9B-2	Drainage & Utilities Notes
9C	Profile
10	Alignment & R/W
10A	General Construction
10A-2	Construction Notes
10B	Drainage & Utilities
10B-2	Drainage & Utilities Notes
10C	Profile
11	Alignment & R/W
11A	General Construction
11A-2	Construction Notes
11B	Drainage & Utilities
11B-2	Drainage & Utilities Notes
11C	Profile
11D	Profile
11E	Pedestrian Pathway Details
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12B	Drainage & Utilities
12C	Profile
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13A	General Construction

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GA-44	Erosion & Sediment Control Details
GB Thru GB-3 Incl.	Drill Hole Locations
GB-4	Wall 1 Subsurface Data
GB-5	Wall 2 Subsurface Data
GB-6 Thru GB-9 Incl.	Subsurface Data
GC	Wall 1 (Structure No. 22103)
GC-2 & GC-3	Wall 2 (Structure No. 22104)
GC-4	Wall 2 Sections (Structure No. 22104)
GC-5	Wall 2 Stages (Structure No. 22104)
GC-6	General Notes & Design Requirements (Structure No. 22103 & 22104)
GE	Culvert & Temporary Water Management Plan
GJ Thru GJ-3 Incl.	Water Quality Facility Details
GJ-4	Water Quality Facility No. 1
GJ-5 Thru GJ-7 Incl.	Water Quality Facility No. 2
GJ-8	Water Quality Facility No. 3
GL Thru GL-2 Incl.	Prospective Disposal Site
GN Thru GN-2 Incl.	Contour Grading Plan
GR	Weed Control Work Plan

"REVISED AS CONSTRUCTED"
Ron Larson
PROJECT MANAGER
8/28/17
DATE

INDEX OF SHEETS, CONT'D.

DRAWING NO.	DESCRIPTION
91879	General Layout & Index
	BRIDGE NO. 09722 NW HELVETIA RD CONN OVER HWY 47
91880	Plan & Elevation
91881	General Notes
91882	Foundation Data
91883	Staging
91884	Footing Plan
91885	Construction & Concrete Pour Sequence
91886	Deck Plan Span 1
91887	Deck Plan Span 2
91888	Deck Section
91889	Partial Framing Layout
91890	Steel Girder Details - Span 1
91891	Steel Girder Details - Span 2
91892	Girder Camber Details
91893	Field Splice Details
91894	Cross Beam (Bent 2) Details
91895	Cross Beam (Bent 2) Connection
91896	Misc. Welding Details
91897	Intermediate Cross Frame Details
91898	Cross Frames (Bents 1 & 3) Details
91899	Bent 3 (Bent 1 similar)
91900	Misc. (Bents 1 & 3) Details
91901	Bearing Details (Bents 1 & 3)
91902	Wingwalls
91903	Bent 2
91904	Bent 2 - Details
91905	Bearing Details (Bent 2)
91906	Ornamental Protective Fencing 1
91907	Ornamental Protective Fencing 2
91908	Ornamental Protective Fencing 3
91909	Temporary Barrier-Plan & Elevation
91910	Temporary Barrier Details

PERMANENT PAVEMENT MARKINGS	
ST Thru ST-11 Incl.	Striping Plan

DRAWING NO.	DESCRIPTION
	PERMANENT SIGNING
S-14052 Thru S-14075 Incl.	Permanent Signing
S-14076	Rice Museum Signing Plan
	STRUCTURE No. 22039
S-14076	Cantilever Sign Support
S-14077	Subsurface Data

INDEX OF SHEETS, CONT'D.

SHEET NO.	DESCRIPTION
	STRUCTURE No. 22068 (SIGN BRIDGE)
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S-14079	Subsurface Data

	STRUCTURE No. 22038
S-14080	Cantilever Sign Support
S-14081	Subsurface Data

	ILLUMINATION
I-02155	Illumination Legend
I-02156 Thru I-02163 Incl.	Illumination Plan
I-02164	Temporary Illumination Legend & Pole Table
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	TRAFFIC SIGNALS
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17330	Signal Plan
17331	Detector Plan
17332	Existing Utility Plan
17333	Signal Removal Plan
17334	Signal Plan
17335	Detector Plan
17336	Existing Utility Plan
17337	Signal Removal Plan
17338	Interconnect Plan
17339	Details
17340	Pamp Meter Legend
17341	Pamp Meter Plan
17342	Temporary Signal Legend
17343 Thru 17347 Incl.	Temporary Signal & Detector Plan
17348	Existing Utilities
17349 Thru 17351 Incl.	Temporary Signal & Detector Plan
17352	Existing Utilities
17353 Thru 17355 Incl.	Details
17360	Signal Pole Footing - Detail 1 Bridge Dwg. No. 91717
17361	Signal Pole Footing - Detail 2 Bridge Dwg. No. 91718

	ITS	
ITS-1521	ITS Legend	
ITS-1522 Thru ITS-1524 Incl.	~~ITS-1522 Thru ITS-1525 Incl.~~	ITS Plan
ITS-1525 Thru ITS-1528 Incl.	~~ITS-1526 Thru ITS-1527 Incl.~~	Details

US26 @ BROOKWOOD / HELVETIA (SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STATE	1A

R/W Map No. 11B-05-35

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

1 Added new Plan Sheets 2A-13, 2A-14, 2B-8 and 11E - Pedestrian Pathway Details, S-14076 - Rice Museum Signing Plan, ITS-1528 - Details

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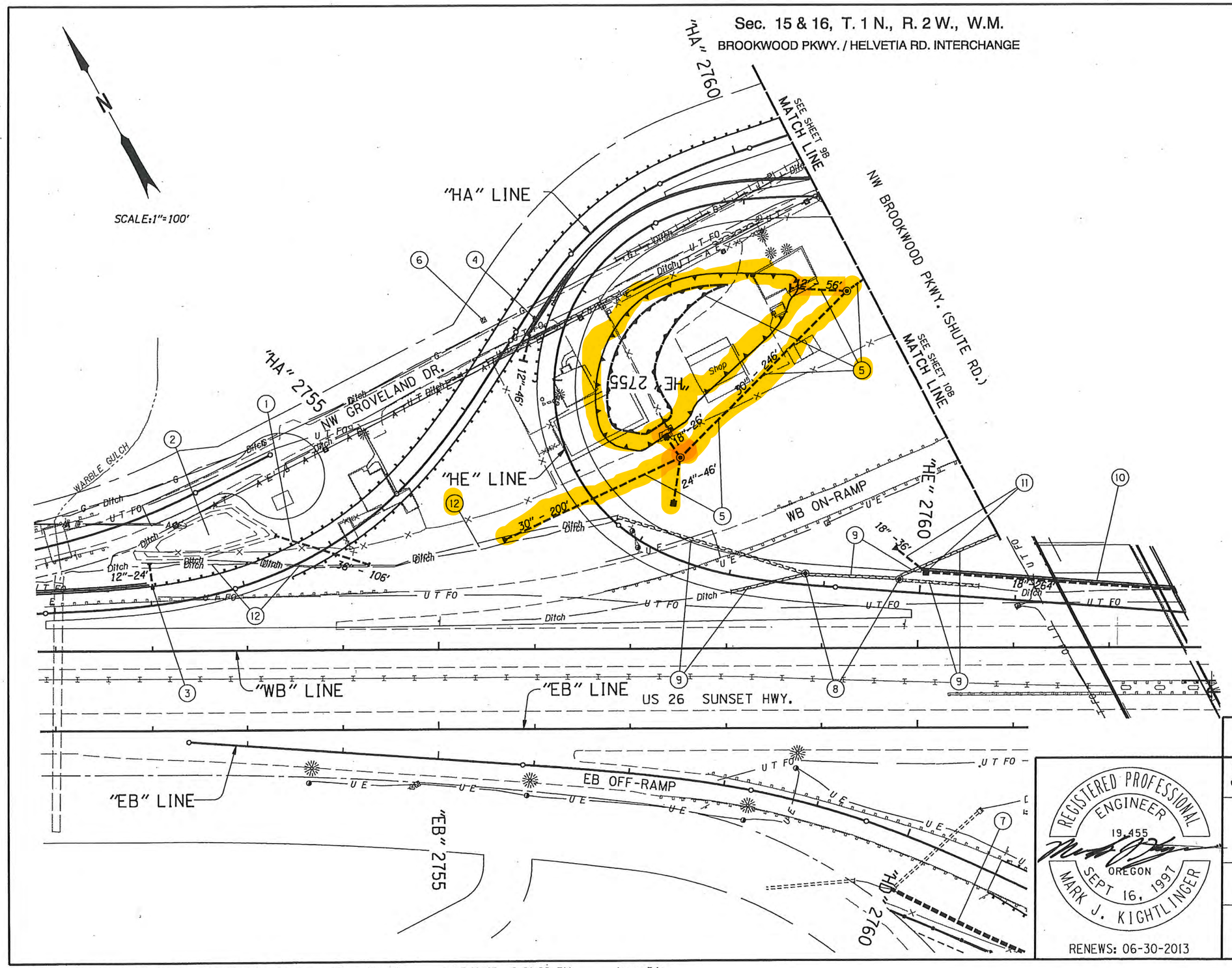
Sec. 15 & 16, T. 1 N., R. 2 W., W.M.
BROOKWOOD PKWY. / HELVETIA RD. INTERCHANGE



"NOT REVISED AS CONSTRUCTED"
Ron Lawson
PROJECT MANAGER
8/22/17
DATE

Removal of pipes, shown thus: ≈≈≈≈≈≈≈≈≈≈≈≈

REGISTERED PROFESSIONAL ENGINEER
19455
OREGON
SEPT 16, 1997
MARK J. KIGHTLINGER
RENEWS: 06-30-2013

OREGON DEPARTMENT OF TRANSPORTATION

Region 5 Tech Center
3012 Island Ave
La Grande, OR 97850
(541) 963-3177

US26 @ BROOKWOOD / HELVETIA (SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Thomas Glen Wallace
Designed By - Mark J. Kightlinger
Drafted By - Mark J. Kightlinger

DRAINAGE & UTILITIES

SHEET NO. 5B

* 18" storm sewer pipe must be ductile iron due to shallow depth as directed by EOR on 8/5/15 via e-mail.

(1) Sta. "HA" 2753+90
Inst 36" Culvert Pipe - 106'
5' depth
(Subject to in-water work period)
(See drg. no. RD300)

(2) Const. water quality facility no. 3
(Subject to in-water work period)
(For sht. nos., see sht. 1A)

(3) Sta. "HA" 2752+03, Lt. Offset 18.42' Left
Const. Type "G-2" Inlet with 18" sump
Inst. 12" storm sewer pipe - 24'
5' depth
Inst. slope anchors
(See Drg. nos. RD330 & RD364)

(4) Sta. "HA" 2757+20, Rt. Offset 8.42' Right
Const. Type "G-2" Inlet with 18" sump
Inst. 12" storm sewer pipe - 46'
5' depth

(5) Const. water quality facility no. 2
(For sht. nos., see sht. 1A)

(6) Monitoring well
Decommissioned by others

(7) Const. ditch
4' flat bottom, 1:4 sides
Dit excavation - 73 cu.yd.

(8) Remove manholes - 2

(9) Remove extg. storm sewer pipes

(10) Sta. "HE" 2760+05 to Sta "HE" 2762+69, Lt
~~Inst. 18" storm sewer pipe - 264'~~ * Install 18" Ductile Iron Pipe - 264'
5' depth

(11) Sta. "HE" 2760+05 Offset 22.17' Left
Const. Type "G-2" Inlet
~~Inst. 18" storm sew. pipe - 36'~~ * Install 18" Ductile Iron Pipe - 36'
5' depth
Const. paved end slope

(12) Exist. ditch
(Subject to in-water work period)

"REVISED AS CONSTRUCTED"
Ron Larson
PROJECT MANAGER
8/22/17
DATE

REGISTERED PROFESSIONAL ENGINEER
19,455
OREGON
SEPT 16, 1997
MARK J. KIGHTLINGER
RENEWS: 06-30-2013

OREGON DEPARTMENT OF TRANSPORTATION

Region 5 Tech Center
3012 Island Ave
La Grande, OR 97850
(541) 963-3177

US26 @ BROOKWOOD / HELVETIA
(SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Thomas Glen Wallace
Designed By - Mark J. Kightlinger
Drafted By - Mark J. Kightlinger

DRAINAGE & UTILITIES NOTES

SHEET NO. 5B-2

"HE" LINE

Match "H" line surfacing
-0.41%
200' V.C.
+40.00
2.3"
-3.00%
Profile Grade @ ℄
Subgrade
+33.93
196.00
400' V.C.
+70.00
Extg. ground @ ℄
+33. 30" Storm Sewer
-0.31%
300' V.C.
194.24
+44.59
18"-36' @ 0.50%
+75. 43' Lt.
Outlet El. 189.65
+05. Inlet Lt.
F.L. in 189.83
18"-264' @ 0.50%
+69. Inlet Lt.
F.L. in 191.15
2.3"
0.42%
(WB Ll. side) General excavation - 570 cu. yd.
Foundation exc. - (quantities covered under "HA" Line)
Stone emb. in place - (quantities covered under "HA" Line)
Embankment in place 2,000 cu. yd.
Foundation exc. - 3,000 cu.yd.
General excavation - 4,205 cu.yd.
Stone emb. in place - 6,936 cu. yd.
Embankment in place - 940 cu. yd.
2755+00
2760+00

"REVISED AS CONSTRUCTED"
Steve Larson
PROJECT MANAGER
8/22/17
DATE

"HA" LINE

* Flowline elevation changed to match the elevation shown on Sheet GJ-8 by the EOR via e-mail on 11/25/13

206.50
Match "H" line surfacing
202.52
+20. Inlet Rt.
F.L. 197.99
Profile Grade @ 12' Lt.
3.57%
300' V.C.
+78.68
-1.07%
23"
+49.56
190.40
+03. Inlet Lt.
F.L. in 186.77
12"-24' @ -23.4%
+03.
Outlet El. 181.1
+28.00
36"-106' @ 0.50%
+52. 37' Lt.
~~Outlet El. 183.20~~ * Outlet El. 182.00'
+20. 39' Rt.
Inlet El. 183.72
+76. 22' Rt.
Outlet El. 197.53
12"-46' @ -1.00%
Subgrade
Extg. ground @ ℄
Foundation excavation - 8,494 cu. yd.
General excavation - 693 cu. yd.
Stone emb. in place - 43,669 cu. yd.
MSE Wall #1
2755+00
2760+00

"FR" LINE
Profile Grade @ ℄.
184.70
185.51
Feather HMAC
1.11%
18"
+72.00
+45.00
Subgrade
General excavation - 120 cu. yd.
Stone emb. in place - 30 cu. yd.
7+00
8+00
9+00

REGISTERED PROFESSIONAL ENGINEER
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SEPT 16, 1997
MARK J. KIGHTLINGER
RENEWS: 06-30-2013

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US26 @ BROOKWOOD / HELVETIA
(SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

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Drafted By - Mark J. Kightlinger

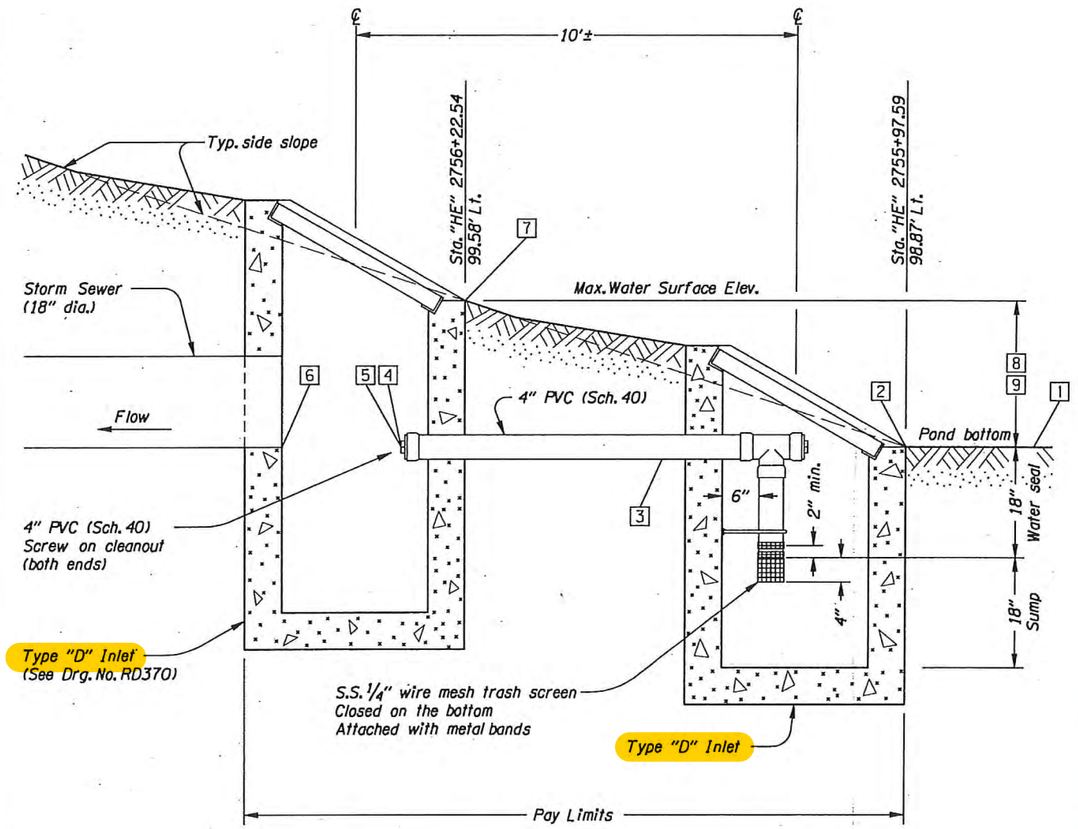
PROFILE

SHEET NO. 5C

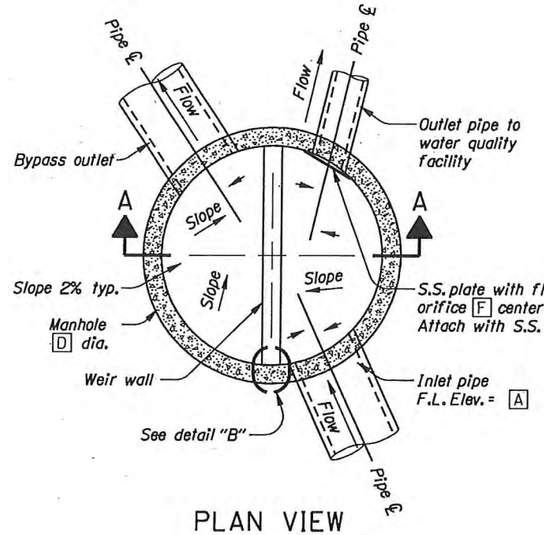
S:\Projects\16842_US26_Brookwood\16842plans.dgn :: Plan Sheets 5/13/2013 8:22:47 PM hwye54e

Rev. No.	Description	Date	Engineer
1	Revised outlet flowline elev. to match 30" pipe as-built flowline elev.	08-11-2015	CLB

KEY	VALUE	DESCRIPTION
1	188.0	Elev. of pond bottom (ft.)
2	188.0	Elev. of lower inlet lip (ft.)
3	187.83	F.L. elev. of 4" PVC (ft.)
4	188.0	Elev. of center of orifice (ft.)
5	2.0	Orifice dia. in cap (inch)
6	188.0	F.L. elev. of outfall pipe (ft.)
7	191.0	Elev. of upper inlet lip (ft.)
8	3.0	Pond design depth (ft.)
9	1.06	Pond design volume (ac. ft.)

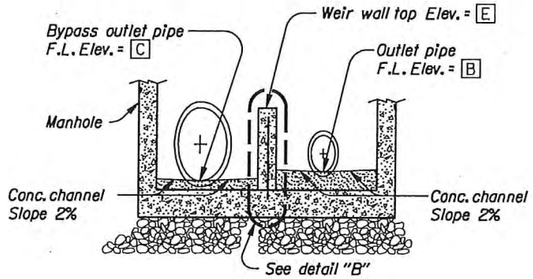


OUTLET CONTROL STRUCTURE

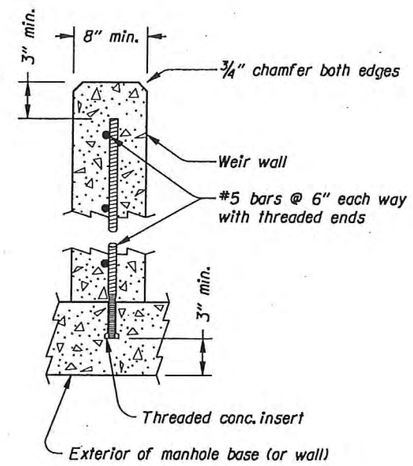


PLAN VIEW

KEY	VALUE	DESCRIPTION	
A	~~189.0~~	Invert elev. of inlet pipe (ft.)	188.80
B	~~189.0~~	Invert elev. of outlet pipe (ft.)	188.80
C	188.73	Invert elev. of bypass pipe (ft.)	
D	72	Inside dia. of manhole (inches)	
E	190.5	Top of weir wall elev. (ft.)	
F	4.0	Orifice dia. in plate (inch)	



SECTION A-A



DETAIL "B"

SPLIT FLOW MANHOLE

(For details not shown, see drg. nos. RD336 & RD346)

"REVISED AS CONSTRUCTED"
Ron Larson
PROJECT MANAGER
8/22/17
DATE

NOTE FOR ALL DETAILS:
1. S.S. = stainless steel

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US26 @ BROOKWOOD / HELVETIA
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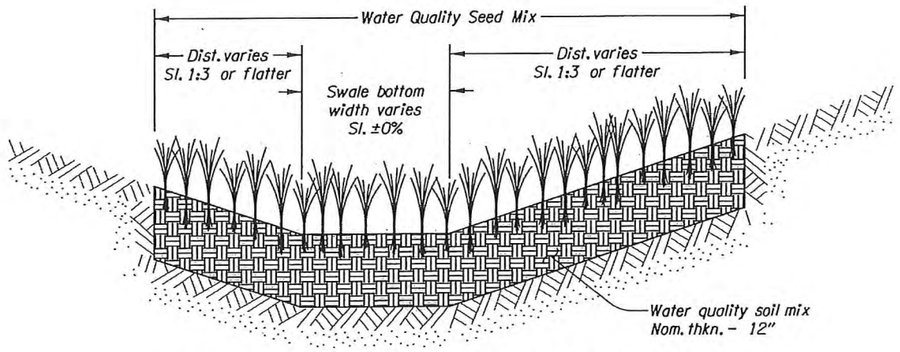
SUNSET HIGHWAY
WASHINGTON COUNTY

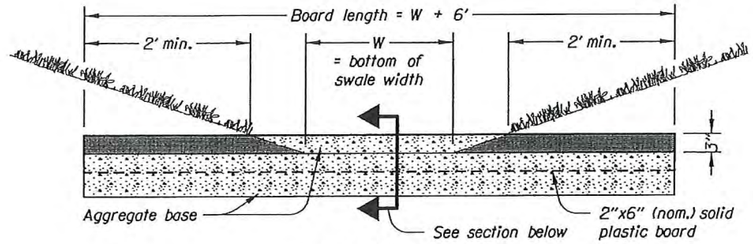
Design Team Leader - Thomas Glen Wallace
Designed By - Caroline L. Barnes
Drafted By - F. Jeremy Schad

WATER QUALITY FACILITY DETAILS

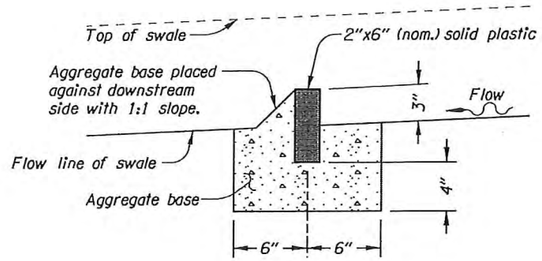
SHEET NO. GJ



WATER QUALITY SWALE SECTION



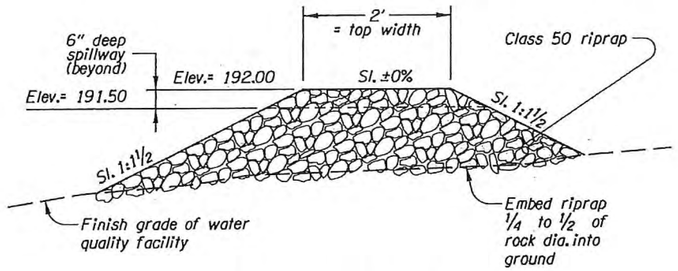
ELEVATION



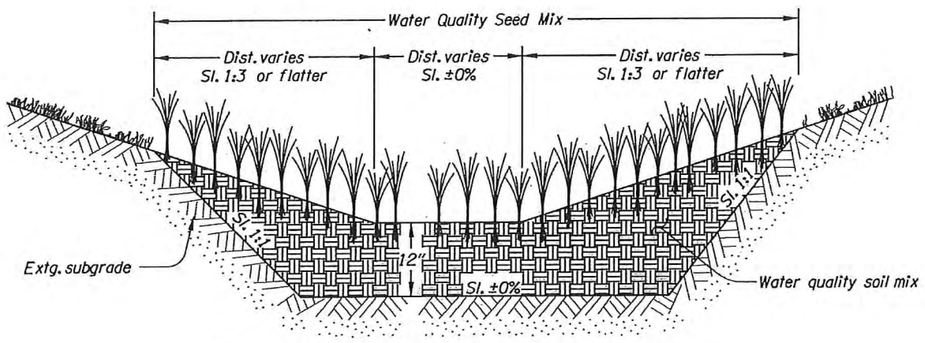
SECTION

FLOW SPREADING CHECK DAM

Space approx. every 50' or as directed.



FOREBAY BERM



TYPICAL DRY POND SECTION

"NOT REVISED AS CONSTRUCTED"
Ron Larson
PROJECT MANAGER
8/22/17
DATE

NOTES FOR ALL DETAILS:
1. Side-slopes are shown as vert. to horiz.

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RENEWS: 12-31-2013

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US26 @ BROOKWOOD / HELVETIA
(SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Thomas Glen Wallace
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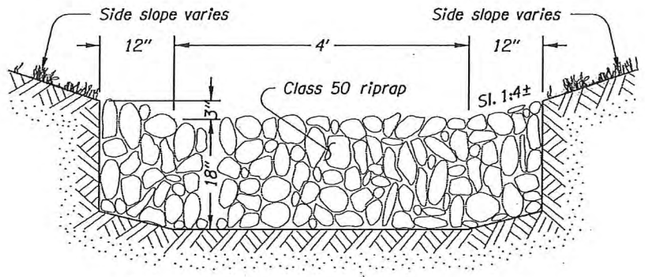
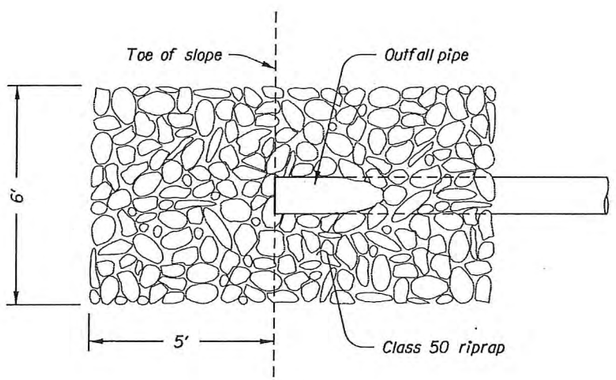
WATER QUALITY FACILITY DETAILS

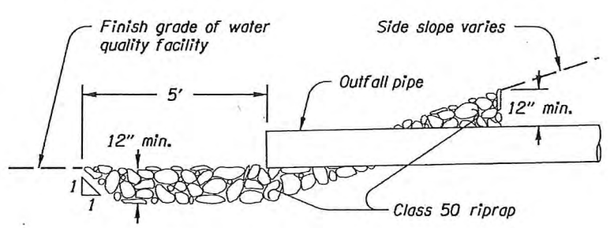
SHEET NO. GJ-2



CHANNEL PROTECTION



PLAN



ELEVATION

INLET ENERGY DISSIPATOR

"NOT REVISED AS CONSTRUCTED"
Ron Larson
PROJECT MANAGER
8/22/17
DATE

NOTES FOR ALL DETAILS:
1. Side-slopes are shown as vert. to horiz.

REGISTERED PROFESSIONAL ENGINEER
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SUNSET HIGHWAY
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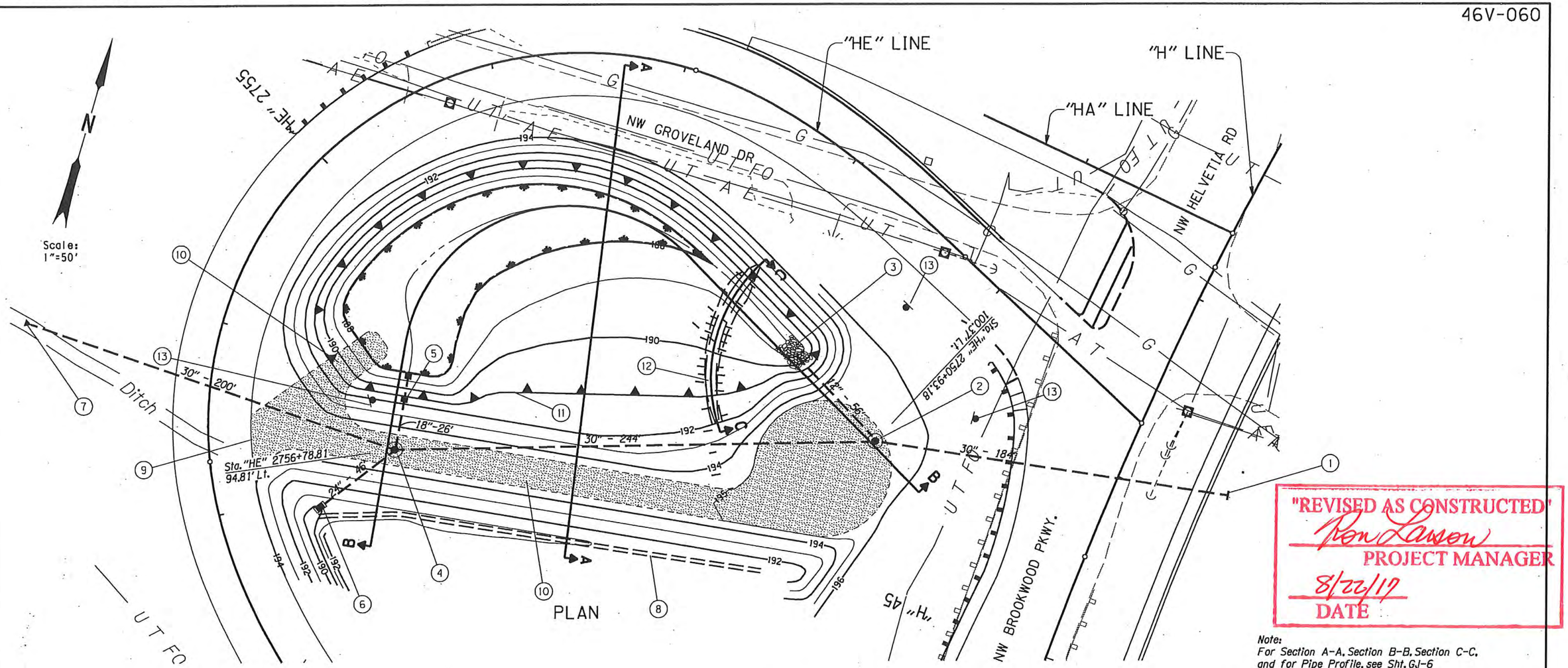
WATER QUALITY FACILITY DETAILS

SHEET NO. GJ-3

* Manhole up-sized to 72" Diameter by EOR via CCO 007.

14607 Contract Plans

46V-060



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Ron Lawson
PROJECT MANAGER
8/22/13
DATE

Note:
For Section A-A, Section B-B, Section C-C, and for Pipe Profile, see Sht. GJ-6

(1) Sta. "H" 43+86.53, 55.78' Lt.
Pipe inlet
Inst. 30" storm sew. pipe - 184'
20' depth

(2) Sta. "HE" 2750+93.18, 100.37' Lt.
Const. split flow manhole
(For details see sht. GJ)
Inst. 12" storm sew. pipe - 56'
5' depth
Inst. 30" storm sew. pipe - 246'
5' depth

(3) Sta. "HE" 2751+53.24, 96.02' Lt.
Const. inlet energy dissipator
(For details see sht. GJ-3)

(4) Sta. "HE" 2756+78.81, 94.81, Lt.
~~Const. manhole~~ * Const. manhole - 72" dia.
Inst. 18" storm sew. pipe - 26'
5' depth
Inst. 24" storm sew. pipe - 46'
5' depth
Inst. 30" storm sew. pipe - 200'
5' depth
(See drg. nos. RD335)

(5) Sta. "HE" 2756+22.54, 99.58' Lt.
Const. outlet control structure
(For details see sht. GJ)

(6) Sta. "HE" 2757+12.23, 48.47' Lt.
Const. type "ME" inlet
(See drg. nos. RD368)

(7) Sta. "HE" 2756+18.54, 95.56' Rt.
Const. paved end slope
(See drg. no. RD320)

(8) Const. ditch

(9) Const. gravel approach, W=25'
(See drg. no. RD715)

(10) Const. maintenance access road
16' min. width
(For details see sht. GJ-7)

(11) Const. water quality facility (#2)
extended detention dry ponds
See typical dry pond section
(For details see sht. GJ-2)

(12) Sta. "HE" 2751+98.40, 116.18' Lt.
Const. foreboy berm
along 80'R arc from
Sta. "HE" 2751+61.46, 148.46' Lt. to
Sta. "HE" 2752+05.95, 73.38' Lt.
(For details see sht. GJ-2)

(13) Inst. stormwater treatment
field marker

Storm Facility No. D00772

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MAY 05, 1999
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RENEWS: 12-31-2013

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US26 @ BROOKWOOD / HELVETIA
(SHUTE RD) PROJECT
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Thomas Glen Wallace
Designed By - Caroline L. Barnes
Drafted By - F. Jeremy Schad

WATER QUALITY FACILITY NO.2

SHEET NO. GJ-5

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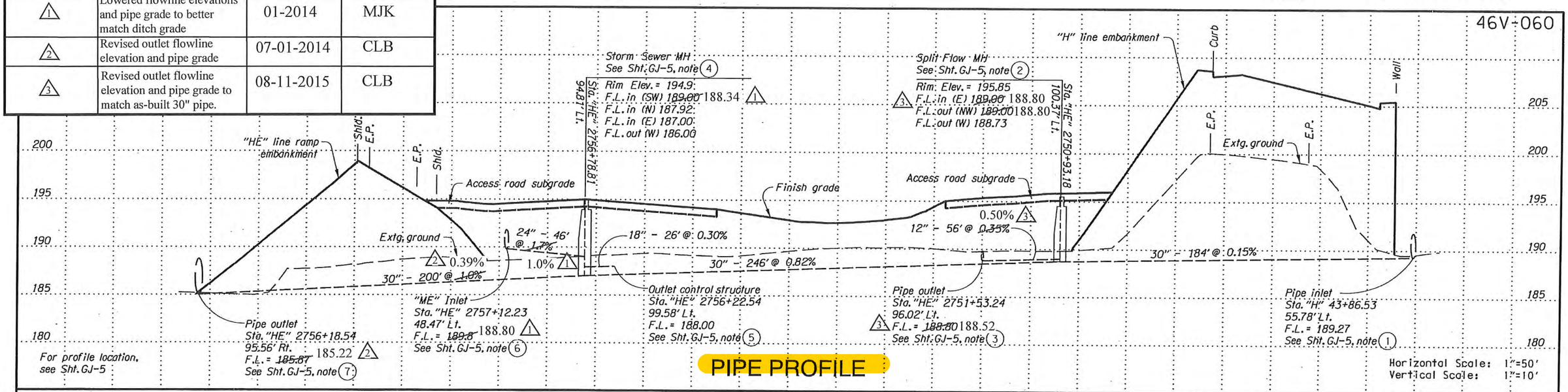
1:0600 - GJ-5

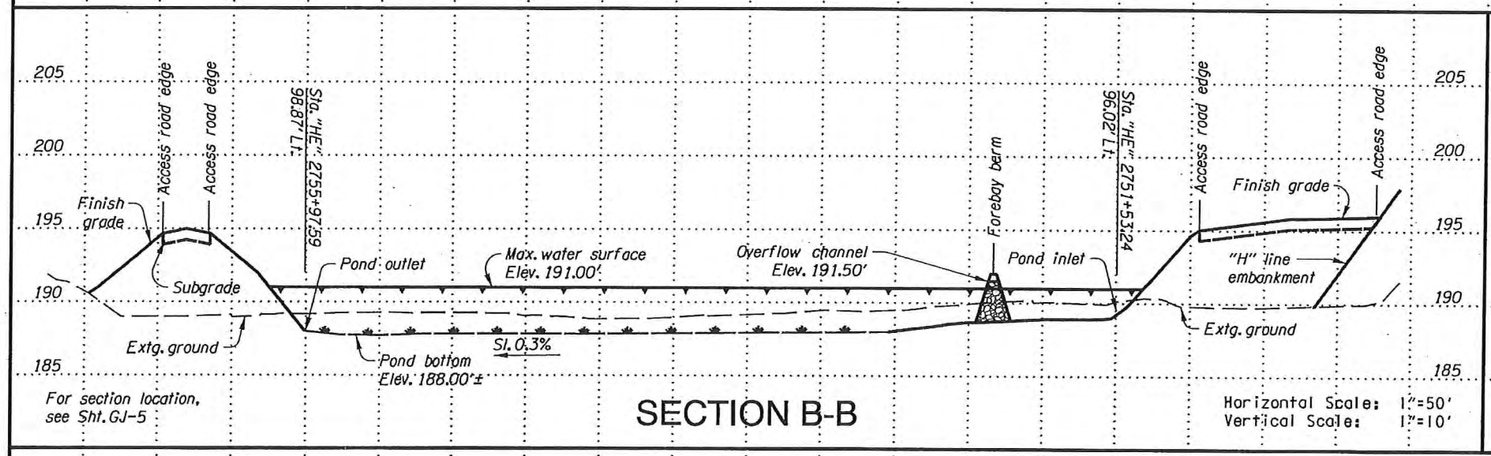
Rev. No.	Description	Date	Engineer
1	Lowered flowline elevations and pipe grade to better match ditch grade	01-2014	MJK
2	Revised outlet flowline elevation and pipe grade	07-01-2014	CLB
3	Revised outlet flowline elevation and pipe grade to match as-built 30" pipe.	08-11-2015	CLB

14607 Contract Plans

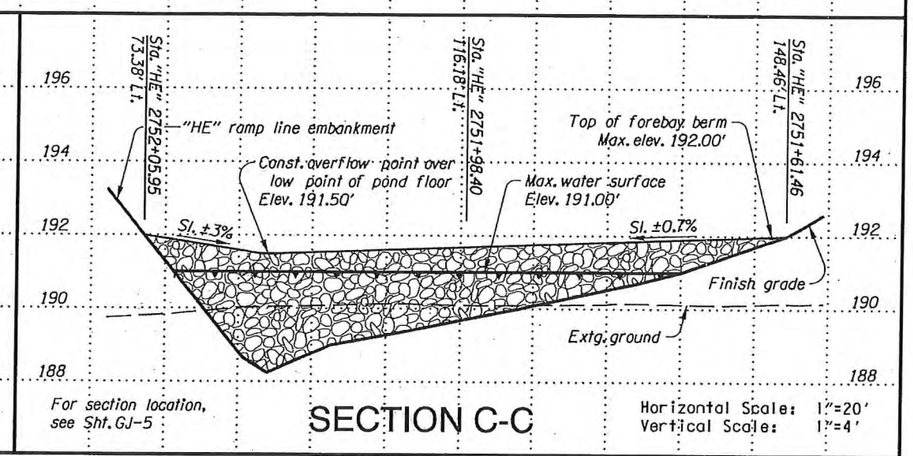
46V-060



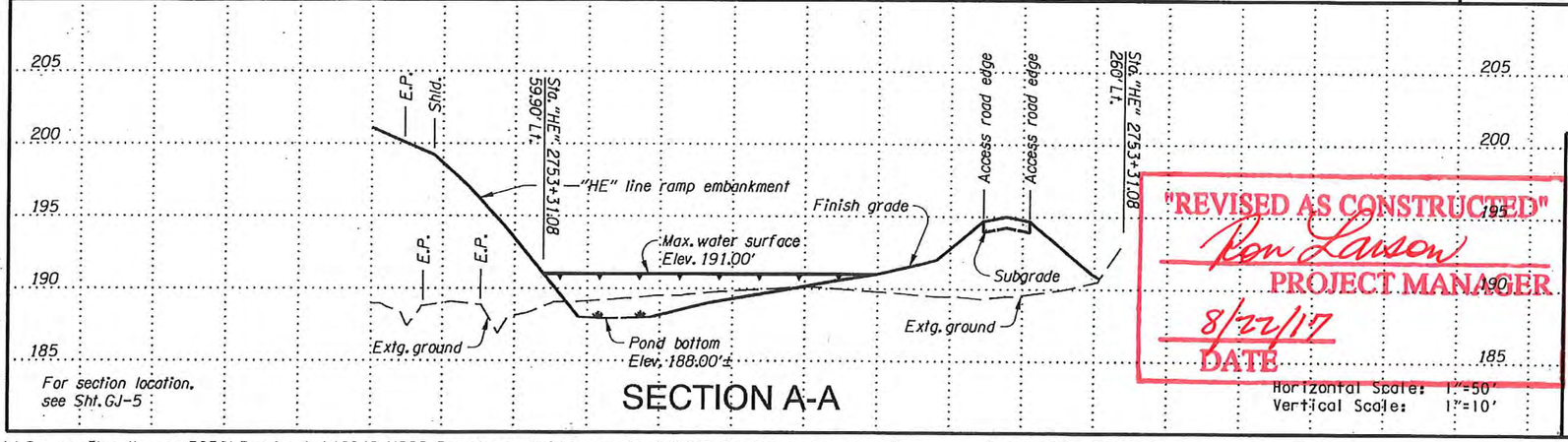
PIPE PROFILE



SECTION B-B



SECTION C-C



SECTION A-A

"REVISED AS CONSTRUCTED"
Ron Lawson
PROJECT MANAGER
8/22/17
DATE

REGISTERED PROFESSIONAL ENGINEER
60,795
OREGON
05, 1999
CAROLINE L. BARNES
RENEWS: 12-31-2013

Storm Facility No. D00772

OREGON DEPARTMENT OF TRANSPORTATION

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SUNSET HIGHWAY
WASHINGTON COUNTY

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Drafted By - F. Jeremy Schad

WATER QUALITY FACILITY NO. 2

SHEET NO. GJ-6

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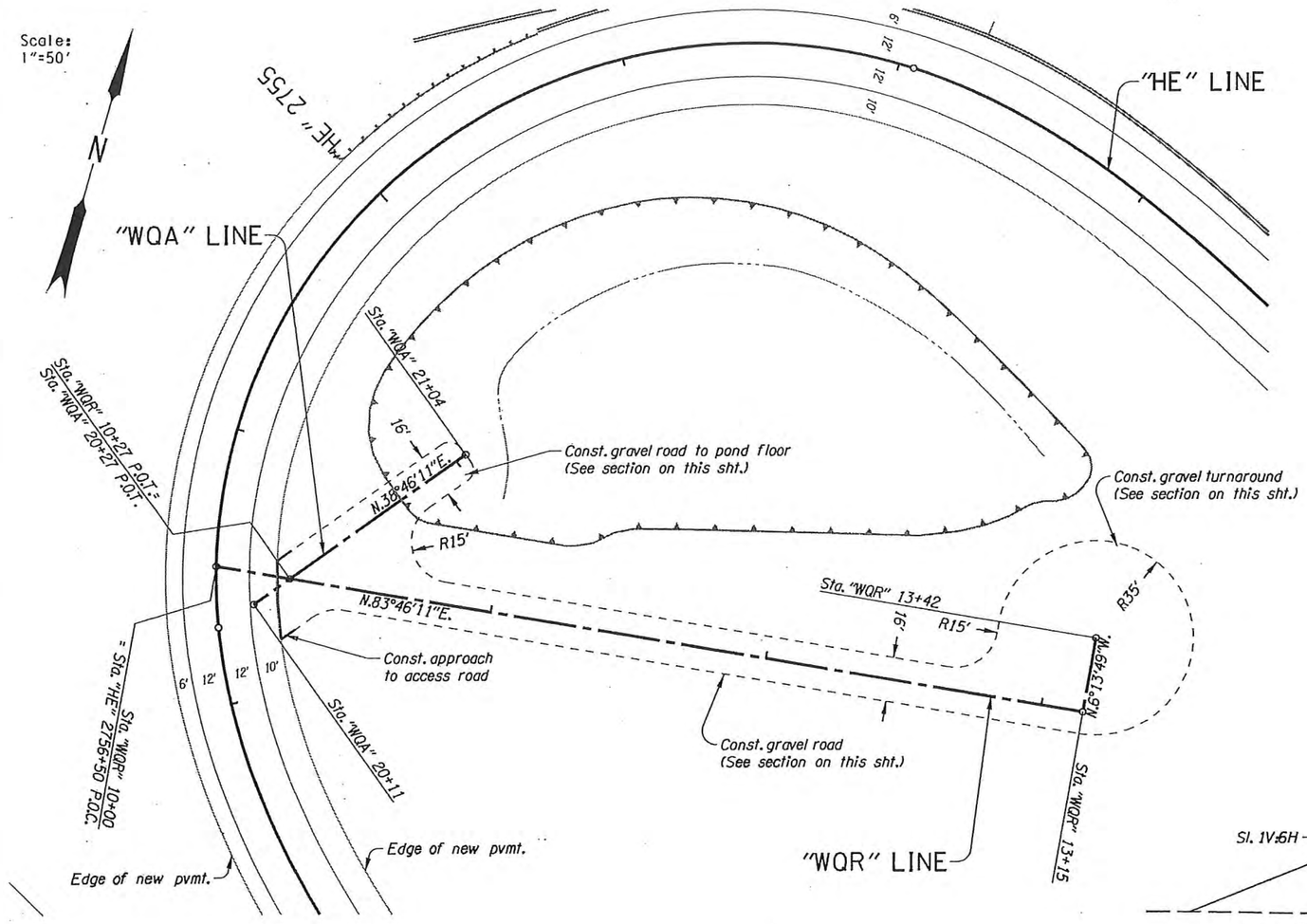
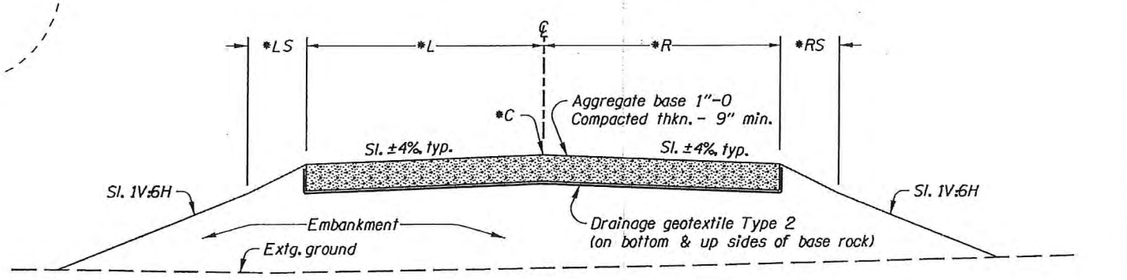
1.0600 - GJ-6



MAINTENANCE ACCESS ROAD

* STATIONING	LS (feet) (slope)	L (feet) (slope)	C (elev.)	R (feet) (slope)	RS (feet) (slope)
"WQR" 10+27 to "WQR" 13+15	2 @1V:4H	8 @ 4%	194.9± to 195.4±	8 @ 4%	2 @1V:4H
"WQR" 13+15 to "WQR" 13+42	2 to 0 @1V:4H	8 to 35 @ 4-2%	195.4± to 195.7±	8 to 35 @ 4-2%	2 to 0 @1V:4H
"WQA" 20+11 to "WQA" 20+27	0	0	195.1± to 194.9±	16 @ 4%	2 @1V:4H
"WQA" 20+27 to "WQA" 21+04	0	8 @ 0%	194.9± to 188.0±	8 @ 0%	0



Sta. "WQR" 10+27 to Sta. "WQR" 13+42
"WQA" 20+11 to "WQA" 21+04

"NOT REVISED AS CONSTRUCTED"
Ron Lawson
PROJECT MANAGER
8/22/17
DATE

REGISTERED PROFESSIONAL ENGINEER
60,795
OREGON
MAY 05, 1999
CAROLINE L. BARNES
RENEWS: 12-31-2013

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SUNSET HIGHWAY
WASHINGTON COUNTY

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Drafted By - F. Jeremy Schad

WATER QUALITY FACILITY NO.2

SHEET NO. GJ-7