

# OPERATION & MAINTENANCE MANUAL

DFI No. : D00745

Facility Type: Water Quality Filter Strip



Location:  
Latitude: 44deg. 01' 03.20" N  
Longitude: 121deg. 19' 03.68" W

## January, 2018

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**APPENDIX A:** Operational Plan and Profile Drawing(s)

**APPENDIX B:** ODOT Project Plan Sheets

### 1. Identification

Drainage Facility ID (DFI): **D00748**  
Facility Type: Water Quality Filter Strip  
Construction Drawings: (V-File Number) 46V-040  
Location: District: 10  
Highway No.: 04  
Mile Post: M.P. 141.44-141.47, LT.  
Description: This facility is located on the south end of Bend, on 3<sup>rd</sup> St. Lt. side

## 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: Mike Ogden ODOT Region 4 Tech. Center  
(541) 388 - 6288

Facility construction: 2014

Contractor: Knife River

## 4. Storm Drain System and Facility Overview

The water quality filter slopes are flow-through stormwater treatment facilities incorporated into roadside embankments and placed between pavement and a downstream conveyance system; in this case just a ditch. These facilities utilize physical straining or filtration, and vegetative uptake, to provide stormwater treatment. Bioslopes are designed to treat sheet flow from an adjacent impervious surface.

No bypass systems are appropriate.

The Filter Strip is comprised of a Flow Spreader of sorts consisting of ¾"-minus shoulder aggregate which drains in a 2% slope to 8" depth water quality mix which was changed to crushed aggregate as well in the filter strip. The flow spreader is only 1 ft. in width along 3<sup>rd</sup> St. The length of the strip is 188 ft. along 3<sup>rd</sup> St. The filter strip itself is 5.5 ft. wide.

The drainage basin is essentially the roadway surfacing upon which it is adjacent.

A. Maintenance equipment access:

Maintenance access to the facility is obtained from 3<sup>rd</sup> St. Adequate space is available on the shoulder.

B. Heavy equipment access into facility:

- Allowed (no limitations)
- Allowed (with limitations)
- Not allowed

C. Special Features:

- Amended Soils
- Porous Pavers
- Sedimentation Manholes
- Shutoff valves

**5. Facility Haz Mat Spill Feature(s)**

This Drywell **cannot** be used to store a volume of hazardous liquid. All hazardous material must be blocked prior to entering the drywell. The hazardous material can be blocked by covering the inlet.

**6. Auxiliary Outlet (High Flow Bypass)**

Auxiliary Outlets were not constructed for this facility as they are not appropriate for this design. The overall concept for stormwater design was the bio infiltration through the filter strip which then drains downslope from the facility.

The auxiliary outlet feature for this facility is:

- Designed into facility
- Other, as noted above.

**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/GEOENVIRONMENTAL/pages/omm.aspx>  
[x](#)

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:

## 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:

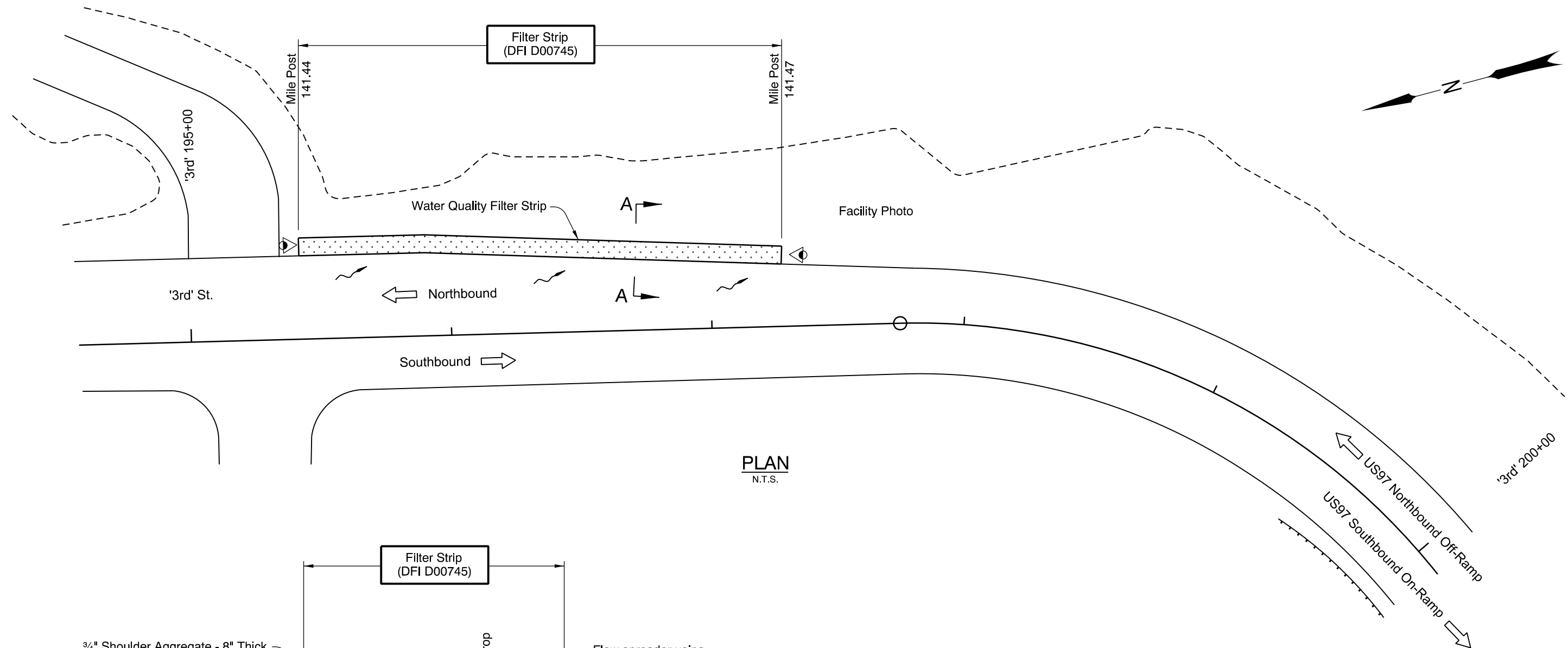
ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(541) 388-6088 or (541) 410-0706
ODEQ Northwest Region Office	(503) 229-5263



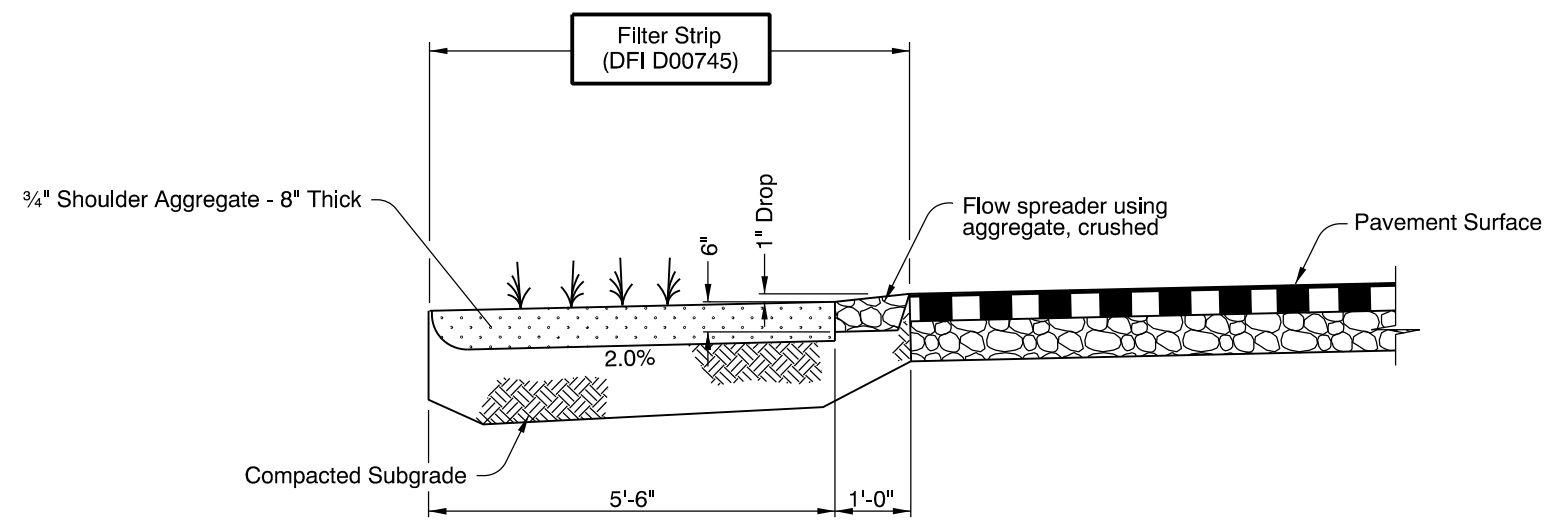
# Appendix A

## Content:

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



**PLAN**  
N.T.S.



**SECTION A-A**  
N.T.S.

**LEGEND**

- Pavement / Facility Flow Path
- Photo Location/Direction

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By:  
Michael W. Ogden

Drafted By:  
Michael L. Graves

**DFI D00745**  
**MAINTENANCE DISTRICT 10 HWY 004**  
**WATER QUALITY FILTER STRIP**  
THE DALLES-CALIFORNIA HIGHWAY  
DESCHUTES COUNTY



# Appendix B

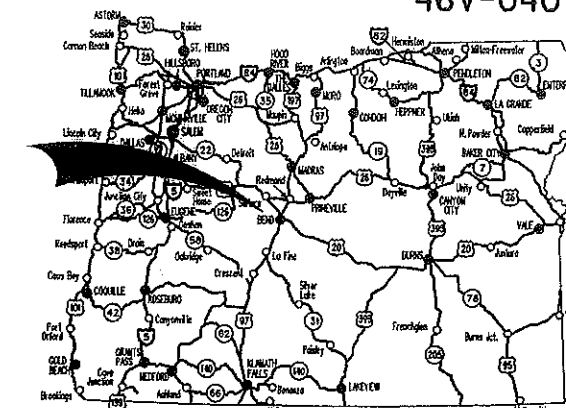
## Content:

- **ODOT Project Plan Sheets**
  - *Cover/Title Sheet*
  - *Detail Sheets*
  - *Drainage and profile sheets*

46V-040


INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A Thru 1A-2	Index Of Sheets Cont'd.
1A-3	Standard Drg. Nos.
1B	Keymap
1C	Control Data Sheet

STATE OF OREGON  
 DEPARTMENT OF TRANSPORTATION  
 PLANS FOR PROPOSED PROJECT  
**GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION,  
 SIGNALS & ROADSIDE DEVELOPMENT**



Overall Length Of Project - 2.50 Miles

**US97/MURPHY RD:  
 BROOKSWOOD-PARRELL (BEND) PHASE 1  
 THE DALLES-CALIFORNIA HIGHWAY  
 DESCHUTES COUNTY  
 MAY 2013**

NOT REVISAS AS CONSTRUCTED  
  
 Project Manager Date 1/16/15

**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. (Notes The Telephone Number For The Oregon Utility Center Is (503) 232-1987.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

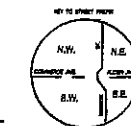
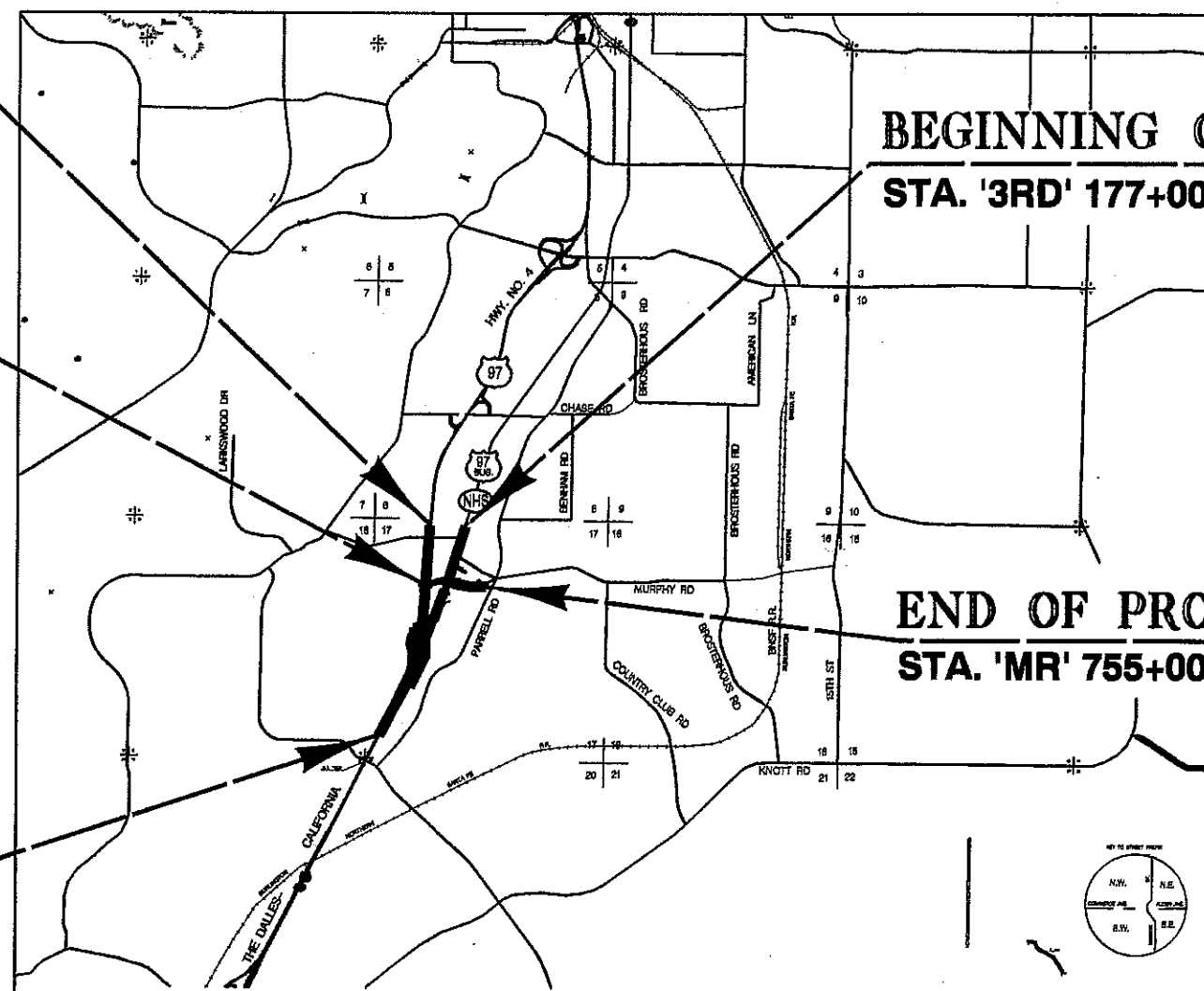
**BEGINNING OF PROJECT  
 STA. 'US97' 408+00.00 (M.P. 140.44)**

**BEGINNING OF PROJECT  
 STA. '3RD' 177+00.00**

**BEGINNING OF PROJECT  
 STA. 'MR' 733+00.00**

**END OF PROJECT  
 STA. 'MR' 755+00.00**

**END OF PROJECT  
 STA. 'US97' 454+00.00 (M.P. 142.03)**

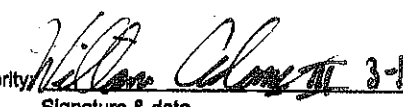
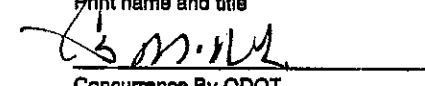


T. 18 S., R. 12 E., W.M.

**OREGON TRANSPORTATION COMMISSION**

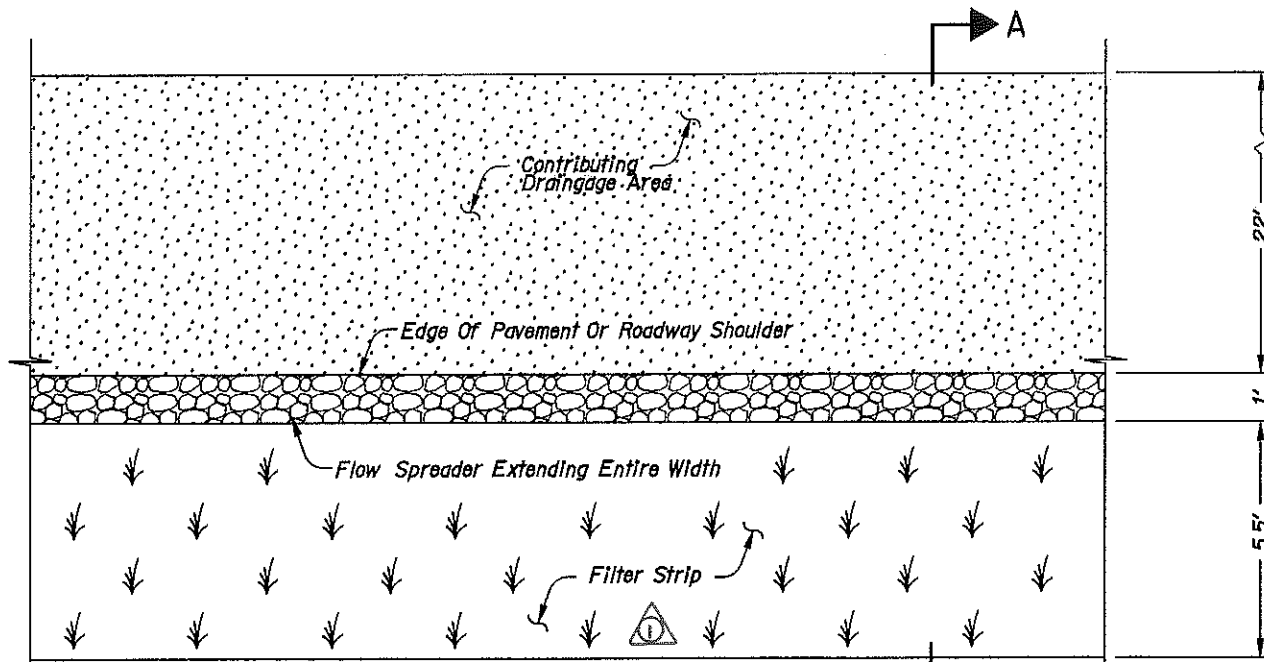
Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tammy Boney	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

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  3-19-13  
 Signature & date  
 William Adams III - DM  
 Print name and title  
  
 Concurrence By ODOT Chief Engineer

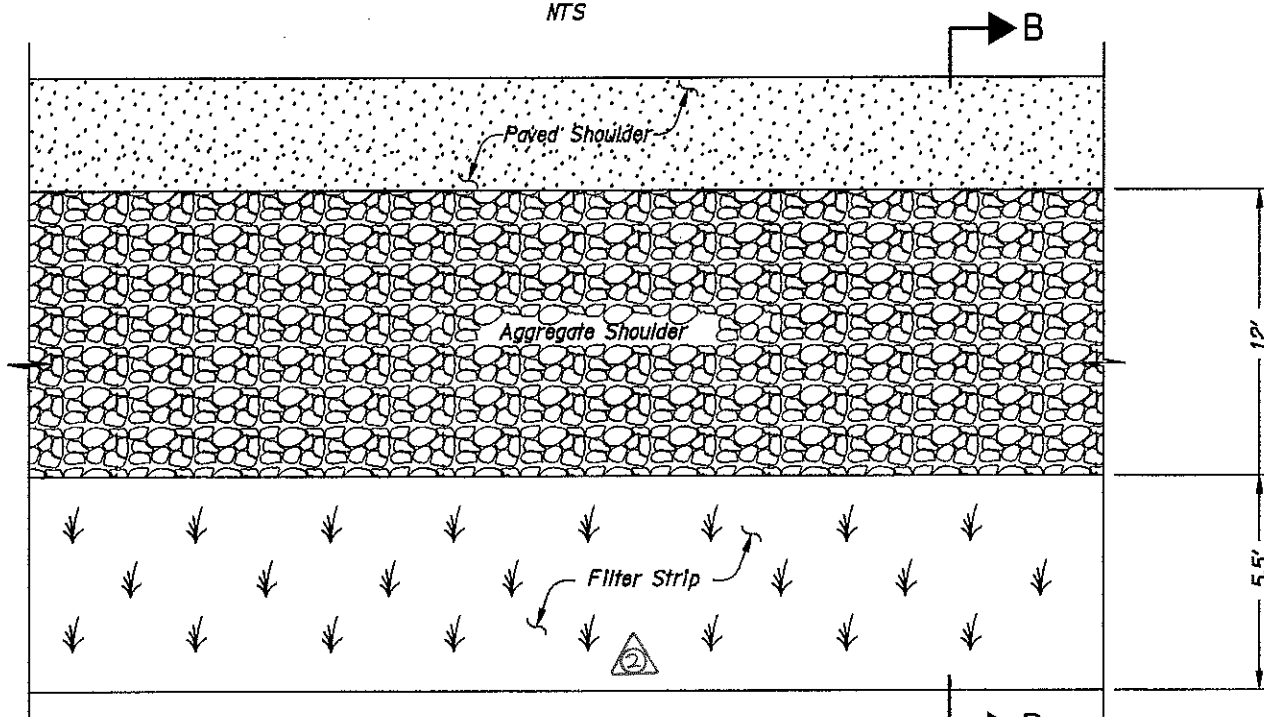
**US97/MURPHY RD:  
 BROOKSWOOD-PARRELL (BEND) PHASE 1  
 THE DALLES-CALIFORNIA HIGHWAY  
 DESCHUTES COUNTY**

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	SO-S004(169)	1



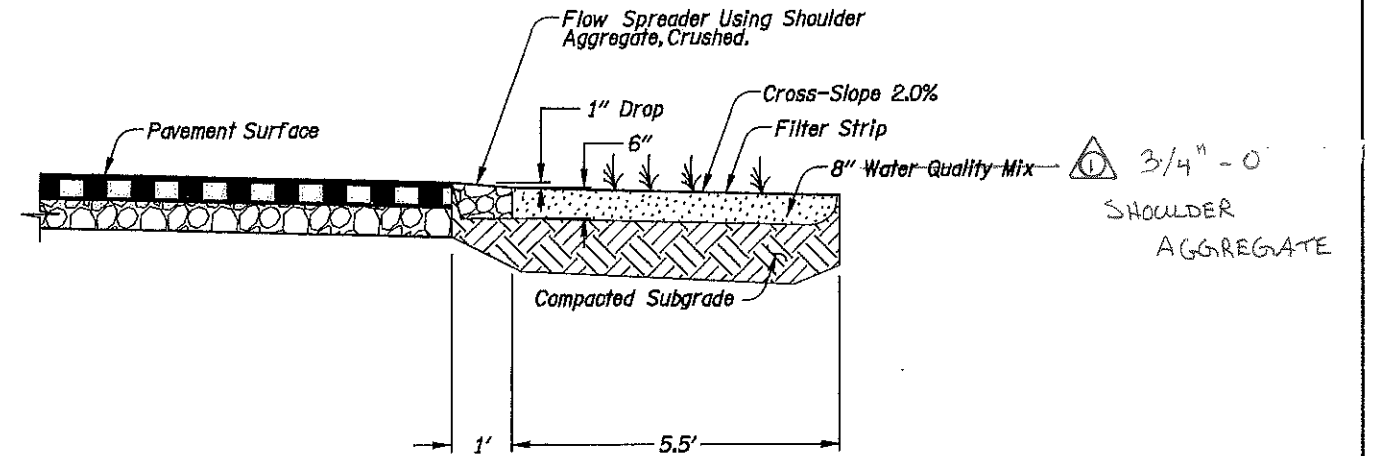
STA. '3RD' 195+42.09 To STA. '3RD' 197+30.00

PLAN  
NTS

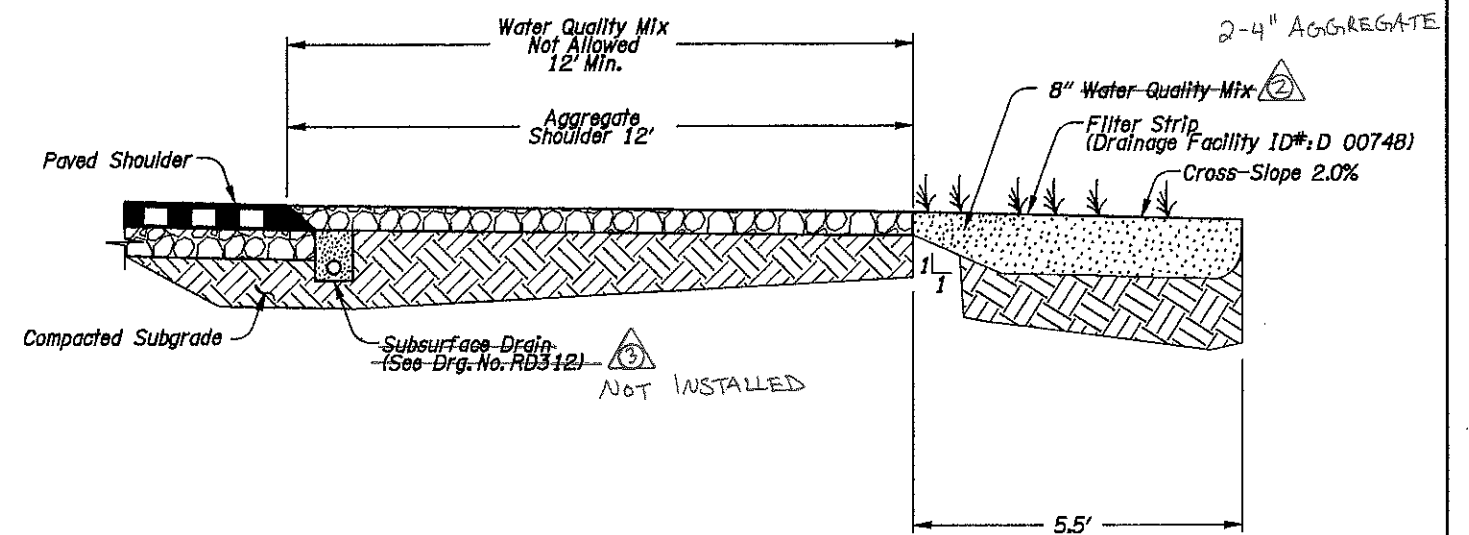


STA. 'A' 301+25.00 To STA. 'A' 309+00.00

PLAN  
NTS



SECTION A-A  
NTS



SECTION B-B  
NTS

REVISED AS CONSTRUCTED  
*[Signature]*  
Project Manager Date

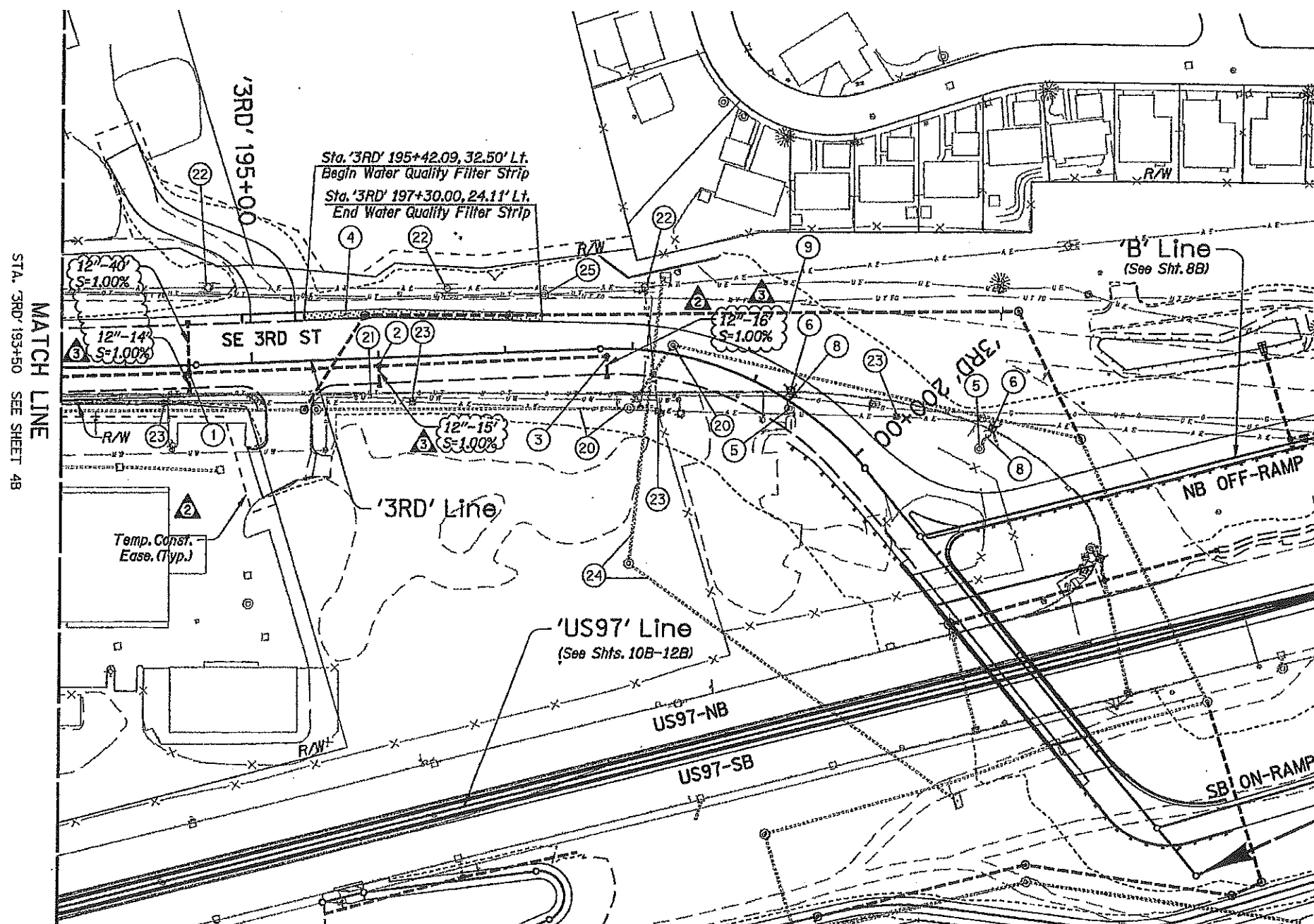


<b>CH2MHILL</b> 2020 SW 4TH AVE. - 3RD FLOOR PORTLAND, OR 97201-4953 TEL. 503.235.5000	
<b>US97/MURPHY RD:                  BROOKWOOD-PARRELL (BEND) PHASE 1</b> THE DALLES-CALIFORNIA HIGHWAY DESCHUTES COUNTY	
Reviewed By - R. Attanasio Designed By - J. Stallard Drafted By - S. Atwood	
<b>DETAILS</b>	SHEET NO. <b>2B-9</b>

Rev. No.	Date	Revision

WATER QUALITY FILTER STRIP

Sec. 17, T. 18 S., R 12 E., W.M.



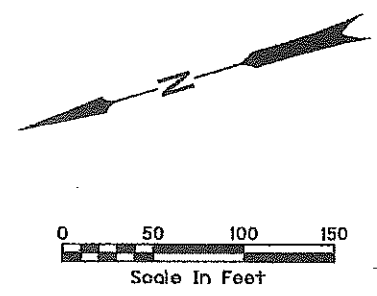
- ① Sta. '3RD' 194+50.00, 6.00' Rt.  
Const. Storm Sewer Manhole  
Inst. 12" Sew. Pipe - 150'  
5' Depth  
Inst. 12" Sew. Pipe - 14'  
5' Depth  
Inst. 12" Sew. Pipe - 40'  
5' Depth  
(For Details, See Sht. 2B-10,  
COB STRM-8 & RD335)  
Const. Type "CG-3" Inlet W/18" Sump - 2  
F.L. (12" Out) 3782.49 E  
F.L. (12" Out) 3782.75 W  
(See Drg. Nos. RD371, RD372 & COB STRM-8)
  - ② Sta. '3RD' 196+00.00, 6.37' Rt.  
Const. Storm Sewer Manhole  
Inst. 12" Sew. Pipe - 180'  
5' Depth  
Inst. 12" Sew. Pipe - 15'  
5' Depth  
(For Details, See Sht. 2B-10,  
COB STRM-8 & RD335)  
Const. Type "CG-3" Inlet W/18" Sump  
F.L. (12" Out) 3790.25 E  
(See Drg. Nos. RD371, RD372 & COB STRM-8)
  - ③ Sta. '3RD' 197+80.00, 6.00' Rt.  
Const. Storm Sewer Manhole  
Inst. 12" Sew. Pipe - 16'  
5' Depth  
(For Details, See Sht. 2B-10,  
COB STRM-8 & RD335)  
Const. Type "CG-3" Inlet W/18" Sump  
F.L. (12" Out) 3800.66 E  
(See Drg. Nos. RD371, RD372 & COB STRM-8)
- 'A' Line  
(See Sht. 6B)
- END OF PROJECT  
STA. '3RD' 204+25.00

- ④ Const. Water Quality Filter Strip - 188'  
(For Details, See Sht. 2B-9)
- ⑤ Decommission Exg. Drywell - 2
- ⑥ Remove Extg. Inlet - 2
- ⑧ Remove Extg. Pipe - 28'
- ⑨ Inst. San. Sewer Pipe  
(For Details, See SS Shts.)
- ⑩ Remove Extg. San. Sewer Pipe  
(For Details, See SS Shts.)
- ⑪ Relocate Water Line (By Others)
- ⑫ Protect Extg. Power Pole
- ⑬ Relocate Power Pole (By Others)
- ⑭ Abandon Irrigation Pipe (By Others)
- ⑮ Adjust Utility Manhole (By Others)

STA. '3RD' 193+50 SEE SHEET 4B

REVISED AS CONSTRUCTED

*[Signature]*  
Project Manager \_\_\_\_\_ Date \_\_\_\_\_



Rev. No.	Date	Revision
①	5-2-13	Manhole Detail
②	1-10-14	Revised Drainage Design/Construction Notes
③	2-3-14	Revised Drainage Design

**OREGON DEPARTMENT OF TRANSPORTATION**

**CH2MHILL** 2020 SW 4TH AVE. - 3RD FLOOR  
PORTLAND, OR 97201-4953  
TEL. 503.235.5000

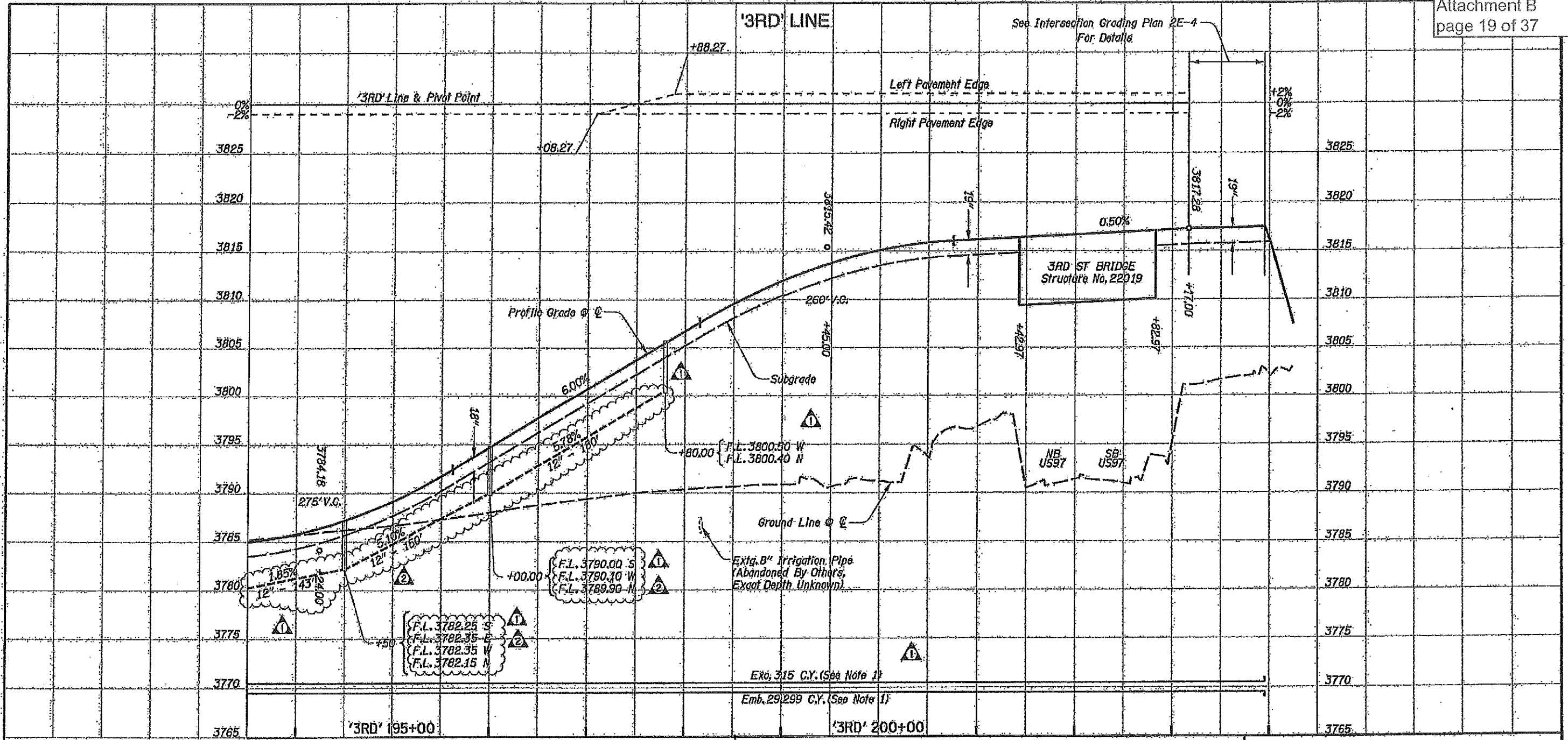
**US97/MURPHY RD:  
BROOKWOOD-PARRELL (BEND) PHASE 1  
THE DALLES-CALIFORNIA HIGHWAY  
DESCHUTES COUNTY**

Reviewed By - R. Attanasio  
Designed By - J. Stallard  
Drafted By - S. Atwood

**DRAINAGE & UTILITIES**

SHEET NO. **5B**

Bid Package 1

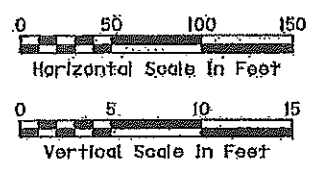


**Notes:**

1. Volumes Shown This Sheet Include All Earthwork Within The Limits Of The Intersection Of 3rd Street And The Southbound On-Ramp (A-Line). Limits Defined Per Intersection Grading Plan 2E-4.

**REVISED AS CONSTRUCTED**  
*[Signature]*  
Project Manager \_\_\_\_\_ Date \_\_\_\_\_

①	1-10-14	Updated Earthwork/Revised Drainage Design
②	2-3-14	Revised Drainage Design
Rev. No.	Date	Revision



<p><b>DRAINAGE</b></p>	<p><b>ROADWAY</b></p>
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TEL. 503.235.5000

**US97/MURPHY RD  
BROOKSWOOD-PARRELL (BEND) PHASE 1  
THE DALLES-CALIFORNIA HIGHWAY  
DESCHUTES COUNTY**

Reviewed By - S. Daleo  
Designed By - R. Brown/J. Stallard  
Drafted By - J. Tyler

**PROFILE**

SHEET NO. **5C**

Bid Package 1