OPERATION & MAINTENANCE MANUAL

D00558

INDEX

1. Identification

Drainage Facility ID (DFI): D00558

Facility Name: **Williamson River Water Quality BioSwale**

Project Name: OR 422: Williamson River Bridge (Chiloquin Section) Project

Facility Type: WQ Biofiltration Swale

Drawings: See Plan Drawings GJ through GJ-3

Location: District 11; Highway 422; M.P. 4.57

2. Facility Contact Information, Engineer of Record

Michael Ogden, PE, ODOT Region 4 Hydraulics Engineer (541) 388-6288

3. Construction

Construction is to be completed in the year 2013.
The contractor was Key Constructors, Inc.

4. Storm Drain System and Facility Overview

The facility consists of a bioswale in which the impervious surface of the roadway, of .76 acres, runoff is directed towards the swale by means of a drainage curb and a system of inlets and stormwater pipe. The drainage area extends from the area up to the NW on Chocktoot past Wasco Ave. to the SW on Chocktoot St. to N. Klamath Ave. The roadway impervious area drains to a collecting drainage curb and is conveyed to the bioswale, which then drains to the outfall on the side of the Williamson River.

All flows run from the project to this swale from Sta. 4+85 to 11+55. It is not separated by a flow splitter manhole.

A. Maintenance equipment access:

Maintenance access to the facility is obtained from Chocktoot St. which is Hwy 422.

B. Heavy equipment access into facility:

Allowed (no limitations)

C. Special features:

Amended Soils

5. Haz Mat Spill Operation

The swale can be used to collect hazardous material liquid by blocking the outlet energy dissipater.

6. Auxiliary Outlet (High Flow Bypass)

Elevation And Type

The outlet system for the swale utilizes a riprap pad energy dissipater. No orifice controls outflow, there is no outflow pipe, and the dissipater is more than adequate to carry the 25 Year conveyance storm.

Direction and Flowpath

The riprap pad energy dissipater leaving the swale was designed to carry the 25 Year conveyance storm. The flow goes to the side of the Williamson River. If water nears the top of the berm, check for damage to the dissipater.

7. Maintenance Requirements

Routine maintenance tables 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 as selected below:

Table 1 (general maintenance)

Table 3 (biofiltration swales)

8. Waste Material Handling

Material cleaned from the facility is defined as waste by DEQ. This means the material must be disposed at a permitted waste management facility (landfill, incinerator, etc.) or managed, reused, or recycled according to DEQ waste rules.

Management of road waste and the rules that surround it are extremely complicated. Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options:

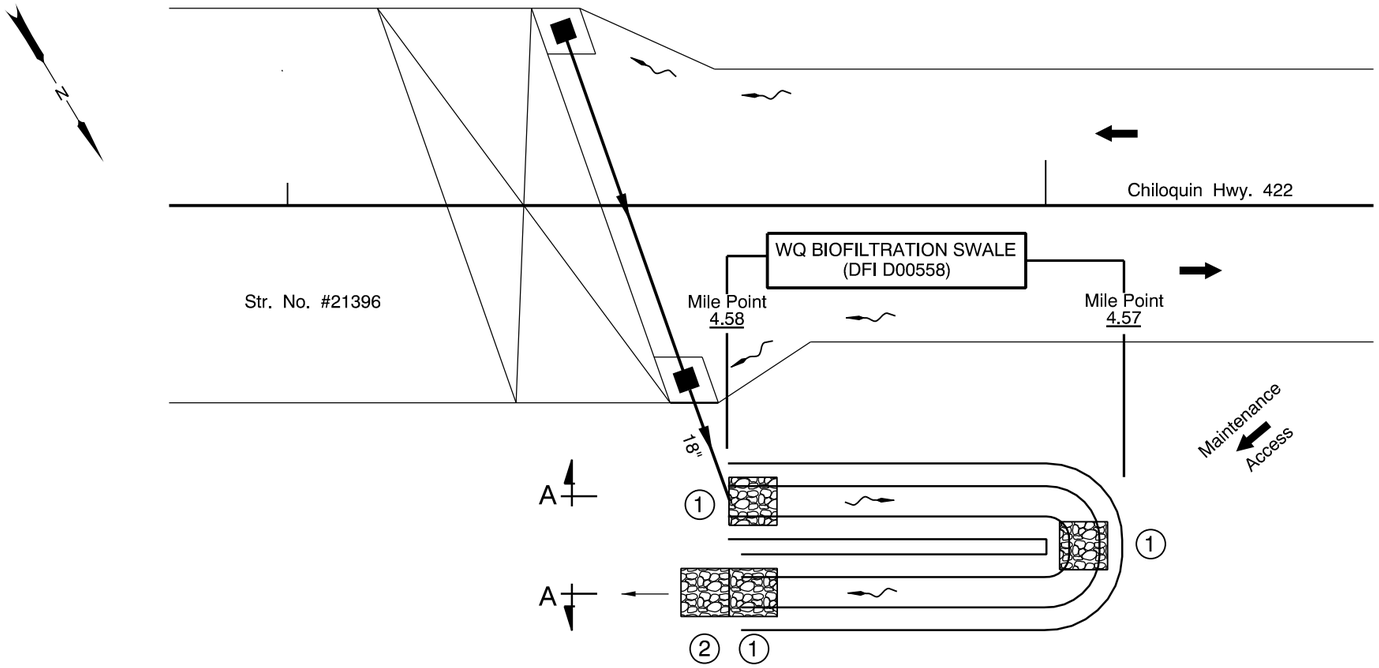
http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml

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 4 Hazmat Coordinator	(541) 388-6088
ODEQ Region Office	(541) 388-6146

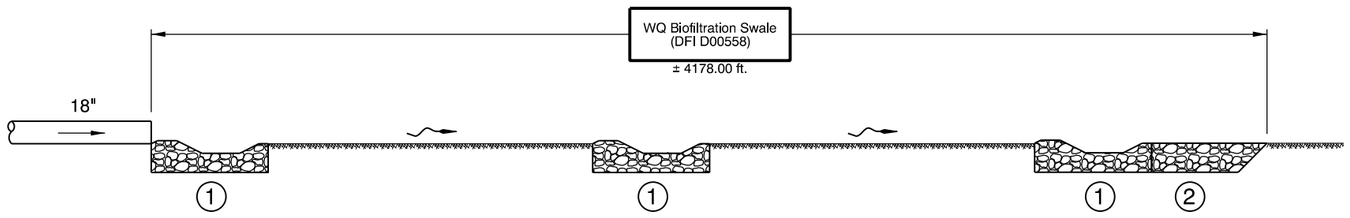
APPENDIX A

Sec. 34, T. 34 S., R. 7 E., W.M.



WATER QUALITY SWALE

N.T.S.



SECTION A-A

N.T.S.

LEGEND:

- (1) Flow Spreader/Energy Dissipator
- (2) Rip-Rap Pad
- 18" Storm Pipe (Facility)
- Flow Path
- Conveyance Direction

Sht. 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Michael W. Ogden

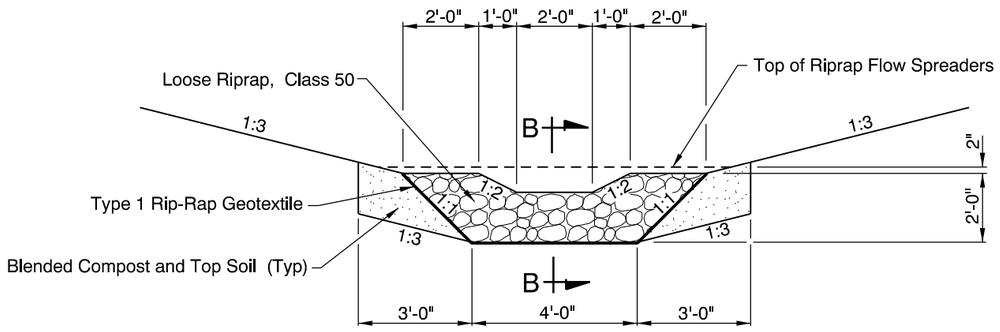
Drafted By: Michael L. Graves

DFI D00558
MAINTENANCE DISTRICT 11 HWY 422S
WQ BIOFILTRATION SWALE
CHILOQUIN HIGHWAY MP 4.57 - MP 4.58
KLAMATH COUNTY

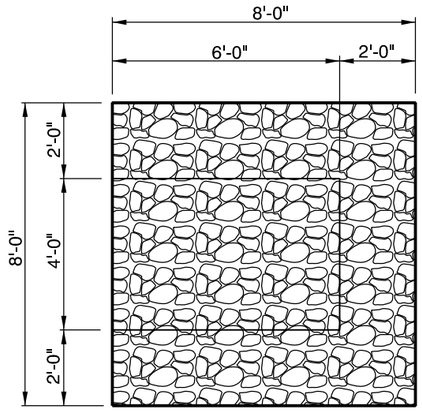
DFI_D00558_01.dgn :: Default 1/31/2018 5:00:41 PM Hwyr33e

Rotation: 0° Scale: 1"=20'

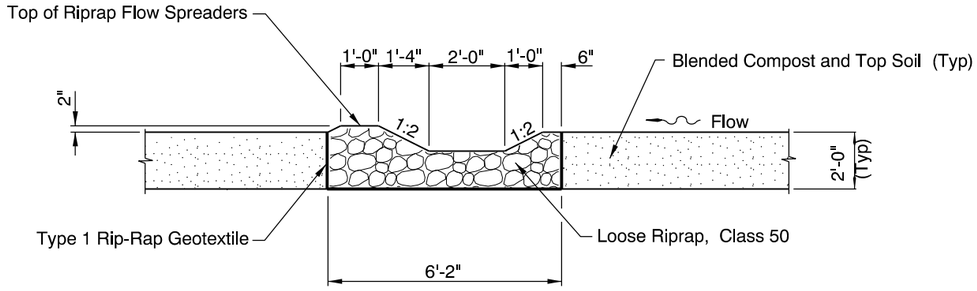
Sec. 34, T. 34 S., R. 7 E., W.M.



ELEVATION



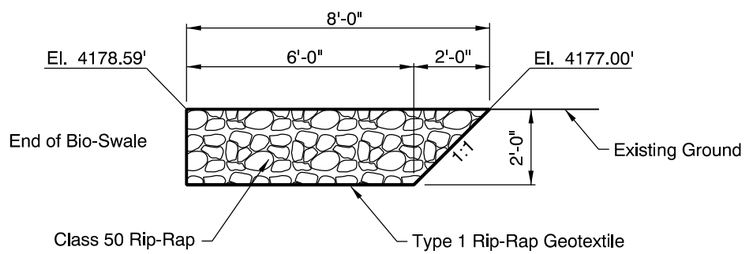
PLAN



SECTION B-B

FLOW SPREADER

N.T.S.



ELEVATION

RIP-RAP PAD

N.T.S.

Sht. 2 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Michael W. Ogden

Drafted By: Michael L. Graves

DFI D00558
MAINTENANCE DISTRICT 11 HWY 422S
WQ BIOFILTRATION SWALE
CHILOQUIN HIGHWAY MP 4.57 - MP 4.58
KLAMATH COUNTY

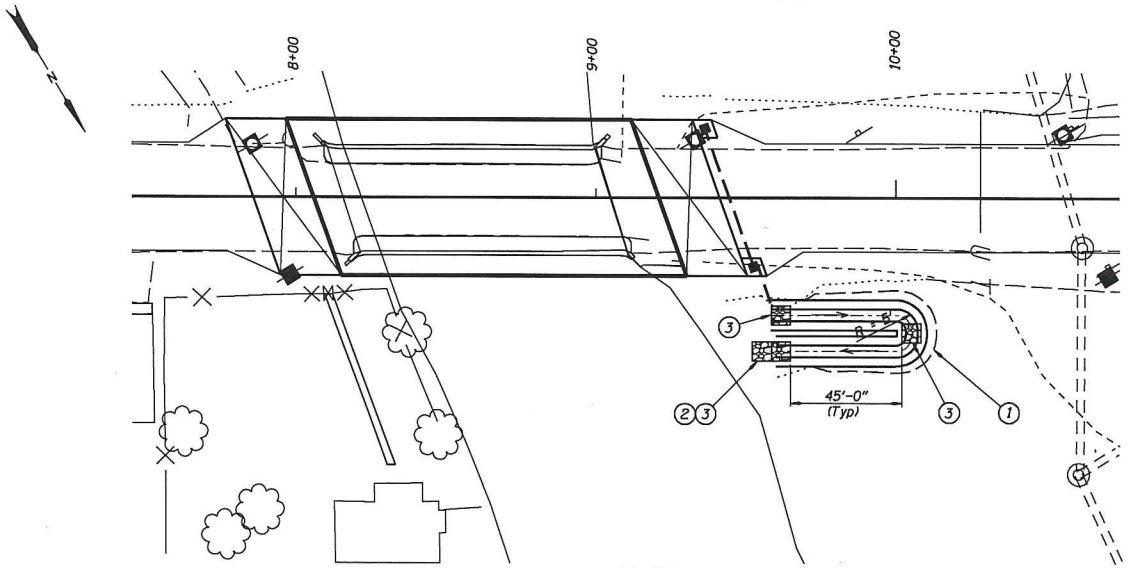
Z:\Klamath\14836_OR422_WilliamsonRiverBridge\DFI\DFI_D00558_02.dgn :: Default 3/4/2016 8:13:24 AM hwye78x

Rotation: 0° Scale: 1"=20'

APPENDIX B

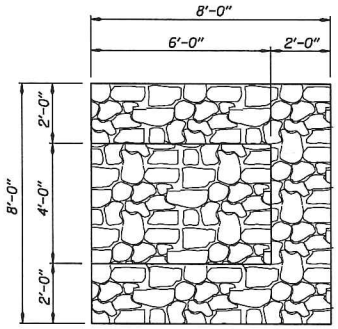
Sec. 34, T. 34 S., R. 7 E., W.M.

45V-057

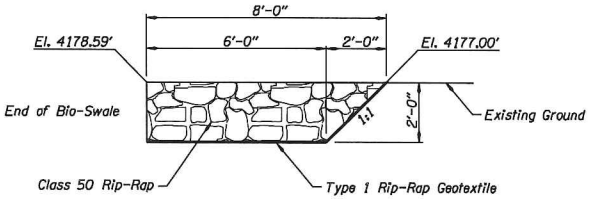


PLAN
1" = 40'-0"

1. Sta. 9+58.00 Rt. to Sta. 10+13.09 Rt. Construct Water Quality Swale
2. Sta. 9+59.71 Construct Rip-Rap Pad
3. Sta. 9+58.00 Rt. to Sta. 10+13.09 Rt. Construct Flow Spreaders



PLAN



ELEVATION

RIP-RAP PAD DETAIL
Not to Scale

REGISTERED PROFESSIONAL ENGINEER
56154
OREGON
SEPTEMBER 9, 2003
MICHAEL W. OGDEN
FOR REVIEW ONLY
RENEWAL DATE: DEC. 31, 2012

OREGON DEPARTMENT OF TRANSPORTATION

REGION 4 TECHNICAL CENTER

OR422S: WILLIAMSON RIVER BRIDGE SEC.
CHILOQUIN HIGHWAY SPUR
KLAMATH COUNTY

Reviewed By - Edward Fultyn
Designed By - Michael W. Ogden
Drafted By - Michael L.Graves

WATER QUALITY SWALE

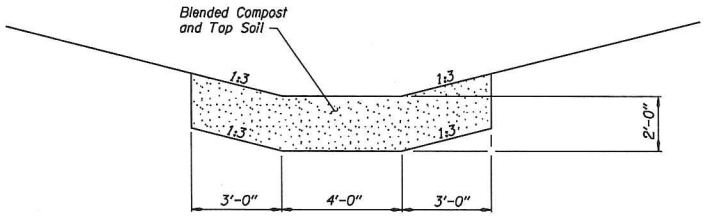
SHEET NO. GJ

Z:\Klamath\14836_OR422_WilliamsonRiverBridge\ContractPlans\14836_GJ01.dgn :: Default 3/9/2012 11:35:52 AM hwye78x

1:48 GJ01

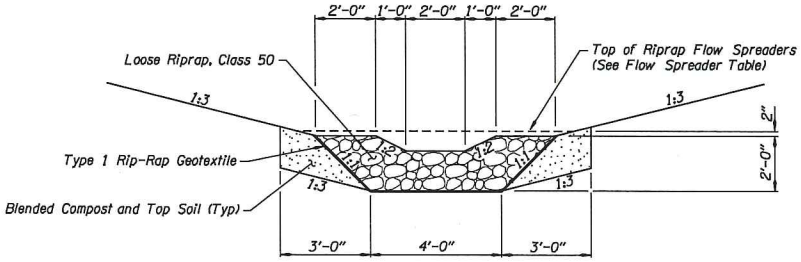
Sec. 34, T. 34 S., R. 7 E., W.M.

45V-057



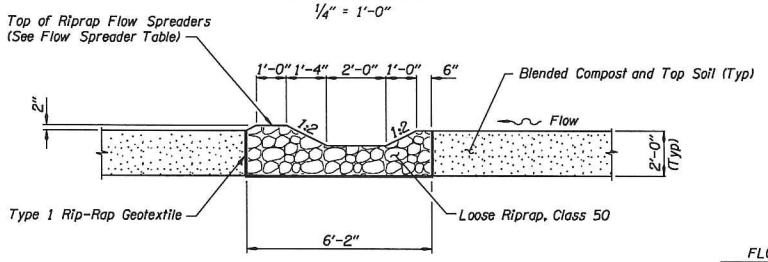
SECTION A-A

1/4" = 1'-0"



SECTION B-B

1/4" = 1'-0"

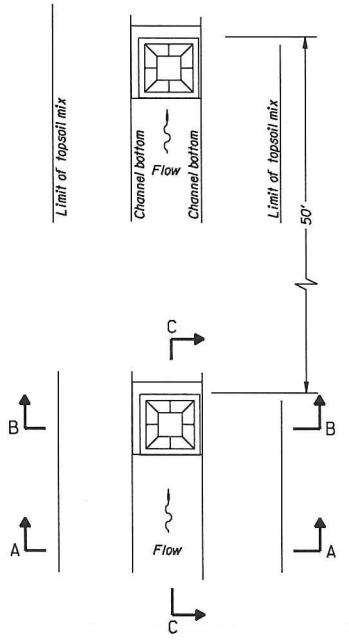


SECTION C-C

1/4" = 1'-0"

FLOW SPREADER TABLE

Station	Top of Riprap Elev.
9+58.00	4179.28'
10+13.09	4179.03'
9+59.71	4178.79'



PLAN

Water Quality Swale
with Flow Spreaders and Riprap Basins
(Total - 3)

OREGON DEPARTMENT OF TRANSPORTATION

REGION 4 TECHNICAL CENTER

OR422S: WILLIAMSON RIVER BRIDGE SEC.
CHILOQUIN HIGHWAY SPUR
KLAMATH COUNTY

Reviewed By - Edward Foltyn
Designed By - Michael W. Ogden
Drafted By - J.Rodriquez/M.Graves

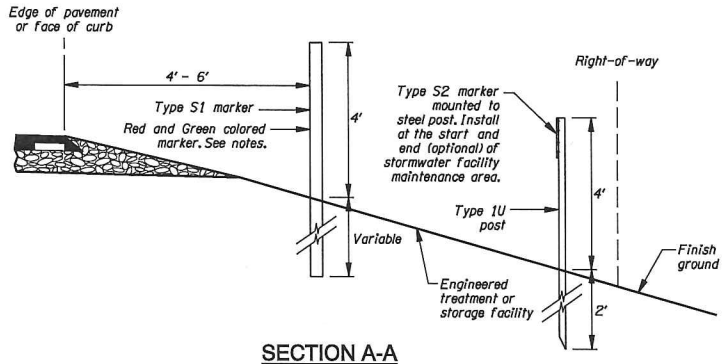
REGISTERED PROFESSIONAL ENGINEER
56158
OREGON
SEPTEMBER 9, 2003
MICHAEL W. OGDEN
FOR REVIEW ONLY
FOR REVIEW ONLY
RENEWAL DATE: DEC. 31, 2012

WATER QUALITY SWALE

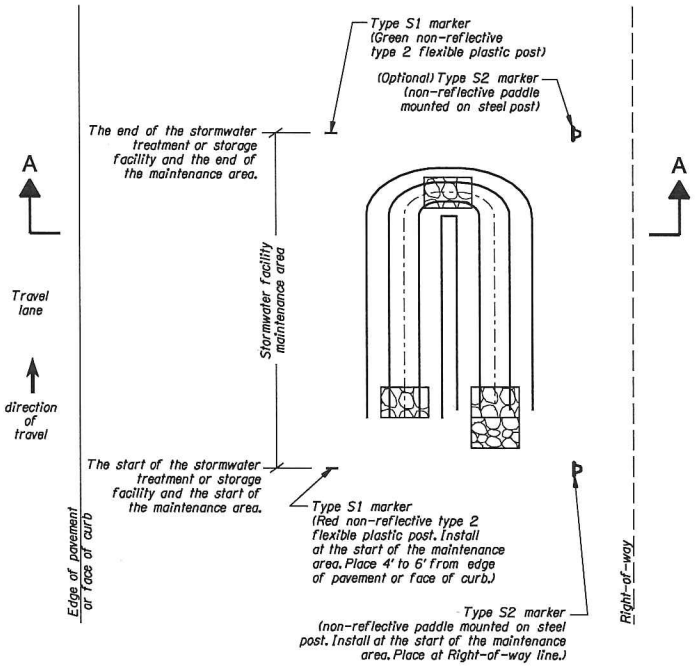
SHEET NO. GJ-2

Z:\Klamath\14836_OR422_WilliamsonRiverBridge\ContractPlans\14836_GJ02.dgn :: Default 3/9/2012 11:35:56 AM hwye78x

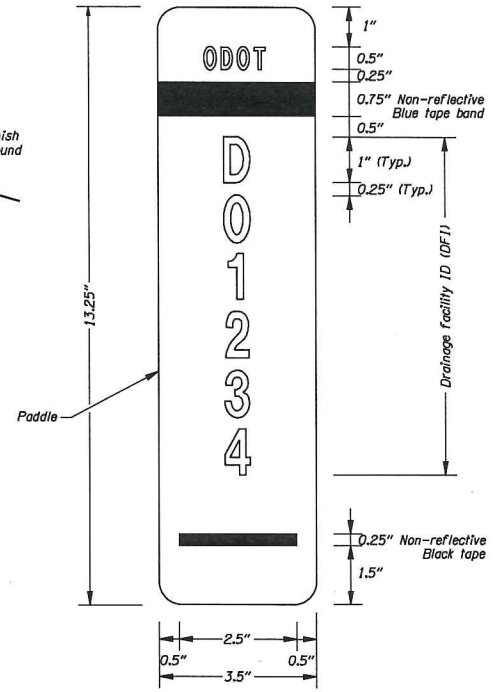
1:48 GJ02



SECTION A-A



TYPE S1 & S2 MARKERS INSTALLATION DETAIL



TYPE S2 MARKER

MARKER TABLE

FACILITY LOCATION		DFI #	TYPE S2 MARKER LOCATION		TYPE S1 MARKER	
STATION	MP		BEGIN	END	RED	GREEN
9+58	4.55	D00558	✓		✓	
10+13.09	4.54	D00558		✓		✓

✓ Check where appropriate
Red = Beginning of facility
Green = End of facility

Notes:

Stormwater Facility Field Marker Type S1:

1. See Standard Drawing TM570 for Type 2 flexible plastic post dimensions. Do not mount reflective sheeting to flexible plastic post.
2. A red Type S1 marker is used to mark the start of a stormwater facility maintenance area. A green Type S1 marker is used to mark the end of a stormwater facility maintenance area.
3. Place 4 to 6 feet from edge of pavement or face of curb.
4. See marker table for installation locations.

Stormwater Facility Field Marker Type S2:

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 TM 570 detail labeled "Steel Posts" for mounting a traffic target. Install paddle onto Type 1U steel post using the 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 Standard Drawing TM571 for Type 1U steel post dimensions

REGISTERED PROFESSIONAL ENGINEER 56154 OREGON OCTOBER 9, 2003 MICHAEL W. OGDEN
FOR REVIEW ONLY
RENEWAL DATE: DEC. 31, 2012

OREGON DEPARTMENT OF TRANSPORTATION

REGION 4 TECHNICAL CENTER

OR422S: WILLIAMSON RIVER BRIDGE SEC.
CHILOQUIN HIGHWAY SPUR
KLAMATH COUNTY

Reviewed By - Edward Foltyn
Designed By - Michael W. Ogden
Drafted By - Michael L. Graves

STORMWATER TREATMENT AND STORAGE FACILITY FIELD MARKERS

SHEET NO. GJ-3