OPERATION & MAINTENANCE MANUAL

DFI No. : D00532

Facility Type: Water Quality Structure

March 2018

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00532**
Facility Type:	Water Quality Structure
Construction Drawings:	(V-File Number) 45V-32
Location:	District: 1
	Highway No.: 9
	Mile Post: 118.21
	Description: This facility is located in the viewing pull out on the west side of the highway just south of the Schooner Creek Bridge – south of Lincoln City

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 – Region 2 Tech. Center, Bruce Carmichael Phone (503) 986-2713
Facility construction:	2012
Contractor:	Kerr Contractors Oregon, Inc.

4. Storm Drain System and Facility Overview

The water quality structure consist of three (3) concrete vaults with ecology mix over an undrain (perforated pipe). Stormwater enters the

structures and percolates through the ecology mix and is then collected in the under drains and discharged out of the structures via pipes.

- Facility Type – Water Quality Structure.
- Highway viewing pull out just south of Schooner Creek Bridge.
- Access via parking area.
- Contributing drainage basin – see appendix.
- Features include under drains, pipe cleanouts and curb openings.
- Discharge pipes carry treated stormwater out of structures and discharges off side of hill above the beach.

A. Maintenance equipment access:
Access via the viewing area parking lot.

B. Heavy equipment access into facility:

☒ Allowed (no limitations)
☐ Allowed (with limitations)
☐ Not allowed

C. Special Features:

☒ Ecology Mix
☐ Porous Pavers
☐ Liners
☒ Underdrains

5. Facility Haz Mat Spill Feature(s)

The facility cannot be used to store HazMat spills.

6. Auxiliary Outlet (High Flow Bypass)

Stormwater flows in excess of structure handling capacities will sheet flow over hillside onto beach / bay. Stormwater will flow as it did before installation of these structures.

The auxiliary outlet feature for this facility is:

☒ Designed into facility

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:

Mark as Required and always include Table 1:

- ☒ 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

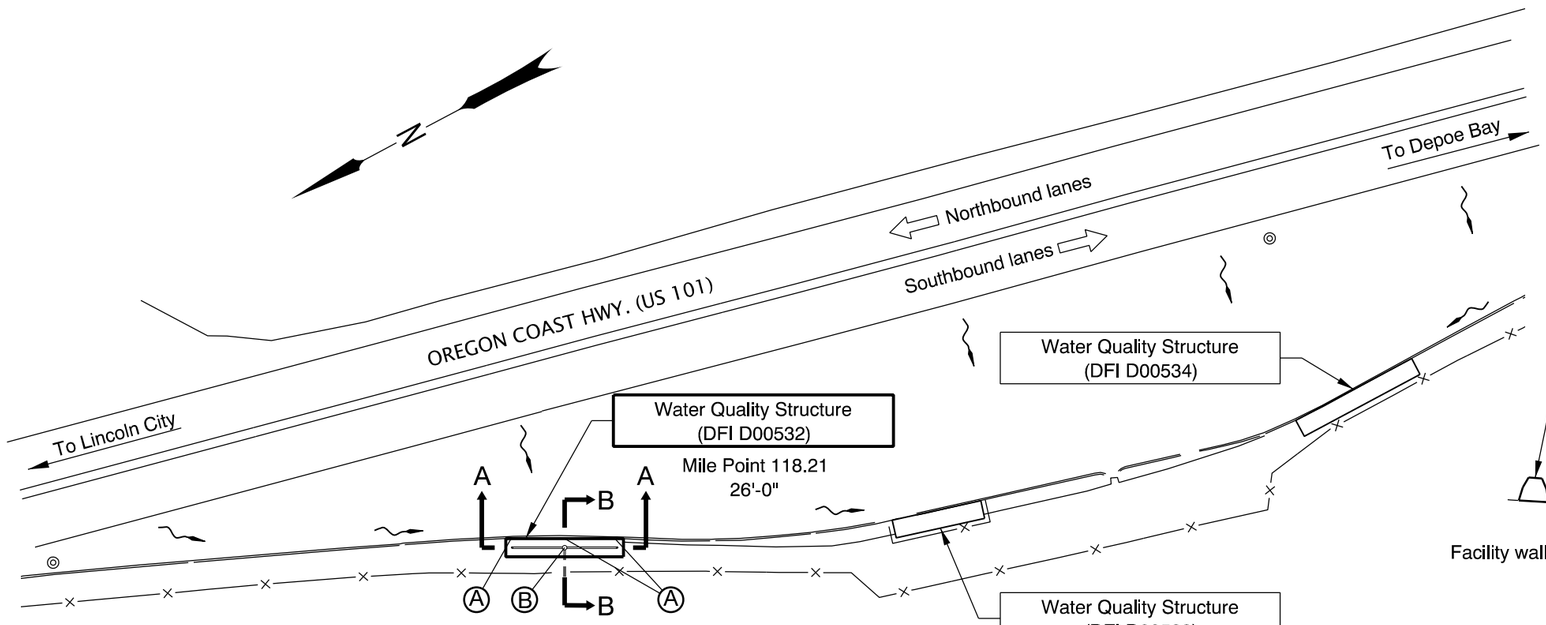
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 986-2647
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

Content:

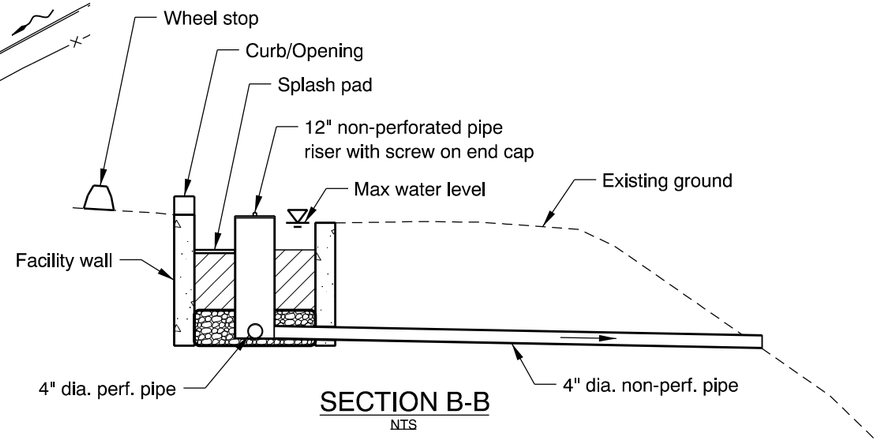
- **Operational Plan and Profile Drawing(s)**



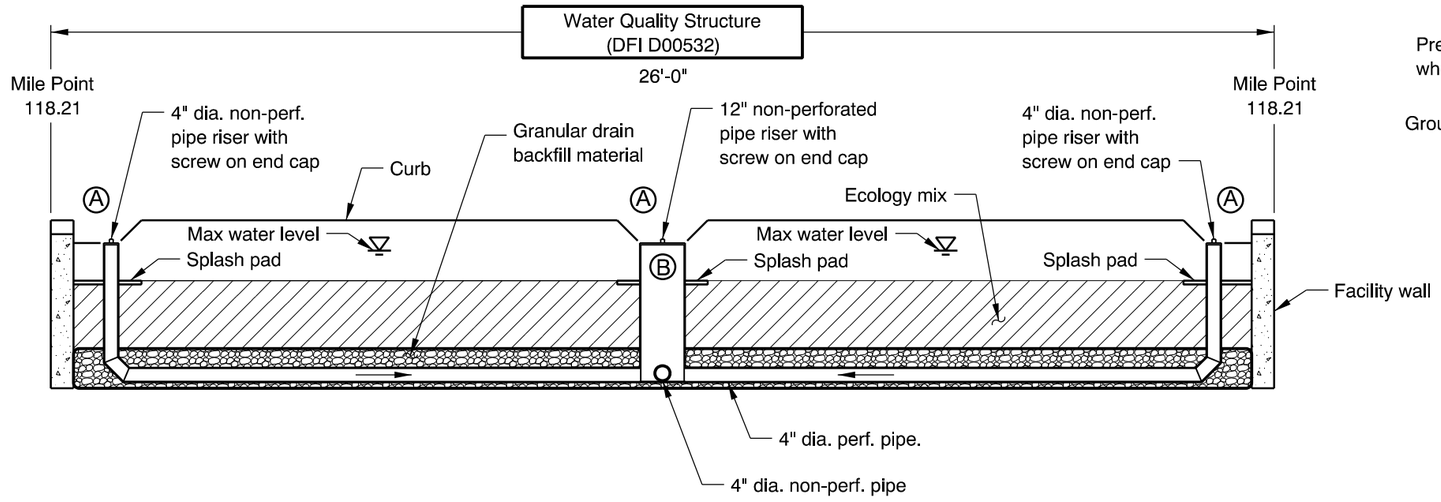
PLAN
NTS

LEGEND:

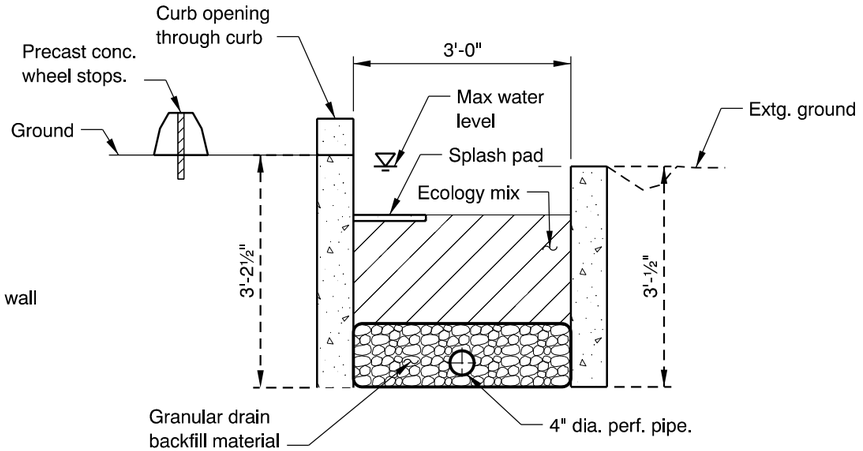
- Ⓐ Facility Inlet
- Ⓑ Facility Outlet
- Pavement / Facility Flow Path
- Conveyance Direction
- Ditch Line
- Storm Pipe (Facility)
- Biofiltration Facility Boundary
- Traffic Direction



SECTION B-B
NTS



SECTION A-A
NTS



TYPICAL SECTION
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Bruce Carmichael

Drafted By: Jeff Coon

DFI D00532
MAINTENANCE DISTRICT 4 HWY 101
WATER QUALITY STRUCTURE
OREON COAST HIGHWAY MP 118.21
LINCOLN COUNTY

DFI_00532.dgn :: Default 4/11/2018 4:16:35 PM Hwyr33e

Rotation: 0° Scale: 1"=100'

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. & Std. Drg. Nos.

ORIGINAL

REVISED AS CONSTRUCTED

Gene Wilborn

DATE 12/3/12

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

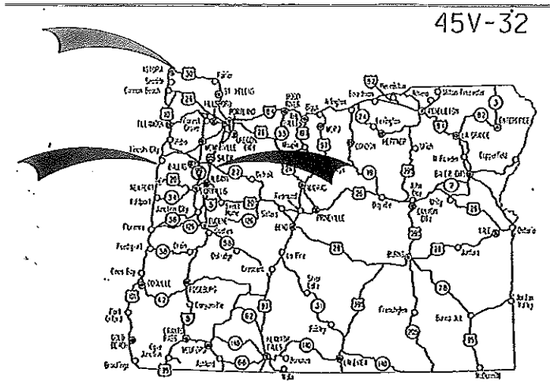
GRADING, DRAINAGE, STRUCTURES, PAVING, & ROADSIDE DEVELOPMENT

REGION 2 CULVERT IMPROVEMENTS SEC.

VARIOUS HIGHWAYS

CLATSOP, LINCOLN & MARION COUNTIES

APRIL 2012



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

STP-S000(692)
PROJECT SITE

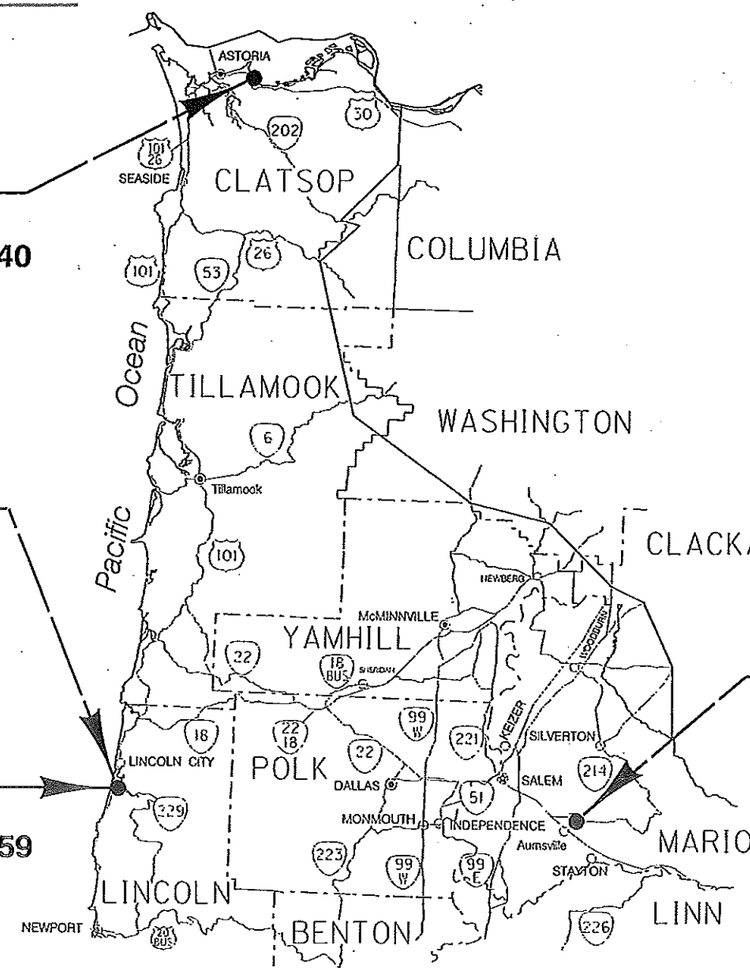
Lower Columbia River Hwy.
STA. "L"27+35 To STA. "L"33+40
(M.P. 93.97 To M.P. 93.85)

BIOFILTRATION FACILITY SITE

Oregon Coast Hwy.
STA. "B"1+14 To STA. "B"3+76
(M.P. 118.24 To M.P. 118.28)

STP-S000(692)
PROJECT SITE

Oregon Coast Hwy.
STA. "L"1140+00 To STA. "L"1154+59
(M.P. 119.10 To M.P. 118.82)



N

T. 8 N.; T. 7 S. & T. 8 S.
R. 9 W; R 11 W. & R. 1 W., W.M.

● Project Site

STP-S000(692)
PROJECT SITE

Silver Creek Falls Hwy.
STA. "L"8+83.78 To STA. "L"17+10.10
(M.P. 13.83 To M.P. 13.98)

OREGON TRANSPORTATION COMMISSION

Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tommy 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.

By: Carol A. Cartwright 2/17/12
Signature & date

Carol A. Cartwright - R2 Tech Center Manager
Print name and title

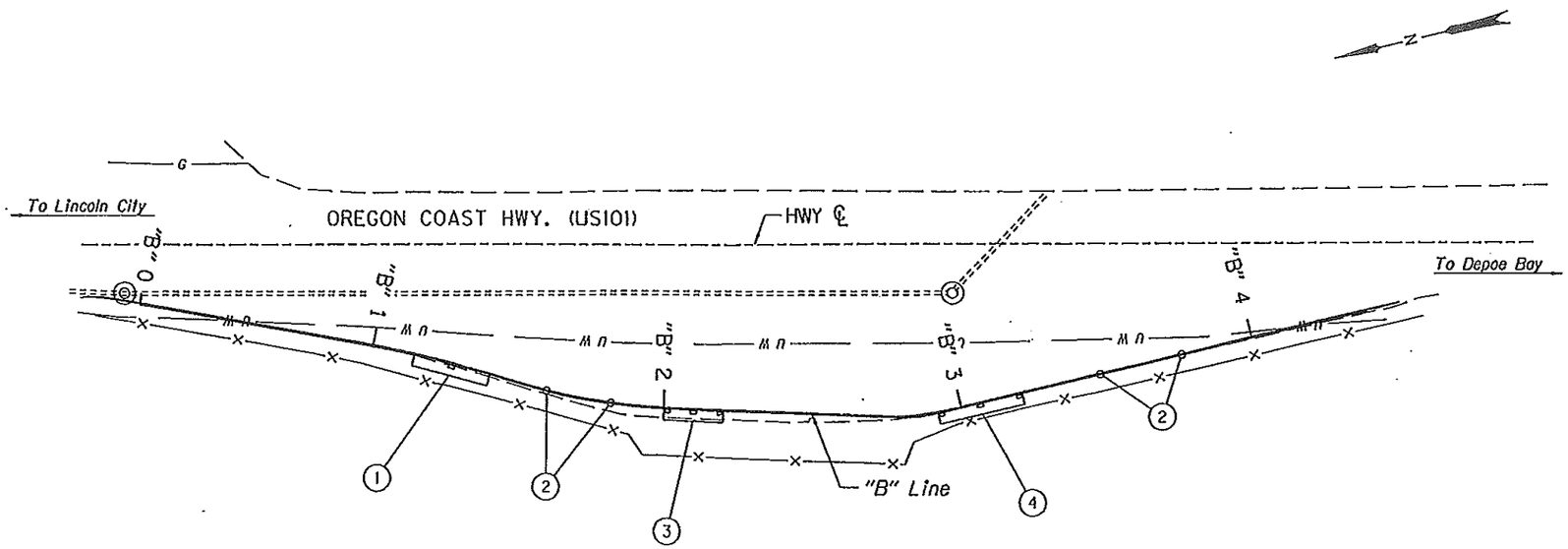
Concurrence by ODOT Chief Engineer

REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S000(692)	1

PE00-1531/000

Sec. 8, T. 8 S., R.11 W. , W.M
OREGON COAST HIGHWAY
M.P. 118.24 to 118.28



PLAN

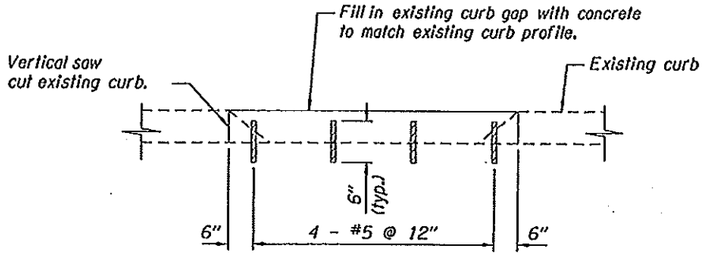
(1) Sta. "B"1+14.33 to Sta. "B"1+40.33
Biofiltration Facility No. 1
(For details see sht. GJ-2)

(2) Sta. "B"1+60
"B"1+82 1162
"B"3+48
"B"3+76
Close extg. curb opening.

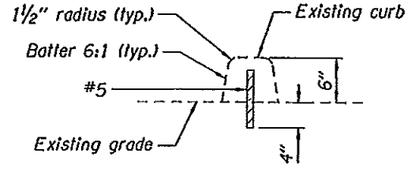
1480 2460
(3) Sta. "B"2+00 to Sta. "B"2+20
Biofiltration Facility No. 2
(For details see sht. GJ-3)

(4) Sta. "B"2+92 to Sta. "B"3+21
Biofiltration Facility No. 3
(For details see sht. GJ-4)

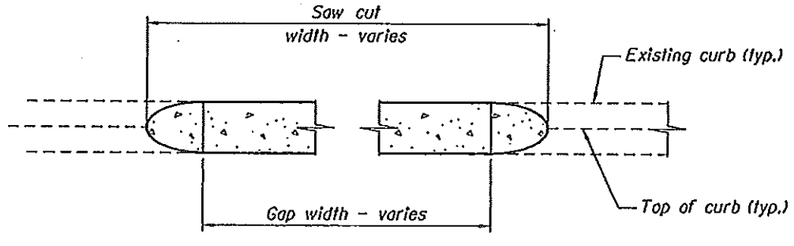
REVISED AS CONSTRUCTED
Gene Wilborn
DATE 12/3/12



TYPICAL EXISTING CURB FILL



TYPICAL EXISTING CURB SECTION



DRAINAGE CURB CUTTING

Note:
Cut existing curb leaving a vertical face, install ½" rebar into existing surface (minimum of 3 per opening). Place concrete matching existing curb profile.

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL
EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

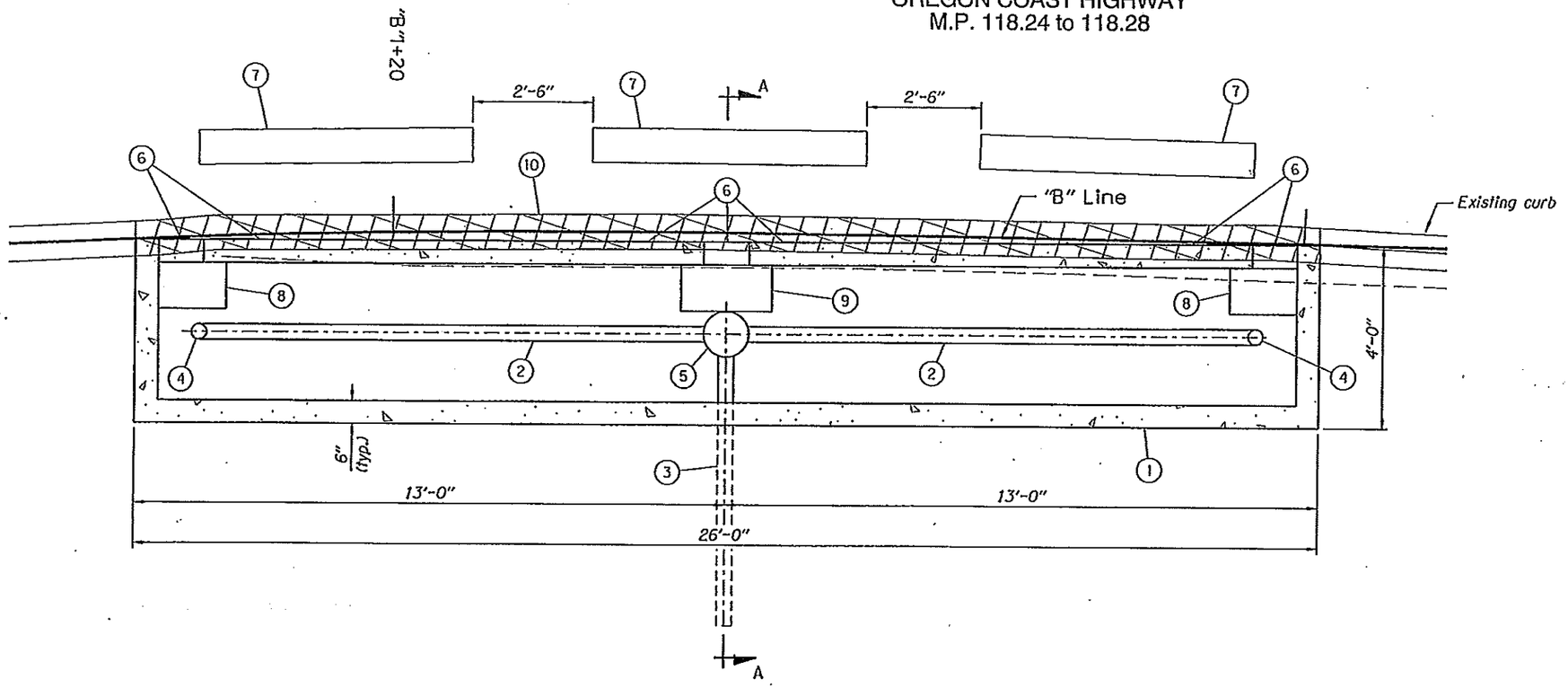
REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

Reviewed By - Chris Carmon, P.E.
Designed By - Bruce Carmichael
Drafted By - Michael Skelton

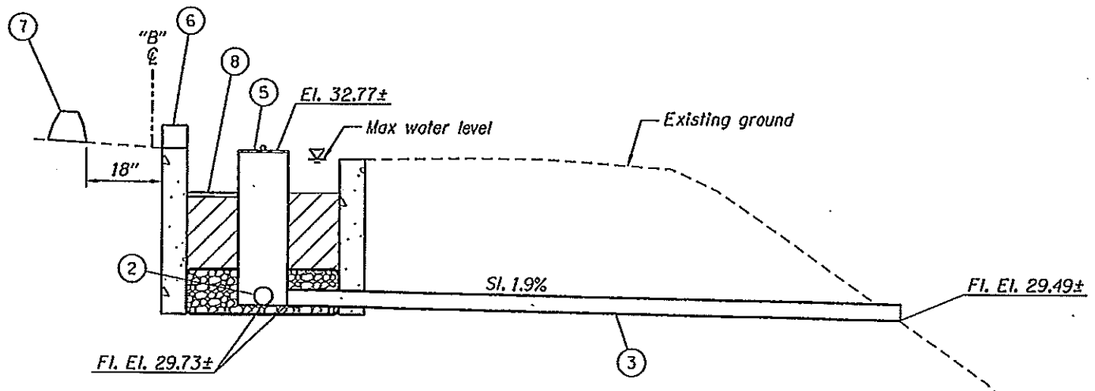
STORMWATER PLAN

SHEET NO. GJ

Sec. 8, T. 8 S., R.11 W. , W.M
OREGON COAST HIGHWAY
M.P. 118.24 to 118.28



PLAN



SECTION A-A

(1) Sta. "B"1+14.33 to Sta. "B"1+40.33
Construct Biofiltration Facility No. 1
Drainage Geotextile type 1 - 22.1 sq.yd.
Ecology Mix - 4.2 cu.yd.
Concrete - 3.5 cu.yd.
General excavation - 22.6 cu.yd.
Wire reinforcement - 21.0 sq.yd.
Granular drain backfill material - 2.5 cu.yd.
(For details, see sht. GJ-5)

(2) Inst. 4" perforated PVC pipe -23'
5' depth

(3) Inst. 4" non-perforated PVC pipe - 13'
5' depth

(4) Inst. cleanout, 4" non-perforated PVC pipe riser with screw on caps - 8'
5' depth
(For details, see sht. GJ-5)

(5) Inst. 12" non-perforated PVC pipe riser with screw on end cap - 3.5'
5' depth.
(For details, see sht. GJ-5)

(6) Curb opening and curb.
(For details, see sht. GJ-5)

(7) Inst. 6'-0" wheel stop - 3
(For details, see sht. GJ-5)

(8) Inst. plastic splash pad 1'-0" x 1'-6" x 1"
(For details, see sht. GJ-5)

(9) Inst. plastic splash pad 1'-0" x 2'-0" x 1"
(For details, see sht. GJ-5)

(10) Sta. "B"1+14.33 to Sta. "B"1+40.36
Remove existing curb - 26'
Shown thus - XXX
(For details, see sht. GJ-5)

NOT REVISED AS CONSTRUCTED

Gene Wilborn

DATE 12/3/12

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL

EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

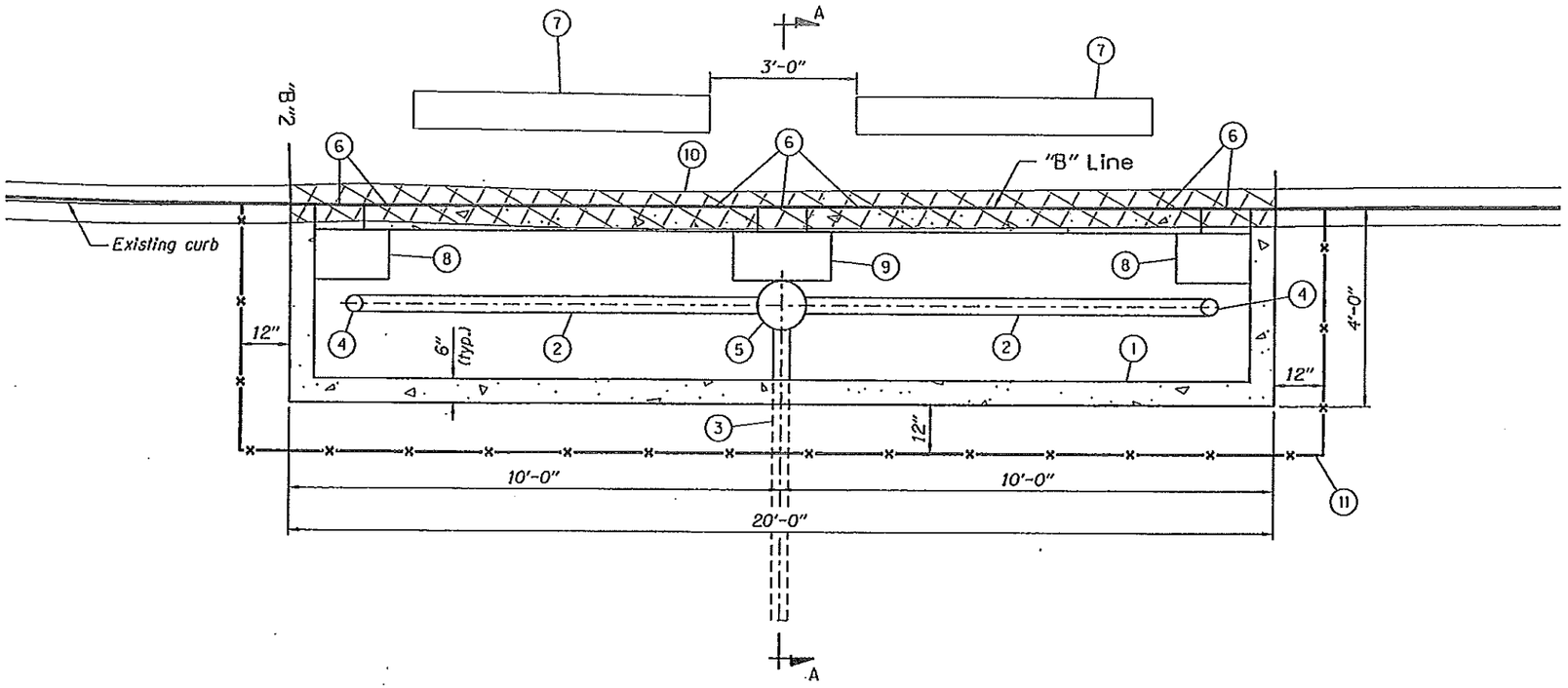
REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

Reviewed By - Chris Carman, P.E.
Designed By - Bruce Carmichael
Drafted By - Michael Skelton

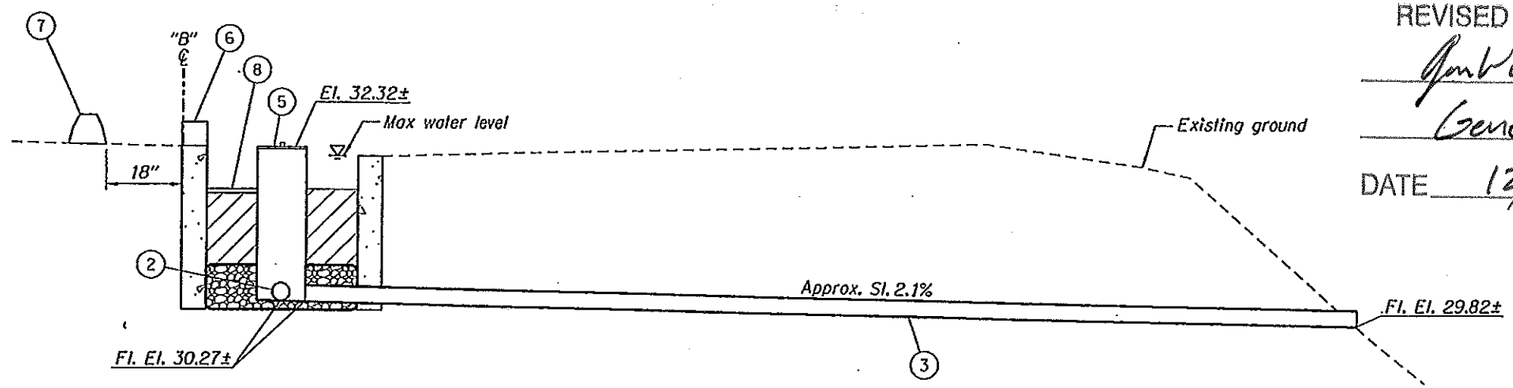
STORMWATER
BIOFILTRATION FACILITY NO. 1

SHEET NO. GJ-2

Sec. 8, T. 8 S., R.11 W. , W.M
OREGON COAST HIGHWAY
M.P. 118.24 to 118.28



PLAN



SECTION A-A

1180 2100

(1) Sta. "B"2+00 to Sta. "B"2+20
Construct Biofiltration Facility No. 2
Drainage Geotextile type 1 - 17.0 sq.yd.
Ecology Mix - 3.2 cu.yd.
General excavation - 17.0 cu.yd.
Concrete - 2.5 cu.yd.
Wire reinforcement - 15.1 sq.yd.
Granular drain backfill material - 1.9 cu.yd.
(For details, see dwg. GJ-5)

(2) Inst. 4" perforated PVC pipe - 17'
5' depth

(3) Inst. 4" non-perforated PVC pipe - 21.5'
5' depth

(4) Inst. cleanout, 4" non-perforated PVC pipe riser with screw on caps - 8'
5' depth
(For details, see sht. GJ-5)

(5) Inst. 12" non-perforated PVC pipe riser with screw on end cap - 3.5'
5' depth
(For details, see sht. GJ-5)

(6) Curb opening and curb.
(For details, see sht. GJ-5)

(7) Inst. 6'-0" wheel stop - 2
(For details, see sht. GJ-5)

(8) Inst. plastic splash pad 1'-0" x 1'-6" x 1"
(For details, see sht. GJ-5)

(9) Inst. plastic splash pad 1'-0" x 2'-0" x 1"
(For details, see sht. GJ-5)

(10) Sta. "B"2+00.00 to Sta. "B"2+20.00
Remove existing curb - 20'
Shown thus - [XXXX]
(For details, see sht. GJ-5)

(11) Install fence - 32'
(match nearby existing fence)

REVISED AS CONSTRUCTED
Jon Witt
Gene Wilborn
DATE 12/3/12

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL
EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

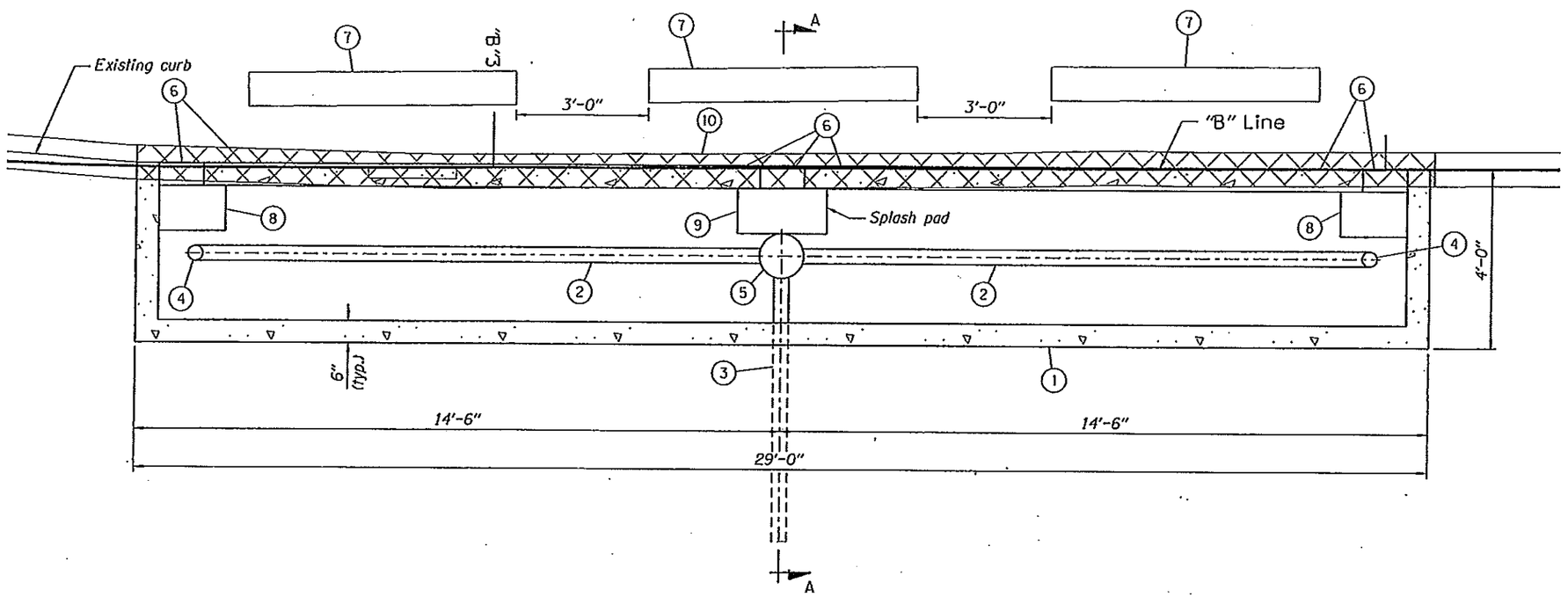
REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

Reviewed By - Chris Carman, P.E.
Designed By - Bruce Carmichael
Drafted By - Michael Skelton

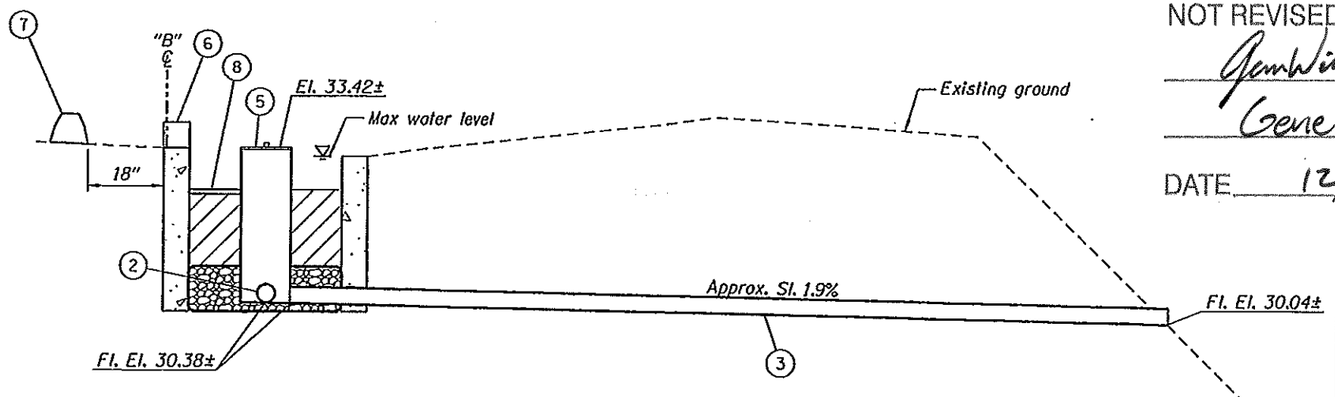
STORMWATER
BIOFILTRATION FACILITY NO. 2

SHEET NO. GJ-3

Sec. 8, T. 8 S., R.11 W. , W.M
OREGON COAST HIGHWAY
M.P. 118.24 to 118.28



PLAN



SECTION A-A

(1) Sta. "B"2+92 to Sta. "B"3+21
Construct Biofiltration Facility No. 3
Drainage Geotextile type 1 - 24.7 sq. yd.
Ecology Mix - 4.7 cu. yd.
General excavation - 25 cu. yd.
Concrete - 3.7 cu. yd.
Wire Reinforcement - 22.5 sq. yd.
Granular drain backfill material - 2.7 cu. yd.
(For details, see dwg. GJ-5)

(2) Inst. 4" perforated PVC pipe - 25'
5' depth

(3) Inst. 4" non-perforated PVC pipe - 17.5'
5' depth

(4) Inst. cleanout, 4" non-perforated PVC pipe riser with screw on caps - 8'
5' depth
(For details, see sht. GJ-5)

(5) Inst. 12" non-perforated PVC pipe riser with screw on end cap - 3.5'
5' depth
(For details, see sht. GJ-5)

(6) Curb opening and curb.
(For details, see sht. GJ-5)

(7) Inst. 6'-0" wheel stop - 3
(For details, see sht. GJ-5)

(8) Inst. plastic splash pad 1'-0" x 1'-6" x 1"
(For details, see sht. GJ-5)

(9) Inst. plastic splash pad 1'-0" x 2'-0" x 1"
(For details, see sht. GJ-5)

(10) Sta. "B"2+92.00 to Sta. "B"3+21.00
Remove existing curb - 29'
Shown thus - XXX
(for details, see sht. GJ-5

NOT REVISED AS CONSTRUCTED
Gene Wilborn
DATE 12/3/12

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL
EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

Reviewed By - Chris Cormon, P.E.
Designed By - Bruce Carmichael
Drafted By - Michael Skelton

STORMWATER BIOFILTRATION FACILITY NO. 3

SHEET NO. GJ-4

Sec. 8, T. 8 S., R.11 W. , W.M
OREGON COAST HIGHWAY
M.P. 118.24 to 118.28

NOT REVISED AS CONSTRUCTED

Gene Wilborn

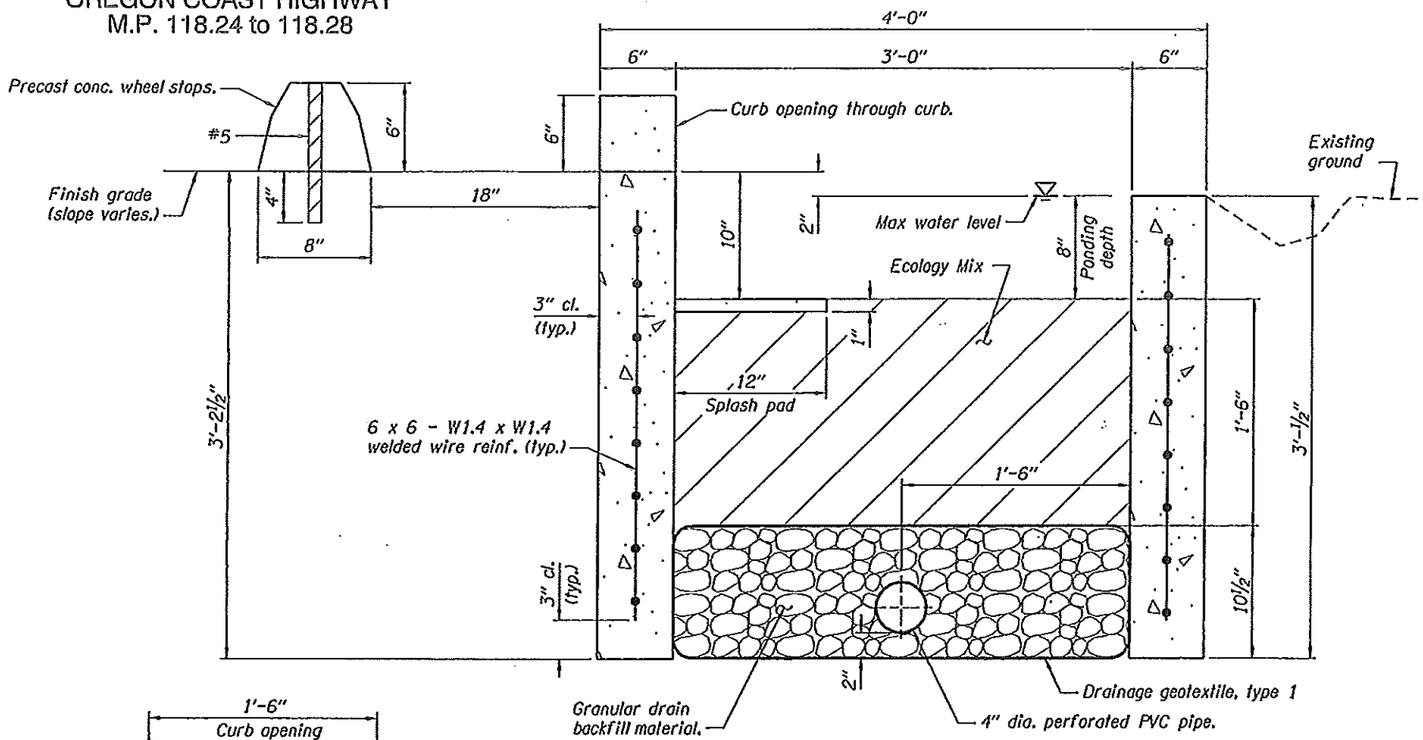
DATE 12/3/12

*FACILITY MARKER TABLE

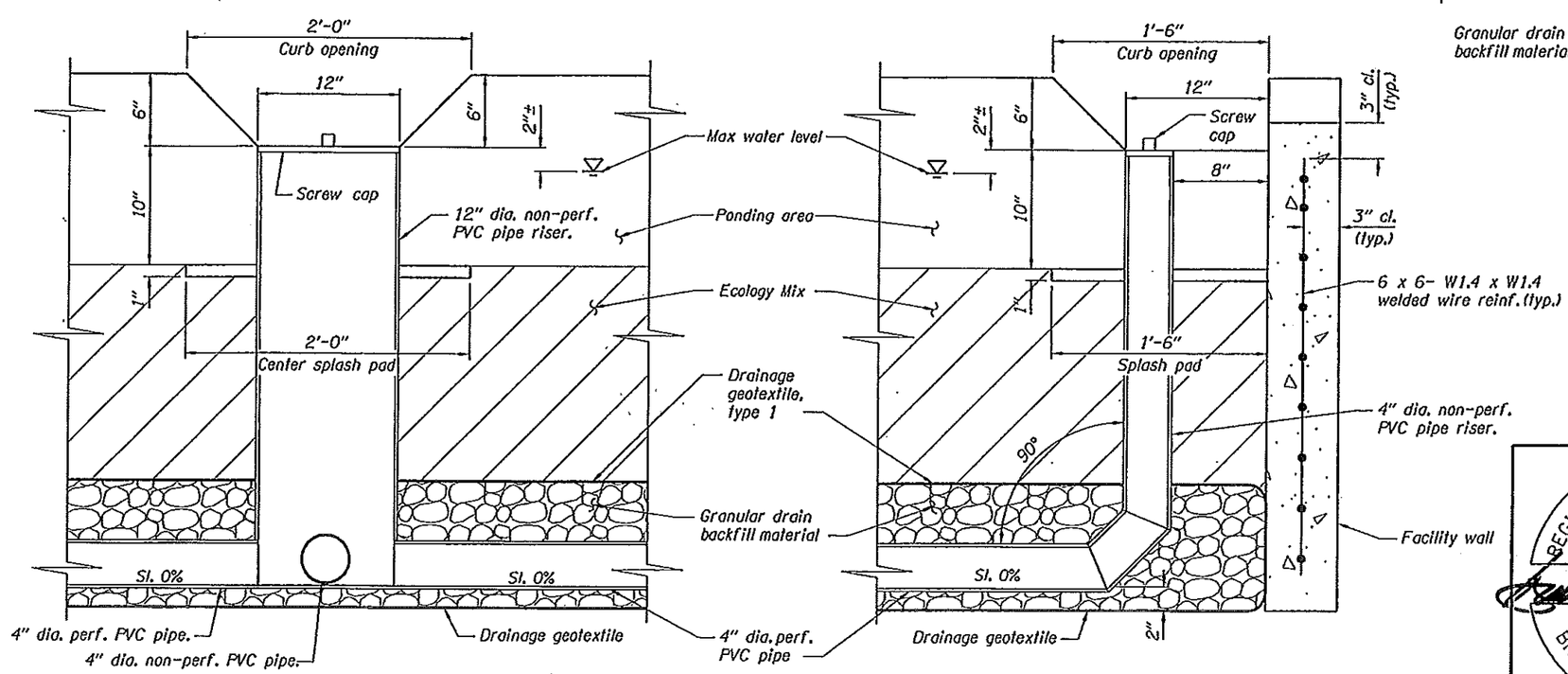
FACILITY LOCATION		DFI NO.	TYPE S2 MARKER LOCATION		TYPE S1 MARKER	
STATION	HWY MP, OFFSET		BEGIN	END	RED	GREEN
"B"1+14.33	118.238, Rt.	D00532	✓			
"B"2+00.00	118.255, Rt.	D00533	✓			
"B"2+92.00	118.272, Rt.	D00534	✓			

* For details, see sht. GJ7

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



TYPICAL SECTION



TYPICAL RISER AND CLEAN OUT DETAILS

Notes:
1. Drainage geotextile to completely enclose granular drain backfill material layer.
2. Fasten wheel stops in place using #5 rebar driven 4" into pavement.

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL
EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

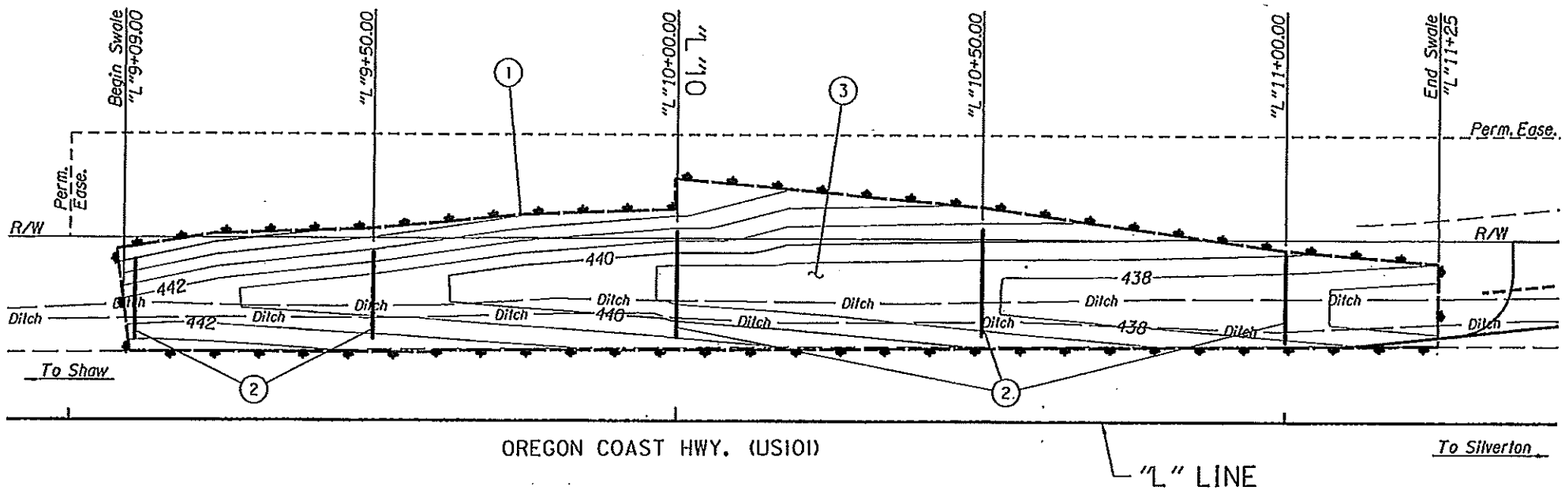
REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

Reviewed By - Chris Carman, P.E.
Designed By - Bruce Carmichael
Drafted By - Michael Skelton

STORMWATER DETAILS

SHEET NO. GJ-5

Sec. 17, T. 8 S., R. 1 W., W.M.
SILVER CREEK FALLS HIGHWAY



WATER QUALITY BIO-SWALE PLAN

*FACILITY MARKER TABLE

FACILITY LOCATION		DFI #	TYPE S2 MARKER LOCATION		TYPE S1 MARKER	
STATION	MP		BEGIN	END	RED	GREEN
"L"9+09 Lt.	13.85	D00276	✓		✓	
"L"11+25 Lt.	13.89	D00276		✓		✓

* For details, see sht. GJ-7

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

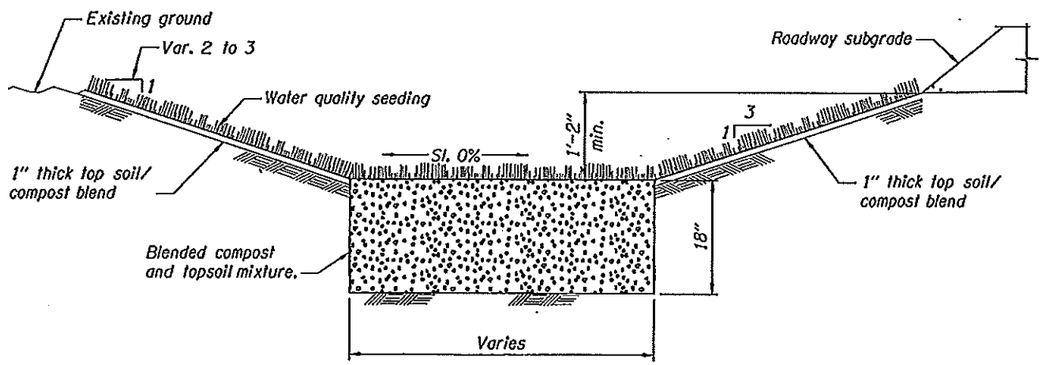
N

(1) Sta. "L"9+09 Lt. to sta. "L"11+25 Lt. Const. Water Quality Bio-Swale to contours shown.

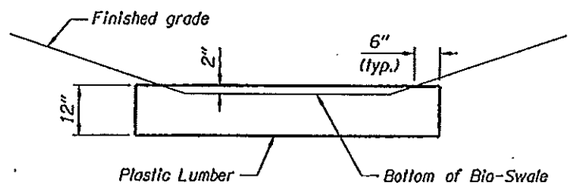
(2) Install Flow Spreaders Plastic Lumber - 30.0'

(3) Install blended compost and topsoil mixture - 55 cu.ft.

Note:
Contact the Engineer if basalt bedrock is encountered during excavation.



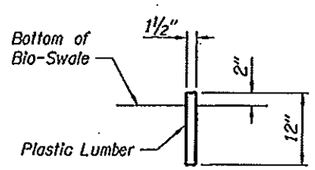
WATER QUALITY BIO-SWALE TYPICAL SECTION



FLOW SPREADER ELEVATION

BIO-SWALE TABLE

Station "L" (Left)	Channel Bottom Elev. (ft.)	Channel Bottom Width (ft.)
9+09	441.57	2.4
9+25	441.08	3.0
9+50	440.42	4.0
9+75	439.58	5.0
10+00	438.91	6.0
10+25	438.54	6.0
10+50	438.05	6.0
10+75	437.64	6.0
11+00	437.18	6.0
11+25	436.56	2.0



FLOW SPREADER SECTION

NOT REVISED AS CONSTRUCTED
Gene Wilborn
DATE 12/3/12

REGISTERED PROFESSIONAL ENGINEER
65305
OREGON
JANUARY 23, 2001
BRUCE A. CARMICHAEL
EXPIRES: 12/31/2013

OREGON DEPARTMENT OF TRANSPORTATION

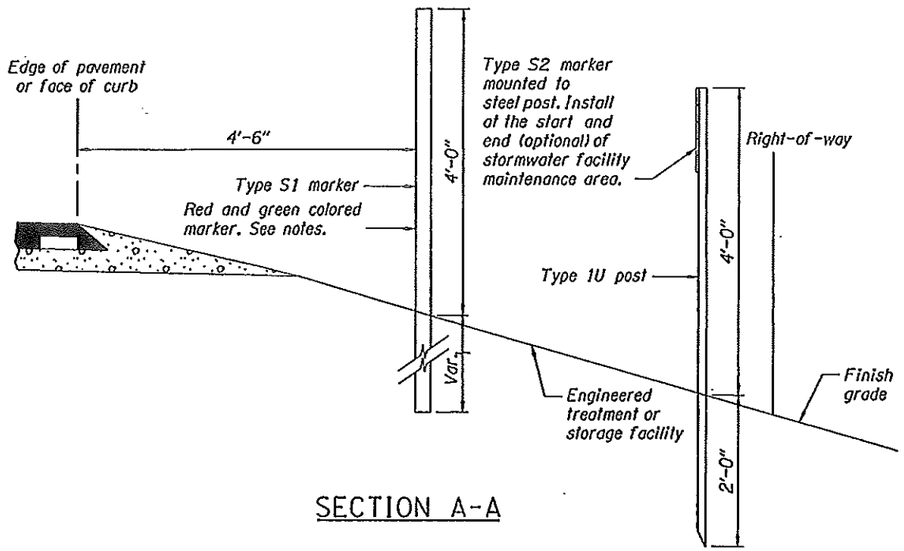
REGION 2 TECH CENTER

REGION 2 CULVERT IMPROVEMENTS SEC.
VARIOUS HIGHWAYS
CLATSOP, LINCOLN & MARION COUNTIES

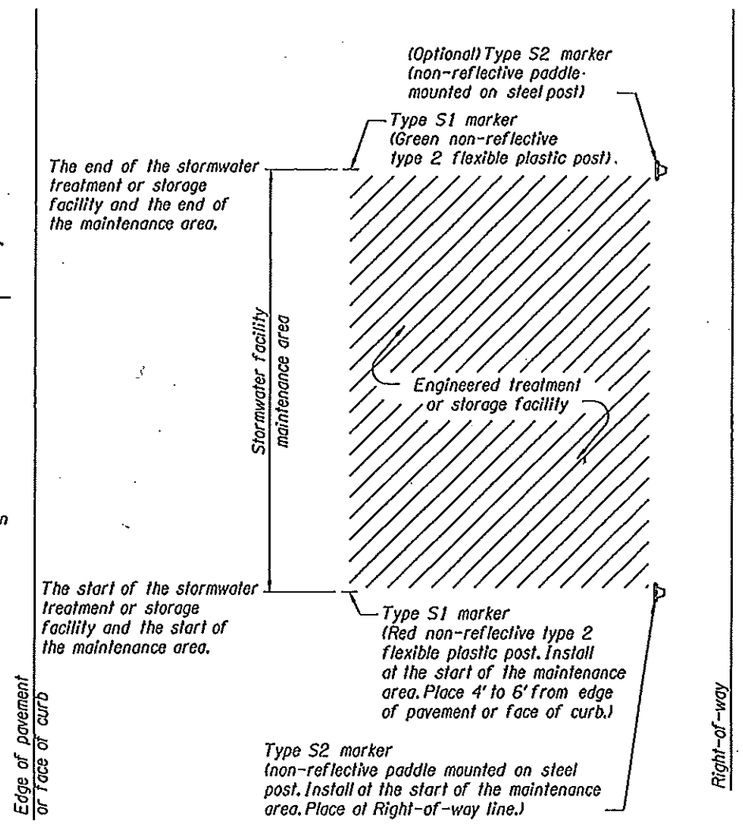
Reviewed By - Chris Cormon, P.E.
Designed By - Bruce Cormichael
Drafted By - Michael Skelton

STORMWATER PLAN AND ELEVATION

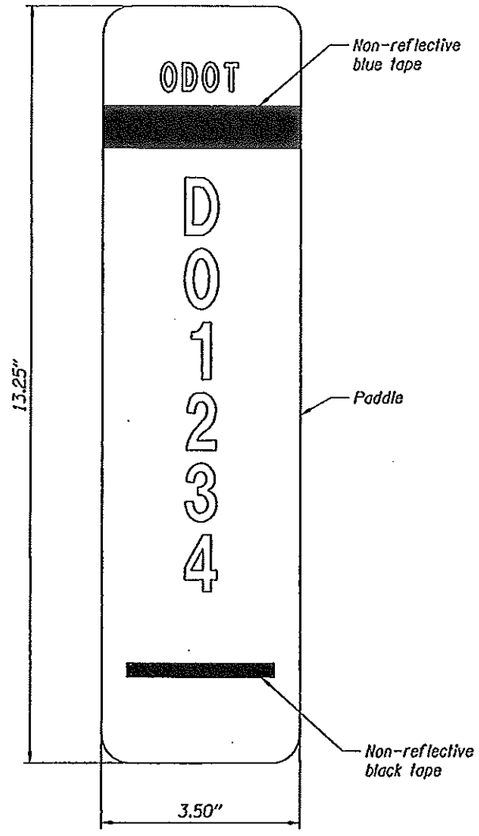
SHEET NO. GJ-6



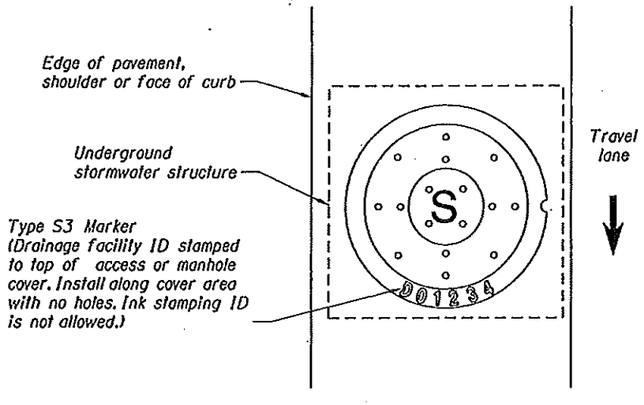
SECTION A-A



TYPE S1 & S2 MARKERS INSTALLATION DETAIL



TYPE S2 MARKER



TYPE S3 MARKER INSTALLATION DETAIL

NOT REVISED AS CONSTRUCTED
Gene Wilborn
DATE 12/3/12

NOTES:
Stormwater Facility Field Marker Type S1:
1. See dwg. 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 dwg. 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 dwg. TM571 for Type 1U steel post dimensions

Stormwater Facility Field Marker Type S3:
1. The top of access or manhole cover shall be stamped with the drainage facility ID. Ink stamping ID is not allowed.

REGISTERED PROFESSIONAL ENGINEER
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OREGON
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STORMWATER FACILIY MARKERS

SHEET NO. GJ-7