OPERATION & MAINTENANCE MANUAL

DFI No. : D00186
Facility Type: Water Quality Vault

JUNE, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00186**
Facility Type:	Water Quality Vault
Construction Drawings:	(V-File Number) 26V-092
Location:	District: 1 (Old 2A)
	Highway No.: 092
	Mile Post: 27.57 (beg./end)
	Description: This facility is located along the east side Hwy. 92 just north of McNulty Creek, south of Firlok Park Blvd., and adjacent to the northbound travel lanes and railroad tracks. Unobstructed access can be obtained from the right shoulder of Hwy. 92 just north of McNulty Creek.

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: Consultant Designer - W&H Pacific, William Evans, P.E., (503) 362-4675

Facility construction: 1996
Contractor: N/A

4. Storm Drain System and Facility Overview

This water quality vault is an underground media filter facility designed to treat stormwater runoff. The system is an ODOT internally designed facility, providing treatment using filtration by removing target pollutants from the water via the use of a compost filter bed, wrapped in filter fabric, overtop a series of eight perforated drain pipes inside the vault. The intent of the filter media is to remove solids, dissolved metals, oil and total nutrients from the water by trapping particulate matter above and within the porous composition of the compost filter media bed. See the ODOT project plan sheets, Appendix B, for further information.

This facility is an open-unit compost stormwater filter situated the middle of a ditch alignment where ditch flows enter the vault through an open-ended rectangular inlet. The vault is an on-line facility designed to treat low and high flows, providing both treatment and high flow conveyance in a single facility. The facility is covered with two large steel plates and is essentially a large compost filter bed wrapped in filter fabric; overtop a series of eight perforated drain pipes, with a low flow bypass pipe running alongside. The facility is located along the east side Columbia River Highway (Hwy092) just north of McNulty Creek, south of Firlok Park Blvd., and adjacent to the northbound travel lanes and railroad tracks. Unobstructed access can be obtained from the right shoulder of Hwy. 92 just north of McNulty Creek.

Stormwater is conveyed from the north toward the facility via the ditch and also from a 12-inch pipe outfall from the west as part of a localized storm piping system running alongside Hwy. 92; see the Operational Plan, Appendix A. Water quality treatment occurs within the vault before the stormwater outfalls to McNulty Creek. The Operational Plan shows the typical flow path inside the vault – how treated water enters the vault at Point A, how low flows are conveyed through a 4-inch PVC pipe around the compost bed and how the vault is utilized as the water level rises in the ditch or a high flow event occurs. Increasing water levels in the vault's inlet bay are conveyed through a retrofitted set of three riser pipes/inlet hood before overtopping a scum baffle and a set of weirs and energy dissipators placed inline with the compost filter media bed; see the Operational Plan. Periodic maintenance of the compost bed and vault is required to maximize water quality treatment efficiencies.

A. Maintenance equipment access:
   The water quality vaults are accessible via the right shoulder of Hwy. 92 just north of McNulty Creek.

B. Heavy equipment access into facility:

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

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☒ Liners (filter fabric encases the compost filter media)
☒ Underdrains (perforated drain pipe located beneath the filter media)

Photo 1: Looking south at the facility inlet and opening to the vault's inlet bay.

Photo 2: View of the facility inlet and vault opening, riser pipes and inlet bay.

Photo 3: Closer view of the facility inlet, vault's riser pipes/inlet hood and inlet bay.

Photo 4: View of the riser pipes and inlet hood as they would convey water to the filter bed.

Photo 5: View of the riser pipes/inlet hood with debris seen in inlet bay.

5. Facility Haz Mat Spill Feature(s)

The water quality vault can be used to store a volume of liquid by blocking the 18-inch diameter outlet pipe located at the outlet of the vault to

McNulty Creek. This outlet pipe is noted as point B in Operational Plan; Appendix A.

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
Water quality vaults can be designed for use as either on-line or off-line facilities, though typically planned as on-line systems. As mentioned, this particular facility is an on-line facility designed to treat low and high flows alike, providing water quality treatment and high flow conveyance in a single facility. Lower flows exit through the 4-inch PVC by-pass pipe and conveyed around the vault, while higher flows are passed through the facility and passed overtop the outlet stem wall and scum baffle at the vault's outlet; see Section A-A of the Operational Plan, Appendix A.

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:

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

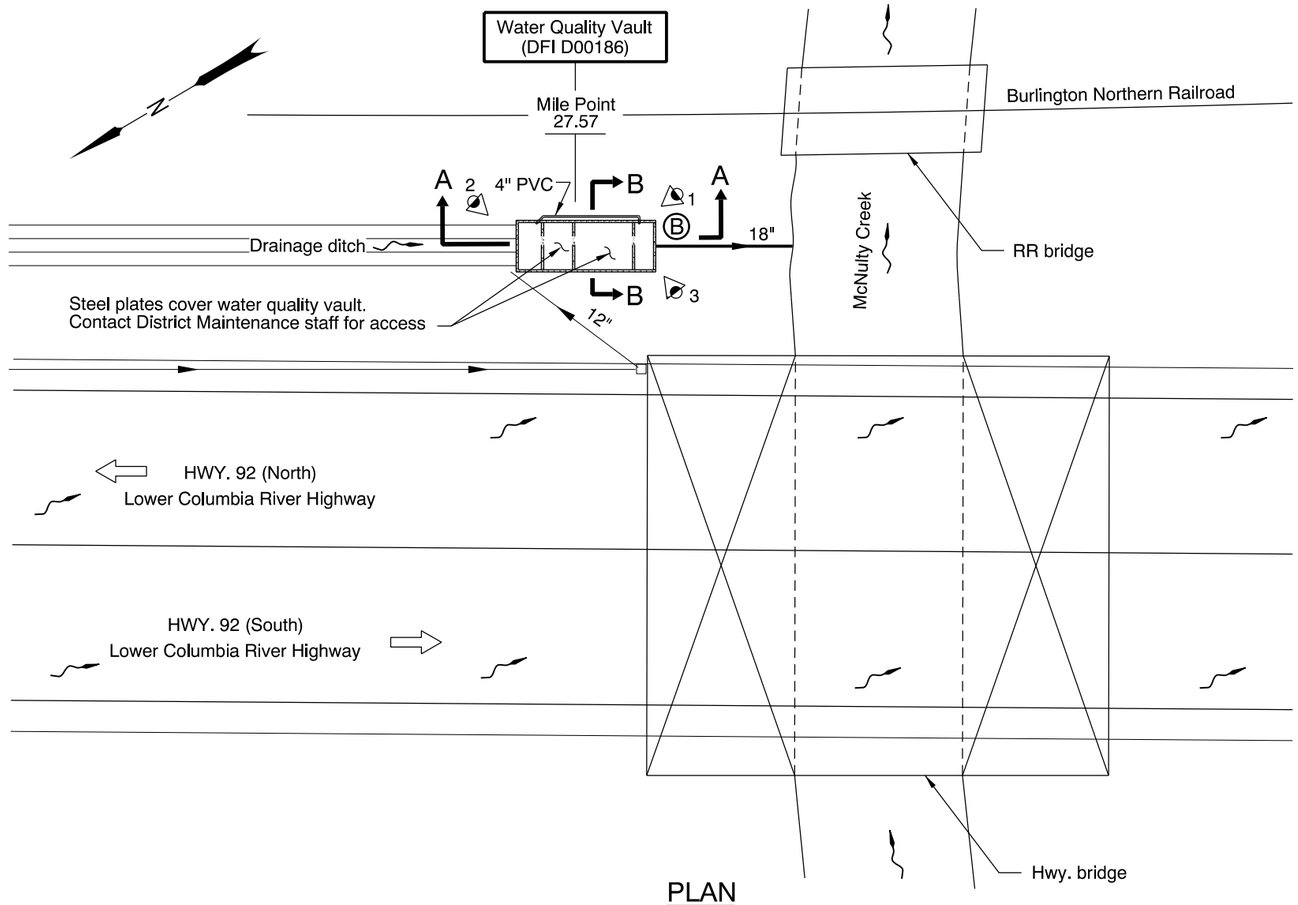
Contact any of the following for more detailed information about management of waste materials found on site:

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

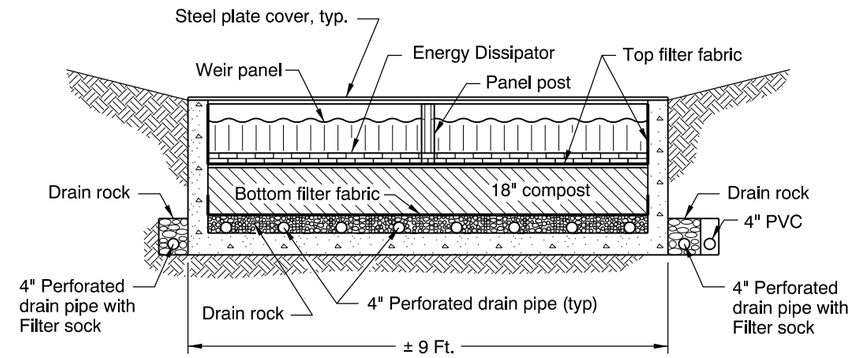
Appendix A

Content:

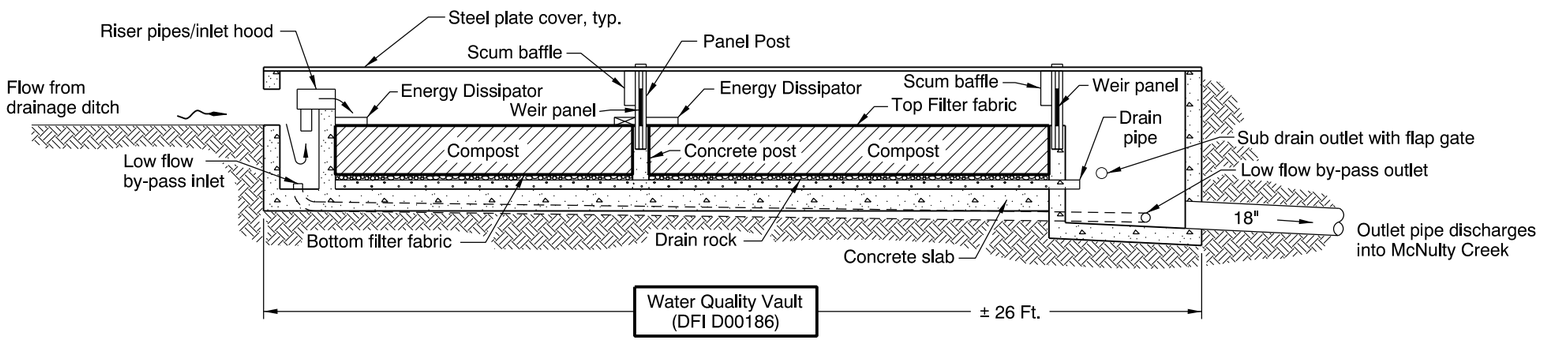
- **Operational Plan and Profile Drawing(s)**



PLAN
N.T.S.



SECTION B-B
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- Photograph Location / Direction
- Vault Inlet
- Vault Outlet
- Manhole
- Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: J.D. Koziol

Drafted By: Ed Gahan/HDR

DFI D00186
MAINTENANCE DISTRICT 1 HWY 92
WATER QUALITY VAULT
LOWER COLUMBIA RIVER HWY MP 27.57
COLUMBIA COUNTY

Z:\Hydraulics\Hydraulics OM\Completed_Facility_Files\Dist_01\Hwy_092\1_092_D00186\Operational Plan\DFI_D00186.dgn :: Sheet 1/13/2014 5:20:02 PM hwyr33e

DFI_D00186.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. & Standard Drawing Nos.
2, 2A Thru 2A-6 Incl.	Typical Sections
2B Thru 2B-8 Incl., 2B-8A, 2B-9, 2B-9A, 2B-10, 2B-11, 2B-12, 2B-13 Thru 2B-16 Incl., 2B-16A, 2B-17 Thru 2B-26 Incl.	Details
2C Thru 2C-19 Incl.	Temporary Protection & Direction Of Traffic
2D Thru 2D-9 Incl.	Pipe Data
2E, 2E-2, 2E-3	Summary
3, 3A, 3B, 4, 5, 6, 7, 7A, 7B, 8, 8A, 8B, 8C, 9, 9A, 10, 10A, 10B, 11, 12, 12A, 12B, 13, 14, 14A, 14B, 14C, 15, 16, 16A, 17, 18, 19, 19A, 20, 20A, 21, 21A, 21B, 22, 22A, 22B, 23, 23A, 23B, 23C, 24, 24A, 25, 26, 26A, 26B, 27, 27A, 28, 28A, 29, 30, 30A, 30B, 30C, 31, 32, 33, 33A, 34, 35, 35A, 35B, 36,	Plans & Profiles
37, 37A, 37B	Landscaping

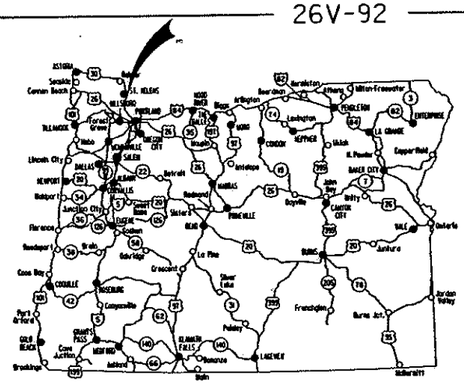
CONT'D. ON SHT. 1A

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

REVISED AS CONSTRACTED
10/1998 CONTRACT C11695
PROJ. MGR. _____



Overall Length Of Project - 7.25 Miles

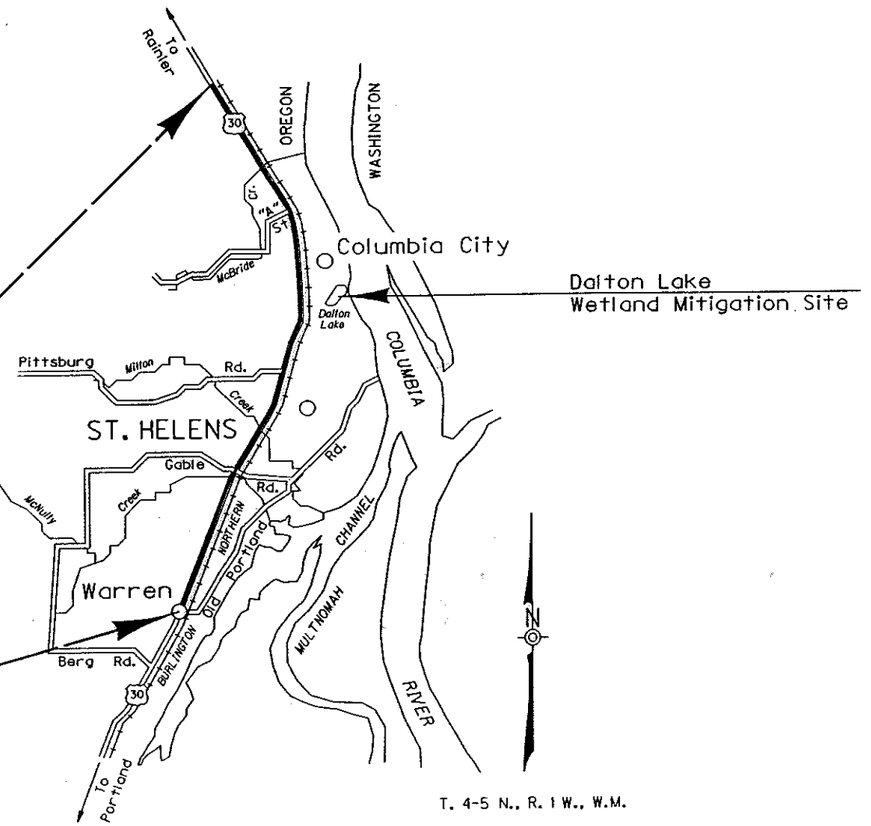
GRADING, STRUCTURES, PAVING, SIGNING, SIGNALS, & LANDSCAPING

COLUMBIA CITY N.C.L. - WARREN SEC.

COLUMBIA RIVER HIGHWAY (LOWER)

COLUMBIA COUNTY
JANUARY 1996

THE TRAFFIC CONTROL YOU PROVIDE PROTECTS YOU AS WELL AS THE PUBLIC. LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE.



NH-S02W(9)

BEGINNING OF PROJECT
STA. 525 + 00 M.P. 33.02)

END OF PROJECT NH-S02W(9)
STA. 906 + 50 M.P. 25.77)

OREGON TRANSPORTATION COMMISSION

Henry H. Hewitt	CHAIRMAN
Susan Brody	VICE CHAIRMAN
Cynthia J. Ford	COMMISSIONER
Steven H. Corey	COMMISSIONER
Stuart Foster	COMMISSIONER
Kenneth E. Husby	INTERIM DIRECTOR OF TRANSPORTATION

PLANS PREPARED BY:

W&H PACIFIC
6400 S.W. Nimbus Avenue
BEAVERTON, OREGON 97005
(503) 626-6444

REGISTERED PROFESSIONAL ENGINEER
M.947
OREGON
JULY 25, 1980
WILLIAM J. EVANS
Expires Dec. 31, 1995

OREGON DEPARTMENT OF TRANSPORTATION
CONCURRENCE

TECHNICAL SERVICES MANAGING ENGINEER — DATE 11/30/95

COLUMBIA CITY N.C.L. - WARREN SEC.
COLUMBIA RIVER HIGHWAY (LOWER)
COLUMBIA COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION	NH-S02W(9)	1

27-NOV-1995 10:48
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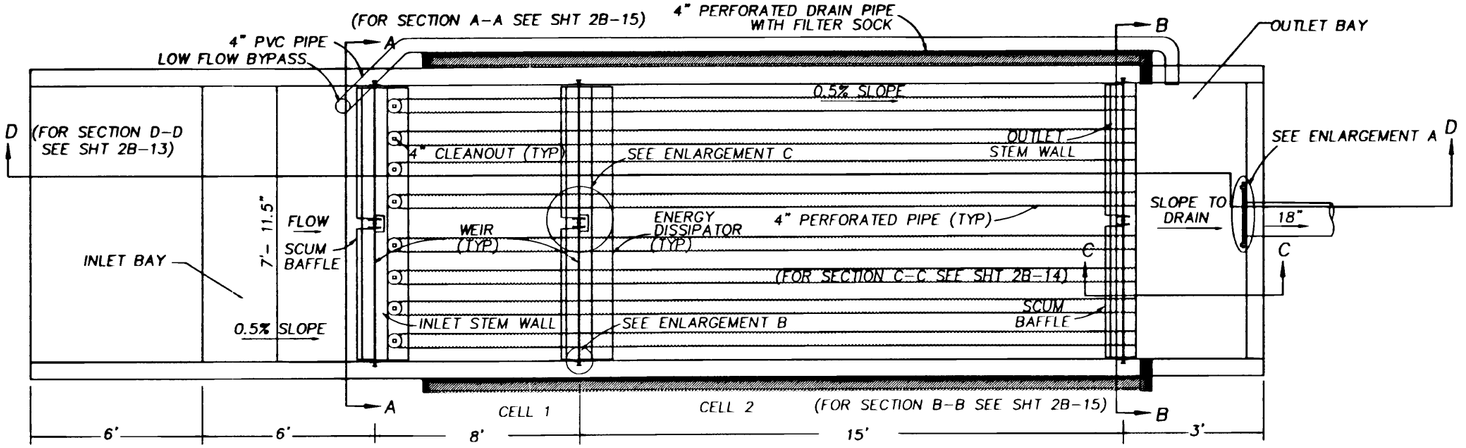
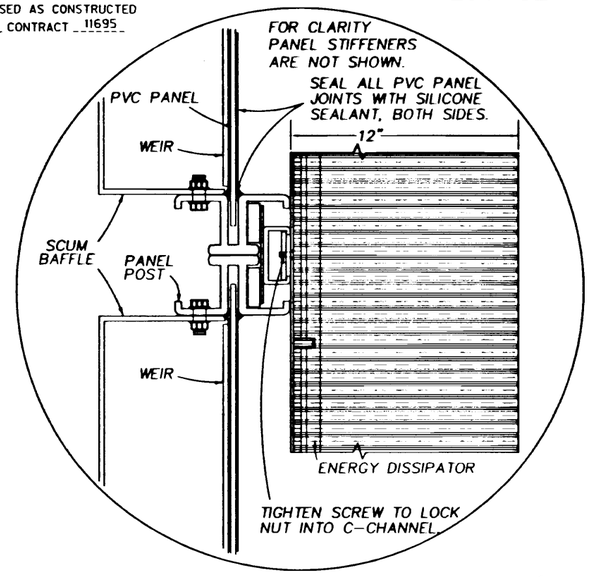
VIEW B3 C005-1802

NOT REVISED AS CONSTRUCTED
10/98 CONTRACT 11695

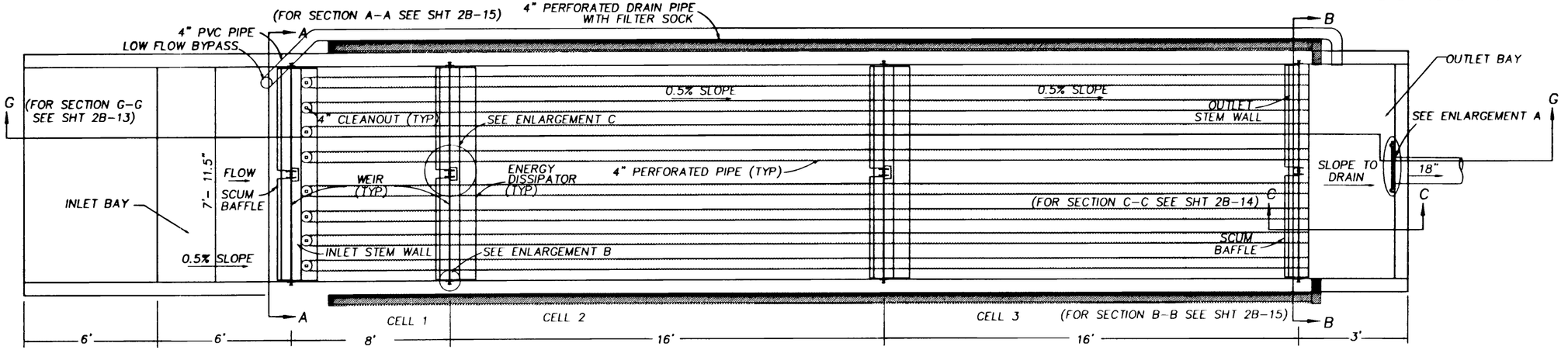
COMPOST STORMWATER FILTER OPEN UNITS



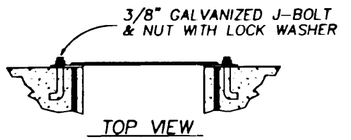
PLAN VIEW (MCNULTY CREEK CSF)



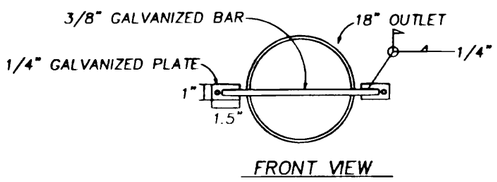
ENERGY DISSIPATOR POST ATTACHMENT (TYP)
ENLARGEMENT C

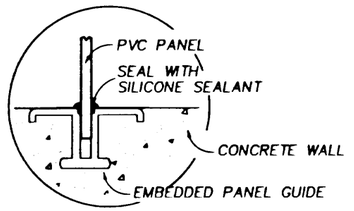


PLAN VIEW (ACHILLES ROAD CSF)



RESTRICTING BAR DETAIL
ENLARGEMENT A





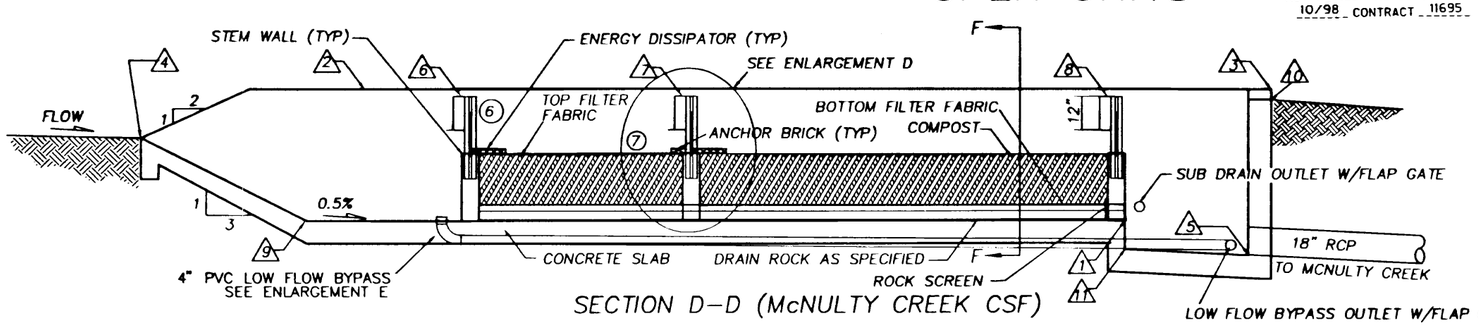
PVC PANEL TO STEM OR SIDE WALL ATTACHMENT
ENLARGEMENT B

COLUMBIA CITY N.C.L. - WARREN SEC. COLUMBIA RIVER HIGHWAY (LOWER) COLUMBIA COUNTY			
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B-12

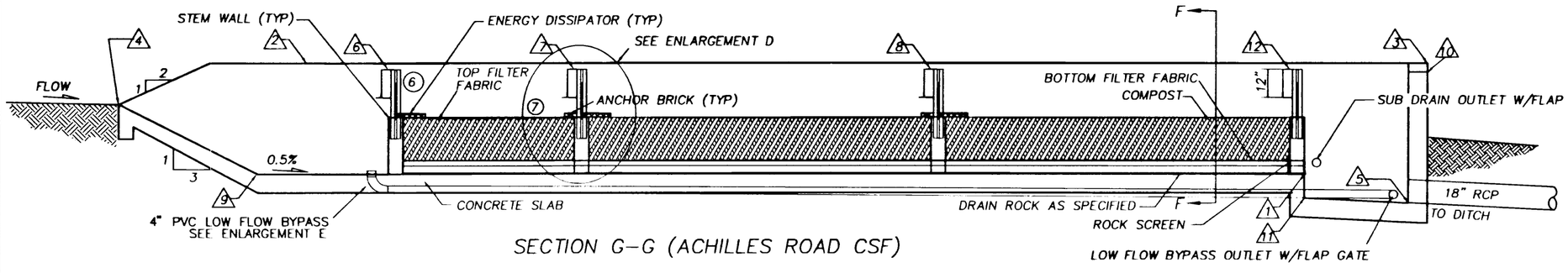
2B-12.DWG 12-OCT-1995 WOW

COMPOST STORMWATER FILTER OPEN UNITS

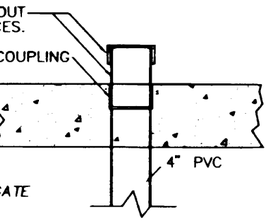
NOT REVISED AS CONSTRUCTED
10/98 CONTRACT 11695



SECTION D-D (McNULTY CREEK CSF)



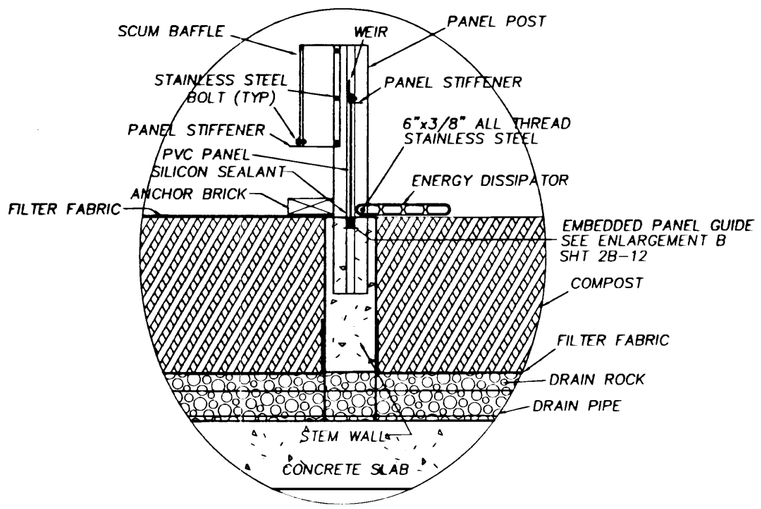
SECTION G-G (ACHILLES ROAD CSF)



LOW FLOW BYPASS DETAIL
ENLARGEMENT E

NOTES:

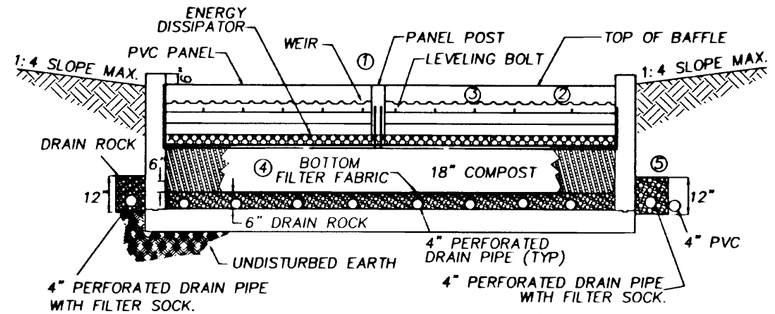
1. FOR CLARITY, FIRST WEIR AND BAFFLE ARE NOT SHOWN.
2. ASSEMBLE WEIRS, BAFFLES, POSTS AND PANELS PER MANUFACTURER'S INSTRUCTIONS. SEAL ALL JOINTS WITH SILICON SEALANT.
3. LEVEL WEIR WITH LEVELING BOLTS.
4. FILTER FABRIC SHALL EXTEND 6" ABOVE THE BASE OF THE COMPOST ON ALL FOUR SIDES. FASTEN FABRIC TO WALLS WITH TAPE PRIOR TO FILLING WITH COMPOST.
5. PROVIDE POSITIVE DRAINAGE TO DISCHARGE POINT.
6. WEIR INVERT 0.5' BELOW TOP OF BAFFLE AND POST (TYP).
7. INSTALL 8' x 8' FILTER FABRIC ON TOP OF COMPOST BED IN CELL 1 ONLY. EVENLY SPACE 10 ANCHOR BRICKS AROUND THE EDGE OF THE FABRIC TO HOLD THE FABRIC IN PLACE.
8. PRECAST OPTION AVAILABLE, IF USED SUBMIT SHOP DRAWING TO ENGINEER FOR APPROVAL.



PANEL POST DETAIL
ENLARGEMENT D

TABLE I - ELEVATION DATA △

POINT	DESCRIPTION	ELEVATION McNULTY CK	ELEVATION ACHILLES RD
△1	FINISHED FLOOR AT OUTLET STEM WALL	73.93	40.02
△2	TOP OF WALL	78.05	44.22
△3	TOP OF WALL	78.05	44.22
△4	I.E. INLET	76.09	42.26
△5	I.E. OUTLET PIPE	72.88	39.10
△6	TOP OF BAFFLE & POST	77.55	43.72
△7	TOP OF BAFFLE & POST	77.51	43.68
△8	TOP OF BAFFLE & POST	77.43	43.60
△9	INLET BAY FINISHED FLOOR	74.09	40.26
△10	OVERFLOW NOTCH	77.55	43.72
△11	OUTLET FLOOR	73.03	39.12
△12	TOP OF BAFFLE & POST	N/A	43.52



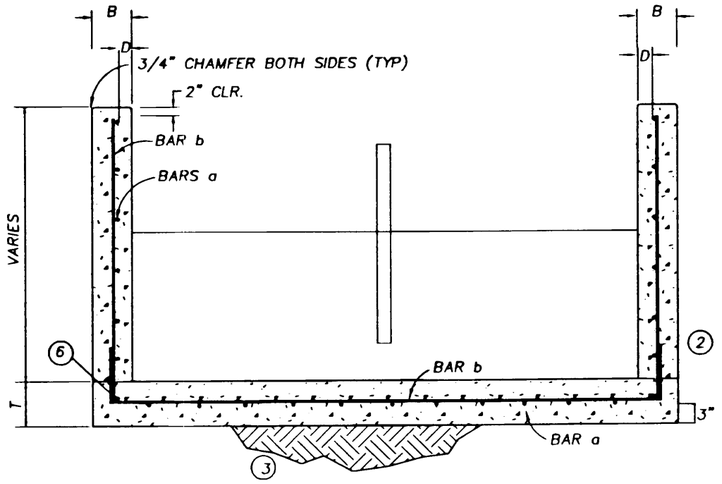
SECTION VIEW INTERIOR WALL (TYP)
SECTION F-F

COLUMBIA CITY N.C.L. - WARREN SEC. COLUMBIA RIVER HIGHWAY (LOWER) COLUMBIA COUNTY			
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B-13

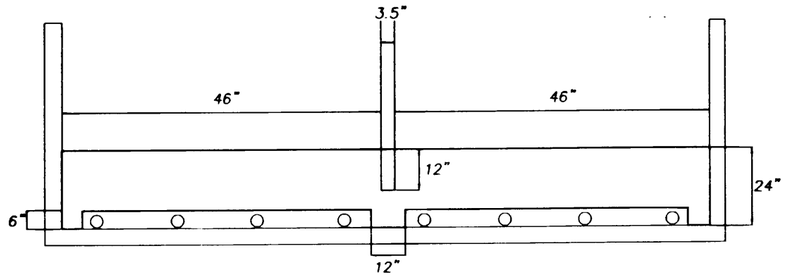
2B-13.DWG ########## 12-OCT-1995 MOW

NOT REVISED AS CONSTRUCTED
10/98 CONTRACT 11695

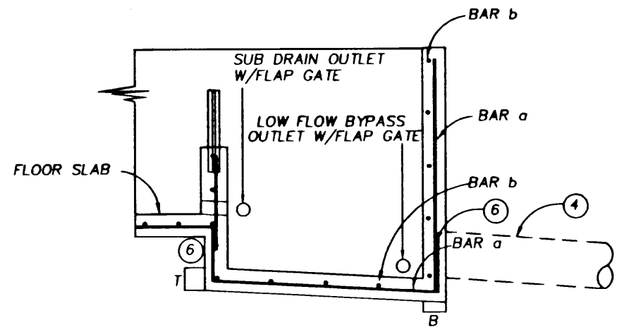
COMPOST STORMWATER FILTER
OPEN UNITS



CROSS SECTION – REBAR DETAIL

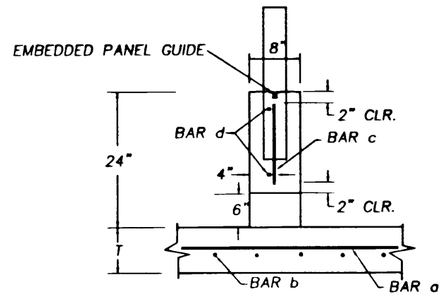


POST SPACING AND UNDERDRAIN BLOCKOUT

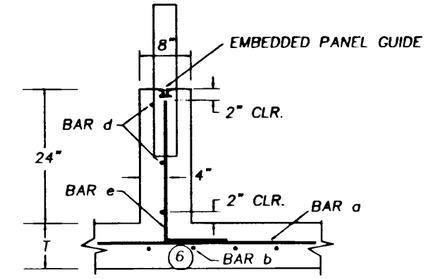


(SEE CROSS SECTION REBAR DETAIL FOR CLEARANCES)

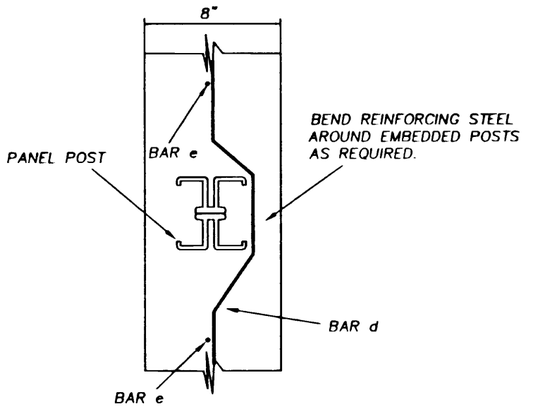
OUTLET BAY – REBAR DETAIL
Section C–C



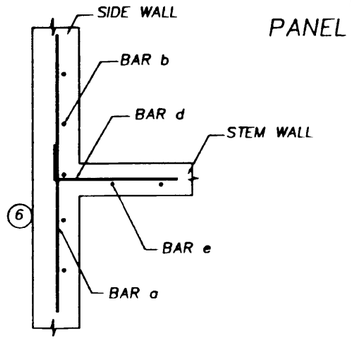
STEM WALL AT UNDERDRAIN BLOCKOUT
Section J–J



STEM WALL – FULL DEPTH
Section K–K



PANEL POST DETAIL–TOP VIEW
Section I–I



CORNER JOINT DETAIL–TOP VIEW
Section H–H

NOTES:

1. STRUCTURAL DETAILS SHOWN ARE BASED UPON "H-20" CONSTRUCTION VEHICLE SURCHARGE LOADING ONLY.
2. ALL CONCRETE USED SHALL BE PORTLAND CEMENT CONCRETE WITH MINIMUM COMPRESSIVE STRENGTH = 3300 PSI.
3. POUR SLAB AGAINST ACCEPTABLE UNDISTURBED SOIL OR AGAINST COMPACTED STRUCTURAL FILL MATERIAL COMPACTED AS SPECIFIED.
4. INSTALL #4 HOOP REBAR AROUND OUTLET PIPE.
5. ALL REBAR DEFORMED 60 KSI
6. 12" MIN. REBAR LAP LENGTHS.

REBAR SCHEDULE

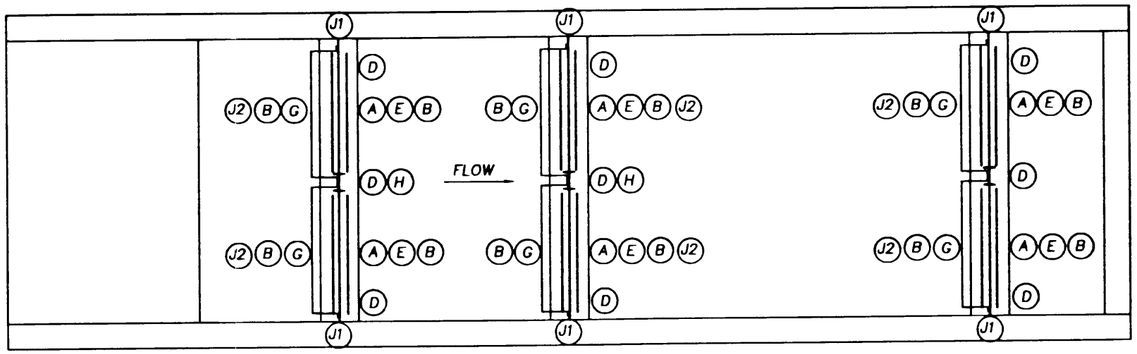
B	T	D (CLR.)	bar a	bar b	bar c	bar d	bar e
6"	8"	3"	#4@12"	#4@12"	#4@12"	#4@12"	#4@12"

COLUMBIA CITY N.C.L. - WARREN SEC.			
COLUMBIA RIVER HIGHWAY (LOWER)			
COLUMBIA COUNTY			
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B-14

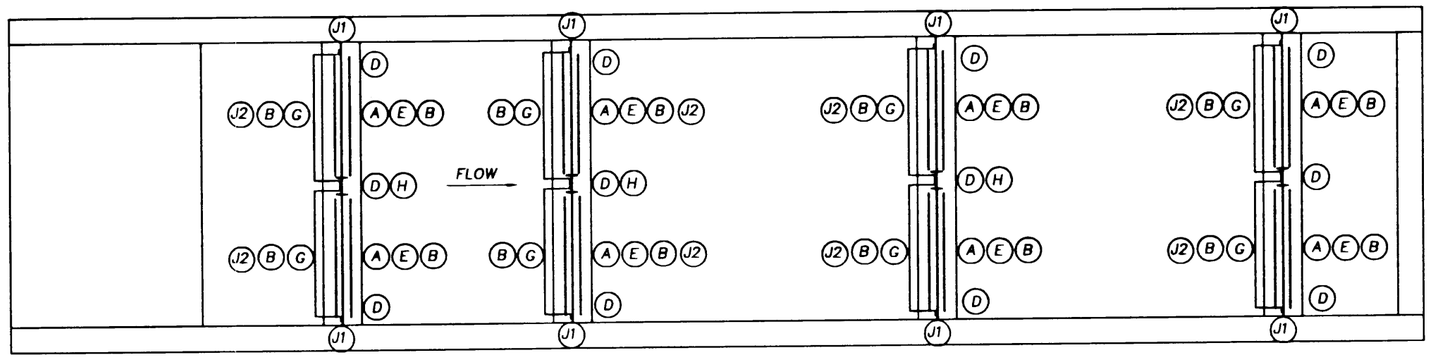
12-OCT-1995 WDM
2B-14.DWG

COMPOST STORMWATER FILTER OPEN UNITS

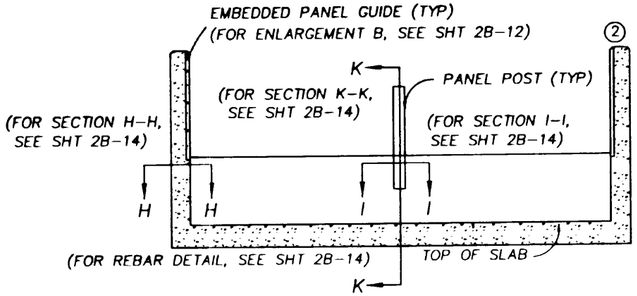
NOT REVISED AS CONSTRUCTED
10/98 CONTRACT 11695



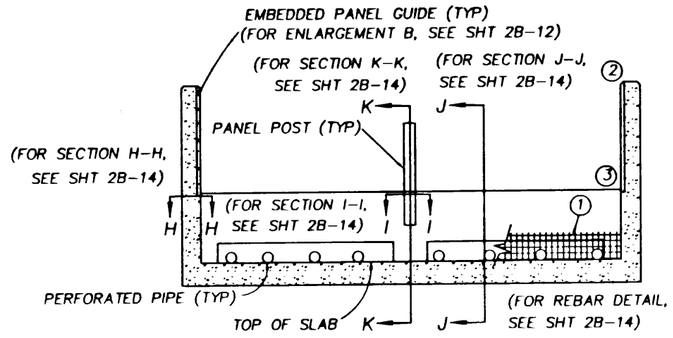
LOCATION OF PLASTI-FAB FLOW KIT COMPONENTS - PLAN VIEW (McNULTY CREEK CSF)



LOCATION OF PLASTI-FAB FLOW KIT COMPONENTS - PLAN VIEW (ACHILLES ROAD CSF)



INLET STEM WALL
Section A-A



OUTLET AND INTERIOR STEM WALL
Section B-B

TABLE II - FLOW KIT MATERIAL LIST (McNULTY CREEK CSF)

DESCRIPTION:	DIMENSION	QUANTITY
PLASTIFAB FLOW KIT: *		
(A) 46 IN. WEIR	STANDARD	6
(B) 46 IN. PANEL STIFFENER	STANDARD	12
(D) PANEL POST	30.0 IN.	3
(E) 48 IN. PVC PANEL	12.5 IN.	6
(G) SCUM BAFFLE	STANDARD	6
(H) 12 IN. ENERGY DISSIPATOR	8 FT.	2
(J1) EMBEDDED PANEL GUIDE (SIDE WALL)	29 IN.	6
(J2) EMBEDDED PANEL GUIDE (STEM WALL)	46 IN.	6

* MISC. STAINLESS STEEL HARDWARE INCLUDED.

TABLE III - FLOW KIT MATERIAL LIST (ACHILLES ROAD CSF)

DESCRIPTION:	DIMENSION	QUANTITY
PLASTIFAB FLOW KIT: *		
(A) 46 IN. WEIR	STANDARD	8
(B) 46 IN. PANEL STIFFENER	STANDARD	16
(D) PANEL POST	30.0 IN.	4
(E) 48 IN. PVC PANEL	12.5 IN.	8
(G) SCUM BAFFLE	STANDARD	6
(H) 12 IN. ENERGY DISSIPATOR	8 FT.	3
(J1) EMBEDDED PANEL GUIDE (SIDE WALL)	30 IN.	8
(J2) EMBEDDED PANEL GUIDE (STEM WALL)	46 IN.	8

* MISC. STAINLESS STEEL HARDWARE INCLUDED.

NOTES:

1. 8'x2' ROCK SCREEN AS SPECIFIED FOR UPSTREAM SIDE OF OUTLET STEM WALL ONLY.
2. TRIM EMBEDDED PANEL GUIDE FLUSH WITH TOP OF WALL (TYP).
3. BOTTOM OF PANEL GUIDE SHOULD BE 22" ABOVE TOP OF SLAB.

COLUMBIA CITY N.C.L. - WARREN SEC.
COLUMBIA RIVER HIGHWAY (LOWER)
COLUMBIA COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B-15

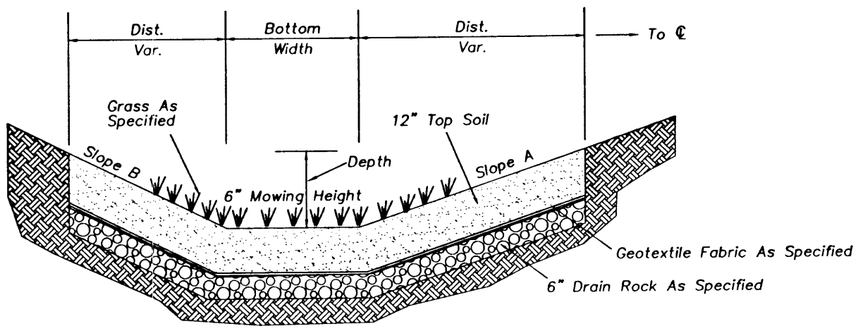
12-OCT-1995 MOW
2B-15.DWG

NOT REVISED AS CONSTRUCTED
10/98 CONTRACT 11695

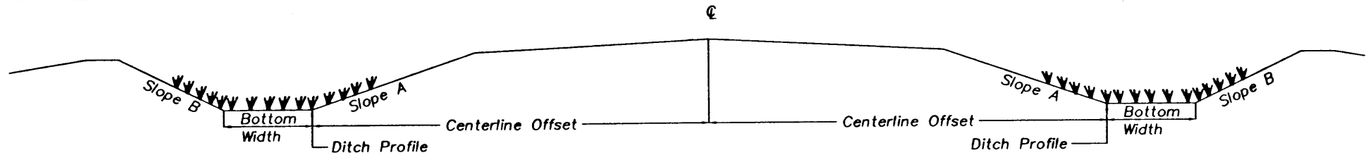
BIO-FILTER SWALE

Bio-Filter Swale Table

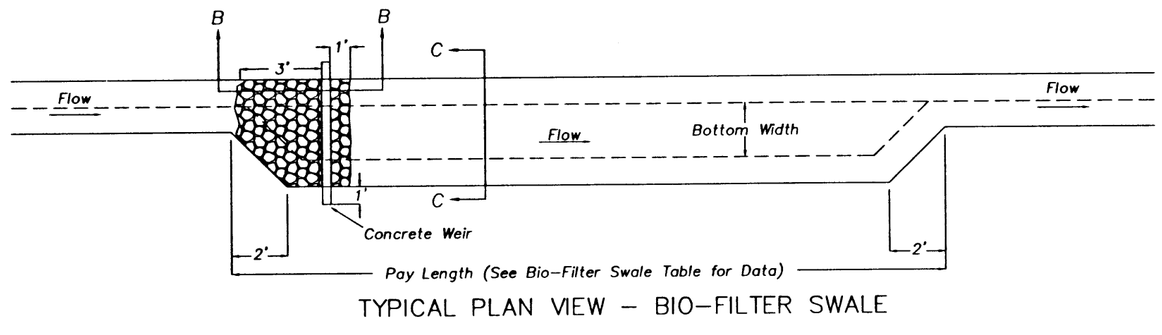
Station From	Station To	Left Or Right	Slope A	Slope B	Bottom Width (Ft)	Depth (Ft)	Length (Ft)	Channel Slope (%)
573+00	575+50	Rt	6:1	4:1	4	1	250	1.83
610+50	613+50	Rt	6:1	4:1	4	1	300	1.10
615+20	618+20	Rt	6:1	1½:1	4	1	300	0.57
719+70	720+90	Rt	6:1	4:1	4	1	120	1.57
720+90	722+60	Rt	6:1	4:1	4	1	170	1.33
797+90	800+08	Lt	3:1	2:1	4	1	218	0.83
839+45	–	Lt	2:1	2:1	10	1	160	3.12
856+70	860+75	Lt	4:1	4:1	4	1	405	0.75–2.0
897+37	–	Lt	3:1	3:1	6	1	290	1.20
898+50	900+75	Rt	4:1	1½:1	4	1	225	0.98



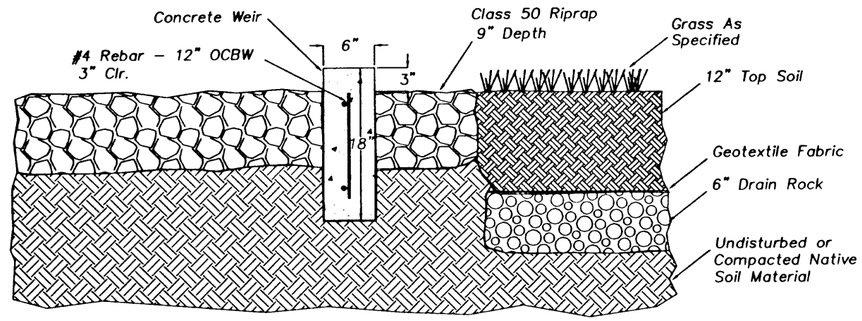
TYPICAL SECTION C–C



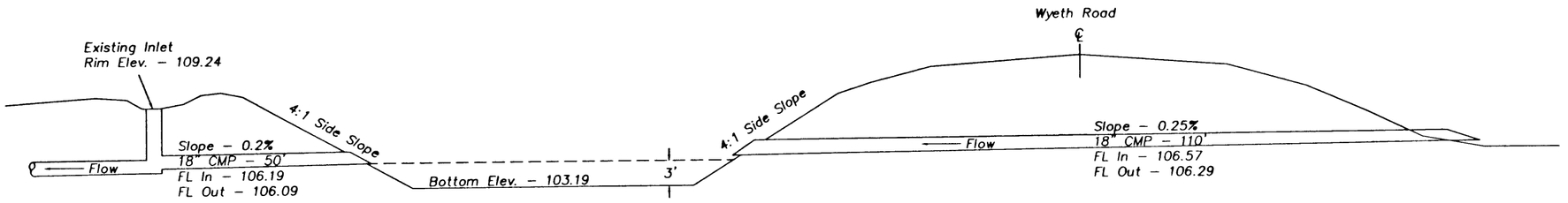
Swale On Left Side — BIO-FILTER SWALE CROSS SECTION (See Bio-Filter Swale Table For Data) — Swale On Right Side



TYPICAL PLAN VIEW – BIO-FILTER SWALE



SECTION B – B



WYETH POND – SECTION A–A (FOR LOCATION SEE SHT 21)

COLUMBIA CITY N.C.L. - WARREN SEC.
COLUMBIA RIVER HIGHWAY (LOWER)
COLUMBIA COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B–17

2B-17.DWG 05-OCT-1995 WOM

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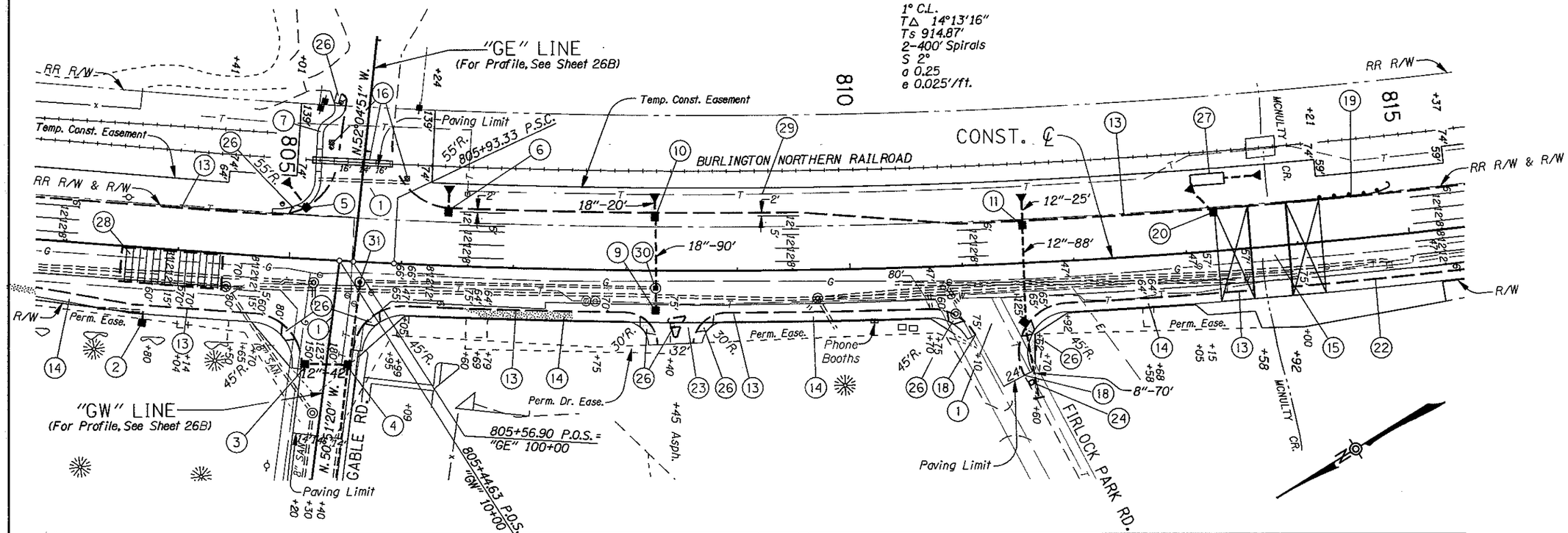
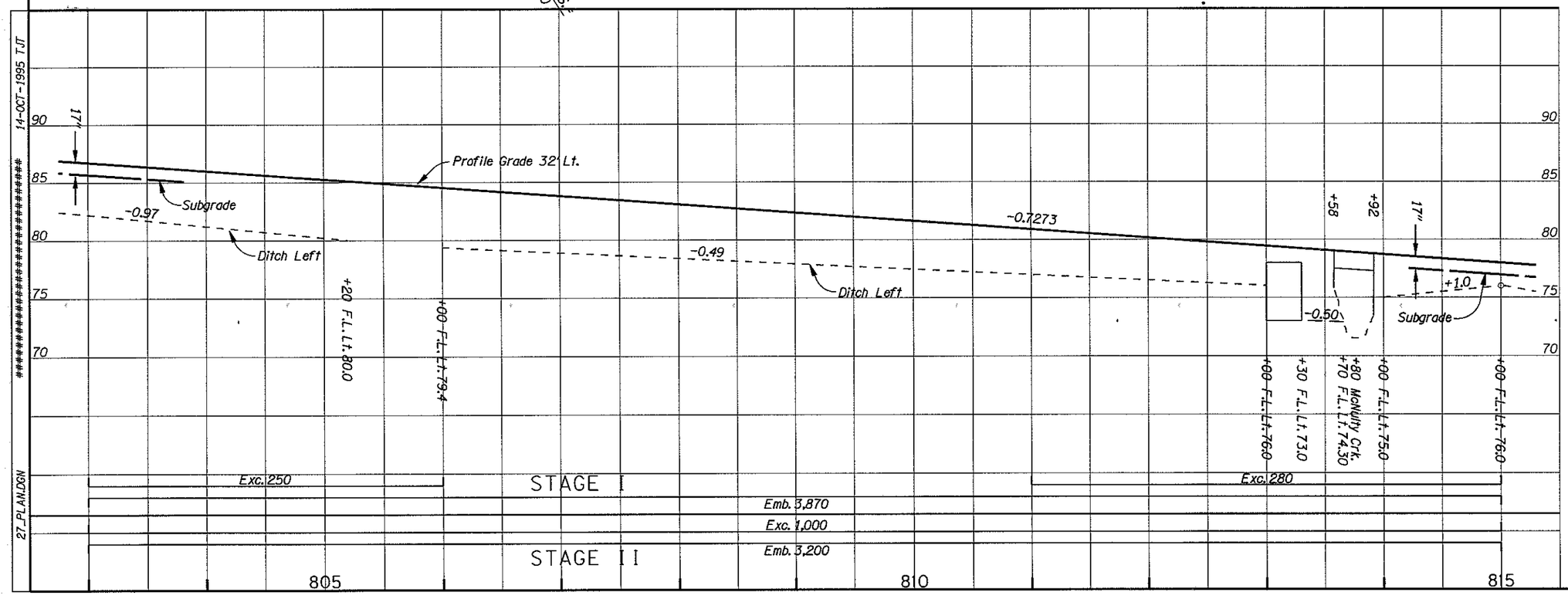
Sec. 8, T. 4N., R. 1W., W.M.





14-OCT-1995 TJT
27_PLAN.DGN

COLUMBIA CITY N.C.L. - WARREN SEC.			
COLUMBIA RIVER HIGHWAY (LOWER) COLUMBIA COUNTY			
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		27

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(1) Const. Road Conn. - 3

(2) Sta. 803+72.5
Const. Type "G-2" Inlet
Inst. 12" Sew. Pipe - 10'
Connect To Extg. Pipe

(3) Sta. "GW" 10+97, Rt.
Const. Type "CG-2" Inlet
Inst. 12" Sew. Pipe - 42'
Tr. Exc. -15 C.Y.

(4) Sta. "GW" 10+95, Lt.
Const. Type "CG-2" Inlet
Inst. 18" Sew. Pipe - 60'

(5) Sta. 805+10, Lt.
Const. Type "CG-2" Inlet
Inst. 12" Sew. Pipe - 30'
Const. Paved End Slope
Tr. Exc. - 14 C.Y.

(6) Sta. 806+40, Lt.
Const. Type "CG-2" Inlet
Inst. 12" Sew. Pipe - 20'
Const. Paved End Slope
Tr. Exc. - 10 C.Y.

(7) Const. 5' P.C. Conc. Walk

(9) Sta. 808+25, Rt.
Const. Type "G-2" Inlet At
Extg. Inlet

(10) Sta. 808+25, Lt.
Const. Type "CG-2" Inlet
Inst. 18" Sew. Pipe - 110'
Const. Paved End Slope
Tr. Exc. - 70 C.Y.

(11) Sta. 811+60, Lt.
Const. Type "CG-2" Inlet - 2
Inst. 8" Sew. Pipe - 70'
Inst. 12" Sew. Pipe - 115'
Const. Paved End Slope
Tr. Exc. - 45 C.Y.

(13) Const. Type "A" Mod. Curb
(For Detail, See Sht. 2B-5)

(14) Const. P.C. Conc. Walk
(For Planting Detail, See Sheet 37, 37A & 37B)

(15) Bridge No. 17435
Const. Bridge - 34'
Roadway Width - 76'-8"
Const. Conc. Panels @ Bridge Ends - 30'4"
(See Drg. No's 51053 Through 51059 Incl.)

(16) Const. Conc. R.R. Xing
Inst. R.R. Xing Gate Signals - 2 } (By Others)

(18) Const. Curb Ending - 2

(19) Sta. 814+22 To Sta. 814+85
Const. Guard Rail - 12.5' (Type 3)
Const. Guard Rail Transition
Flare Rate = 0, W=4, E=0
Inst. SRT-100 End Terminal
(See Drg. No. 43496)

(20) Sta. 813+25
Const. Type "CG-2" Inlet
Inst. 12" Sew. Pipe - 25'
Const. Paved End Slope
Tr. Exc. -10 C.Y.

(22) Const. Type "D" Mod. Curb
(For Detail, See Sht. 2B-5)

(23) Sta. 808+45, Rt.
Const. Road Appr.
Const. Type "C" Non-Mountable Island
(For Detail, See Sheet 2B-10)

(24) Inst. Single Mailbox Support
Const. Conc. Collar

(26) Const. Sidewalk Ramp - 9

(27) Sta. 813+00, Lt.
Inst. Compost Stormwater Filter -
Open Unit - 10'x30'
Inst. 18" Sew. Pipe - 35'
(For Details, See Sheet 2B-12 Through 2B-15)

(28) Contaminated Soil Removal (Site 5)
Exc. - 300 C.Y.
Straw Bales - 288
Visquine - 222 S.Y.
Aggr. Base - 600 Ton
Temp. Const. Fence - 230 Lin. Ft.
Nutrients - 4,800 lbs.

(29) Sta. 808+75 To Sta. 809+75
Const. Conc. Cap (Type A) - 100'
(For Details, See Sheet 2B-26)

(30) Const. MH At Extg. Inlet

(31) Replace Extg. Inlet With MH
Inst. 18" Sew. Pipe - 53'

27A_PLAN.DGN ########## 18-SEP-1995 TJT

COLUMBIA CITY N.C.L. - WARREN SEC.
COLUMBIA RIVER HIGHWAY (LOWER)
COLUMBIA COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		27A