OPERATION & MAINTENANCE MANUAL

DFI No. D00178
Facility Type: Detention Tank/Pipe

JUNE, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00178**
Facility Type:	Detention Tank/Pipe
Construction Drawings:	(V-File Number) 37V-041
Location:	District: 2B (Old 2A)
	Highway No.: 047
	Mile Post: 68.0/68.0 (beg./end)
	Description: This facility is located on the north side of westbound US26 (Hwy 047). It is 1,380 feet west of SW Cedar Hills Blvd. Access to the facility can be obtained from the west bound onramp of US 26 (Hwy 047).

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 1 Tech. Center, Bruce S. Council, (503) 731-8319
Facility construction:	March 11, 2004
Contractor:	Mowatt Construction Company

4. Storm Drain System and Facility Overview

A detention facility is designed to control the quantity of runoff, by reducing the peak discharge and only detaining runoff for some short period of time. These facilities are designed to store and gradually release or attenuate stormwater runoff via a control structure or release mechanism, and completely drain after the design storm has passed. The most common detention facilities include:

- Dry ponds - these are depressed storage areas that store runoff during wet weather and are dry the rest of the time. Usually they are earthen depressions.
- Tanks - these are underground storage facilities that are typically constructed from large diameter pipe.
- Vaults - these are enclosed underground storage facilities. They are typically constructed from reinforced concrete.

This detention facility is composed of 180 feet of 72-inch diameter pipe located on the north side of US26, near the westbound onramp; approximately 1,380 feet west of SW Cedar Hills Blvd. Access to the facility can be obtained from the shoulder area. Prior to the detention system, a high-low split flow manhole structure (see Operational Plan, Point A) directs the low flows into an adjacent biofiltration swale (DFI D00177), while the high flows are re-directed into the detention facility. The flow control device at the facility outlet includes a flow restricting orifice and an overflow standpipe in the west manhole (Operational Plan, Point D). The 6-inch orifice, located at the base of the standpipe, meters stormwater flow leaving the system. Higher flows are detained in the pipe, (those greater than what the orifice will allow to pass), but able to flow over top the standpipe if necessary, and directed into a 21-inch storm pipe that drains towards the west. The adjacent water quality biofiltration swale (DFI D00177) discharges into the same storm pipe.

A. Maintenance equipment access:
The facility can be accessed for maintenance from the westbound onramp to US26 (Hwy 047).

B. Heavy equipment access into facility:

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

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners

☐ Underdrains

Photo 1: Looking west with US26 (Hwy 047) to the left, and the east manhole of detention facility; Point B on Operational Plan. Water quality facility DFI D00177 is to the right.

Photo 2: Looking east along detention pipe facility alignment. Water Quality Facility DFI D00177 is located to the left.

Photo 3: Looking inside of the flow control manhole at the terminus of the detention pipe facility; Point D on Operational Plan; Appendix A.

Photo 4: Looking inside of the flow control manhole at the terminus of the detention pipe facility; Point D on Operational Plan; Appendix A.

5. Facility Haz Mat Spill Feature(s)

The detention tank/pipe can be used to store a volume of liquid by blocking the 21-inch diameter outlet pipe located at the outlet of the detention tank. This pipe is located at Point D of the Operational Plan.

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 –
High flows are allowed to overtop a standpipe located within the detention manhole itself, (Operational Plan, Point D). In the event the restricting orifice is plugged or the flows exceed the anticipated high flow, the water can overtop the standpipe and exit the detention facility through the outlet pipe.

☐Other, as noted below

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:

- ☒ Table 1 (general maintenance)
- ☐ Table 2 (stormwater ponds)
- ☐ Table 3 (water quality or 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

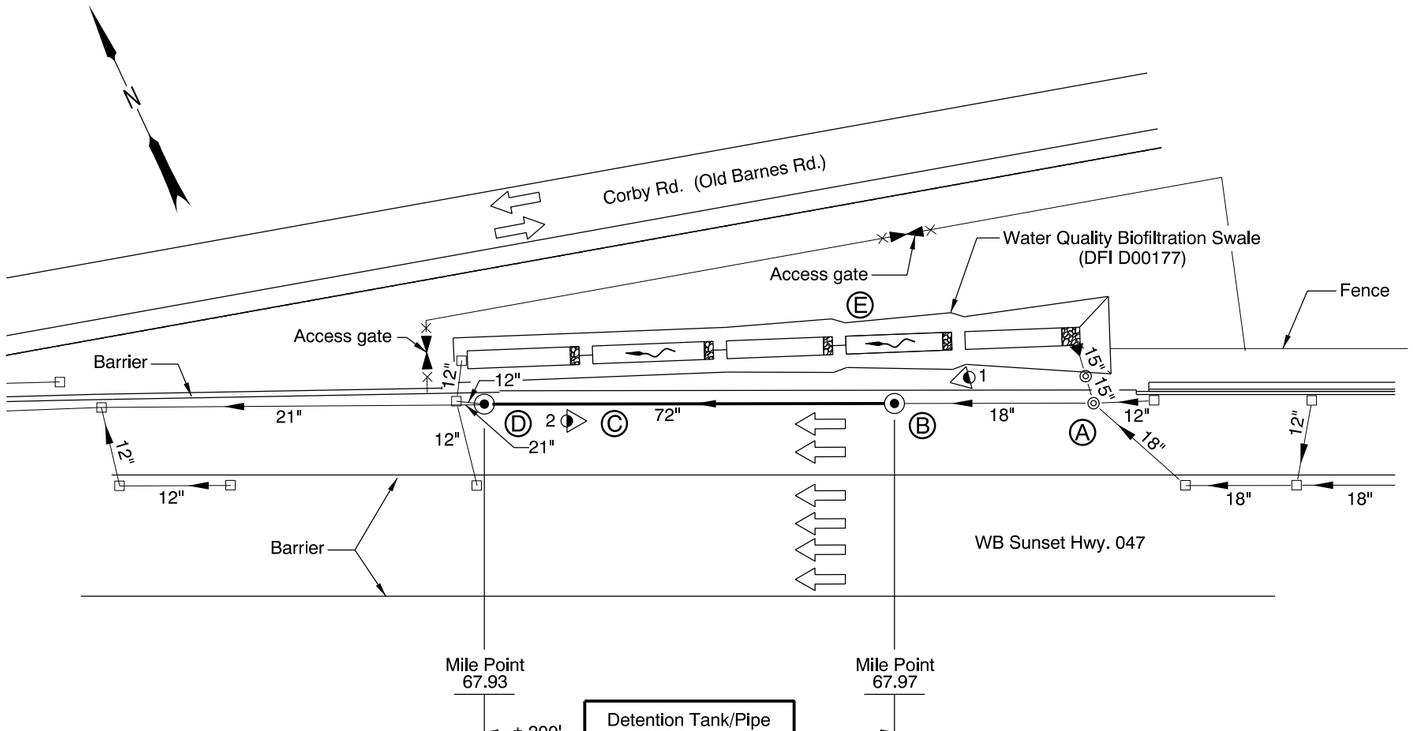
Contact any of the following for more detailed information about management of waste materials found on site:

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

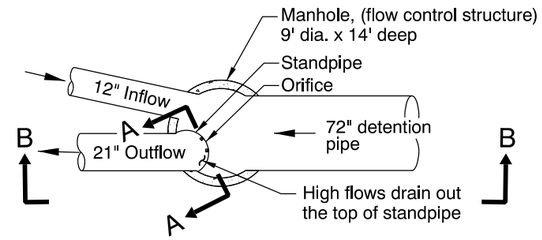
Appendix A

Content:

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



PLAN
N.T.S.



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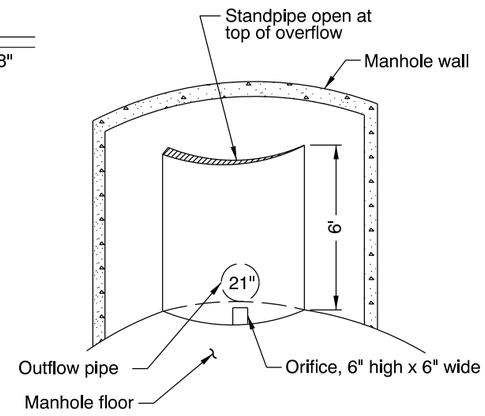
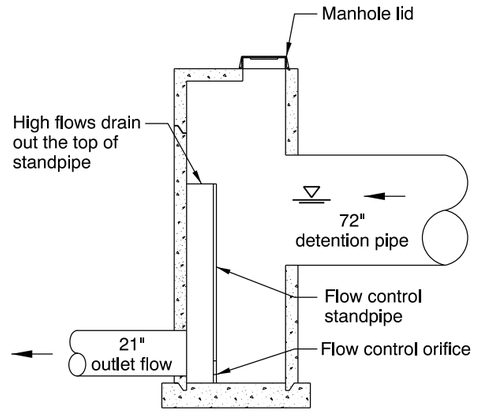
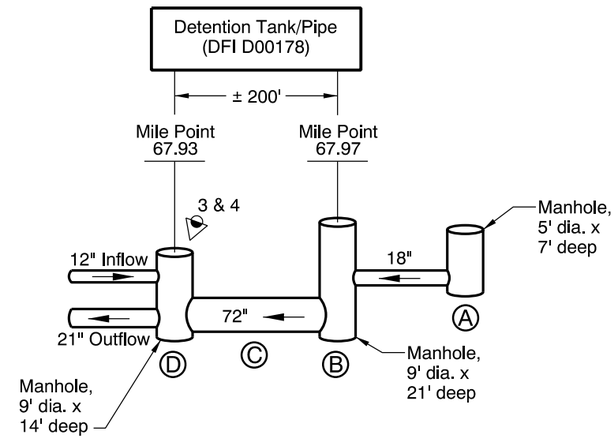


SECTION A-A



SECTION B-B

FLOW CONTROL STRUCTURE AT POINT Ⓓ
N.T.S.



SCHEMATIC OF PIPE DRAINAGE SYSTEM
N.T.S.

LEGEND:

- Photo Location / Direction
- Ⓐ Diversion Manhole, "High-Low"
- Ⓑ Manhole East of Detention Pipe
- Ⓒ 72" Detention Tank/Pipe
- Ⓓ Manhole West of Detention Pipe (Flow Control Structure)
- Ⓔ Water Quality Biofiltration Swale
- Manhole
- Inlet
- Traffic Flow/Direction
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

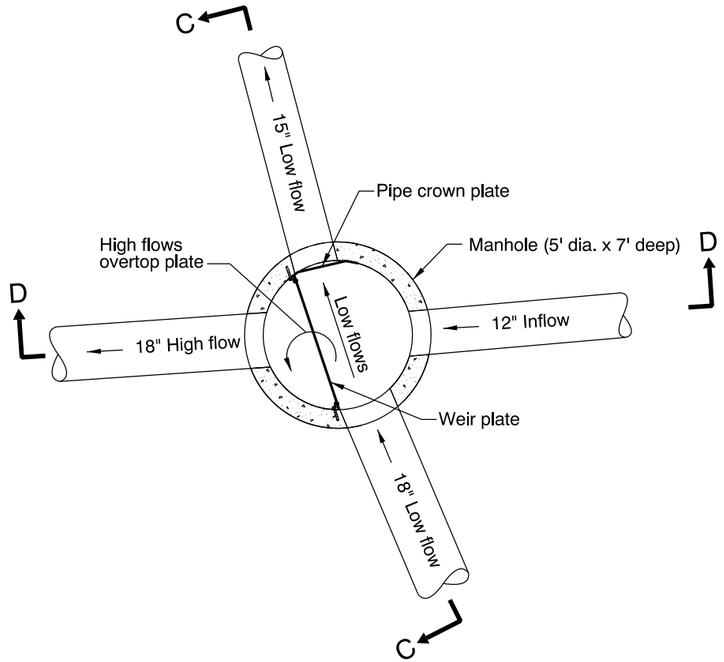
Sht. 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

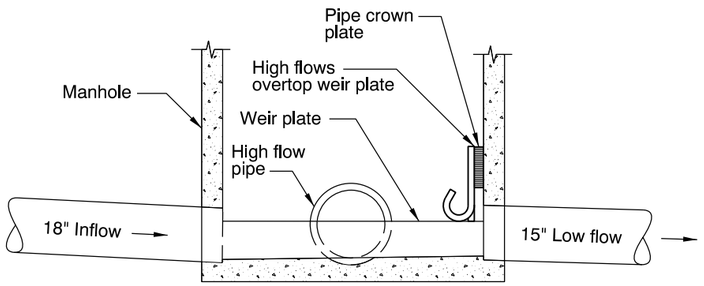
Prepared By: Bob Knorr

Drafted By: Mathew Bunde

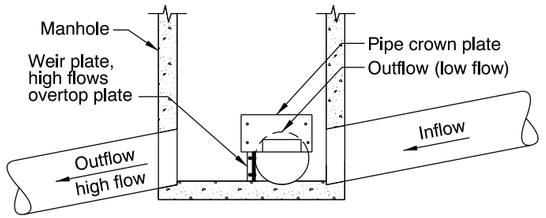
DFI D00178
MAINTENANCE DISTRICT 2B HWY 047
DETENTION TANK/PIPE
SUNSET HIGHWAY MP 67.93-67.97
WASHINGTON COUNTY



PLAN



SECTION C-C



SECTION D-D

DIVERSION MANHOLE AT POINT Ⓐ

N.T.S.

Sht. 2 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Bob Knorr

Drafted By: Mathew Bunde

DFI D00178
MAINTENANCE DISTRICT 2B HWY 047
DETENTION TANK/PIPE
SUNSET HIGHWAY MP 67.93-67.97
WASHINGTON COUNTY

Appendix B

Content:

- **ODOT Project Plan Sheets**
  - ***Cover/Title Sheet***
  - ***Water Quality/Detention Plan Sheets***
  - ***Other Details***

37V-41

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A, 1A-2	Index Of Sheets Cont'd.
1A-3	Std. Drg. Nos.
1B	Sheet Layout
2, 2A, 2A-2 Thru 2A-65 Incl.	Typical Sections
2B, 2B-2 Thru 2B-18 Incl.	Details
2C, 2C-2	Traffic Control Details
2CA, 2CA-2, 2CA-2A, 2CA-3 Thru 2CA-57 Incl.	Traffic Control Plans - Murray Work Area
2CB, 2CB-2 Thru 2CB-12 Incl.	Traffic Control Plans - Cornell Work Area
2D, 2D-2, Thru 2D-12, Incl.	Pipe Data Sheet

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

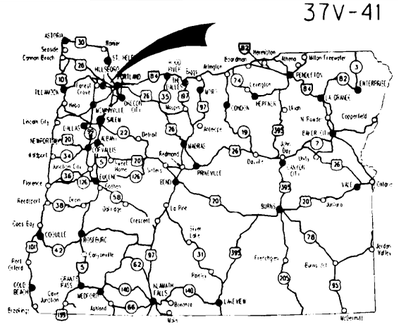
PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS, & ROADSIDE DEVELOPMENT

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.

SUNSET HIGHWAY

WASHINGTON COUNTY
MARCH 2004

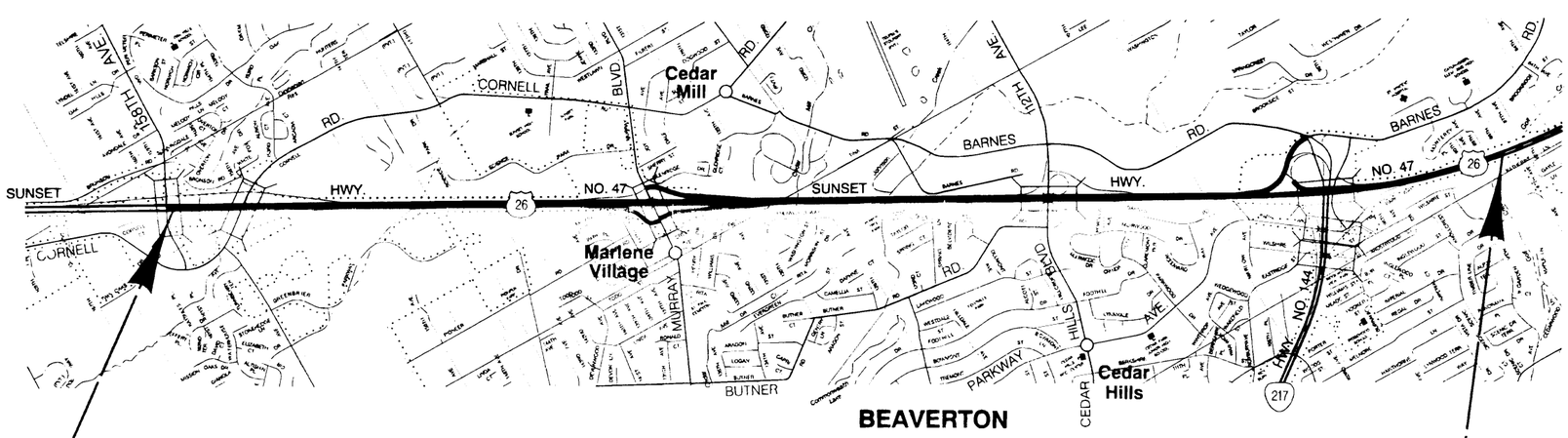


Overall Length Of Project - 6.51 km (4.05 Miles)

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.)

OTIA
OREGON TRANSPORTATION INVESTMENT ACT

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE



BEGINNING OF PROJECT
NH-OTIA-S047(052)
STA. "LW" 91+660.00 (M.P. 65.68)

END OF PROJECT
NH-OTIA-S047(052)
STA. "L" 98+160.00 (M.P. 69.73)

T. 1 N., R. 1 W., W.M.

OREGON TRANSPORTATION COMMISSION

Stuart Foster	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Mike Nelson	COMMISSIONER
Randall Papé	COMMISSIONER
John Russell	COMMISSIONER
Bruce A. Warner	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
13,704
OREGON
JULY 16, 1987
CATHERINE M. NELSON
Expires Dec. 31, 2004

Catherine M. Nelson
TECHNICAL SERVICES MANAGING ENGINEER

METRIC

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	NH-OTIA-S047(052)	1

PE000656/C0341403-011

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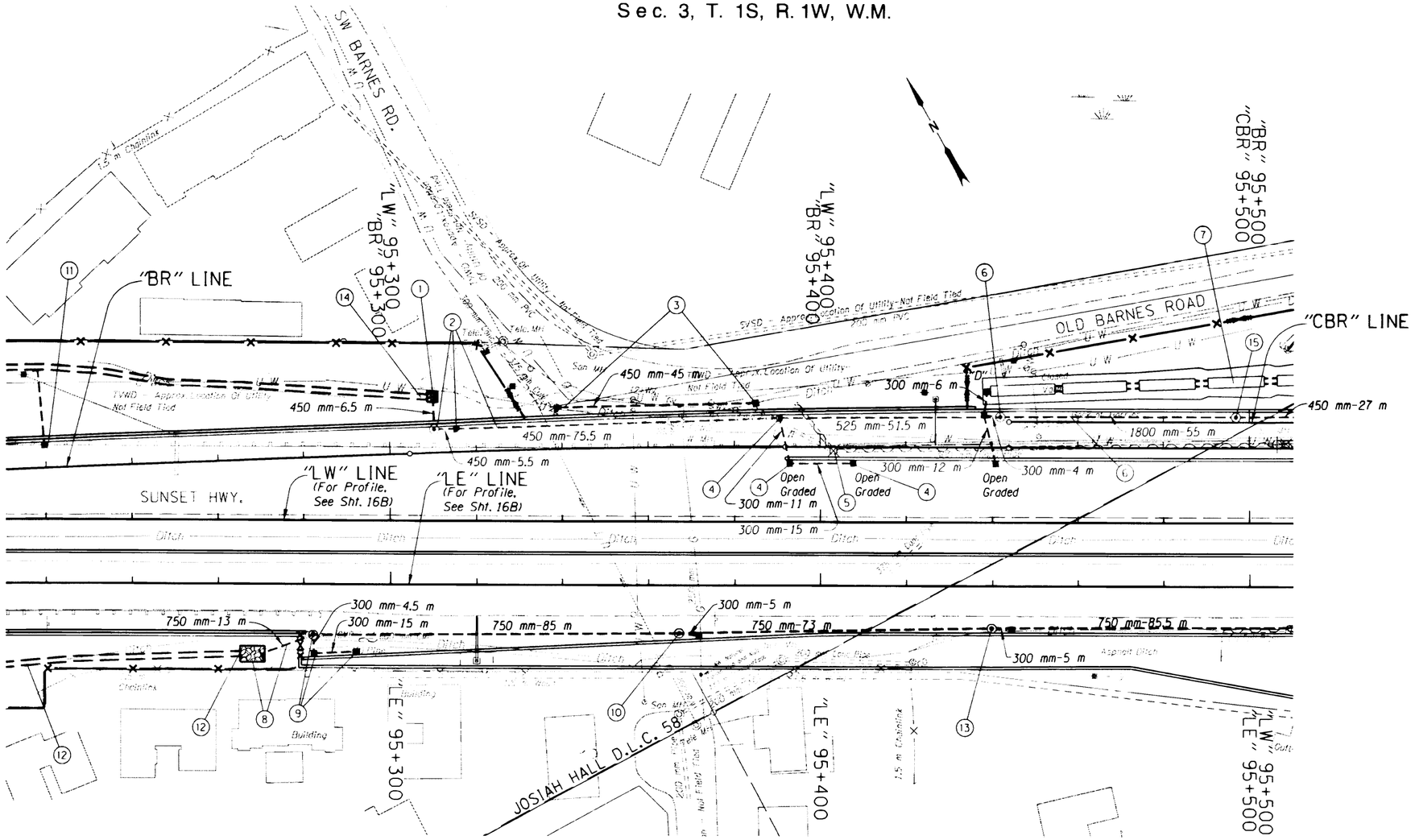
Sec. 3, T. 1S, R. 1W, W.M.

37V-41



REGISTERED PROFESSIONAL ENGINEER
62.609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Eileen J. Phelan
Designed By - Henry M. Allen
Drafted By - Tien Nguyen

DRAINAGE & UTILITIES

SHEET NO. 16A

1:1000

(1) *Sta. "LW" 95+309.62, Lt.*
Inst. 450 mm Storm Sew. Pipe - 6.5 m
3 m Depth
Const. Loose Riprap Basin (Class 50) 36 MG
Riprap Geotextile, Type 2 - 39 m²
(For Details, See Sht. GHJ-9)

(2) *Sta. "LW" 95+310.11, Lt.*
Const. Manhole
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 450 mm Storm Sew. Pipe - 81.0 m
3 m Depth

(3) *Sta. "LW" 95+340.17, Lt.*
Const. Type "D" Inlet
Inst. 450 mm Storm Sew. Pipe - 45.0 m
3 m Depth
Const. Paved End Slope - 4.3 m²

(4) *Sta. "LW" 95+390.34, Lt.*
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet - 2
Inst. 300 mm Storm Sew. Pipe - 15.0 m
1.5 m Depth
Inst. 300 mm Storm Sew. Pipe - 11.0 m
3 m Depth
Inst. 525 mm Storm Sew. Pipe - 51.5 m
6 m Depth

(5) *Remove Inlet*

(6) *Sta. "BR" 95+441.83, Lt.*
Const. Manhole, Type Detention
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet
Const. Type "D" Inlet
Inst. 300 mm Storm Sew. Pipe - 18.0 m
1.5 m Depth
Inst. 300 mm Storm Sew. Pipe - 4.0 m
3 m Depth
Inst. 1800 mm Storm Sew. Pipe - 55.0 m
6 m Depth
Detention Storage
(For Details, See Sht. GHJ-12)

(7) *Const. Water-Quality Swale "CBR"*
(For Details, See Sht. GHJ-43)

(8) *Sta. "LE" 95+268.02, Rt.*
Inst. 750 mm Storm Sew. Pipe - 13.0 m
3 m Depth
Const. Loose Riprap Basin (Class 100) - 53 MG
Riprap Geotextile, Type 2 - 54 m²
(For Details, See Sht. GHJ-9)

(9) *Sta. "LE" 95+282.15, Rt.*
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Open Graded HMAC Inlet - 2
Inst. 300 mm Storm Sew. Pipe - 19.5 m
1.5 m Depth
Inst. 750 mm Storm Sew. Pipe - 85.0 m
6 m Depth

(10) *Sta. "LE" 95+367.07, Rt.*
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 5.0 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 73.0 m
6 m Depth

(11) *See Sht. 15A, Note 2*

(12) *Sta. "LE" 95+268.02, Rt.*
Const. Loose Riprap Channel (Class 50) - 673 MG
Riprap Geotextile, Type 2 - 833 m²
Dt. Exc. - 560 m³
(For Details, See Sht. GHJ-8)

(13) *Sta. "LE" 95+439.75, Rt.*
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 5.0 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 85.5 m
6 m Depth

(14) *Sta. "LW" 95+308.28, Lt.*
Const. Loose Riprap Channel (Class 25) - 430 MG
Riprap Geotextile, Type 2 - 640 m²
Dt. Exc. - 335 m³
(For Details, See Sht. GHJ-8)

(15) *See Sht. 17B-2, Note 1*

REGISTERED PROFESSIONAL ENGINEER
62,609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Eileen J. Phelan
Designed By - Henry M. Allen
Drafted By - Tien Nguyen

DRAINAGE & UTILITIES NOTES

SHEET NO. 16A-2

"LW" LINE

"LW" EARTHWORK

Exc. 2695 (Excess)

Stone Emb. 169

MEDIAN EARTHWORK

Exc. 1141 (Excess)

Stone Emb. 181

Profile Grade @ ℄

Ground Line @ ℄

Subgrade

875 mm

50 mm Overlay/ 50 mm Inlay

100 mm Overlay/ 50 mm Inlay

72.953

250 m V.C.

+287.874

+315.20 Inlet F.L. 72.915

450 mm-75.5 m +4.10%

450 mm-45 m +7.06%

+384.77 Inlet F.L. 75.05

450 mm-5.5 m +12.32%

+340.17 Pipe Outfall F.L. 71.90

450 mm-6.5 m +5.62%

+309.62 Pipe Outfall F.L. 69.800

+310.11 M.H. F.L. {72.284 (In) 70.165 (Out)

"LW"95+300

"LW"95+400

+438.77 Inlet F.L. 78.900

+438.07 Inlet F.L. 78.581

+4.992%

100 mm Overlay/ 50 mm Inlay

875 mm

Subgrade

450 mm-27 m +7.10%

+440.65 Inlet F.L. 78.942

300 mm-12 m +3.09%

300 mm-4 m -10.40%

300 mm-6 m +5.70%

+407.65 Inlet F.L. 77.446

1800 mm-55 m +1.00%

525 mm-51.5 m +0.78%

+496.83 M.H. F.L. {76.950 (1800 mm) 80.600 (450mm)

300 mm-15 m +4.84%

+441.83 M.H. F.L. {76.400 (1800 mm) 76.400 (525 mm) 78.193 (300 mm)

+392.71 Inlet F.L. 76.723

300 mm-11 m +7.05%

+390.34 Inlet F.L. 76.000

"LW"95+500

50 mm Overlay

875 mm

Subgrade

+4.992%

+444.45 Inlet F.L. 79.067

300 mm-5 m +17.32%

750 mm-85 m +5.0%

+439.75 M.H. F.L. {77.053 (750 mm) F.L. 78.253 (300 mm)

"LE"95+500

"LE" LINE

"LE" EARTHWORK

Exc. 705 (Excess)

Stone Emb. 842

Profile Grade @ ℄

72.948

250 m V.C.

+282.44 Inlet F.L. 71.951

300 mm-4.5 m +4.55%

875 mm

50 mm Overlay

Subgrade

750 mm-13 m +0.50%

+287.496

+270.02 Pipe Outfall F.L. 71.350

300 mm-15 m +3.77%

+282.15 M.H. F.L. {71.415 (750 mm) 71.753 (300 mm)

"LE"95+300

"LE"95+400

300 mm-5 m +17.10%

+371.75 Inlet F.L. 75.501

750 mm-73 m +4.87%

Extg. Pvmt. @ ℄

+297.37 Inlet F.L. 72.516

750 mm-85 m +2.47%

+367.07 M.H. F.L. {73.516 (750 mm) 74.716 (300 mm)

REGISTERED PROFESSIONAL ENGINEER 17,856 OREGON JULY 25, 1995 DANNY Y. HORI Expires Jun. 30, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - David Joe Polly
Designed By - Danny Y. Hori
Drafted By - Tien Nguyen

PROFILE

SHEET NO. 16B

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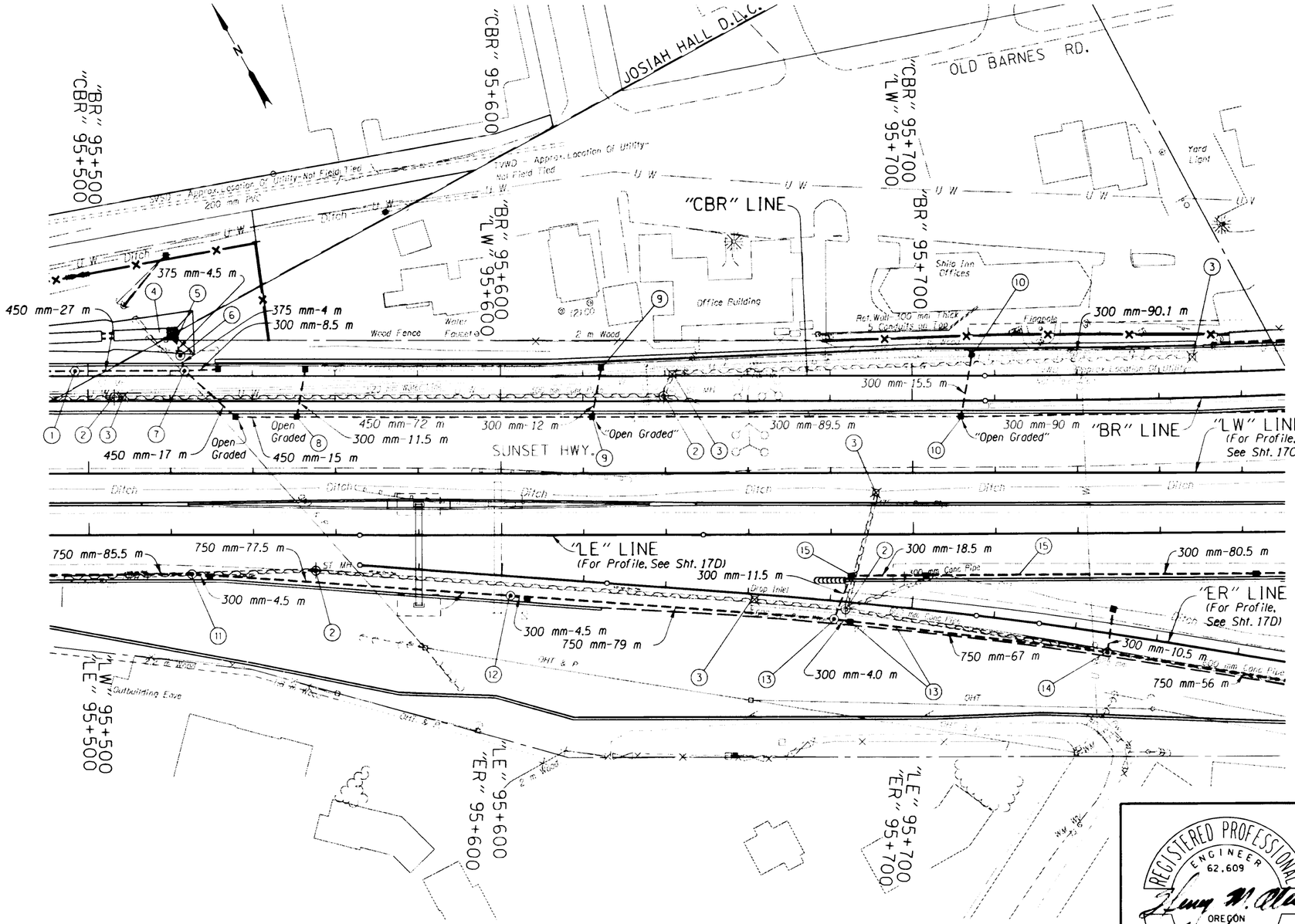
Sec. 3, T. 1S, R. 1W, W.M.

37V-41



Abandon Pipes, Shown Thus:

REGISTERED PROFESSIONAL ENGINEER
62,609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. -
OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Eileen J. Phelan
Designed By - Henry M. Allen
Drafted By - Tien Nguyen

DRAINAGE & UTILITIES

SHEET NO.
17B

(1) Sta. "CBR" 95+496.83, Lt.
Const. Manhole, Large, 2700 mm Dia.
Inst. 450 mm Storm Sew. Pipe - 27.0 m
3 m Depth

(2) Remove Manhole - 4

(3) Remove Inlet - 5

(4) See Sht. 16A-2, Note 7

(5) Sta. "CBR" 95+521.24, Lt.
Inst. 375 mm Storm Sew. Pipe - 4.5 m
1.5 m Depth
Const. Paved End Slope - 3 m^2

(6) Sta. "CBR" 95+522.48, Lt.
Const. Manhole, Type Pollution Control
Inst. 375 mm Storm Sew. Pipe - 4.0 m
3 m Depth
(For Details, See Sht. GHJ-29)

(7) Sta. "CBR" 95+523.54, Lt.
Const. Manhole, Type Diversion, "High-Low"
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 8.5 m
3 m Depth
Inst. 450 mm Storm Sew. Pipe - 32.0 m
3 m Depth
(For Details, See Sht. GHJ-18)

(8) Sta. "LW" 95+550.63, Lt.
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 11.5 m
3 m Depth
Inst. 450 mm Storm Sew. Pipe - 72.0 m
3 m Depth
Rock Exc. - 12 m^3

(9) Sta. "LW" 95+622.17, Lt.
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 101.5 m
3 m Depth
Rock Exc. - 12 m^3

(10) Sta. "LW" 95+711.65, Lt.
Const. Type "G-2" Inlet
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 105.5 m
3 m Depth
Rock Exc. - 12 m^3

(11) Sta. "LE" 95+524.99, Rt.
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 4.5 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 77.5 m
6 m Depth

(12) Sta. "ER" 95+602.54, Rt.
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Open Graded HMAC Inlet
Inst. 300 mm Storm Sew. Pipe - 4.5 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 79.0 m
6 m Depth

(13) Sta. "ER" 95+681.37, Rt.
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G-2" Inlet
Inst. 300 mm Storm Sew. Pipe - 15.5 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 67.0 m
6 m Depth

(14) Sta. "ER" 95+748.54, Rt.
Const. Manhole, Large, 1500 mm Dia.
Const. Type "G2-MA" Inlet
Remove Extg. Pipe - 56.0 m
Inst. 300 mm Storm Sew. Pipe - 10.5 m
3 m Depth
Inst. 750 mm Storm Sew. Pipe - 56.0 m
6 m Depth

(15) Sta. "LE" 95+684.81, Rt.
Const. Type "G-2" Open Graded HMAC Inlet - 2
Inst. 300 mm Storm Sew. Pipe - 99.0 m
1.5 m Depth

REGISTERED PROFESSIONAL ENGINEER
62,609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. -
OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - Eileen J. Phelan
Designed By - Henry M. Allen
Drafted By - Tien Nguyen

DRAINAGE & UTILITIES NOTES

SHEET NO. 17B-2

"LW" LINE

200 mm Overlay
50 mm Inlay
875 mm
97.112o
Subgrade
272 m V.C.
+771.800
Profile Grade ℄
Ground Line ℄
300 mm-90 m
+3.88%
+714.38 Inlet F.L. 92.057
300 mm-15.5 m +1.00%
+711.65 Inlet F.L. 91.905
200 mm Overlay
50 mm Inlay
100 mm Overlay
50 mm Inlay
300 mm-89.5 m
+4.64%
+4.992%
+624.31 Inlet F.L. 87.873
300 mm-12 m +1.00%
+622.17 Inlet F.L. { 87.603 (450 mm)
87.753 (300 mm)
450 mm-72 m
+4.98%
100 mm Overlay
50 mm Inlay
875 mm
300 mm-8.5 m
+7.37%
300 mm-11.5 m
+1.00%
+552.80 Inlet F.L. 84.307
+550.63 Inlet { F.L. 84.042 (450 mm)
F.L. 84.192 (300 mm)
450 mm-15 m +4.92%
+535.70 Inlet F.L. 83.311
450 mm-17 m +4.92%
+531.66 Inlet F.L. 83.100
Subgrade
+523.54 Diversion M.H. F.L. 82.496
375 mm-4.0 m +1.00%
+522.48 Pollution Control M.H. F.L. 82.460
450 mm-27 m
+7.10%
375 mm-4.5 m +1.00%
+521.24 Pipe F.L. 82.415
+542.00 Outfall F.L. 83.80

90 89 88 87 86 85 84 83 82 81

98 97 96 95 94 93 92 91 90 89 88

"LW" EARTHWORK
Exc. 4344 (Excess)
Stone Emb. 3

MEDIAN EARTHWORK
(See Sht. 17D "LE" Line)
Exc. 1298 (Excess)
Stone Emb. 151

"LW"95+500 "LW"95+600 "LW"95+700

REGISTERED PROFESSIONAL ENGINEER
17,856
OREGON
JULY 25, 1995
DANNY Y. HORI
Expires Jun. 30, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Design Team Leader - David Joe Polly
Designed By - Danny Y. Hori
Drafted By - Tien Nguyen

PROFILE

SHEET NO. 17C

1:1000 - 3

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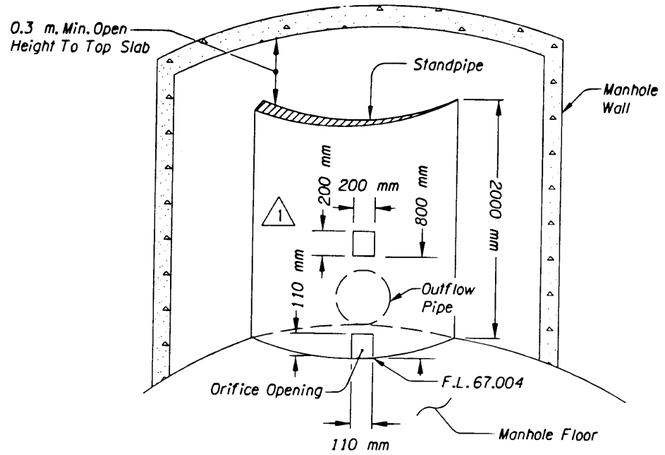
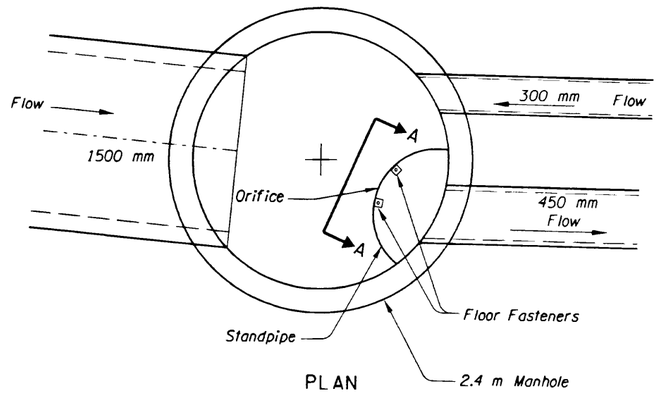


Note: For Details Not Shown, See Sht. GHJ-13

SECTION A-A

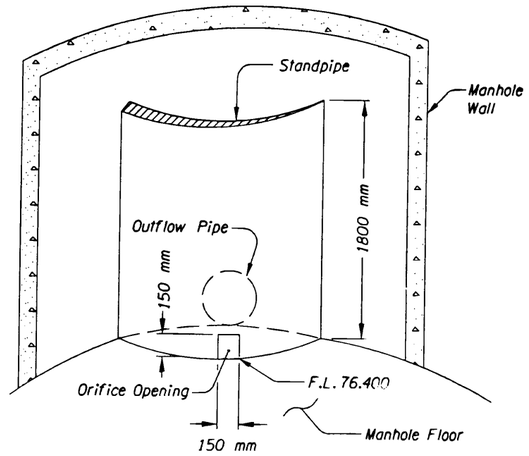


PLAN

Note: For Details Not Shown, See Sht. GHJ-13

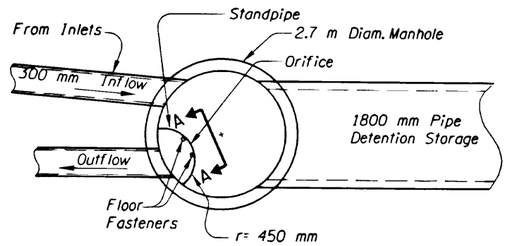
DETENTION MANHOLE
Sta. "LW" 94+431, Lt.

REVISION	DATE	BY
1 Add. Changed Orifice	3-04-04	HMA



Note: For Details Not Shown, See Sht. GHJ-13

SECTION A-A



PLAN

DETENTION MANHOLE
Sta. "BR" 95+441, Lt.

REGISTERED PROFESSIONAL ENGINEER
62,609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

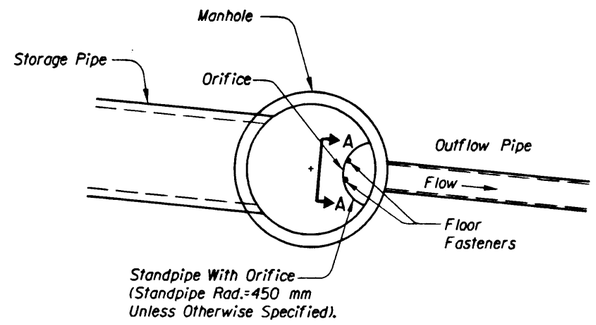
US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Project Leader - Naveen Chandra
Designed By - Henry M. Allen
Drafted By - Martin G. Casillas

WATER QUALITY DETAILS

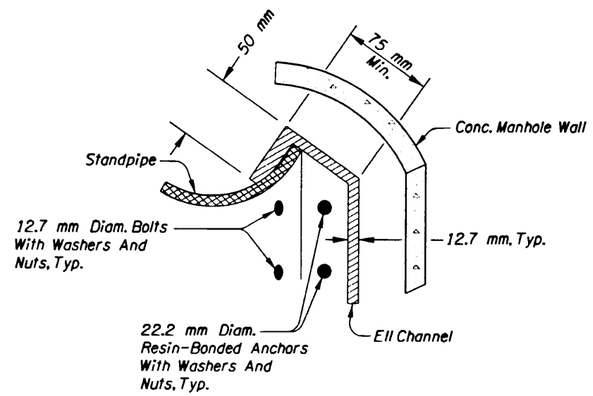
SHEET NO. GHJ-12

DETENTION MANHOLE GENERAL DETAILS

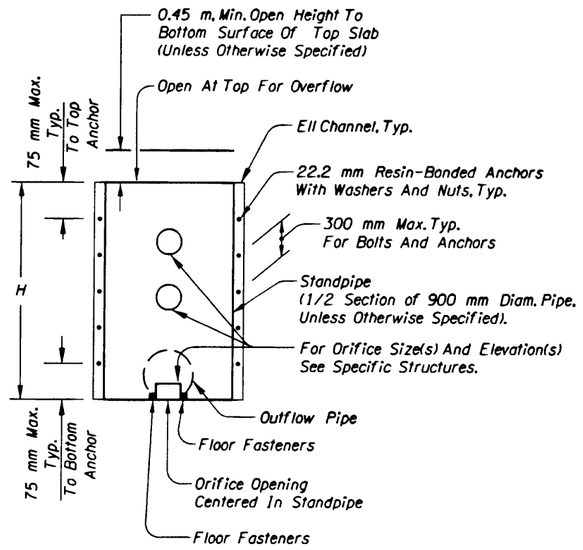


PLAN

DETENTION MANHOLE



STANDPIPE CONNECTION TO MANHOLE WALL



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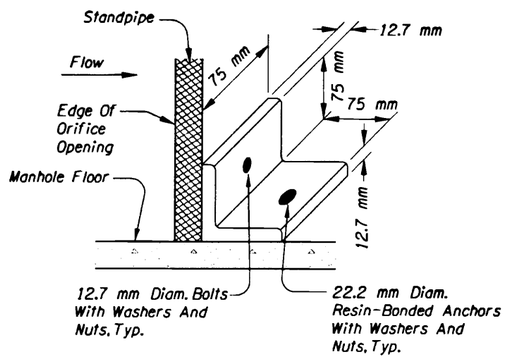

FLOOR FASTENER

NOTES:
1. Permanent Waterproof Seal All Edges Of Standpipe Contacting Floor And Wall.
2. Standpipe Shall Be 2.77 mm (12 Gage) Thick Metal, Or HDPE SDR26, Gage, Min.
3. Place Floor Fasteners That Are Next To The Orifice Opening Inside The Standpipe, One On Each Side Of Opening.
4. Orifice Opening(s) Are Centered In The Standpipe And In Line With The Outflow Pipe.
5. All Hardware Shall Be Stainless Steel Or Hot Dipped Galvanized.
6. For Other Bolt, Anchor And Support Details, Not Shown See Sht. GHJ-20.
7. All Dimensions Are In Millimeters (mm) Unless Otherwise Noted.

REGISTERED PROFESSIONAL ENGINEER 62,609 OREGON JULY 9, 2000 HENRY MINTON ALLEN Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Project Leader - Naveen Chandra
Designed By - Henry M. Allen
Drafted By - Martin G. Casillas

WATER QUALITY DETAILS

SHEET NO. GHJ-13

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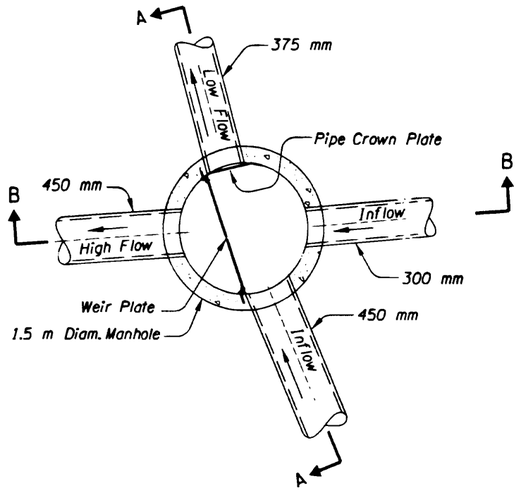
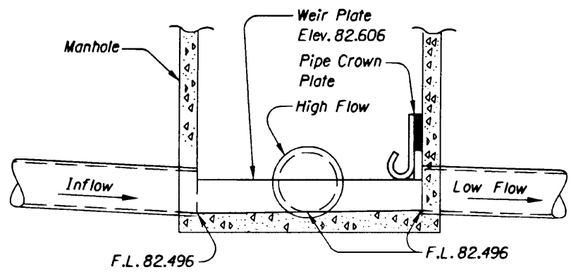
VIEW 1

VIEW 1



PLAN



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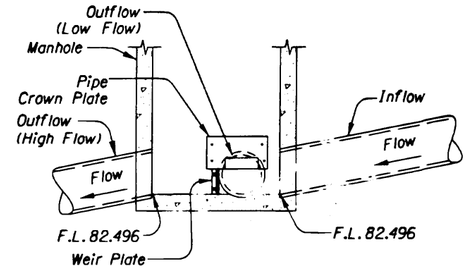
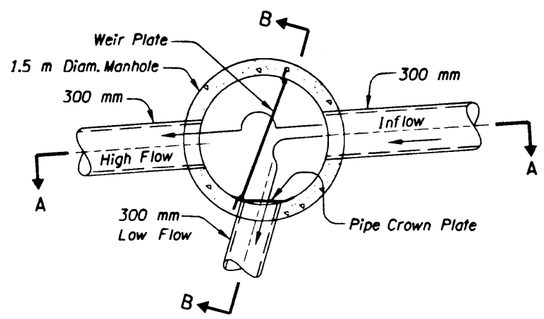


SECTION B-B

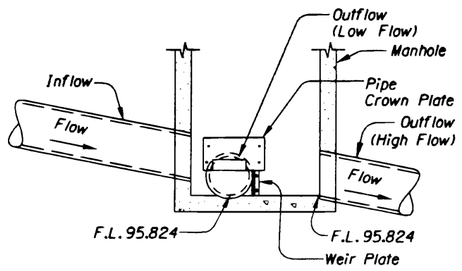
For Details Not Shown, See Sht. GHJ-20

DIVERSION MANHOLE "HIGH-LOW" LOW FLOW STRAIGHT THROUGH

Sta. "CBR" 95+523, Lt.



PLAN



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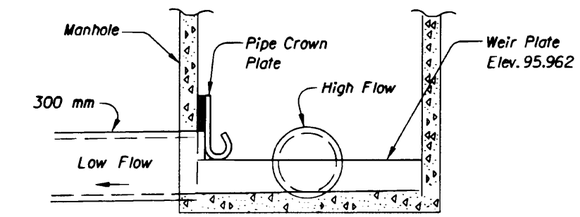

SECTION B-B

For Details Not Shown, See Sht. GHJ-20

DIVERSION MANHOLE "HIGH-LOW", LOW FLOW TO SIDE

Sta. "D" 96+042, Rt.

All Dimensions Are In Millimeters (mm) Unless Otherwise Noted.

REGISTERED PROFESSIONAL ENGINEER
62.609
Henry M. Allen
OREGON
BY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Project Leader - Naveen Chandra
Designed By - Henry M. Allen
Drafted By - Martin G. Casillas

WATER QUALITY DETAILS

SHEET NO. GHJ-18

VIEW 6

VIEW 6

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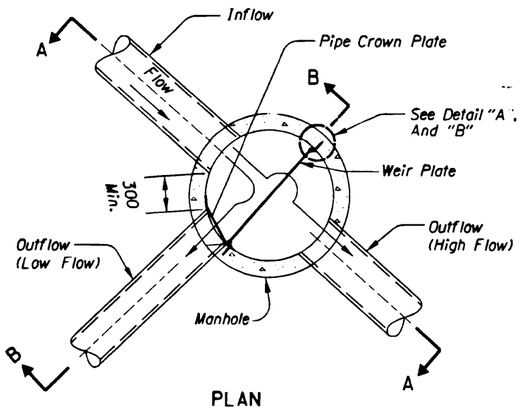
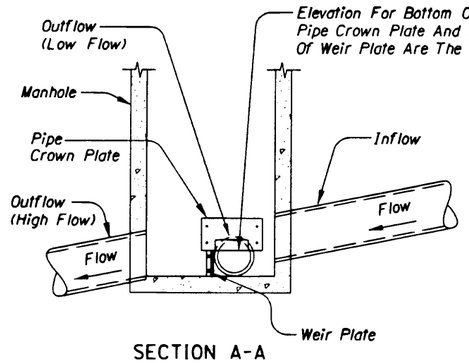
DIVERSION MANHOLE HIGH-LOW, PIPE CROWN PLATE, AND WEIR PLATE GENERAL DETAILS



PLAN

GENERAL-LOW FLOW TO SIDE



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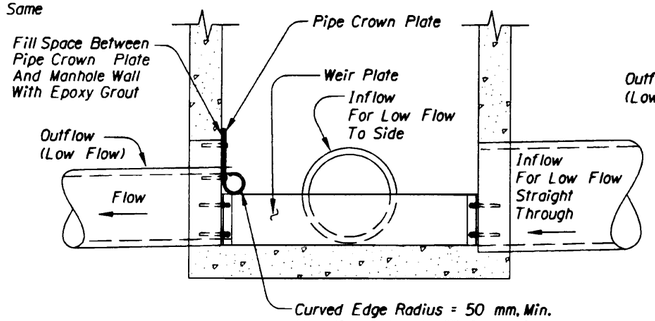

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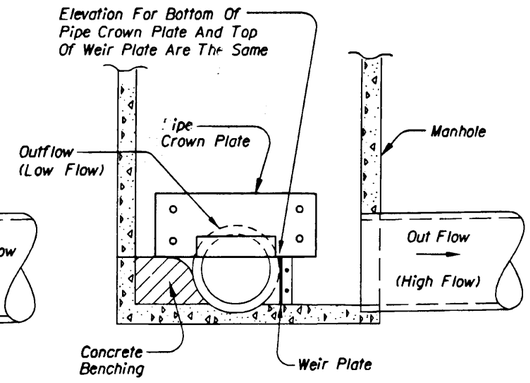

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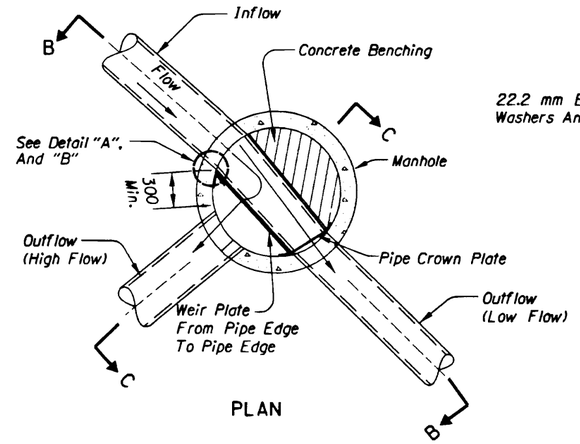
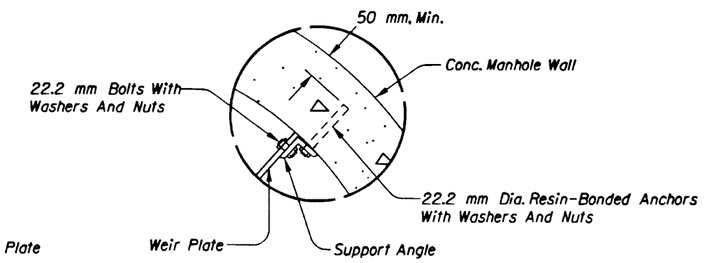


PLAN

GENERAL-LOW FLOW STRAIGHT THROUGH



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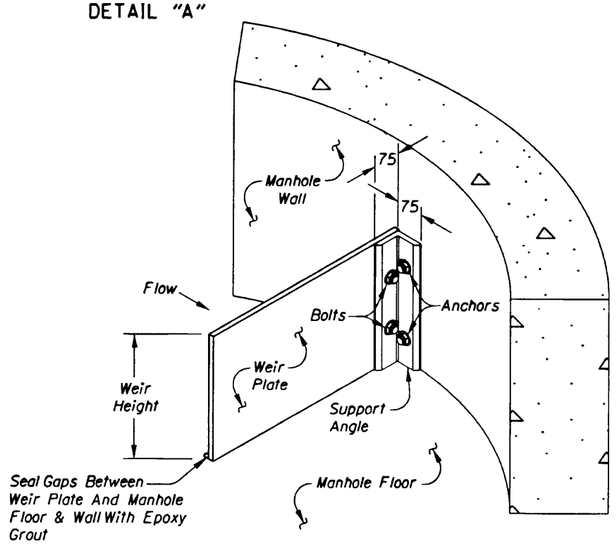
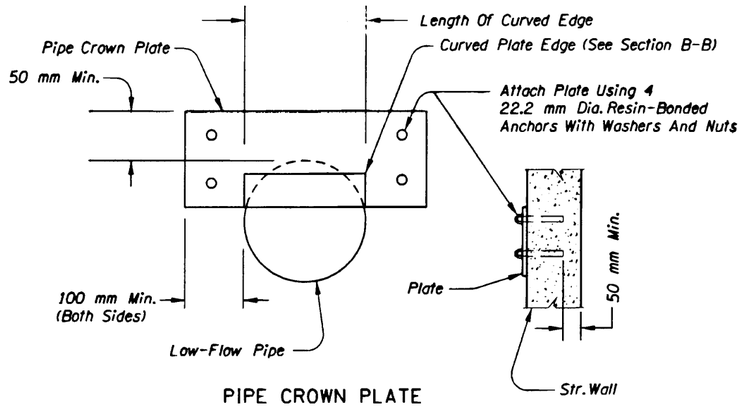


DETAIL "B"

(Typ. Both Ends Of Weir)



PIPE CROWN PLATE

Notes:

1. When Connecting To Extg. Pipes Their Sizes, Types, And Invert Elevations Are To Be Verified In The Field.
2. Pipe Crown Plate, Weir Plate, And Support Angles Shall Be Steel And Shall Be At Least 12.7 mm Thick, Min.
3. Center Curved Edge Of Pipe Crown Plate On Center Of Outflow Pipe.
4. Embed Resin-Bonded Anchors 100 mm, Min., Into Concrete. Use High Or Low Strength Resin From ODOT's Qualified Products List, Suitable For Wet Or Submerged Locations.
5. For Resin-Bonded Anchors, Use Steel Threaded Rods.
6. Anchors Shall Be 25 mm, Min., Inside Pipe Crown Plate, Weir Plate, And Support Angle Edges.
7. Hole Diameters In The Plates And Angles For The Anchors And Bolts Shall Be 3.2 mm Larger Than The Anchor Or Bolt Diameters.
8. Metal Plates And All Hardware Shall Be Stainless Steel Or Hot-Dipped Galvanized.
9. The Curved Edge On The Pipe Crown Plate May Be Achieved By Bending The Plate Edge, Or By Welding A Section Of 100 mm Pipe To The Bottom Edge Of The Plate, Or Other Durable Device That Produces A Rounded Edge, To Be Approved By The Engineer.

All Dimensions Are In Millimeters (mm) Unless Otherwise Noted.

REGISTERED PROFESSIONAL ENGINEER
62,609
OREGON
MAY 9, 2000
HENRY MINTON ALLEN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26: CORNELL RD. - OR217 (BEAVERTON) SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

Project Leader - Naveen Chandra
Designed By - Henry M. Allen
Drafted By - Martin G. Casillas

WATER QUALITY DETAILS

SHEET NO. GHJ-20