OPERATION & MAINTENANCE MANUAL

DFI No.: D00085
Facility Type: Detention Pond

JUNE, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00085**
Facility Type:	Detention Pond
Construction Drawings:	(V-File Number) 36V-054 / 25V-039
Location:	District: 2B (Old 2A)
	Highway No.: 047
	Mile Post: 69.25; 69.30 (beg./end)
	Description: This facility is located at the southeastern quadrant of US26 (Hwy 047) and OR217 (Hwy 144). This facility provides stormwater detention after the water has been treated by two adjacent water quality facilities (D00078 and D00129).

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:	2003
Contractor:	N/A

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.

The drainage area for this detention facility includes the eastbound off ramp of US26 (Hwy 047), a portion of S.W. Baltic Avenue, the US26 highway drainage treated by facilities DFI D00078 and D00129, and a significant area north of US26 (Hwy 047).

There are a total of four facility inlets for the detention pond as shown on the Operational Plan. These inlets include two 18-inch storm pipes along the eastern edge, a 12-inch storm pipe located along the western edge, and an 18-inch storm pipe at the northwest corner. The detention basin is lined with riprap and heavily vegetated along the western edge with trees (Photo 3).

An outlet control structure for this detention pond is located along the western edge along S.W. Baltic Avenue. This structure is a modified ditch inlet with restricted flow due to a steel plate. A 15-inch pipe drains underneath SW Baltic Avenue and OR217 (Hwy 144). Drainage is then conveyed to the north through a stormwater piping system.

A. Maintenance equipment access:
   Access to the facility can be obtained from the eastbound off ramp of US26 (Hwy 047). The facility does not contain a vehicular access and heavy equipment access may be difficult due to the riprap embankment and heavy vegetation.

B. Heavy equipment access into facility:

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

C. Special Features:

   ☐ Amended Soils
   ☐ Porous Pavers

☐ Liners
☒ Underdrains

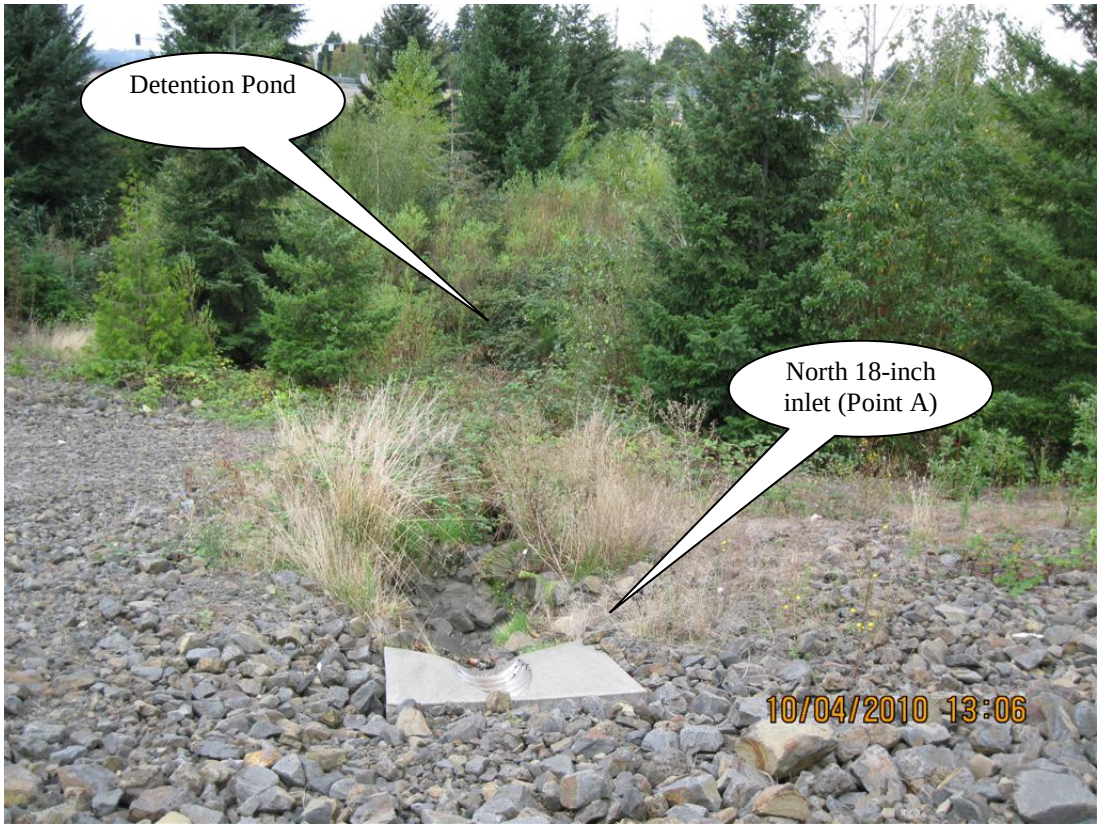


Photo 1: Detention pond facility at north 18-inch inlet. This inlet accepts flows from DFI D00078 and from the east bound off-ramp to US 26 (Hwy 047).

Photo 2: Detention pond facility at south 18-inch inlet (Point B). This inlet directs flow from the grassy swale of DFI D00129.

Photo 3: Detention pond facility looking to the west.

5. Facility Haz Mat Spill Feature(s)

The detention pond facility can be used to store a volume of liquid by blocking the outlet structure by either two options:

Option 1: As shown in the Operational Plan, a canal gate can be accessed within the outlet control structure (Point D). This gate valve can be closed and thus containing a sufficient volume within the detention facility.

Option 2: Close off the bottom inlet of the outlet control structure (Point D) through the use of sandbags or a metal plate.

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 –
The auxiliary outlet is located at Point G. Stormwater would drain out the auxiliary outlet when the flow control plate (Point F) is blocked with debris.

☐ 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

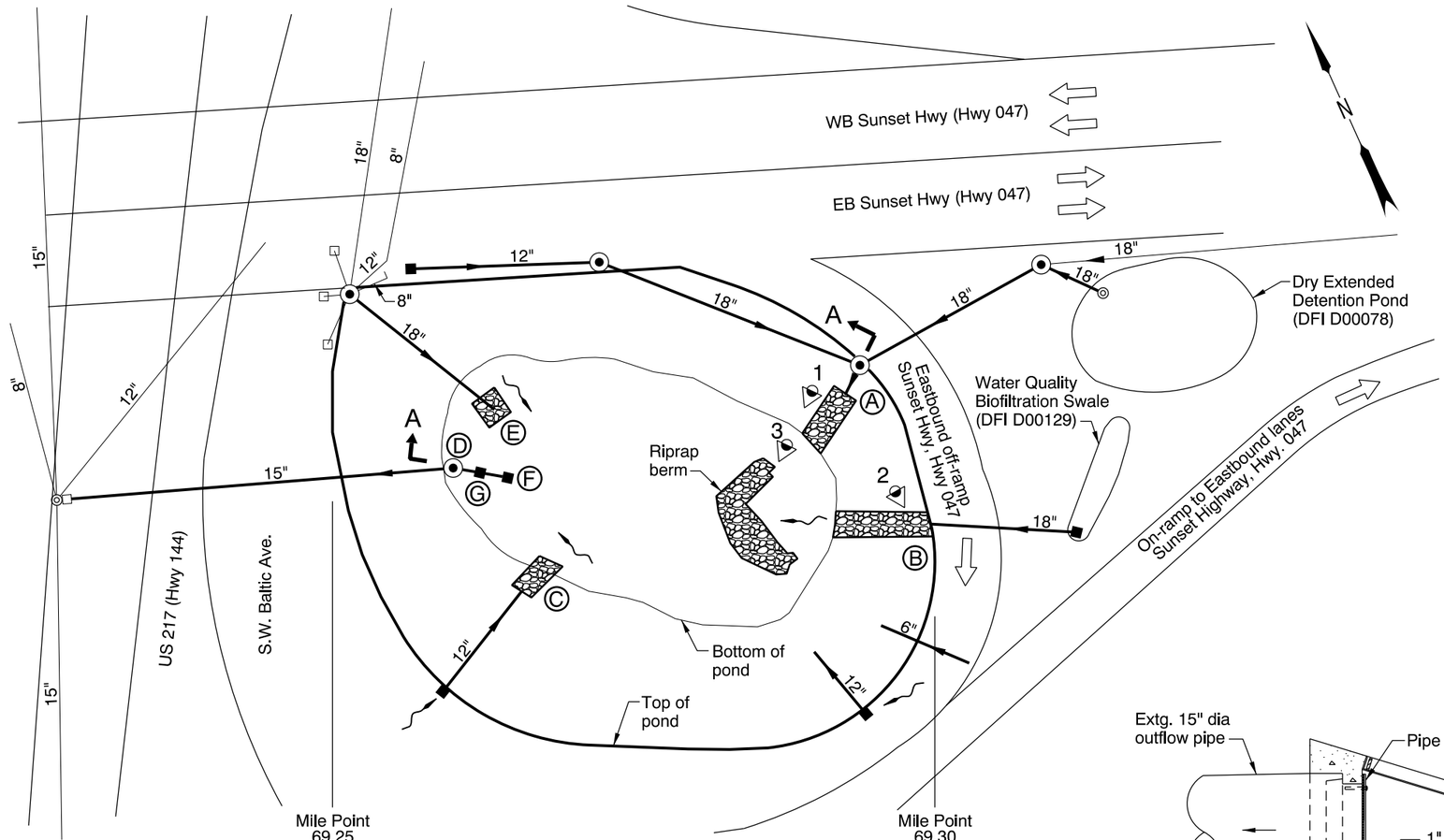
Contact any of the following for more detailed information about management of waste materials found on site:

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

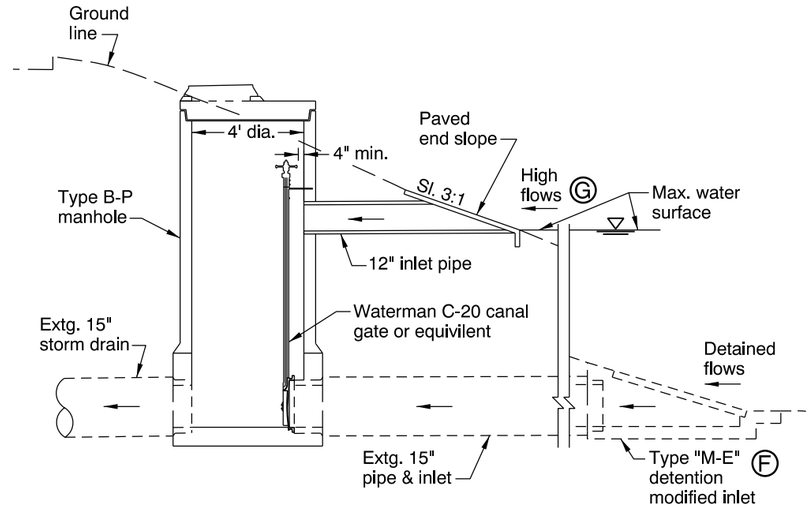
Appendix A

Content:

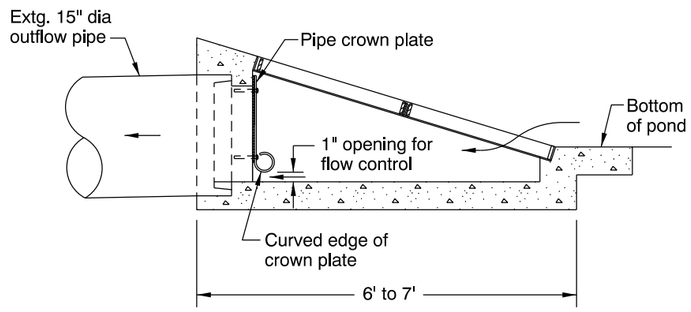
- **Operational Plan and Profile Drawing(s)**



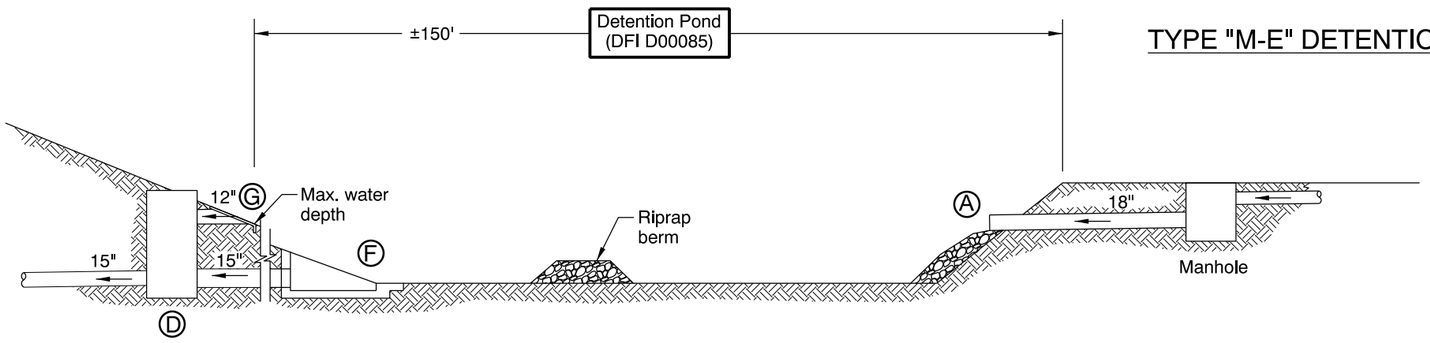
PLAN
N.T.S.



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



TYPE "M-E" DETENTION MODIFIED INLET AT POINT Ⓕ
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- Photo Location / Direction
- Ⓐ 18-Inch Inlet, North
- Ⓑ 18-Inch Inlet, South
- Ⓒ 12-Inch Inlet
- Ⓓ Outlet Control Structure
- Ⓔ 18-Inch Inlet
- Ⓕ Detained Flows/Type "M-E" Mod. Inlet-Outlet
- Ⓖ High Flows
- Manhole
- Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Bob Knorr

Drafted By: S. Wolfer

DFI D00085
MAINTENANCE DISTRICT 2B HWY 047
DETENTION POND
SUNSET HWY MP 69.25-69.30
MULTNOMAH & WASHINGTON COUNTIES

Z:\Hydraulics\Hydraulics OM\Completed_Facility_Files\Dist_2B\Hwy_047\2B_047_D00085\Operational Plan\DFI_D00085.dgn :: Sheet 1/15/2014 5:44:05 PM hwyr33e

DFI_D00085.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.
1A-2	Standard Drawing Nos.
2.2A Thru 2A-17 Incl.	Typical Sections
2B Thru 2B-13 Incl.	Details
2C Thru 2C-7 Incl.	Traffic Control Details
2CA. 2CA-2, 2CA-3, 2CA-3A, 2CA-3B	Traffic Control Plans – O'Xing Beaverton-Tigard Hwy. Work Area
2CB Thru 2CB-6 Incl., 2CB-7, 2CB-7A Thru 2CB-7F Incl., 2CB-8 Thru 2CB-14 Incl., 2CB-14A, 2CB-14B, 2CB-15 Thru 2CB-23 Incl.	Traffic Control Plans – Climbing Lane Work Area
2CC Thru 2CC-54 Incl.	Traffic Control Plans – Canyon Rd. Work Area

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

REVISED PLAN SHEETS INCORPORATED

REVISED PLAN SHEETS INCORPORATED

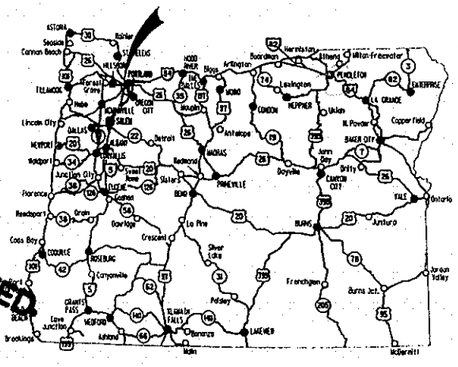
GRADING, STRUCTURES, PAVING, SIGNING, ILLUMINATION, ROADSIDE DEVELOPMENT

US26:OR217 - SYLVAN INTCHGE. SEC.

SUNSET HIGHWAY

MULTNOMAH & WASHINGTON COUNTIES

APRIL 2003



Overall Length Of Project – 4.90 km (3.05 Miles)

RECEIVED
PROJECT MANAGER
APR 28 2003
FIN ADM
PC INSP

ATTENTION !
Oregon Law Requires You To Follow Rules
Adopted By The Oregon Utility Notification Center.
Those Rules Are Set Forth In OAR 952-001-0010 Through OAR 952-001-0090.
You May Obtain Copies Of The Rules By Calling The Center. (Notes The Telephone Number for the Oregon Utility Center Is (503) 232-1987).

OTIA
OREGON TRANSPORTATION INVESTMENT ACT

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

NH-OTIA-S047(47)
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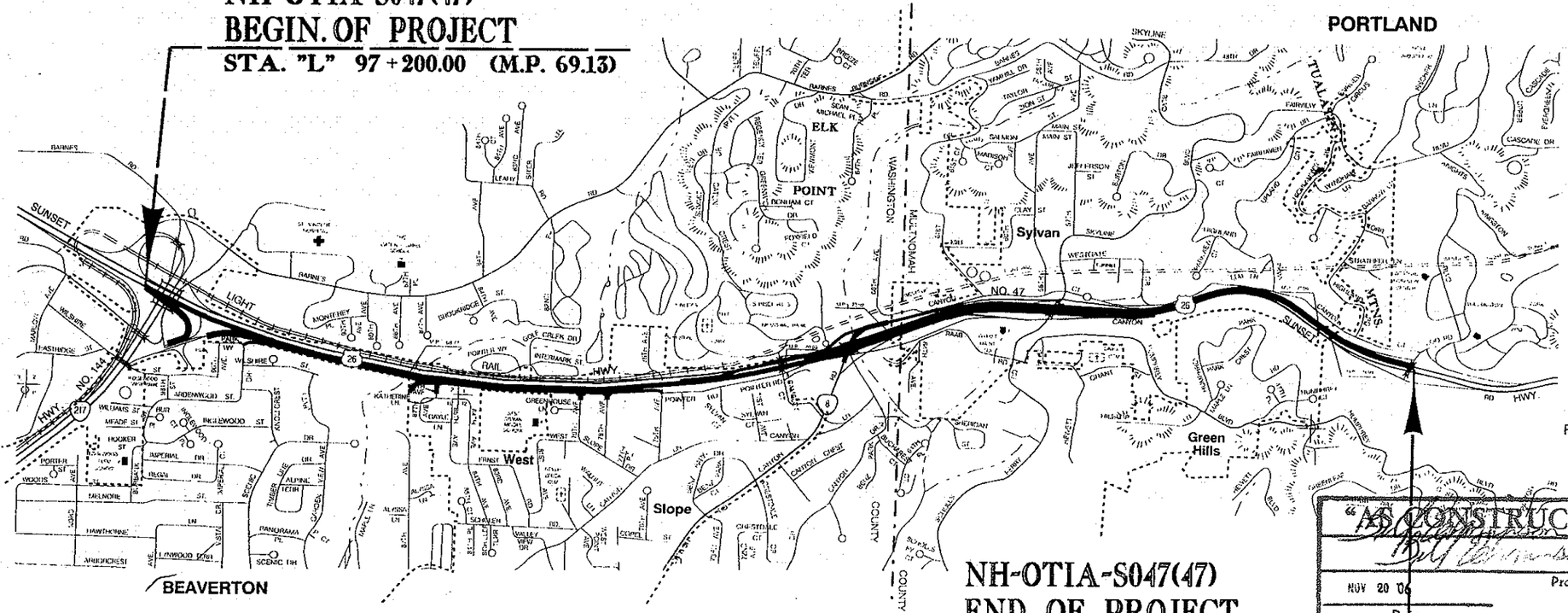

NH-OTIA-S047(47)
END OF PROJECT
STA. "L" 102+100.00 (M.P. 72.18)

"AS CONSTRUCTED"
Project Manager
NOV 20 06
Date

OREGON TRANSPORTATION COMMISSION

Steven H. Corey	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Stuart Foster	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

US26:OR217 - SYLVAN INTCHGE. SEC.
SUNSET HIGHWAY
MULTNOMAH & WASHINGTON COUNTIES

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION	NH-OTIA-S047(47)	1

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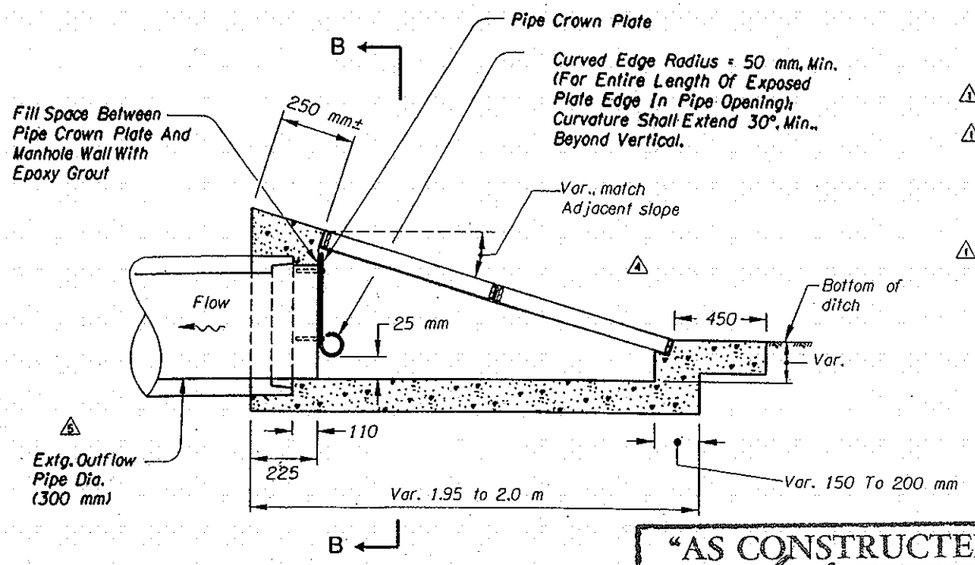


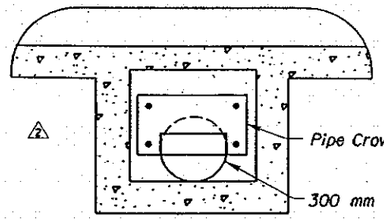
SECTION A-A

Notes:

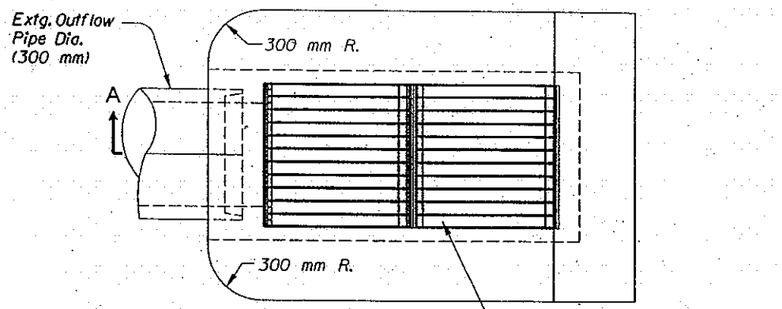
1. Exstg. Pipe Sizes, Types, And Invert Elevations Are To Be Verified In The Field. Invert Elevations For Exstg. Pipes Are Interpolated From Survey Data. If Actual Elevations Differ, Adjust Elevations For Proposed System Equally, As Needed.
2. Pipe Crown Plate Shall Be Steel And Shall Be At Least 9.5 mm Thick, Min.
3. Center Curved Edge Of Pipe Crown Plate On Vertical Centerline 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.
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 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.
10. For Additional Details, See Drg. No. RD336.

No.	REVISION	DATE	BY
1	Edited Note, Removed Inappropriate References	12-17-03	BSC
2	Replaced Section B-B With A Revised Section	12-17-03	BSC
3	Revised Crown Plate Detail	12-17-03	BSC
4	Cleaned Up Section A-A - Revised Crown Plate	12-17-03	BSC
5	Edited Note To Reflect Exstg. Conditions	12-17-03	BSC
6	Changed Std. Drg. Reference	12-17-03	BSC

"AS CONSTRUCTED"
Bill Edmunson
Project Manager
NOV 20 06
Date



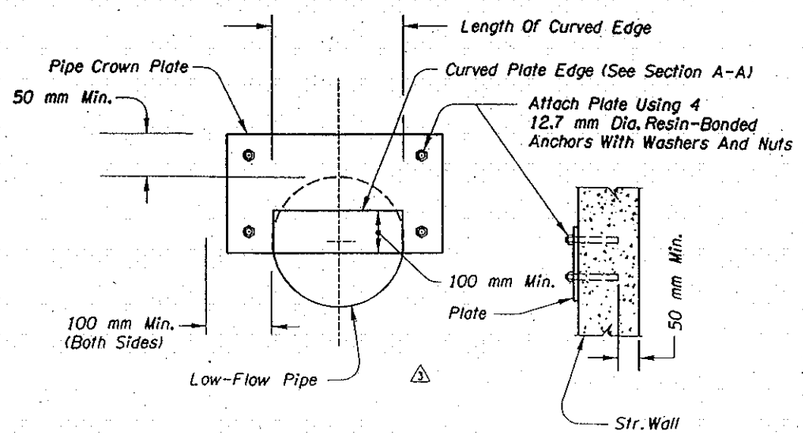
SECTION B-B



Note:
For Details Not Shown, See RD339

PLAN

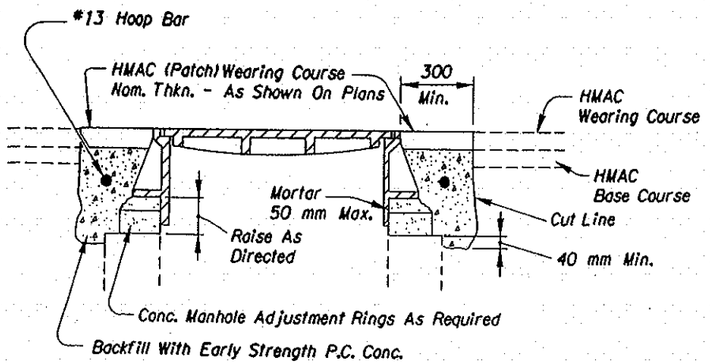
All Dimensions Are In Millimeters (mm) Unless Otherwise Noted.



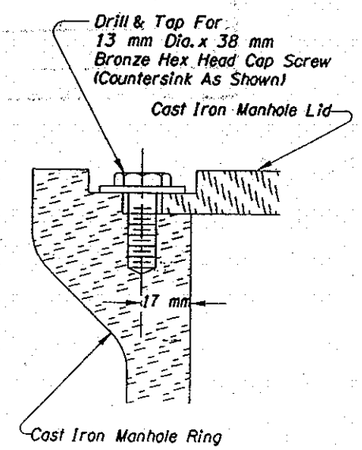
PIPE CROWN PLATE

MANHOLE ADJUSTMENT SEQUENCE

(For Details Not Shown, See Drg. Nos. RD324 & RD327)



1. Cover Manhole With Building Paper And Const. HMAC Base And Wearing Courses.
2. Sawcut Square Or Circular Excavation Around Manhole 300 mm Min. From Manhole Frame. Orient Diagonal Of Square So That It Is Parallel To Roadway Center Line.
3. Raise Manhole Frame And Cover To Finish Grade By Installing Conc. Rings And Leveling Mortar.
4. Backfill With Early Strength P.C. Conc. And HMAC Wearing Course.



CAP SCREW FOR BOLT-DOWN MANHOLE COVER

(4 Reqd., Spaced Evenly)

REGISTERED PROFESSIONAL ENGINEER
19,156
OREGON
JULY 15, 1997
BRUCE S. COUNCIL
Expires Dec. 31, 2003

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26:OR217 - SYLVAN INTCHGE. SEC.
SUNSET HIGHWAY
MULTNOMAH & WASHINGTON COUNTIES

Design Team Leader - David Joe Polly
Designed By - Bruce Council
Drafted By - Martin G. Casillas

DETAILS

SHEET NO. 2B

THIS IS THE FILE NAME LOCATION ********** DD-MMM-YYYY HH:MM

VIEW

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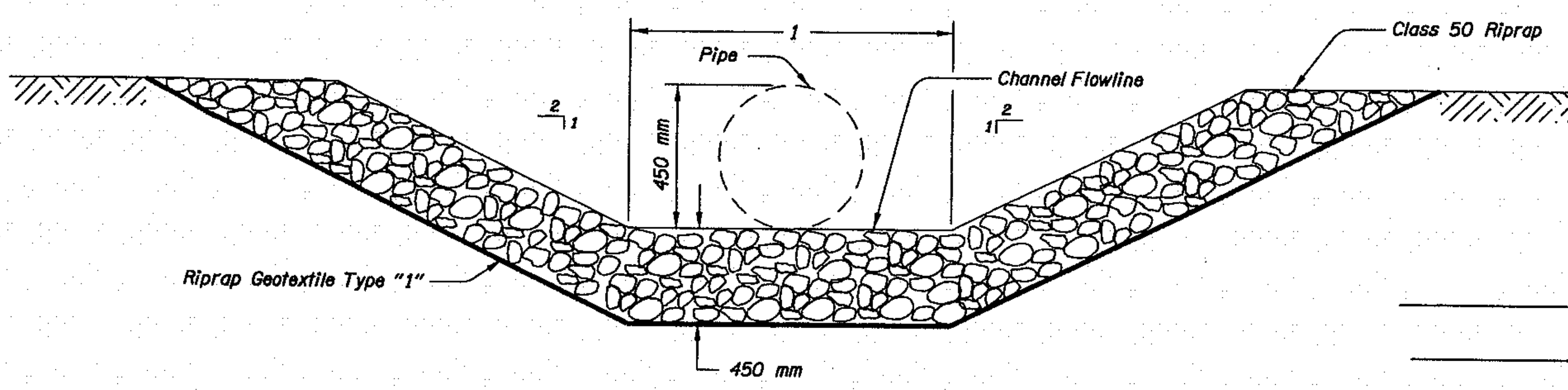

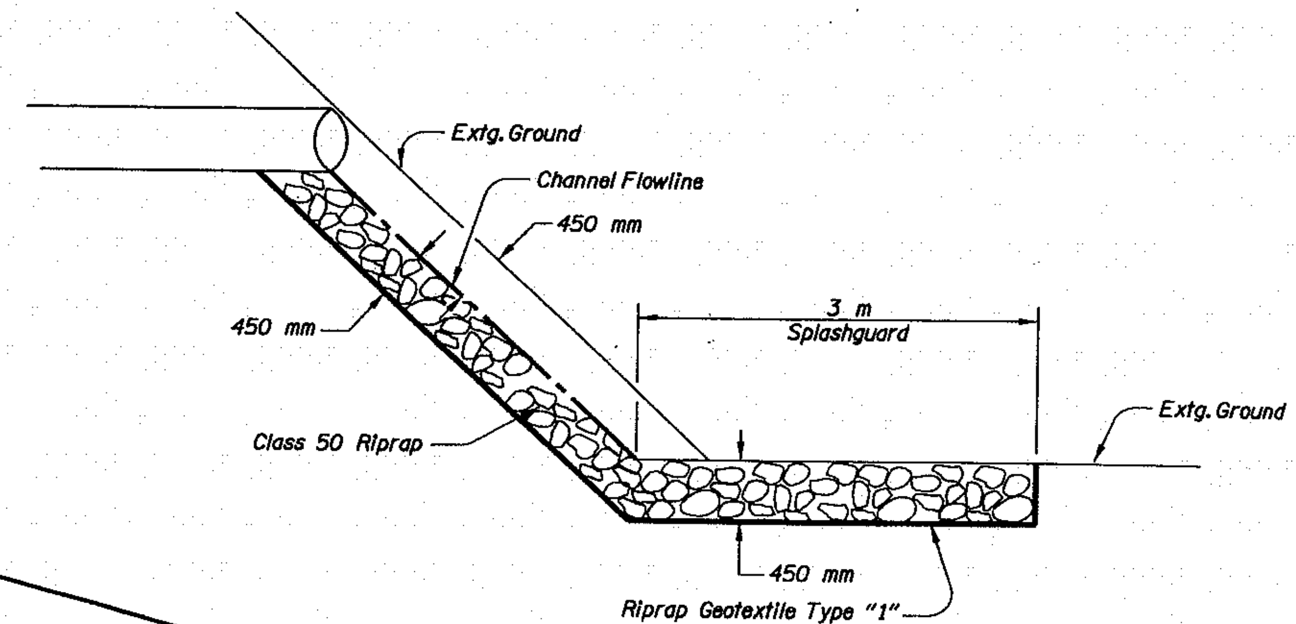

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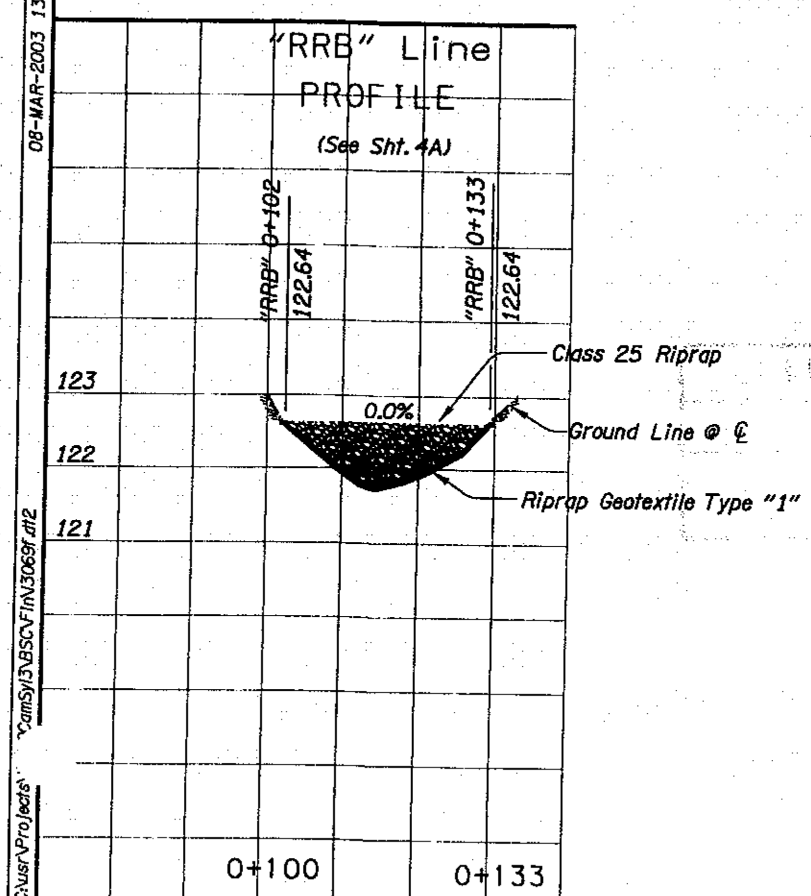
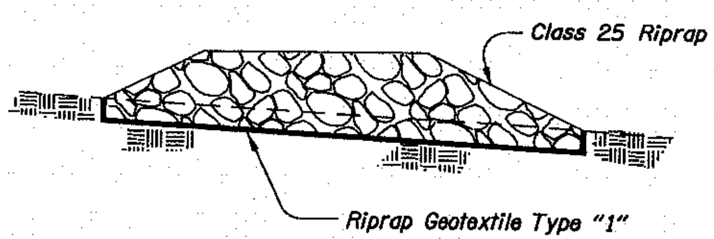
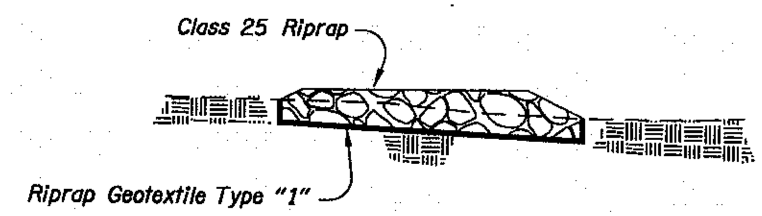
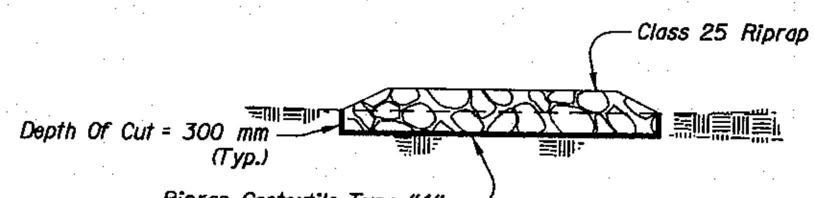




(See Sht. 4A)
SECTION B-B



(See Sht. 4A)
SECTION C-C



(See Sht. 4A)
SECTION A-A

"AS CONSTRUCTED"
Bill Edmunson
Project Manager
NOV 20 '06
Date

All Dimensions Are In Meters (m)
Unless Otherwise Noted.

REGISTERED PROFESSIONAL ENGINEER 19,166 OREGON JULY 15, 1997 BRUCE S. COUNCIL
Expires Dec. 31, 2003

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26:OR217 - SYLVAN INTCHGE. SEC.
SUNSET HIGHWAY
MULTNOMAH & WASHINGTON COUNTIES

Design Team Leader - David Joe Polly
Designed By - Bruce Council
Drafted By - Martin G. Casillas

DETAILS

SHEET NO. 2B-8

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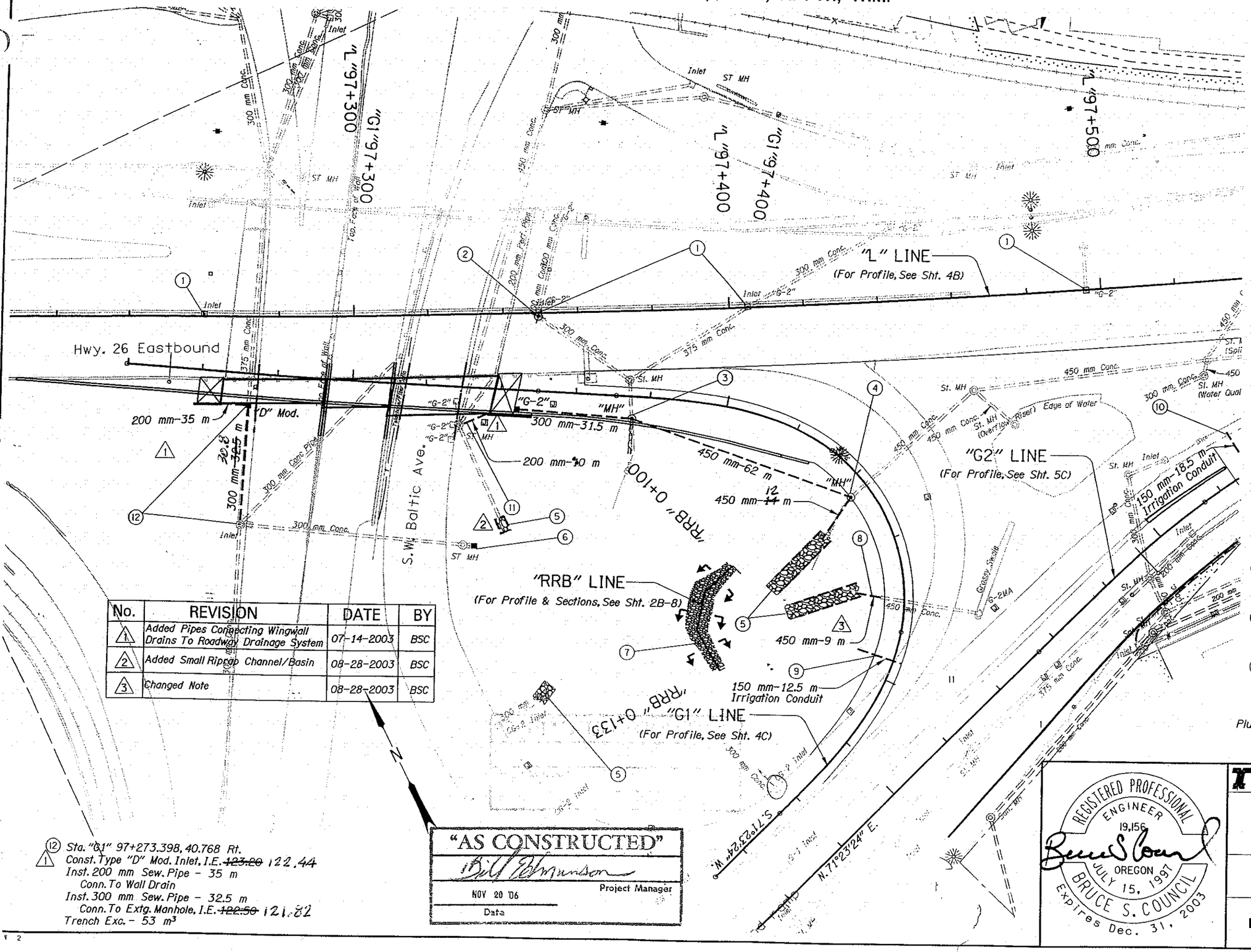

No.	REVISION	DATE	BY
1	Added Pipes Connecting Wingwall Drains To Roadway Drainage System	07-14-2003	BSC
2	Added Small Riprap Channel/Basin	08-28-2003	BSC
3	Changed Note	08-28-2003	BSC

"AS CONSTRUCTED"

Bill Robinson
Project Manager

NOV 20 '06
Date

(1) *Adjust Inlet - 4*
Const. Open Grade HMAC Mod. - 4
(See Drg. Nos. RD306 & RD345)

(2) *Sta. "L" 97+349.39, Rt.*
Adjust Manhole
(For Details, See Sht. 2B)

97+315.31, Rt.

(3) *Sta. "G1" ~~97+444.58, Rt.~~*
Remove 375 mm Pipe - 10 m
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet
Inst. 300 mm Sew. Pipe - 31.5 m
Trench Exc. - 67 m³
(See Drg. Nos. RD300, RD309, RD312, RD324, RD327, & RD336)

97+444.13, Rt.

(4) *Sta. "G1" ~~97+444.58, Rt.~~*
Const. Manhole
Inst. 450 mm Sew. Pipe - 76 m
Trench Exc. - 100 m³ (3)

(5) *Place Class 50 Riprap - 112 m³*
Ditch Exc. - 131 m³
Riprap Geotextile Matl. Type "1" - 198 m²
(For Details, See Sht. 2B-8)

(6) *Const. Type "M-E" Detention Mod. Inlet*
(For Details, See Sht. 2B)

(7) *Place Class 25 Riprap Berm - 65 m³*
(For Details, See Sht. 2B-8)

97+476.95, Rt.

(8) *Sta. "G1" ~~97+477.5, Rt.~~*
450 mm Conc. (Pipe In Pl) - 25 m
Extend - 9 m (3)

(9) *Sta. "G1" 97+440, Rt.*
Inst. 150 mm Conduit Pipe - 12.5 m
(For Details, See Irrigation Plans)

(10) *Sta. "G2" 97+529, Rt.*
Inst. 150 mm Conduit Pipe - 18.5 m
(For Details, See Irrigation Plans)

(11) *Sta. "G1" 97+329.384, 10.365 Rt.* (1)
Inst. 200 mm Sew. Pipe - 10 m
Conn. Wall Drain To Extg. M.H., I.E. 122.81
Trench Exc. - 13 m³

Plug & Abandon Pipe Shown Thus:

All Dimensions Are In Meters (m)
Unless Otherwise Noted.

(1) (12) *Sta. "G1" 97+273.398, 40.768 Rt.*
Const. Type "D" Mod. Inlet, I.E. ~~123.20~~ 122.44
Inst. 200 mm Sew. Pipe - 35 m
Conn. To Wall Drain
Inst. 300 mm Sew. Pipe - 32.5 m
Conn. To Extg. Manhole, I.E. ~~122.50~~ 121.82
Trench Exc. - 53 m³

REGISTERED PROFESSIONAL ENGINEER
19,156
OREGON
JULY 15, 1997
BRUCE S. COUNCIL
Expires Dec. 31, 2003

OREGON DEPARTMENT OF TRANSPORTATION
GEO / HYDRO SECTION

US26:OR217 - SYLVAN INTCHGE. SEC.
SUNSET HIGHWAY
MULTNOMAH & WASHINGTON COUNTIES

Design Team Leader - David Joe Polly
Designed By - Bruce Council
Drafted By - Martin G. Casillas

DRAINAGE & UTILITIES

SHEET NO. 4A

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INDEX OF SHEETS		
SHEET NO.	DESCRIPTION	
1	Title Sheet	2
1A	Index Of Sheets Cont'd. & Standard Drawing Nos.	2
1B	Sheet Layout	
1C Thru 1C-4 Incl.	Alignment Data	
2 Thru 2A-22 Incl.	Typical Sections	2
2B Thru 2B-28 Incl.	Details	2 3
2C Thru 2C-20 Incl.	Traffic Control Plans	
2D Thru 2D-9 Incl.	Erosion Control Plans	
2E Thru 2E-6 Incl.	Pipe Data	2 3
2F Thru 2F-4 Incl.	Summary	
3 Thru 6 Incl. 6N, 6S, 7	Alignment	2 3
3A, 3A-2, 4A, 4A-2, 5A, 5A-2, 6A, 6A-2, 6NA, 6NA-2, 6SA, 6SA-2, 7A, 7A-2.	General Construction	2
3B, 3B-2, 4B, 4B-2, 5B, 5B-2, 6B, 6B-2, 6NB, 6NB-2, 6SB, 6SB-2, 7B, 7B-2.	Drainage & Utilities	2 3 2
6C, 6C-2 Thru 6C-5 Incl.	Intersection Detail, Interchange Grading, & Water Quality Pond Details	3
6D	Detour	

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

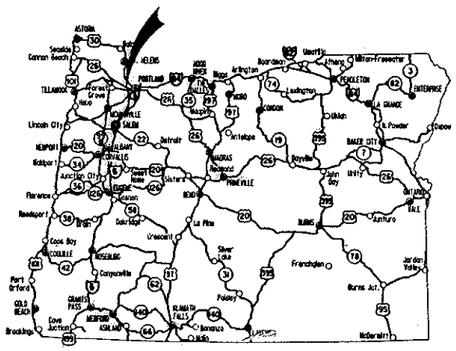
GRADING, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS, LANDSCAPING & TRANSIT FACILITIES

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.

SUNSET HIGHWAY

WASHINGTON COUNTY

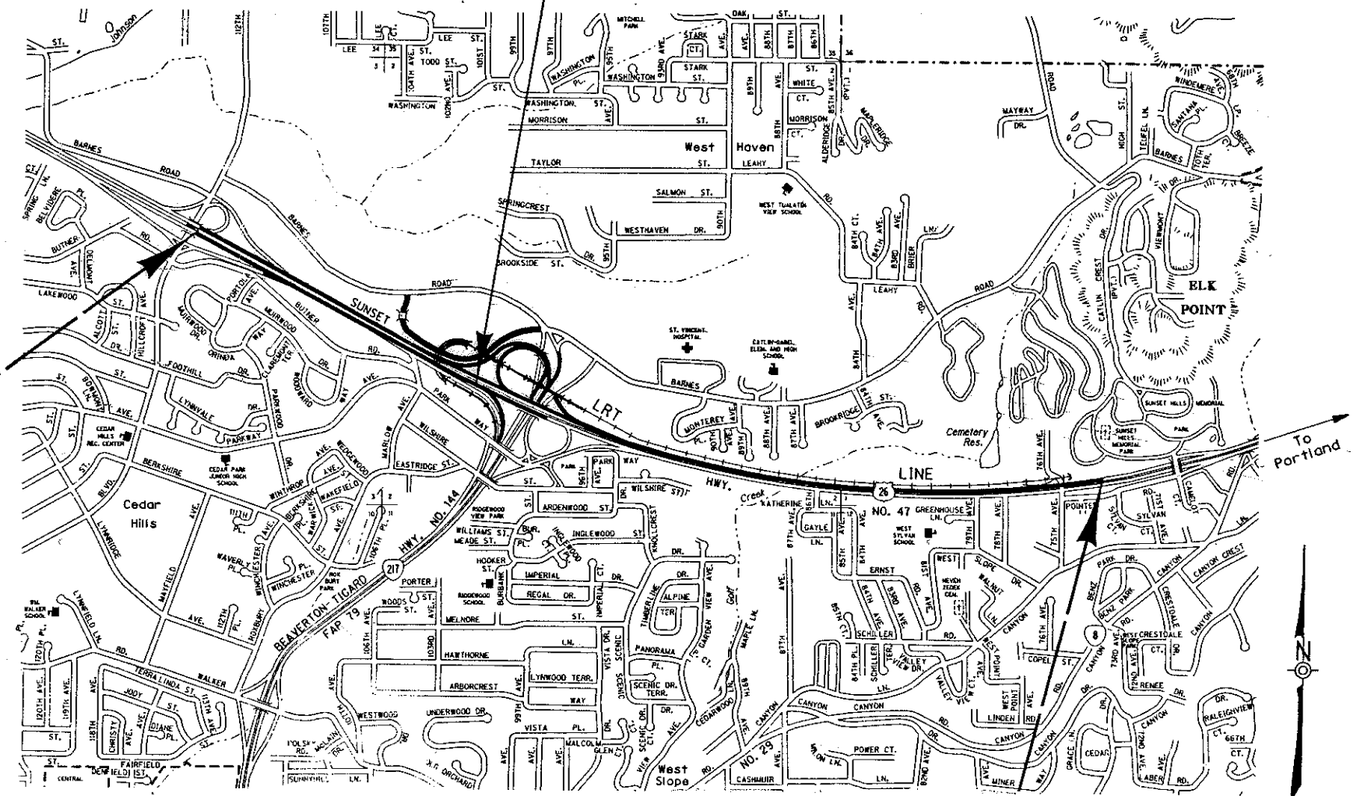
NOVEMBER, 1993



Overall Length Of Project - 2.08 Miles

STA. "LWF" 3186+33.15 P.O.T. Bk. (19' Lt.) &
STA. "LEF" 3186+33.87 P.O.T. Bk. (19' Lt.) =
STA. "L4F" 3185+97.05 P.C. Ah. EQUA.

NH-S047(6)
BEGINNING OF PROJECT
STA. "LEF" 3149+00 (M.P. 68.37)



END PROJECT NH-S047(6)
STA. 3258+50 (M.P. 70.45)

3 Revised 2-17-94
2 Revised 12-1-93
1 Revised 10-20-93

OREGON TRANSPORTATION COMMISSION

Michael P. Hallern	CHAIRMAN
John Whitty	VICE CHAIRMAN
Susan Brody	COMMISSIONER
Cynthia J. Ford	COMMISSIONER
Roger L. Breezley	COMMISSIONER
Donald E. Forbes	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER 8491 OREGON AUGUST 22, 1975 THOMAS D. LULAY Expires Dec. 31, 1994

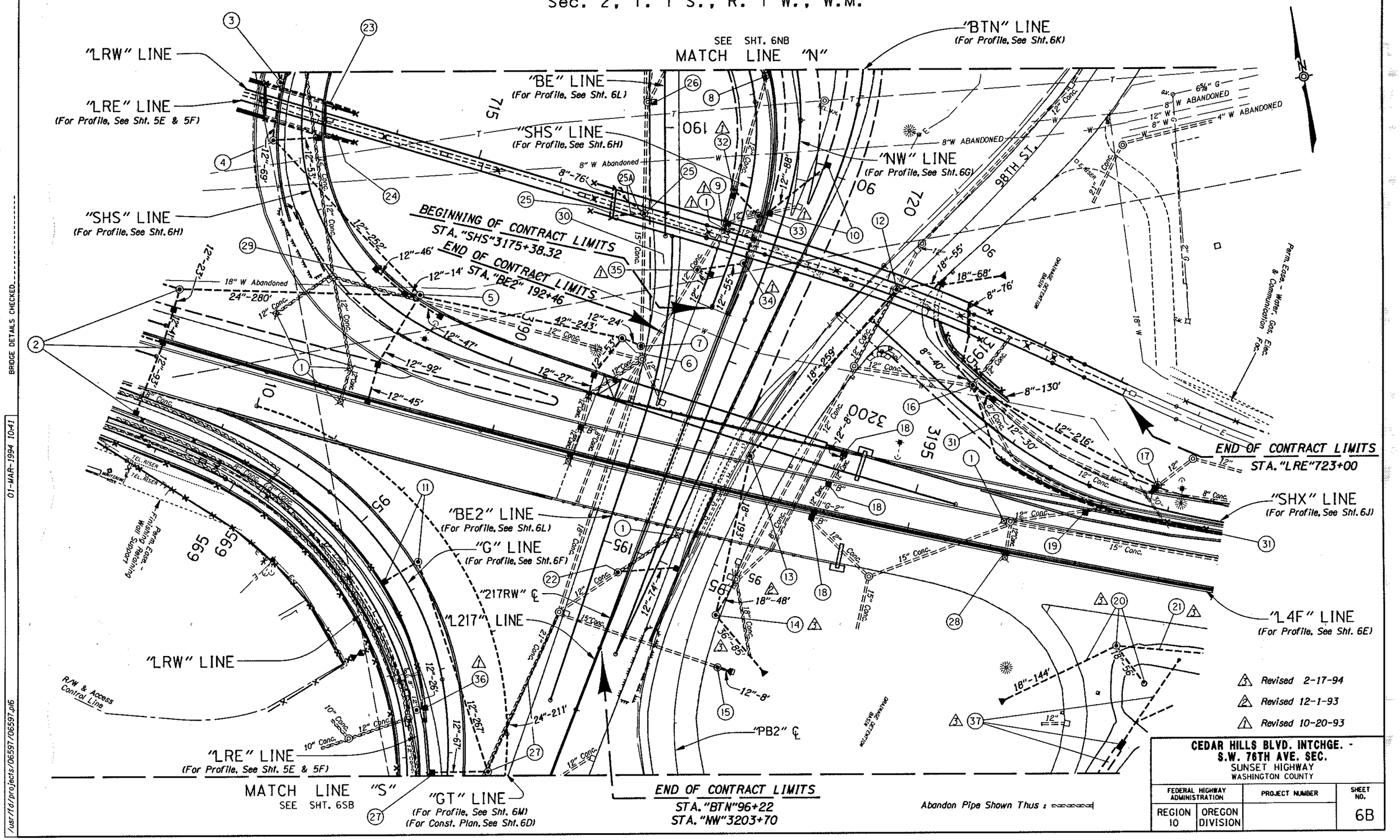
Thomas D. Lulay

TECHNICAL SERVICES MANAGING ENGINEER

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
REGION 10 OREGON DIVISION	NH-S047(6)	1

DRAINAGE & UTILITIES
Sec. 2, T. 1 S., R. 1 W., W.M.



CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6B

BRIDGE DETAILS CHECKED

01-MAR-1994 10:41

/usr/td/projects/06597/065971.plt6

VIEW B2

DRAINAGE & UTILITIES NOTES

△1
(1) Remove Inlet - 6

(2) See Sht. 5B-2, Note 11

(3) See Sht. 6NB-2, Note 2
Sta. "SHS" 3185+50
Const. Manhole

(4) Sta. "SHS" 3186+00
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sew. Pipe - 122'
Tr. Exc. - 99 C.Y.
(For Details, See Sht. 2B-2)

(5) Sta. "SHS" 3188+68
Const. Large Drop Manhole
Const. Type "G-2" Mod. Inlet - 5
Inst. Safety Ladder
Inst. 12" Sew. Pipe - 496'
Inst. 24" Sew. Pipe - 280'
Under Pvmt. - 37'
Tr. Exc. - 1,134 C.Y.
(For Details, See Shts. 2B-2 & 2B-4)

(6) Sta. "SHS" 3191+16
Remove Inlet - 3
Remove 12" Sew. Pipe - 6'
Const. Large Manhole
Const. Type "B" Inlet
Const. Type "G-2" Mod. Inlet - 2
Inst. 12" Sew. Pipe - 80'
Inst. 9" Orifice Plate
Inst. 42" Sew. Pipe - 243'
Tr. Exc. - 1,245 C.Y.
(For Details, See Shts. 2B-2 & 2B-3)
(See Drg. No. 2105A)

(7) Sta. "SHS" 3191+40
Const. Drop Manhole
Inst. 12" Sew. Pipe - 24'
Tr. Exc. - 18 C.Y.

(8) See Sht. 6NB-2, Note 4
Sta. "SHS" 3178+18
Remove Inlet
Const. Manhole

△1
(9) Remove Manhole

(10) Sta. "NW" 3198+17 To Sta. "BTN" 89+90
Const. Type "G-2" Mod. Inlet - 2
Inst. 12" Sew. Pipe - 88'
Tr. Exc. - 84 C.Y.
(For Details, See Sht. 2B-2)

(11) Sta. "G" 95+75
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sew. Pipe - 45'
Tr. Exc. - 13 C.Y.
(For Details, See Sht. 2B-2)
(See Drg. No. 49599)

(12) Sta. "PB2" 91+10
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 18" Sew. Pipe - 123'
Const. Paved End Slope
Under Pvmt. - 48'
Tr. Exc. - 89 C.Y.
(For Details, See Sht. 2B-2)
(For Pipe Profile, See Sht. 6J)

(13) Sta. "PB2" 93+67
Const. Manhole
Inst. 18" Sew. Pipe - 259'
Under Pvmt. - 259'
Tr. Exc. - 179 C.Y.
(For Pipe Profile, See Sht. 6J)

△3△2 (14) Sta. "PB2" 95+62
Const. Manhole
Inst. 18" Sew. Pipe - 241'
Inst. 36" Sew. Pipe - 85'
Const. Paved End Slope
Under Pvmt. - 199'
Tr. Exc. - 207 C.Y.
(For Pipe Profile, See Sht. 6J)

(15) Sta. "PB2" 96+24
Const. Manhole
Inst. 12" Sew. Pipe - 8'
Const. Paved End Slope
Inst. 15" Gate Valve
Tr. Exc. - 6 C.Y.
(For Details, See Sht. 2B-7)

(16) Sta. "SHX" 3195+18
Adjust Manhole
Inst. 8" Drain Pipe - 246'
Drainage Geotextile - 161 Sq.Yds.
Granular Drain Backfill - 26 C.Y.
Tr. Exc. - 19 C.Y.
(For Details, See Sht. 2B-3 & 2B-5)
(See Drg. Nos. 2091A, 49621, 49657 & Assoc. Bridge Drgs.)

(17) Sta. "SHX" 3197+80
Adjust Manhole
Const. Type "G-2" Mod. Inlet - 2
Remove 12" Sew. Pipe - 11'
Inst. 12" Sew. Pipe - 246'
Tr. Exc. - 185 C.Y.
(For Details, See Sht. 2B-2)

(18) Sta. "L4F" 3193+89
Remove Inlet - 3
Remove 12" Sew. Pipe - 3'
Const. Type "B" Inlet - 2
Const. Type "G-2" Inlet
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Extend - 8' Lt.
Under Pvmt. - 3'
Tr. Exc. - 5 C.Y.
(For Details, See Sht. 2B-2)
(See Drg. No. 2105)

(19) Sta. "L4F" 3192+01
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Remove - 20'
Tr. Exc. - 3 C.Y.
(For Details, See Sht. 2B-2)

△3 (20) Sta. "L4F" 3197+50
Const. Manhole
Const. Pond Overflow Riser
Inst. 18" Sew. Pipe - 200'
Const. Paved End Slope
Under Pvmt. - 27'
Tr. Exc. - 167 C.Y.
(For Details, See Sht. 2B-27)

(21) See Sht. 7B-2, Note 2

(22) Sta. "BTN" 95+36
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sew. Pipe - 74'
Under Pvmt. - 63'
Tr. Exc. - 42 C.Y.
(For Details, See Sht. 2B-2)

(23) See Sht. 5B-2, Note 8

(24) See Sht. 5B-2, Note 9

(25) Sta. "LRE" 717+03
Const. Manhole
Inst. 8" Drain Pipe - 76'
(25A) Inst. Bridge Drainage System
Drainage Geotextile - 56 Sq.Yds.
Granular Drain Backfill - 8 C.Y.
Tr. Exc. - 5 C.Y.
(See Drg. Nos. 49617, 49625 & Assoc. Bridge Drgs.)

(26) Sta. "BE" 189+70
Reconst. "CG-2" Inlet
(For Details, See Sht. 2B-3)

(27) Sta. "G" 98+25
Const. Drop Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sew. Pipe - 334'
Inst. 24" Sew. Pipe - 211'
Tr. Exc. - 704 C.Y.
(For Details, See Shts. 2B-2 & 2B-4)

(28) Sta. "L4F" 3196+20
Remove Inlet
Remove 12" Sew. Pipe - 5'
Const. Type "G-2" Inlet
Under Pvmt. - 5'
Tr. Exc. - 3 C.Y.

(29) Sta. "SHS" 3187+95
Inst. 12" Culv. Pipe - 62' (Conduit)
Tr. Exc. - 19 C.Y.

(30) Sta. "BE2" 191+63
Inst. 12" Culv. Pipe - 42' (Conduit)
Under Pvmt. - 38'
Tr. Exc. - 19 C.Y.

(31) Sta. "SHX" 3195+18 To Sta. "SHX" 3200+00
Inst. 8" Drain Pipe (Wall #37 Drain) - 500'
Drainage Geotextile - 318 Sq.Yds.
Granular Drain Backfill - 56 C.Y.
Tr. Exc. - 18 C.Y.
(For Details, See Sht. 2B-3)
(See Drg. Nos. 2091A, 49654 & Assoc. Bridge Drgs.)

△2△1 (32) Sta. "SHS" 3176+82
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sewer Pipe - 7'
Tr. Exc. - 3 C.Y.
(For Details, See Sht. 2B-2)

△2△1 (33) Sta. "SHS" 3176+58
Const. Manhole
Inst. 12" Sewer Pipe - 42'
Under Pvmt. - 38'
Tr. Exc. - 35 C.Y.

△2△1 (34) Sta. "SHS" 3176+00
Const. Manhole
Inst. 12" Sewer Pipe - 59'
Under Pvmt. - 59'
Tr. Exc. - 54 C.Y.

△2△1 (35) Sta. "SHS" 3175+75
Const. Manhole
Const. Type "G-2" Mod. Inlet
Inst. 12" Sewer Pipe - 69'
Under Pvmt. - 40'
Tr. Exc. - 58 C.Y.
(For Details, See Sht. 2B-2)

△1 (36) Sta. "LRE" 691+70
Const. Manhole
Const. Special Inlet
Inst. 12" Sew. Pipe - 26'
Conc. Encasement - 3 C.Y.
Tr. Exc. - 1 C.Y.
Connect To Track Drainage System
(For Details, See Shts. 2B-26, LR-2, LR-49, LR-50 & LR-55)

△3△2 (37) Const. Water Quality Treatment Facility
(For Details, See Shts. 2B-27, 2B-28, 6C-4 & 6C-5)

△3△2 (38) Note Removed From Plan

△3 Revised 2-17-94
△2 Revised 12-1-93
△1 Revised 10-20-93

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6B-2

BRIDGE DETAILS CHECKED
01-MAR-1994 10:41
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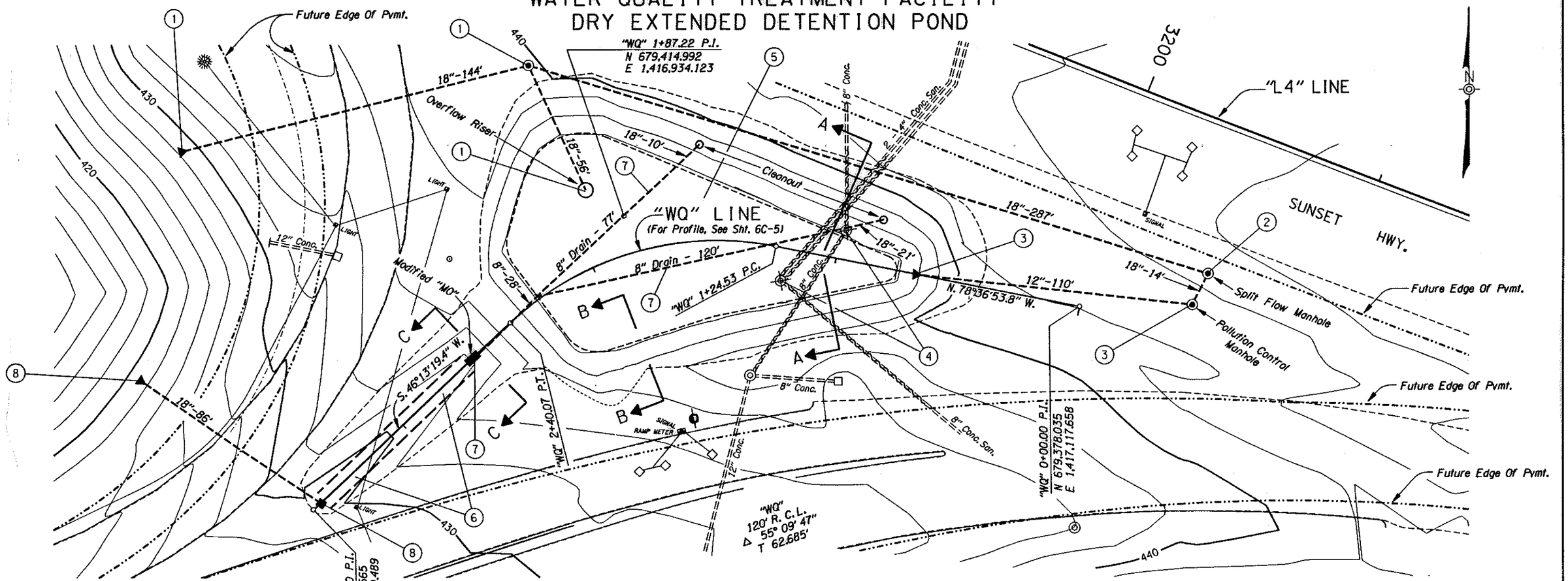
VIEW A2

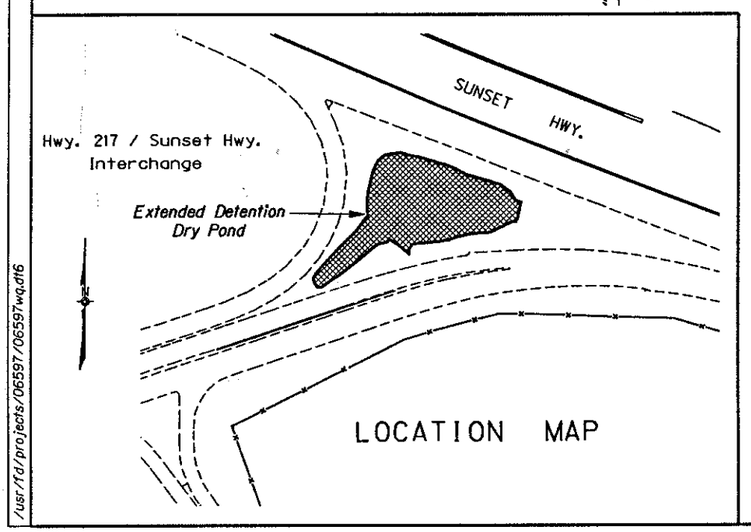
WATER QUALITY TREATMENT FACILITY
DRY EXTENDED DETENTION POND



For Sections A-A, B-B & C-C, See Sht. 2B-28

Top Cut Slope ----------

Toe Fill Slope ----------



(1) See Sht. 6B-2, Note 20

(2) See Sht. 7B-2, Note 2

(3) See Sht. 7B-2, Note 17

(4) See Sht. 7B-2, Note 18

(5) Sta. "WQ" 0+44 To Sta. "WQ" 2+63
Const. Water Quality Treatment Facility
(For Details, See Shts. 2B-27, 2B-28 & 6C-5)

(6) Sta. "WQ" 2+63 To Sta. "WQ" 3+46
Const. 4' Bottom Outlet Ditch
Dt. Exc. - 172 C.Y.
Field Verify Location Of Buried Powerline Prior To Const.
(See Sht. 6C-5, Section C-C)

(7) Sta. "WQ" 2+63
Const. Type "MO" Mod. Inlet
Inst. 8" Sew. Pipe - 62'
Inst. 8" Cap With 2" Dia. Orifice
Inst. 8" Drain Pipe - 197'
Inst. 8" Drain Cleanout - 2
Drainage Geotextile - 173 Sq.Yds.
Granular Drain Backfill - 19 C.Y.
Tr. Exc. - 41 C.Y.
(For Details, See Shts. 2B-27 & 6C-5)

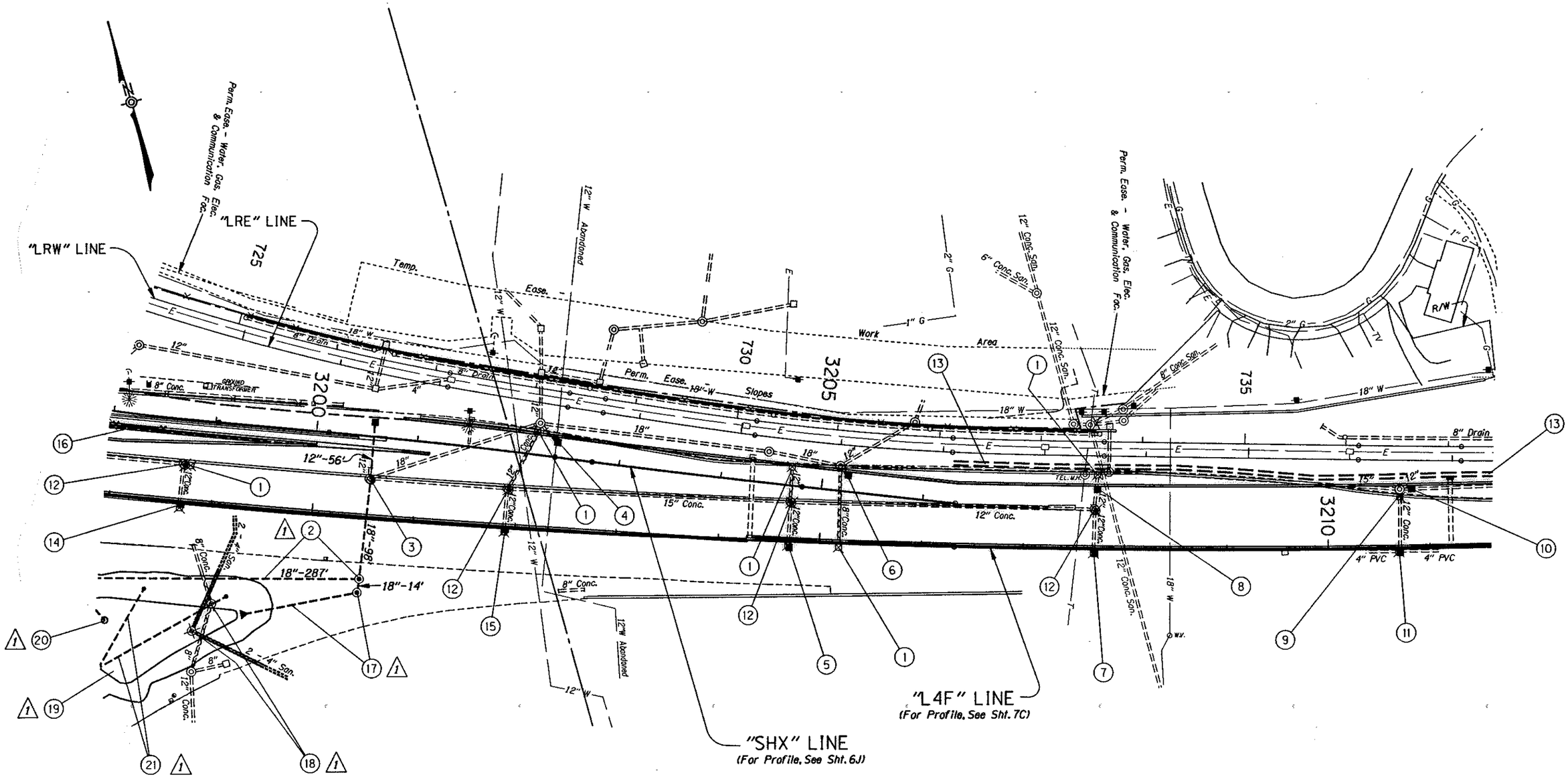
(8) Sta. "WQ" 3+46
Const. Type "G-2" Inlet
Inst. 18" Sew. Pipe - 86'
Under Pvmt. - 27'
Const. Paved End Slope
Tr. Exc. - 50 C.Y.

1 Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6C-4

DRAINAGE & UTILITIES
Sec. 2, T. 1S., R. 1W., W.M.



Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		7B

DRAINAGE & UTILITIES NOTES

(1) Remove Inlet - 5

⚠1 (2) Sta. "L4F" 3200+50 Rt.
Const. Split Flow Manhole
Inst. 18" Sew. Pipe - 301'
Tr. Exc. - 330 C.Y.
(For Details, See Sht. 2B-27)

(3) Sta. "L4F" 3200+54
Reconstruct Manhole
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Remove Plug
Extend - 56' Lt.
Inst. 18" Sew. Pipe - 98'
Under Pvmt. - 84'
Tr. Exc. - 150 C.Y.
(For Details, See Sht. 2B-2)

(4) Sta. "SHX" 3202+30
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Remove Plug
Extend - 13' Rt.
Tr. Exc. - 9 C.Y.
(For Details, See Sht. 2B-2)

(5) Sta. "L4F" 3204+69
Remove Inlet
Const. Type "G-2" Inlet
12" Sew. Pipe (In Pl.)
Remove 12" Pipe - 2'
Under Pvmt. - 5'
Tr. Exc. - 1 C.Y.

(6) Sta. "L4F" 3205+25 Lt.
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Remove Plug
(For Details, See Sht. 2B-2)

(7) Sta. "L4F" 3207+69
Remove Inlet
Const. Type "G-2" Inlet
12" Sew. Pipe (In Pl.)
Remove 12" Pipe - 3'
Under Pvmt. - 3'
Tr. Exc. - 2 C.Y.

(8) Sta. "L4F" 3207+72
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
(For Details, See Sht. 2B-2)

(9) Sta. "L4F" 3210+71
Remove Inlet
12" Sew. Pipe (In Pl.)
Extend - 4' Lt.
Tr. Exc. - 2 C.Y.

(10) Sta. "L4F" 3210+78
Const. Type "G-2" Mod. Inlet
12" Sew. Pipe (In Pl.)
Remove Plug
(For Details, See Sht. 2B-2)

(11) Sta. "L4F" 3210+78
Remove Inlet
Const. Type "G-2" Inlet
12" Sew. Pipe (In Pl.)
Remove 12" Pipe - 3'
Under Pvmt. - 3'
Tr. Exc. - 2 C.Y.

(12) Adjust Manhole - 4
(For Details, See Sht. 2B-5)

(13) Sta. "L4F" 3206+30 To Sta. "L4F" 3213+00
Const. Trackbed Ditch
(Quantities Incl. In Main Roadbed Dist.)
(See Profiles, Shts. 7C & 8B)
(See Typical Sections, Shts. 2A-8 & 2A-9)

(14) Sta. "L4F" 3198+61
Remove Inlet
12" Sew. Pipe (In Pl.)
Remove 12" Sew. Pipe - 6'
Const. Type "G-2" Inlet
Under Pvmt. - 6'
Tr. Exc. - 5 C.Y.

(15) Sta. "L4F" 3201+90
Remove Inlet
12" Sew. Pipe (In Pl.)
Remove 12" Sew. Pipe - 6'
Const. Type "G-2" Inlet
Under Pvmt. - 6'
Tr. Exc. - 5 C.Y.

(16) See Sht. 6B-2, Note 31

⚠1 (17) Sta. "L4F" 3199+43.50
Const. Pollution Control Manhole
Inst. 12" Sew. Pipe - 110'
Const. Paved End Slope
Tr. Exc. - 73 C.Y.
(For Details, See Sht. 2B-28)

⚠1 (18) Remove Manhole - 2

⚠1 (19) See Sht. 6B-2, Note 37

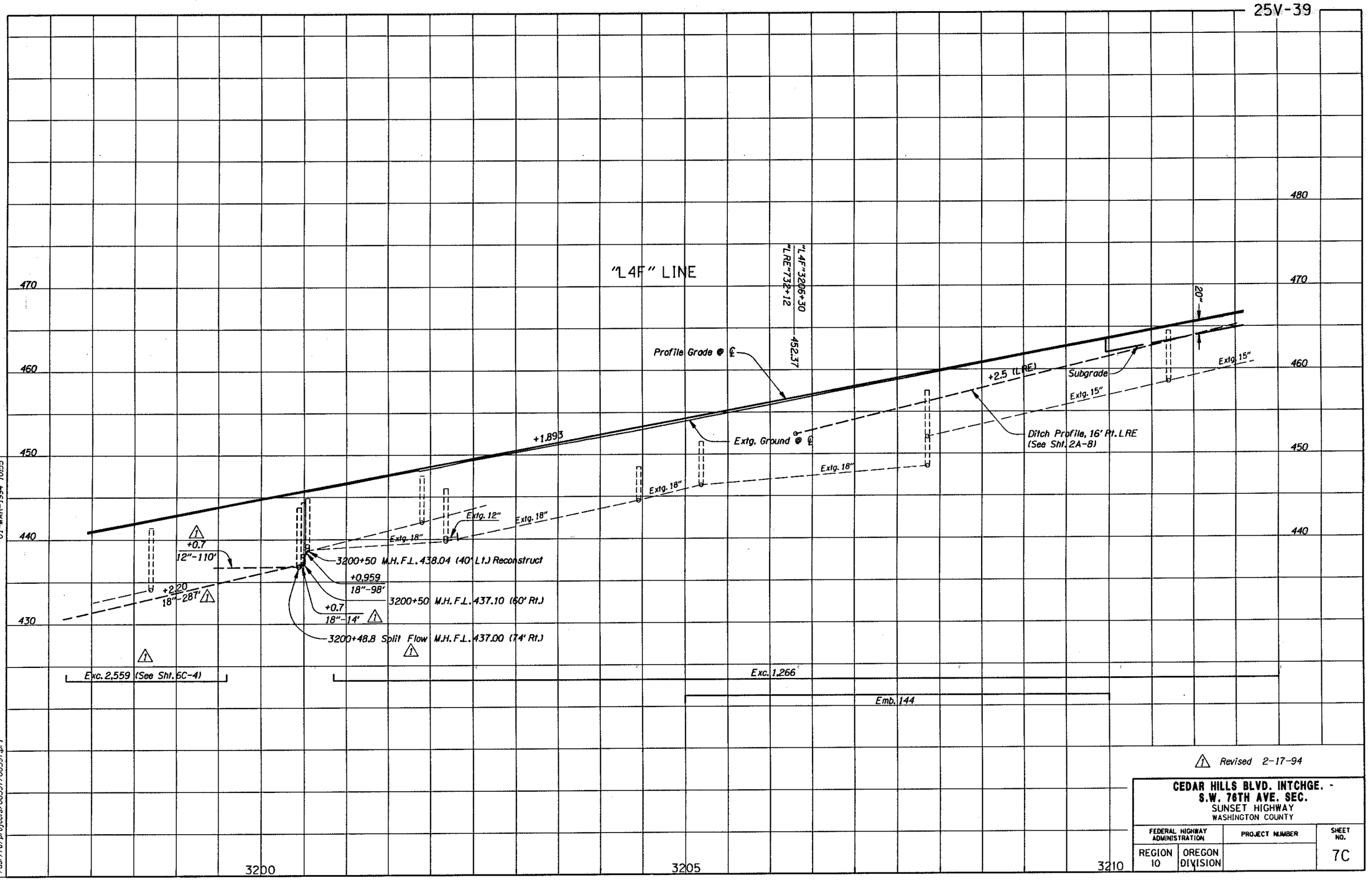
⚠1 (20) See Sht. 6B-2, Note 20

⚠1 (21) See Sht. 6C-4, Note 7

⚠1 Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		7B-2



Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		7C

01-MAR-1994 10:55
morris
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VIEW A3