OPERATION & MAINTENANCE MANUAL

DFI No. : D00142

Facility Type: Detention Tank/Pipe

JUNE, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00142**
Facility Type:	Detention Tank/Pipe
Construction Drawings:	(V-File Number) 39V-058
Location:	District: 2B (Old 2A)
	Highway No.: 064
	Mile Post: 1.45/1.46 (beg. / end)
	Description: This facility is located along the right shoulder of southbound I-205 (Hwy 064) between 65th Avenue and Prosperity Park Road. Access to the facility can be obtained from the southbound travel lanes of I-205 (Hwy 064).

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 – OBEC, Jerome Lane, P.E. (503) 589-4100

Facility construction: 2006
Contractor: Oregon Mainline Paving, LLC 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 located west of Prosperity Park Road and east of 65th Avenue. The facility detains sheet flow stormwater runoff from both the north and southbound travel lanes of I-205 (Hwy 064) and the surrounding grassy median area. These runoff and ditch flows are directed to the detention tanks via a stormwater collection system. After receiving initial treatment by flowing through a water quality manhole (D00141), runoff is further conveyed toward the facility through an 18-inch diameter pipe; see points A and B in Operational Plan, Appendix A. The facility, itself, consists of three 300-foot long, 60-inch diameter detention pipes, used to detain the stormwater runoff; see point C in Operational Plan; Appendix A.

After detainment, the water quality flows are discharged through the outlet vault for flow control, and out of the facility through an 18-inch pipe (see points E and F in Operational Plan).

A. Maintenance equipment access:
Access to the facility is attainable along the right shoulder of the southbound I-205 travel lane. The facility is equipped with an inlet vault (point D of the Operational Plans, Appendix A), which serves as a direct access point into the facility for maintenance.

B. Heavy equipment access into facility:

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

C. Special Features:

☐ Amended Soils

☐ Porous Pavers
☐ Liners
☒ Underdrains

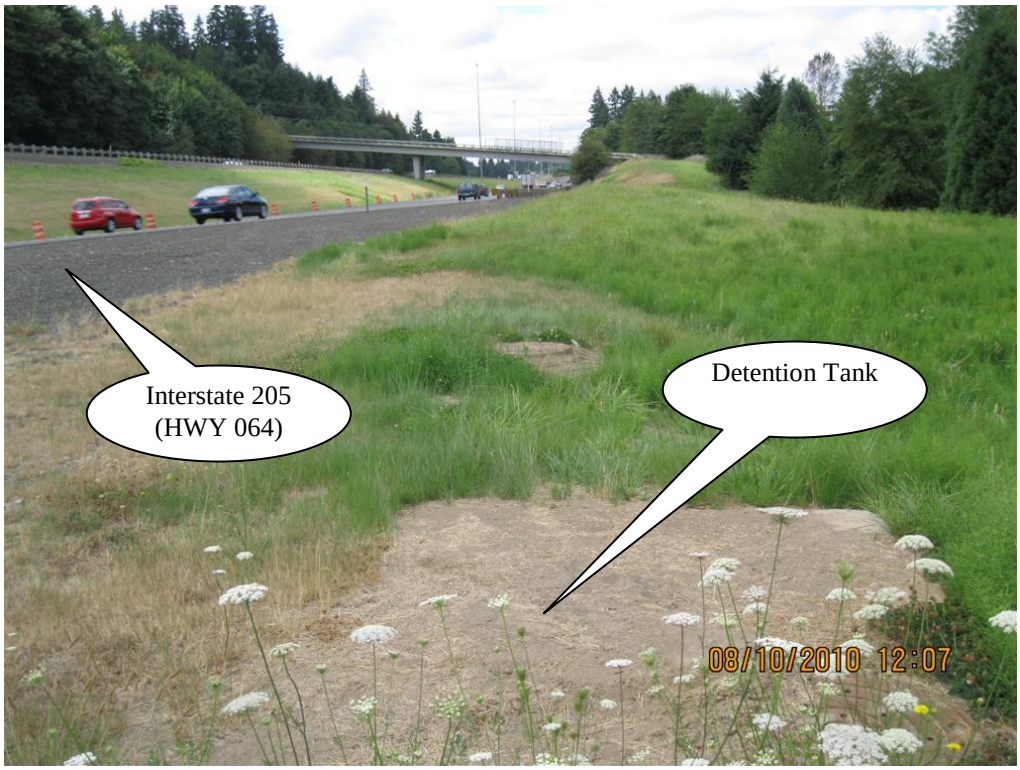


Photo 1: Looking west at the buried detention tank/pipe system.

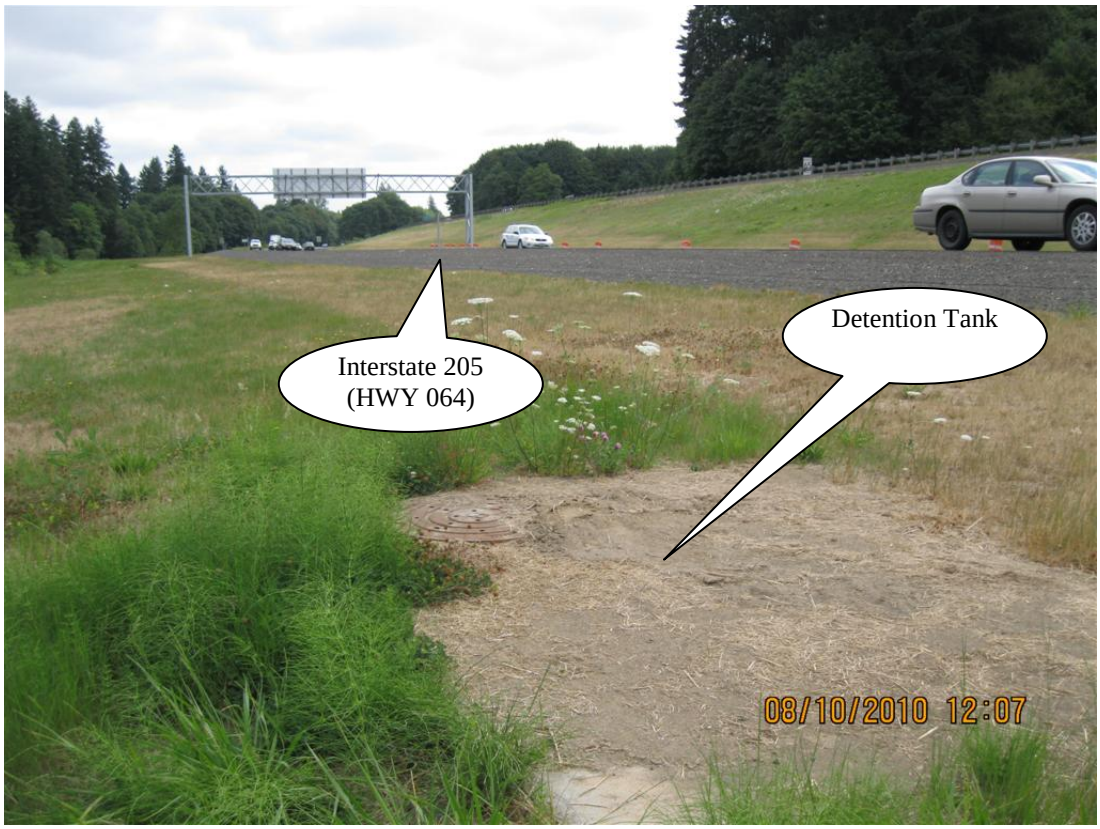


Photo 2: Looking East at the buried detention tank/pipe system.

Photo 3: Looking down into inlet access vault (Point D).

Photo 4: Looking at connecting manifold pipe from inlet access vault (Point D). Minor delamination is occurring in overhead header section of pipe.

Photo 5: Looking at connecting manifold pipe from inlet access vault (Point D).

5. Facility Haz Mat Spill Feature(s)

The detention tank/pipe can be used to store a volume of liquid by blocking the 18-inch diameter outlet pipe located inside of the outlet vault of the detention tank/pipe system. This pipe is noted as point E in Operational Plans, 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 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

☒ Other, as noted below
This facility does not possess an auxiliary outlet feature.

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 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

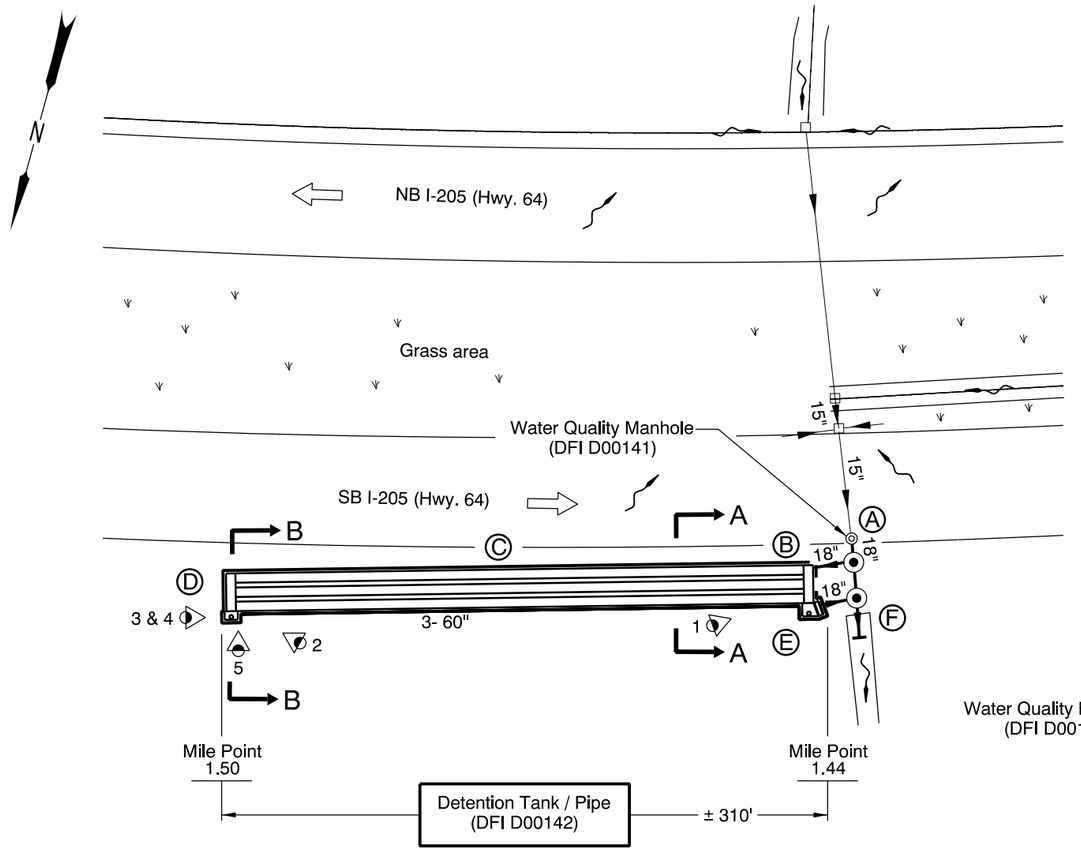
Contact any of the following for more detailed information about management of waste materials found on site:

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

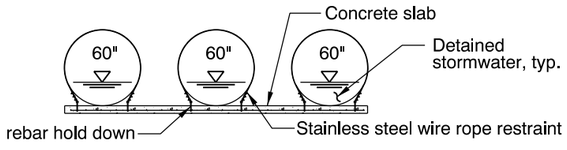
Appendix A

Content:

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



PLAN
N.T.S.



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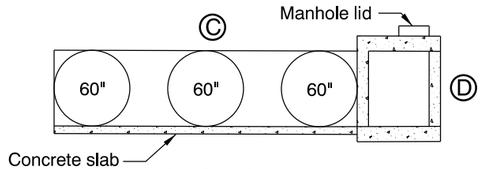

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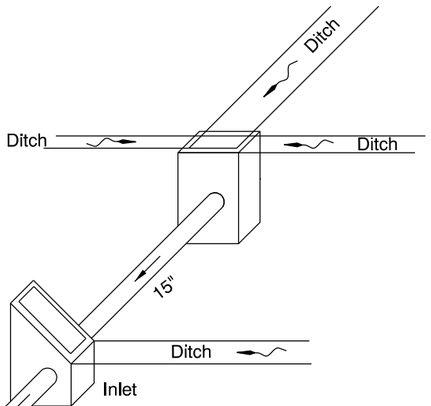
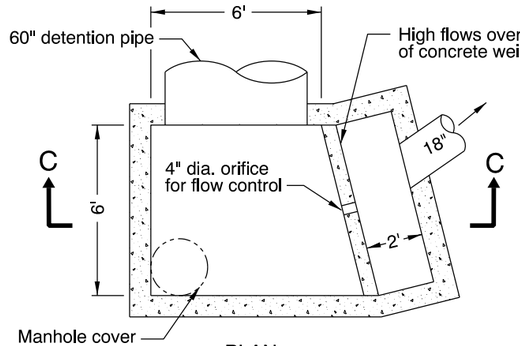
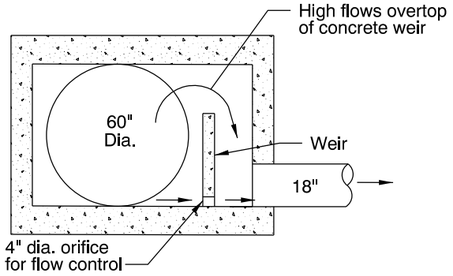




PLAN
N.T.S.



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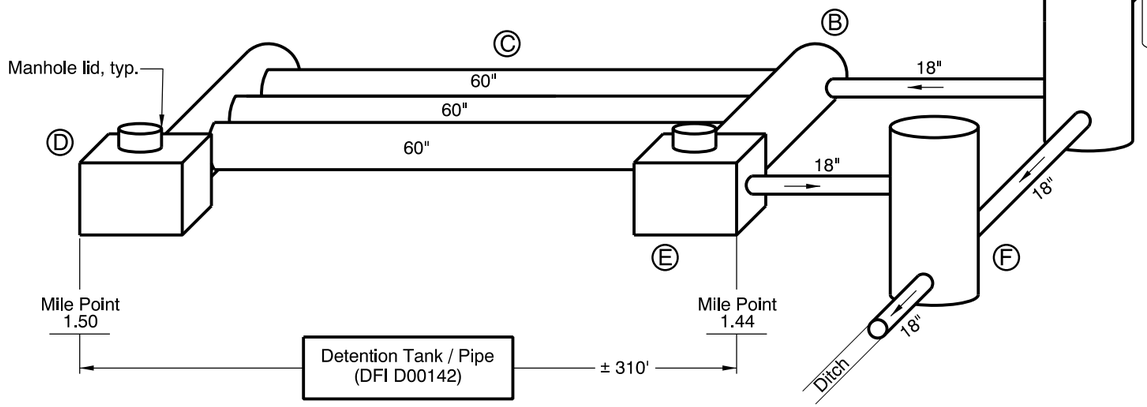


SCHEMATIC OF PIPE DRAINAGE SYSTEM
N.T.S.

OUTLET VAULT (FLOW CONTROL) AT POINT Ⓔ

N.T.S.

LEGEND:

Photograph location / direction	Manhole (and / or)
Ⓐ Water Quality Manhole	Inlet (and / or)
Ⓑ Inlet to Detention Pipe	Storm Pipe (Facility)
Ⓒ Detention Pipes	Storm Pipe
Ⓓ Inlet Vault for Access	Conveyance Direction
Ⓔ Outlet Vault (Flow Control)	Pavement / Facility Flow Path
Ⓕ Outfall to Ditch	
Inlet (Schematic View)	

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Wynee Hu

Drafted By: Mathew Bunde

DFI D0142
MAINTENANCE DISTRICT 2B HWY 064
DETENTION TANK/PIPE
EAST PORTLAND FREEWAY MP 1.50-1.44
CLACKAMAS COUNTY

Appendix B

Content:

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

39V-58

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A, 1B	Index Of Sheets Cont'd.
1C	Std. Drg. Nos.

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING & ILLUMINATION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.

EAST PORTLAND FREEWAY

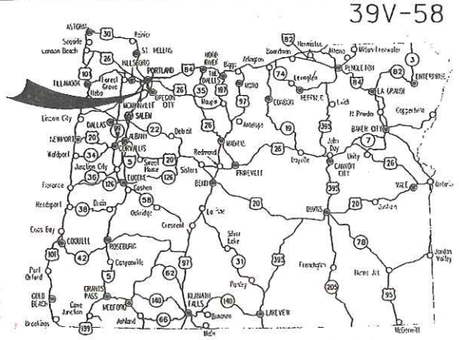
CLACKAMAS & WASHINGTON COUNTIES

APRIL 2006

"AS CONSTRUCTED"

Mark Beeson

Date 6/26/09 Project Mngr



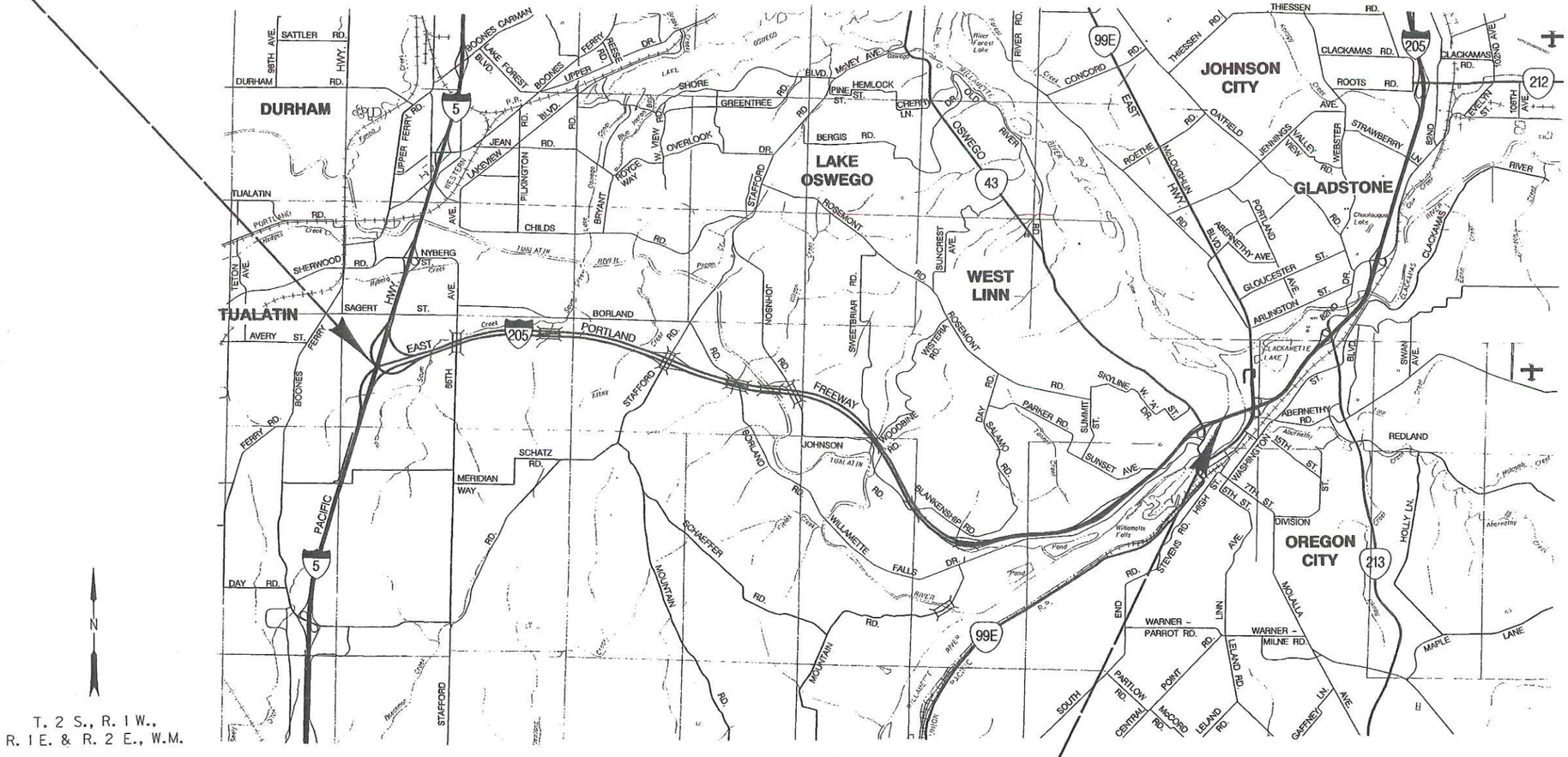
Overall Length Of Project - 8.90 Miles

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.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

END OF PROJECT IM-OTIA-S064(032)

STA. "LS2" 1231+71.15 (M.P. -0.10)



T. 2 S., R. 1 W.,
R. 1 E. & R. 2 E., W.M.

BEGINNING OF PROJECT IM-OTIA-S064(032)

STA. "L" 735+41.85 (M.P. 8.80)

OREGON TRANSPORTATION COMMISSION

Stuart Foster	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Mike Nelson	COMMISSIONER
Randall Papé	COMMISSIONER
Janice J. Wilson	COMMISSIONER
Matthew Garrett	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
14,953
OREGON
JULY 25, 1990
LAWRENCE H. FOX

EXPIRES: 12/31/07

LAWRENCE H. FOX
OBEC CONSULTING ENGINEERS - PROJECT MANAGER

OREGON DEPARTMENT OF TRANSPORTATION
CONCURRENCE

Harold E. Lasley 2/23/06
TECHNICAL SERVICES MANAGING ENGINEER DATE

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

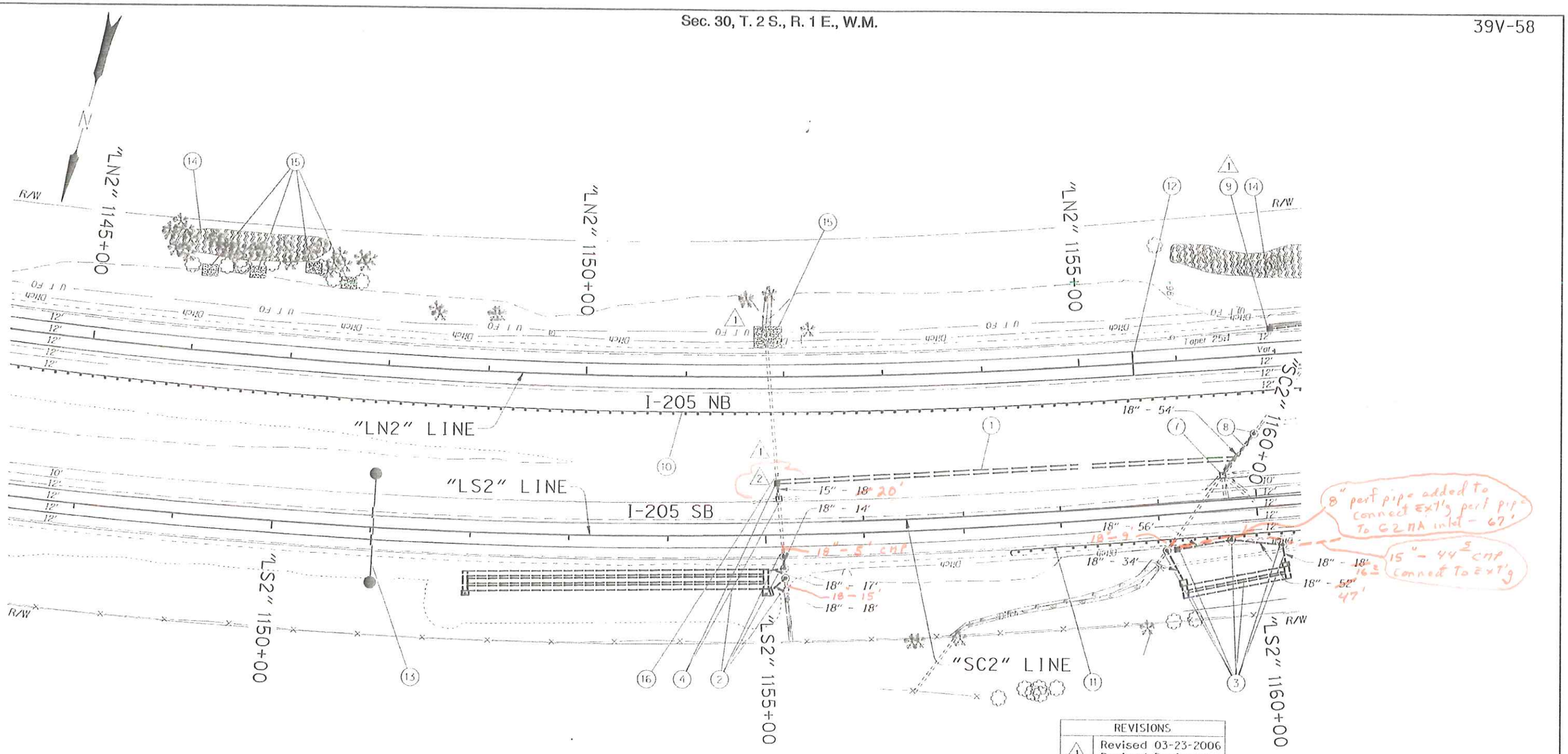
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	IM-OTIA-S064(032)	1

File No. 15980

i:\Projects\019\019082\Roadway\12874fs.fs1 2/14/06

Sec. 30, T. 2 S., R. 1 E., W.M.

39V-58



"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Drainage
2	Revised 02-20-2007 Revised Drainage

LEGEND

Remove Extg. Pipe Shown Thus:

Type "A" Weed Control Shown Thus:

Type "B" Weed Control Shown Thus:

REGISTERED PROFESSIONAL ENGINEER
12295
Jerome D. Lane
OREGON
JULY 5, 1983
JEROME D. LANE

EXPIRES: 12/31/08

OBEC CONSULTING ENGINEERS
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1355 POPLAR DRIVE MEDFORD, OREGON 97504-5107

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

GENERAL CONSTRUCTION

SHEET NO. 35A

File No. 16236

(1) Const. Ditch
2' Flat Bottom, 1:4 Side Slopes

(2) Sta. "LS2" 1155+19.5, 48.9' Rt.
Const. Conc. Manhole - 2
Over Extg. Sew Pipe
Const. Water Quality Manhole
Over Extg. Sew Pipe
Inst. 18" Sew. Pipe - 49'
5' Depth
Const. Underground Detention Facility #5
(For Details, See Sht. GJ-8)

(3) Sta. "LS2" 1159+26.8, 36' Rt.
Const. Type "G2-MA" Inlet
Inst. 18" Sew. Pipe - 152'
1 5' Depth
Const. Conc. Manhole - 2
Over Extg. Sew Pipe
Const. Water Quality Manhole
Const. Underground Detention Facility #6
(For Details, See Sht. GJ-9) Added 15 - 44 LF CMP

(4) Sta. "LN2" 1151+93.08, 108.95' Rt.
Cap Extg. Inlet
Const. Type "G-2MA" Inlet 20'
Extend 15" Sew. Pipe - 18' Lt.
10' Depth

1 (5) Note Removed

1 (6) Note Removed

(7) Sta. "LN2" 1156+52, 104' Rt.
Cap Extg. Inlet

(8) Sta. "Ln2" 1156+74.79' Rt.
Remove Extg. Pipe
Const. Conc. Manhole
Over Extg. Sew. Pipe
Inst. 18" Sew. Pipe - 54'
10' Depth

1 (9) Sta. "LN2" 1156+96.9, 26' Lt.
Const. Type "G-2" Inlet
Connect 8" Perf. Drain
See Sht. 36B, Note 11

(10) See Sht. 32A, Note 10
Const. Guardrail (Type 2A)

(11) Sta. "LS2" 1157+48.77 To
Sta. "LS2" 1177+36.27, Rt.
Const. Guardrail - 1937.5' (Type 2A)
Extra For 8' Guardrail Posts - 310
Const. Guardrail Terminal, Non-Flared (50')
Flare Rate=0, W=1', E=0

(12) Sta. "LN2" 1155+50
Const. Terminal Expansion Joint - 24'
(For Details, See Sht. 2B-25)

(13) Sta. "LS2" 1151+00
Const. Sign Bridge
(For Drg. Nos., See Sht. 1A)

(14) Type "A" Weed Control

(15) Type "B" Weed Control

2 (16) Sta. "LN2" 1151+91.8, 97.6' Rt.
Const. Sloped End For Metal Pipe
(Sl. 1:2.5) On Extg. 15" CMP
Remove 28' Of Extg. 15" CMP To
Extg. Inlet @ Sta. "LN2" 1151+93.08
Const. Riprap Lined Ditch
Class 50 Riprap - 2 Cu.Yd.
"V" Bottom, 1:2 Side Slopes, 1' Depth
Const. From Extg. 15" CMP Outlet
To Proposed Type "G2-MA" Inlet
(See Note 4, This Sht.)

"AS CONSTRUCTED"
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Note
2	Revised 02-20-2007 Added Note

OBEC CONSULTING ENGINEERS www.obec.com
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1336 POPLAR DRIVE MEDFORD, OREGON 97504-5307

REGISTERED PROFESSIONAL ENGINEER
12295
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JEROME D. LANE
EXPIRES: 12/31/08

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. -
PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Mathew Bunde

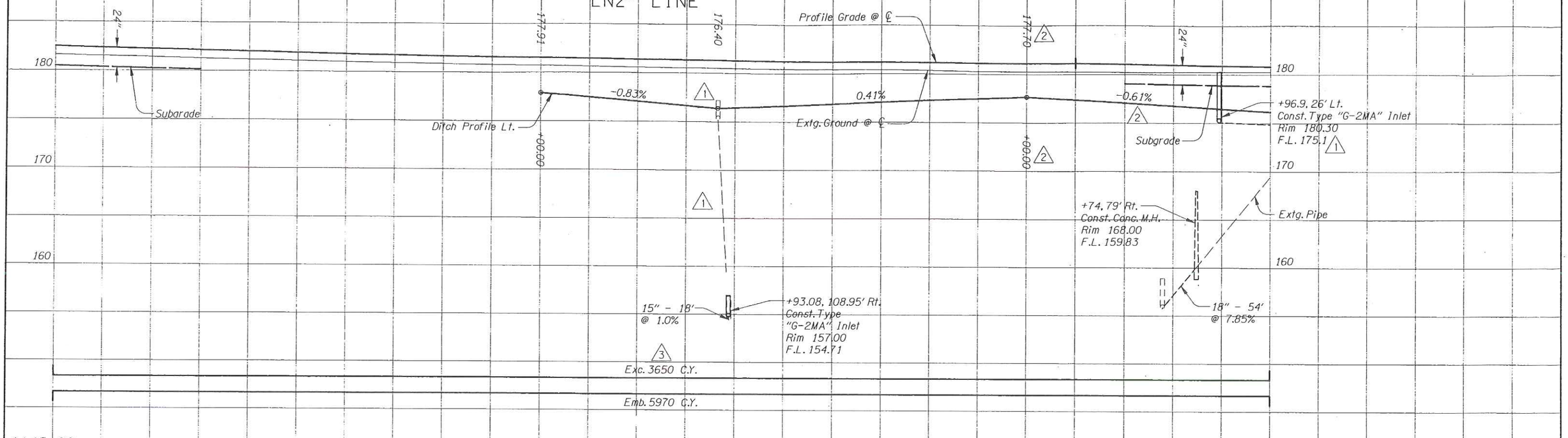
CONSTRUCTION NOTES

SHEET NO. 35B

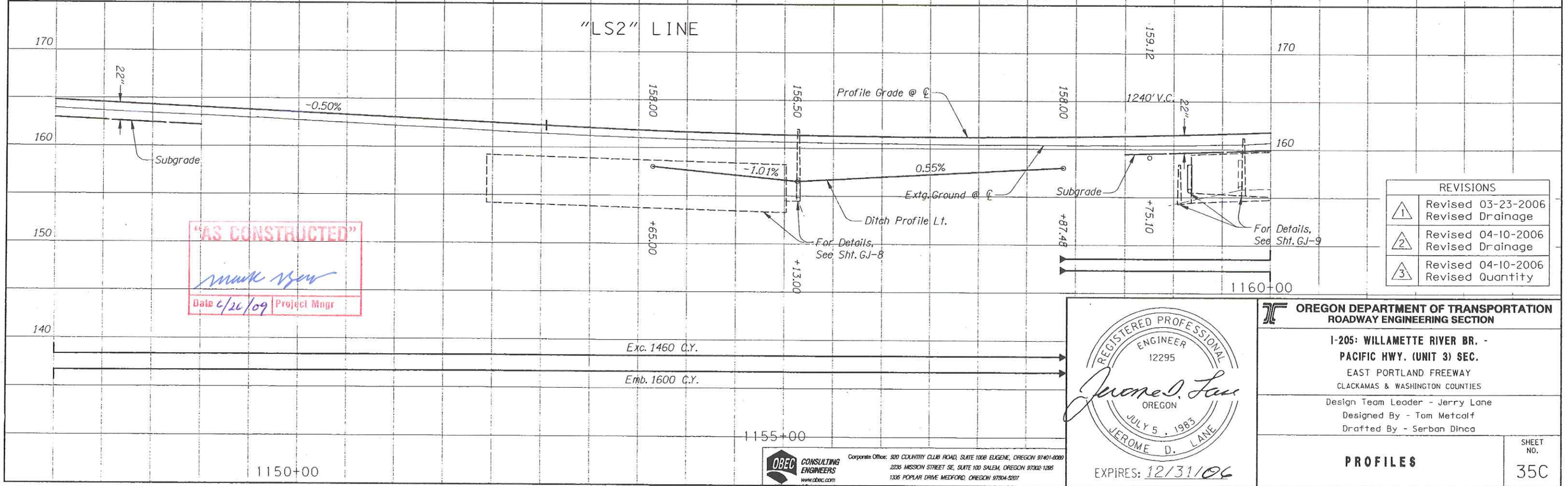
File No. 16239

39V-58

"LN2" LINE



"LS2" LINE



"AS CONSTRUCTED"
mark Yon
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Drainage
2	Revised 04-10-2006 Revised Drainage
3	Revised 04-10-2006 Revised Quantity

REGISTERED PROFESSIONAL ENGINEER
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OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

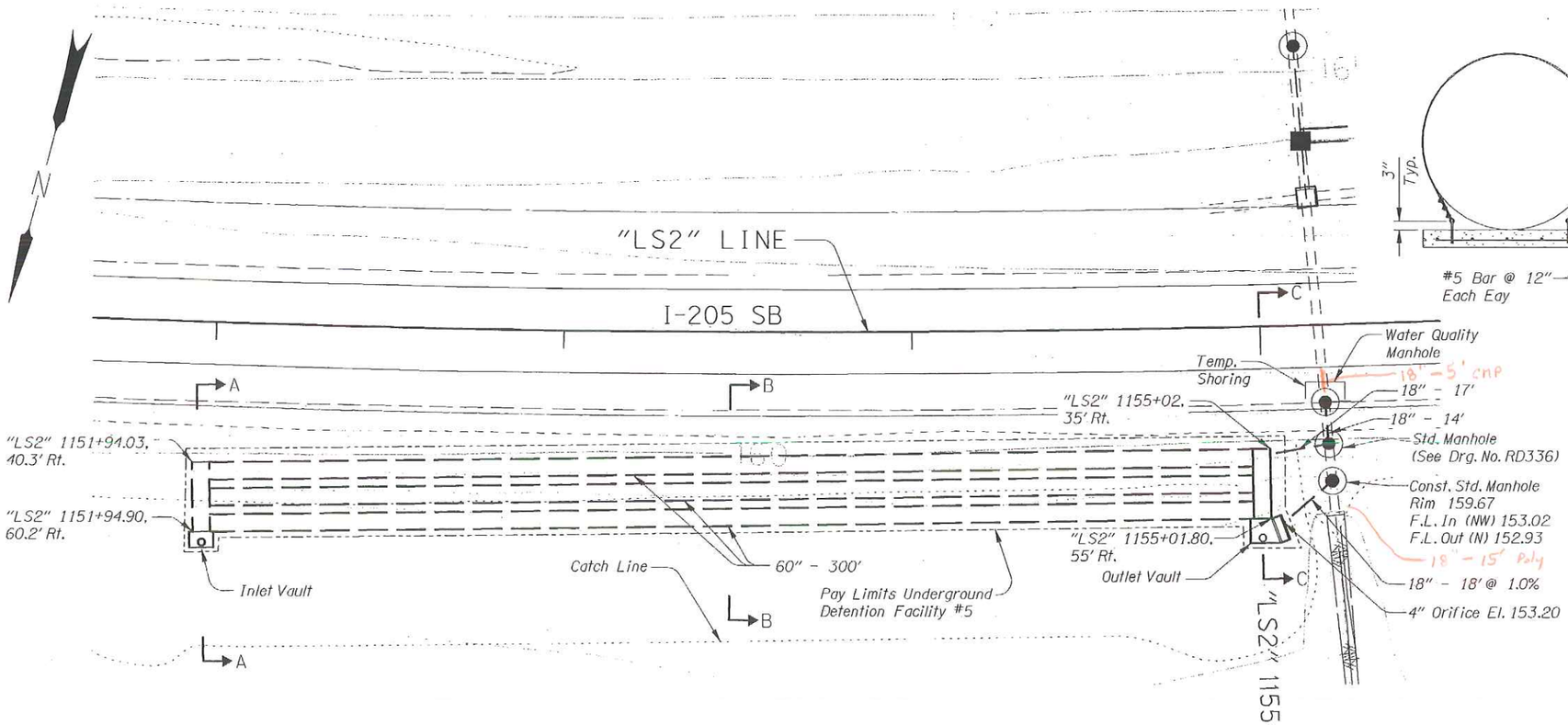
I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

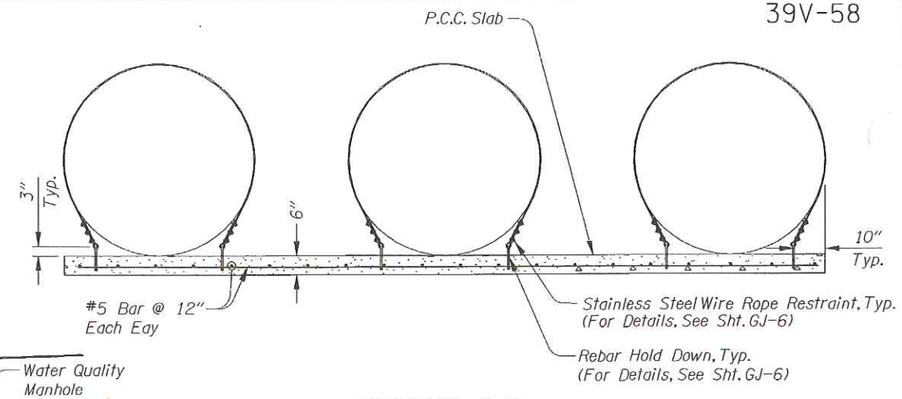
Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

PROFILES

SHEET NO. 35C

39V-58



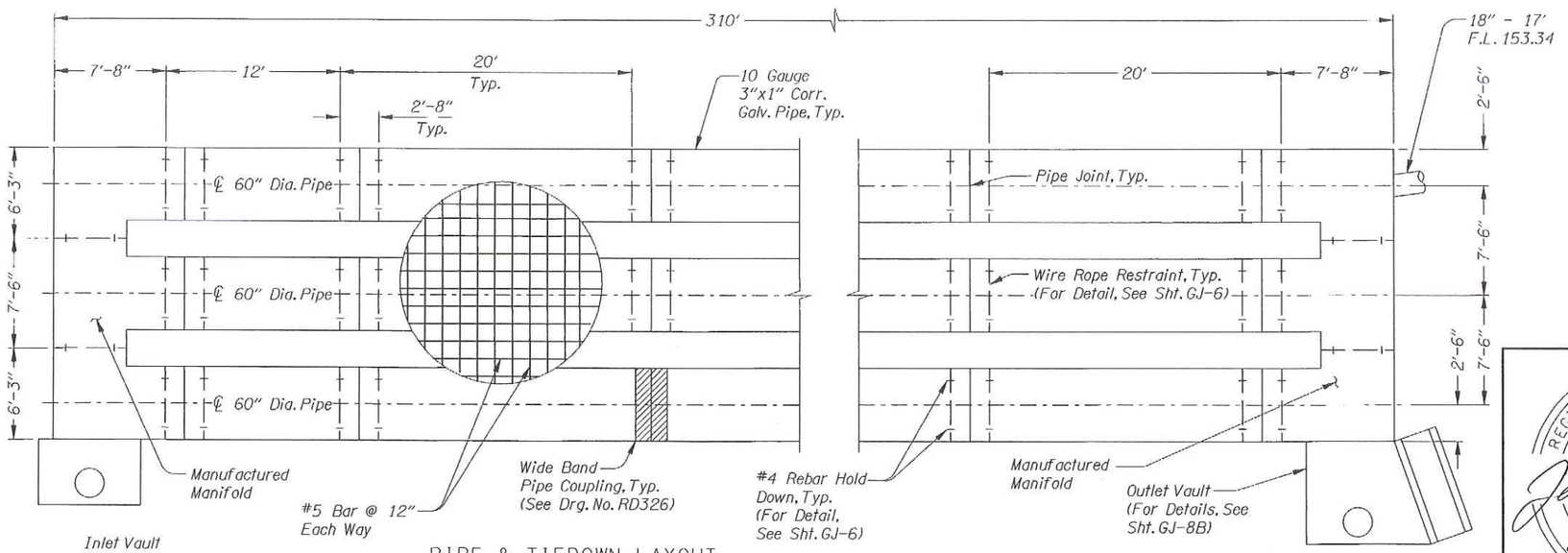


SECTION C-C

"AS CONSTRUCTED"

Mark Bun

Date 6/26/09 | Project Mngr



PIPE & TIEDOWN LAYOUT

UNDERGROUND DETENTION FACILITY #5

(See Sht. 35A, Note 2)

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EXPIRES: 12/31/06

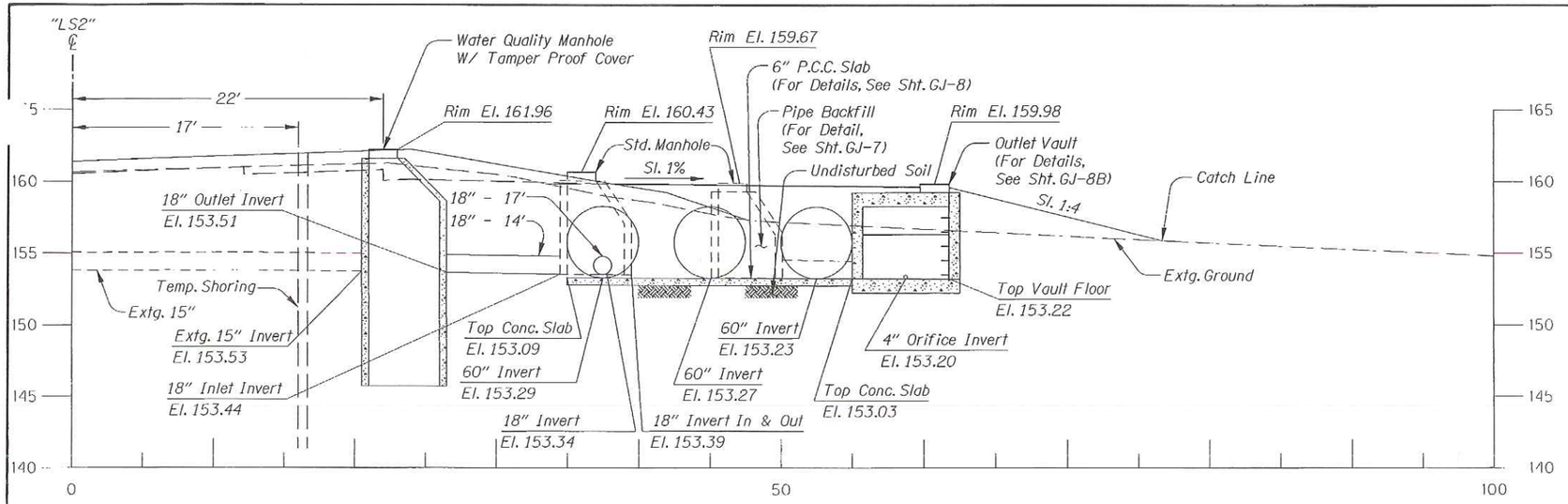
OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lano
Designed By - James Kent
Drafted By - Mathew Bunde

UNDERGROUND DETENTION FACILITY #5

SHEET NO. GJ-8



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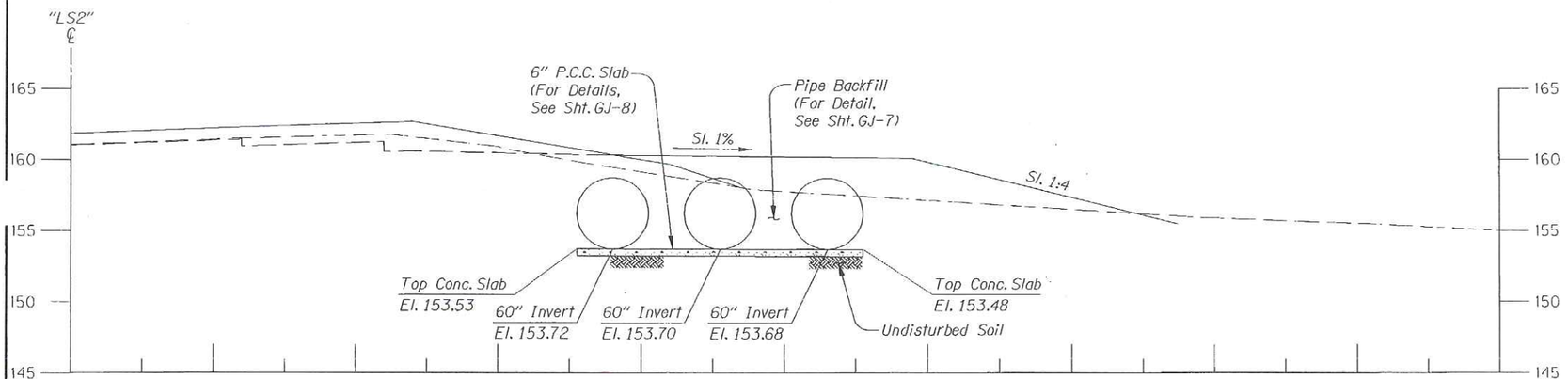

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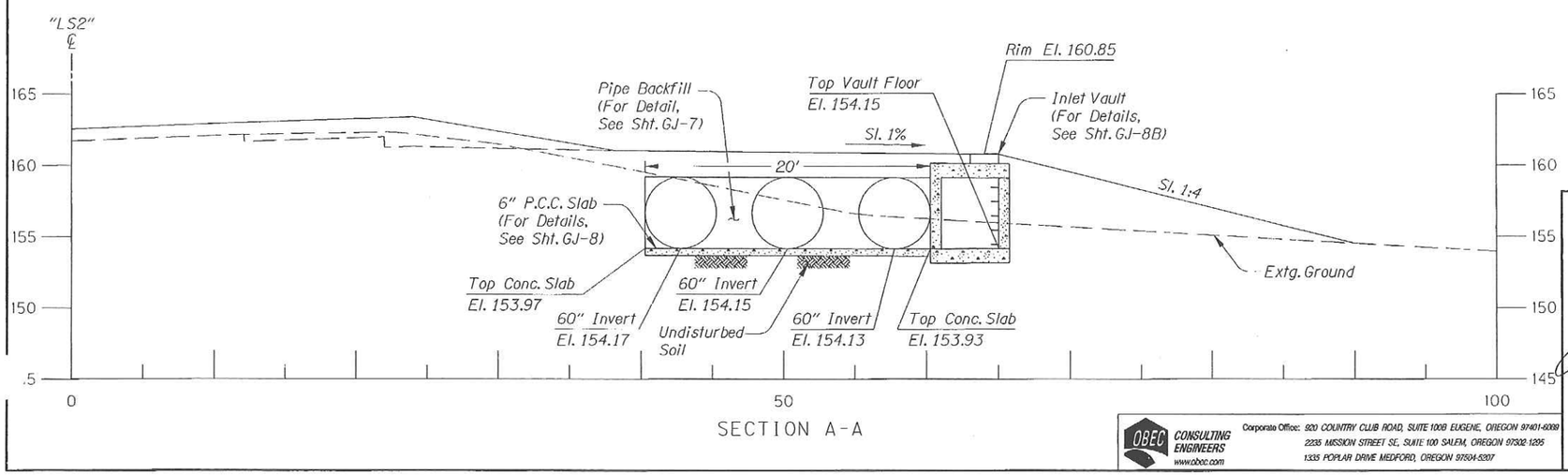


SECTION A-A

"AS CONSTRUCTED"
Mark Bun
Date 6/26/09 Project Mngr

REGISTERED PROFESSIONAL ENGINEER
12295
Jerome D. Lane
OREGON
JULY 5, 1983
JEROME D. LANE
EXPIRES: 12/31/06

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - James Kent
Drafted By - Mathew Bundo

UNDERGROUND DETENTION FACILITY #5 CROSS SECTIONS

SHEET NO. GJ-8A

OBEC CONSULTING ENGINEERS
www.obec.com
Corporate Office: 920 COUNTRY CLUB ROAD, SUITE 1008 EUGENE, OREGON 97401-6099
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1295
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

GENERAL NOTES:

All Material And Workmanship Shall Conform To The 2002 Oregon Standard Specifications For Construction.

Entry & Outlet Vaults Designed For HL-93 Live Load.

Concrete Members Designed By Load Factor Design Method.

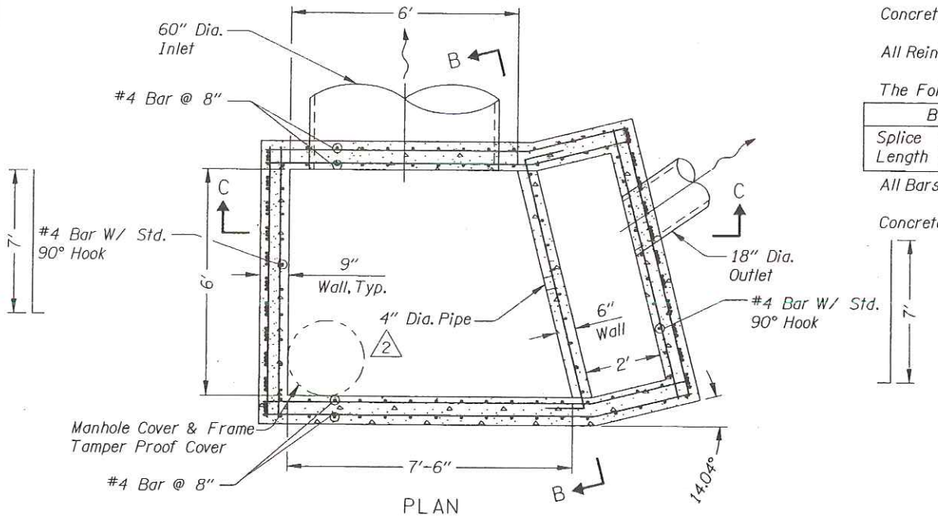
All Reinforcement Steel Shall Conform To Astm Specification A615, Grade 60 Or A706.

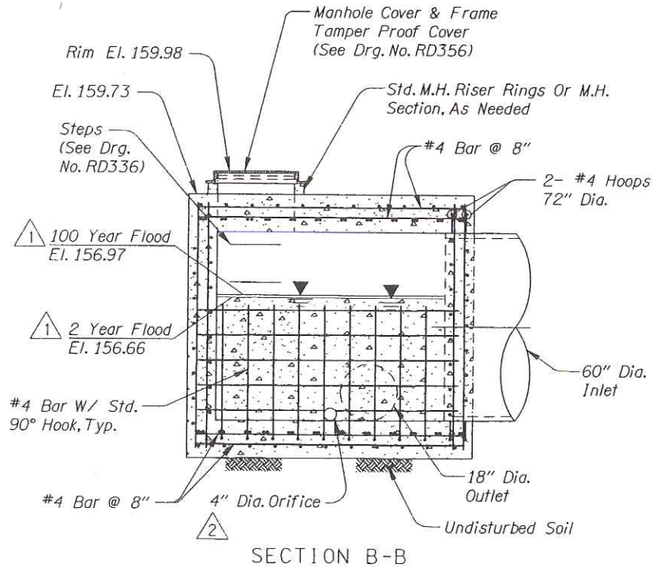
The Following Splice Lengths Shall Be Used,

Bar Size		3	4	5	6	7	8	9	10	11
Splice Length	Uncoated	1'-0"	1'-4"	1'-8"	2'-0"	2'-8"	3'-6"	4'-4"	5'-7"	6'-9"
	Epoxy Coated	1'-5"	1'-10"	2'-4"	2'-10"	3'-9"	4'-11"	6'-1"	7'-10"	9'-6"

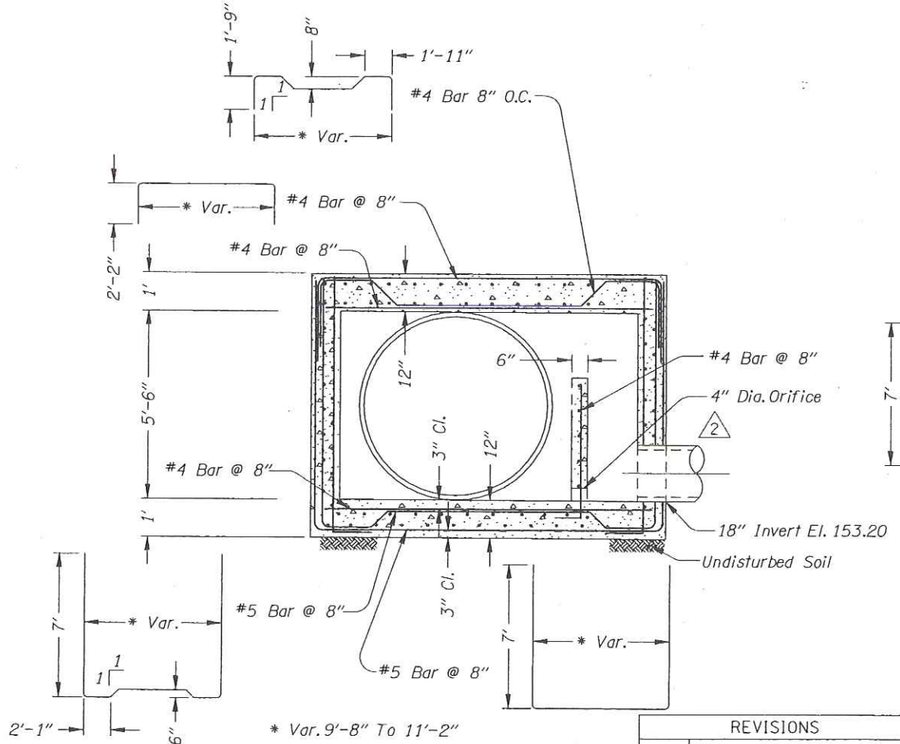
All Bars Shall Be Placed 2" Clear Of The Nearest Face Of Concrete Unless Shown Otherwise.

Concrete In Box Culverts Shall Be Class 3600-1½" Or ¾"





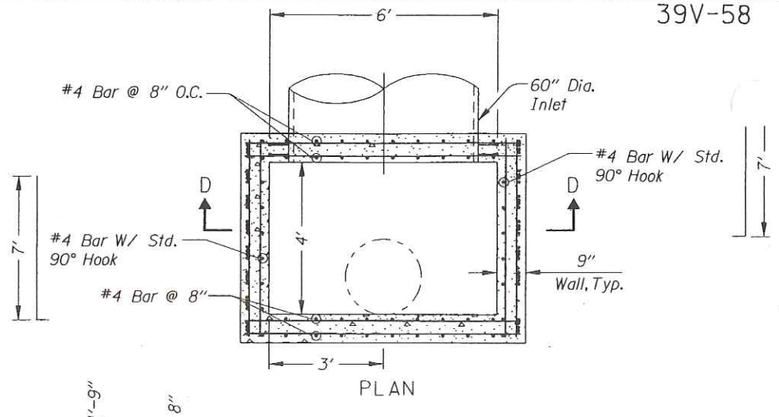
SECTION B-B

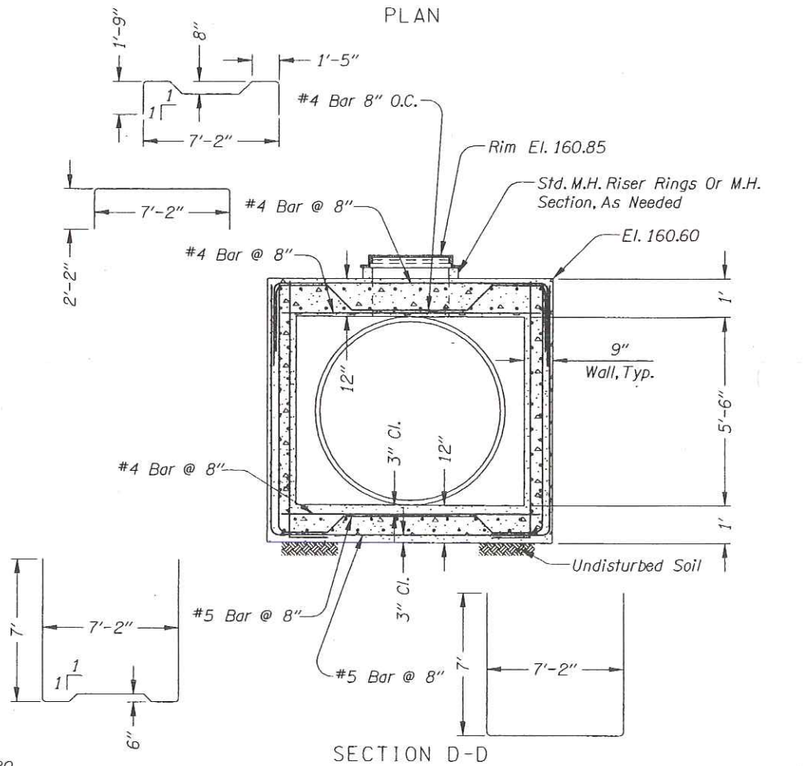


* Var. 9'-8" To 11'-2"

SECTION C-C

OUTLET STRUCTURE





SECTION D-D

INLET VAULT

"AS CONSTRUCTED"
Mark Bunde
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Elevations
2	Revised 03-23-2006 Revised Orifice Size

REGISTERED PROFESSIONAL ENGINEER
12295
Jerome D. Lane
OREGON
JULY 5, 1983
JEROME D. LANE
EXPIRES: 12/31/10

OBEC CONSULTING ENGINEERS
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OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - James Kent
Drafted By - Mathew Bunde

UNDERGROUND DETENTION FACILITY #5 DETAILS

SHEET NO. GJ-8B

File No. 16315

1:1200 - 3