OPERATION & MAINTENANCE MANUAL

DFI No. : D00133
Facility Type: Detention Pond/Water Oualitv Biofiltration Swale Combo

JULY, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	D00133
Facility Type:	Detention Pond/Water Quality Biofiltration Swale Combo
Construction Drawings:	(V-File Number) 39V-058
Location:	District: 2B (Old 2A)
	Highway No.: 064
	Mile Post: 2.15/2.24 (beg./end)
	Description: This facility is located just east of Prosperity Park Road in the grassy median between the northbound and southbound lanes of the East Portland Freeway (I-205, Hwy 064). Access may be obtained from the unobstructed shoulder off the northbound 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 Consulting Engineers Jerome D. Lane, P.E., (503) 589-4100
Facility construction:	2006
Contractor:	Oregon Mainline Paving, LLC

4. Storm Drain System and Facility Overview

A detention pond/water quality biofiltration swale combo (referred to from this point forward as a pond/swale combo) combines the forms and functions of a water quality swale and a detention pond. In a pond/swale combo, the biofiltration swale is situated within the bottom confines of the detention facility. The facility provides water quality treatment of the smaller storm events and detention of the larger storm events.

The biofiltration swale is designed as if it was a separate facility and consists of a grassy-lined facility with a flat trapezoidal cross section and gradual slope. Treatment is provided through sedimentation and filtration processes. If amended soils are present, additional treatment is obtained through infiltration through the amended soil media.

When the flows exceed the water quality flows, the pond/swale combo facility begins to provide detention. Detention is required to reduce or mitigate the increases in discharge, resulting from development. The facility is designed to store and gradually release (or attenuate) stormwater runoff via a control structure or release mechanism, then releasing it slowly over a more extended period of time. The flow control mechanism for this facility involves a 4-inch orifice surrounded by a wirecloth strainer assembly. When flows exceed the water quality design flow, the orifice restricts the flow causing the water to backup within the facility.

This detention pond/water quality biofiltration swale combo is located just east of Prosperity Park Road in the grassy median between the northbound and southbound lanes of the East Portland Freeway (I-205, Hwy 064). The facility is approximately 475 feet in length from east to west. Access may be obtained from the unobstructed shoulder off the northbound lanes (Photo 1).

This facility receives stormwater runoff as sheet flow from adjacent portions of both the northbound and southbound lanes of I-205 (Hwy 064.) Within the facility, stormwater move from east to west. Water leaves the pond/swale combo at an outlet structure at the facility's northwestern end (Point B on the Operational Plan in Appendix A).

The outlet structure consists of a lower outlet and a pair of upper outlets (Point B). Treatment flows and detained water enter the lower outlet, are discharged into a 3-inch diameter pipe, conveyed to the upper outlets, discharged into a 15-inch diameter conveyance pipe and subsequently discharged into a 54-inch diameter conveyance pipe buried alongside Prosperity Park Road (Point C). From there, the water is conveyed either north or south where the pipe outfalls to separate ditches.

A. Maintenance equipment access:
Personnel and vehicular access may be obtained from the unobstructed shoulder off the northbound lanes of I-205 (Hwy 064) (Photo 1).

B. Heavy equipment access into facility:

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

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains

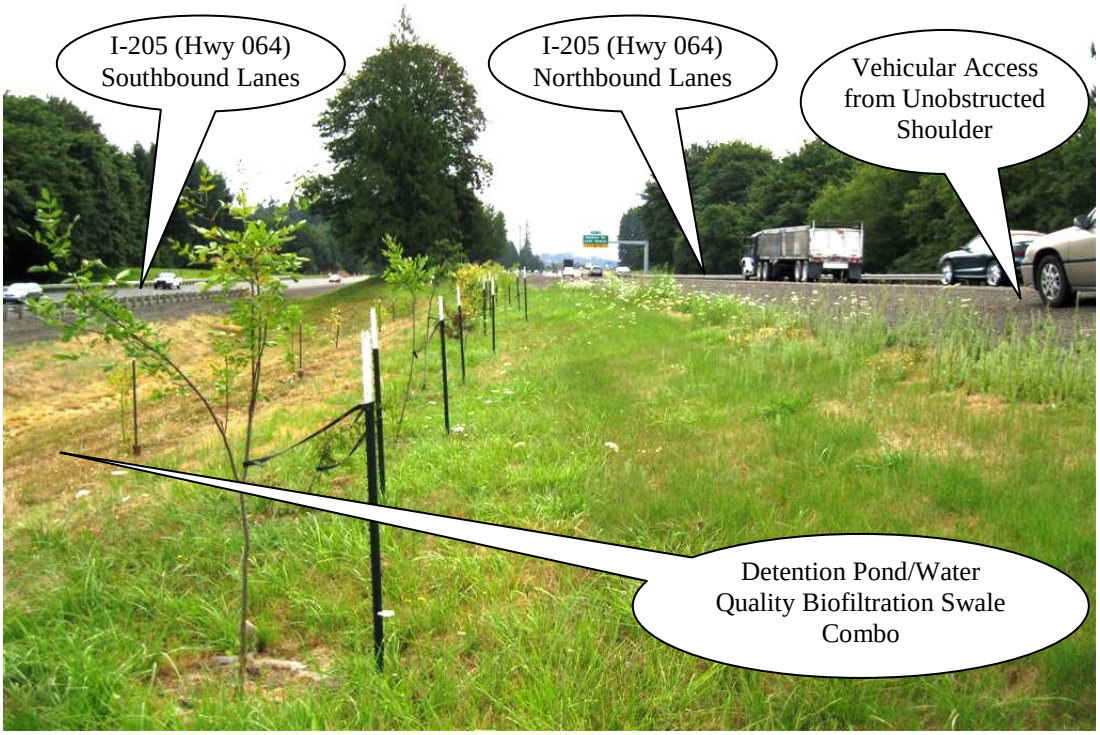


Photo 1: Overview of the facility. Photo taken facing east. Vehicular access from unobstructed shoulder of northbound lanes of I-205 (Hwy 064.)

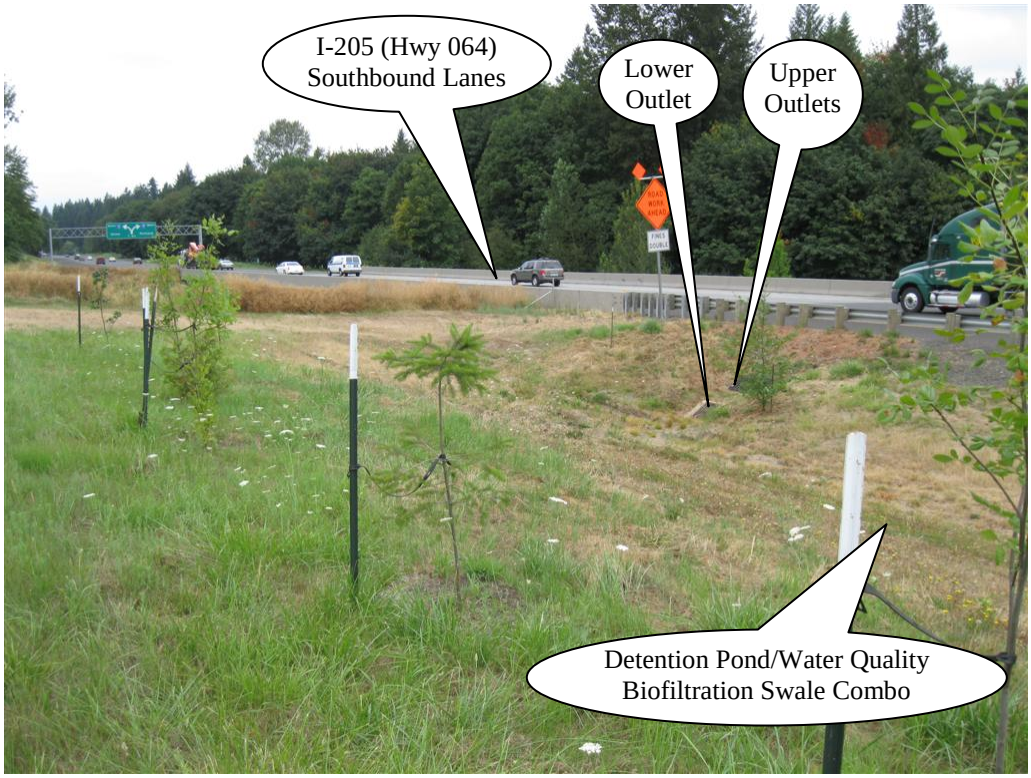


Photo 2: Overview of the facility. Photo taken facing west.

Photo 3: Facility outlet structures

5. Facility Haz Mat Spill Feature(s)

The pond/swale combo can be used to store a volume of liquid if its outlet structures are blocked. The outlet structures for this facility are noted as Point B on the Operational Plan (Photo 3). They can be blocked using metal plates or sandbags.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure cannot 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 for this facility is designed into the outlet structure at the northwest end of the facility (Point B). The outlet structure consists of a lower outlet connected by a 3-inch diameter pipe to a pair of upper outlets (Photo 3). A 15-inch diameter pipe conveys discharged water from the upper outlets to a 54-inch diameter conveyance pipe buried alongside Prosperity Park Road (Point C). Whereas treatment and detainment flows are discharged from the lower outlet to the upper outlets, before leaving this facility, high flows bypass the lower outlet and exit from the upper outlets.

☐ 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 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 Senior 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

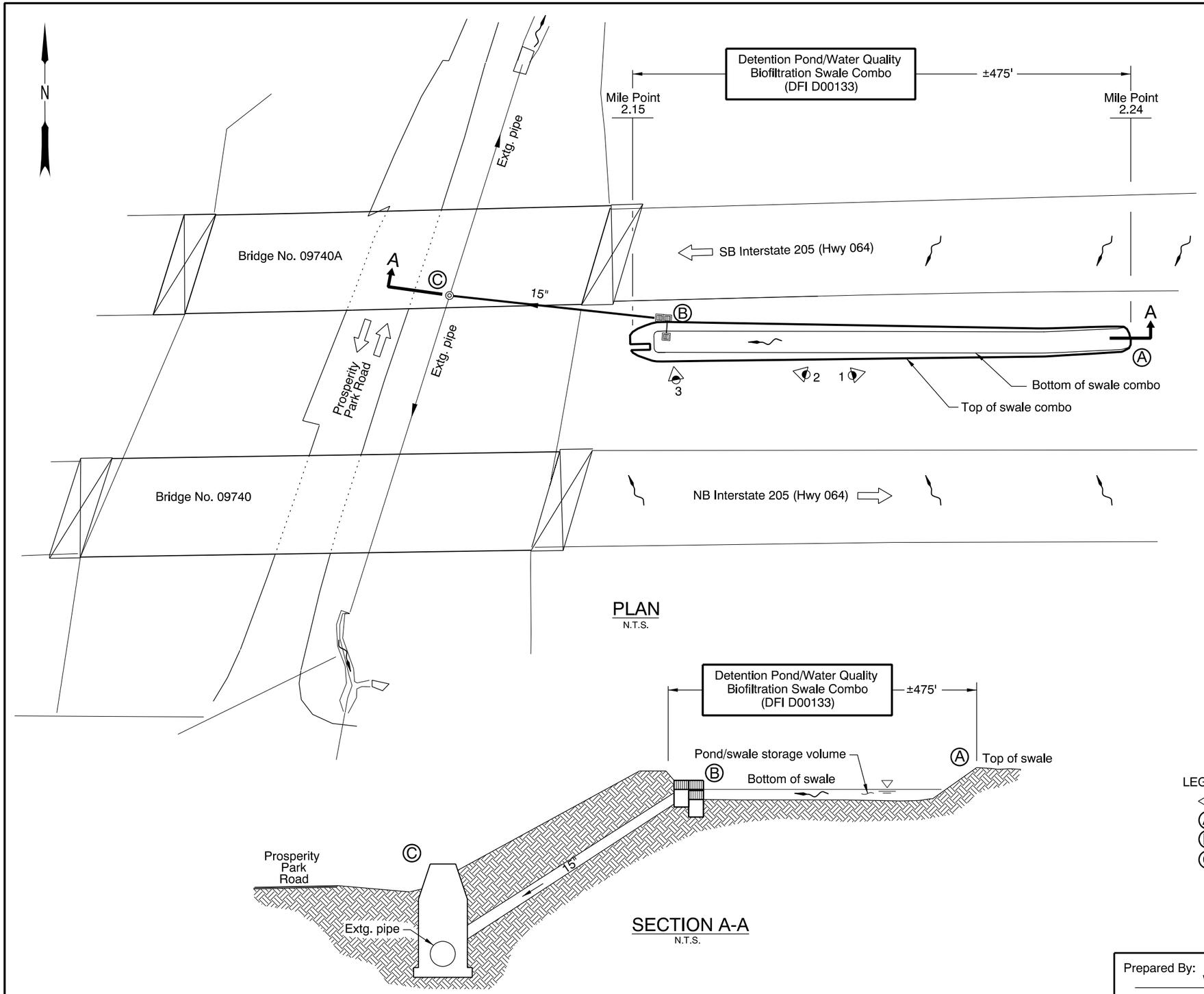
Contact any of the following for more detailed information about management of waste materials found on site:

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

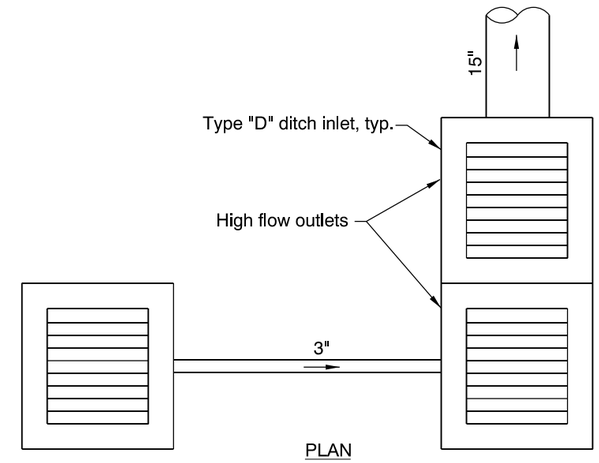
Content:

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

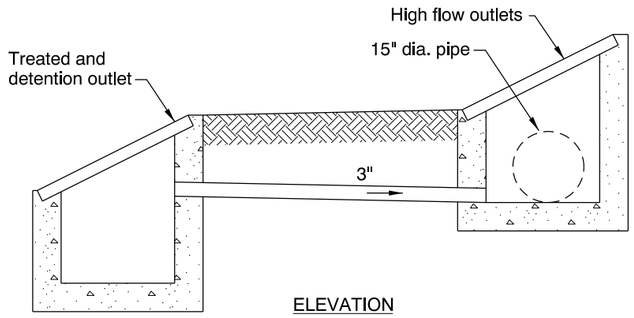


PLAN
N.T.S.

SECTION A-A
N.T.S.



PLAN



ELEVATION

OUTLET STRUCTURE FOR DETENTION/WATER QUALITY BIOFILTRATION SWALE COMBO AT POINT Ⓑ

N.T.S.

LEGEND:

- Photograph location / direction
- Ⓐ Start of Facility DFI 00133
- Ⓑ Outlet structure
- Ⓒ Facility Connection to Existing Stormwater Conveyance Line
- Manhole (and/or ◎)
- Inlet (and/or □)
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Wynee Hu

Drafted By: Rodney Schultz

DFI D00133
MAINTENANCE DISTRICT 2B HWY 064
DETENTION POND/WQ SWALE COMBO
EAST PORTLAND FREEWAY MP 2.24 - 2.15
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

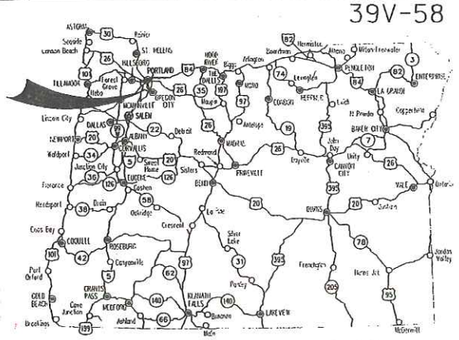
CLACKAMAS & WASHINGTON COUNTIES

APRIL 2006

"AS CONSTRUCTED"

Mark Beeson

Date 6/26/09 Project Mngr



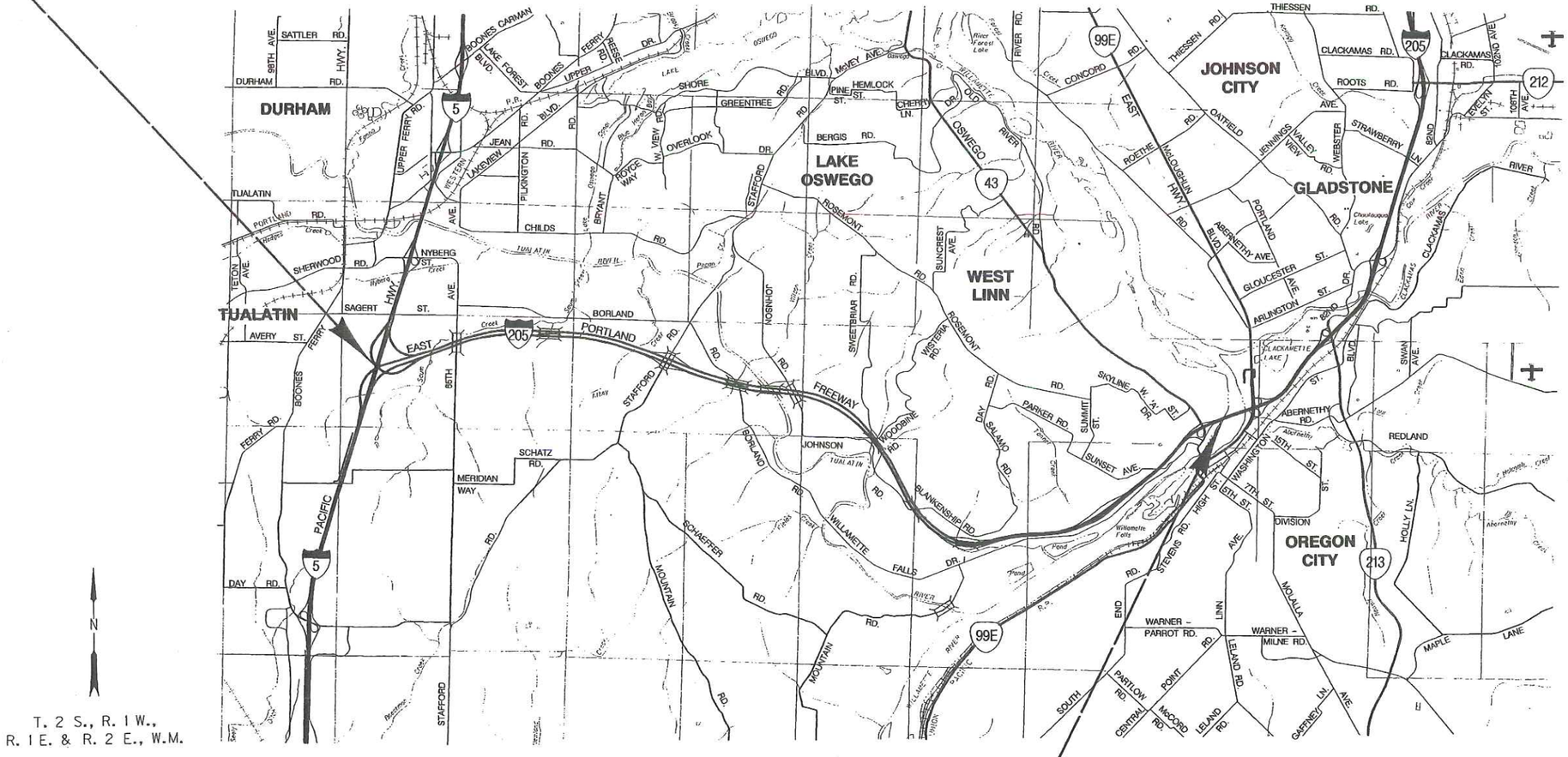
Overall Length Of Project - 8.90 Miles

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

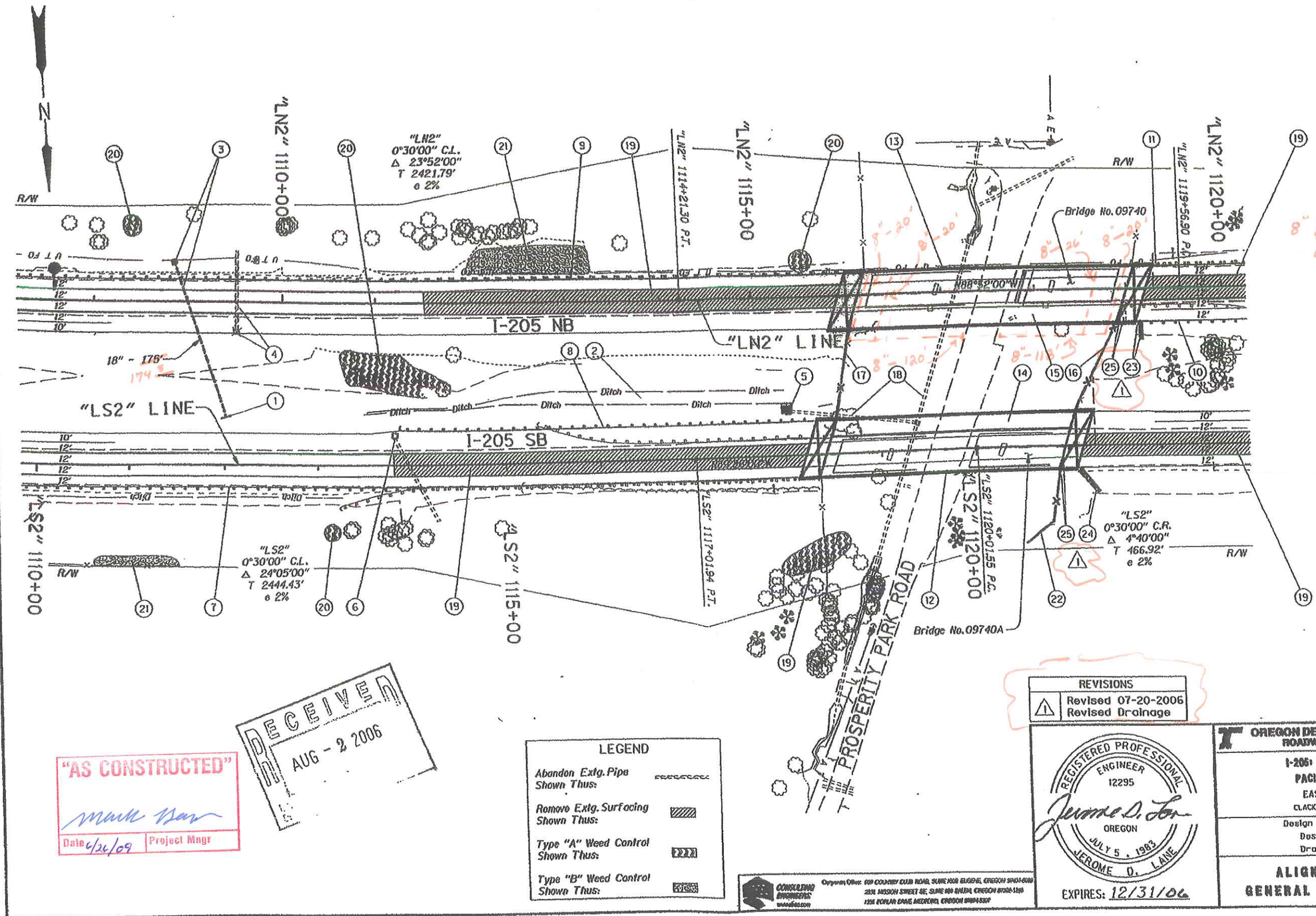
Harold E. Lasley 2/23/06
TECHNICAL SERVICES MANAGING ENGINEER DATE

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



RECEIVED
AUG - 2 2006

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

LEGEND

Abandon Exlg. Pipe Shown Thus:	
Remove Exlg. Surfacing Shown Thus:	
Type "A" Weed Control Shown Thus:	
Type "B" Weed Control Shown Thus:	

REVISIONS
⚠ Revised 07-20-2006 Revised Drainage

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 - Tom Metcalf
Drafted By - Serban Dinca

ALIGNMENT AND GENERAL CONSTRUCTION

SHEET NO. 32

File No. 16225

I:\Projects\019\019082\Roadway\12874f.pp2 7/26/2006 03:07 PM

(1) Sta. "LS2" 1112+00.52' Lt.
Const. Paved End Slope
F.L. 194.00
(See Drg. Nos. RD300, RD316, RD318, RD322, RD324 & RD326)

(2) Const. Bio-Swale/Detention Pond 3
Dt. Exc. - 2830 Cu.Yd.
△1 (For Details, See Sht. GJ-4)

(3) Sta. "LN2" 1108+92.45' Lt.
Const. Type "G2-MA" Inlet
Inst. 18" Sew. Pipe - 175' 174.5
10' Depth
Tunneling, Boring And Jacking - 90'

(4) Sta. "LN2" 1109+50.4, 52.5' Rt.
Remove Inlet
Abandon Extg. 15" Sew. Pipe - 88'
Fill Abandoned Pipe

(5) Sta. "LS2" 1118+04.1, 47.1' Lt.
Remove Inlet
Const. Outlet Structure
Over Pipe
(For Details, See Sht. GJ-4B)

(6) Cap Extg. Inlet

(7) See Sht. 31, Note 5
Remove Extg. Guardrail - 490'
Const. Guardrail (Type 2A)
Const. Guardrail - 12.5' (Type 3)
Extra For 8' Guardrail Posts - 90
Const. Guardrail To Bridge Rail Transition

(8) Remove Extg. Guardrail - 295'
Const. Guardrail - 362.5' (Type 2A)
Const. Guardrail - 12.5' (Type 3)
Extra For 8' Guardrail Posts - 15
Const. Guardrail To Bridge Rail Transition
Const. Guardrail Terminal, Non-Flared (50')
Flare Rate=0, W=1', E=2'

(9) See Sht. 31 Note 6
Remove Extg. Guardrail - 490'
Const. Guardrail (Type 2A)
Const. Guardrail To Bridge Connection
Extra For 8' Guardrail Posts - 95

(10) Remove Extg. Guardrail - 170'
Const. Guardrail - 4962.5' (Type 2A)
Const. Guardrail - 12.5' (Type 3)
Const. Guardrail To Bridge Rail Transition

(11) Remove Extg. Guardrail - 185'
Const. Guardrail - 387.5 (Type 2A)
Const. Guardrail - 12.5' (Type 3)
Const. Guardrail To Bridge Rail Transition

(12) Br. No. 09740A
Sta. "LS2" 1118+13.7 To Sta. "LS2" 1121+08.5, Rt.
Remove Extg. Bridge Rail - 294.8'
Const. Type "F" Bridge Rail - 294.8'
(For Drg. Nos., See Sht. 1A)

(13) Br. No. 09740
Sta. "LN2" 1115+98.3 To Sta. "LN2" 1119+28.1, Lt.
Remove Extg. Bridge Rail - 329.8'
Const. Type "F" Bridge Rail - 329.8'
(For Drg. Nos., See Sht. 1A)

(14) Br. No. 09740A
Widen Structure - 253'
Rdwy. Width 60'
And Reinf. Panel At Bridge Ends
(For Drg. Nos., See Sht. 1A)

(15) Br. No. 09740
Widen Structure - 288'
Rdwy. Width 60'
And Reinf. Panel At Bridge Ends
(For Drg. Nos., See Sht. 1A)

(16) Sta. "LN2" 1115+85 To Sta. "LN2" 1116+00, Rt.
Remove Type 2 Fence - 135'
Const. Type 2 Fence - 95'

(17) Sta. "LN2" 1118+40 To Sta. "LN2" 1118+88, Rt.
Remove Type 2 Fence - 150'
Const. Type 2 Fence - 105'

(18) Protect Extg. Pipe

(19) Remove Continuously
Reinf. Conc. Pvmt. - 4590 Sq.Yd.

(20) Type "A" Weed Control

(21) Type "B" Weed Control

(22) Sta. "LS2" 1120+50 To Sta. "LS2" 1120+89, Rt.
Remove Type 2 Fence - 95'
Const. Type 2 Fence - 95'

△2 (23) Sta. "LN2" 1119+08.87 To "LN2" 1119+13.87
Const. Asph. Drainage Curb - 5'
Const. Riprap Lined Ditch - 20'
"V" Bottom, 1:2 Slopes, 1' Deep
Dt. Exc. - 2 Cu.Yd.
Loose Riprap (Class 100) - 2 Cu.Yd.

△2 (24) Sta. "LS2" 1121+08.81, Rt
Const. Riprap Lined Ditch - 35'
"V" Bottom, 1:2 Slopes, 1' Deep
Dt. Exc. - 3 Cu.Yd.
Loose Riprap (Class 100) - 3 Cu.Yd.

△2 (25) Remove Extg. Inlet - 2
Remove Extg. Conc. Pipe

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

REVISIONS	
△1	Revised 04-10-2006 Revised Note
△2	Revised 07-20-2006 Added Note

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 - Tom Metcalf
Drafted By - Mathew Bunde

CONSTRUCTION NOTES

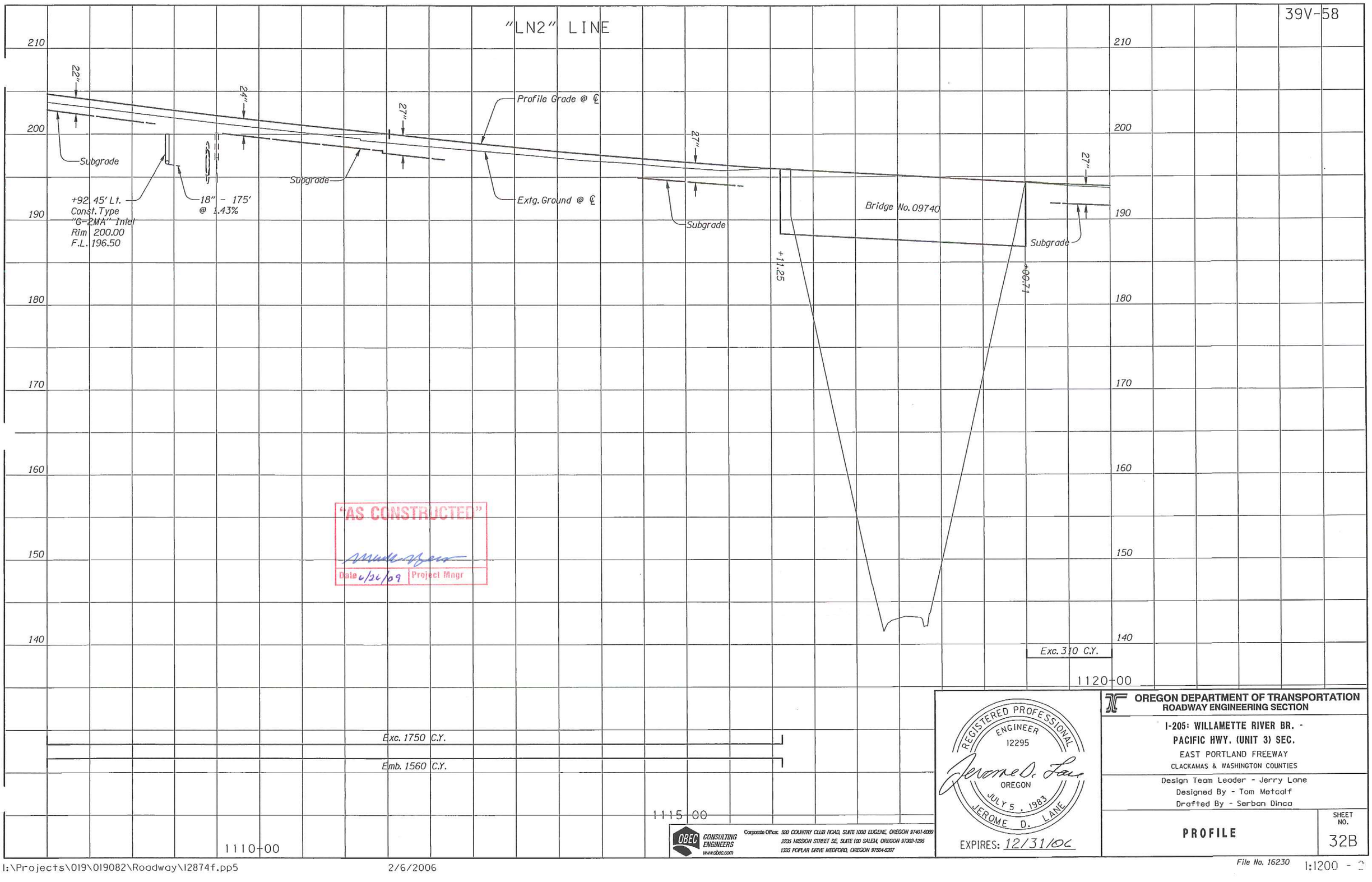
SHEET NO. 32A

CONSULTING ENGINEERS www.obec.com
Corporate Office: 600 COUNTRY CLUB ROAD, SUITE 108 EUGENE, OREGON 97401-8035
2626 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1286
1200 POPLAR DRIVE MEDFORD, OREGON 97504-5707

File No. 16229

39V-58

"LN2" LINE



"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

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

OBEC CONSULTING ENGINEERS
www.obec.com
Corporate Office: 920 COUNTRY CLUB ROAD, SUITE 1009 EUGENE, OREGON 97401-6099
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1295
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

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

PROFILE

SHEET NO. 32B

39V-58

"LS2" LINE

200
190
180
170
160
150
140

22"
197.56
392' V.C.
22"
27"
Profile Grade @ ℄
Subgrade
+92.00
+00.52' Lt.
Const. Paved End Slope
F.L. 194.00
Subgrade
Exstg. Ground @ ℄
27"
179.00
27"
Subgrade
Const. Outlet Structure
(For Details, See Sht. GJ-4B)
+41.80
Bridge No. 09740A
-0.85%
Subgrade
+00.00
+96.38
Ditch Profile Rt.
Exc. 1110 C.Y.

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

1 Exc. 3350 C.Y.
Emb. 360 C.Y.

1110+00
1115+00
1120+00

REVISIONS	
1	Revised 04-10-2006 Revised Quantity

OBEC CONSULTING ENGINEERS
www.obec.com
Corporate Office: 920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1236
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

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 - Tom Metcalf
Drafted By - Serban Dinca

PROFILE

SHEET NO. 32C

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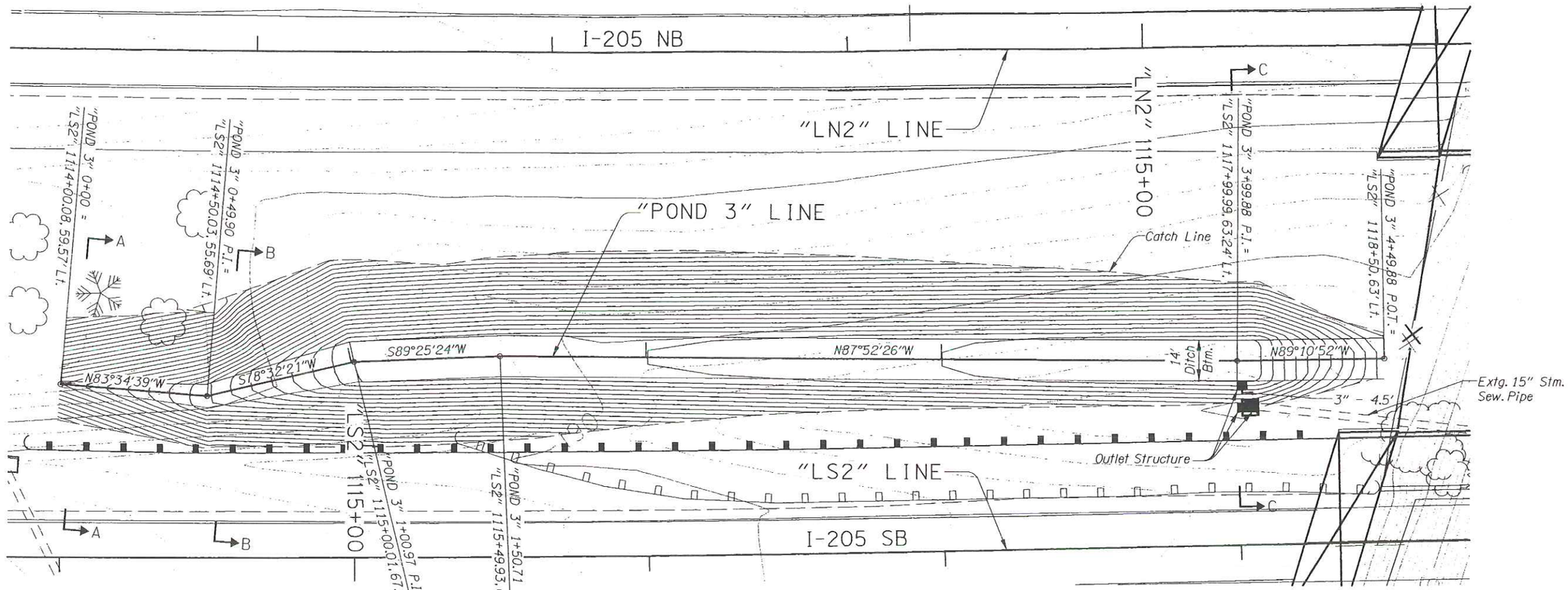
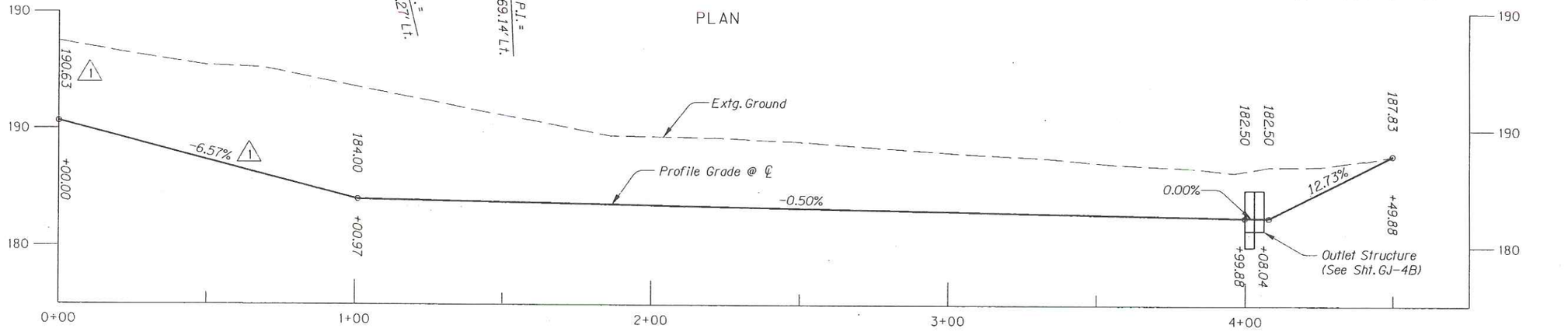


PLAN



PROFILE
(See Sht. 32, Notes 2 & 5)

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

NOTE:
For Sections Not Shown, See Sht. GJ-4A.
For Outlet Structure Details, See Sht. GJ-4B.

REVISIONS	
1	Revised 04-10-2006 Revised Profile

OBEC CONSULTING ENGINEERS
www.obec.com
Corporate Office: 920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1295
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

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

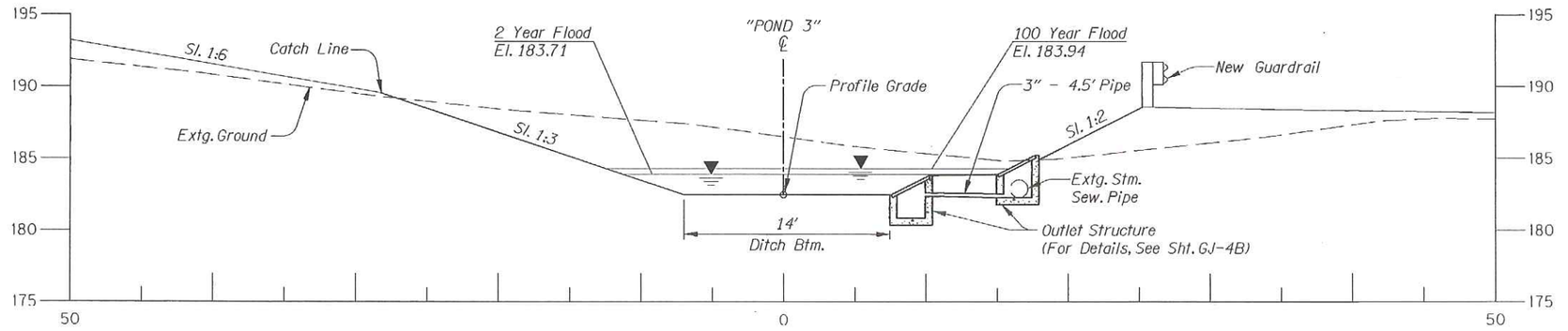
OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

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

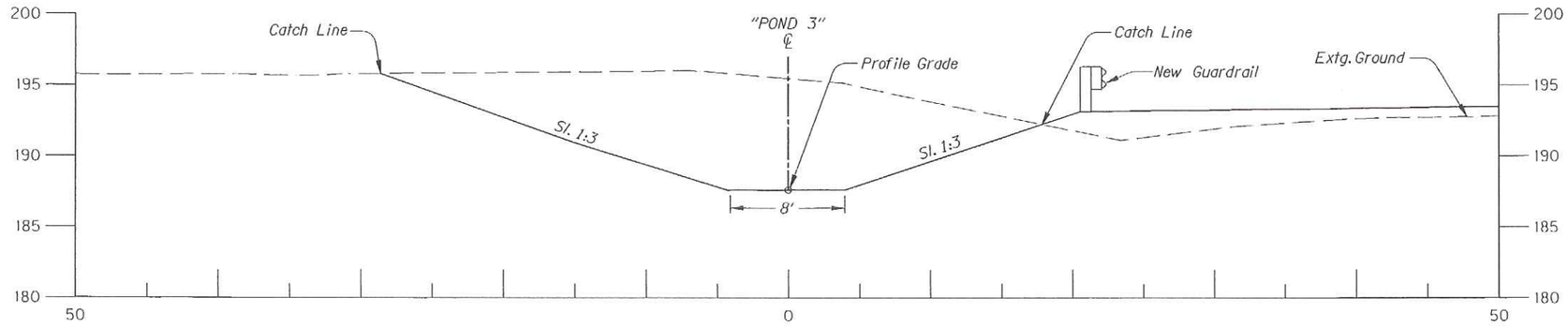
Design Team Leader - Jerry Lane
Designed By - James Kent
Drafted By - Yoshi Ishii

POND 3
PLAN AND PROFILE

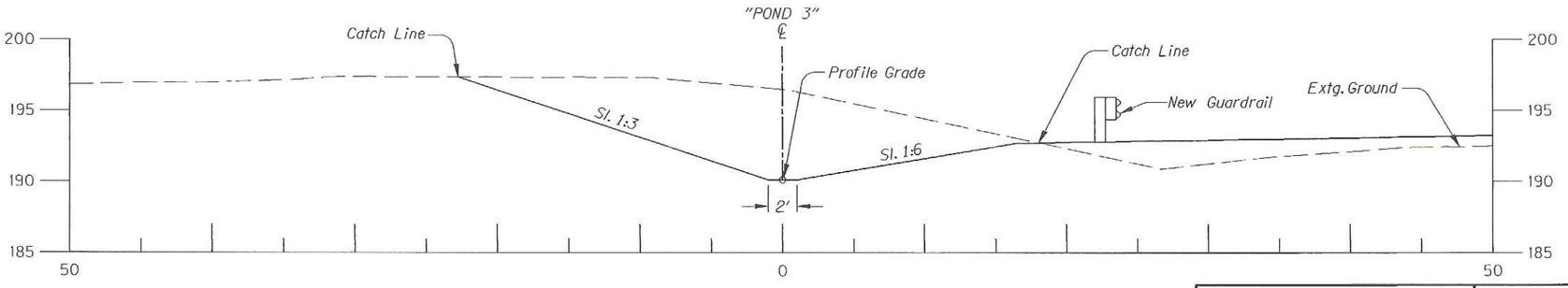
SHEET NO. GJ-4



SECTION C-C



SECTION B-B



SECTION A-A

"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

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

EXPIRES: 12/31/06

CONSULTING ENGINEERS
www.obec.com
Corporate Office: 920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-6089
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1295
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

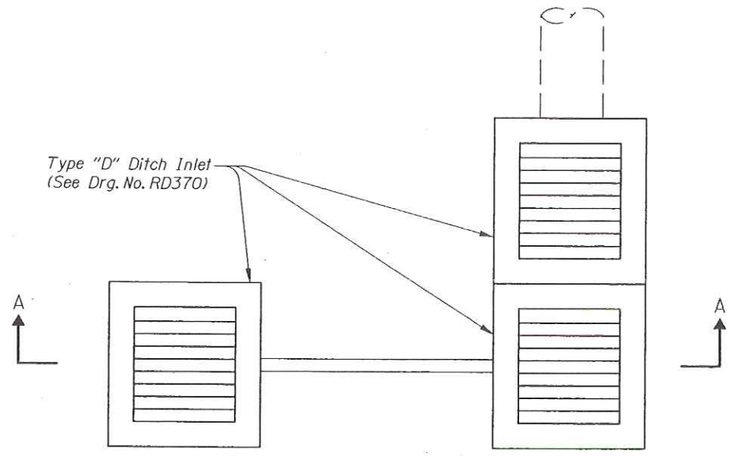
OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

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

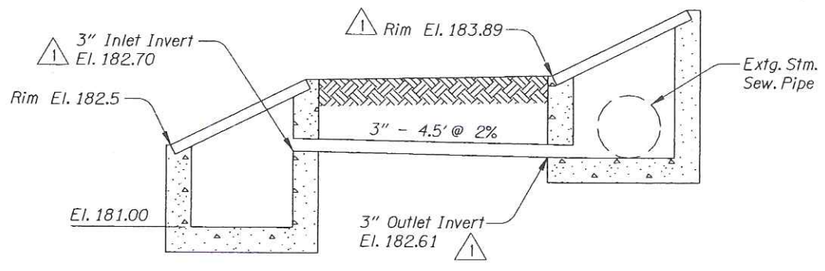
Design Team Leader - Jerry Lane
Designed By - James Kent
Drafted By - Mathew Bunde

POND 3
CROSS SECTIONS

SHEET NO. GJ-4A



PLAN



SECTION A-A

OUTLET STRUCTURE

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REVISIONS	
1	Revised 03-23-2006 Revised Elevations

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2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1286
1335 POPLAR DRIVE MEDFORD, OREGON 97504-5207

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POND 3 DETAILS

SHEET NO. GJ-4B