OPERATION & MAINTENANCE MANUAL

Water Quality Filter Strip

Manual prepared: May 2019

DFI No. D00787

Figure 1: DFI No. D00787, looking south from Van Duyn Rd. and I-5 southbound on ramp intersection

1. Identification

Drainage Facility ID (DFI):	D00787
Facility Type:	Water Quality Filter Strip
Construction Drawings:	(V-File Numbers) 45V-31
Location:	District: 5
	Highway No.: 001
	Mile Post: 198.55(MA) to 198.62(MA),[right]

2. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions.

3. Facility Location

The location map below details the facility location. The highway, mile posts, side streets, access location, and stormwater flow directions are noted on the map. **NOTE: Mile posts are based off of the V-File, and may vary from TransGIS mile posts.**

Facility location type: **On ramp**

Flow direction: [west]

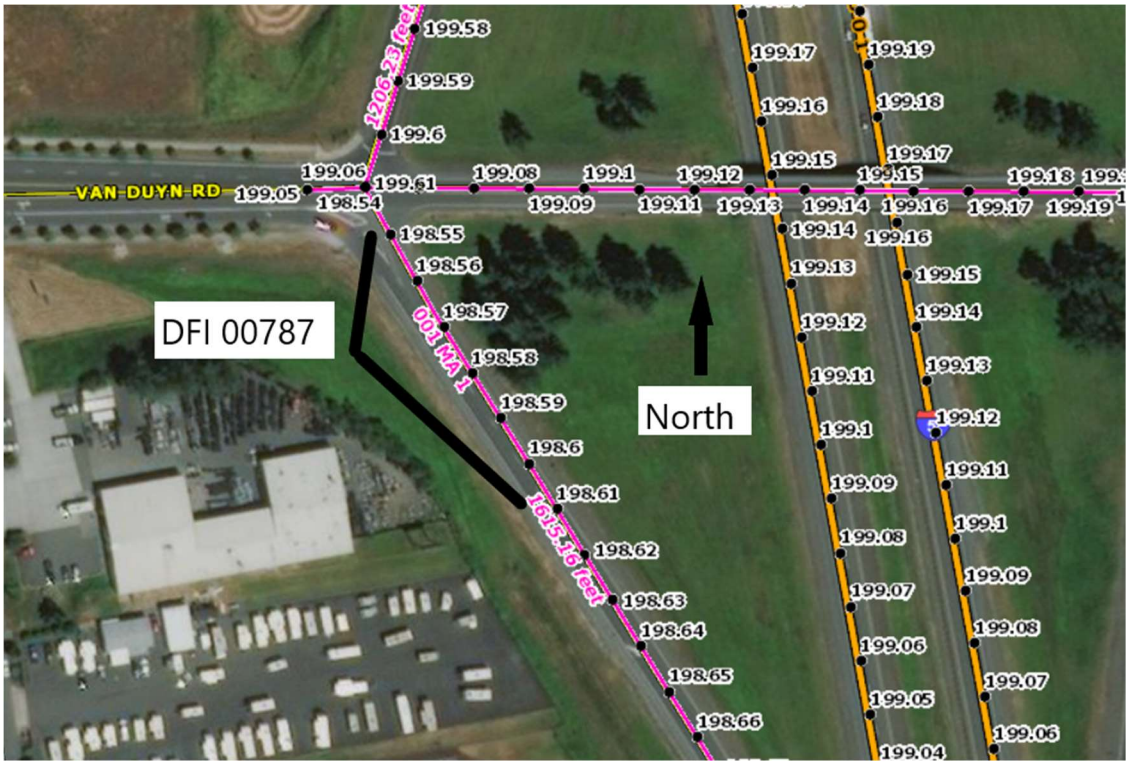


Figure 2: Facility location map

4. Facility Summary

The width is measured perpendicular to the edge of pavement and is equivalent to the flow length. The length is measured parallel to the edge of pavement and is equivalent to the length of the contributing impervious area.

The length and width of the applicable facility components are:

Component	Length (feet)	Width (feet)
Filter Strip	**380**	**8 ft**

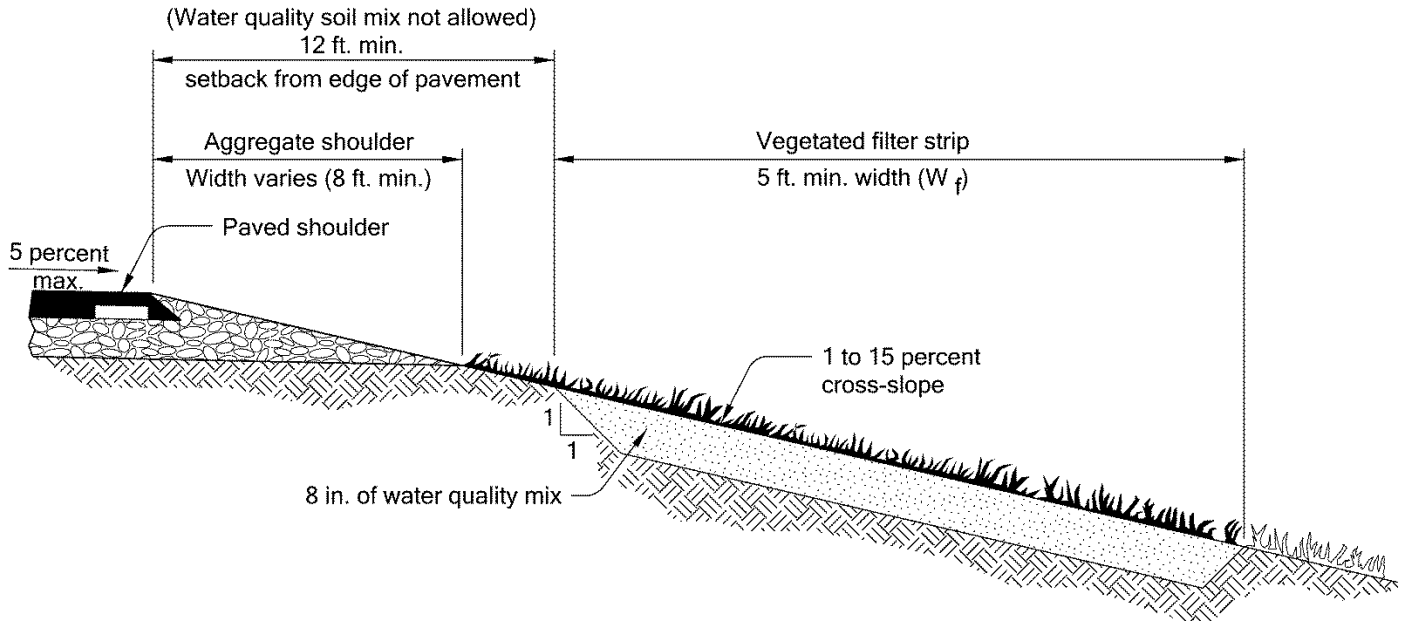


Figure 3: Filter Strip Section (Typical)

The slope of the facility is presented by a vertical distance (rise) followed by the horizontal distance (run).

Side Slope	Rise (feet)	Run (feet)
Filter Strip	**1**	**6**

5. Facility Access

Maintenance access to the facility:

☐Roadside pad	☒Roadside shoulder
☐Access road with Gate	☐Access road without Gate

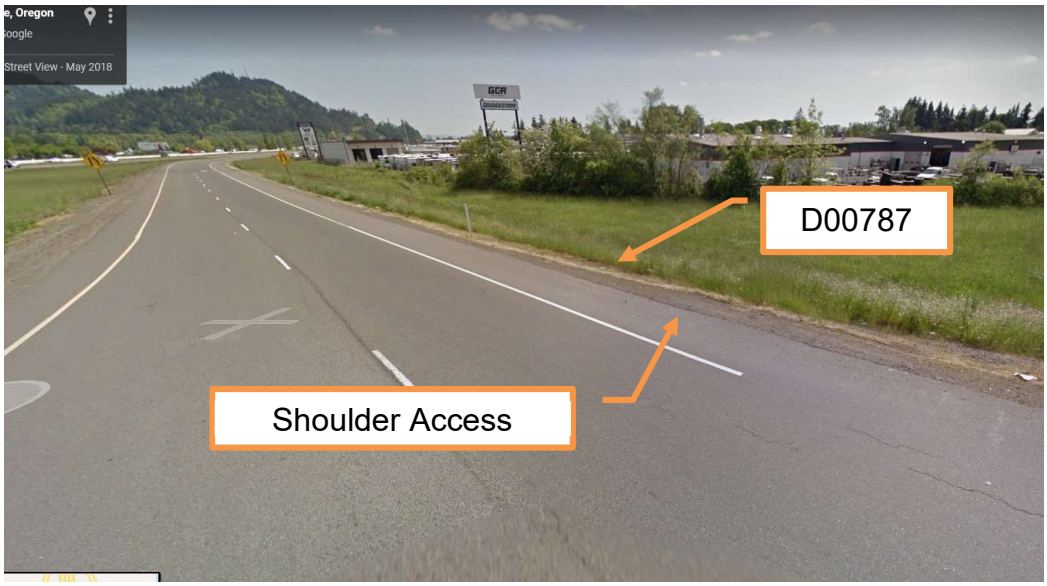


Figure 4: Facillity access from right shoulder

6. Operational Components / Maintenance Items

Classification and Standard Operational (Op) Plan:

This facility is classified as a:

☒ Filter Strip (Op Plan A)	☐ Bioslope (Op Plan B)
A filter strip consists of a vegetated or media slope located parallel to the edge of pavement. It maintains sheet flow of stormwater runoff over the width of the strip.	A bioslope consists of a filter strip and treatment zone. It is a flow-through stormwater treatment facility located along roadside embankments.
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A, B) are provided in the Standard Operation Manual.	

See Appendix A for the site specific operational plan.

Operational Components

Filter strips and bioslopes have many components that assist with treatment, conveyance, and infiltration of stormwater runoff. The components in use can vary depending on the facility design. The facility components table (Table 1) has been provided to highlight the applicable components for this facility. The component is in use when the box contains an “x” (e.g. ☒).

The Standard Operation Manual for Water Quality Filter Strips and Bioslopes (implemented March, 2017) outlines facility operation, typical footprint configuration, and component definitions and details. A link to the manual is attached to the feature marker in TransGIS.
https://gis.odot.state.or.us/TransGIS/

Maintenance Items

Operational components marked in Table 1 should be inspected and maintained according to Section 7. Each facility component is defined and detailed in the Standard Operation Manual using the associated ID number indicated below.

Table 1: Bioslope/Filter Strip Components		ID #
Facility Inlet		
Pavement Sheet Flow	☒	**B1**
Shoulder Aggregate	☒	**B2**
Ground Cover		
Vegetated Slope	☒	**B3**
Aggregate Media Slope	☐	**B4**
Underground Components		
Water Quality Mix	☒	**B5**
Ecology Mix	☐	**B6**
Granular Drain Backfill Material	☐	**B7**
Geotextile Fabric	☐	**B8**
Geocell Grid	☐	**B9**
Structures		
Curb/Berm	☐	**B10**
Check Dam	☐	**B11**
Cleanout	☐	**B12**
Facility Outlet		
Perforated Drain Pipe	☐	**B13**
Open Slope Outlet	☐	**B14**
Open Channel Outlet	☐	**B15**
Storm Drain Outlet Pipe	☐	**B16**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐ **O**	**B17**
Outfall Channel	☐	**B18**
Storm Drain System	☐	**B19**
Outfall Components		
Pervious Berm	☐	**B20**
Riprap Pad	☐	**B21**

7. Maintenance

Maintenance Frequency/Maintain Records

a. Inspect annually. Preferably prior to the rainy season.
b. Clean and maintain as necessary. Refer to Activity 125 for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

Maintenance Guide/Maintenance Actions

The ODOT Routine Road Maintenance Water Quality and Habitat Guide (the *Blue Book*) outlines the standard maintenance actions for water quality facilities under Activity 125.

There are standard maintenance tables for standard ODOT designs. The maintenance tables describe the maintenance component, the defect or problem, the condition when maintenance is needed, and the recommended maintenance to correct the problem. Use the following tables to maintain ODOT filter strips and bioslopes:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 4 (Water Quality Filter Strips)
- Table 5 (Water Quality Bioslopes)

The ODOT Maintenance Guide can be viewed at the following website:
http://www.oregon.gov/ODOT/HWY/OOM/pages/mguide.aspx

The *Blue Book* can be viewed at the following website:
http://www.oregon.gov/ODOT/Maintenance/Documents/blue_book.pdf

8. Limitations

Filter strips and bioslopes are NOT designed to allow the use of heavy equipment. Vehicles entering the facility can create depressions (tire ruts), damage vegetation, and damage structural components (e.g. flow spreaders). These conditions may result in poor treatment and drainage performance.

9. Waste Material Handling

Material removed from the facility is defined as waste by the Department of Environmental Quality (DEQ). Refer to the road waste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options:

http://www.oregon.gov/ODOT/HWY/OOM/pages/ems.aspx

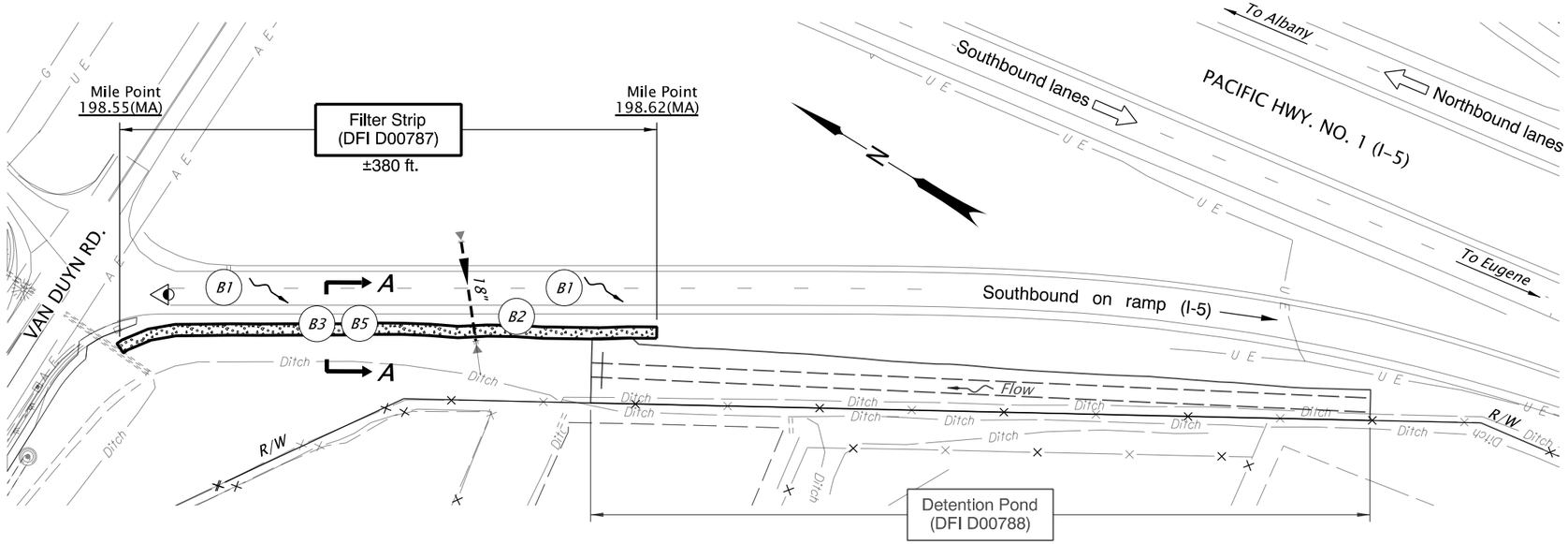
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 667-7442
ODOT Region 1 Hazmat Coordinator	(503) 731-8290
ODOT Region 2 Hazmat Coordinator	(503) 986-2647
ODOT Region 3 Hazmat Coordinator	(541) 957-3594
ODOT Region 4 Hazmat Coordinator	(541) 388-6186
ODOT Region 5 Hazmat Coordinator	(541) 963-1590
ODEQ Northwest Region Office	(503) 229-5263

A Appendix A – Site Specific Operational Plan

Contents:

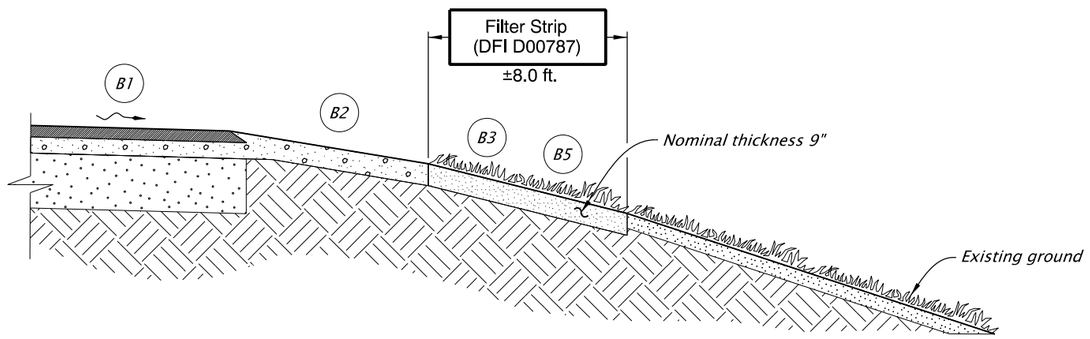
Operational Plan: DFI D00787



PLAN
N.T.S.

LEGEND:

- *X#* — *Facility Component (see table 1 in O&M Manual)*
- *and / or* — *Manhole*
- *and / or* — *Inlet*
- *Storm Pipe (Facility)*
- *Storm Pipe*
- *Ditch Line*
- *Detention Pond Boundary*
- *Filter Strip Boundary*
- *Conveyance Direction*
- *Pavement / Facility Flow Path*
- *Traffic Flow Direction*
- *Photo Location / Direction*



SECTION A–A
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 1 of 2

Prepared By: Christopher Carman

Drafted By: Jeff Coon

DFI D00787
MAINT. DIST. 5 I-5 @ COBURG INTCHG. SEC.
WATER QUALITY FILTER STRIP
PACIFIC HIGHWAY MP 198.55(MA)
LANE COUNTY

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 45V-31

45V-31

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.
1A-2	Std. Drg. Nos.

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

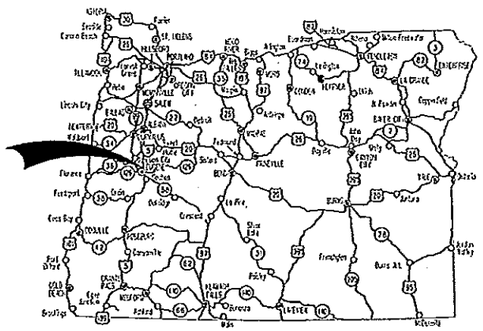
GRADING, DRAINAGE, STRUCTURE, PAVING, SIGNING, ILLUMINATION, SIGNAL & ROADSIDE DEVELOPMENT

I-5 @ COBURG INTERCHANGE SEC.

PACIFIC HIGHWAY

LANE COUNTY

JUNE 2012

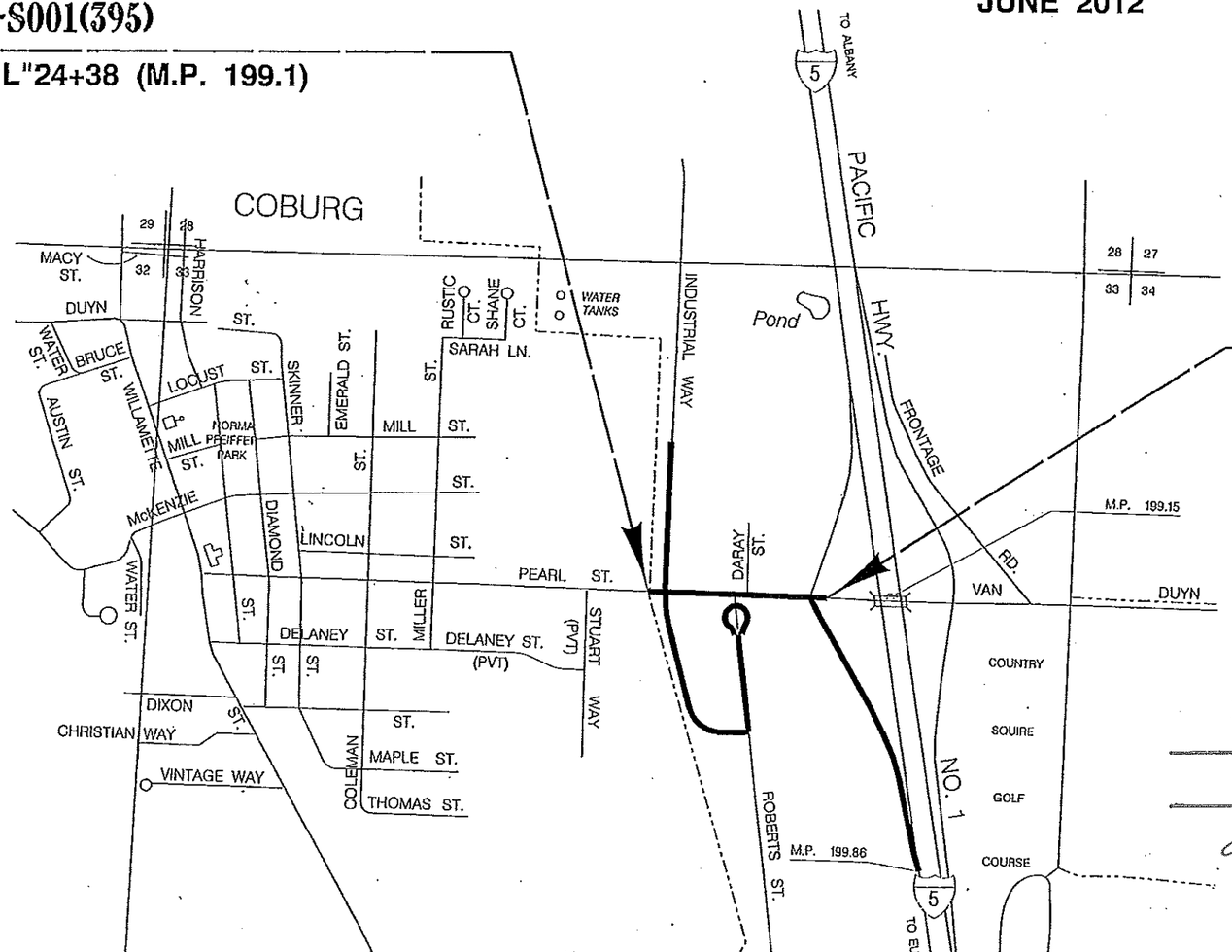


Overall Length Of Project - 0.3 Miles

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

BEGINNING OF PROJECT
HPP-S001(395)
STA. "L"24+38 (M.P. 199.1)



END OF PROJECT
HPP-S001(395)
STA. "L"34+15 (M.P. 199.4)

REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER
Chuck Lemos

N

T. 16 S., R. 3 W., W.M.

OREGON TRANSPORTATION COMMISSION

Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tammy Boney	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

These plans were developed using ODOT design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

By: Carol A. Cartwright 4/23/12
Signature & date

Carol A. Cartwright - R2 Tech Center Manager
Print name and title

Concurrence by ODOT Chief Engineer

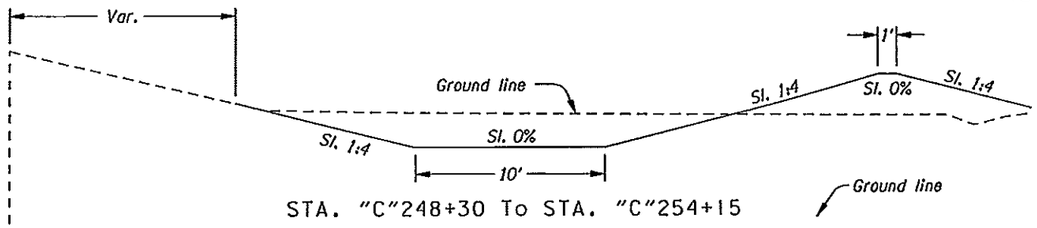
I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HPP-S001(395)	1

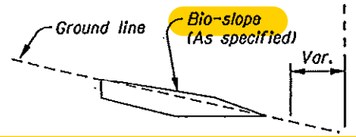
PE001244

\\s-sprgfld-1\userseng\hwye30s\ODOT_DATA\Projects\14649-Coburg_Intchge\14649f.tsl :: Default 3/22/2012 9:32:54 AM hwye30s

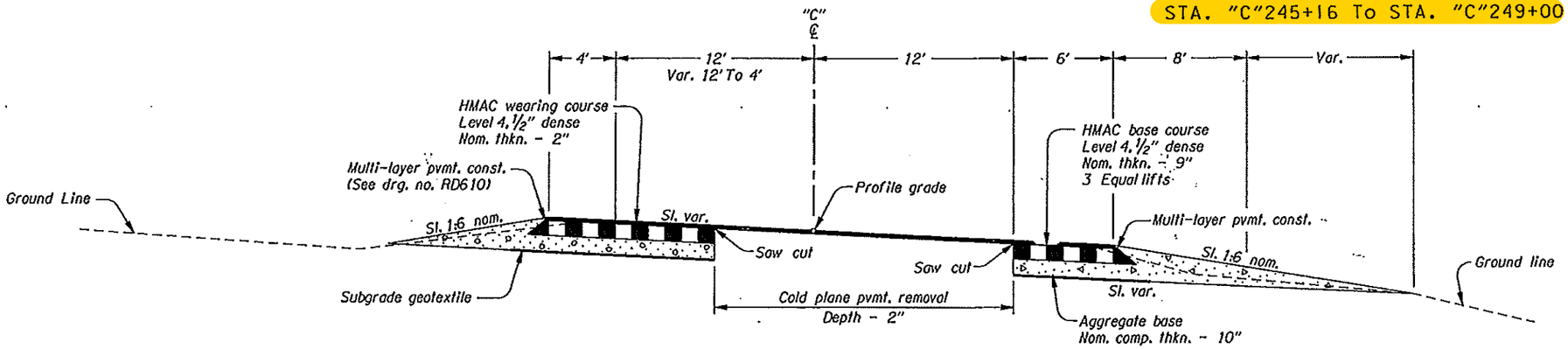
Title Sht_1



STA. "C"248+30 To STA. "C"254+15



STA. "C"245+16 To STA. "C"249+00



STA. "C"244+16 To STA. "C"254+00
"C"254+00 To "C"255+20 (Taper section)

NOTE:
1. Side-slopes are shown as vert. to horiz.
2. For standard superelevation, see drg. no. RD140.
3. For slope rounding, see drg. no. RD150.

REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
9905
OREGON
JUL 11, 2000
CHRISTOPHER G. BAILEY
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

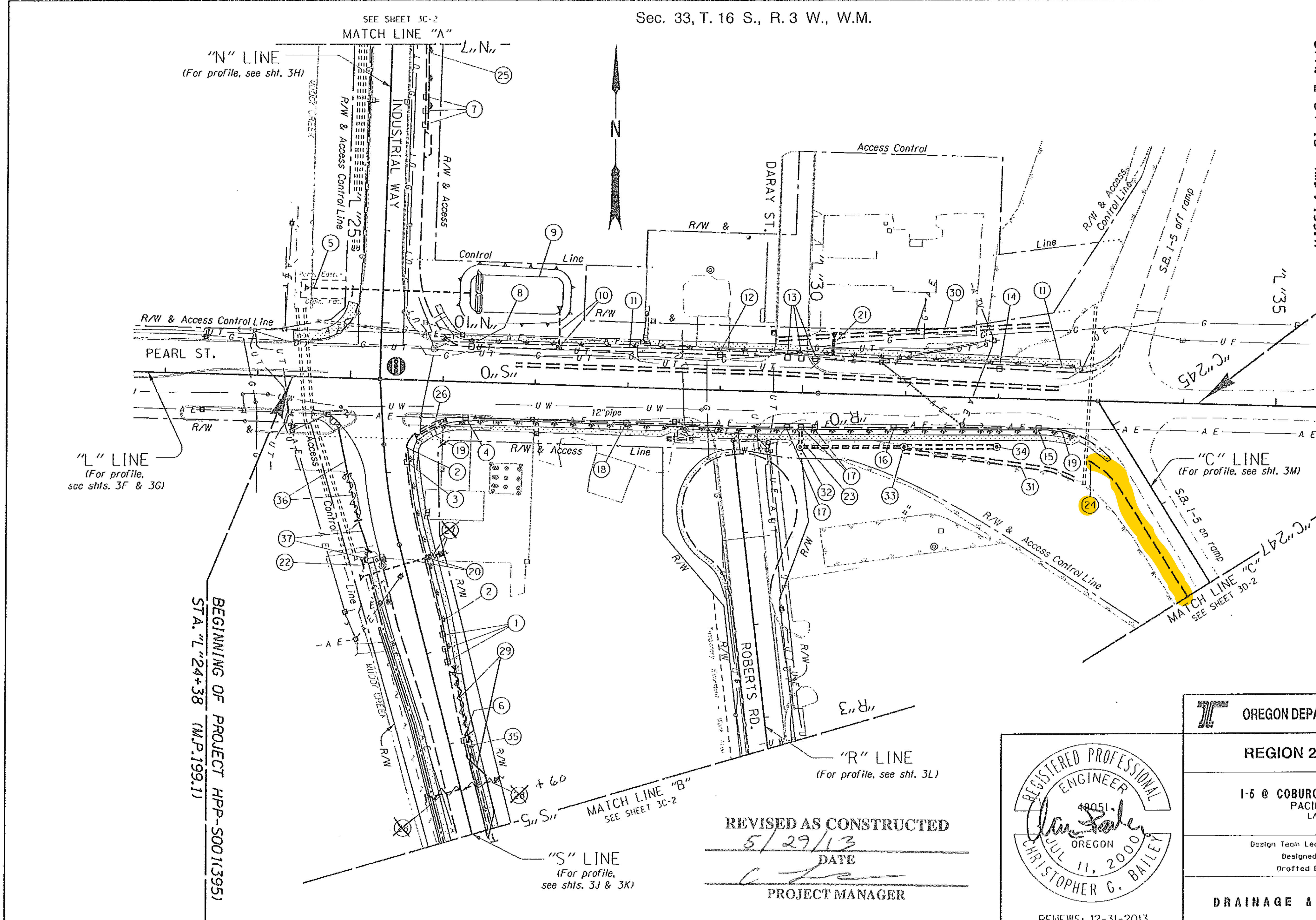
I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

Design Team Leader - Edward W. Cantrell
Designed By - Chris Bailey
Drafted By - D. Gentner-Doy

TYPICAL SECTIONS

SHEET NO. 2A-7

45V-31


Sec. 33, T. 16 S., R. 3 W., W.M.
SEE SHEET 3C-2
MATCH LINE "A"
"N" LINE
(For profile, see sht. 3H)
INDUSTRIAL WAY
R/W & Access Control Line
PEARL ST.
DARAY ST.
ROBERTS RD.
Access Control
S.B. I-5 off ramp
S.B. I-5 on ramp
12"pipe
"L" LINE
(For profile, see shts. 3F & 3G)
"C" LINE
(For profile, see sht. 3M)
"R" LINE
(For profile, see sht. 3L)
"S" LINE
(For profile, see shts. 3J & 3K)
MATCH LINE "B"
SEE SHEET 3C-2
MATCH LINE "C"
SEE SHEET 3D-2
END OF PROJECT HPP-S001(395)
STA. "L" 34+15 (M.P. 199.4)
BEGINNING OF PROJECT HPP-S001(395)
STA. "L" 24+38 (M.P. 199.1)
N

REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
49051
OREGON
JUL 11, 2000
CHRISTOPHER G. BAILEY
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

Design Team Leader - Edward W. Cantrell
Designed By - Chris Bailey
Drafted By - D. Gentner-Day

DRAINAGE & UTILITIES

SHEET NO. 3B

(1) Sta. "S"2+85 To Sta. "S"3+15, Lt.
Const. conc. curb, modified opening - 24'
(For details, see sht. 2B-2)
(See drg. no. RD720)

(2) Sta. "S"0+57 To Sta. "S"3+31, Lt.
Const. vegetated swale - 214'
(For drg. nos., see sht. 1A)

(3) Sta. "S"0+90, Lt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(4) Sta. "L"26+25, Rt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(5) Sta. "N"9+65 165'
Inst. 12" culv. pipe - ~~169'~~
5' depth
Const. paved end slope, Lt.
(See drg. no. RD320)

(6) Sta. "S"4+00, Lt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(7) Sta. "N"7+55 To Sta. "N"7+85, Lt.
Const. conc. curb, modified opening - 24'
(For details, see sht. 2B-2)

(8) Sta. "L"26+30, Lt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(9) Const. detention pond, Lt.
(For drg. nos., see sht. 1A)

(10) Sta. "L"27+27, 40.5' Lt.
Const. type "G2-MA" mod. inlet
Inst. 12" culv. pipe - 36'
5' depth
Const. paved end slope, Lt.
Modify to conform to swale section
(For details, see sht. 2B)

(11) Sta. "L"25+87 To Sta. "L"32+86, Lt.
Const. vegetated swale - 699'
(For drg. nos., see sht. 1A)

(12) Sta. "L"29+00, Lt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(13) Sta. "L"29+71 To Sta. "L"30+20, Lt.
Const. conc. curb, modified opening - 24'
(For details, see sht. 2B-2)

(14) Sta. "L"32+00, Lt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(15) Sta. "L"32+60, Rt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(16) Sta. "L"30+90, Rt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(17) Sta. "L"29+70 To Sta. "L"30+00, Rt.
Const. conc. curb, modified opening - 24'
(For details, see sht. 2B-2)

(18) Sta. "L"28+00, Rt.
Const. conc. curb, modified opening - 8'
(For details, see sht. 2B-2)

(19) Sta. "L"25+87 To Sta. "L"32+86, Rt.
Const. vegetated swale - 699'
(For drg. nos., see sht. 1A)

(20) Sta. "S"2+00, Lt.
Const. type "G2-MA" mod. inlet
Inst. 12" culv. pipe - 71'
5' depth
Const. paved end slope, Rt. - 37.5 sq. ft.
Modify to conform to swale section
Pipe water under sidewalk
(For details, see sht. 2B)

(21) Sta. "L"30+20, 40.77' Lt.
Inst. 10" drain pipe - 32' 40'
5' Depth
(Under sidewalk)
Const. paved end slope, Lt.
(For details, see sht. 2B-3 & 2B-4)

(22) Sta. "S"1+85.13, 14' Rt.
Const. type "G-2" inlet
Inst. 12" culv. pipe - 21'
5' Depth
(See drg. no. RD364)

(23) Sta. "L"29+88, Rt.
Inst. 10" drain pipe - 32'
5' Depth
(Under sidewalk)
Const. paved end slope, Rt.
(For details, see sht. 2B-3 & 2B-4)

(24) Sta. "C"245+16 To Sta. "C"249+00, Rt.
Const. bio-slope - 87 cu. yd.
(For drg. nos., see sht. 1A)

(25) Sta. "N"2+50 To Sta. "N"7+90, Lt.
Const. vegetated swale - 540'
(For drg. nos., see sht. 1A)

(26) Sta. "L"25+88, Rt. 26'
Inst. 10" drain pipe - ~~24'~~
5' Depth
(Under sidewalk ramp)
Const. paved end slope, Lt. & Rt.
(For details, see shts. 2B, 2B-3 & 2B-4)

(27) ~~Sta. "S"2+00, Lt.~~
~~Const. type "G2-MA" mod. inlet~~
~~Inst. 12" culv. pipe - 15'~~
~~5' depth~~
~~(For details, see sht. 2B)~~

VALLEY GUTTER

(28) ~~Sta. "S"4+50~~
~~Const. type "G2-MA" mod. inlet~~
~~Inst. 12" culv. pipe - 81'~~
~~5' depth~~
~~(For details, see sht. 2B)~~

CONNECT TO INLET

4+10 5+15

(29) Sta. "S"~~3+31~~ To Sta. "S"~~3+95~~, Lt.
Inst. 10" drain pipe - ~~156'~~ 240'
5' depth
(Under driveway)
~~Const. paved end slope, Lt. & Rt.~~
(For details, see shts. 2B-3 & 2B-4)

(30) Sta. "L"29+61 To Sta. "L"32+54, Lt.
Const. "V" bottom ditch - 293'
(For details, see sht. 2B)

(31) Sta. "L"31+00 To Sta. "L"32+94, Rt.
Const. "V" bottom ditch
(For details, see sht. 2B)

(32) Sta. "L"29+88, 58' Rt.
Construct large manhole
Inst. 10" drain pipe - 224'
(For details, see sht. GJ-4)
(See drg. no. RD346)

(33) Sta. "L"31+00, 54.85' Rt.
Construct large manhole
Inst. 36" drain pipe - 200'
(For details, see sht. GJ-4)

(34) Sta. "L"32+00, 52' Rt.
Construct large manhole
(For details, see sht. GJ-4)

(35) Sta. "S"3+95 To Sta. "S"5+45, Lt.
Const. vegetated swale - 150'
(For details, see sht. 2B-2)

(36) ~~Sta. "S"0+50 To Sta. "S"0+97.8, Rt.~~
~~Const. trench drain - 48'~~
~~Connect with 4" P.V.C pipe - 47'~~
(For details, see sht. 2B-5)

(37) Sta. "S"1+44.4 To Sta. "S"1+76, Rt.
Const. trench drain - ~~32'~~ 36'
~~Outfall~~ 4" P.V.C pipe - ~~12'~~ 8'
(For details, see sht. 2B-5)

REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
~~7995~~
OREGON
JUL 11, 2000
CHRISTOPHER G. BAILEY
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

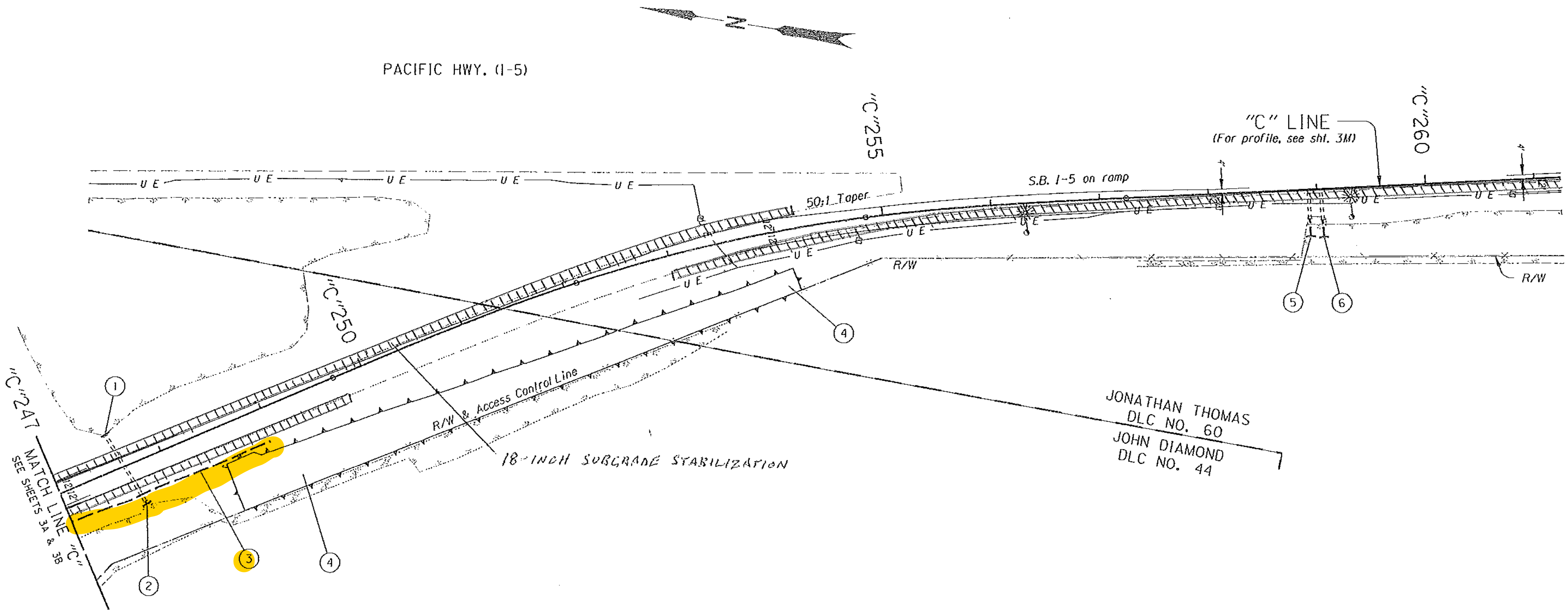
Design Team Leader - Edward W. Contrell
Designed By - Chris Bailey
Drafted By - D. Gentner-Day

DRAINAGE NOTES

SHEET NO. 3B-2

Sec. 33, T. 16 S., R. 3 W., W.M.

45V-31



REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
49051
OREGON
JUL. 11, 2000
CHRISTOPHER G. BAILEY
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

Design Team Leader - Edward W. Contrell
Designed By - Chris Bailey
Drafted By - D. Gentner-Day

GENERAL CONSTRUCTION

SHEET NO. 3D-2

(1) Sta. "C" 247+59.10, Lt.
Extg. 18" conc. pipe - 70.4' (In pl.)
Extend - ~~4.5'~~ 15', 5' Depth
(See drg. no. RD318)

(2) Sta. "C" 247+69.31, Rt.
Extg. 18" conc. pipe - 70.4' (In pl.)
Extend - ~~2.5'~~ 22.5', 5' Depth

(3) See sht. 3B-2, note 24
Const. bio-slope

(4) Sta. "C" 248+30 To Sta. "C" 254+15, Rt.
Const. 10' wide detention pond
(For drg. nos., see sht. 1A)

(5) Sta. "C" 258+92.98, Rt.
Extg. 24" conc. pipe - 232' (In pl.)
Extend - ~~16'~~ 15', 5' Depth

(6) Sta. "C" 259+04.81, Rt.
Extg. 24" conc. pipe - 232' (In pl.)
Extend - ~~16'~~ 15', 5' Depth

REVISED AS CONSTRUCTED
5/29/13
DATE
PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
49051
OREGON
JUL 11, 2000
CHRISTOPHER G. BAILEY
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

I-5 @ COBURG INTERCHANGE SEC.
PACIFIC HIGHWAY
LANE COUNTY

Design Team Leader - Edward W. Cantrell
Designed By - Chris Bailey
Drafted By - D. Gantner-Day

CONSTRUCTION NOTES

SHEET NO. 3D-3