OPERATION & MAINTENANCE MANUAL

Water Quality Biofiltration Swale

Manual prepared: May 2018
Revised: September 2023

DFI No. D00216

Figure 1: DFI No. D00216, looking south.

Identification

Drainage Facility ID (DFI):	D00216
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Numbers) 41V-002
Location:	District: 2B
	Highway No.: 001
	Mile Post: 306.60 to 306.44, RT

1. Manual Purpose

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

2. 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.

Facility location type: On ramp

Flow direction: Southeast

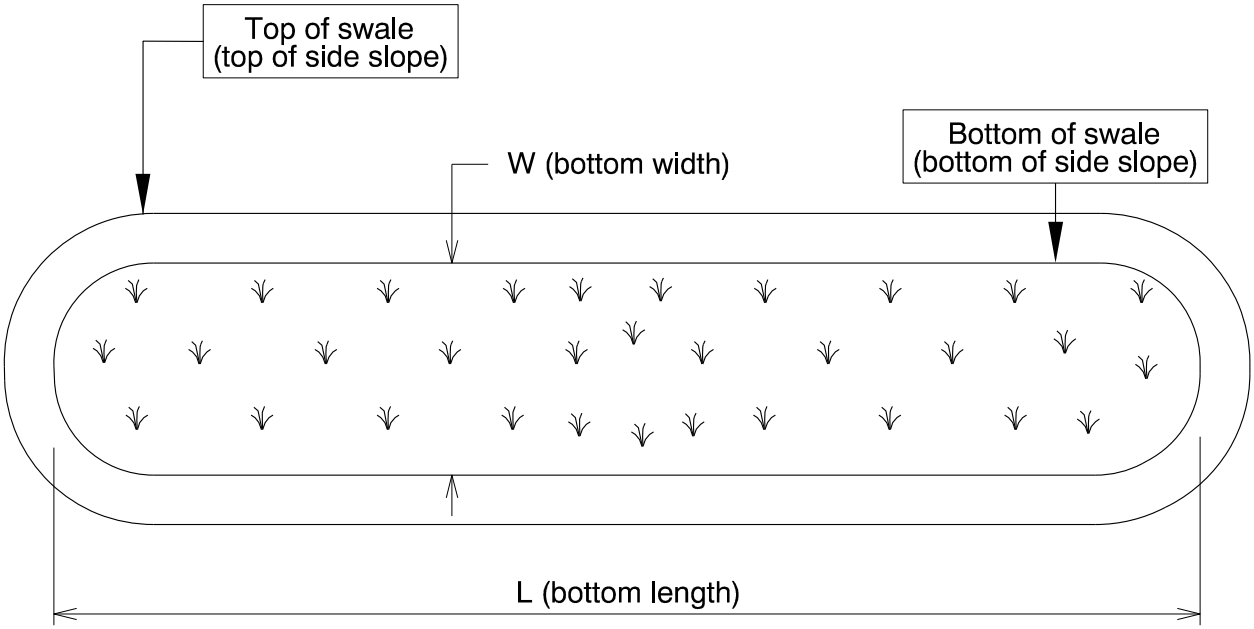
Figure 2: Facility location map

3. Facility Summary

The length and width of a swale is based on the bottom dimensions.

The bottom length and bottom width of the swale is:

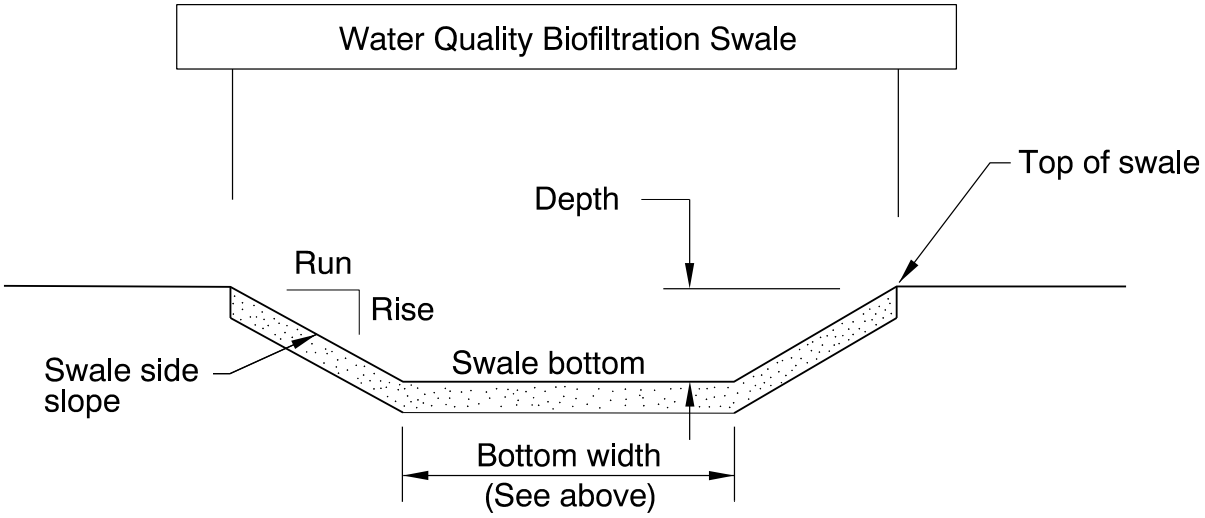
Bottom Length (feet)	Bottom Width (feet)
850	24



The depth of the swale is the vertical distance measured from the bottom of the swale to the top. The slope of the swale sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

Depth (feet)	Rise (feet)	Run (feet)
3	1	4



Site Specific Information: Facility is located west of I-5 (Hwy 001), adjacent to a maintenance access road located between the N. Victory Blvd. Southbound On-ramp and N. Denver Ave.

4. Facility Access

Maintenance access to the facility:

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

Figure 3: Maintenance Access Road entrance, facing South from N. Victory Blvd.

5. Operational Components / Maintenance Items

Classification

This facility is classified as an:

☒ On-line Swale	☐ Off-line Swale
A swale that does not include a high flow bypass component; flow drains into and through the facility	**A swale that treats low/small flows and diverts high flows using a bypass component**

Bypass Component

This facility includes a high flow bypass component:

☒ No	☐ Yes
There is no bypass component. High flows drains into and through the facility	**There is a bypass component. Only low/small flows drain into the swale. High flows are diverted around the swale using a bypass component**

Operational Components

A swale has many components that assist with treatment, conveyance, and reducing flow velocity to minimize erosion. The components in use can vary depending if the facility was designed to operate on-line or off-line. 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 Biofiltration Swales (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/

Operational Plan

The applicable standard operational plan for this facility is:

☐ Operational Plan A	☒ Operational Plan B	☐ Operational Plan C
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A, B, C) are provided in the Standard Operation Manual.		

See Appendix A for the site specific operational plan.

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: Swale Components		ID #
Manholes/Structures		
Pre-treatment manhole	☐	**S1**
Weir type flow splitter/flow splitter manhole	☐	**S2**
Orifice type flow splitter/flow splitter manhole	☐	**S3**
Standard manhole	☒	**S4**
Swale Inlet		
Pavement sheet flow	☒	**S5**
Inlet Pipe (s)	☒	**S6**
Open channel inlet	☐	**S7**
Riprap pad	☒	**S8**
Ground Cover		
Grass bottom	☒	**S9**
Grass side slopes	☒	**S10**
Granular drain rock	☐	**S11**
Plantings	☐	**S12**
Underground Components		
Geotextile fabric	☒	**S13**
Water quality mix	☐	**S14**
Perforated pipe	☐	**S15**
Porous pavers (access grid)	☒	**S16**
Flow Spreader		
Rock basin (used at inlet)	☒	**S17**
Anchored board (midpoint of swale or every 50 feet along swale bottom)	☒	**S18**
Other:	☐	**S19**
Swale Outlet		
Catch basin with grate	☒	**S20**
Outlet Pipe (s)	☒	**S21**
Open channel outlet	☐	**S22**
Auxiliary Outlet:	☐	**S23**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐**O**	**S24**
Ditch	☐	**S25**
Storm drain system	☒	**S26**
Outfall Components		
Riprap pad	☒	**S27**
Riprap bank protection	☐	**S28**

6. 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 swales:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 3 (Maintenance of Water Quality or Biofiltration Swales): Contains maintenance information for swales

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

7. Limitations

Access grid installed:

☐ No	☒ Yes
There are light duty porous pavers installed in this swale	

Swales are designed to allow equipment access along the bottom. If an access grid is **NOT** installed, vehicles entering the swale 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.

Equipment wheels should be kept on the tops and side slopes. Mower arms may be run along the swale bottom.

8. Waste Material Handling

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

http://www.oregon.gov/ODOT/Maintenance/Documents/ems_manual.pdf

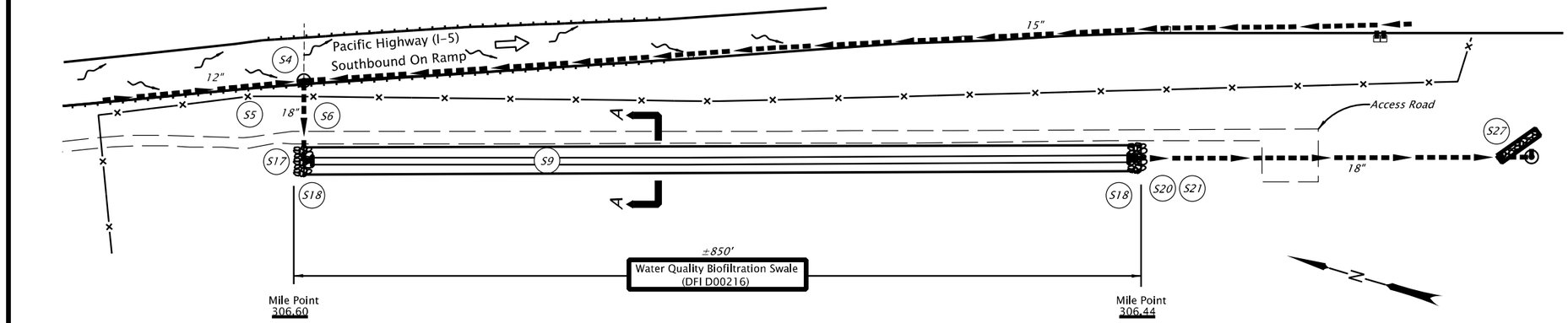
Contact any of the following for more detailed information about management of waste materials found on site:

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

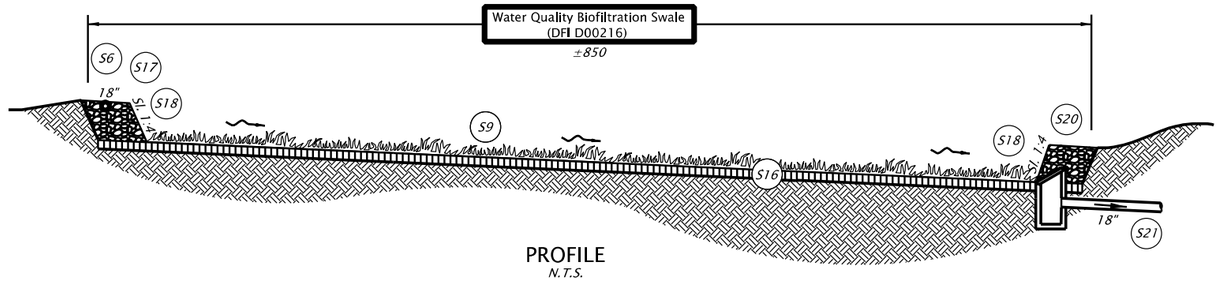
A Appendix A – Site Specific Operational Plan

Contents:

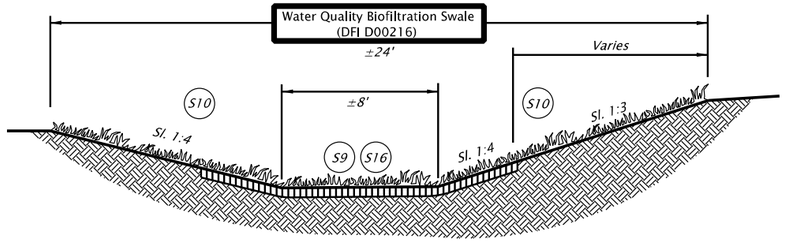
Operational Plan: DFI D00216



PLAN
N.T.S.



PROFILE
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- S# — Facility Component (see table 1 in O&M Manual)
- Manhole
- Inlet and/or
- Storm Pipe (Facility)
- Conveyance Direction
- Pavement / Facility Flow Path
- Traffic Flow Direction

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Jenn Mora

Drafted By: Jenn Mora

DFI D00216
MAINTENANCE DISTRICT 2B HWY 001
WATER QUALITY BIOFILTRATION SWALE
HIGHWAY MP 306.60
MULTNOMAH COUNTY

DFI_D00216.dgn

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 47V-099

Site Specific Subset of Project Contract Plan 41V-002

47V-099

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont. & Std. Drg. Nos.
1A-2	Std. Drg. Nos. Cont.
1B	Sheet Layout
1C	Control Data Sheet

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

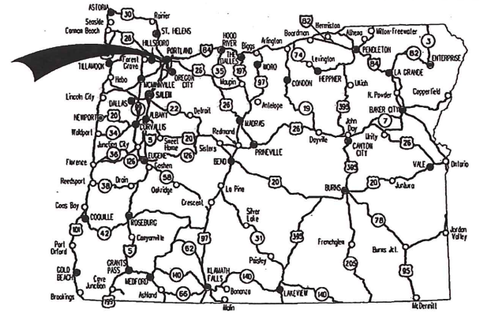
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS & ROADSIDE DEVELOPMENT

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.

PACIFIC HIGHWAY WEST

MULTNOMAH COUNTY
JULY 2014

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER



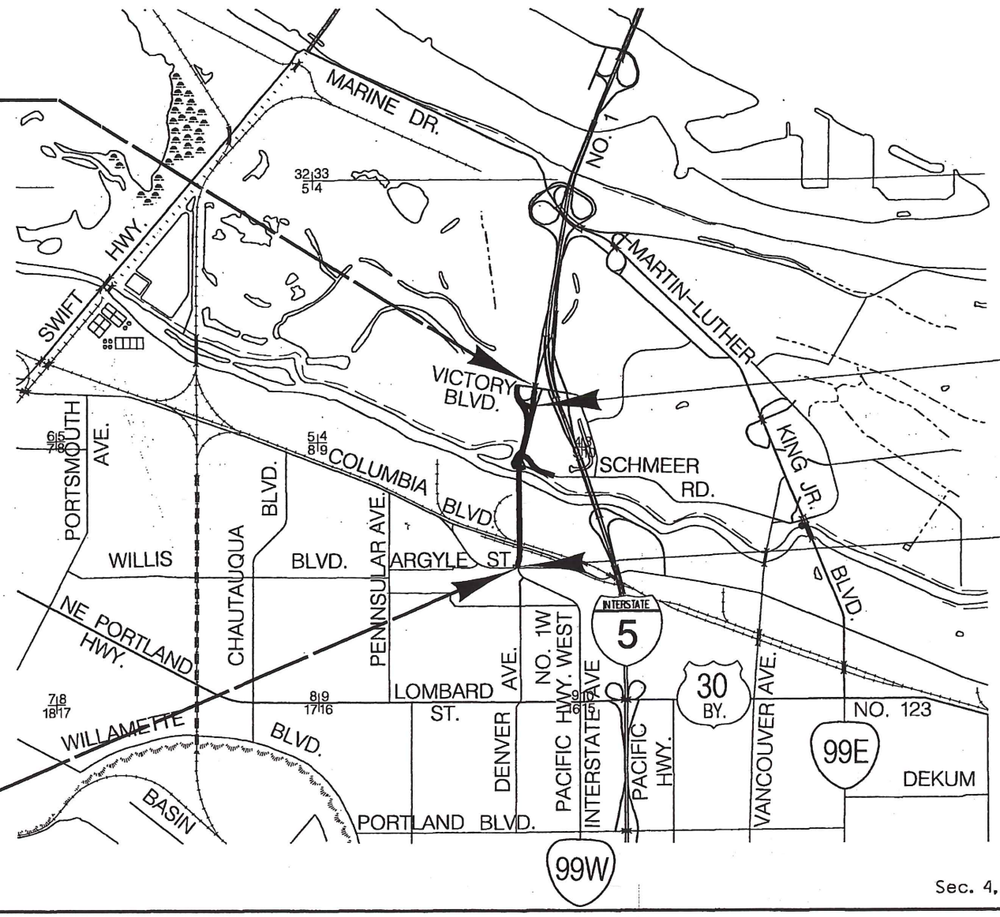
Overall Length Of Project - 0.75 Miles

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

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.)

BEGINNING OF PROJECT
STP-S091(068)
STA. "99W" 51+60 (M.P. -5.50)

END OF PROJECT
STP-S091(068)
STA. "99W" 91+54 (M.P. -4.75)



PAVING LIMIT
STA. "99W" 56+00

PAVING LIMIT
STA. "99W" 91+00

Sec. 4, 9, T. 1 N., R. 1 E., W.M.

OREGON TRANSPORTATION COMMISSION

Catherine Mater	CHAIR
David Lohman	COMMISSIONER
Tammy Bane,	COMMISSIONER
Susan Morgan	COMMISSIONER
Alando Simpson	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION

HDR HDR Engineering, Inc.

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.

Approving Authority

Signature & date 6/2/14

BRIAN R. BAKER, P.E.,
SR. PROJECT MANAGER,
HDR ENGINEERING, INC.

Print name and title

Concurrence by ODOT Chief Engineer

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S091(068)	1

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Rotation: 0° Scale: 1"=100'

47V-099

INDEX OF SHEETS, CONT.

SHEET NO.	DESCRIPTION
2, 2A thru 2A-10	Typical Sections
2B, 2B-2 thru 2B-22	Details
2C thru 2C-4	Detour Plan
2C-5 thru 2C-22	Traffic Control Plan
2D, 2D-2	Pipe Data Sheet
3	Alignment
3A	General Construction
3B	Construction Notes
3C	Drainage & Utilities
3D	Drainage Notes
3E, 3E-2	Profile
3F, 3F-2	Drainage Profile
4	Alignment
4A	General Construction
4B	Construction Notes
4C	Drainage & Utilities
4D	Drainage Notes
4E, 4E-2	Profile
4F, 4F-2	Drainage Profile
5	Alignment
5A	General Construction
5B	Construction Notes
5C	Drainage & Utilities
5D	Drainage Notes
5E	Profile
5F	Drainage Profile
6	Alignment
6C	Drainage & Utilities
6D	Drainage Notes
6E	Profile and Drainage Profile
	GEO/HYDRO/ENVIRO
GA thru GA-5	Erosion and Sediment Control Details
GA-6 thru GA-16	Erosion and Sediment Control Plan
GB-1	~~Foundation Data~~
1 GJ thru GJ-5	Drainage Details
GN	~~Planting Bid Log and Notes~~
GN-1, GN-2	Planting Plan
DRAWING NO.	DESCRIPTION
	BRIDGE NO. 04517
93578 thru 93598	Bridge Plan and Details
	BRIDGE NO. 04518
93599 thru 93616	Bridge Plan and Details

INDEX OF SHEETS, CONT.

SHEET NO.	DESCRIPTION
	PERMANENT PAVEMENT MARKINGS
ST	Striping Details
ST-2 thru ST-4	Striping Plan
	PERMANENT SIGNING
S-14697 thru S-14710	Permanent Signing
	ILLUMINATION
I-02299	Illumination Legend & Abbreviations
I-02300 thru I-02301	Illumination Schedules
I-02302 thru I-02304	Illumination Plan
I-02305	General Notes & Panel Schematic
I-02306 thru I-02310	PBOT Std. Details
	TRAFFIC SIGNAL
17658	Legend
17659	Signal Plan
17660, 17661	Detector Plan
17662	Existing Utilities Plan
17663 thru 17665	Details
17666 thru 17667	Interconnect Plan

	~~FOR INFORMATION ONLY~~
1	Levee Raise Plan and Profile
2	Levee Raise Cross Section

City of Portland Standard Drg. Nos.

P-161	- Sedimentation Manhole with Hood
P-400	- Sign Placement
P-405	- Breakaway Anchor Traffic Sign Supports
P-410	- Sign Bracket, Cap Details
P-540	- Thickened Curb & Gutter
P-551	- Sidewalks
P-632	- Pull Box Type A & B Details
P-651	- Street Lighting Cobra-Head Pole Details
P-660	- Street Lighting Standard Street Light Standard Pole Footing
P-671	- Street Lighting Service Cabinet Details
P-680	- Street Lighting Pole Wiring Diagrams

R/W Map Nos.

5B-25-12
6B-13-18
6B-16-9
8B-12-18
8B-14-18

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

No.	DATE	REVISIONS	BY
1	07-09-14	Added drainage detail sheet to index	M.H.T.

Standard Drawings located on the web at:
http://www.oregon.gov/ODOT/HWY/ENGSERVICES/pages/standard drawings home.aspx
http://www.portlandoregon.gov/transportation/50383

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S091(068)	1A

47V-099

BUREAU OF TRANSPORTATION
CITY OF PORTLAND, OREGON

APPROVED: Tom Wardlaw for S.T.

CITY ENGINEER REG. PROF. ENGR. NO. 51,538 16,399

Bureau of Environmental Services Approval
BES JOB NO. 7ESTRSD00090
BES JOB TITLE: OR99W (Denver): Victory-Argyle

Chief Engineer Reg. Prof. Engr 7/14/17 Date

No.	DATE	REVISIONS	BY
1	08-07-2014	MOVED INLET 9 AND 10	M.D.S.
2	12-18-2014	ADDED NOTE AND REVISED PIPE LENGTHS	M.D.S.
3	07-02-2015	ADDED MANHOLE AND REVISED PIPE LENGTH	M.D.S.

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

"SCH" Line
"SUP" Line
"SUP2" Line
"PIR" Line
"OR99W" Line
N. SCHUFFER RD.
PACIFIC HWY. WEST (OR99W, N. DENVER AVE.)
BRIDGE #04517
See Note 1
No Work Zone

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2017

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

DRAINAGE & UTILITIES

SHEET NO. 4C

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Rotation: 0° Scale: 1"=100'

(1) Sta. "99W" 64+16.25, Lt.
Remove Extg. Inlet
Remove Extg. 8" Storm Sew. Pipe - 126'
Const. Type "G-2" Inlet
Inst. 12" D.I. Storm Sew. Pipe - 56'
5' Depth

(2) Sta. "99W" 64+15.55, Rt.
Const. Type "G-2" Inlet
Inst. 12" D.I. Storm Sew. Pipe - 204'
5' Depth
Inst. 12" D.I. Storm Sew. Pipe - 20'
5' Depth

(3) Sta. "99W" 64+16.08, Rt.
Const. Type "G-2" Inlet

(4) Sta. "99W" 65+96.33, 33' Rt.
Remove Inlet

(5) Sta. "99W" 66+18.77, Rt.
Const. Type "G-2" Inlet
Inst. 12" D.I. Storm Sew. Pipe - 198'
5' Depth

(6) Sta. "99W" 66+20.16, 35' Rt.
Remove Extg. 12" Storm Sew. Pipe - 10'

(7) Sta. "99W" 68+14.19, Rt. (2)
Const. Type "G-2" Inlet
Inst. 12" D.I. Storm Sew. Pipe - 118'
5' Depth

(8) Sta. "99W" 69+23.07, 49' Lt. (2)
Minor Adjust. Manhole
Inst. 12" Storm Sew. Pipe - 28'
5' Depth
Connect to Extg. Structure

(9) Sta. "99W" 69+33.00 Lt. (2)
Const. Type "G-2" Inlet

(10) Sta. "99W" 69+31.00 Rt. (2)
Const. Type "G-2" Inlet

(11) Sta. "99W" 70+31.80, 47' Lt.
Remove Extg. Inlet
Remove Extg. 8" Storm Sew. Pipe - 23'

(12) (5) Sta. "99W" 77+93.83, Rt.
Saw Cut and Remove Extg. Conc. Slab
Remove Extg. Inlet
Remove Extg. 12" Storm Sew. Pipe - 34'
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 10'
10' Depth
Trench Resurfacing - 5 Sq.Yd.

(13) Sta. "99W" 77+87.93, 24' Rt.
Const. Riprap Basin
Inst. 15" Storm Sew. Pipe - 6'
5' Depth

(14) Sta. "99W" 77+93.92, 24' Rt.
Remove Extg. Inlet
Remove Extg. 8" Pipe - 12'
Const. Type "B" Inlet
Const. Sewer thru Extg. Conc. Structure
Inst. 12" Storm Sew. Pipe - 8'
5' Depth
Connect Extg. Pipe

(15) Note not used

(16) Note not used

(17) Sta. "99W" 77+93.53, Lt.
Saw Cut and Remove Extg. Conc. Slab
Preserve and Protect Extg. 8" D.I. Water Main
Remove Extg. Inlet
Const. Type "G-2" Inlet

(18) Sta. "SCH" 2+32.23, Rt.
Const. Type "G-2" Inlet

(19) Relocate Extg. Fiber Optic Manhole (By Others)

(20) Protect Water Wells (Relief Wells)

(21) Sta. "SCH" 3+04.36, Rt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 68'
5' Depth

(22) Sta. "SCH" 3+98.56, 76' Rt.
Remove Extg. Inlet
Remove Extg. 12" Storm Sew. Pipe - 30'

(23) Sta. "SCH" 3+47.14, Rt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 44'
5' Depth

(24) (4) Sta. "SCH" 3+47.14, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 44'
5' Depth

(25) Sta. "SCH" 4+04.40, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 56'
5' Depth

(26) Sta. "SCH" 4+56.30, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 50'
5' Depth

(27) Sta. "SCH" 5+08.29, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 50'
5' Depth

(28) Sta. "SCH" 6+08.98, Lt.
Const. Type "G-2" Inlet
Inst. 12" D.I. Storm Pipe - 96'
5' Depth

(29) Sta. "SCH" 6+85.04, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 76'
5' Depth

(30) Sta. "SCH" 7+96.69, Lt.
Const. Shallow Manhole
Inst. 12" Storm Sew. Pipe - 114'
5' Depth
Trench Resurfacing - 52 Sq.Yd.

(31) Sta. "SCH" 8+08.91, Lt. (3)
Const. Storm Sew. Manhole
Inst. 12" Storm Sew. Pipe - 66'
5' Depth

(32) Sta. "SCH" 8+09.01, Lt. (3)
Const. Riprap Basin
Inst. 12" Storm Sew. Pipe - 22'
5' Depth

(33) Preserve and Protect Extg. Utility Pole

(34) Preserve and Protect Extg. Fiber Optic

(35) Relocate Extg. Utility Pole (by others)

(36) Adjust Extg. Communication Manhole (by others)

(37) Relocate Extg. UG Electric (by others)

(38) Preserve and Protect Extg. UG Electric

(39) Preserve and Protect Extg. UG Telephone

(40) Preserve and Protect Extg. Water Line

(41) Preserve and Protect Extg. Hydrant

(42) Preserve and Protect Extg. Natural Gas Line

(3) (43) Sta. "SCH" 8+08.97, Lt.
Const. COP Sedimentation Manhole
Inst. 12" Storm Sew. Pipe - 40'
5' Depth
(For Details, See Sht. GJ-4)

(44) Sta. "99W" 77+93.75, Rt.
Const. Storm Sew. Manhole
Inst. 12" Storm Sew Pipe - 26'
5' Depth
Trench Resurfacing - 12 Sq.Yd.
Inst. 12" Storm Sew Pipe - 122'
10' Depth
Trench Resurfacing - 56 Sq.Yd.
(5)

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

No.	DATE	REVISIONS	BY
1	07-09-2014	REVISED DEPTH	M.D.S.
2	08-04-2014	REVISED NOTES	M.D.S.
3	12-18-2014	REVISED NOTES	M.D.S.
4	02-19-2015	REVISED NOTES	M.D.S.
5	07-02-2015	REVISED NOTES	M.D.S.

Bureau of Environmental Services Approval
BES JOB NO. 7ESTRSD00090
BES JOB TITLE: OR99W (Denver): Victory-Argyle
William A Ryan 7/14/17
Chief Engineer Reg. Prof. Engr. Date

BUREAU OF TRANSPORTATION
CITY OF PORTLAND, OREGON
APPROVAL: Terry Wardwell for S.T.
CITY ENGINEER REG. PROF. ENGR. NO. 51,538

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
JULY 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2017

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

DRAINAGE NOTES

SHEET NO. 4D

86299

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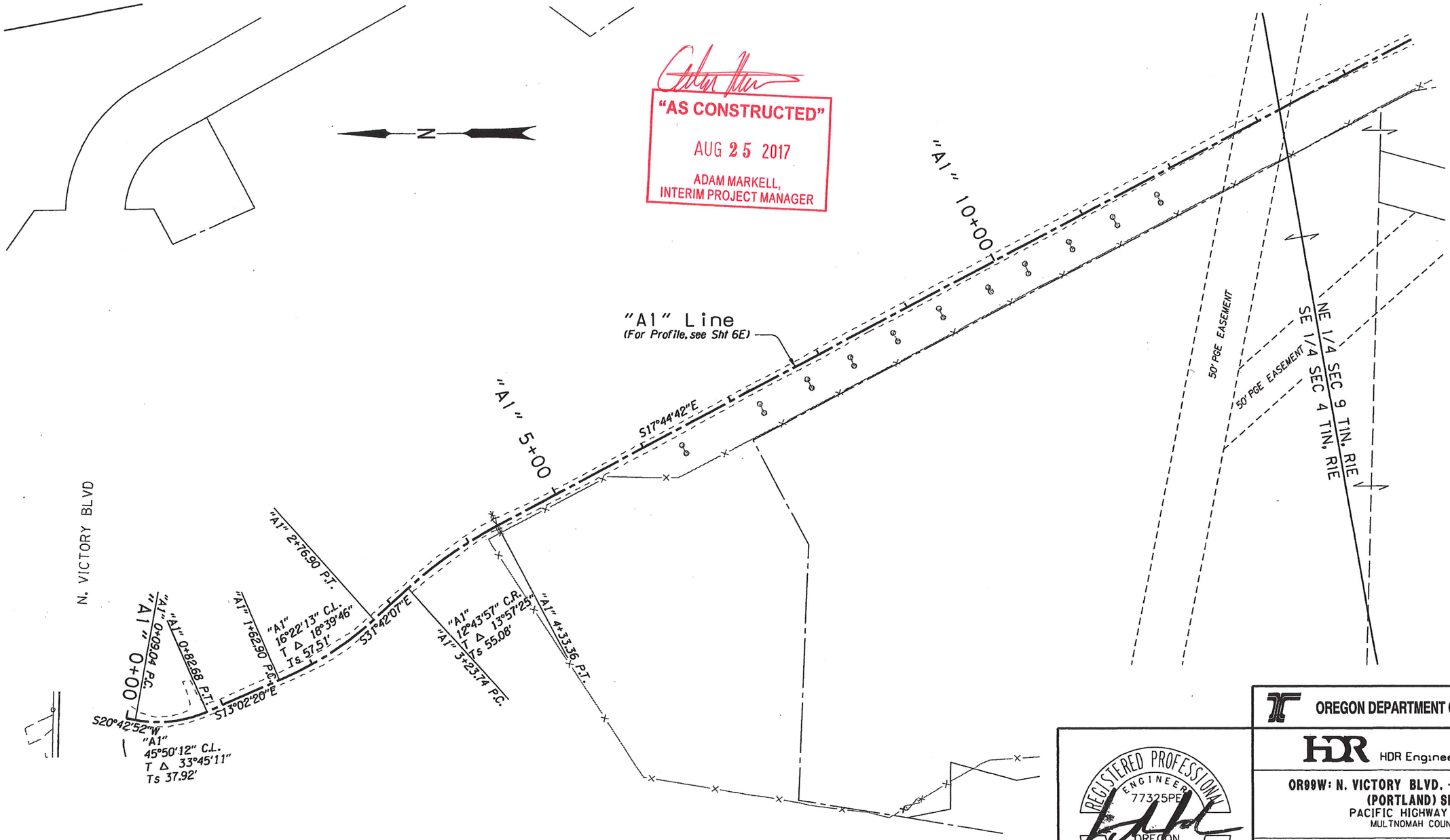
Rotation: 0° Scale: 1"=100'

Sec. 9, T. 1 N., R. 1 E., W.M.

47V-099



REGISTERED PROFESSIONAL ENGINEER
77325PE
OREGON
Sept. 13, 2005
BRIAN R. BAKER
Expires Dec. 31, 2014

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Mark Taylor
Drafted By - Matt Steigleder

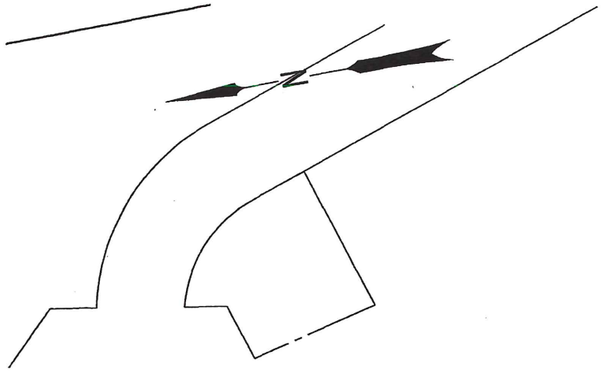
ALIGNMENT

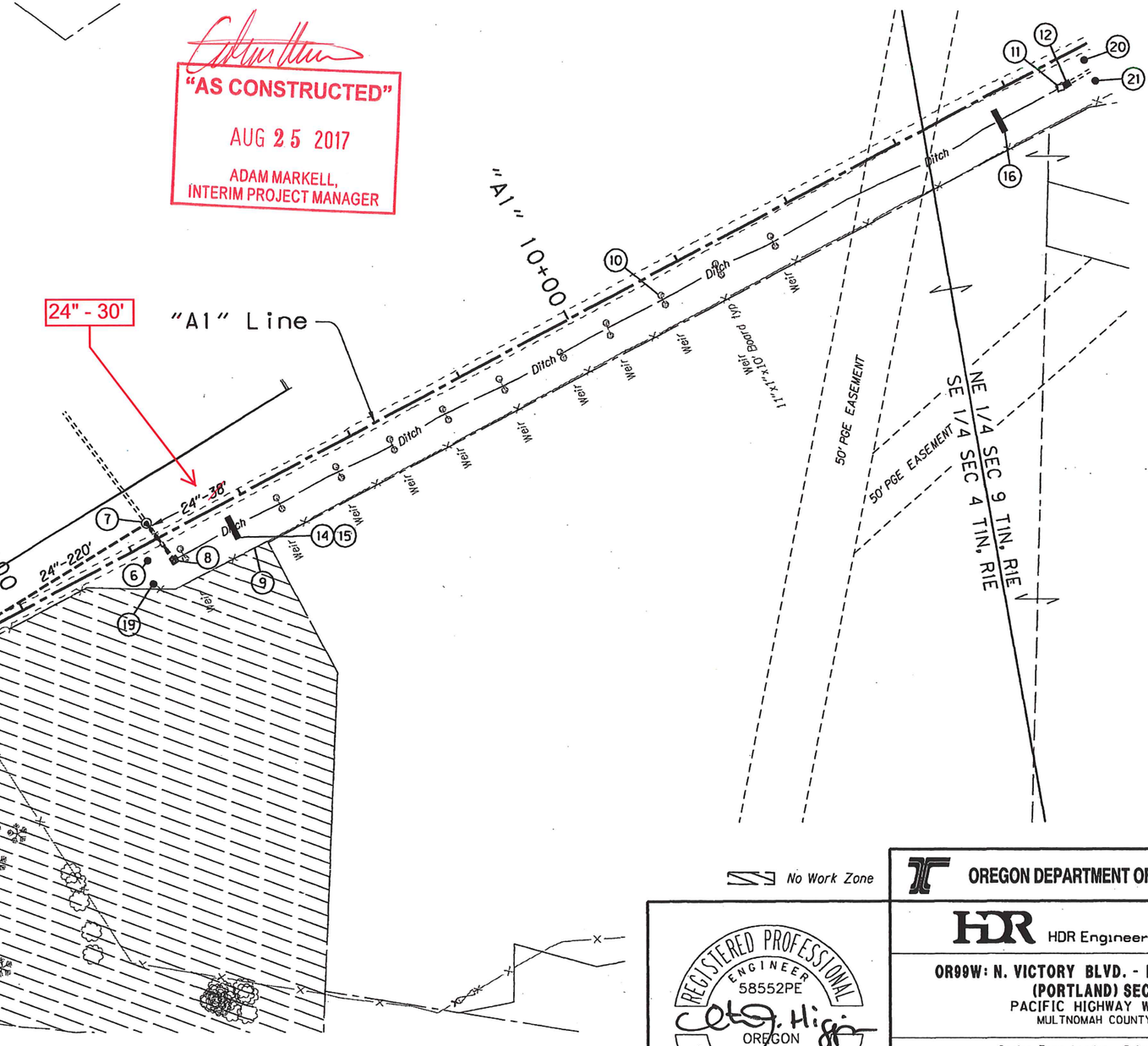
SHEET NO. 6

Alignment & R&slash;W plan :: Default 5/27/2014 2:21:16 PM msteigle

Rotation 0° Scale: 1"=100'

47V-099





No Work Zone

OREGON DEPARTMENT OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

DRAINAGE & UTILITIES

SHEET NO. 6C

Drainage & Utilities & Notes :: Default 5/27/2014 2:47:19 PM msteigle

Rotation 0° Scale: 1"=100'

47V-099

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

(1) See Sheet 3C and 3D, Note 1

(2) See Sheet 3C and 3D, Note 2

(3) See Sheet 3C and 3D, Note 3

(4) See Sheet 3C and 3D, Note 4

(5) Sta. "A1" 4+03.36, 2' Lt.
Const. Storm Manhole
Inst. 24" Storm Sew. Pipe - 176'
5' Depth
Trench Resurfacing - 142 Sq.Yd.

(6) Sta. "A1" 6+08.23, 12' Rt.
Inst. Field Facility Marker Type "S1" (Red) (D00216)
(For Details, See RD399)

(7) Sta. "A1" 6+24.94, 7' Lt.
Remove Extg. 18" Pipe - 37'
Const. Water Quality Structure, D00838
Const. Manhole Slope Protector
Inst. Field Facility Marker Type "S3" (D00838)
Connect Extg. Pipe
Inst. 24" Storm Sew. Pipe - 220'
5' Depth
Trench Resurfacing - 152 Sq.Yd.

(8) Sta. "A1" 6+27.30, 22' Rt.
Const. Riprap Basin
Inst. 24" Storm Sew. Pipe - ~~38'~~ 24"-30'
5' Depth
Trench Resurfacing - 17 Sq.Yd.
(For Details, See Sht. GJ-2)

(9) Protect Extg. Fence

(10) Sta. "A1" 6+27.30 to 14+39.40
Remove Extg. Weir Boards - 11

(11) Sta. "A1" 14+39.40, 22' Rt.
Adjust Extg. Inlet

(12) Sta. "A1" 14+45.04, 22' Rt.
Const. Type "D" Inlet over Extg. Storm Sew. Pipe

(13) Protect Extg. Trees (Typ.)

(14) Adjust Aggregate Check Dam Locations to Avoid Trees

(15) Sta. "A1" 6+83.04, 22' Rt.
Const. Aggregate Check Dams - 15
50' O.C.
(For Details, See Sheet GJ-3)

(16) Sta. "A1" 13+83.04, 22' Rt.
End Aggregate Check Dams

(17) Preserve and Protect Extg. Fiber Optic

(18) Preserve and Protect Extg. Water Line

(19) Sta. "A1" 6+03.49, 31' Rt.
Inst. Field Facility Marker Type "S2" - (D00216)
(For Details, See RD399)

(20) Sta. "A1" 14+66.59, 11' Rt.
Inst. Field Facility Marker Type "S1" (Green) (D00216)
(For Details, See RD399)

(21) Sta. "A1" 14+66.59, 30' Rt.
Inst. Field Facility Marker Type "S2" (D00216)
(For Details, See RD399)

22. See Sheet 3C & 3D note 23

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

DRAINAGE NOTES

SHEET NO. 6D

"A1" LINE

Note:
See Sht. 3D and 6D For
Drainage And Utilities Notes

47V-099

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL
INTERIM PROJECT MANAGER

REVISED SHEET
BY RFI #17

+10.52 (22) 21.41 Rim / 16.77 (21" N.) / 16.77 (24" S.)

21" - 14
0.21%

Extg. ground @ ℄

(4) +28.82 M.H. F.L. {21.73 (Rim) / 16.30 (24" N.) / 16.21 (24" S.)}

22'
24"-23'
0.21%

24"-176'
0.18%

(5) +03.36 M.H. F.L. {22.34 (Rim) / 15.90 (24" N.W.) / 15.81 (24" S.E.)}

24"-220'
0.19%

(7) +24.94 M.H. F.L. {21.41 (Rim) / 16.34 (18" E.J.) (Extg.) / 15.40 (24" N.) / 15.40 (24" W.)}

24"-38'
1.05%

(8) +27.30 Riprap Basin F.L. 15.00 (24" N.E.)

+39.40 Extg. Inlet F.L. {11.50 (Rim) / 10.38 (18" S.) (Extg.)}

(11) (12)

Extg. ground @ Swale ℄

+45.04 Inlet F.L. {12.50 (Rim) / 10.35 (18" N.) (Extg.) / 10.30 (18" S.) (Extg.)}

0+00 5+00 10+00 15+00

35 30 25 20 15 10 5

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

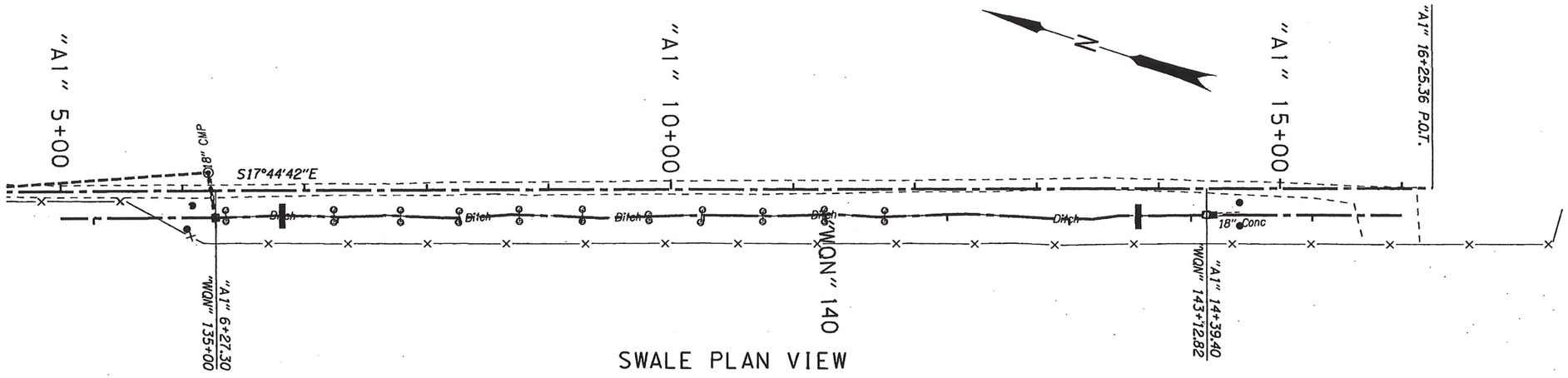
PROFILE &
DRAINAGE PROFILE

SHEET NO. 6E

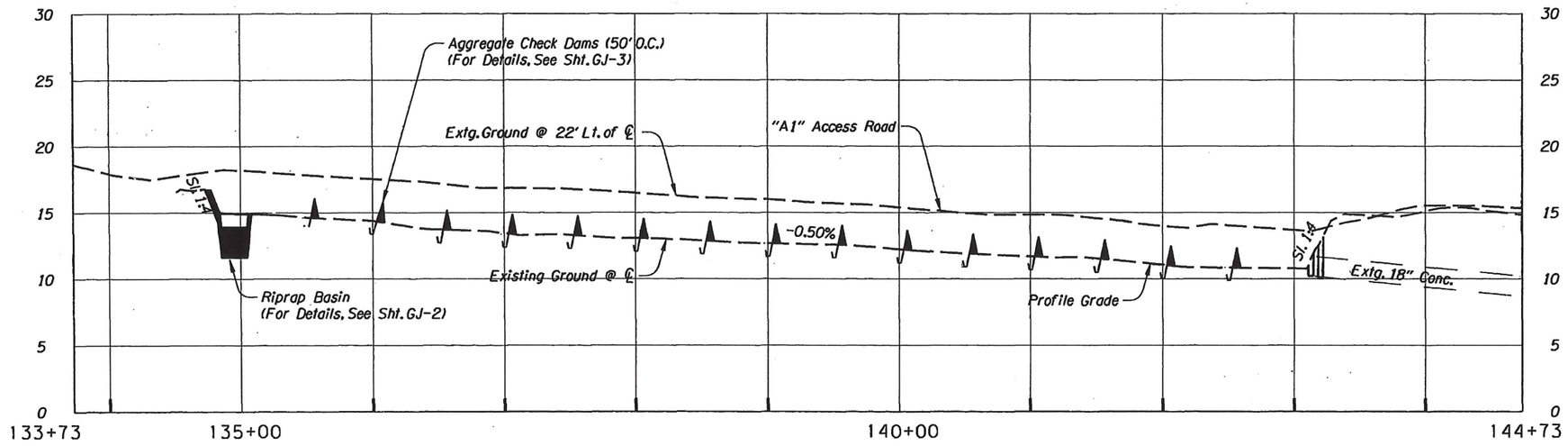
Profile :: Default 5/27/2014 3:14:01 PM msteigle

Rotation: 0° Scale: 1"=100'

47V-099



SWALE PLAN VIEW



SWALE PROFILE

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

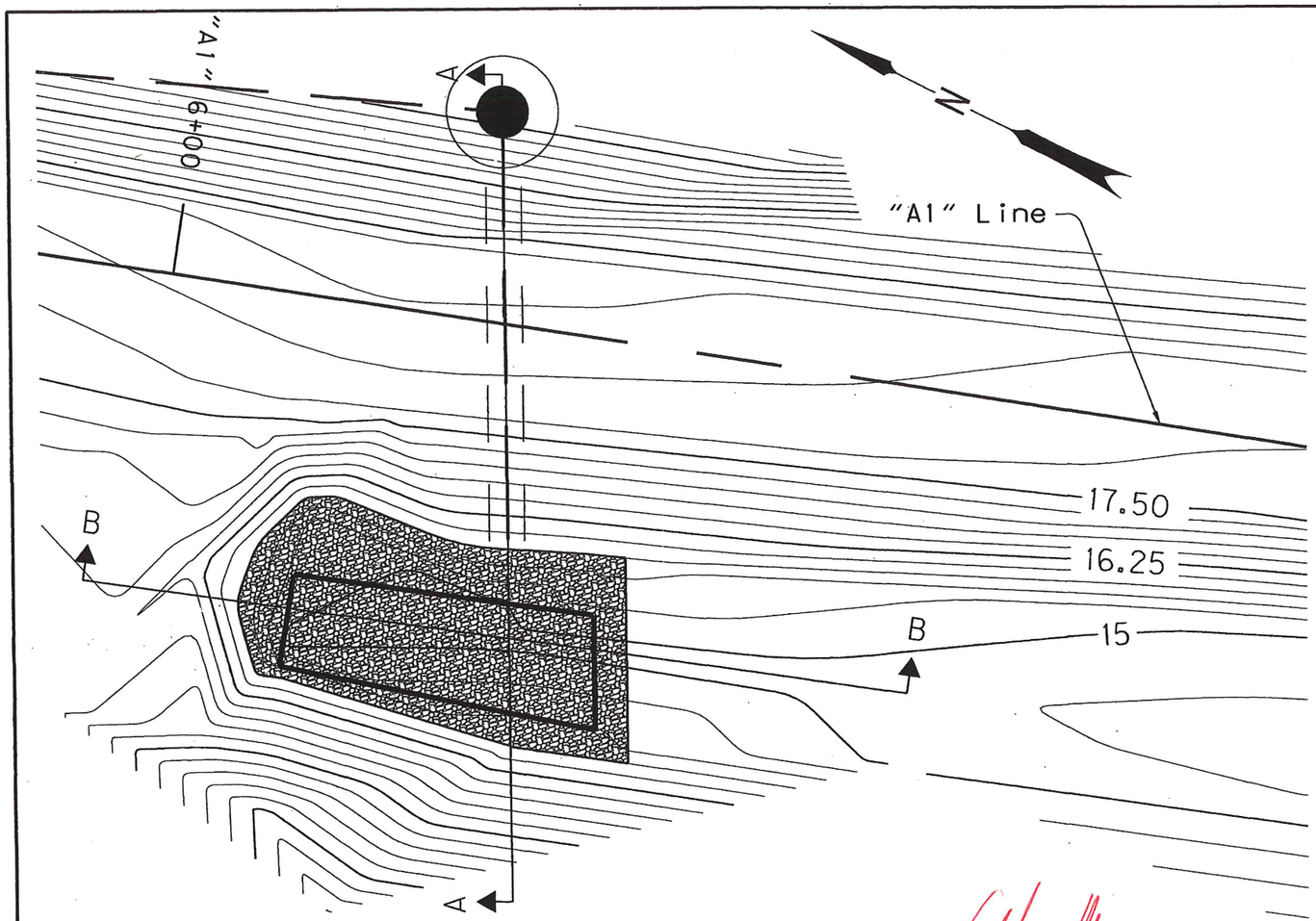
DRAINAGE DETAILS

SHEET NO. GJ

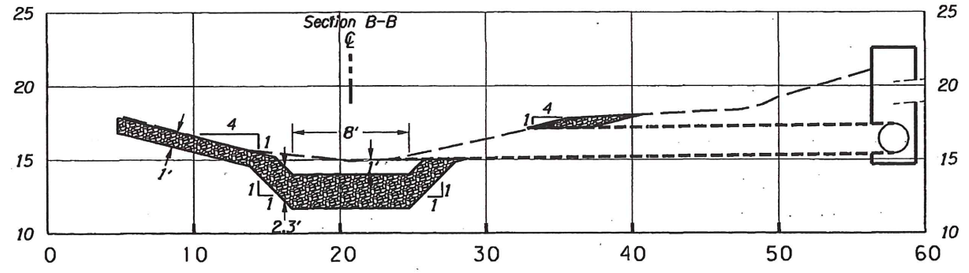
Drainage Details :: Default 5/27/2014 2:50:08 PM msteigle

Rotation: 0° Scale: 1"=100'

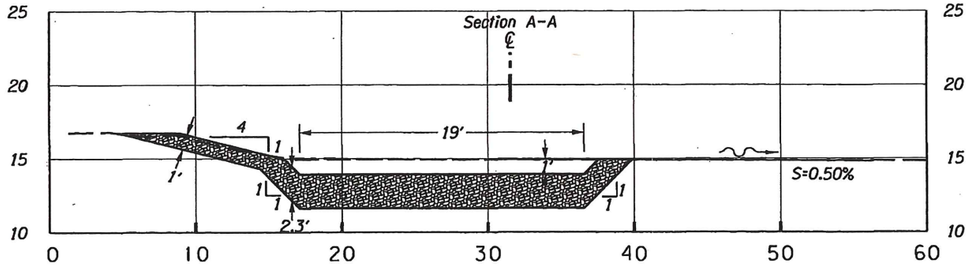
47V-099



RIPRAP BASIN FOR SWALE



SECTION A-A
RIPRAP BASIN



SECTION B-B
SWALE

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

SCALE 1" = 10'

10 5 0 10 20 30
FEET

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
JULY 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

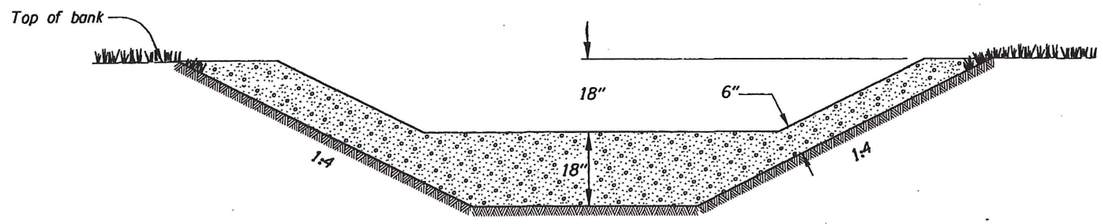
DRAINAGE DETAILS

SHEET NO. GJ-2

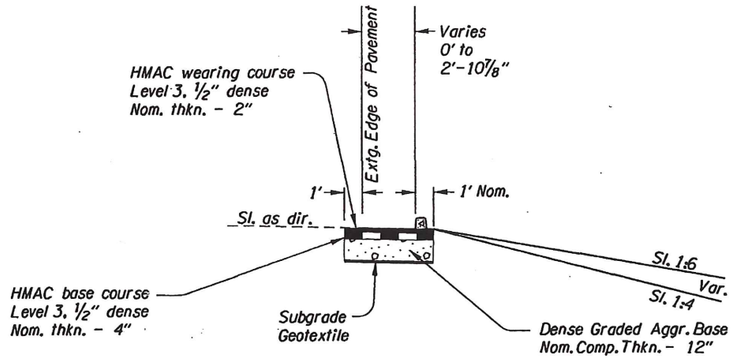
Drainage Details :: Default 5/27/2014 2:50:23 PM msteigle

Rotation: 0°

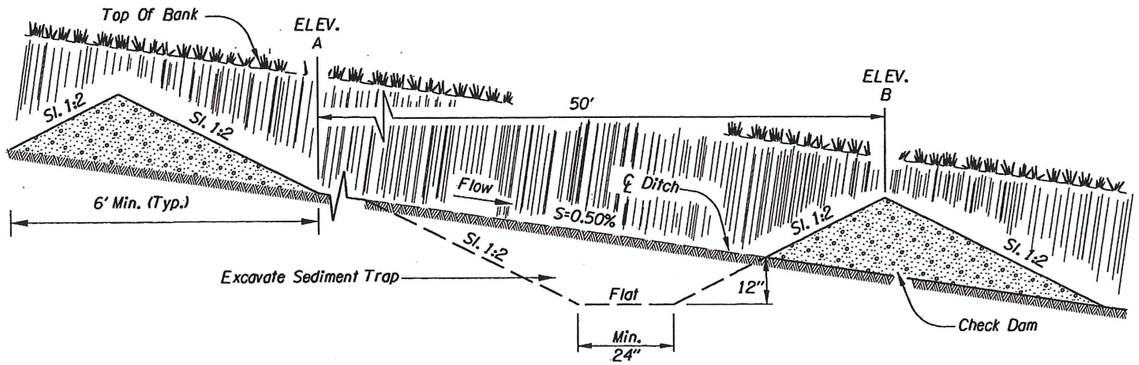
47V-099



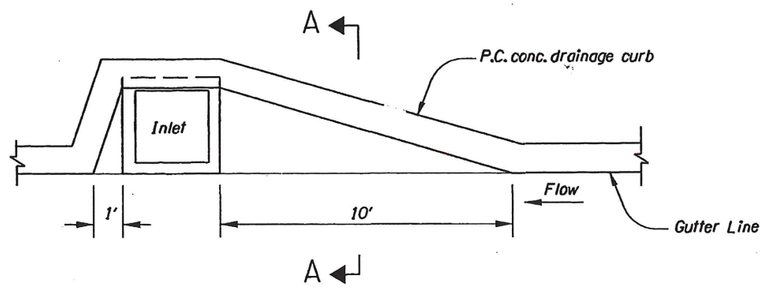
SWALE X-SECTION
AT CHECK DAM
(NTS)



SECTION A-A
(NTS)



SWALE PROFILE SECTION
WITH AGGREGATE CHECK DAMS
(NTS)



INLET INSTALLATION
(NTS)

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
July 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

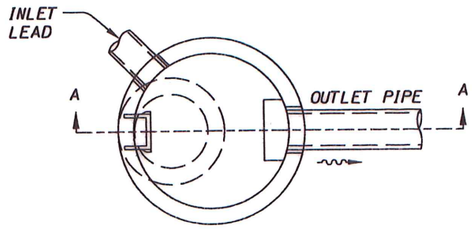
HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST.
(PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

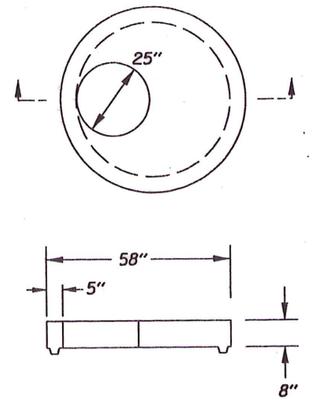
DRAINAGE DETAILS

SHEET NO. GJ-3



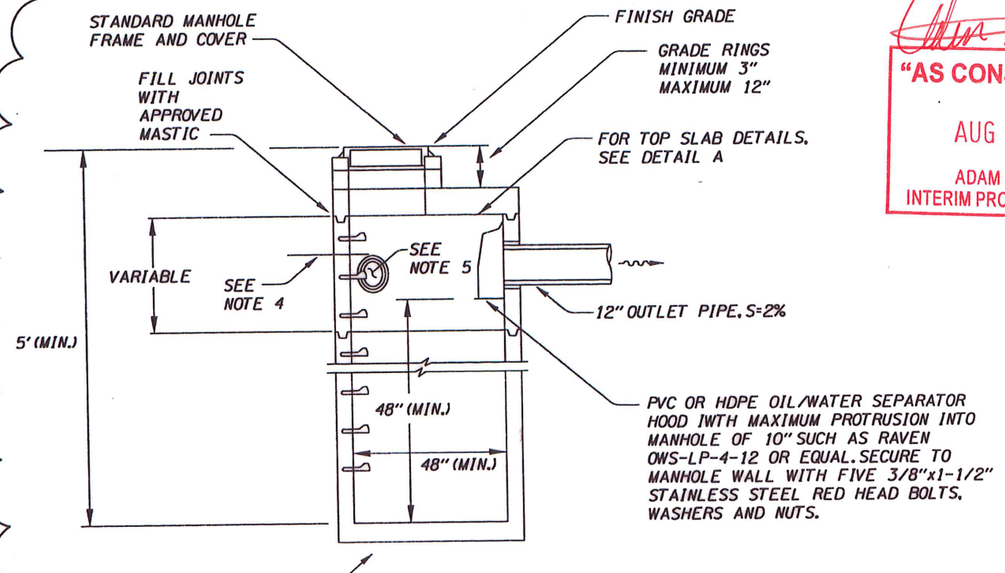
PLAN

Revised plan sheet



DETAIL A
(TOP SLAB "A")

- FOR USE WITH 48" MANHOLES OR RISER SECTIONS AND STANDARD 24" MANHOLE FRAME
- COVER DEPTH LESS THAN 15 INCHES



SECTION A-A
(NTS)

"AS CONSTRUCTED"
AUG 25 2017
ADAM MARKELL,
INTERIM PROJECT MANAGER

NOTES:

1. ALL PRECAST SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF PORTLAND MANUFACTURING STANDARDS FOR PRECAST CONCRETE PRODUCTS (MSPCP), AS REVISED.
2. MANHOLE STEPS-REFER TO THE STANDARD DETAIL P-168.
3. PROVIDE A FLEXIBLE JOINT FOR ALL CONNECTED PIPES:
   - RIGID PIPE LESS THAN 36 INCHES-18 INCHES (MAX.) FROM OUTSIDE WALL
   - FLEXIBLE PIPE - 18 INCHES (MAX.) FROM THE OUTSIDE WALL UNLESS A FLEXIBLE JOINT FITTING IS INSTALLED AND ACCEPTED.
4. PROVIDE 12 INCHES (MIN.) OF SEPARATION BETWEEN A SECTION JOINT AND THE OUTER EDGE OF ANY OPENING.
5. LOCATE INVERT OF ANY INLET LEAD 6 INCHES (MIN.) ABOVE THE OUTLET PIPE INVERT.
6. ALL PRECAST CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF PORTLAND MANUFACTURING STANDARDS FOR PRECAST CONCRETE PRODUCTS (MSPCP), AS REVISED.
7. FOR EACH TOP SLAB, REFER TO MSPCP FOR COMPLETE SIZE AND REINFORCEMENT DETAILS.
8. ALL TOP SLABS SHALL HAVE KEYED OR BELL AND SPIGOT JOINTS AND SHALL USE PREFORMED PLASTIC SEALS (MASTIC) OR PREFORMED RUBBER GASKET SEALS ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

No.	DATE	REVISIONS	BY
1	12-18-2014	REVISED DETAIL AND NOTES	M.D.S.

Steve Townsend 12/30/14
CITY ENGINEER

Bureau of Environmental Services Approval
BES JOB NO. 7ESTRSD00090
BES JOB TITLE: OR99W (Denver): Victory-Argyle
Chief Engineer Reg. Prof. Engr. Date 12/29/14

REGISTERED PROFESSIONAL ENGINEER
58552PE
OREGON
JULY 21, 1998
CHRISTINE J. HIGGINS
Expires June 30, 2015

OREGON DEPARTMENT OF TRANSPORTATION

HDR Engineering, Inc.

OR99W: N. VICTORY BLVD. - N. ARGYLE ST. (PORTLAND) SEC.
PACIFIC HIGHWAY WEST
MULTNOMAH COUNTY

Design Team Leader - Brian Baker
Designed By - Shannon Williams
Drafted By - Matt Steigleder

DRAINAGE DETAILS

SHEET NO. GJ-4

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A, 1A-2	Index Of Sheets Cont'd.
1B	Std. Drg. Nos.
1C	Sheet Layout
1D	Survey Control Network
1E	Survey Control Chart

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

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

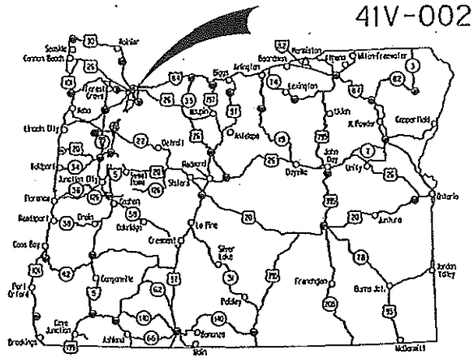
I-5: VICTORY BLVD. TO LOMBARD ST. SECTION

PACIFIC HIGHWAY

MULTNOMAH COUNTY

JANUARY 2008

41V-002



Overall Length Of Project - 1.22 Miles

"AS CONSTRUCTED"

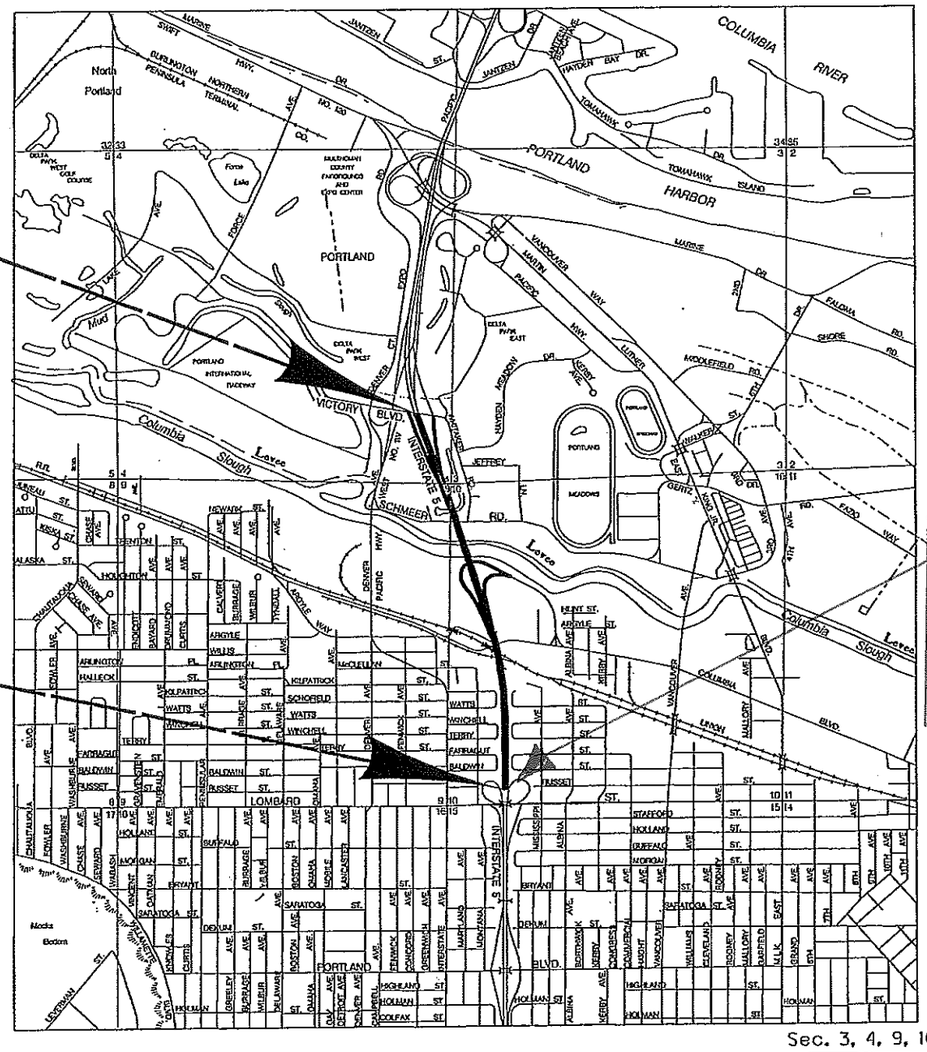
Date 11/26/14 Project Mngr

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
IM-STP-S001(258)
STA. "L2" 129+93.4 (M.P. 306.70)

END OF PROJECT
IM-STP-S001(258)
STA. "L2" 193+92.8 (M.P. 305.48)



Additional Work was done in each of the Lombard loops. This included burial of soil that was contaminated.

OREGON TRANSPORTATION INVESTMENT ACT

Sec. 3, 4, 9, 10, T. 1 N., R. 1 E., W.M.

OREGON TRANSPORTATION COMMISSION

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

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION
BY:
DAVID EVANS AND ASSOCIATES INC.

REGISTERED PROFESSIONAL ENGINEER
14947PE
OREGON
July 25, 1990
WILLIAM J. EVANS

EXPIRES 12-31-07

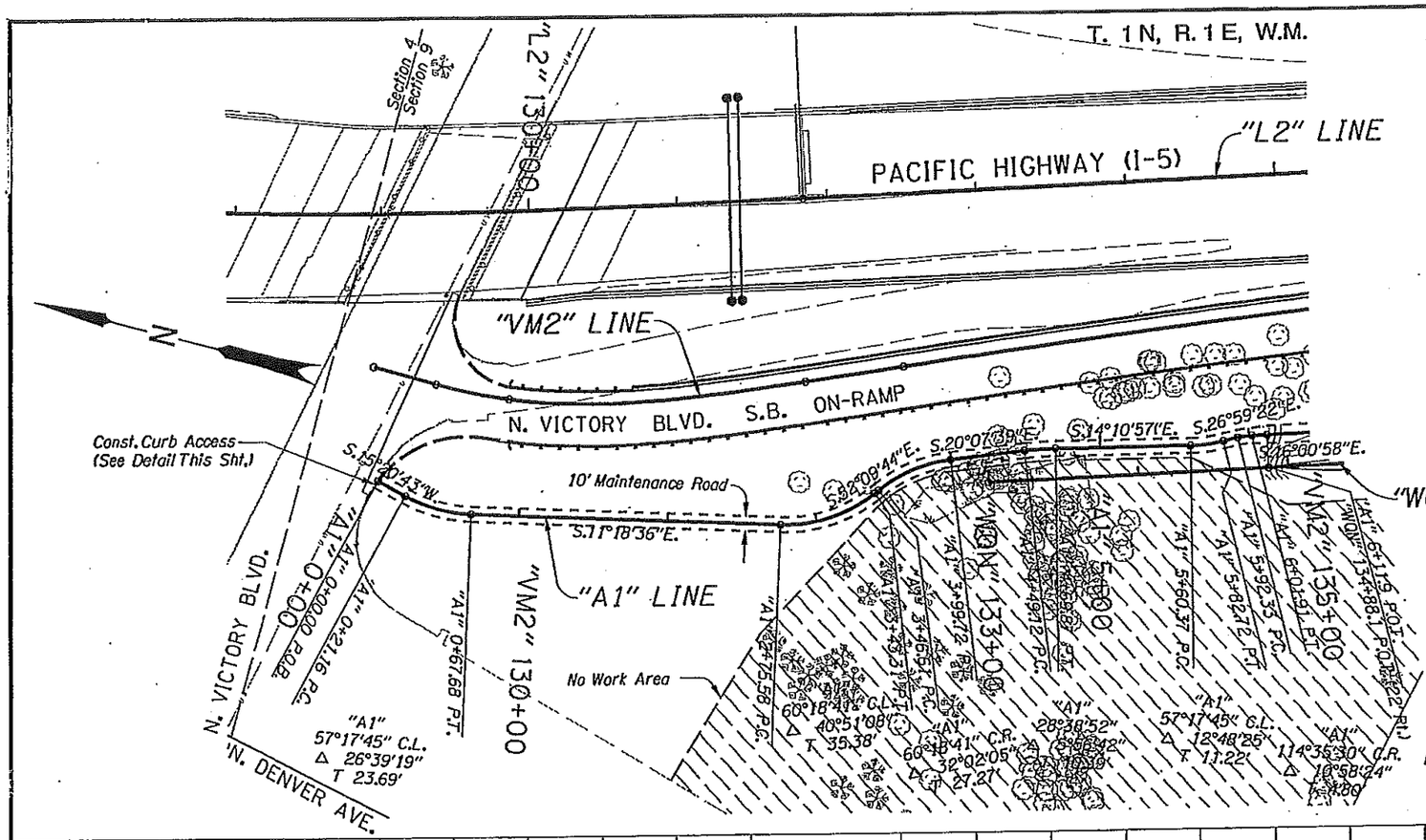
OREGON DEPARTMENT OF TRANSPORTATION CONCURRENCE

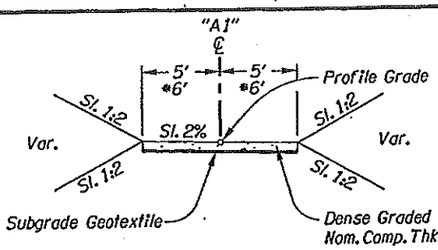
TECHNICAL SERVICES MANAGING ENGINEER — DATE 12-07

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	IM-STP-S001(258)	1

P:\O\ODOT00000557\0400CAD\RH\DGN\Sheet\12076.TSI 11/8/2007 8:50:27 AM mjy

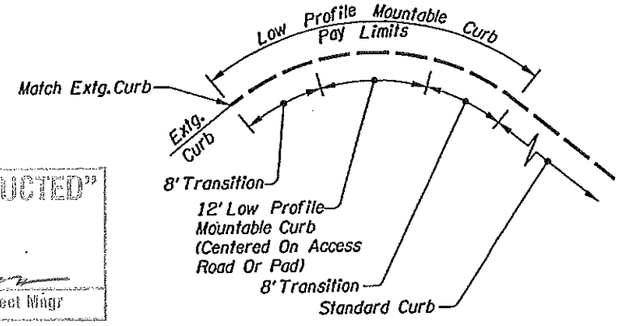




STA. "A1" 0+00.0 To STA. "A1" 6+00.0
* "A1" 6+00.0 To STA. "A1" 6+11.9

NOTE:
1. Side-Slopes Are Shown As Vert. To Horiz.

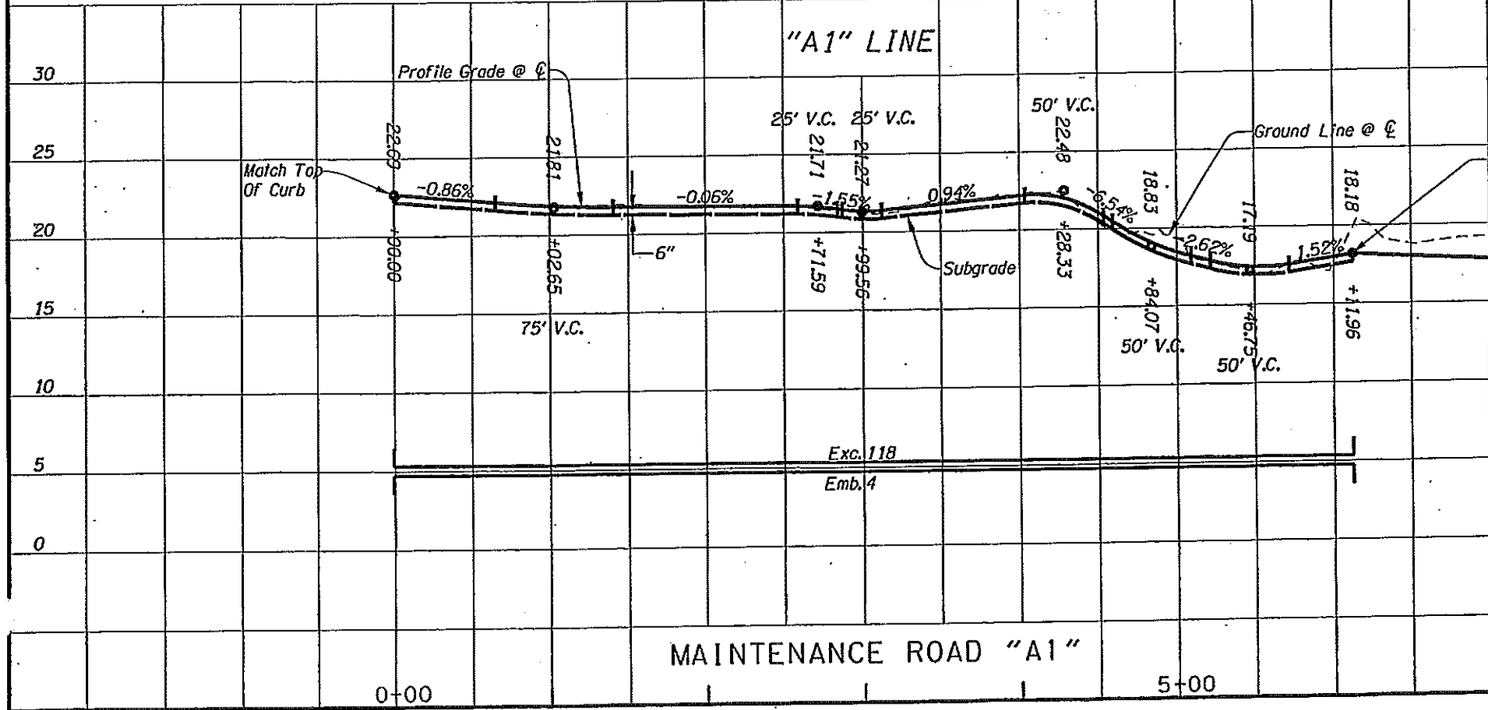
"AS CONSTRUCTED"
Date 11/26/14 Project Mngr



CURB ACCESS DETAIL

NOTE:
1. For Transition Details, See Drg. No. TM499

Legend
No Work Area Shown Thus:



REGISTERED PROFESSIONAL ENGINEER
11687
OREGON
JULY 16, 1982
TERRY CHAMBERLIN
EXPIRES 12-31-07

OREGON DEPARTMENT OF TRANSPORTATION

DAVID EVANS AND ASSOCIATES, INC.
2100 Southwest River Parkway
Portland Oregon 97201 Ph: 503.223.6663

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Danny Hori DYH
Designed By - Terry Chamberlin
Drafted By - Mike Youngs

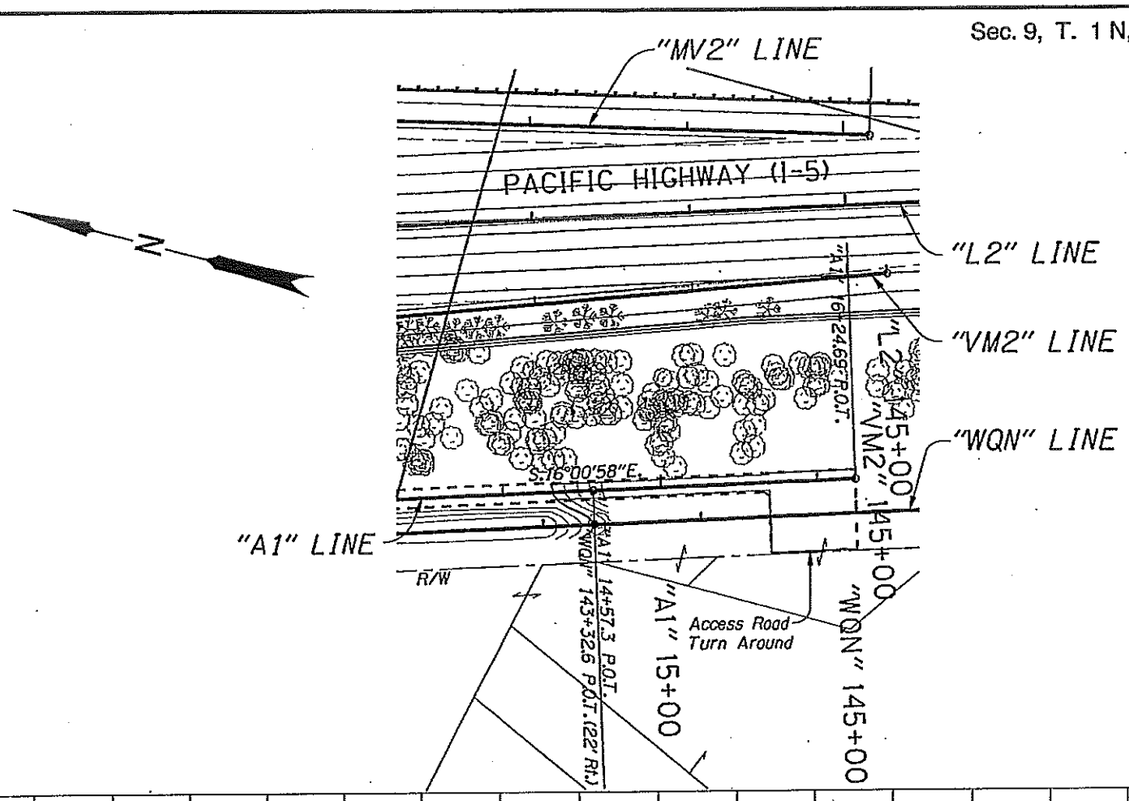
DETAILS

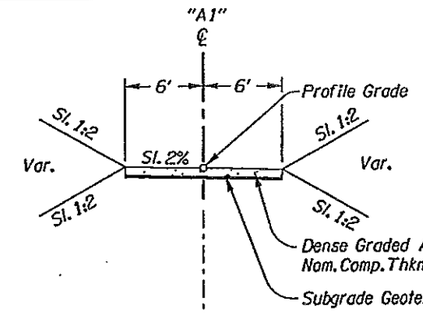
SHEET NO. 2B-9

p:\o\odot00000557\0400cad\rh\dgn\sheet\12076.DT5 10/26/2007 12:10:40 PM mjy

Sec. 9, T. 1 N, R. 1 E, W.M.

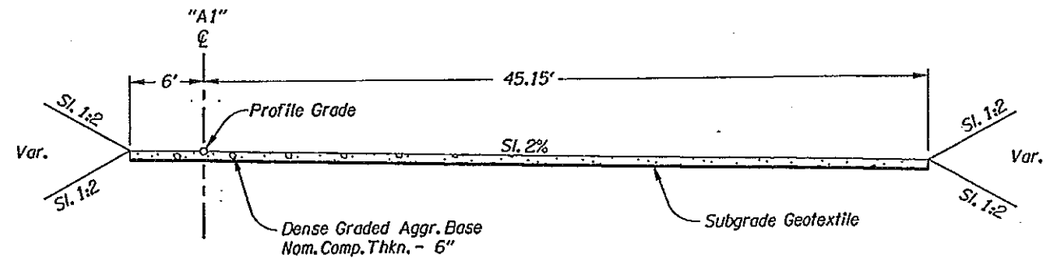
41V-002





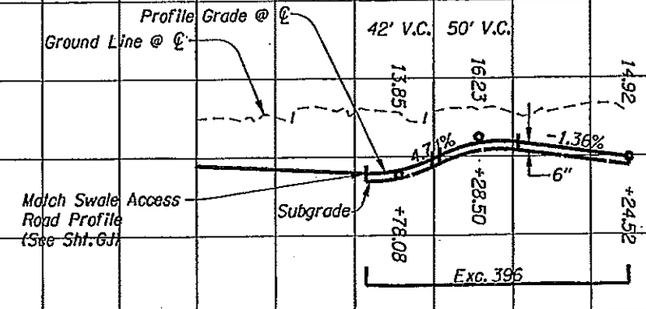
STA. "A1" 14+57.3 To STA. "A1" 15+68.9

"AS CONSTRUCTED"
Date 11/26/14 Project Mngr



STA. "A1" 15+68.9 To STA. "A1" 16+24.5

NOTE:
1. Side-Slopes Are Shown As Vert. To Horiz.



MAINTENANCE ROAD "A1" TURN AROUND

15+00

20+00

OREGON DEPARTMENT OF TRANSPORTATION

DAVID EVANS AND ASSOCIATES, INC.
2100 Southwest River Parkway
Portland Oregon 97201 Ph: 503.223.6663

REGISTERED PROFESSIONAL ENGINEER
11687
Terry Chamberlin
OREGON
JULY 16, 1982
TERRY CHAMBERLIN
EXPIRES 12-31-07

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Danny Hart DYH
Designed By - Terry Chamberlin
Drafted By - Mike Youngs

DETAILS

SHEET NO. 2B-10

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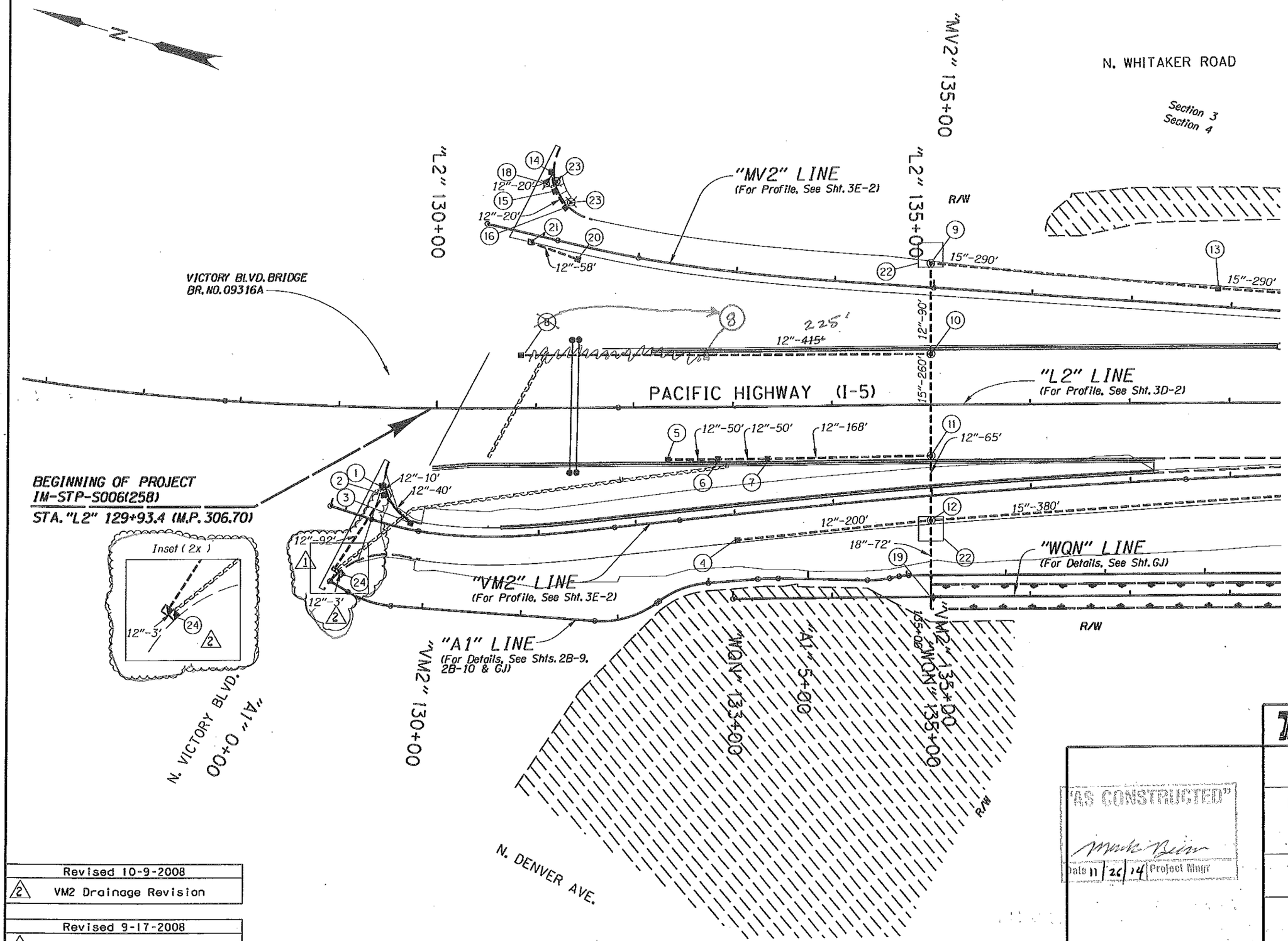


Remove or Abandon Pipe Shown Thus:

No Work Area Shown Thus:

Revised 10-9-2008
2 VM2 Drainage Revision

Revised 9-17-2008
1 VM2 Drainage Revision

"AS CONSTRUCTED"

Mark Reim

Date 11 | 26 | 14 Project Mngr

OREGON DEPARTMENT OF TRANSPORTATION

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION

PACIFIC HIGHWAY

MULTNOMAH COUNTY

Reviewed By - CHRIS STEINBRECHER

Designed By - DAN MILLER

Drafted By - STERLIN DRIGGS

DRAINAGE AND UTILITIES

SHEET NO. 3B

THIS IS THE FILENAME LOCATION ********** DD-MMM-YYYY HH:MM USERNAME

(1) Sta. "VM2" 129+25, Lt.
Const. Type "G-2" Inlet
(See Drg. No. RD364)

(1) TO (2) - 10' DUCTILE IRON

(2) Sta. "VM2" 129+30, Lt.
Const. Type "G-2" Inlet
Inst. 12" Storm Sew. Pipe - 50'
5' Depth
(See Drg. Nos. RD300, RD326, RD380, RD384 & RD386)

(3) Sta. "VM2" 129+68, Lt.
Const. Type "G-2" Inlet

(4) Sta. "VM2" 133+00, Rt.
Const. Type "G-2" Inlet

(5) Sta. "L2" 132+35, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
(See Drg. Nos. ~~RD314~~ & RD376)

(6) Sta. "L2" 132+85, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 12" Storm Sew. Pipe - 50'
5' Depth

(7) Sta. "L2" 133+35, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 12" Storm Sew. Pipe - 50'
5' Depth

132+75

(8) Sta. "L2" ~~130+85~~, Lt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~

(9) Sta. "MV2" 135+00, Lt.
Const. Manhole With Type "G-2" Inlet
Inst. 15" Storm Sew. Pipe - 290'
10' 5' Depth
Inst. 12" Storm Sew. Pipe - 90'
20' Depth
(See Drg. No. RD348)

(10) Sta. "L2" 135+00, Lt.
Const. Manhole With Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 12" Storm Sew. Pipe - 415'
10' Depth

(11) Sta. "L2" 135+00, Rt.
Const. Manhole With Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 12" Storm Sew. Pipe - 168'
10' Depth

(12) Sta. "VM2" 135+00, Rt.
Const. Manhole With Type "G-2" Inlet
Inst. 15" Storm Sew. Pipe - 260'
Bore Under Roadway
Inst. 12" Storm Sew. Pipe - 65'
20' Depth
Inst. 12" Storm Sew. Pipe - 200'
10' Depth
Inst. 15" Storm Sew. Pipe - 380'
5' Depth
(See Drg. No. RD308)
(For Details, See Sht. GJ-3)

(13) Sta. "MV2" 137+90, Lt.
Const. Type "G-2" Inlet
Inst. 15" Storm Sew. Pipe - ~~290'~~ 296'
5' Depth

(14) Sta. "MV2" ~~130+90, Lt.~~ 130+94.3, 64.8 Lt.
Const. Type "G-2" Inlet

(15) Sta. "MV2" ~~131+08, Lt.~~ 131+, 52 Lt.
Const. Type "G-2" Inlet Over Extg. 12" Pipe
Inst. 12" Storm Sew. Pipe - 40'
5' Depth

(16) Sta. "MV2" ~~131+20, Lt.~~ 131+08, 42 Lt.
Const. Type "G-2" Inlet

(17) Not Used (1)

(18) Remove Inlet

(19) Sta. "VM2" 135+00, 104' Rt.
Const. Water Quality Swale #2
Inst. 18" Storm Sew. Pipe - 72'
10' Depth
(For Details, See Sht. GJ and GJ-3)
(See Drg. Nos. RD1035 and RD1055)

(20) Sta. "MV2" 131+40, 21' Rt.
Const. Type "G-2" Inlet

(21) Sta. "MV2" 130+90, 8' Rt.
Connect to Extg. Inlet
Inst. 12" Storm Sew. Pipe - 58'
5' Depth

(22) Approximate Location of Bore Pit

(23) Minor Adjust Manhole - 2
(See Drg. No. RD360)

(24) Sta. "VM2" ~~129+10~~, 58' Rt.
Connect To Extg. Inlet
Cap To Extg. Inlet
Inst. 12" Storm Sew. Pipe - 92'
5' Depth

VM2 129+12

(1) DUCTILE IRON

Sta. "VM2" ~~129+10~~, 6xx' Rt.
Const. Type "G-2" Inlet
Connect To Extg. Inlet (capped)
Inst. 12" Storm Sew. Pipe - 4'
5' Depth

VM2 129+16

(2) DUCTILE IRON

"AS CONSTRUCTED"
Mike Bean
Date 11/26/14 Project Mngr

Revised 9-17-2008	Revised 10-9-2008
(1) VM2 Drainage Revision	(2) VM2 Drainage Revision

OREGON DEPARTMENT OF TRANSPORTAT

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

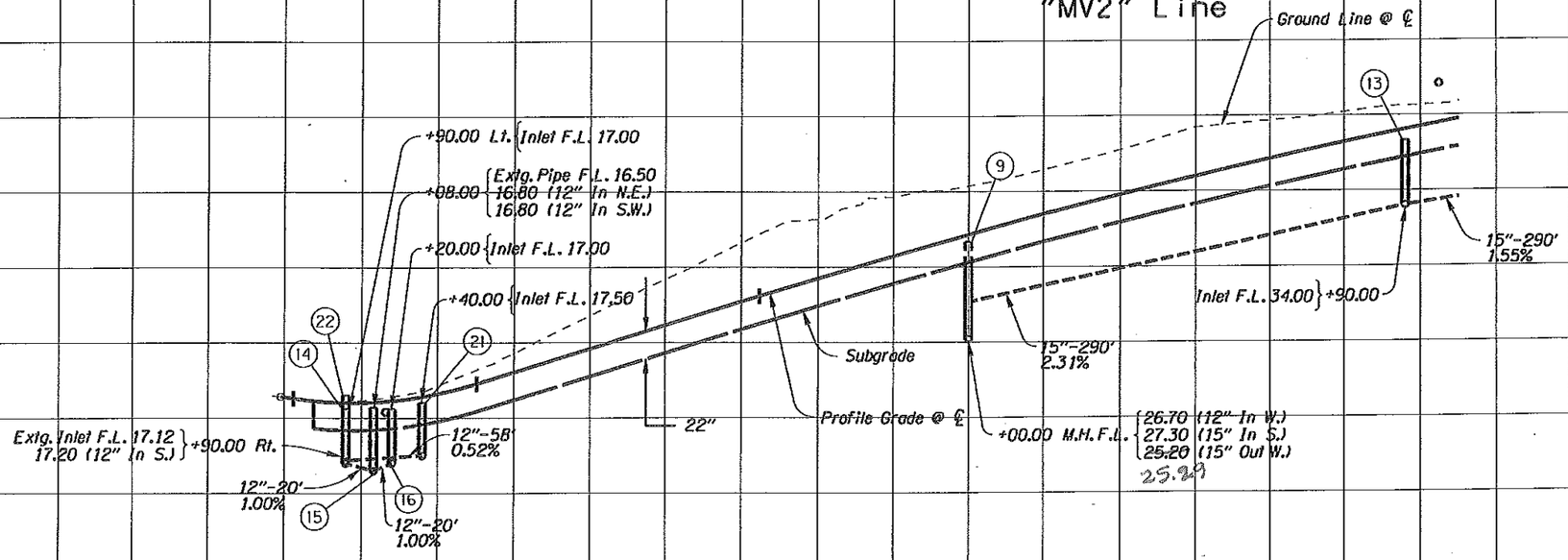
Reviewed By - CHRIS STEINBRECHER
Designed By - DAN MILLER
Drafted By - STERLIN DRIGGS

DRAINAGE AND UTILITIES NOTES

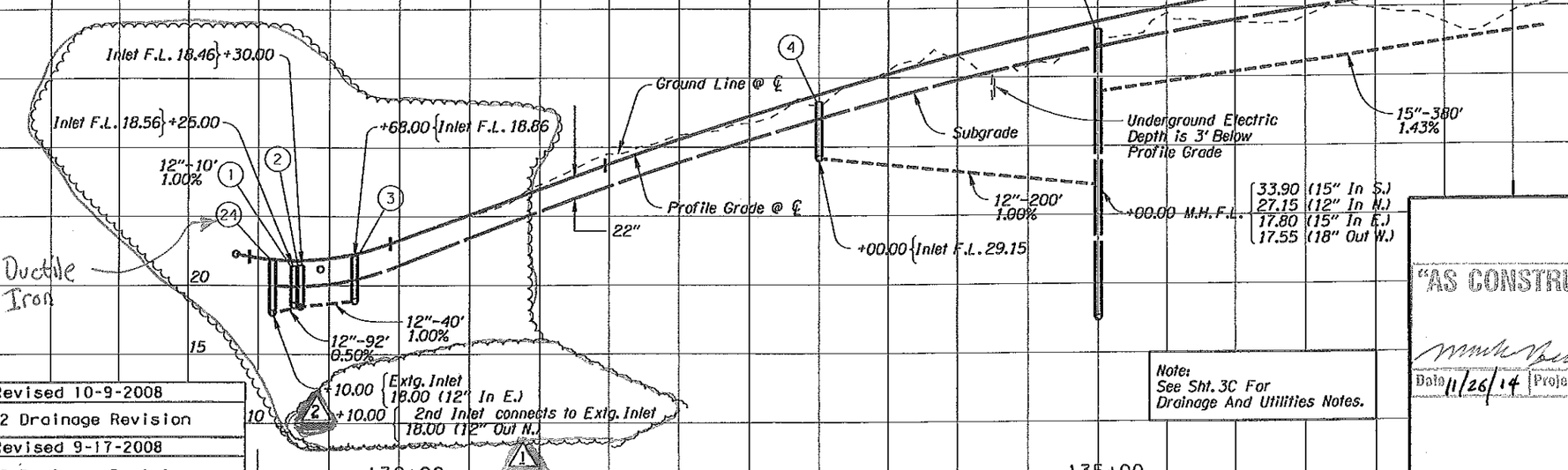
SH N 3

THIS IS THE FILENAME LOCATION ********** DD-MMM-YYYY HH:MM USERNAME

"MV2" Line



"VM2" Line



Revised 10-9-2008
2 VM2 Drainage Revision
Revised 9-17-2008
1 VM2 Drainage Revision

Note:
See Sht. 3C For Drainage And Utilities Notes.

"AS CONSTRUCTED"
Date 11/26/14 Project Mngr

OREGON DEPARTMENT OF TRANSPORTA

I-5: VICTORY BLVD. TO LOMBARD ST. SECTIO
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - CHRIS STEINBRECHER
Designed By - DAN MILLER
Drafted By - STERLIN DRIGGS

DRAINAGE PROFILE

3

THIS IS THE FILENAME LOCATION ********** DD-MMM-YYYY HH:MM USERNAME

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

41V-00

N. WHITAKER ROAD

SCHMEER SLOUGH

"MV2" 140+00
"L2" 140+00

"MV2" 145+00
"L2" 145+00

"L2" 150+00

R/W

"MV2" LINE
(For Profile, See Sht. 4E-2)

Section 3
Section 4
Section 10
Section 9

256' (Pipe Installation Work)

15"-262'

15"-243'

PACIFIC HIGHWAY (I-5)

"L2" LINE
(For Profile, See Sht. 4D-2)

COLUMBIA SLOUGH BRIDGE
BR. NO. 08883

Temporary Easement - Work Area

"VM2" LINE
(For Profile, See Sht. 4E-2)

15"-270'

15"-200'

15"-205'

Temporary Easement - Work Area

"A1" LINE
(For Details, See Shts. 2B-9, 2B-10 & GJ)

18"-358'

25'

R/W

"A1" 10+00
"WQN" 140+00
"VM2" 140+00

143+25

"A1" 15+00
"WQN" 145+00
"VM2" 145+00

"WQN" 147+00

N. PATTON AVE.

N. SCHMEER ROAD

PUBLIC ROAD

N

"AS CONSTRUCTED"
Mark Reim
Date 11/26/14 Project Mngr

REGISTERED PROFESSIONAL ENGINEER
15027
Christian F. Steinbrecher
OREGON
MAY 19, 1992
CHRISTIAN F. STEINBRECHER
EXPIRES: 6/30/08

Remove or Abandon Pipe Shown Thus:

No Work Area Shown Thus:

No Work Area, Temporary Easement For Overhead Work Shown Thus:

Revised 5-27-2008
1 RFI 17

OREGON DEPARTMENT OF TRANSPORTATION

Ukiah Engineering, Inc.

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - CHRIS STEINBRECHER / DTM
Designed By - DAN MILLER / CFS
Drafted By - STERLIN DRIGGS

DRAINAGE AND UTILITIES

SHEET NO. 4B

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(1) Sta. "VM2" 138+83, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
~~Const. Wearing Surface Drain — 40'~~
~~Const. Wearing Surface Drain Outlet~~
~~(Option A Outlet to Inlet)~~
Inst. 15" Storm Sew. Pipe – 270'
5' Depth
~~(See Drg. No. RD314)~~

(2) Sta. "VM2" 141+50, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 15" Storm Sew. Pipe – 200'
5' Depth

⚠1 (3) Sta. "L2" 145+50, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Connect to Bridge Drainage System

⚠1 (4) Sta. "L2" 145+90, Lt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Connect to Bridge Drainage System

(5) Sta. "MV2" 143+42, Lt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 15" Storm Sew. Pipe – ~~243'~~ 246.7'
5' Depth

(6) Sta. "MV2" 140+86, Lt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
~~Const. Wearing Surface Drain — 29'~~
~~Const. Wearing Surface Drain Outlet~~
~~(Option A Outlet to Inlet)~~
Inst. 15" Storm Sew. Pipe – 262'
5' Depth

(7) Sta. "VM2" 143+50, Rt.
Const. Type "G-2" Inlet
~~Adjust Inlet with Open Grade HMAC Inlet Mod.~~
Inst. 15" Storm Sew. Pipe – 205'
5' Depth

(8) Sta. "L2" 147+00, 192' Rt.
Const. Loose Riprap, Class 50 – 15 cy
Const. Sloped End Section, 18 inch
Inst. 18" Storm Sew. Pipe – 358'
10' Depth
(For Details, See Sht. GJ-3)

(9) Relocate Aerial Telephone Line (by Others).

(10) Relocate Waterline (by Others).

(11) Relocate Power Pole (by Others).

(12) Sta. "L2" 143+25, 195' Rt.
Const. Type "M-E" Inlet
(See Drg. No. RD368)

(13) See Sht. 3C, Note 19

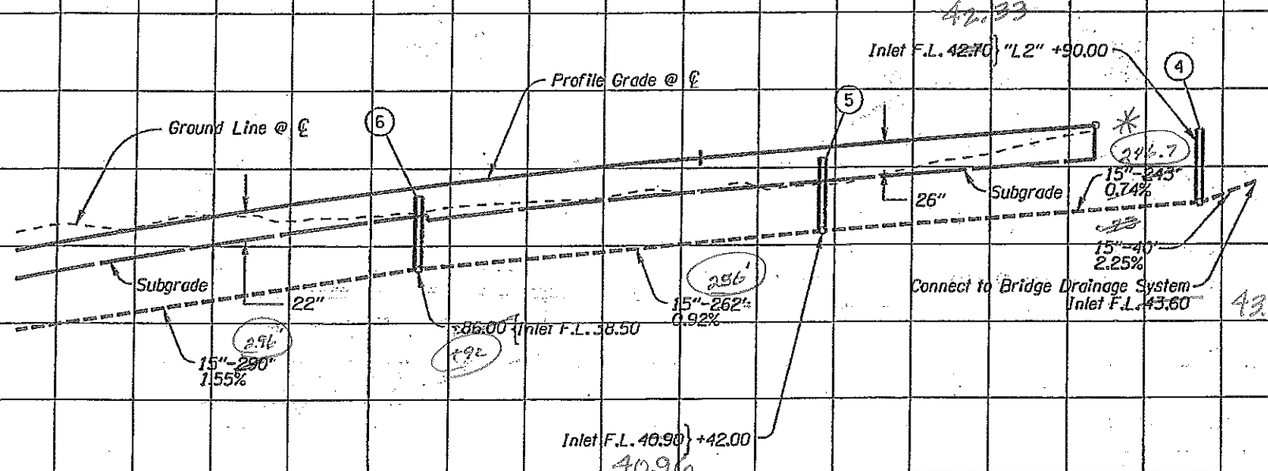
"AS CONSTRUCTED"
Date 11/26/14 Project Mngr

REGISTERED PROFESSIONAL ENGINEER
15927
OREGON
MAY 19, 1992
CHRISTIAN F. STEINBRECHER
EXPIRES: 6-30-06

OREGON DEPARTMENT OF TRANSPORTATIO
Ukiah Engineering, Inc.
I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY
Reviewed By - CHRIS STEINBRECHER / D
Designed By - DAN MILLER / CFS
Drafted By - STERLIN DRIGGS
DRAINAGE AND UTILITIES NOTES
SHEE NO. 40

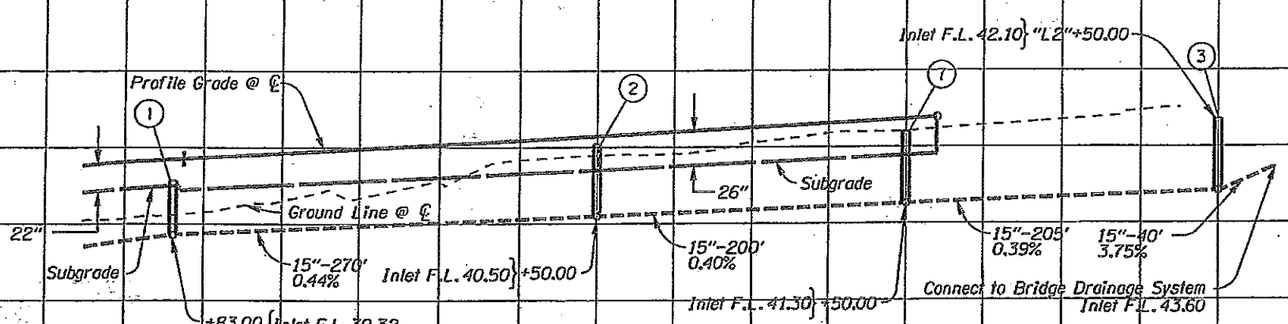
Revised 5-27-2008
⚠1 RFI 17

"MV2" Line



* The bridge drainage system came into Inlet ④ at 42.43 which forced the need to lower the 15" pipe between the ④ & ⑤ inlets.

"VM2" Line



"AS CONSTRUCTED"
Date 11/26/14 Project Mngr

Note:
See Sht. 4C For
Drainage And Utilities Notes.

REGISTERED PROFESSIONAL ENGINEER
7740
Daniel T. Miller
OREGON
July 13, 1973
DANIEL T. MILLER
EXPIRES 12-31-08

OREGON DEPARTMENT OF TRANSPORTATION

Ukiah Engineering, Inc.

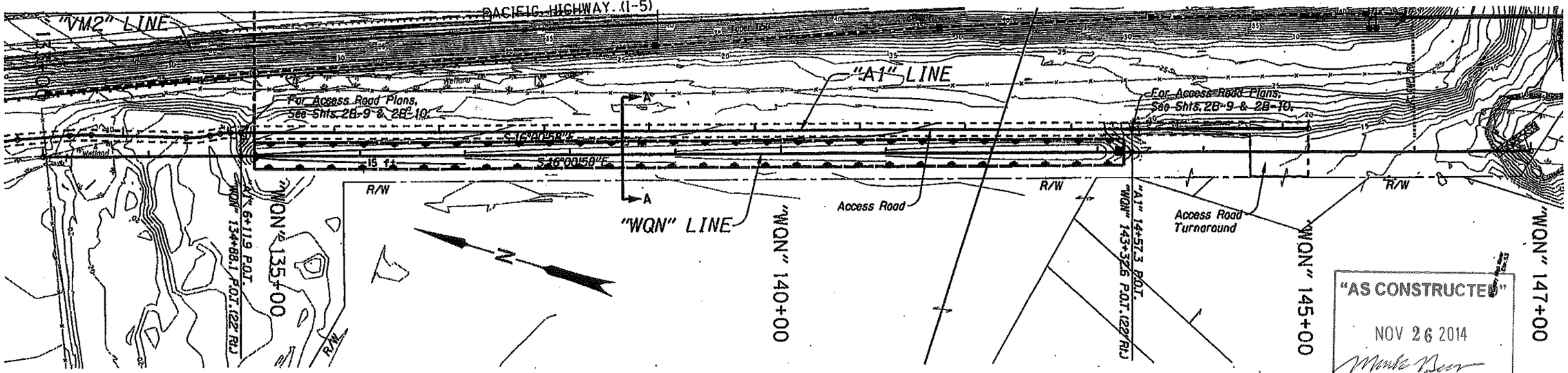
I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - CHRIS STEINBRECHER
Designed By - DAN MILLER
Drafted By - STERLIN DRIGGS

DRAINAGE PROFILE

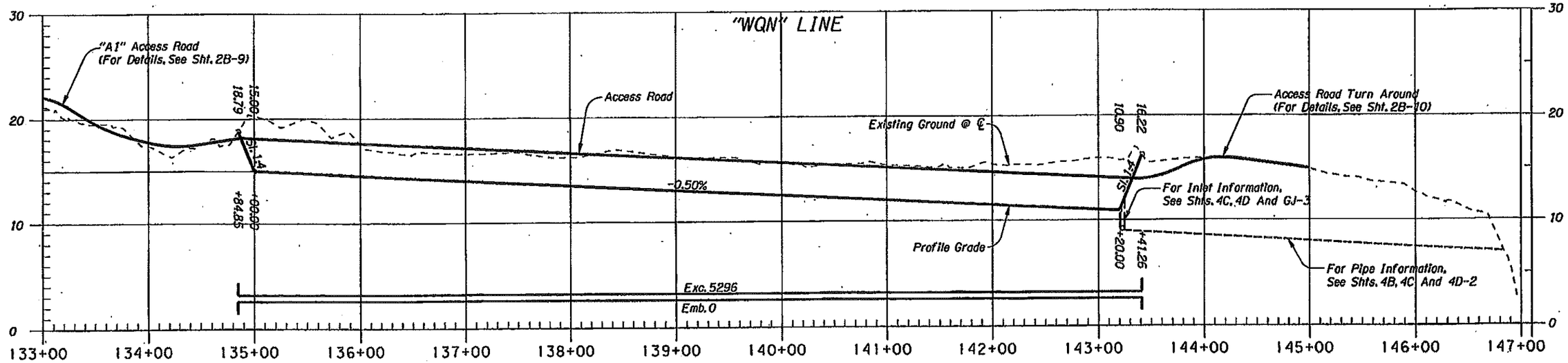
SHEET NO. 4E-2

Y:\Ukiah Engineering\0400CAD\RH\DGN\Sheet\12076.pf3 10/26/2007 1:32:36 PM Sterlin

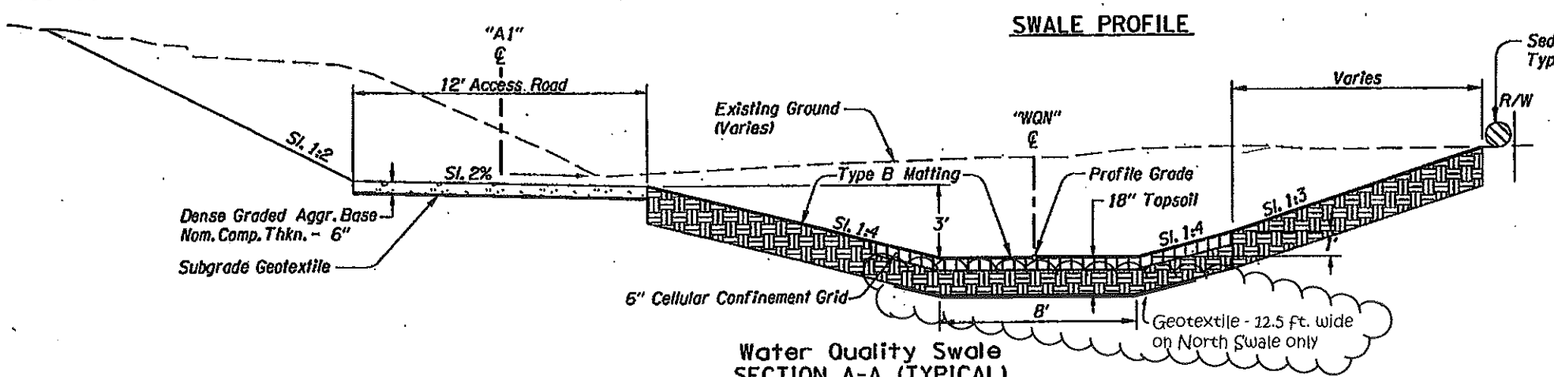


SWALE GRADING PLAN

"AS CONSTRUCTED"
NOV 26 2014
MARK BEESON, PROJECT MANAGER



SWALE PROFILE



Water Quality Swale
SECTION A-A (TYPICAL)

REGISTERED PROFESSIONAL ENGINEER
7740
David T. Miller
OREGON
July 13, 1973
DANIEL T. MILLER
EXPIRES 12-31-08

OREGON DEPARTMENT OF TRANSPORTATION

DAVID EVANS AND ASSOCIATES, INC.
2100 Southwest River Parkway
Portland Oregon 97201 Ph: 503.223.6663

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Chris Higgins
Designed By - Don Miller
Drafted By - Mike Youngs

WATER QUALITY SWALE #2

SHEET NO. GJ

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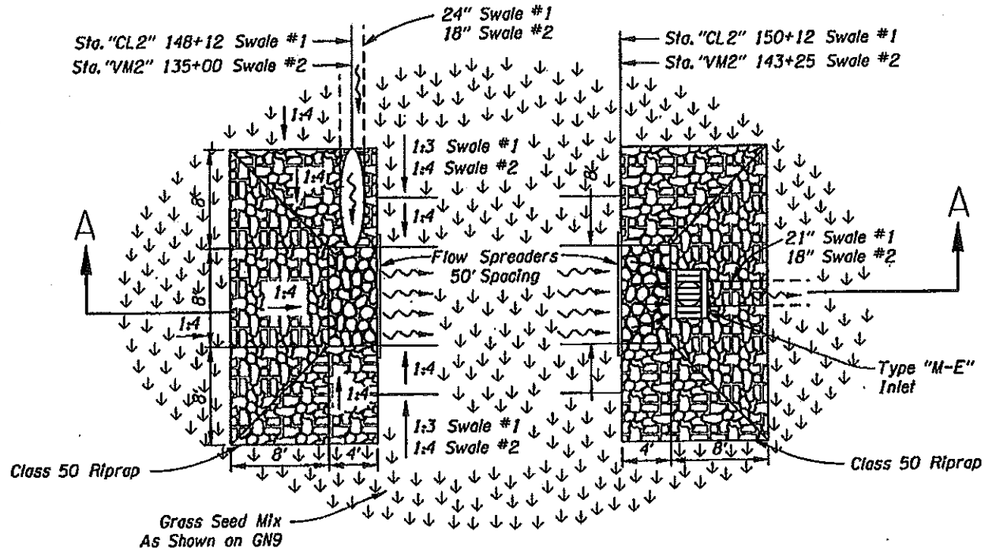
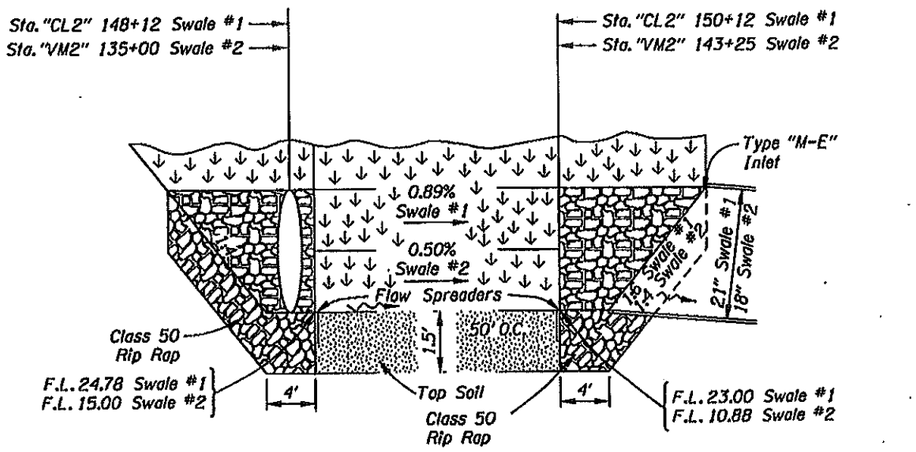
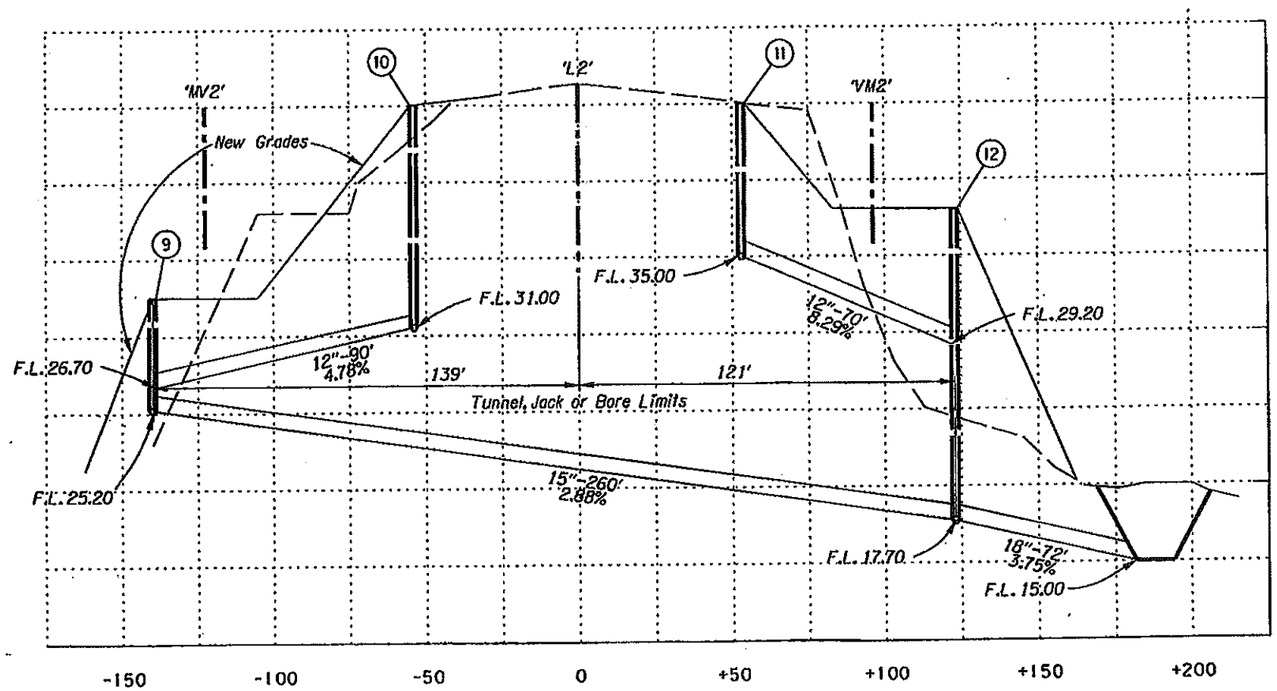


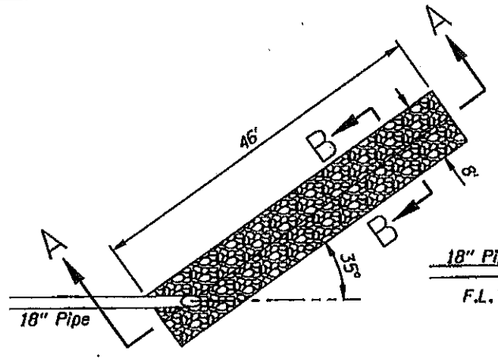


SECTION A-A

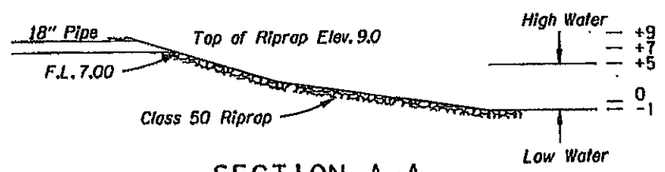
RIPRAP BASINS FOR UPSTREAM AND DOWNSTREAM END FOR SWALES 1 & 2



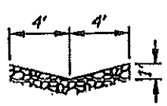
TUNNEL, JACK OR BORE AT STA. L2 135+00 (SHT. 3B)



LOOSE RIPRAP
SCALE: 1"=20'



SECTION A-A



SECTION B-B
SCALE: 1"=10'

"AS CONSTRUCTED"
NOV 26 2014
MARK BEESON, PROJECT MANAGER

REGISTERED PROFESSIONAL ENGINEER
7740
OREGON
July 13, 1973
DANIEL T. MILLER

EXPIRES 12-31-08

OREGON DEPARTMENT OF TRANSPORTATION

Ukiah Engineering, Inc.

I-5: VICTORY BLVD. TO LOMBARD ST. SECTION
PACIFIC HIGHWAY
MULTNOMAH COUNTY

Reviewed By - CHRIS STEINBRECHER
Designed By - DAN MILLER
Drafted By - STERLIN DRIGGS

DRAINAGE DETAILS

SHEET NO. GJ-3