# OPERATION & MAINTENANCE MANUAL

## Water Quality Bioretention Pond

**Manual prepared: 07/2019**

**DFI No. D01214**


**Figure 1: DFI No. D01214, looking west**

## 1. Identification

| | |
|---|---|
| Drainage Facility ID (DFI): | D01214 |
| Facility Type: | Water Quality Bioretention Pond |
| Construction Drawings: | (V-File Numbers) 52V-097 |
| Location: | District: 11 |
| | Highway No.: 019 |
| | Mile Post: 152.35, rt. |

## 2. Manual Purpose

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

## 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.

Facility location type: Roadway shoulder

Flow direction: West

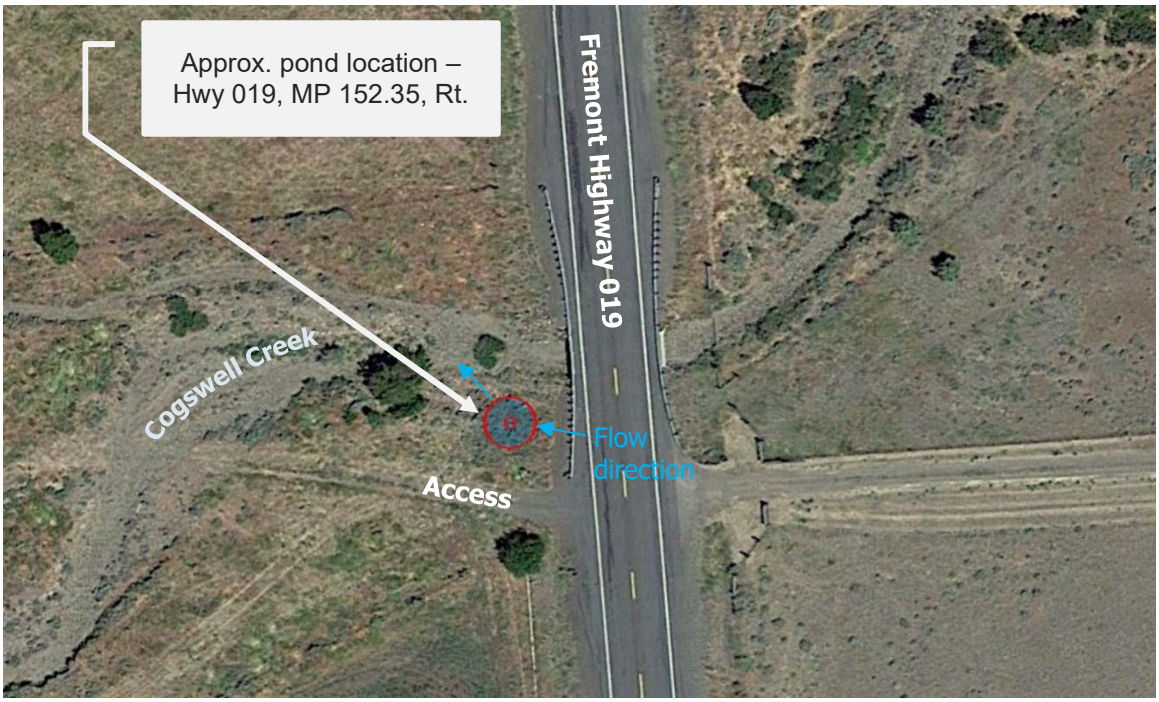


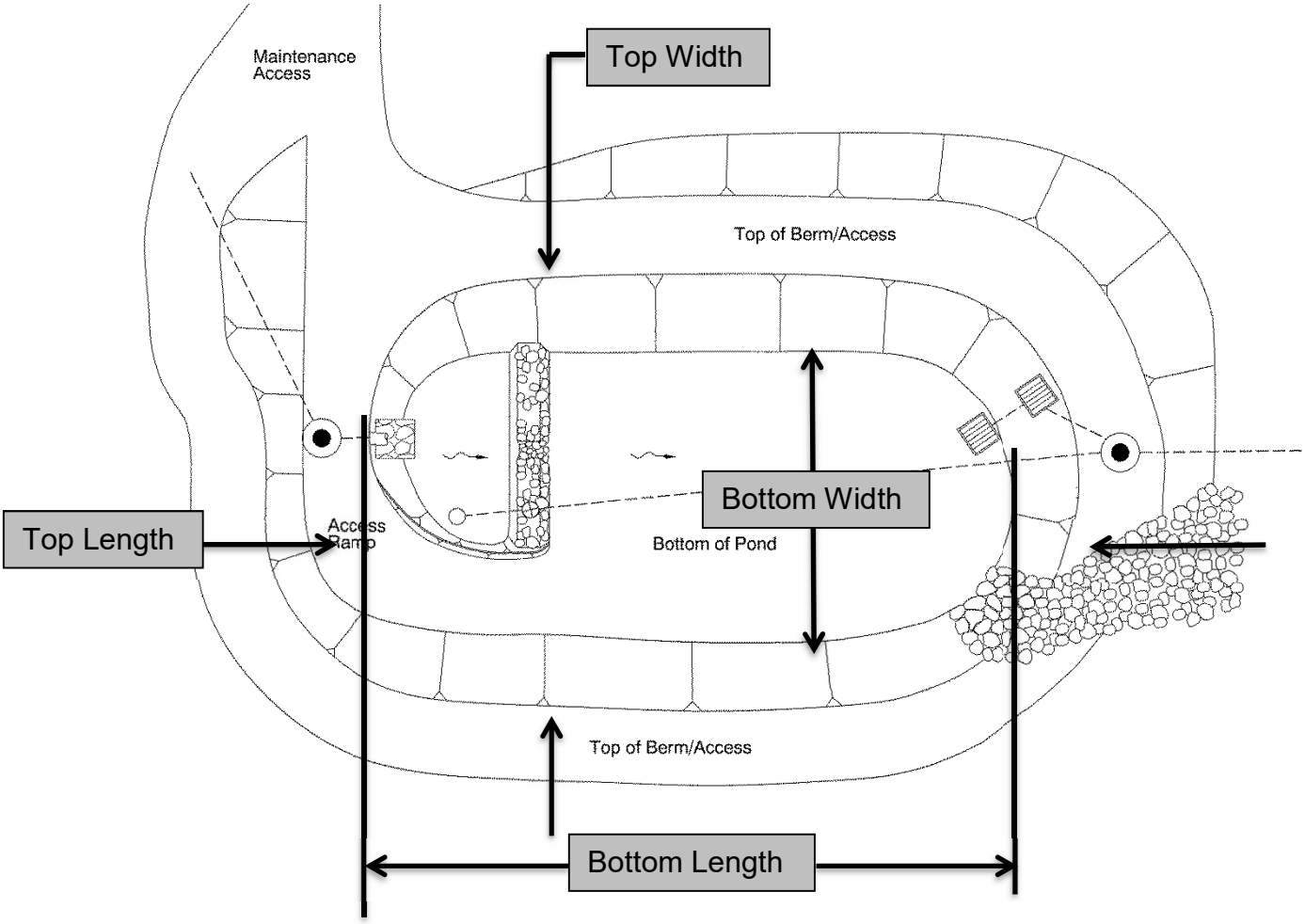

**Figure 2: Facility location map**

## 4. Facility Summary

The pond size is based on storage volume, the bottom and top surface areas and the depth are used for this measurement.

The bottom area and top area of the pond is:

| Bottom Area (sq. ft.) | Top Area (sq. ft.) |
|---|---|
| 12.5 | 315 |

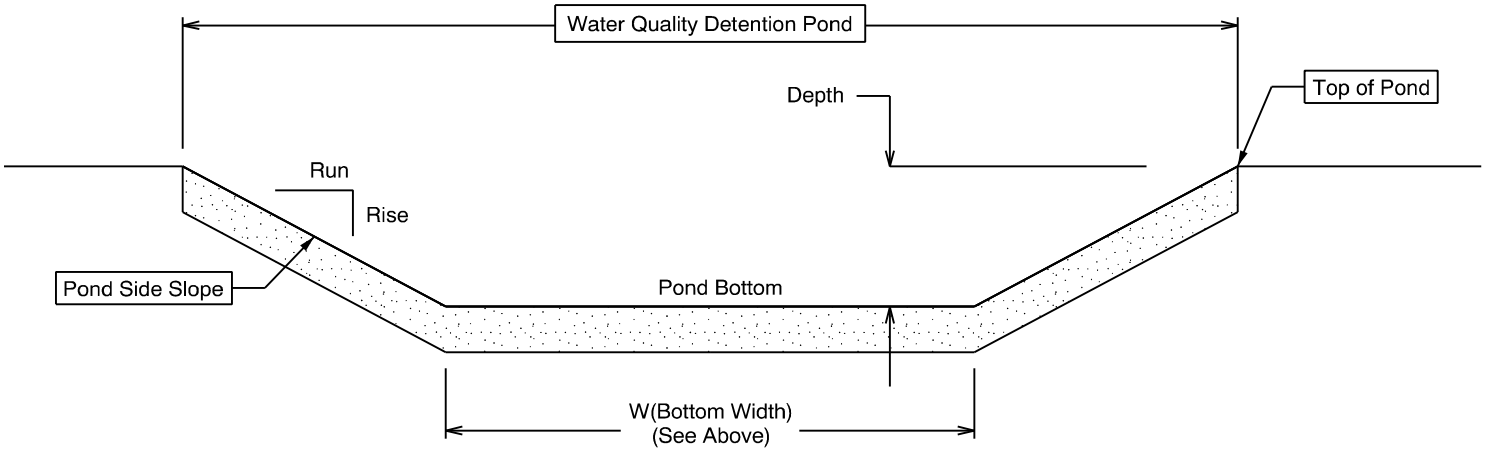


The depth of the pond is the vertical distance measured from the bottom of the pond to the top. The slope of the pond sides is presented by a vertical distance (rise) followed by the horizontal distance (run).

Depth and side slopes:

| Depth (feet) |
|---|
| 2.0 |

| Side Slope | |
|---|---|
| Rise (feet) | 1.0 |
| Run (feet) | 4.0 |




**Site Specific Information:** Stormwater flows south along the west curbline and outfalls into the pond via the riprap channel at the end of the curbline.

## 5. Facility Access

Maintenance access to the facility:

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



**Figure 3: [insert post construction facility access photo and caption text]**

## 6. Operational Components / Maintenance Items

### Classification and Standard Operational (Op) Plan:

This facility is classified as a:

| ☐ Detention Pond (Op Plan A) | ☒ WQ Bioretention Pond (Op Plan B) | ☐ WQ Extended Detention Dry Pond (Op Plan C) | ☐ WQ Detention Pond/Biofiltration Swale Combo (Op Plan D) |
|---|---|---|---|
| **A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A,B,C,D) are provided in the Standard Operation Manual.** | | | |

See Appendix A for the site specific operational plan.

### Key Features/Items:

This facility is classified as a:

| ☒ Dry Pond | ☐ Wet Pond |
|---|---|
| The pond is wet during storm events and dries during periods of no precipitation. | The pond has constant presence of water year round. A portion of the pond dries during periods of no precipitation. |

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 pond. High flows are diverted around the pond using a bypass component |

This facility includes a **proprietary structure(s)**:

| ☒ No | ☐ Yes |
|---|---|
| There are no proprietary structures associated with this facility. | A proprietary structure is used in the operation of this facility. |

### Operational Components

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 Ponds (implemented Month YYYY) 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 in the table below.

| Table 1: Stormwater Pond Components | | ID # |
|---|---|---|
| **Upstream Manholes/Structures** | | |
| Pre-treatment Manhole | ☐ | **P1** |
| Water Quality Manhole | ☐ | **P2** |
| Flow Splitter Manhole | ☐ | **P3** |
| Standard Manhole | ☐ | **P4** |
| Sediment Basin/Forebay | ☐ | **P5** |
| Forebay Dewatering Riser Pipe (outlet) | ☐ | **P6** |
| **Facility Inlet** | | |
| Pavement Sheet Flow | ☐ | **P7** |
| Inlet Pipe(s) | ☐ | **P8** |
| Open Channel Inlet | ☒ | **P9** |
| Riprap Pad (Energy Dissipater) | ☒ | **P10** |
| **Ground Cover** | | |
| Grass Bottom | ☒ | **P11** |
| Grass Side Slopes | ☒ | **P12** |
| Granular Drain Rock | ☐ | **P13** |
| Plantings | ☐ | **P14** |
| **Underground Components** | | |
| Geotextile Fabric | ☐ | **P15** |
| Impermeable Liner | ☐ | **P16** |
| Water Quality Mix | ☐ | **P17** |
| Perforated Pipe | ☐ | **P18** |
| Bottom Marker (ex. Porous Pavers) | ☐ | **P19** |

| | | |
|---|---|---|
| **Flow Spreader** | | |
| Anchored Board (midpoint of pond or every 50 feet along pond bottom) | ☐ | **P20** |
| Other | ☐ | **P21** |
| **Facility Outlet** | | |
| Catch Basin with Grate | ☐ | **P22** |
| Outlet Pipe(s) | ☐ | **P23** |
| Outlet/Flow Control Structure | ☐ | **P24** |
| Auxiliary Outlet | ☒ | **P25** |
| Hazmat Control Valve | ☐ | **P26** |
| **Outfall Type** | | |
| Waterbody (**C**reek/**L**ake/**O**cean) | ☒ **C**<br>☐ **L**<br>☐ **O** | **P27** |
| Ditch | ☐ | **P28** |
| Storm Drain System | ☐ | **P29** |
| **Outfall Components** | | |
| Riprap Pad | ☒ | **P30** |
| Riprap Bank Protection | ☒ | **P31** |

## 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 in the Maintenance Guide for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

### Maintenance Guide/Maintenance Actions

The Maintenance Guide 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 Ponds:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 2 (Maintenance of Stormwater Ponds): Contains maintenance information for ponds

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

There are access limitations for this facility:

| ☐ No | ☒ Yes |
|---|---|
| **There are no porous pavers installed in this pond.** | |

Ponds are designed to allow equipment access along the bottom if an access grid is installed. If an access grid is NOT installed, vehicles entering the pond can create depressions (tire ruts), damage vegetation, or damage structural components (e.g. flow spreaders). These conditions may result in poor treatment and drainage performance.

If no access grid then: Equipment wheels should be kept on the tops and side slopes. Mower arms may be run along the pond bottom.

## 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

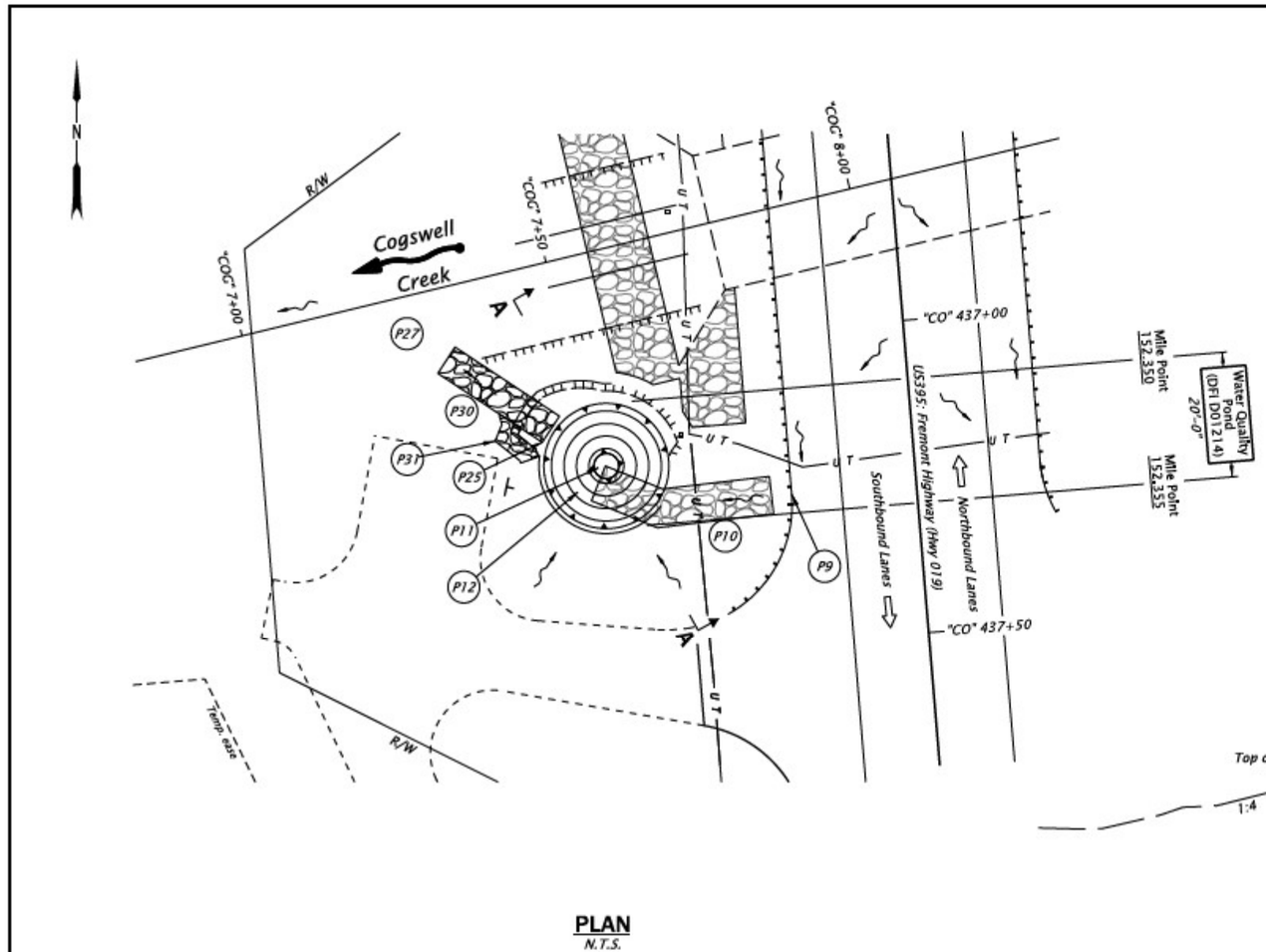
Contact any of the following for more detailed information about management of waste materials found on site:

| | |
|---|---|
| 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:

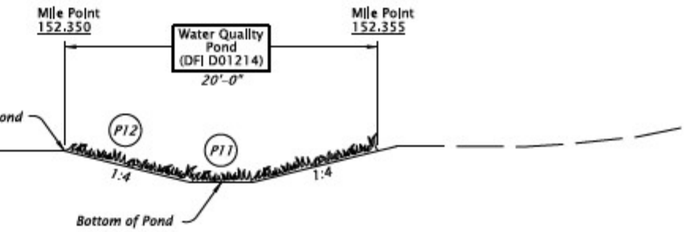
**Operational Plan: DFI D01214**




PLAN
N.T.S.

## LEGEND

- X# — Facility Component (see table 1 in O&M Manual)
- Inlet
- Conveyance Direction
- Pavement / Facility Flow Path
- Traffic Flow Direction
- Facility Marker




SECTION A-A
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 1 of 1

Prepared By: Wade J. Costney

Drafted By: Michael L. Graves

DFI D01214
MAINTENANCE DISTRICT #11 HWY 019
WATER QUALITY POND
FREMONT HIGHWAY MP 152.35
LAKE COUNTY

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# B Appendix B – Project Contract Plans

## Contents:

**Site Specific Subset of Project Contract Plan 52V-097**

52V-097

| INDEX OF SHEETS | |
|---|---|
| SHEET NO. | DESCRIPTION |
| A01 | Title Sheet |
| A02 | Index Of Sheets Cont. & Std. Dwg. Nos. |
| A03 & A04 | Survey Control Data |

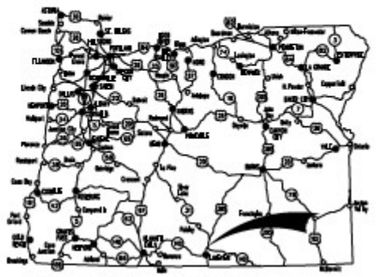
STATE OF OREGON
# DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

**GRADING, DRAINAGE, STRUCTURE & PAVING**

# US395: COGSWELL CREEK & CROOKED CREEK CULVERTS PROJECT

## FREMONT HIGHWAY

**LAKE COUNTY**
**SEPTEMBER 2019**



*Overall Length Of Project – 0.37 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.)

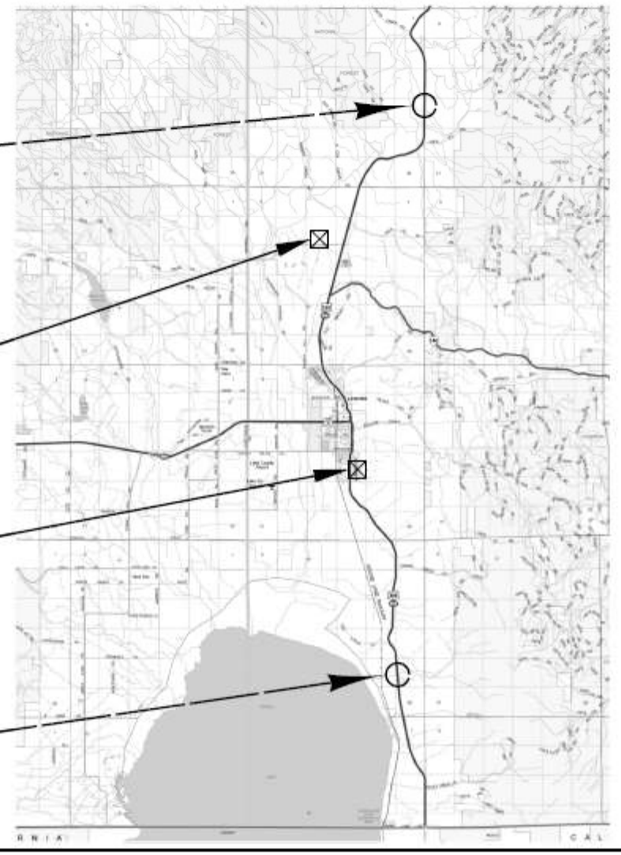
LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

CROOKED CREEK
**STA. "CR" 633+10 to STA. "CR" 642+58**
**M.P. 130.40 to M.P. 130.58**

**LAKE COUNTY LANDFILL**
**PROSPECTIVE DISPOSAL SITE**
**(M.P. 136.57)**

**KADRMAS QUARRY**
**PROSPECTIVE DISPOSAL SITE**
**(M.P. 145.07)**

COGSWELL CREEK
**STA. "CO" 432+40 to STA. "CO" 442+50**
**M.P. 152.26 to M.P. 152.45**



T. 37 S., R. 20 E., W.M.
T. 37 S., R. 21 E., W.M.
T. 40 S., R. 20 E., W.M.

OREGON TRANSPORTATION COMMISSION

| | |
|---|---|
| Tammy Baney | CHAIR |
| Bob Van Brocklin | COMMISSIONER |
| Alando Simpson | COMMISSIONER |
| Julie Brown | COMMISSIONER |
| Martin Callery | COMMISSIONER |
| Paul Mather | DEPUTY 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.

Approving Authority: _____
Signature & date

Russel G. Frost, Interim Region 4 TCM
Print name and title

_____
Concurrence by ODOT Chief Engineer

**US395: COGSWELL CREEK & CROOKED CREEK CULVERTS PROJECT**
FREMONT HIGHWAY
LAKE COUNTY

| FEDERAL HIGHWAY ADMINISTRATION | PROJECT NUMBER | SHEET NO. |
|---|---|---|
| OREGON DIVISION | S019(025) | A01 |

PE002760-000

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FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

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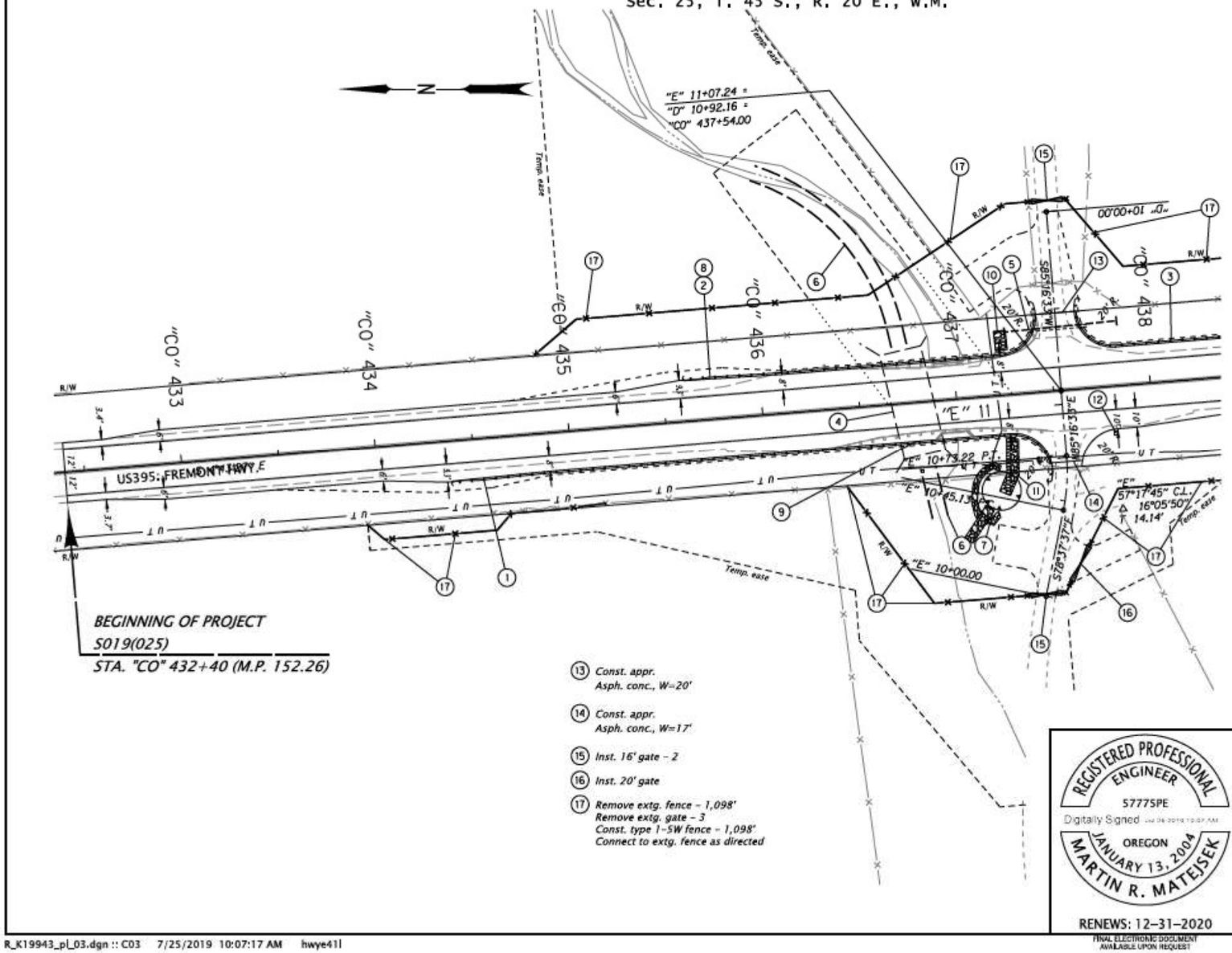
52V-097

# Cogswell Creek Site

Sec. 25, T. 45 S., R. 20 E., W.M.




1. Sta. "CO" 434+38.73 to Sta. "CO" 437+46, Rt.
   Remove extg. guardrail
   Const. 31" guardrail – 275' (Type 2A)
   Const. guardrail terminal, non-flared
   Test level – 3, L=50', preferred grading
   W=1', E=2'
   Const. anchor (Type 1 modified) – 2
   Inst. end piece (Type B)
   (For details, see sht. BB01)
2. Sta. "CO" 435+61.51 to Sta. "CO" 437+44, Lt.
   Remove extg. guardrail
   Const. 31" guardrail – 150' (Type 2A)
   Const. guardrail terminal, non-flared
   Test level – 3, L=50', preferred grading
   W=1', E=2'
   Const. anchor (Type 1 modified) – 2
   Inst. end piece (Type B)
   (For details, see sht. BB01)
3. Sta. "CO" 437+64 to Sta. "CO" 438+97.58, Lt.
   Const. 31" guardrail – 100' (Type 2A)
   Const. anchor (Type 1 modified) – 2
   Inst. end piece (Type B)
   (For details, see sht. BB01)
4. Structure no. 23743
   (For dwg. no., see sht. A02)
5. Sta. "CO" 437+27.26, 32.33' Lt. to
   Sta. "CO" 437+85.24, 33.39 Lt.
   Remove pipe
   Inst. 24" culv. pipe – 58'
   5' depth
   Const. sloped end – 2
6. Channel change
   Waterway enhancement
   (For dwg. no. see sht. A02)
7. Bioretention Pond
   (For dwg. no. see sht. A02)
8. Sta. "CO" 435+75 to Sta. "CO" 437+24, Lt.
   Const. drainage curb – 150'
9. Sta. "CO" 436+23 to Sta. "CO" 437+24, Rt.
   Const. drainage curb – 101'
10. Sta. "CO" 437+24.09, Lt.
    Const. loose riprap (Class 50) – 5 cu. yd.
11. Sta. "CO" 437+27.23, Rt.
    Const. loose riprap (Class 50) – 10 cu. yd.
12. Sta. "CO" 437+80.25, 24.12 Rt.
    Inst. single mailbox support
    Const. conc. collar
    (See dwg. nos. RD100 & RD101)
13. Const. appr.
    Asph. conc., W=20'
14. Const. appr.
    Asph. conc., W=17'
15. Inst. 16' gate – 2
16. Inst. 20' gate
17. Remove extg. fence – 1,098'
    Remove extg. gate – 3
    Const. type 1-SW fence – 1,098'
    Connect to extg. fence as directed

REGISTERED PROFESSIONAL ENGINEER
57775PE
Digitally Signed
OREGON
JANUARY 13, 2004
MARTIN R. MATEISEK
RENEWS: 12-31-2020
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

**US395; COGSWELL CREEK & CROOKED CREEK CULVERTS PROJECT**
FREMONT HIGHWAY
LAKE COUNTY

Designer: Martin R. Mateisek — Reviewer: Brian D. Pasley
Drafter: Joseph J. Rodriguez — Checker: Wade A. Coatney

GENERAL CONSTRUCTION — SHEET NO. C03

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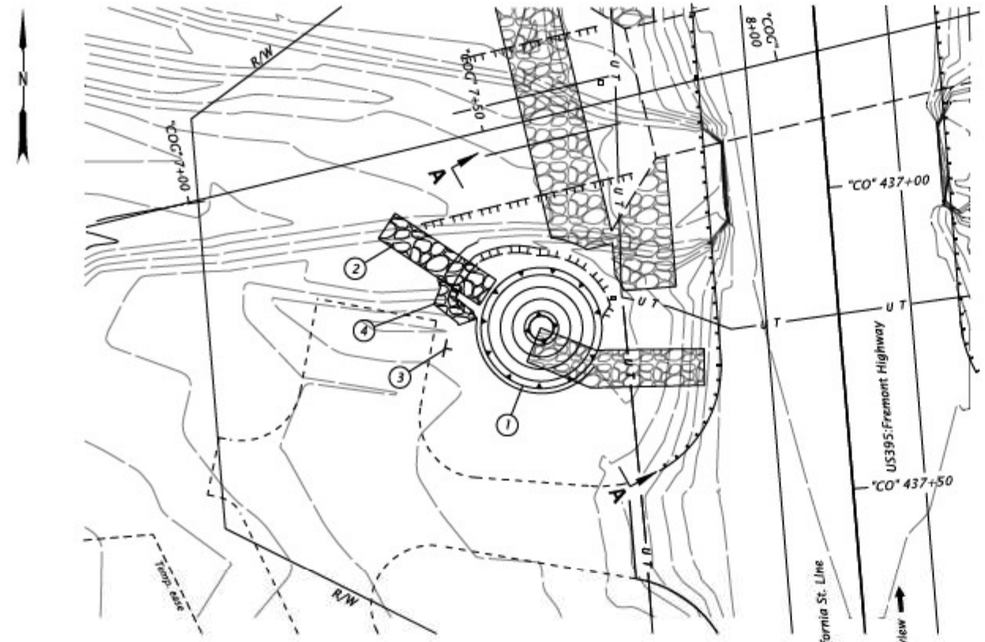


**PLAN**
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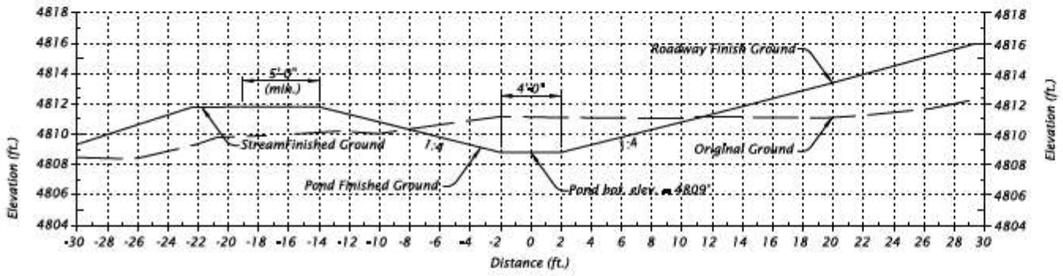
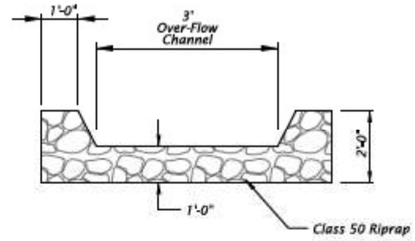



**SECTION A-A**
*N.T.S.*

***CONSTRUCTION NOTES:***

1. *Const. Bioretention Pond*
   *Exc. - 12 cu.yds.*
   *Emb. - 3 cu.yds.*
2. *Construct riprap overflow channel*
   *Channel width = 3'*
   *Length = 20'*
   *I.E. = 4810.80'*
   *Loose Riprap (Class 50) - 7 cu. yds.*
   *(For details, see this sht.)*
3. *Inst. Type S2 Marker*
   *DFI no. D01214*
   *(See std. dwg. no RD399)*
4. *Const. riprap berm protection*
   *Depth - 1'*
   *Loose Riprap (Class 50) - 5 cu. yds.*




**RIPRAP OVERFLOW CHANNEL**
*N.T.S.*

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OREGON
MARCH 12, 2013
WADE JOSH COATNEY
RENEWS: 12-31-2019
FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

OREGON DEPARTMENT OF TRANSPORTATION

COGSWELL CR_HWY 19

**US395; COGSWELL CREEK & CROOKED CREEK CULVERTS PROJECT**
FREMONT HIGHWAY
LAKE COUNTY

Designer: Austin G. Kleinberg | Reviewer: Wade J. Coatney
Drafter: Mikhael L. Graves | Checker: Wade R. Holladay

DFI/TSSU NO. D01214

**STORMWATER FACILITY PLAN**

SHEET NO. HA01

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