OPERATION & MAINTENANCE MANUAL

DFI No. : D00677
Facility Type: Water Quality Biofiltration Swale

[April, 2018]

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00677**
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Number) 46V-022
Location:	District: 2B
	Highway No.: 075
	Mile Post: 1.23;1.31 (beg./end)
	Description: This facility is located on the south side of the Sunrise Corridor.

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

4. Engineer of Record: Consultant Designer – [OBEC Consulting Engineers, Amy Jones, 971-634-2005]

Facility construction: [2014]
Contractor: Kerr Contractors, Inc.

5. Storm Drain System and Facility Overview

A water quality swale is a flat-bottomed open channel designed to treat stormwater runoff from highway pavement areas. This type of facility is

lined with grass. Treatment by trapping sedimentation occurs when stormwater runoff flows through the grass.

This biofiltration swale is designed to treat runoff from the water quality design storm and provide infiltration prior to entering the storm drain pipe system that outfalls to extended detention pond D00676 prior to entering Dean Creek. It is located on the south side of the Sunrise Corridor at the base of the fill slope.

There is a 2-foot flat bottom roadside ditch and 3 storm drain pipes that convey stormwater runoff from paved areas along the Sunrise Corridor Alignment to the swale. See photo 1 and Points A, B, C, and D in Appendix A.

Runoff exits the swale by way of a Type “M-E” inlet connected to a 21-inch storm drain outlet pipe. See Point E on the Operational Plan in Appendix A.

The storm drain outlet pipe from the inlet connects to a pipe system that drains to extended detention pond D00676 prior to entering Dean Creek. The receiving waterway for the outlet pipe is Dean Creek.

A. Maintenance equipment access:
   The swale and outlet structure can be accessed directly from the shoulder of the Sunrise Corridor.

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: a view of water quality swale, looking Southeast.

6. Facility Haz Mat Spill Feature(s)

The water quality biofiltration swale can be used to store a volume of liquid by blocking the 21-inch diameter outlet pipe with the Type “M-E” inlet located at the outfall structure at the west end of the swale. A barrier such as a metal plate over the metal grate on the inlet could be used to prevent liquid from draining from the swale.

7. Auxiliary Outlet (High Flow Bypass)

There is no auxiliary outlet provided for the water quality swale. All runoff can be conveyed through the 21-inch outlet pipe.

The auxiliary outlet feature for this facility is:

☐ Designed into facility

☒ Other, as noted below
Overflow runoff will overtop the swale and sheet flow to the south.

8. 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

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual:

- ☒ 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:

9. 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

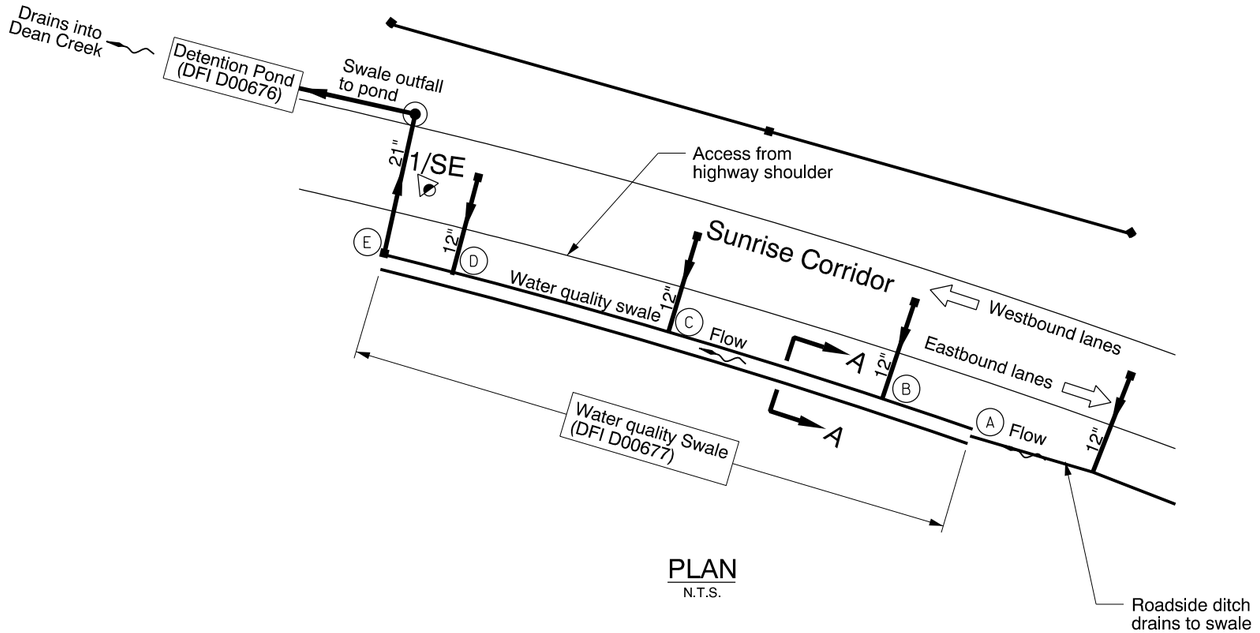
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 731-8290
ODEQ Northwest Region Office	(503) 229-5263

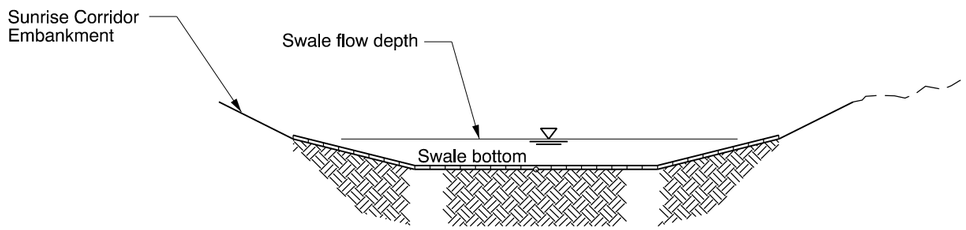
Appendix A

Content:

- **Operational Plan and Profile Drawing**



PLAN
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- Photo Location / Direction
- (A) Roadside ditch outfall to swale
- (B) 12" Storm drain pipe outlet
- (C) 12" Storm drain pipe outlet
- (D) 12" Storm drain pipe outlet
- (E) Type "M-E" inlet and 21" storm drain pipe outfall
- Manhole
- Inlet
- Storm Pipe (Facility)
- Storm Pipe (does not drain to swale)
- Storm Pipe (Existing)
- Conveyance Direction
- Pavement / Facility Flow Path

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Amy Jones

Drafted By: Amy Jones

DFI D00677
MAINTENANCE DISTRICT 2B HWY 75
WATER QUALITY SWALE
SUNRISE CORRIDOR MP 1.23 TO 1.31
CLACKAMAS COUNTY

Appendix B

Content:

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

46V-022

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

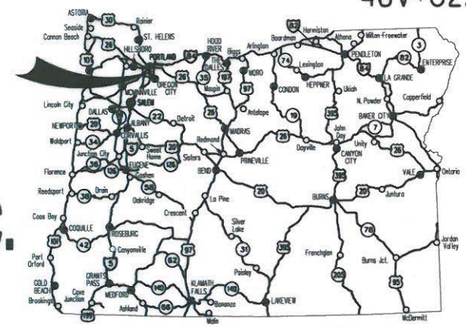
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS & ROADSIDE DEVELOPMENT

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.

CLACKAMAS HWY.

CLACKAMAS COUNTY
MARCH 2013

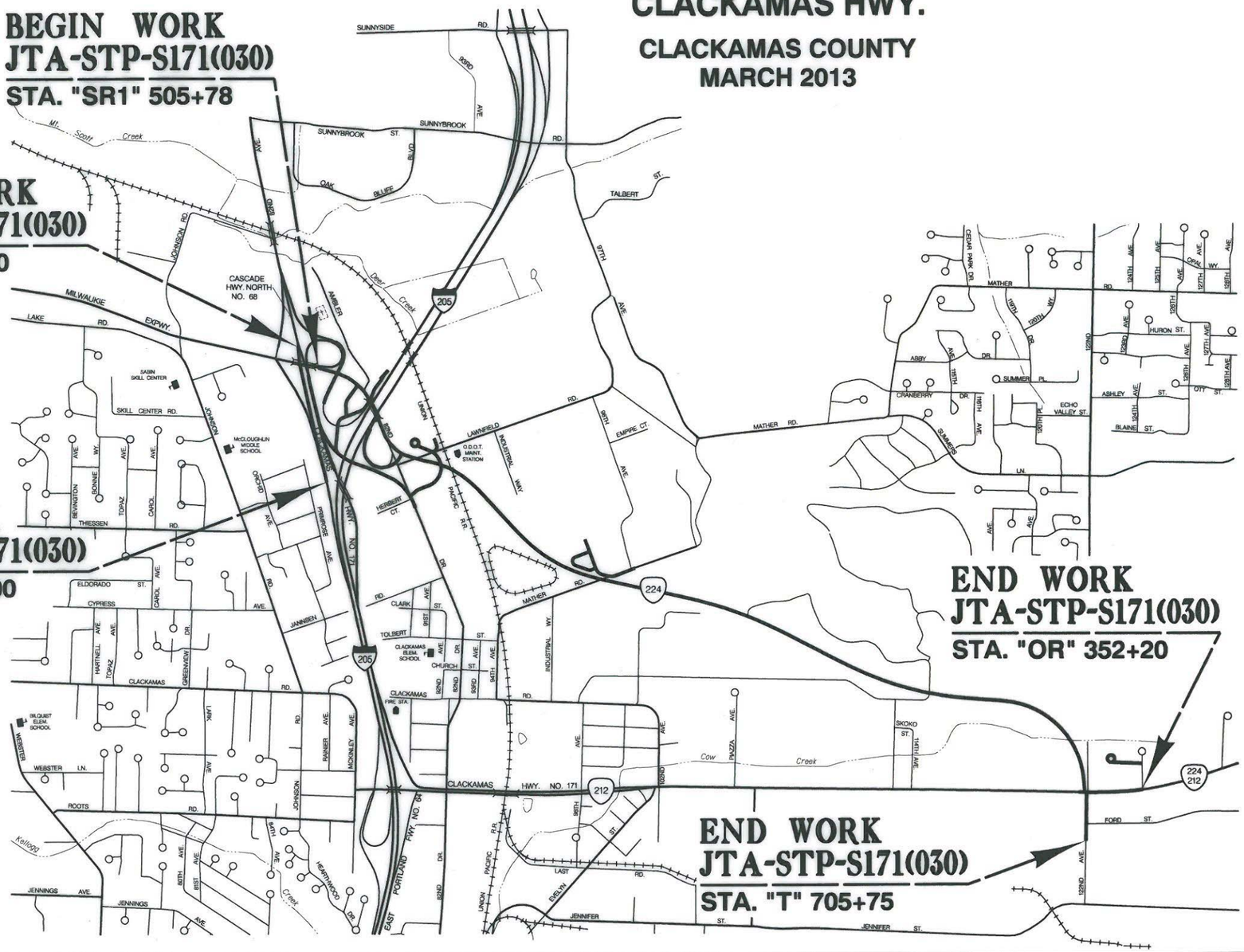
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.



Overall Length Of Project - 3.90 Miles

BEGIN WORK
JTA-STP-S171(030)
STA. "SR1" 505+78

BEGIN WORK
JTA-STP-S171(030)
STA."G" 463+00



END WORK
JTA-STP-S171(030)
STA. "G" 492+00

END WORK
JTA-STP-S171(030)
STA. "OR" 352+20

END WORK
JTA-STP-S171(030)
STA. "T" 705+75

N

SEC. 4, 5, 9, 10, 11
T. 2 S., R. 2 E., W.M.

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

OREGON TRANSPORTATION COMMISSION

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

PLANS PREPAIRED FOR
OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
www.obec.com
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920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

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: _____ 12/31/12
Signature & date

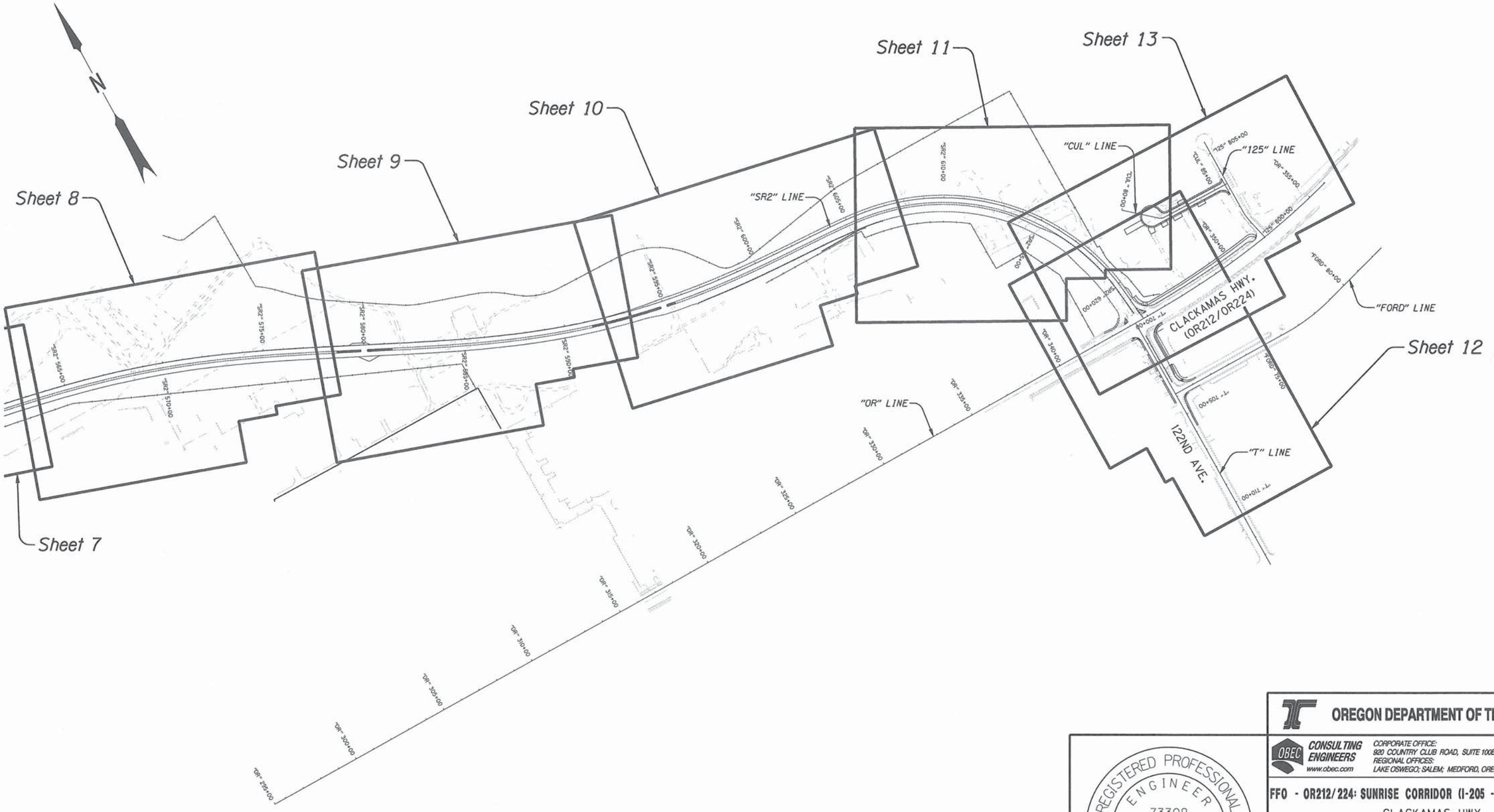
LAWRENCE H. FOX - PROJECT MANAGER
Print name and title

Concurrence by ODOT Chief Engineer

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	JTA-STP-S171(030)	1

File No.



REGISTERED PROFESSIONAL ENGINEER
73309
OREGON
MAY 13, 2003
TOM METCALF
EXPIRES: 12/31/14

OREGON DEPARTMENT OF TRANSPORTATION

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FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.

CLACKAMAS HWY.

CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
Designed By - Jason Rahm/Alissa Loberg
Drafted By - Serban Dinca/Brittney Zornado

SHEET LAYOUT PLAN

SHEET NO. 1B-2

Sec. 10, T. 2 S., R. 2 E., W.M.

46V-022

"SR2" 565+00

"SR2" 570+00

"SR2" 575+00

"SR2" LINE

N

8"-260'

8"-249'

24"-373'

24"-198'

12"-31'

12"-101'

12"-34'

12"-34'

21"-94'

12"-67'

12"-66'

12"-67'

12"-68'

12"-70'

12"-71'

12"-73'

12"-75'

12"-77'

12"-80'

R/W

R/W

R/W

DFI 00677
Water Quality Swale
SWM 09a

LEGEND

Remove/abandon pipe

Remove inlet

No work area

REGISTERED PROFESSIONAL ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/2013

OREGON DEPARTMENT OF TRANSPORTATION

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www.obec.com

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FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
Designed By - Ben Wewerka/Amy Jones
Drafted By - Serban Dinca/Brittney Zornado

DRAINAGE & UTILITIES

SHEET NO. 8C

File No.

c:\obec\pwobec01\dms08150\15555f_8C.dr6 12/30/2012 2:44:51 PM

(1) *Abandon pipe*

(2) *Remove inlet - 3*

(3) *Sta. "SR2" 563+76.87, 55.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 34'
5' depth

(4) *Sta. "SR2" 564+79.23, 55.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 34'
5' depth

(5) *Sta. "SR2" 564+78.58, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 101'
5' depth

(6) *Sta. "SR2" 563+77.17, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 31'
10' depth

(7) *Sta. "SR2" 565+76.91, 85.31' Rt.*
Const. type "M-E" inlet
Inst. 21" storm sew. pipe - 94'
10' depth
(See drg. no. RD368)

(8) *Sta. "SR2" 565+75.17, 8.7' Lt.*
Const. storm manhole 60" dia.
Inst. 24" storm sew. pipe - 198'
10' depth

(9) *Sta. "SR2" 563+77.24, 8.71' Lt.*
Const. storm manhole 60" dia.

(10) *See sht. 7D, note 4*
Inst. 24" storm sew. pipe

(11) *Sta. "SR2" 570+47.65, 66.5' Lt.*
Const. type "G-2" inlet
Inst. 8" storm sew. pipe - 249'
5' depth
Connect to extg. storm sew. pipe

(12) *Sta. "SR2" 568+02.26, 57.8' Lt.*
Const. type "G-2" inlet
Inst. 8" storm sew. pipe - 260'
5' depth

(13) *Sta. "SR2" 565+45.53, 62.8' Lt.*
Const. type "G-2" inlet
Connect to extg. storm sew. pipe

(14) *Sta. "SR2" 566+25.53, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 67'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(15) *Sta. "SR2" 567+76.03, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 66'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(16) *Sta. "SR2" 569+26.74, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 67'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(17) *Sta. "SR2" 570+78.02, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 68'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(18) *Sta. "SR2" 572+29.09, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 70'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(19) *Sta. "SR2" 573+79.01, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 71'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(20) *Sta. "SR2" 575+02.17, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 73'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(21) *Sta. "SR2" 576+02.73, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 75'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(22) *Sta. "SR2" 577+02.53, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 77'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(23) *Sta. "SR2" 578+02.56, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 80'
5' depth
Const. sloped end
Const. riprap basin
(For details, see sht. GJ-22)

(24) *Const. water quality swale, D00677 (SWM09a)*
Inst. facility field marker, type S1-2
Inst. facility field marker, type S2
(For details, see sht. GJ-12C)

(25) *Sta. "SR2" 569+90 to Sta. "SR2" 580+25, Rt.*
Const. ditch
2' flat bottom, 1:4 and 1:2 slopes

REGISTERED PROFESSIONAL ENGINEER
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NOVEMBER 14, 2009
AMY L. JONES
EXPIRES: 06/30/2013

OREGON DEPARTMENT OF TRANSPORTATION

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Design Team Leader - Tom Metcalf
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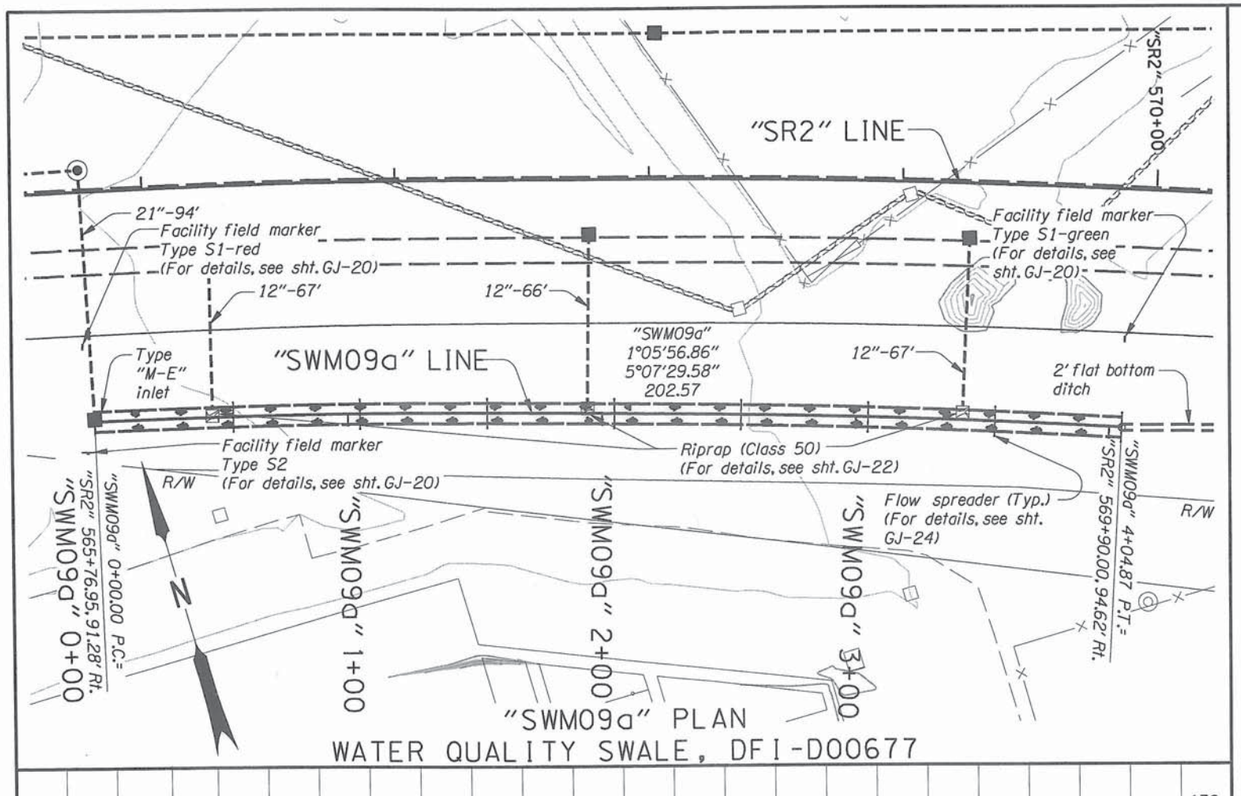
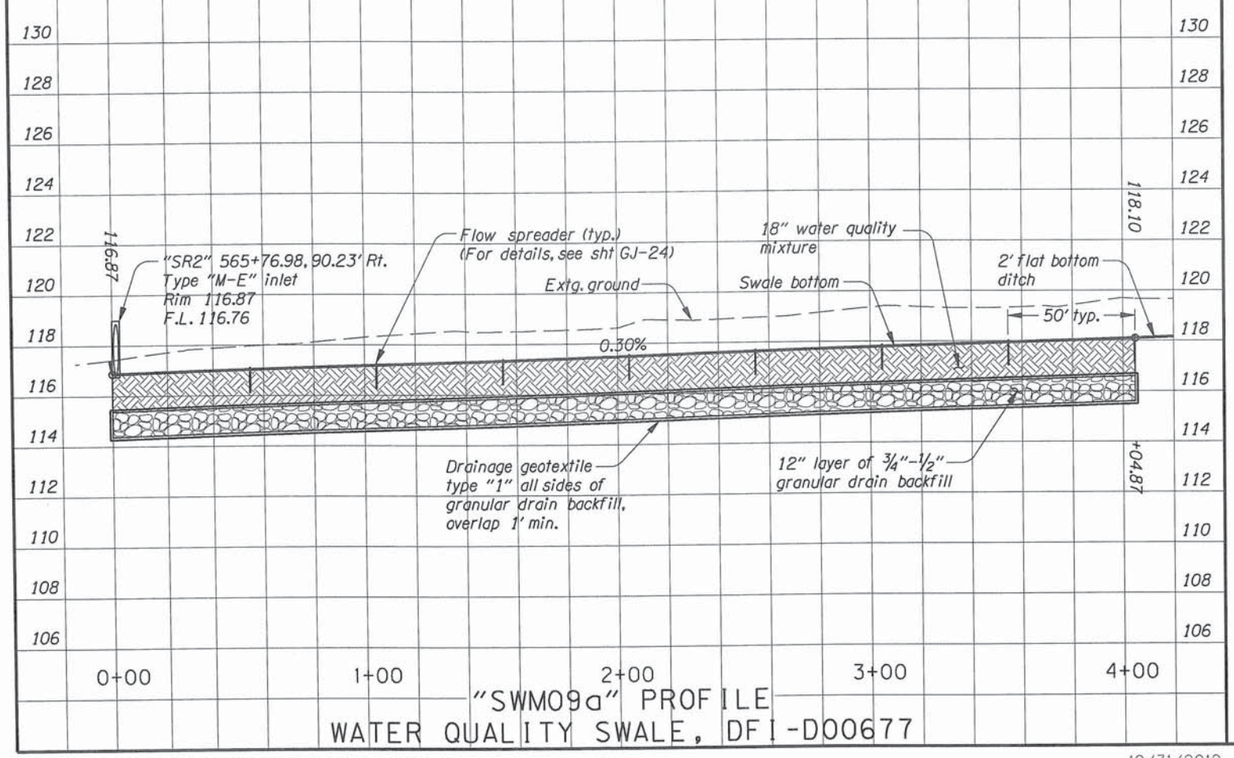
Drafted By - Serban Dinca/Brittney Zornado

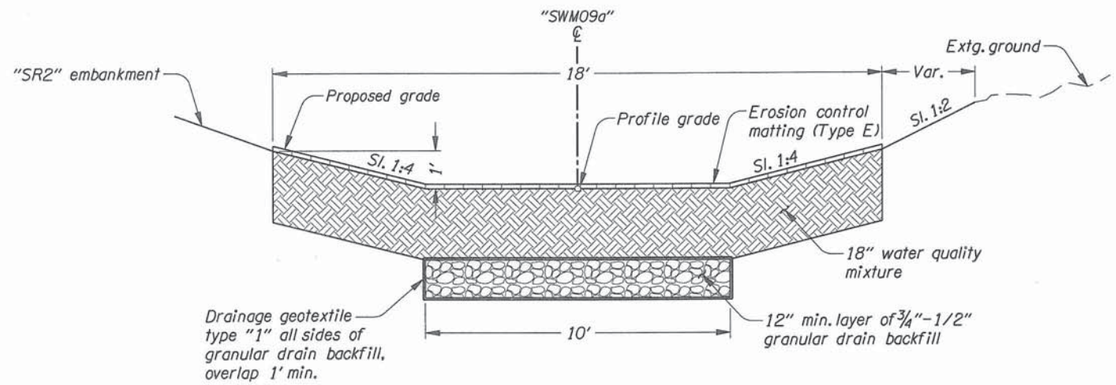
DRAINAGE & UTILITIES NOTES

SHEET NO. 8D

File No.







"SWM09a" WATER QUALITY SWALE TYPICAL SECTION, DFI-D00677

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OREGON DEPARTMENT OF TRANSPORTATION

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CLACKAMAS HWY.

CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
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STORMWATER DETAILS

SHEET NO. GJ-12C

File No.