OPERATION & MAINTENANCE MANUAL

DFI No. : D00125
Facility Type: Detention Pond/Water Quality Biofiltration Swale Combo

June, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00125**
Facility Type:	Detention Pond/Water Quality Biofiltration Swale Combo
Construction Drawings:	(V-File Number) 40V-057
Location:	District: 2B (Old 2A)
	Highway No.: 029
	Mile Post: 16.18; 16.22 (beg./end)
	Description: This facility is located west of the intersection of Tualatin Valley Hwy 29 (OR-8) and N. 20th Ave in Cornelius, Oregon. Facility entry is obtained from an access road, running north-south between the N. Adair and E. Baseline Streets.

2. Facility Contact Information

Contact the Engineer of Record, Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

Geo-Environmental Senior Hydraulics Engineer (503) 986-3365.

3. Construction

Engineer of Record:	Consultant Designer – Otak, Pamela Wiedemann, (360)-737-9613
Facility construction:	2006
Contractor:	N/A

4. Storm Drain System and Facility Overview

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

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

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

This facility contains a water quality biofiltration swale (Photo 1, Point C in the Operational Plan in Appendix A) that lies adjacent to and feeds a detention pond (Point B, Photo 1). It is located just west of the 20th Avenue and Hwy 29 (East Baseline Street, OR-8) intersection. Access is obtained from Baseline Street (Hwy 29) or Adair Street (Hwy 29) through an access road (Photo 4).

The swale (Photo 2) is approximately 100-feet long with a bottom width of 2-feet. The detention pond is also 100-feet in length. Water flows into the swale from a series of inlets along Adair Street (Hwy 29) into a sediment trap and headwall structure (Point D, Photo 3). The facility also receives sheet flow from both Baseline and Adair Street. After treatment through the swale, water flows enters the detention pond (Photo 4). The water then flows through the 24-inch detention pond outlet (Point F) and continues into a nearby stormwater piping system.

A. Maintenance equipment access:

The facility is located in between two branches of Highway 29 at the start of the City of Cornelius's one-way grid system (east side); namely the North Adair and the East Baseline Street segments. Access is obtained

through a maintenance access road west of the swale from Adair Street (Hwy 29) or E. Baseline Street (Hwy 29). There are removable bollards at each end of the access road that allows vehicle access.

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: Detention Pond/ WQ Swale Combo Looking East

Photo 2: Swale Bottom Looking East

Photo 3: Swale Inlet Looking West

Photo 4: Detention Pond Looking East

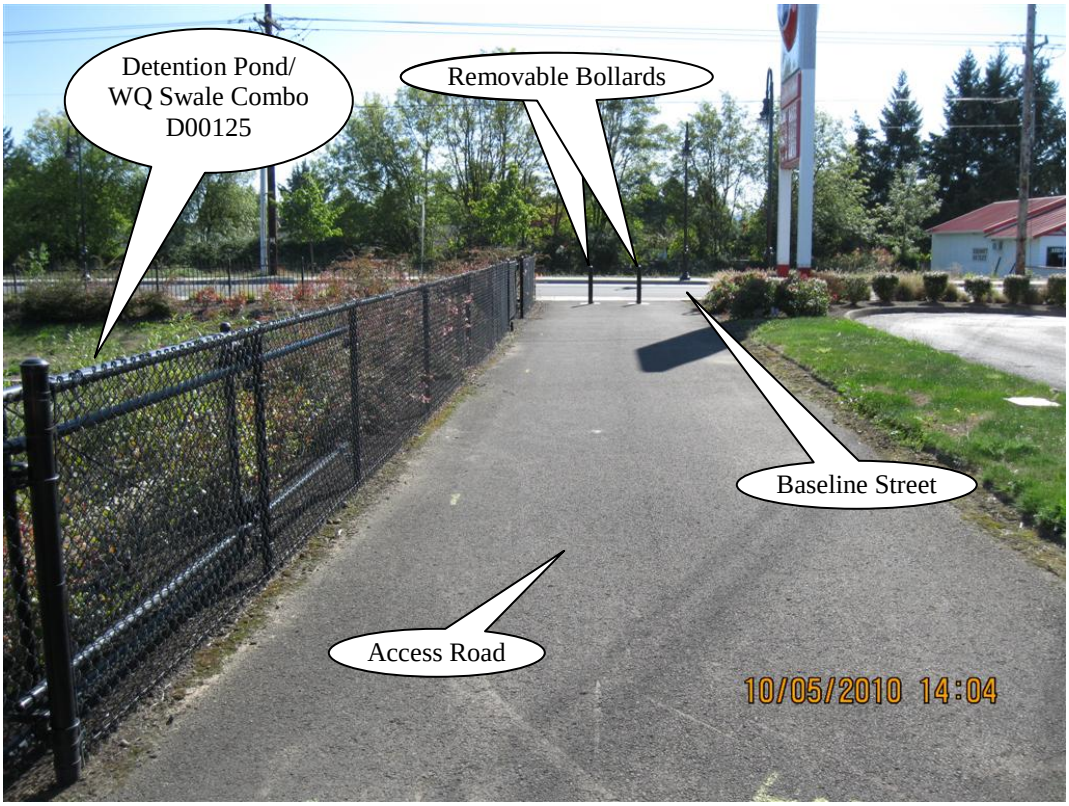


Photo 4: Maintenance Access Road Looking South

5. Facility Haz Mat Spill Feature(s)

This detention pond/ water quality biofiltration swale combo can be used to store a volume of liquid by blocking the 24-inch diameter outlet pipe located at the outlet of the detention pond (Photo 4). This pipe is noted as point F in the operational plan in appendix A

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure can not safely pass the projected high flows. Broad-crested spillway weirs and over flow risers are the two most common auxiliary outlets used in stormwater treatment facility design. The auxiliary outlet feature is either a part of the facility or an additional storm drain feature/structure.

The auxiliary outlet feature for this facility is:

☒ Designed into facility
There is a flow control manhole (Point G, Operational Plans, Appendix A) that is located just south of the 24-inch outlet to the detention pond. In the event of high flows, the water would overtop the high flow riser and flow to the southeast out of the 24-inch outlet pipe into the stormwater system.

☐ Other, as noted below

7. Maintenance Requirements

Routine maintenance table for non-proprietary stormwater treatment and storage/detention facilities have been incorporated into ODOT's Maintenance Guide. These tables summarize the maintenance requirements for ponds, swales, filter strips, bioslopes, and detention tanks and vaults. Special maintenance requirements in addition to the routine requirements are noted below when applicable.

The ODOT Maintenance Guide can be viewed at the following website:

http://www.oregon.gov/ODOT/HWY/OOM/MGuide.shtml

Maintenance requirements for proprietary structures, such as underground water quality manholes and/or vaults with filter media are noted in Appendix C when applicable.

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

requirements outlined in Appendix C when proprietary structure is selected below:

Mark as Required and always include Table 1:

- ☒ Table 1 (general maintenance)
- ☒ Table 2 (stormwater ponds)
- ☒ Table 3 (water quality biofiltration swales)
- ☐ Table 4 (water quality filter strips)
- ☐ Table 5 (water quality bioslopes)
- ☐ Table 6 (detention tank)
- ☐ Table 7 (detention vault)
- ☐ Appendix C (proprietary structure)
- ☐ Special Maintenance requirements:

Note: Special maintenance Requirements Require Concurrence from ODOT SR Hydraulics Engineer.

8. Waste Material Handling

Material removed from the facility is defined as waste by DEQ. Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options: http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml

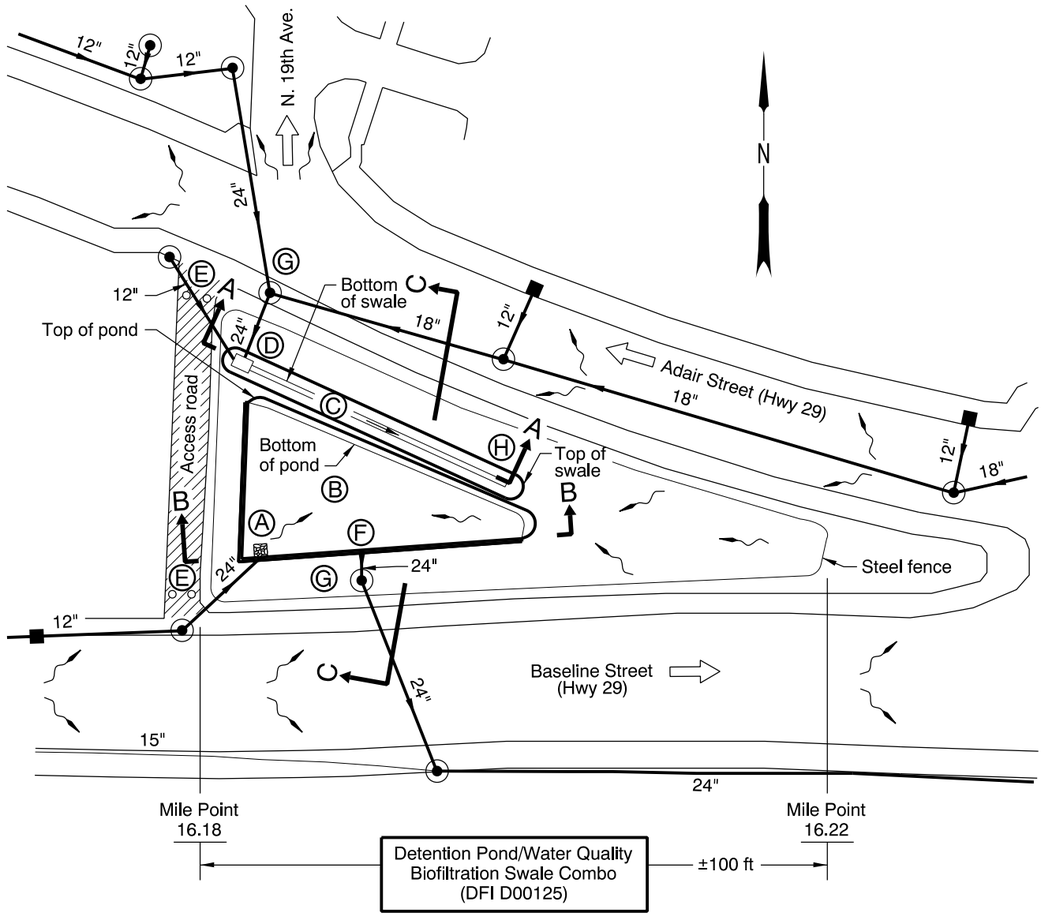
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 731-8304
ODEQ Northwest Region Office	(503) 229-5263

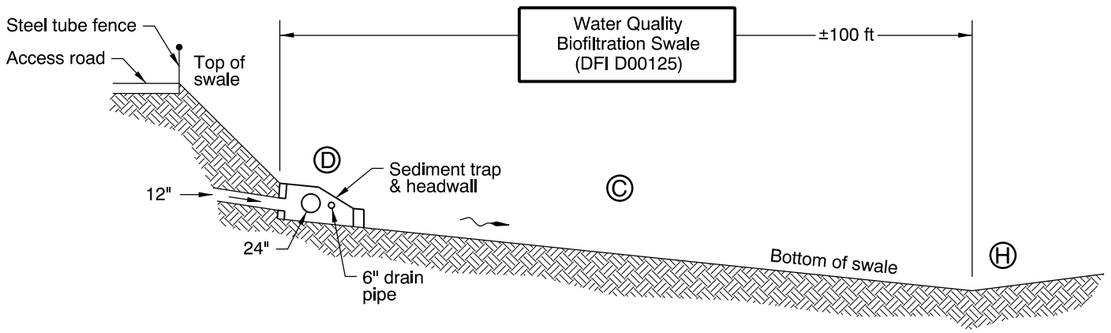
Appendix A

Content:

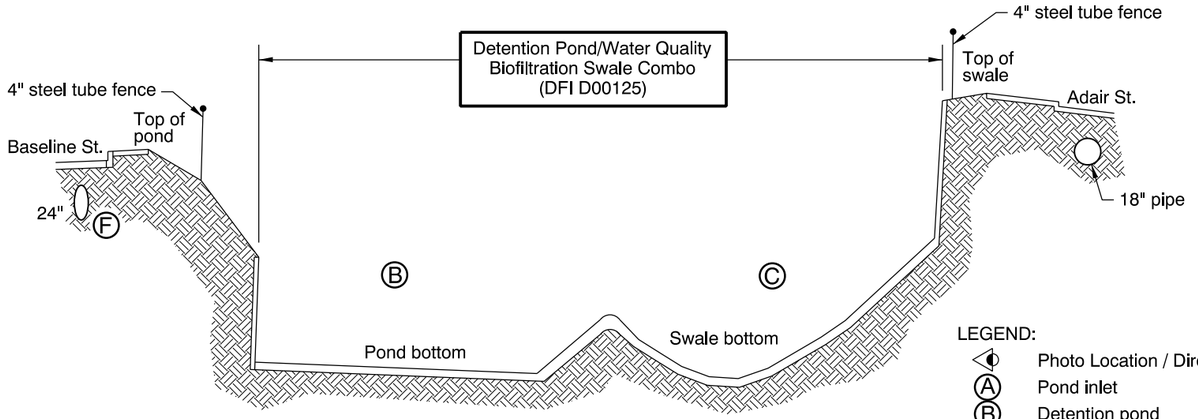
- **Operational Plan and Profile Drawing(s)**



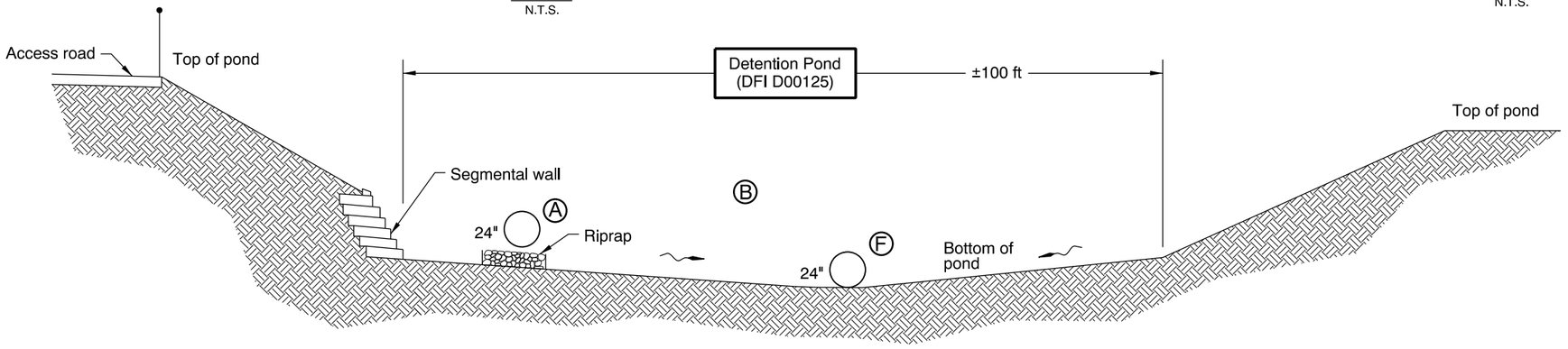
PLAN
N.T.S.



SECTION A-A
N.T.S.



SECTION C-C
N.T.S.



SECTION B-B
N.T.S.

LEGEND:

- Photo Location / Direction
- (A) Pond inlet
- (B) Detention pond
- (C) Swale
- (D) Swale inlet
- (E) Removeable bollards
- (F) Pond outlet
- (G) Flow control manhole
- (H) Swale outlet
- Access
- Manhole (and/or)
- Inlet (and/or)
- Traffic direction / Flow
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sheet 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

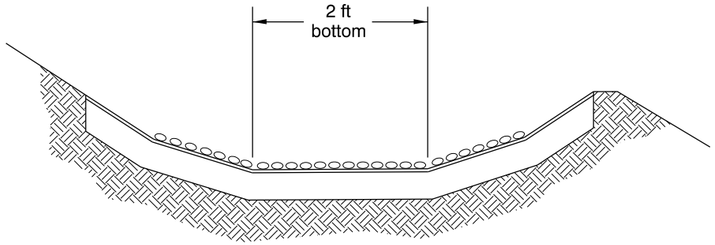
Prepared By: Craig Fox

Drafted By: Y. Garzenelli

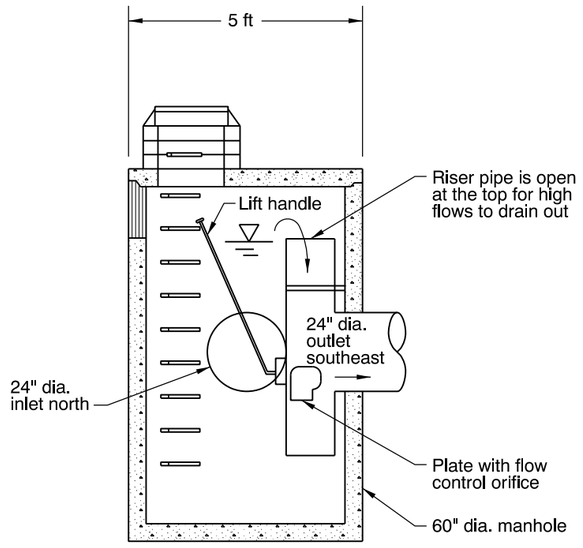
DFI D00125
MAINTENANCE DISTRICT 2B HWY 29
DETENTION POND/WQ SWALE
TUALATIN VALLEY MP 16.18-16.22
WASHINGTON COUNTY

Z:\Hydraulics\Hydraulics OM\Completed_Facility_Files\Dist_2B\Hwy_029\2B_029_D00125\Operational Plan\DFI_D00125.dgn :: Sheet 1/15/2014 4:09:25 PM hwyr33e

DFI_D00125.dgn



VEGETATED SWALE
N.T.S.



FLOW CONTROL MANHOLE DETAIL AT POINT Ⓖ
N.T.S.

Sheet 2 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Craig Fox

Drafted By: Y. Garzenelli

DFI D00125
MAINTENANCE DISTRICT 2B HWY 29
DETENTION POND/WQ SWALE
TUALATIN VALLEY MP 16.18-16.22
WASHINGTON COUNTY

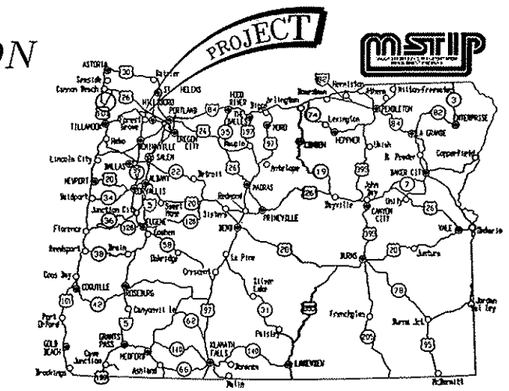
Appendix B

Content:

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

WASHINGTON COUNTY
DEPARTMENT OF LAND USE AND TRANSPORTATION

PLANS FOR PROPOSED PROJECT

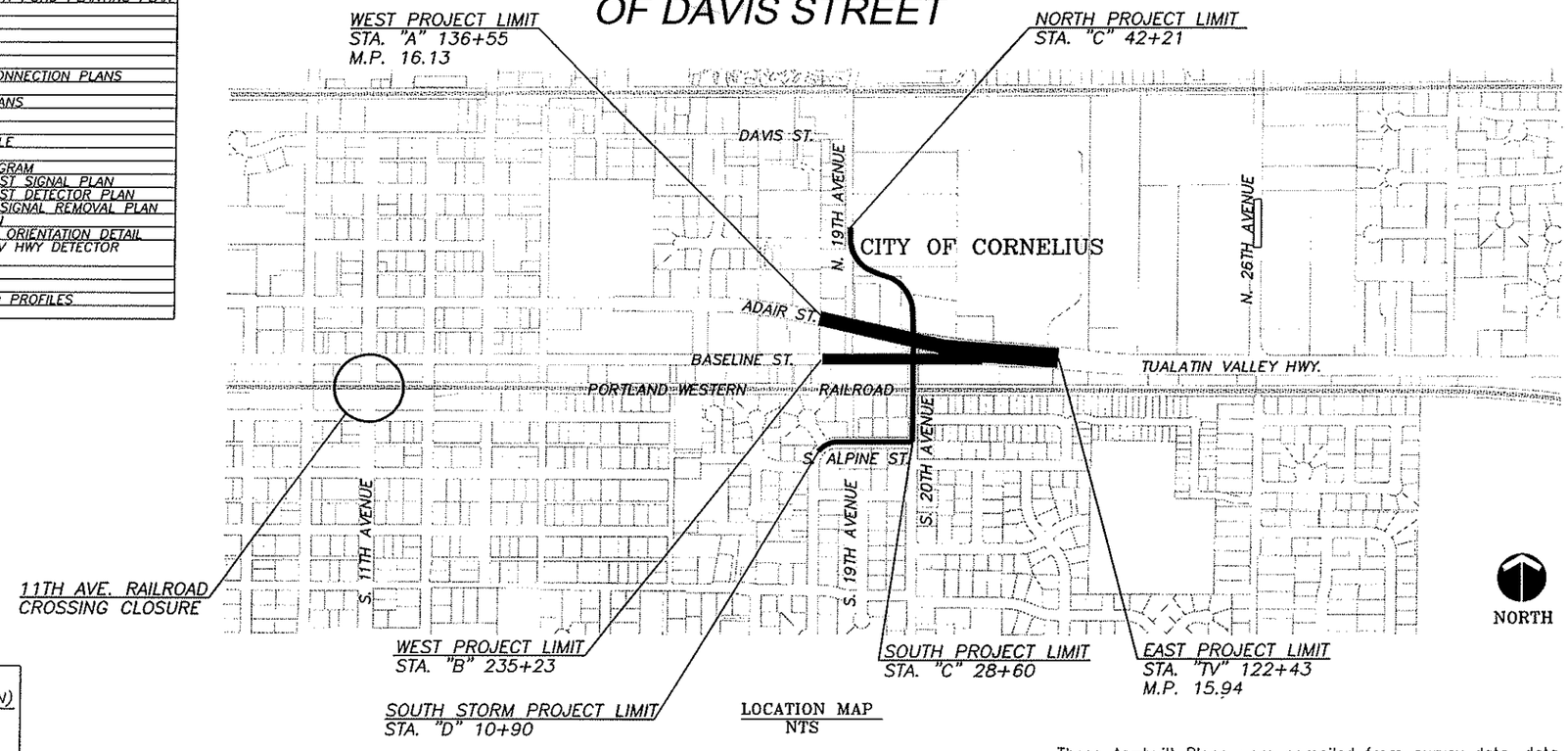


GRADING, DRAINAGE, PAVING, SIGNALS, SIGNING ILLUMINATION, ROADSIDE DEVELOPMENT, AND UTILITIES

N. 19TH AVENUE AND S. 20TH AVENUE REALIGNMENT

TUALATIN VALLEY HWY (M.P. 15.94 + M.P. 16.13) ALPINE STREET TO 500 FEET SOUTH OF DAVIS STREET

GENERAL INDEX OF SHEETS



LOCATION MAP
NTS

LOCATES
(48 HOUR NOTICE REQUIRED PRIOR TO EXCAVATION)

ONE CALL SYSTEM – 246–6699

THE CONTRACTOR, IN LOCATING AND PROTECTING UNDERGROUND UTILITIES, MUST COMPLY WITH THE REGULATIONS OF O.R.S. 757.541 TO 757.571

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 Notification Center is (503) 232–1987)

These As–built Plans were compiled from survey data, data collected from others, and periodic observation during construction. These plans are an accurate record of public improvements to the best of my information, knowledge and belief.

By: _____

Date: 11-2-06

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

PROJECT NUMBER 100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:

NO.	REVISIONS
	"As Constructed"
	DATE 11/6/06 BY

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

TITLE SHEET

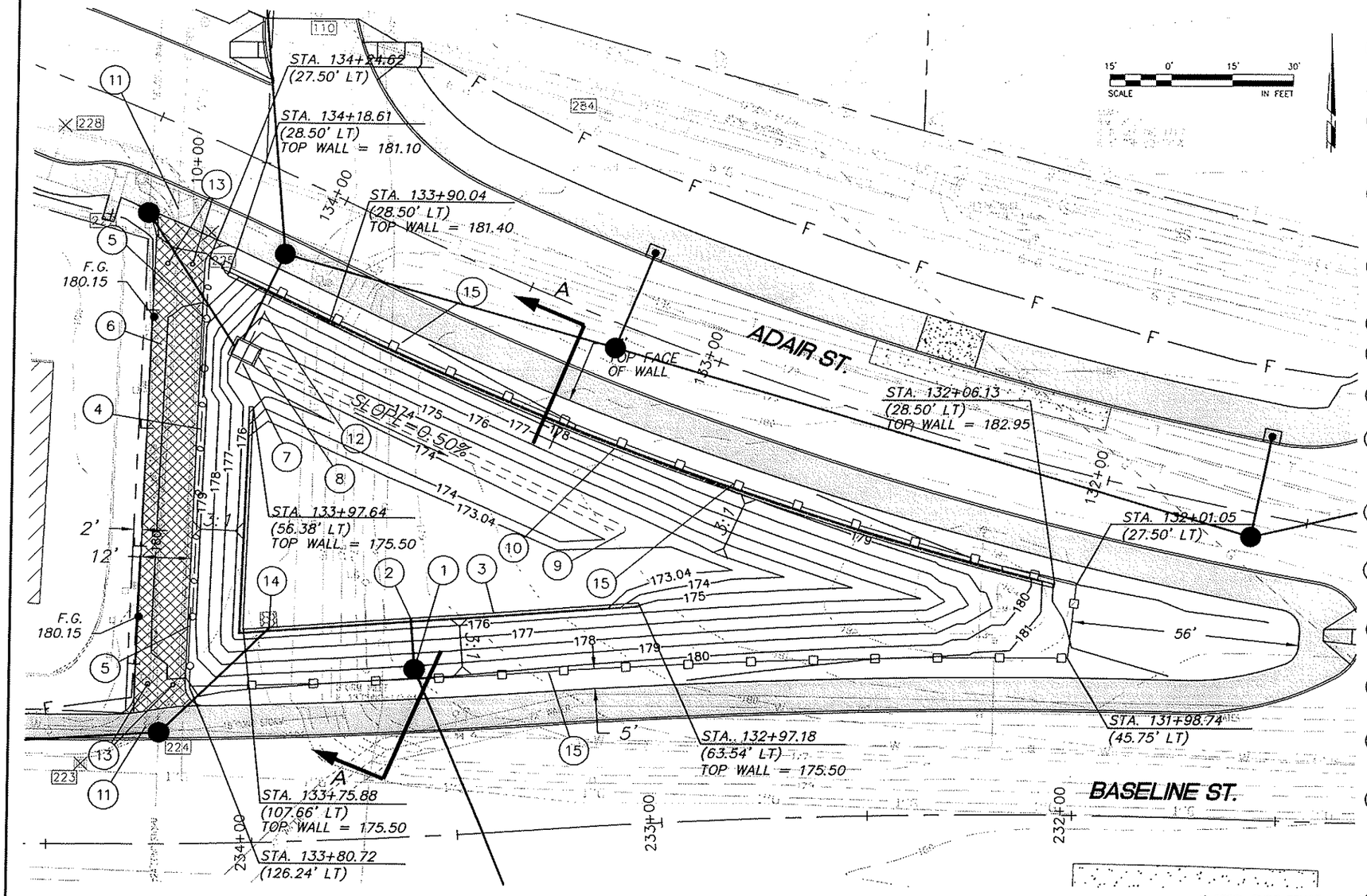
otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660–3139
Phone: (360) 737–9613
FAX: (360) 737–9651

	BY	DATE
DRWN:	GE / SC	7/05
DSGN:	SW / JN	7/05
CHKD:	PW	7/05

SHEET TITLE 1

SHEET NO. 1 OF 140

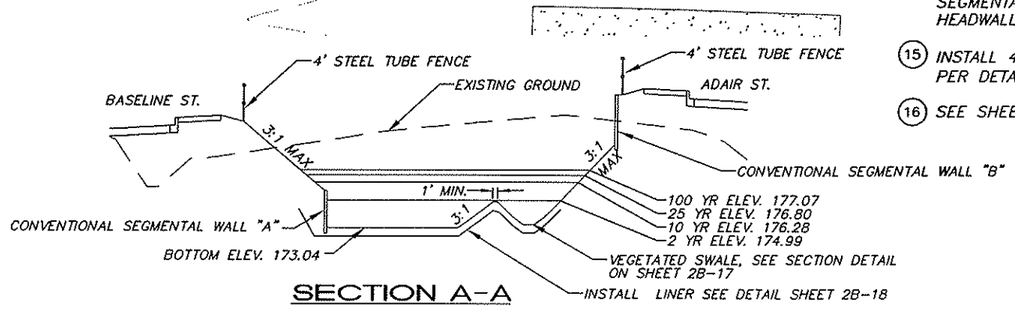
W.Q. SWALE AND DETENTION POND CONSTRUCTION



1. STA 133+37.92, 99.41' LT CONSTRUCT FLOW CONTROL STRUCTURE **"A"** (60" DIA. MANHOLE) FOR DETAILS SEE SHEET 2B-17.
2. 24" DIA. POND OUTLET PIPE. INSTALL **FLUSH** WITH WALL (IE=173.04). CONVENTIONAL SEGMENTAL WALL SHALL INCLUDE PIPE HEADWALL PER MANUFACTURERS REQUIREMENTS.
3. CONSTRUCT CONVENTIONAL SEGMENTAL **WALL A.** EXPOSED WALL FACE HEIGHT 2.5'. TOP OF THE WALL ELEV. 175.50 SEE DETAIL SHEET 2B-18
4. INSTALL CL-4 CHAIN-LINK FENCE WITH **BLACK** VINYL CLAD FABRIC ALONG EAST SIDE OF **POND** ACCESS ROAD (85 LF TOTAL).
5. INSTALL 12' CHAIN-LINK ROLL GATE.
6. CONSTRUCT 12' WIDE ACCESS ROAD SEE SHEET 2B-18 FOR TYPICAL SECTION.
7. CONSTRUCT SEDIMENT TRAP AND HEADWALL PER DETAIL SHEET 2B-17.
8. STA 134+02.3, 44.7' LT BEGIN VEGETATED SWALE CONSTRUCTION (ELEV.=173.54). SEE SWALE SECTION DETAIL ON SHEET 2B-17.
9. STA 133+07.1, 47.8' LT END 100' SWALE CONSTRUCTION (ELEV.=173.04).
10. CONSTRUCT CONVENTIONAL SEGMENTAL **WALL "B".** EXPOSED WALL FACE HEIGHT 3.3'. SEE DETAIL SHEET 2B-18
11. 12' LENGTH OF THICKENED (6") CONCRETE SIDEWALK SECTION AND MOUNTABLE CURB. CENTER ON POND ACCESS ROAD.
12. CONNECT 6" DIA. WALL DRAIN TO HEADWALL. SEE SEDIMENT TRAP AND HEADWALL DETAIL, SHEET 2B-17
13. INSTALL REMOVABLE BOLLARDS PER DETAIL **ON** SHEET 2B-18. SPACE 6' O.C. AT EACH **END** OF POND ACCESS ROAD.
14. 24" DIA. POND INLET PIPE. INSTALL **FLUSH** WITH WALL (IE=173.04). CONSTRUCT **RIPRAP** BASIN 4'X4'X1' LIGHT LOOSE RIPRAP CLASS 50 PER DETAIL ON SHEET 2B-17. CONVENTIONAL SEGMENTAL WALL SHALL INCLUDE PIPE HEADWALL PER MANUFACTURERS REQUIREMENTS.
15. INSTALL 4' HEIGHT BLACK STEEL TUBE **FENCE** PER DETAIL SHEET 2B-18 (465 LF TOTAL)
16. SEE SHEET R3 FOR PLANTING PLAN

LEGEND:

- 176 — EXISTING CONTOUR
- 170 — PROPOSED CONTOUR
- o — o — 4' CHAIN-LINK FENCE, BLACK VINYL CLAD
- 4' BLACK STEEL TUBE FENCE
- CONVENTIONAL SEGMENTAL
- OUTFALL PROTECTION
- F.G. FINISH GRADE



SECTION A-A

DETENTION POND CROSS SECTION

SCALE: 1"=30' HORIZONTAL; 1"=10' VERTICAL

PROJECT NUMBER 100017

WASHINGTON COUNTY OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:

NO.	REVISIONS

"As Constructed"
DATE 11/6/06 BY

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

W.Q. SWALE AND DETENTION POND CONSTRUCTION

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-9813
FAX: (360) 737-9651

	BY	DATE
DRWN:	JGN	7/05
DSGN:	JGN	7/05
CHKD:	PKW	7/05

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

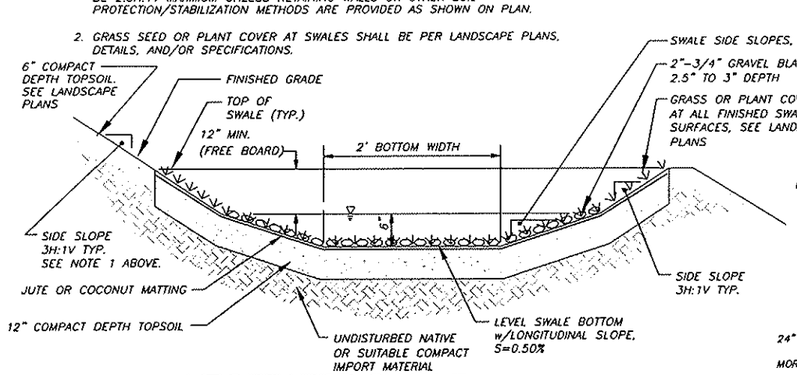
SHEET TITLE 2B-16

SHEET NO. 27 OF 140

W.Q. SWALE AND DETENTION POND DETAILS

NOTES:

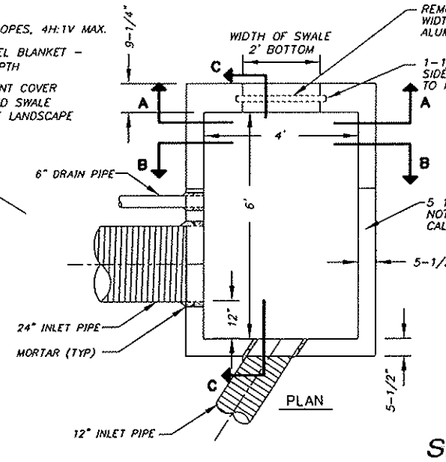
1. FINISHED GRADES TRANSITIONING TO SWALE SIDE SLOPES SHALL BE 2.5H:1V MAXIMUM UNLESS RETAINING WALLS OR OTHER SOIL PROTECTION/STABILIZATION METHODS ARE PROVIDED AS SHOWN ON PLAN.
2. GRASS SEED OR PLANT COVER AT SWALES SHALL BE PER LANDSCAPE PLANS, DETAILS, AND/OR SPECIFICATIONS.

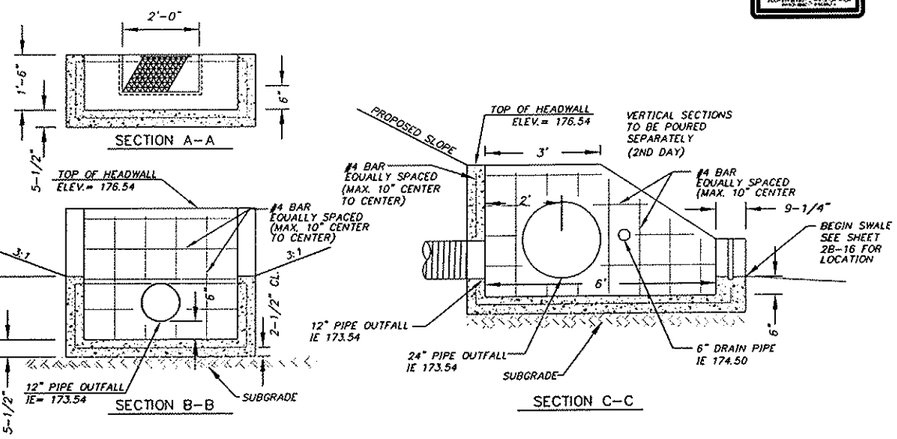


VEGETATED SWALE

NOT TO SCALE

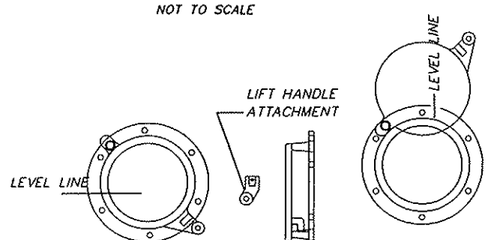
NOTE:
ALL CONCRETE SHALL BE 3000 PSI



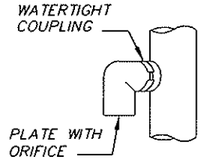


SEDIMENT TRAP AND HEADWALL

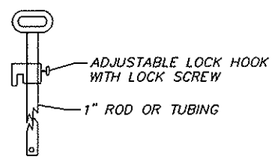
NOT TO SCALE



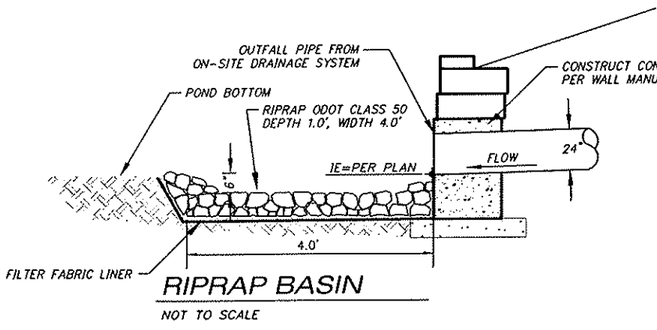
SHEAR GATE



ELBOW DETAIL

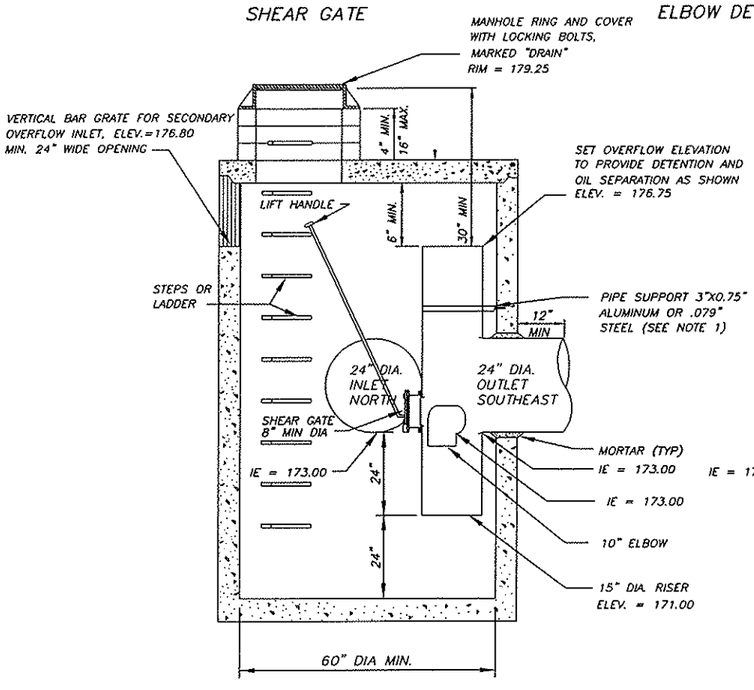


LIFT HANDLE DETAIL



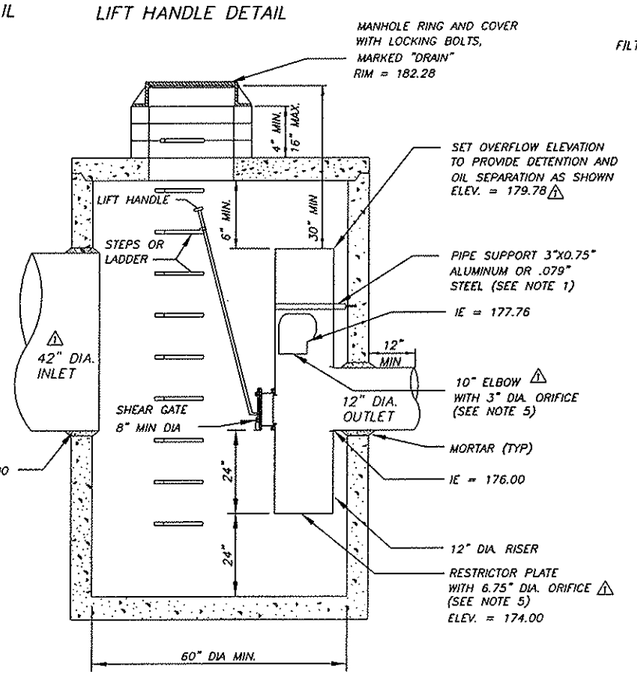
RIPRAP BASIN

NOT TO SCALE



FLOW CONTROL STRUCTURE "A"

(60" DIA. MANHOLE W/ OUTLET CONTROL STRUCTURE)
NOT TO SCALE



FLOW CONTROL STRUCTURE "B" ⚠

(60" DIA. MANHOLE OUTLET CONTROL STRUCTURE)
NOT TO SCALE

OUTLET CONTROL STRUCTURE NOTES:

1. PIPE SUPPORTS AND RESTRICTOR/SEPARATOR SHALL BE CONSTRUCTED OF THE SAME MATERIAL AND BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH PIPE SUPPORTS TO MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED SUPPORTS INTO MANHOLE WALL 2".
2. THE FLOW RESTRICTOR/SEPARATOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   - 0.60" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   - 0.64" CORRUGATED GALVANIZED OR ALUMINIZED STEEL DRAIN PIPE
   - 0.60" ALUMINUM ALLOY FLAT SHEET, IN ACCORDANCE WITH ASTM B 209M, 5052 H32 OR EPS

   GALVANIZED STEEL SHALL HAVE TREATMENT 1.
3. FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT:
   - SHEAR GATE IS VISIBLE FROM THE TOP
   - CLIMB-DOWN SPACE IS CLEAR OF RISER AND GATE
   - FRAME IS CLEAR OF CURB.
4. MULTI-ORIFICE ELBOWS MAY BE LOCATED AS SHOWN OR ALL ON ONE SIDE OF RISER TO ASSURE LADDER CLEARENCE.
5. RESTRICTOR PLATE SHALL BE INSTALLED AS SHOWN WITH ORIFICE OPENINGS TO BE CUT ROUND AND SMOOTH.
6. SHEAR GATE SHALL BE MADE OF ALUMINUM ALLOY IN ACCORDANCE WITH ASTM B 26M AND ASTM B 275, DESIGNATION ZG32A OR CAST IRON IN ACCORDANCE WITH ASTM A 48, CLASS 30B. LIFT HANDLE MAY BE SOLID ROD OR HOLLOW TUBING WITH ADJUSTABLE HOOK AS REQUIRED. NEOPRENE RUBBER GASKET REQUIRED BETWEEN RISER MOUNTING FLANGE AND GATE FLANGE. MATING SURFACES OF LID AND BODY SHALL BE MACHINED FOR PROPER FIT. FLANGE MOUNTING BOLTS SHALL BE 3/8" DIAMETER STAINLESS STEEL.
7. SHEAR GATE MAXIMUM OPENING SHALL BE CONTROLLED BY LIMITED HINGE MOVEMENT, STOP TAB OR SOME OTHER DEVICE.
8. ALTERNATE SHEAR GATE DESIGNS ARE ACCEPTABLE, IF MATERIAL SPECIFICATIONS ARE MET AND FLANGE BOLT PATTERN MATCHES.

PROJECT NUMBER 100017

WASHINGTON COUNTY OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:	NO.	REVISIONS
	⚠	REVISED 12-12-05

"As Constructed" DATE 11/6/06 BY

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

W.Q. SWALE AND DETENTION POND DETAILS

otak Incorporated
700 Washington Street Suite 401 Vancouver, WA 98660-3139
Phone: (360) 737-8813 FAX: (360) 737-8851

	BY	DATE
DRWN:	JGN	7/05
DSGN:	JGN	7/05
CHKD:	PKW	7/05

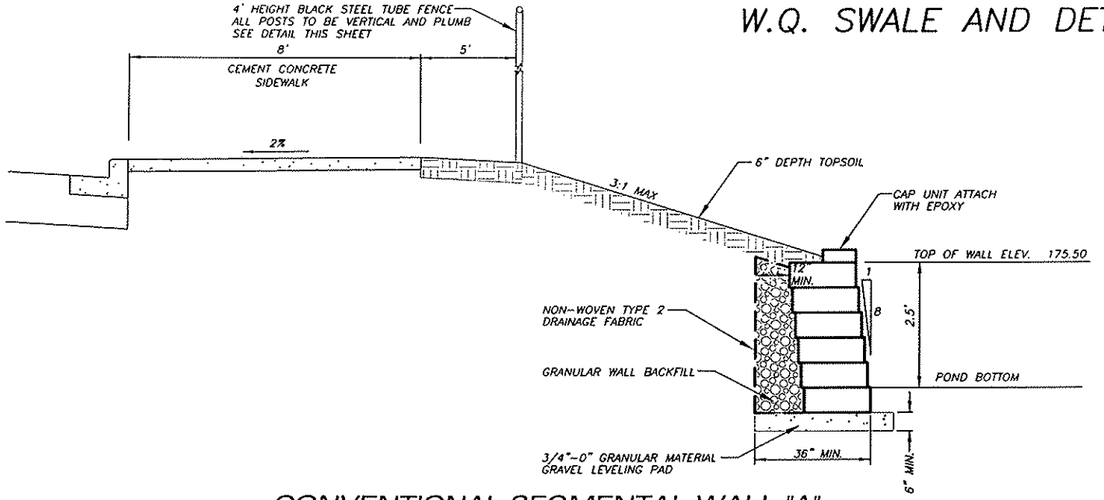
REGISTERED PROFESSIONAL ENGINEER 11,766 OREGON JULY 16, 1982 PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

SHEET TITLE 2B-17

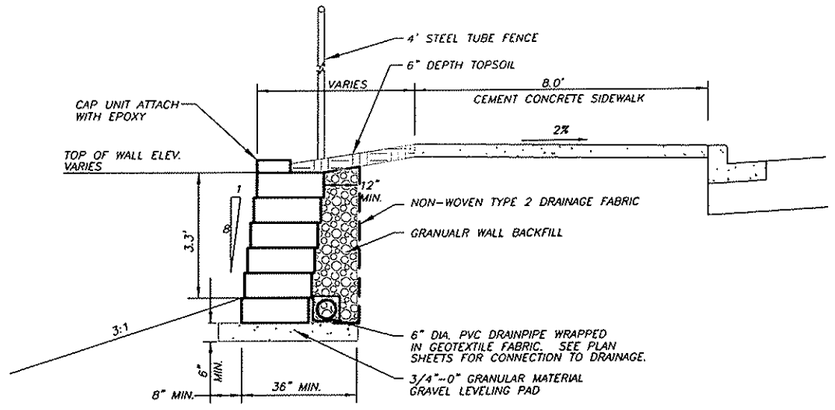
SHEET NO. 28 OF 140

W.Q. SWALE AND DETENTION POND DETAILS



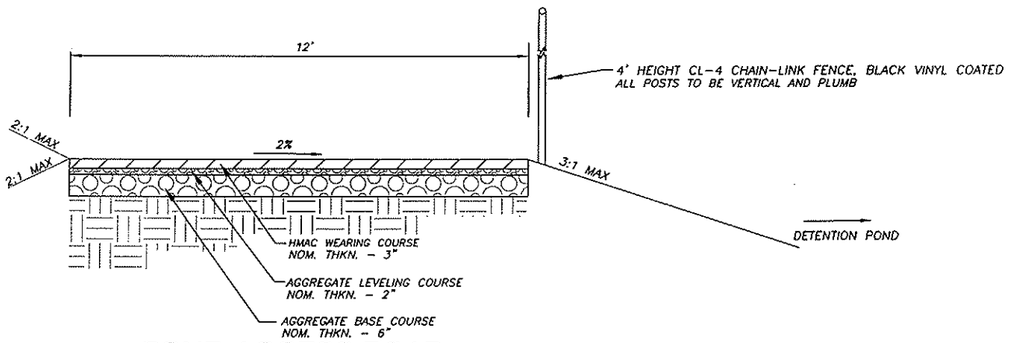
CONVENTIONAL SEGMENTAL WALL "A"

NOT TO SCALE



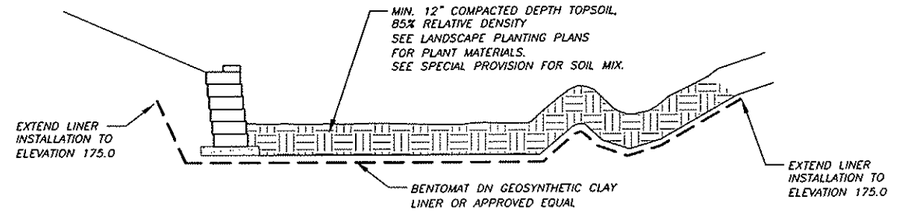
CONVENTIONAL SEGMENTAL WALL "B"

NOT TO SCALE



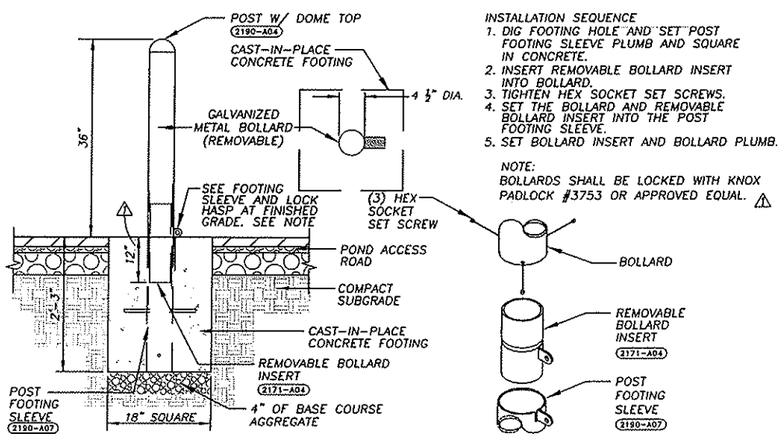
POND ACCESS ROAD

NOT TO SCALE



POND LINER

NOT TO SCALE



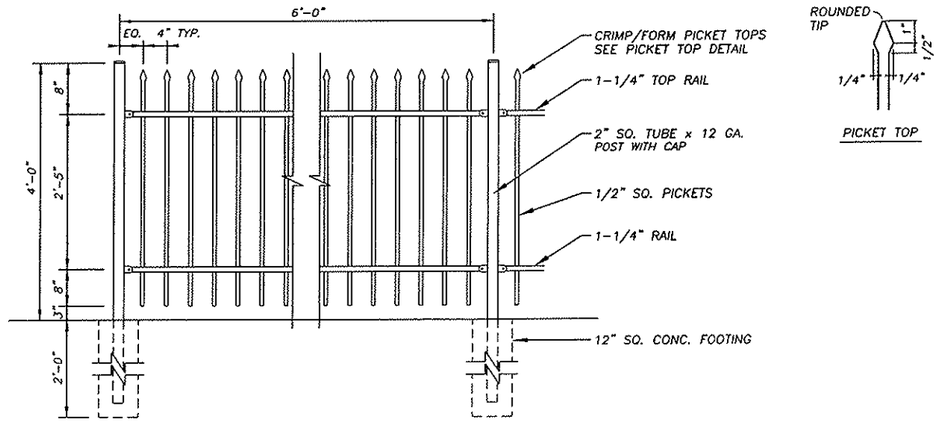
INSTALLATION SEQUENCE
1. DIG FOOTING HOLE AND SET POST FOOTING SLEEVE PLUMB AND SQUARE IN CONCRETE.
2. INSERT REMOVABLE BOLLARD INSERT INTO BOLLARD.
3. TIGHTEN HEX SOCKET SET SCREWS.
4. SET THE BOLLARD AND REMOVABLE BOLLARD INSERT INTO THE POST FOOTING SLEEVE.
5. SET BOLLARD INSERT AND BOLLARD PLUMB.

NOTE:
BOLLARDS SHALL BE LOCKED WITH KNOX PADLOCK #3753 OR APPROVED EQUAL. ⚠

BOLLARD AS MANUFACTURED BY COLUMBIA CASCADE COMPANY (503) 223-1157, OR APPROVED EQUAL. ⚠

REMOVABLE BOLLARDS

NOT TO SCALE



4' BLACK TUBE STEEL FENCE

NOT TO SCALE

PICKET TOP

"As Constructed"
BY
DATE 11/6/06

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG: NO.	REVISIONS
⚠	REVISED 8-2-05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

W.Q. SWALE AND DETENTION POND DETAILS

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-8813
FAX: (360) 737-9651

	BY	DATE
DRWN:	GE	7/05
DSGN:	JGN	7/05
CHKD:	PKW	7/05

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

SHEET TITLE
2B-18

SHEET NO.
29 OF 140

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:	NO.	REVISIONS
	⚠	REVISED 8-11-05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

CONSTRUCTION NOTES

"As Constructed"
DATE 11/6/06 BY

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-9513
FAX: (360) 737-9651

	DATE	BY
DRWN:	7/05	GE
DSGN:	7/05	SW / JN
CHKD:	7/05	PW

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

SHEET TITLE: 8
SHEET NO.: 73 OF 140

CONSTRUCTION NOTES

THIS SHEET FACES SHEET 8A

1. CONSTRUCT STANDARD CURB "E" = 7" EXPOSURE SEE DETAIL SHEET 2B
2. CONSTRUCT P.C. CONC. SIDEWALK SEE DETAIL SHEET 2B-2
3. NOTE NOT USED
4. NOTE NOT USED
5. SAWCUT EXISTING PAVEMENT
6. COLD PLANE PAVEMENT REMOVAL AND HMAC OVERLAY (2" DEPTH)
7. STA 234+22.65, 27.98' RT REMOVE EXISTING MANHOLE AND CONSTRUCT NEW MANHOLE
8. STA 233+58.42, 42.07' RT FLOW CONTROL MANHOLE "A" (60" DIA.) SEE SHEET 2B-17
9. STA 233+58.66, 54.93' RT 24" STORM OUTLET IE=173.04
10. STA 233+35.31, 26.47' LT CONSTRUCT MANHOLE (60" DIA.)
11. STA 234+95.35, 18.00' LT CONST TYPE "CG-2" INLET ⚠ RIM=179.57 IE=175.39 (12" SE) SEE DETAIL SHEET 2B-7
12. STA 234+77.84, 26.00' RT CONST TYPE "CG-2" INLET RIM=179.31 IE=176.31 (12" E) SEE DETAIL SHEET 2B-7
13. STA. 234+92.63, 20.49' LT REMOVE EXISTING STORM MANHOLE AND CONSTRUCT NEW STORM MANHOLE
14. RELOCATE EXISTING UTILITY POLE (BY OTHERS)
15. STA 235+22.85, 22.2'RT± END CURB TAPER MATCH EXISTING CURB AND SIDEWALK
16. STA 234+79.91, 26.00 RT BEGIN CURB TAPER
17. NOTE NOT USED
18. RELOCATE GAS TEST STATION (BY OTHERS)
19. RELOCATE EXISTING JOINT WATER COMMISSION CORROSION TEST STATION AND BLOW OFF ASSEMBLY TO BACK OF SIDEWALK. SEE UTILITY PLANS AND SHEET 2B-14 FOR DETAILS.
20. CONSTRUCT HMAC SIDEWALK RAMP
21. REMOVE AND INSTALL NEW MAILBOX SUPPORT PER DETAIL SHEET 2B-5.
22. REMOVE AND SALVAGE EXISTING CITY OF CORNELIUS SIGN POLES. POLES AND ACCESSORIES SHALL BE DELIVERED TO CITY FOR STORAGE. CONTRACTOR TO COORDINATE WITH ENGINEER, TO DETERMINE STORAGE LOCATION.
23. ADJUST EXISTING WATER VALVE BOX
24. REMOVE EXISTING FENCE WITHIN EASEMENT AS DIRECTED
25. STA 236+77, 20'± LT EXISTING 12" STORM LINE TO BE REMOVED DURING CONSTRUCTION OF NEW SANITARY SEWER MAIN PER SHEET U7. REPLACE WITH NEW 12" STORM LINE AND CONNECT TO EXISTING LINE.
26. RELOCATE EXISTING ELECTRICAL SERVICE, IRRIGATION VALVE, AND LIGHT. SEE NOTE 38, SHEET 9.
27. STA 233+94.60, 53.81' RT 24" STORM INLET IE=173.04
28. PROTECT EXISTING JUNCTION BOX
29. STA 234+14.5 TO 234+35.0, RT TAPER SIDEWALK WIDTH FROM 8.5' TO 6.5'
30. REMOVE WATER SERVICE, METER TO BE SALVAGED AND RETURNED TO CITY.
31. RECONSTRUCT EXISTING SEGMENTAL WALL AS DIRECTED BY ENGINEER.
32. 12' THICKENED (6") CONCRETE SIDEWALK SECTION AND MOUNTABLE CURB CENTERED ON POND ACCESS ROAD.

LEGEND:

- RIGHT-OF-WAY
- PUBLIC UTILITY EASEMENT
- TEMP. CONSTRUCTION EASEMENT
- c — CUT SLOPE
- f — FILL SLOPE

REMOVE EXTG. INLET OR MANHOLE SHOWN THUS: ⨯⨯⨯

REMOVE EXTG. PIPE SHOWN THUS:

AC DRIVEWAY

"B" LINE CURVE TABLE

B	L=163.39 R=1500.00 △=6°14'27"
C	L=147.01 R=1500.00 △=5°36'56"

Sec. 34, T. 1N, R. 3W, W.M.

GENERAL NOTES

1. SEE SHEET 1D FOR EXISTING STRUCTURE INFORMATION.
2. SEE 'TS' SHEETS FOR SIGNING RELOCATIONS. SEE 'U' SHEETS FOR WATER AND SEWER INFORMATION.

SCALE 20' 0' 20' 40' IN FEET

ADAIR ST.

SEE SHEET 10A

WATER QUALITY SWALE AND DETENTION POND SEE SHEET 2B-16

W. BASELINE ST.

S88°46'23"W

MATCH LINE STA. 232+00

"B" LINE

STEPHANY G. SMITH
GEORGE M. GRABENHORST
97039414

CORNELIUS RETAIL CENTER, LLC
AN OREGON SINGLE MEMBER LIMITED LIABILITY COMPANY
2003108226

ANDY T. BOERSMA
GRACE L. BOERSMA
08220933

FRANCIS G. BOEHMER
MARGARET A. BOEHMER

PROTECT SIGN LIGHT

PROTECT SIGN COORDINATE RELOCATION OF TRIMET SIGN

PROTECT SIGN MULTIPLE

STA 235+43 PAVING LIMIT 12'-185'

12'-52'

24'-10'

24'-147'

15'-160'

24'-271'

STORM OUTFALL IE 15"CONC=173.77

STORM GUTTER IE 24"CONC=173.72

STORM GUTTER IE 24"CONC=175.73

STORM INLET IE 24"CONC=175.94

STORM INLET 18"CONC=172.88

PROFILE: STORM SEWER
SCALE: 1"=40' HORIZ.
1"=10' VERT.

STA 235+22.86
END FULL ROADWAY RECONSTRUCTION SAWCUT AND MATCH EXISTING CURBS AND PAVEMENT, ELEV. 180.1±

PVI STA = 234+75
PVI ELEV = 179.83

PROFILE GRADE @ CONSTRUCTION C.L.

24" POND INLET
STA 233+94.60, 53.81' RT
IE=173.04

FLOW CONTROL MH "A" (60" DIA.)
STA 233+58.42, 42.07' RT
RIM 179.25
IE IN=173.00 (N)
IE OUT=173.00 (SE)
SUMP 169.00

END RT. CURB PROFILE
STA 233+50.00, 26.00'RT
TOP ELEV 180.41

STORM MH (72" DIA.)
STA 233+35.31, 26.47' LT
RIM 180.80
IE IN=172.79 (NW)
IE IN=172.79 (W)
IE OUT=172.69 (E)

PROFILE GRADE @ RIGHT TOP OF CURB

-0.95%

-0.42%

0.48%

REPLACE EXISTING 12" - 185', RCP CL. V

EX 12" WATER

24" - 38' RCP CL. V S=0.0068

15" - 160' RCP CL. V S=0.0057

24" - 72' RCP CL. V S=0.0029

ORIGINAL GROUND @ CONSTRUCTION C.L.

8" PROPOSED SANITARY SEWER

6" POWER TO BE RELOCATED BY OTHERS

72" WATER IE=161.3±

EXISTING ℄ ELEVATION

PROPOSED ℄ ELEVATION

CONNECT TO EX. STORM
STA 236+77, 20.± LT
IE=173.7±

REMOVE EX STORM MH
CONSTRUCT STORM MH (48" DIA.)
STA 234+92.63, 20.49' LT
RIM 180.0
IE IN=173.7 (W)
IE IN=174.7 (NW)
IE OUT=173.70 (E)

STORM MH (48" DIA.)
STA 234+22.65, 27.98' RT
RIM 180.11
EX. IE IN=173.4 (W)
IE IN=176.10 (SW)
IE OUT=173.30 (NE)

	180.8	180.7	180.6	180.5	180.3	180.2	180.1	180.0	179.95	179.9	179.8	179.93	179.7	179.7	180.14	179.6	179.6	180.35	179.7	179.8	180.56	179.9	179.8	180.77	179.9
STA																									

235+00 234+00 233+00

"As Constructed"
DATE 11/6/06 BY

PROJECT NUMBER 100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:	NO.	REVISIONS
	1	REVISED 8-11-05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

PLAN AND PROFILE

otak Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-8613
FAX: (360) 737-9651

	BY	DATE
DRWN:	GE	7/05
DSGN:	SW / JN	7/05
CHKD:	PW	7/05

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

SHEET TITLE 8A

SHEET NO. 74 OF 140

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Organic Family Town

DWG:

NO.	REVISIONS
1	REVISED 8/17/05
2	REVISED 10/27/05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST. ADAIR ST. AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

CONSTRUCTION NOTES

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DATE 11/6/06 BY

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REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

EXPIRES: 6/30/08

SHEET TITLE: 9
SHEET NO.: 75 OF 140

CONSTRUCTION NOTES

THIS SHEET FACES SHEET 9A

1. CONSTRUCT STANDARD CONCRETE CURB "E"=7" EXPOSURE SEE DETAIL SHEET 2B
2. CONSTRUCT P.C. CONC. SIDEWALK SEE DETAIL SHEET 2B-2
3. CONSTRUCT SIDEWALK RAMP SEE DETAIL SHEET 2B-3
4. CONSTRUCT CONCRETE DRIVEWAY APPROACH, REINFORCED OPTION "N" SEE DETAIL SHEET 2B-2.
5. SAWCUT EXISTING PAVEMENT
6. COLD PLANE PAVEMENT REMOVAL AND HMAC OVERLAY (2" DEPTH)
7. STA 134+43.10, 23.19' LT REMOVE EXISTING MANHOLE AND CONSTRUCT NEW MANHOLE CONNECT EXISTING PIPE NW
8. STA 134+07.77, 18.50' LT CONSTRUCT MANHOLE
9. STA 133+25.00, 6.00' LT ⚠ CONSTRUCT 48" DIA. FLAT TOP MANHOLE
10. STA 134+02.32, 44.21' LT POND SEDIMENT TRAP AND HEADWALL SEE DETAIL SHEET 2B-17
11. STA 134+78.51, 35.96' RT CONSTRUCT FLAT TOP MANHOLE
12. STA 134+34.09, 55.59' RT CONNECT TO EXISTING MANHOLE IE=175.26 (12" SW) REMOVE PIPES TO NORTH AND WEST AND PLUG PIPE OPENINGS
13. STA 136+63.00, 30.94' RT CONST TYPE "D" INLET RIM=177.55 IE=176.01 (12" E) SEE DETAIL SHEET 2B-6
14. STA 133+25.00, 18.00' RT CONST TYPE "CG-3" INLET W/ ALTERNATE TOP SECTION TOP LID ELEV.=182.22 IE=177.64 (12" S) ⚠ SEE DETAIL SHEET 2B-6
15. STA "A" 134+46.08, 50.64' RT= STA "E" 10+56.18, 3.73' LT CONSTRUCT 60" DIA. FLAT TOP MANHOLE
16. STA 134+79.35, 44.40' RT CONST TYPE "G-2" INLET RIM=178.0 IE=175.55 (12" S) SEE DETAIL SHEET 2B-7
17. REMOVE EXISTING TREE
18. RELOCATE EXISTING JUNCTION BOX (BY OTHERS)
19. CONSTRUCT 5-1/2" THICK CONCRETE BUS SHELTER PAD FROM STA 132+40 TO 132+55. SEE SHEET R4 FOR SCORING DETAIL
20. RELOCATE EXISTING WATER METER
21. REMOVE AND SALVAGE EXISTING CITY OF CORNELIUS SIGN POLES. POLES AND ACCESSORIES SHALL BE DELIVERED TO CITY FOR STORAGE. CONTRACTOR TO COORDINATE WITH ENGINEER, TO DETERMINE STORAGE LOCATION.
22. REMOVE WATER SERVICE. METER TO BE SALVAGED AND RETURNED TO THE CITY.
23. STA 135+63.50 END FULL ROADWAY RECONSTRUCTION SAWCUT AND MATCH EXISTING CURB 20.0'± LT AND PAVEMENT
24. STA 136+54.82, 18.0'RT END CONSTRUCTION
25. PROPOSED N. 19TH AVE. STREET IMPROVEMENTS BY OTHERS (N.I.C.)
26. RELOCATE EXISTING UTILITY POLE (BY OTHERS)
27. EXISTING INLET TO BE REMOVED BY OTHERS. ⚠
28. REMOVE EXISTING CURB AND SIDEWALK
29. ADJUST EXISTING GAS VALVE BOX TO FINISH GRADE
30. 12' WIDE THICKENED (6") CONCRETE SIDEWALK SECTION AND MOUNTABLE CURB CENTERED ON POND ACCESS ROAD
31. UTILITY POLE TO REMAIN. REMOVE STREET LIGHT (BY OTHERS)
32. ADJUST MANHOLE LID TO FINISH GRADE
33. REMOVE EXISTING ROADWAY TO ORIGINAL GROUND
34. CONSTRUCT HMAC SIDEWALK RAMP PER DETAIL RD600, SHEET 2B-3.
35. SEE T-CUT DETAIL SHEET 2A-2.
36. CONSTRUCT 6' WIDE PLAIN CONCRETE PAVEMENT BUS PAD, 8" THICK SECTION FROM STA 132+05.00 TO STA 132+65.00 SEE DETAIL SHEET 2A-4
37. CONSTRUCT CONCRETE TRANSITION SECTION AT EACH END OF PLAIN CONCRETE PAVEMENT BUS PAD. SEE DETAIL SHEET 2A-4
38. RELOCATE CITY OWNED ELECTRICAL SERVICE AND LIGHT AS DIRECTED. COORDINATE METER RELOCATION WITH PGE. EXISTING IRRIGATION EQUIPMENT TO BE ABANDONED OR REMOVED AS DIRECTED. RELOCATED ELECTRICAL SERVICE AND METER TO BE CONNECTED TO NEW IRRIGATION CONTROLLER.
39. PROTECT EXISTING CONCRETE PAD, FENCE, AND PAY PHONE.

LEGEND:

- RIGHT-OF-WAY
- PUBLIC UTILITY EASEMENT
- TEMP. CONSTRUCTION EASEMENT
- C — CUT SLOPE
- F — FILL SLOPE

REMOVE EXTG. INLET OR MANHOLE SHOWN THUS: ⨯⨯⨯

REMOVE EXTG. PIPE SHOWN THUS:

AC DRIVEWAY

CURB RETURN TABLE

CURVE	STATION/OFFSET	SYMBOL △/4	T.O.C. ELEV.
1	BCR 133+69.03, 18.00'RT	A	182.05
		B	181.93
△ = 53°54'16"		C	181.69
R = 60.00'		D	181.35
L = 56.45'	ECR 134+17.49, 42.09'RT	E	181.0±
2	BCR 134+29.81, 18.00'RT	F	181.82
		G	181.85
△ = 135°11'02"			
R = 1.00'			
L = 2.36'	PRC 134+29.12, 19.71'RT	H	181.80
△ = 25°08'06"		I	181.40
R = 36.00'			
L = 15.79'	ECR 134+37.33, 32.93'RT	J	181.0±

"A" LINE CURVE TABLE

B	L=349.73 R=900.00 △=22°15'53"
C	L=237.40 R=1150.00 △=11°49'41"
D	L=128.42 R=2864.79 △=2°34'06"

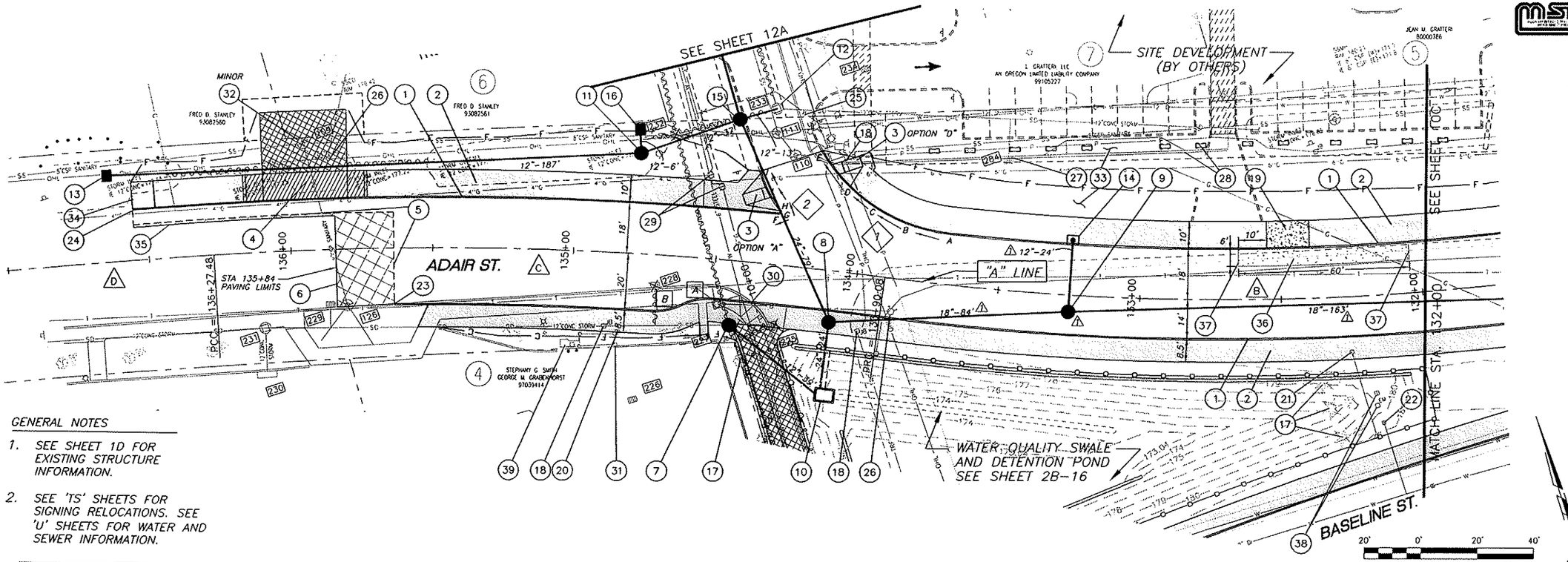
LEFT CURB TAPER CURVE TABLE

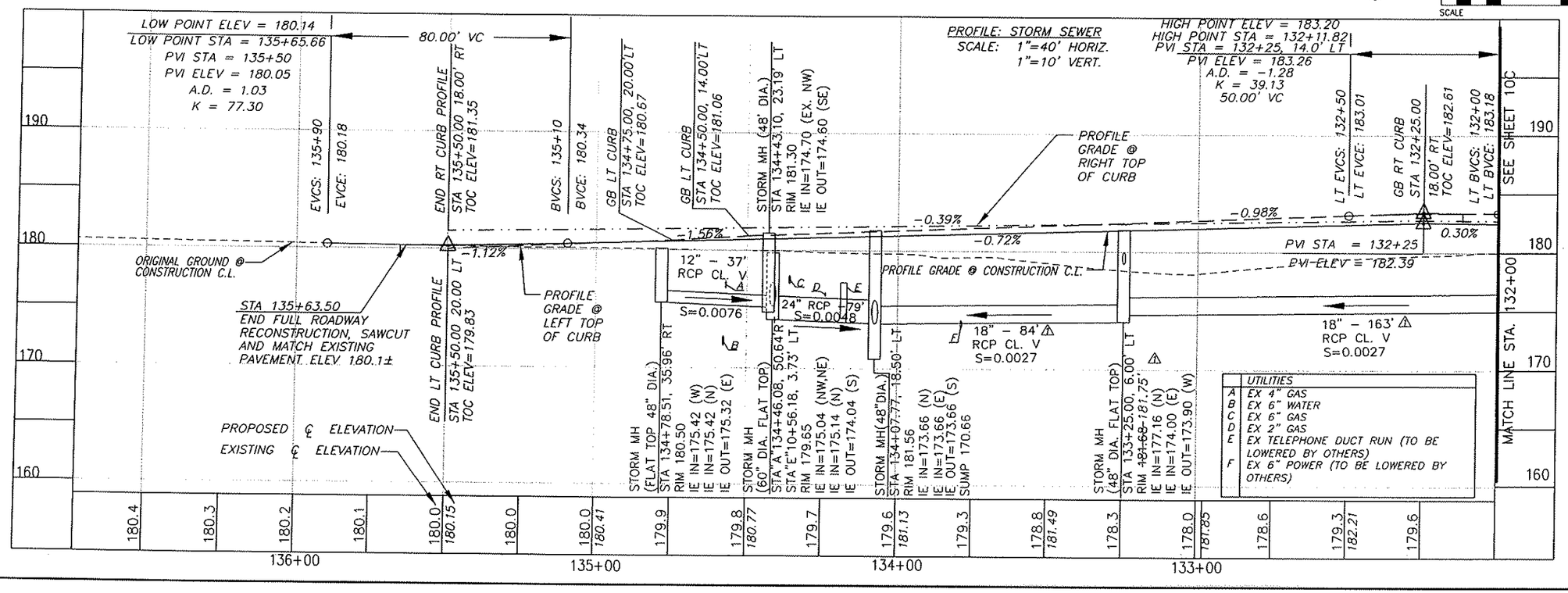
CURVE	STATION/OFFSET
A	PCC 134+50.00, 14.00'LT BEGIN TAPER
△ = 32°19'31"	
R = 20.00'	
L = 11.28'	PRC 134+60.86, 17.05'LT
B	PRC 134+60.86, 17.05'LT
△ = 31°15'34"	
R = 20.00'	
L = 10.91'	PCC 134+71.39, 20.00'LT END TAPER

DRIVEWAY RECONSTRUCTION TABLE

STATION	TYPE	EXTG. SURFACE	FINISHED SURFACE	THROAT WIDTH	LENGTH	ESTIMATED PAVED AREA
135+94 "A"	COMMERCIAL	N/A	A.C.	32'	22	80 S.Y.

Sec. 34, T. 1N, R. 3W, W.M.





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DSGN:	SW/JN	7/05
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REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN
EXPIRES: 6/30/08

PROJECT NUMBER 100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:	NO.	REVISIONS
	⚠	REVISED 10/27/05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

PLAN AND PROFILE

SHEET TITLE 9A
SHEET NO. 76 OF 140

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG: NO.	REVISIONS
1	REVISED 12-6-05

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

CONSTRUCTION NOTES

"As Constructed"
DATE 11/6/06 BY

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Phone: (360) 737-9613
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	DATE	BY
DRWN:	7/05	GE
DSGN:	7/05	SWIJN
CHKD:	7/05	PW

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN
EXPIRES: 6/30/08

SHEET TITLE: 10
SHEET NO.: 77 OF 140

CONSTRUCTION NOTES

1. CONSTRUCT STANDARD CURB "E"=7" EXPOSURE SEE DETAIL SHEET 2B
2. CONSTRUCT P.C. CONC. SIDEWALK SEE DETAIL SHEET 2B-2
3. CONSTRUCT SIDEWALK RAMP SEE DETAIL SHEET 2B-3
4. NOTE NOT USED
5. NOTE NOT USED
6. NOTE NOT USED
7. STA "B" 230+61.68, 13.00' LT
   STA "C" 33+47.18, 7.52' RT
   CONSTRUCT MANHOLE
8. STA 230+07.68, 25.68' LT
   FLOW CONTROL MANHOLE "B" (60" DIA.)
   RIM=182.28
   IE IN=178.00 (12" N)
   IE IN=176.00 (36" E)
   SEE SHEET 2B-17
9. CONSTRUCT 5-1/2" THICK CONCRETE BUS SHELTER PAD FROM STA 231+49 TO STA 231+64
   SEE SHEET R4 FOR SCORING DETAIL
10. JWC WATER VAULTS TO BE ADJUSTED PER SHEET U5 AND U5A.
11. STA 228+05.38, 18.00' LT
    END CURB TAPER
    SEE CURVE DATA ON SHEET 11
12. STA 32+97, 24.00 LT/RT
    END STANDARD CURB
    BEGIN CURB AND GUTTER
    TRANSITION FROM 7" TO 6" CURB
    BETWEEN STA 32+97 TO 33+07
    SEE DETAIL SHEET 2B
13. NOTE NOT USED
14. ADJUST EXISTING WATER VALVE BOX TO FINISH GRADE.
15. CONSTRUCT PLANTED MEDIAN ISLAND. SEE PLAN DETAIL SHEET 2B-23, SEE SECTION DETAIL SHEET 2A-3, SEE LANDSCAPE PLAN SHEET R9.
16. STA 230+08.07, 18.00' RT
    CONST TYPE "CG-3" INLET
    W/ ALTERNATE TOP SECTION
    TOP LID ELEV.=182.16
    IE=178.12 (12" E, S)
    SEE DETAIL SHEET 2B-6
17. STA 229+99.01, 18.00' RT
    CONST TYPE "CG-3" INLET
    W/ ALTERNATE TOP SECTION
    TOP LID ELEV.=182.22
    IE=178.22 (12" W)
    SEE DETAIL SHEET 2B-6
18. CONSTRUCT CONCRETE MEDIAN ISLAND SEE PLAN DETAIL SHEET 2B-23, SEE SECTION DETAIL SHEET 2A-3.
19. CONSTRUCT 6' WIDE PLAIN CONCRETE PAVEMENT BUS PAD, 8" THICK SECTION FROM STA 231+39.00 TO STA 231+99.00
20. CONSTRUCT CONCRETE TRANSITION SECTION AT EACH END OF PLAIN CONCRETE PAVEMENT BUS PAD.
21. CONTRACTOR TO COORDINATE WITH DEVELOPER OF RETAIL SITE TO ALLOW TEMPORARY CONSTRUCTION ACCESS AT THIS LOCATION IF PERMITTED BY ODOT.
22. PROTECT EXISTING UTILITY POLE TO REMAIN. LIGHT TO BE REMOVED BY OTHERS.

THIS SHEET FACES SHEET 10A

LEGEND:

- RIGHT-OF-WAY
- PUBLIC UTILITY EASEMENT
- TEMP. CONSTRUCTION EASEMENT
- C — CUT SLOPE
- F — FILL SLOPE

REMOVE EXTG. INLET OR MANHOLE SHOWN THUS:

REMOVE EXTG. PIPE SHOWN THUS:

AC DRIVEWAY

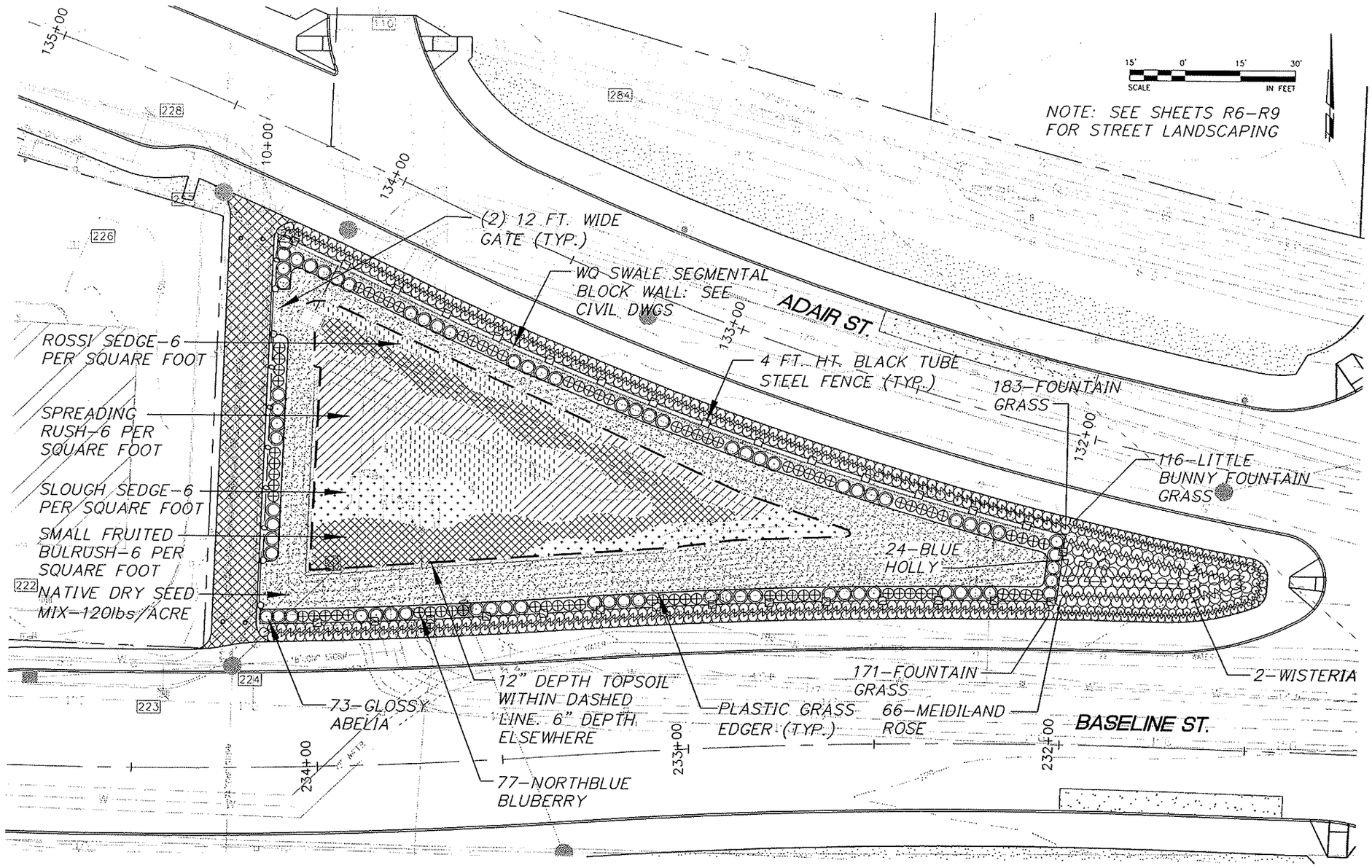
CURB RETURN TABLE

CURVE	STATION/OFFSET	SYMBOL △/4	T.O.C. ELEV.
1 △ = 89°50'59" R = 35.00' L = 54.89'	BCR 231+28.10, 18.00' LT	A	181.49
		B	181.59
		C	181.28
		D	181.05
	ECR 33+07.35, 24.00' LT	E	180.89
2 △ = 90°09'01" R = 35.00' L = 55.07'	BCR 33+07.04, 24.00' RT	F	180.88
		G	181.11
		H	181.52
		I	181.93
	ECR 230+10.10, 18.00' LT	J	182.13
3 △ = 30°03'22" R = 75.00' L = 39.34'	BCR 231+74.22, 26.00' RT	K	182.08
		L	182.19
		M	182.34
		N	182.47
	PCC 231+36.77, 36.20' RT	O	182.54
4 △ = 141°12'13" R = 13.00' L = 32.04'	PCC 231+36.77, 36.20' RT	O	182.54
		P	182.62
		Q	182.78
		R	182.94
	ECR 131+44.11, 14.00' LT	S	183.01

"B" LINE CURVE TABLE

A	L=8.67 R=3500.00 △=00°08'31"
B	L=163.39 R=1500.00 △=6°14'27"

W.Q. SWALE AND DETENTION POND PLANTING PLAN



LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- 4' HT. SECURITY FENCE
- MODULAR BLOCK WALL

NOTE: SEE SHEET R4 AND R5 FOR PLANT SCHEDULE

PROJECT NUMBER 100017

WASHINGTON COUNTY
OREGON DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:	NO.	REVISIONS

"As Constructed"
DATE 11/6/06 BY

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

W.Q. SWALE AND DETENTION POND PLANTING PLAN

	BY	DATE
DRWN:	DH	7/05
DSGN:	DH	7/05
CHKD:	PKW	7/05

otak Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-3613
FAX: (360) 737-9651

REGISTERED
263
DAVID D. HAYNES
OREGON
LANDSCAPE ARCHITECT

SHEET TITLE R3

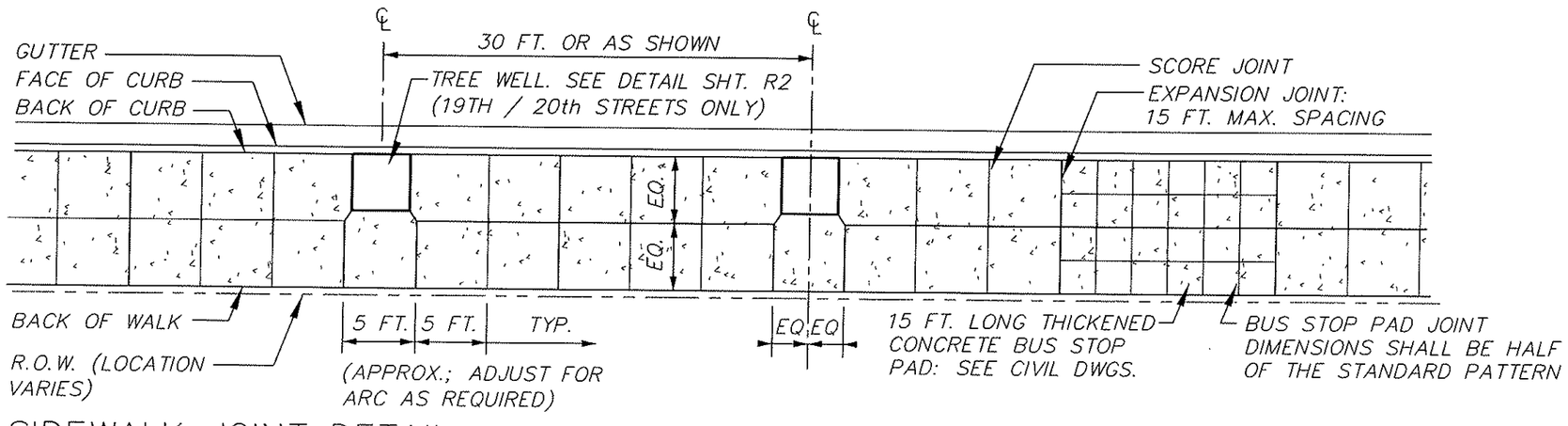
SHEET NO. 90 OF 140

WATER QUALITY SWALE AND DETENTION POND

PLANT SCHEDULE

WATER QUALITY SWALE

SYM	BOTANICAL NAME	COMMON NAME	SIZE & DESCRIP	SPACING	GRADE & CLASS	TOTAL
	Shrubs:					
◎	Abelia grandiflora 'Sherwoodii'	'Sherwood Glossy Abelia	5 Gal. Container	As Shown	2.2.3 Type 2	73
⊕	Northblue Blueberry	Northblue Blueberry	5 Gal. Container	"	8.2.6	77
	Emergent Wetland Plants:					
	– Scirpus microcarpus	– Small–Fruited Bulrush	6 in. ht., 9 cu. in. – Styro–bloc Plugs	6 per s.f.	12.1.3	5,150
	– Juncus patens	– Spreading Rush	"	"	"	9,490
	– Carex obnupta	– Slough Sedge	"	"	"	6,250
	– Carex rossi	– Rossi Sedge	"	"	"	5,770
	Native Dry Seed Mix: above elev. 175.00;					
	– Festuca arundinacea 'Nana': 40%	– Dwarf Tall Fescue	Area = 0.14 AC. Application Rate = 120 lbs per acre	–	–	–
	– Lolium perenne: 30%	– Dwarf Perennial Ryegrass		–	–	–
	– Festuca rubra: 25%	– Creeping Red Fescue		–	–	–
	– Agrostis capillaris: 5%	– Colonial Bentgrass		–	–	–



SIDEWALK JOINT DETAIL – NOTE: TREE WELLS ON 19th / 20th STREETS ONLY

SCALE: 1"=10'

PROJECT NUMBER 100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

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N. 19TH AND S. 20TH AVE REALIGNMENT
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WASHINGTON COUNTY AND CITY OF CORNELIUS

PLANT SCHEDULE

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-8813
FAX: (360) 737-9651

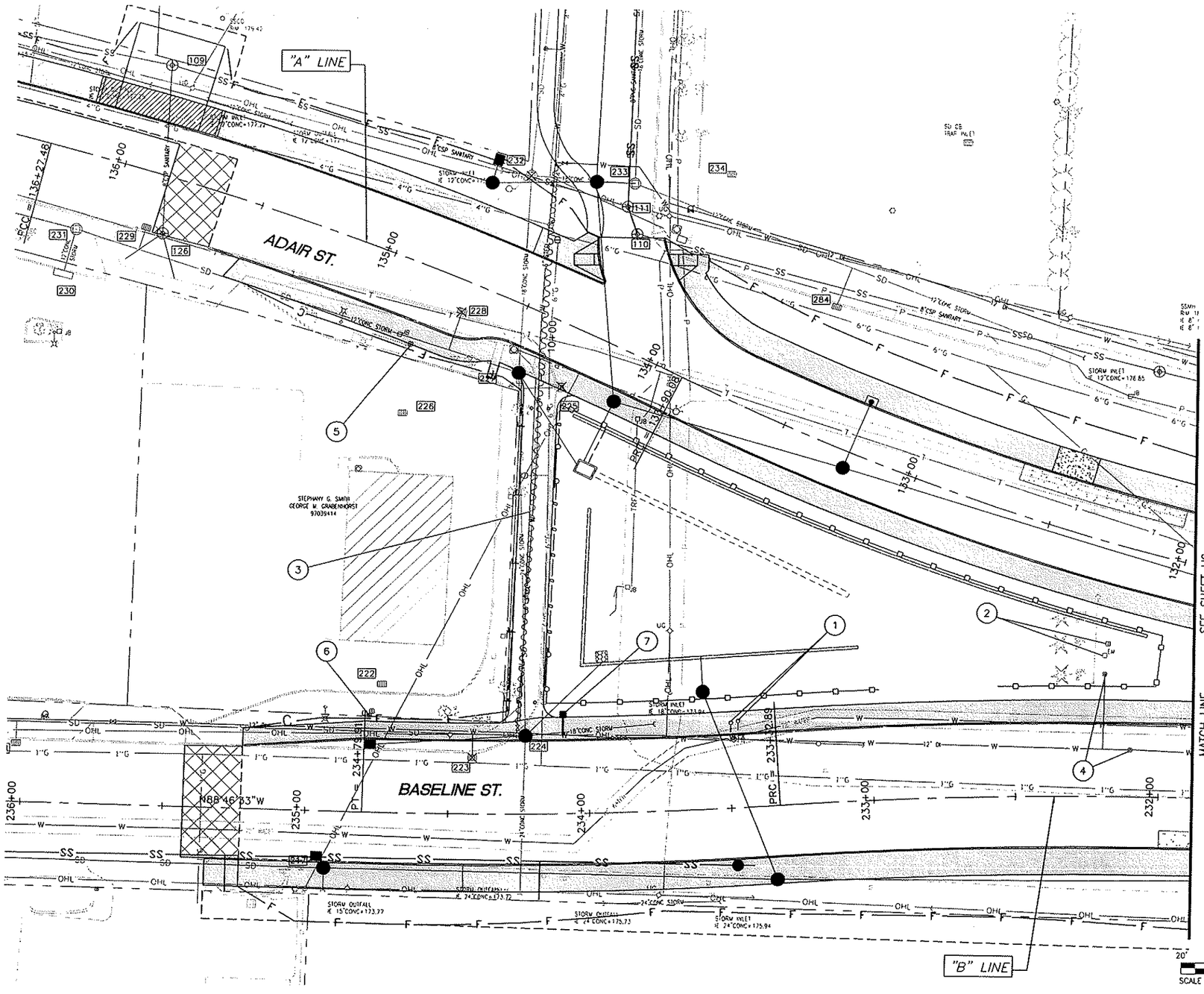
	BY	DATE
DRWN:	DH	7/05
DSGN:	DH	7/05
CHKD:	PKW	7/05

REGISTERED
263
DAVID D. HAYNES
OREGON
LANDSCAPE ARCHITECT

SHEET TITLE R4

SHEET NO. 91 OF 140

Sec. 3, T. 1S, R. 3W, W.M.
Sec. 34, T. 1N, R. 3W, W.M.



GENERAL NOTES

1. ALL WATERLINE JOINTS AND FITTINGS SHALL BE RESTRAINED.
2. SEE SHEET 1D FOR EXISTING STRUCTURE INFORMATION.
3. SEE SHEET 2B-9 FOR COC WATER SYSTEM DETAILS.

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:

NO.	REVISIONS

"As Constructed"
DATE 11/6/06 BY

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-8813
FAX: (360) 737-0851

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

WATER PLAN

	BY	DATE
DRWN:	GE	7/05
DSGN:	GE	7/05
CHKD:	PW	7/05

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN
EXPIRES: 6/30/08

SHEET TITLE
U4A

SHEET NO.
130 OF 140

PROJECT NUMBER
100017

WASHINGTON COUNTY
OREGON
DEPARTMENT OF LAND USE AND TRANSPORTATION

Cornelius Oregon's Family Town

DWG:

NO.	REVISIONS

N. 19TH AND S. 20TH AVE REALIGNMENT
INCLUDING BASELINE ST, ADAIR ST, AND T.V. HWY
WASHINGTON COUNTY AND CITY OF CORNELIUS

WATER PLAN NOTES

"As Constructed"
DATE 11/6/06 BY

otak
Incorporated
700 Washington Street
Suite 401
Vancouver, WA 98660-3139
Phone: (360) 737-9613
FAX: (360) 737-9651

	DATE	BY
DRWN:	7/05	GE
DSGN:	7/05	GE
CHKD:	7/05	PW

REGISTERED PROFESSIONAL ENGINEER
11,766
OREGON
JULY 16, 1982
PAMELA KIEL WIEDEMANN

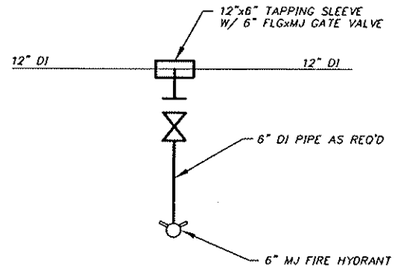
EXPIRES: 6/30/08

SHEET TITLE: U5
SHEET NO.: 131 OF 140

CONSTRUCTION NOTES

THIS SHEET FACES SHEET U5A

1. STA 129+80, 44' RT±
   REMOVE AND RELOCATE EXISTING FIRE HYDRANT.
   SEE DETAIL "K," THIS SHEET.
2. STA 126+96, 40' RT±
   FURNISH AND INSTALL 1-FH ASSEMBLY, PER DETAIL "L," THIS SHEET.
3. STA 128+67, 26' LT±
   REMOVE AND REPLACE VAULT LID. SEE DETAIL "D" SHEET 2B-15.
4. RELOCATE JWC AIR RELEASE AND AIR VACUUM VALVE ASSEMBLY VAULT TO MEDIAN. SEE DETAIL "C" THIS SHEET AND SHEET 2B-13.
5. STA 227+99, 30' LT±
   RESET EXISTING FH ASSEMBLY BEHIND WALK, PER COC DETAIL NO WA-4, SHEET 2B-9.
6. PROTECT EXISTING METER BOX.
7. PROTECT EXISTING METER VALVE.
8. PROTECT EXISTING BLOWOFF ASSEMBLY.
9. PROTECT EXISTING IRRIGATION CONTROL VALVES.



NOTE: ALL MJ FITTINGS SHALL BE RESTRAINED

DETAIL "L"
N.T.S.

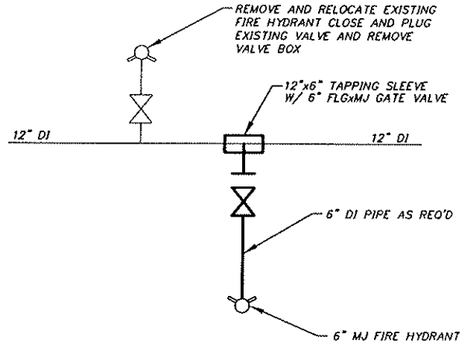
LEGEND:

- RIGHT-OF-WAY
- PUBLIC UTILITY EASEMENT
- TEMP. CONSTRUCTION EASEMENT
- c — CUT SLOPE
- f — FILL SLOPE

REMOVE EXTG. INLET OR MANHOLE SHOWN THUS:

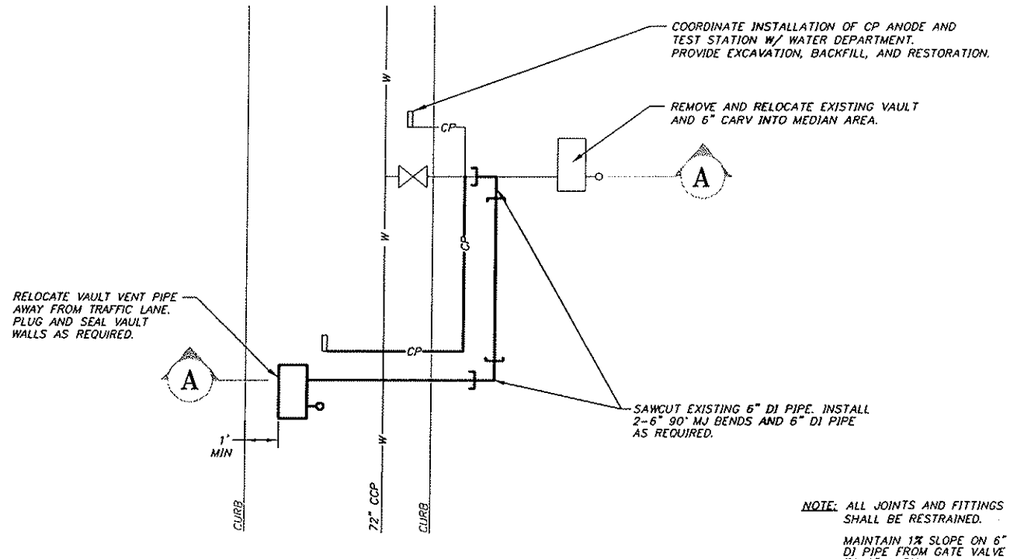
REMOVE EXTG. PIPE SHOWN THUS:

AC DRIVEWAY



NOTE: ALL MJ FITTINGS SHALL BE RESTRAINED

DETAIL "K"
N.T.S.



SECTION 'A-A' (SEE SHEET 2B-13)

NOTE: ALL JOINTS AND FITTINGS SHALL BE RESTRAINED.

MAINTAIN 1% SLOPE ON 6" DI PIPE FROM GATE VALVE TO 6" CARV.

DETAIL "C"
N.T.S.