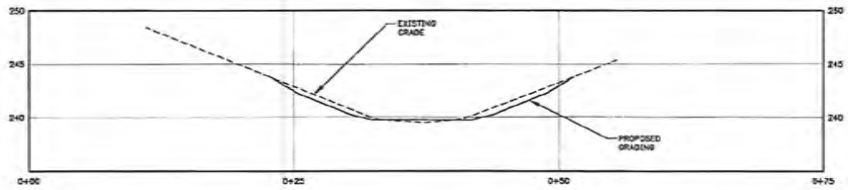
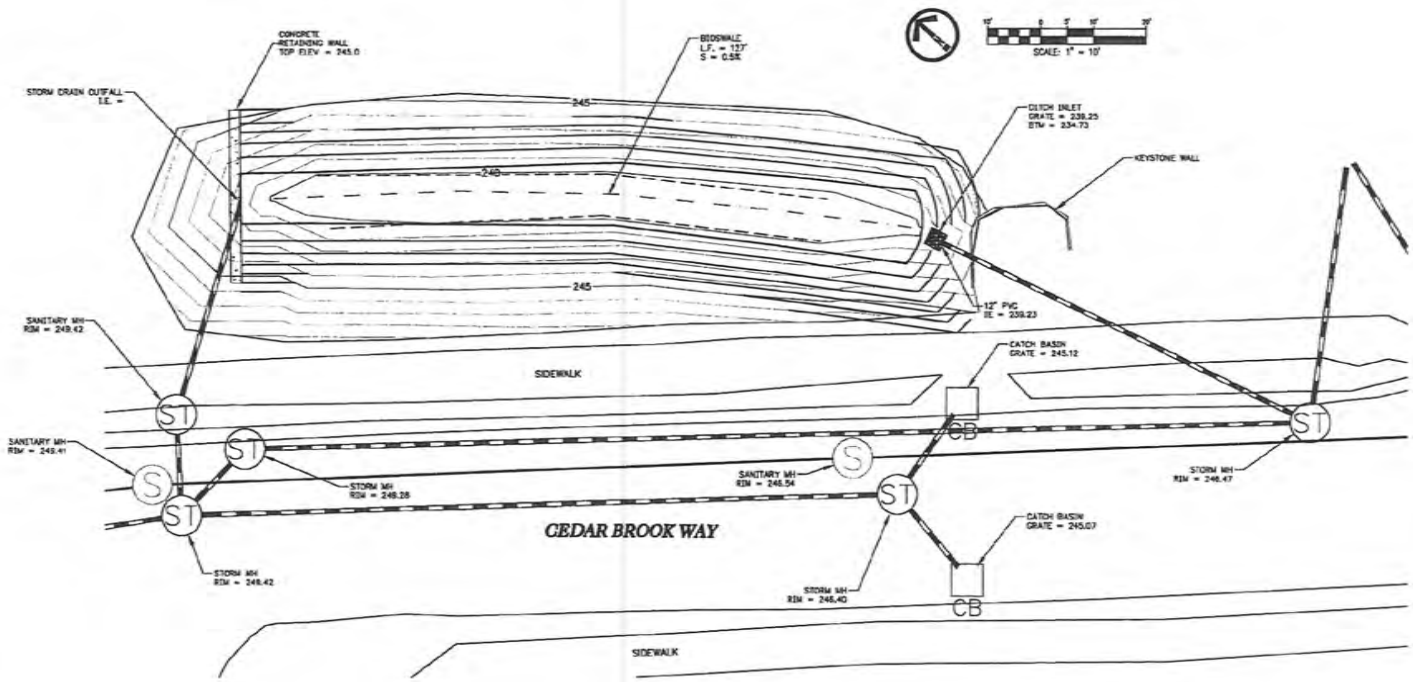


BIOSWALE SECTION PROFILES

SCALE: 1" = 5' VERT. 1" = 5' HORZ.



BIOSWALE PLAN

SCALE: 1" = 10'

5 LOT SUBDIVISION
31790 N.W. NORTH AVENUE
TAX MAP 1N3 01BD
TAX LOTS 400
CITY OF NORTH PLAINS, OREGON

BIOSWALE EXHIBIT

REVISIONS

NO.	DATE	DESCRIPTION
0	2/2014	PRELIMINARY

EMERIO Design
6107 SW MURRAY BLVD, SUITE 147
BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 639-9592
www.emeriodesign.com

SHEET

1

Water Quality Swale

Water Quality Area

Existing Subdivision	=	8.19 ac
Proposed Subdivision	=	5.09 ac
Total Impervious	=	13.28 ac

Water Quality Flow

WQ Volume (cf) $= \dfrac{0.36 \text{ in} \times \text{Impervious Area (sf)}}{12 \text{ (in/ft)}}$

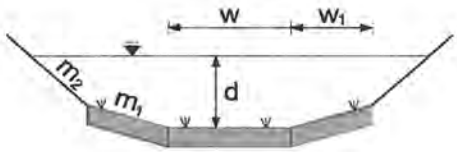
WQ Flow (cfs) $= \dfrac{\text{WQ Volume (cf)}}{(4 \text{ hr})(60 \text{ min/hr})(60 \text{ sec/min})}$

$= \dfrac{\text{Impervious Area (sf)}}{480{,}000 \text{ sec/ft}}$

$= \dfrac{\text{ac} \times 43{,}560 \text{ sf/ac}}{480{,}000 \text{ sec/ft}}$

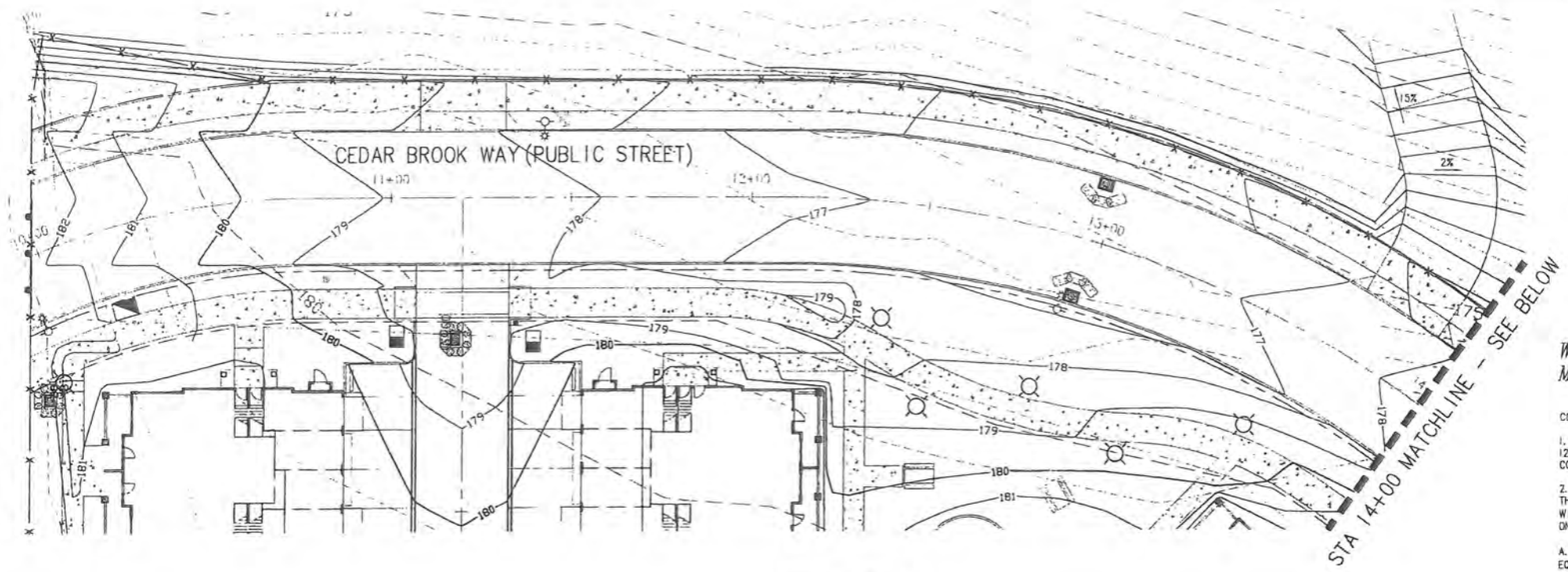
$= 1.21$ cfs

Biofilter Swale

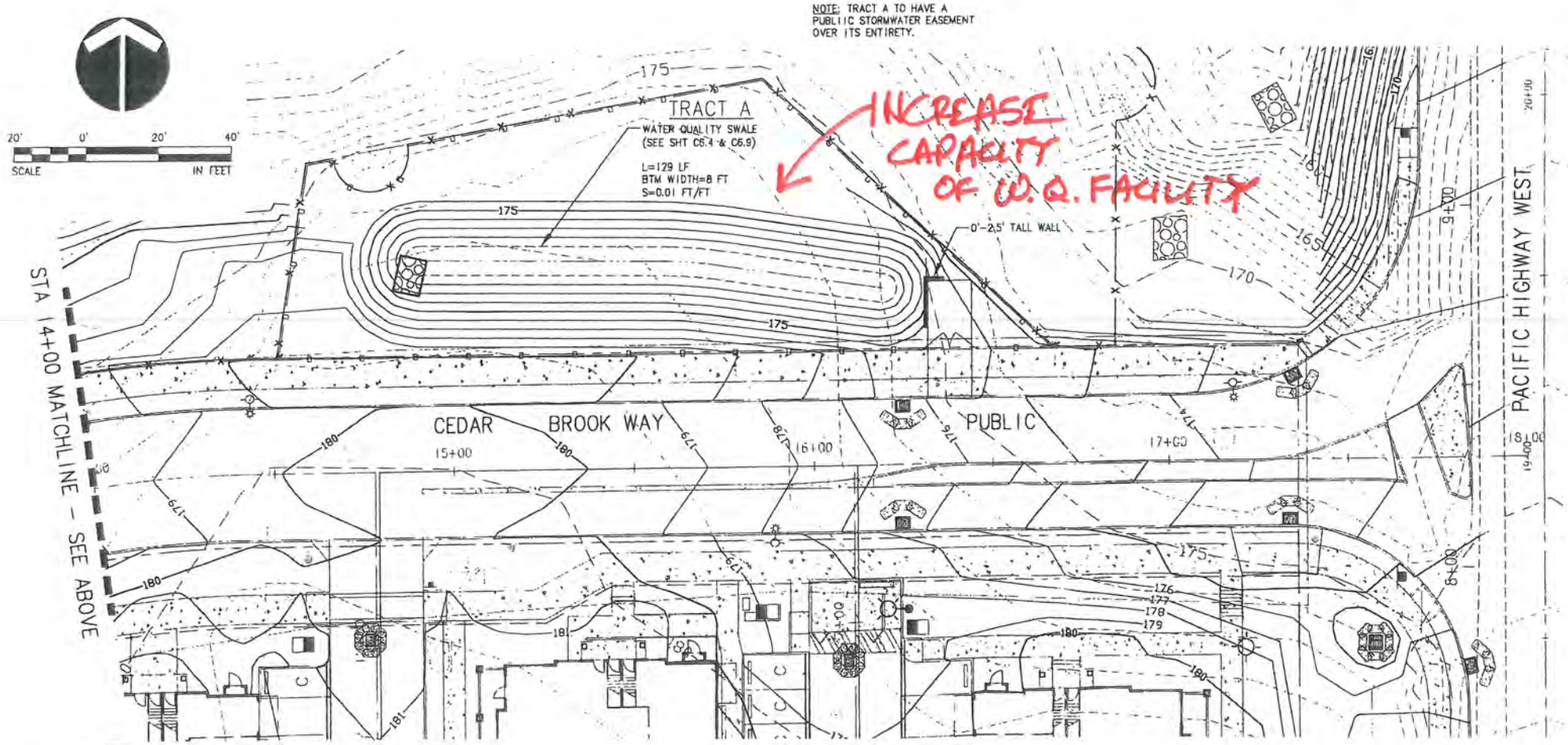


Water Quality Event

Transverse Properties			X-Sectional Properties		
Q	=	1.21 cfs	w	=	9.5'
s	=	0.50%	w_1	=	2.0'
n	=	0.240	m_1	=	4:1
L	=	127.0 LF	m_2	=	2.5:1
v	=	0.23 fps	d	=	0.46'
t	=	9.06 min			



NOTE: TRACT A TO HAVE A PUBLIC STORMWATER EASEMENT OVER ITS ENTIRETY.



LEGEND

192	1' PROPOSED CONTOURS
195	5' PROPOSED CONTOURS
	1' EXISTING CONTOURS
	5' EXISTING CONTOURS
X X	SILT FENCE
	CATCH BASIN W/ INLET PROTECTION
	PROPOSED WALL
	PROPERTY LINE
	RIGHT-OF-WAY
	CENTER LINE

WATER QUALITY SWALE CONSTRUCTION AND MAINTENANCE NOTES

CONSTRUCTION NOTES:

1. WATER QUALITY SWALE SHALL BE OVER-EXCAVATED AND FILLED TO FINAL GRADE WITH 12-INCH AMENDED TOPSOIL. TOPSOIL AMENDMENTS SHALL BE GARDEN COMPOST, NOT CONVENTIONAL FERTILIZER AMENDMENTS.

2. A BIODEGRADABLE EROSION CONTROL MATTING SHALL BE PLACED OVER THE TOPSOIL THROUGHOUT THE SWALE CROSS SECTION. FABRIC SHALL BE HELD IN PLACE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS. ANCHOR SPACING SHALL BE BASED ON 3 FS FLOW OVER THE FABRIC.

A. TREATMENT AREA – HIGH-DENSITY JUTE MATTING (GEOJUTE PLUS OR OTHER APPROVED EQUAL)

B. ALL OTHER AREAS – LOW-DENSITY JUTE MATTING (ECONOJUTE OR OTHER APPROVED EQUAL)

3. 2.5–3 INCHES OF 2"–4" RIVER RUN ROCK SHALL BE PLACED OVER THE MATTING EVENLY THROUGHOUT THE LENGTH AND WIDTH OF THE SWALE.

4. PLANT MATERIALS SHALL BE PLACED IN ACCORDANCE WITH THE PLAN AND PLANT TABLE AS SHOWN ON APPROVED PLANS.

5. THE WATER QUALITY SWALE TREATMENT AREA PLANTINGS CAN BE DEEMED "SUBSTANTIALLY COMPLETE" ONCE ACTIVE GREEN GROWTH HAS OCCURRED TO AN AVERAGE GROWTH OF 3" AND PLANT DENSITY IS AN AVERAGE OF APPROX. 6 PLANTS (MINIMUM 1-INCH PLUGS OR EQUIVALENT) PER SQUARE FOOT.

6. THE FACILITY SHALL BE DEEMED ACCEPTABLE TO BEGIN THE MAINTENANCE PERIOD WHEN PLANT GROWTH AND DENSITY MATCHES THE ENGINEER'S DESIGN AS SHOWN ON THE APPROVED PLANS AND ALL OTHER REQUIREMENTS HAVE BEEN MET. THE ENGINEER MUST CERTIFY THE FACILITY TO BE FUNCTIONAL, IN ACCORDANCE WITH THE APPROVED PLAN DESIGN TO BEGIN THE TWO-YEAR MAINTENANCE PERIOD.

MAINTENANCE NOTES:

1. THE PERMITTEE IS RESPONSIBLE FOR THE MAINTENANCE OF THIS FACILITY FOR A MINIMUM OF TWO YEARS FOLLOWING CONSTRUCTION AND ACCEPTANCE OF THIS FACILITY PER CHAPTER 2.

2. IRRIGATION IS TO BE PROVIDED PER SEPARATE IRRIGATION PLAN AS APPROVED. NOTE: IRRIGATION NEEDS ARE TO BE MET USING A TEMPORARY IRRIGATION SYSTEM WITH A TIMER DURING THE DRY SEASON. SYSTEMS SHOULD BE WINTERIZED DURING THE WET SEASON TO ASSURE LONGEVITY AND GUARD AGAINST DAMAGE FROM FREEZING TEMPERATURES. WATER SOURCE SHALL BE AS SHOWN ON THE APPROVED PLANS.

3. ENGINEER OR OWNERS REPRESENTATIVE IS TO VISIT AND EVALUATE THE SITE A MINIMUM OF TWICE ANNUALLY (SPRING AND FALL). THE LANDSCAPING SHALL BE EVALUATED AND REPLANTED AS NECESSARY TO ENSURE A MINIMUM OF 80% SURVIVAL RATE OF THE REQUIRED VEGETATION AND 90% AERIAL COVERAGE. NON-NATIVE, INVASIVE PLANT SPECIES SHALL BE REMOVED WHEN OCCUPYING MORE THAN 20% OF THE SITE.

4. THE FACILITY SHALL BE RE-EXCAVATED AND PLANTED IF SILTATION GREATER THAN 3 INCHES IN DEPTH OCCURS WITHIN THE TWO-YEAR MAINTENANCE PERIOD.

MAINTENANCE PLAN:

1. MAINTENANCE OF THE WATER QUALITY FACILITY SHALL BE PERFORMED BY THE PERMITTEE UNTIL TERMINATION OF THE MAINTENANCE PERIOD.

2. ALL FACILITY COMPONENTS, VEGETATION, AND SOURCE CONTROLS SHALL BE INSPECTED FOR PROPER OPERATIONS AND STRUCTURAL STABILITY, AT A MINIMUM, TWICE ANNUALLY. INSPECTION AND MAINTENANCE OF INDIVIDUAL SYSTEM COMPONENTS ARE OUTLINED BELOW.

3. FENCING: REPLACE MISSING OR DAMAGED POSTS, FABRIC, TENSION WIRES, OR OTHER PARTS AS NECESSARY.

4. GATES: REPLACE OR REPAIR MISSING OR DAMAGED PARTS. GATE TO BE ALIGNED AND VERTICAL, AND EASILY OPENED AND CLOSED BY A MAINTENANCE PERSON. HINGES TO BE INTACT AND LUBED.

5. ENERGY DISSIPATERS: REPLACE MISSING OR MOVED ROCKS TO DESIGN STANDARDS. INLET PIPE TO BE CLEAN AND FREE OF DEBRIS.

6. CONVEYANCE SYSTEMS: PIPES TO BE CLEANED OF ALL SEDIMENT AND DEBRIS. VEGETATION SHALL BE REMOVED SO WATER FLOWS FREELY TO THE PIPES. REMOVE TRASH AND DEBRIS FROM INLETS AND OUTLETS.

7. WATER QUALITY FACILITY (SWALE): REMOVE SEDIMENT DEPOSITS IN TREATMENT AREA IF IN EXCESS OF TWO INCHES. REMOVE NUISANCE VEGETATION. REPAIR ERODED OR SCOURED AREAS. REPLANT AS NECESSARY TO MAINTAIN DESIGN PLANT COVERAGE. REMOVE TRASH AND DEBRIS.

8. LANDSCAPING: REMOVE INVASIVE PLANTS. REPLACE DEAD OR DISEASED PLANTS OR TREES. REMOVE TRASH AND DEBRIS. SUPPORT DAMAGED OR LEANING TREES AND SHRUBS.

9. ACCESS ROAD: CLEAN ROADWAY OF TRASH AND DEBRIS. REMOVE WEEDS.

NO.	DATE	BY	REVISION COMMENT'S

Design Draw: Checked Date Initial Issue Date

RECORD DRAWING
BY: [illegible]
DATE: 3/6/09
Permitted design drawings stamped by:
Darrin B. Stairs
OR. P.E. 51051PE
EXPIRES
06/30/2010

WOODHAVEN II, LLC.
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SUITE 210
PORTLAND, OR 97225

CREEKVIEW CONDOMINIUMS

PUBLIC IMPROVEMENTS – CEDAR BROOK WAY
GRADING AND EROSION CONTROL PLAN

AS-BUILT SUBMITTAL – MARCH 6, 2009

otak Incorporated
17355 SW Boones Ferry Rd.
Lake Oswego, Oregon 97035
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FAX: (503) 635-5395
Internet: WWW.otak.COM

13166 C6.2
Project No. Drawing No.

C6.2
Sheet No.

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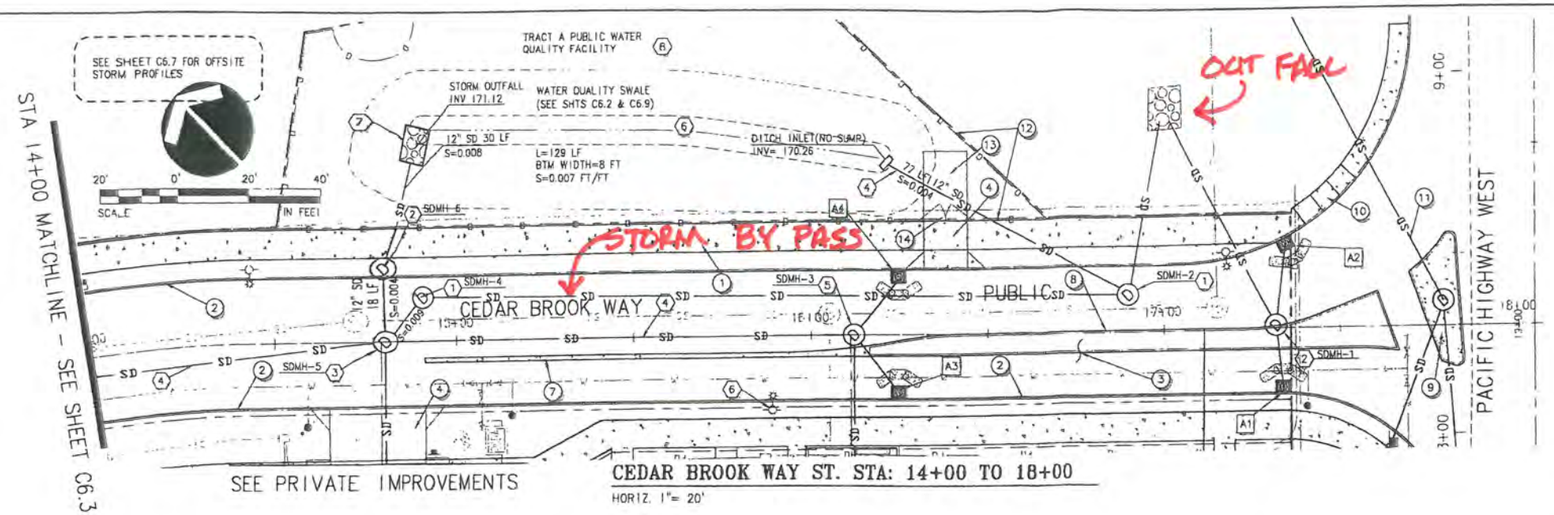
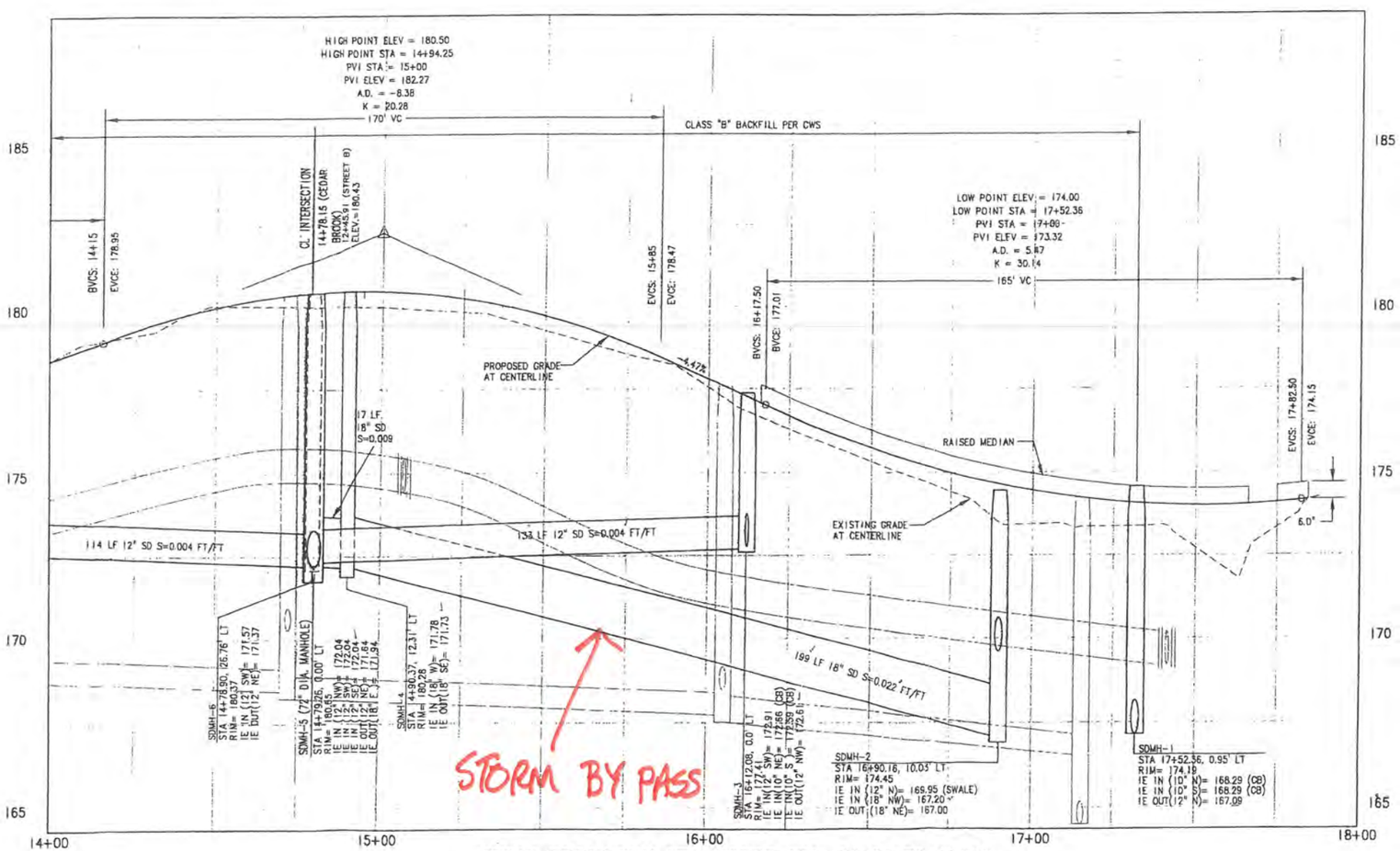


CEDAR BROOK WAY ST. STA: 14+00 TO 18+00

HORIZ. 1"= 20'



CEDAR BROOK WAY ST. PROFILE STA: 14+00 TO 18+00

SCALE: HORIZ. 1"= 20'
VERT. 1"= 2'

LEGEND

- SD — PROPOSED STORM DRAIN LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- CENTER LINE
- PROPOSED CATCH BASIN
- PROPOSED DITCH INLET
- PROPOSED STREETLIGHT

STORM DRAIN NOTES

1. CONSTRUCT STD. MANHOLE PER CWS STD. DWG. NO. 010. SEE SHEET C6.11
2. CONSTRUCT WATER QUALITY MANHOLE PER CWS STD. DWG. NO. 515. SEE SHEET C6.11
3. CONSTRUCT FLOW SPLITTER MANHOLE SEE DETAIL NO.1 SHEET C6.11
4. STORM PIPE 10" TO 15" TO BE PVC ASTM D-3034. STORM PIPE GREATER THAN 15" TO BE PVC ASTM F-679.
5. CONSTRUCT SHALLOW FLAT TOP MANHOLE PER CWS STD. DETAIL NO. 040, SHEET C6.11.
6. CONSTRUCT DITCH INLET PER CWS STD. DETAIL NO. 250 (NO SUMP). SEE SHEET C6.
7. INSTALL 8' LENGTH, 7.5' WIDTH, 1.5' DEPTH, ODOT CLASS 50 RIPRAP 1' OVER CROWN
8. TRACT 'A' TO HAVE A PUBLIC STORMWATER EASEMENT OVER ITS ENTIRETY.

CATCH BASIN DATA

FOR CATCH BASIN DETAILS SEE CWS STD. DWG. NO. 225

NO.	STATION/ OFFSET	ELEVATION @ GUTTER	INVERT	PIPE OUT (PVC) SIZE/ LENGTH	SLOPE
A1	17+33.95 18.00' RT	173.36	168.56	10"/17.41'	0.016
A2	17+33.95 24.67' LT	173.21	168.41	10"/22.56'	.005
A3	16+24.99 18.00' RT	176.05	172.66	10"/20.66'	.003
A4	16+24.99 18.00' LT	176.12	172.82	10"/20.67'	.008

STREET NOTES

1. CONSTRUCT SIDEWALK PER CITY OF SHERWOOD DETAIL ST-2. SEE SHEET C6.13.
2. CONSTRUCT CURB & GUTTER PER CITY OF SHERWOOD DETAIL ST-1. SEE SHEET C6.13.
3. CONSTRUCT ROADWAY SECTION PER CITY OF SHERWOOD DETAIL ST-5. SEE SHEET C6.13.
4. CONSTRUCT COMMERCIAL DRIVEWAY APPROACH PER CITY OF SHERWOOD DETAIL ST-4. SEE SHEET C6.13.
5. CONSTRUCT RESIDENTIAL DRIVEWAY APPROACH PER CITY OF SHERWOOD DETAIL ST-3. SEE SHEET C6.13.
6. CONSTRUCT STREETLIGHT. SEE SHEET C1.4 FOR DETAILS.
7. CONSTRUCT 16" WIDE TRAFFIC SEPARATOR PER ODOT STD DWG NO. RD706, TYPE C.
8. CONSTRUCT MEDIAN WITH NON-MOUNTABLE CURB PER CITY OF SHERWOOD STD. DETAIL NO. ST-1-3, SHEET C6.14.
9. CONSTRUCT CONCRETE MEDIAN
10. CONSTRUCT SIDEWALK RAMP PER ODOT STANDARD DWGS. SEE SHEET C7.3.
11. FOR STORM LINE DESIGN IN PACIFIC HWY 99 WEST, SEE SHEETS C7.2, C7.3 AND C7.3a.
12. CONSTRUCT CHAIN LINK FENCE AND GATE PER CWS STD. DETAIL NO. 1005 ON SHEET C6.10.
13. CONSTRUCT ASPHALT ACCESS ROAD PER CWS STANDARDS. ROAD SECTION TO BE 3" CLASS 'C' ASPHALTIC CONCRETE; OVER 2 (TWO) INCHES 3"-0" COMPACTED CRUSHED ROCK; OVER 6 (SIX) INCHES 1½"-0" COMPACTED CRUSHED ROCK; OVER SUBGRADE COMPACTED TO 95% OF AASHTO T-99.
14. CONSTRUCT 15' WIDE GATE PER CWS STADARD DETAIL NO. 1005.

NO.	DATE	BY	REVISION COMMENTS

RECORD DRAWING
BY: Darrin B. Stairs
DATE: 3/6/09
Permitted design drawings stamped by:
Darrin B. Stairs
OR. P.E. 51051PE
EXPIRES 06/30/2010

WOODHAVEN II, LLC.
9755 SW BARNES ROAD
SUITE 210
PORTLAND, OR 97225

CREEKVIEW CONDOMINIUMS

PUBLIC IMPROVEMENTS – CEDAR BROOK WAY
STREET AND STORM DRAIN PLAN & PROFILE

AS-BUILT SUBMITTAL – MARCH 6, 2009

otak Incorporated
17355 SW Boones Ferry Rd
Lake Oswego, Oregon 97035
Phone: (503) 635-9618
FAX: (503) 635-5995
Internet: WWW.Otak.COM

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Project No. | Drawing No.
C6.4
Sheet No.

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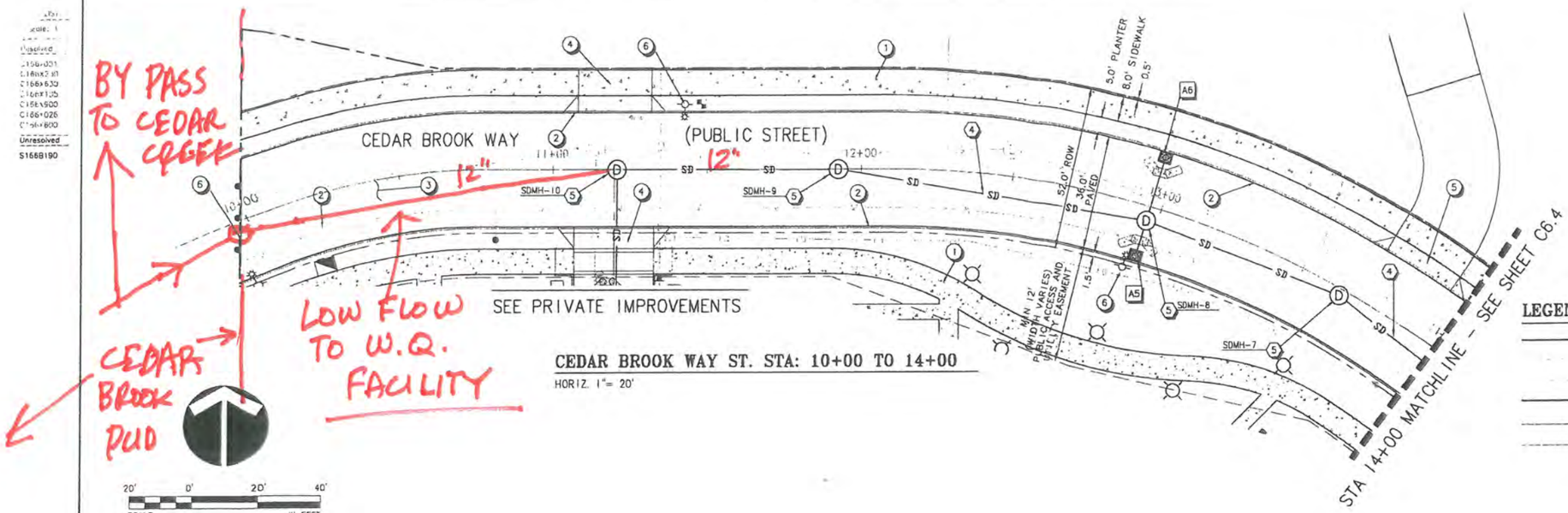
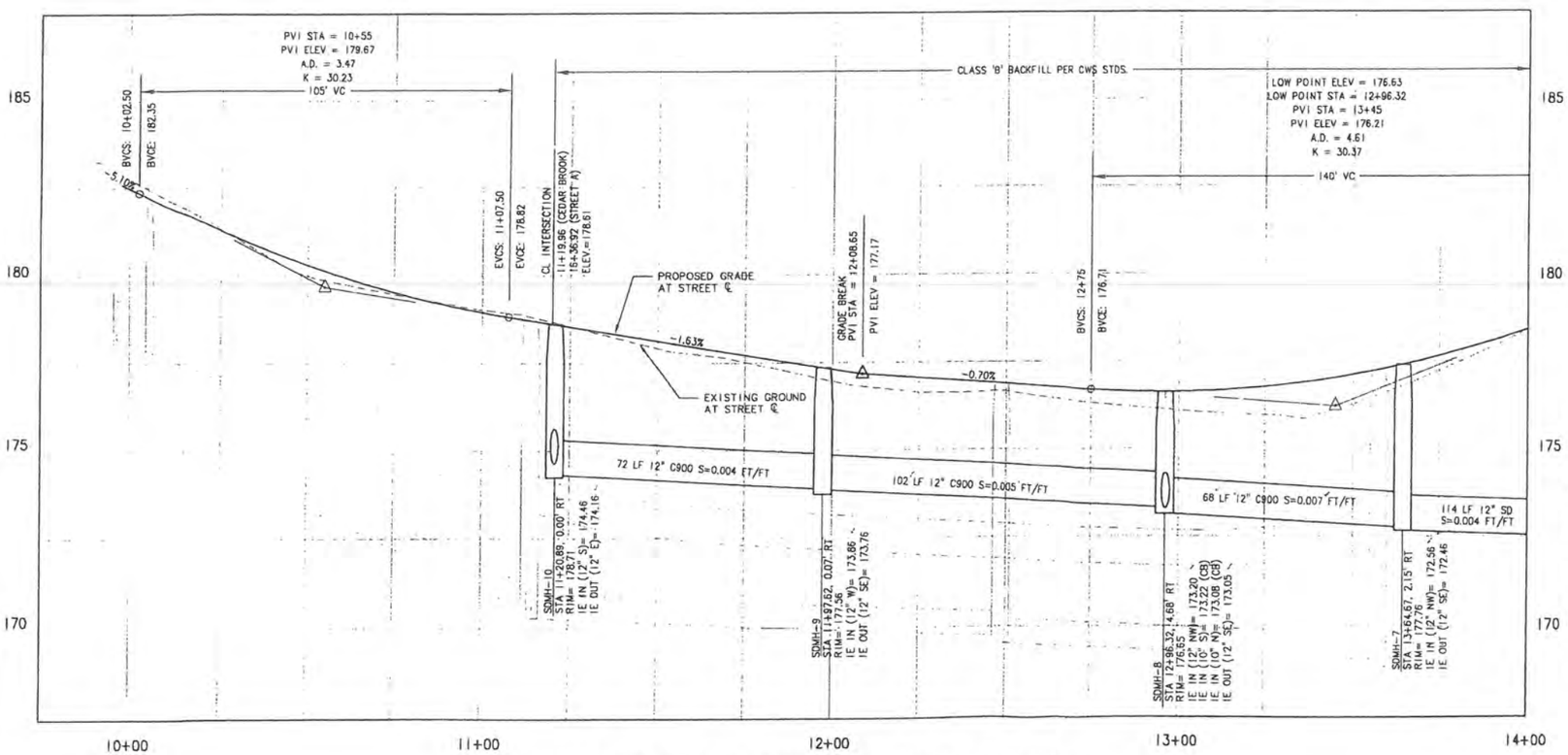


CEDAR BROOK WAY ST. STA: 10+00 TO 14+00

HORIZ. 1"= 20'



CEDAR BROOK WAY ST. PROFILE STA: 10+00 TO 14+00

SCALE: HORIZ. 1"= 20'
VERT. 1"= 2'

LEGEND

- SD — PROPOSED STORM DRAIN LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED WATER LINE
- PROPERTY LINE
- RIGHT-OF-WAY
- CENTER LINE
- PROPOSED CATCH BASIN
- PROPOSED DITCH INLET
- PROPOSED STREETLIGHT

STORM DRAIN NOTES

1. CONSTRUCT STD. MANHOLE PER CWS STD. DWG. NO. 010, SEE SHEET C6.11
2. CONSTRUCT WATER QUALITY MANHOLE PER CWS STD. DWG. NO. 515, SEE SHEET C6.11
3. CONSTRUCT FLOW SPLITTER MANHOLE SEE DETAIL NO.1 SHEET C6.11
4. STORM PIPE TO BE PVC ASTM D-3034, UNLESS OTHERWISE NOTED.
5. CONSTRUCT SHALLOW FLAT TOP MANHOLE PER CWS STD DWG NO. 040, SEE SHEET C6.11

CATCH BASIN DATA

FOR CATCH BASIN DETAILS SEE CWS STD. DWG. NO. 225

NO.	STATION/ OFFSET	ELEVATION @ GUTTER	INVERT	PIPE OUT (C900) SIZE/ LENGTH	SLOPE
A5	12+96.08 16.26' RT	176.03	173.23	10"/11.58'	.001
A6	12+96.55 16.81' LT	176.06	173.16	10"/20.86'	.004

STREET NOTES

1. CONSTRUCT 8' WIDE SIDEWALK PER CITY OF SHERWOOD DETAIL ST-2 SEE SHEET C6.13.
2. CONSTRUCT CURB & GUTTER PER CITY OF SHERWOOD DETAIL ST-1. SEE SHEET C6.13.
3. CONSTRUCT ROADWAY SECTION PER CITY OF SHERWOOD DETAIL ST-5 & DETAIL 1. SEE SHEET C6.13.
4. CONSTRUCT COMMERCIAL DRIVEWAY APPROACH PER CITY OF SHERWOOD DETAIL ST-4. SEE SHEET C6.13.
5. CONSTRUCT RESIDENTIAL DRIVEWAY APPROACH PER CITY OF SHERWOOD DETAIL ST-4. SEE SHEET C6.13.
6. CONSTRUCT STREETLIGHT. SEE SHEET C1.4 FOR DETAILS.

RECORD DRAWING
BY:
DATE:
Permitted design drawings stamped by:
Darrin B. Stairs
OR. P.E. 51051PE
EXPIRES
06/30/2010

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CREEKVIEW CONDOMINIUMS

PUBLIC IMPROVEMENTS - CEDAR BROOK WAY
STREET AND STROM DRAIN PLAN & PROFILE

RECORD DRAWINGS - SEPTEMBER 5, 2008

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13160 C6.3
Project No. Drawing No.
C6.3
Sheet No.

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