Lewis County
Department of Public Works
Engineering Division

CONTRACT PROVISIONS AND PLANS
FOR CONSTRUCTION OF:

HIGHWAY 603

STABILIZATION PROJECT

BOOK 3 of 3

FEDERAL AID PROJECT NO. STPR-G211(001)
F.A. Contract No. TA-5900
COUNTY ROAD PROJECT NO. 2144

March, 2016

Lewis County Public Works
2025 NE Kresky Ave.
Chehalis, WA 98532-2626

TIM D FIFE
STATE OF WASHINGTON
#24184
REGISTERED
PROFESSIONAL ENGINEER
3-21-16

BOARD OF COUNTY COMMISSIONERS

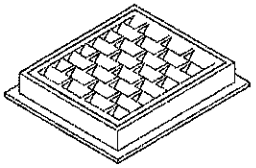
Edna J. Fund, District No. 1
P. W. Schulte, District No. 2
Gary Stamper, District No. 3

APPENDIX H

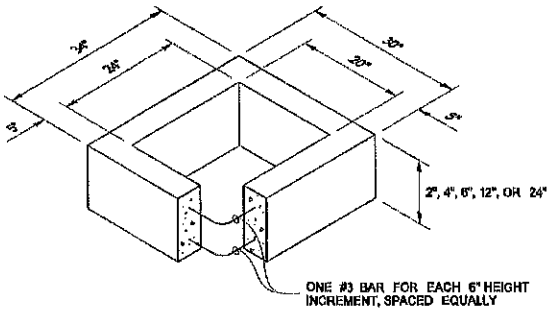
STANDARD PLANS

CONTRACT PLANS

DRAWN BY: LISA CYFORD



FRAME AND VANED GRATE



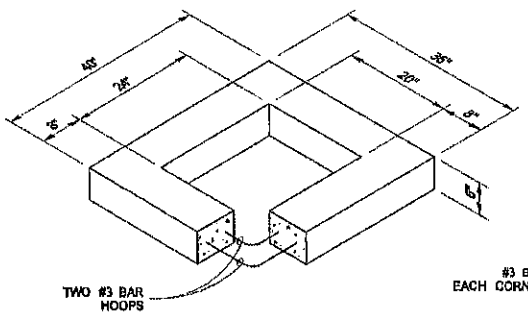
RECTANGULAR ADJUSTMENT SECTION

PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER
REINFORCED OR PLAIN CONCRETE	18"
ALL METAL PIPE	21"
CPSSP * (STD. SPEC. 9-05.20)	18"
SOLID WALL PVC (STD. SPEC. 9-05.12(1))	21"
PROFILE WALL PVC (STD. SPEC. 9-05.12(2))	21"

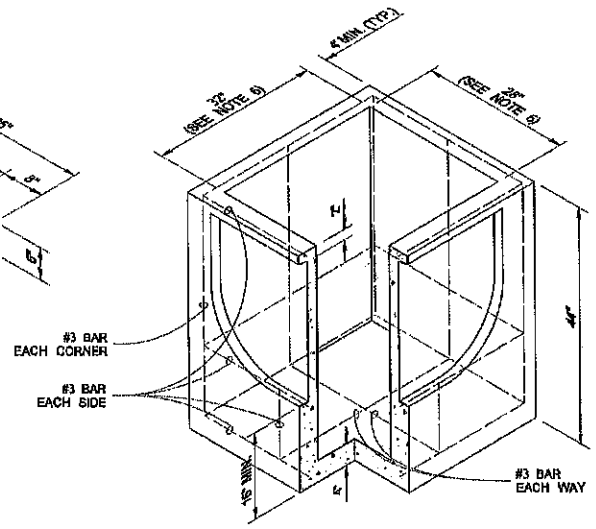
* CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

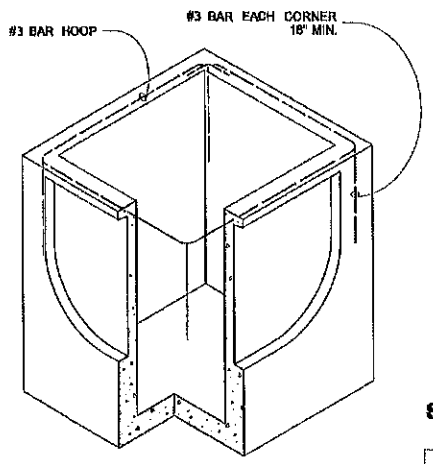
1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot, shall be used with the minimum required rebar shown in the **ALTERNATIVE PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout shall not be greater than 26", in any direction. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification 9-04.3.**
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5'.
4. The frame and grate may be installed with the flange down or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1:24 or steeper.
6. The opening shall be measured at the top of the Precast Base Section.
7. All pickup holes shall be grouted full after the basin has been placed.



REDUCING SECTION



PRECAST BASE SECTION



(SEE NOTE 1)

ALTERNATIVE PRECAST BASE SECTION

6/15/11

CATCH BASIN TYPE 1L

STANDARD PLAN B-5.40-01

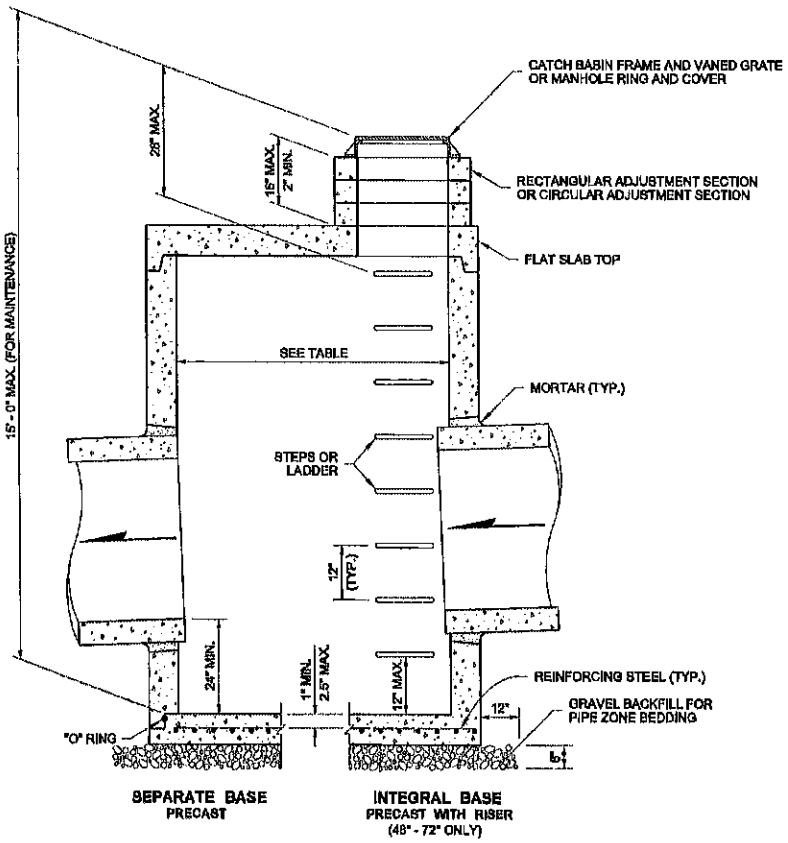
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 6/16/11

Washington State Department of Transportation

DRAWN BY: LISA CYFORD



NOTES

1. No steps are required when height is 4' or less.
2. The bottom of the precast catch basin may be sloped to facilitate cleaning.
3. The rectangular frame and grate may be installed with the flange up or down. The frame may be cast into the adjustment section.
4. Knockouts shall have a wall thickness of 2" minimum to 2.5" maximum. Provide a 1.5" minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification 9-04.3.**

CATCH BASIN DIMENSIONS

CATCH BASIN DIAMETER	MIN. WALL THICKNESS	MIN. BASE THICKNESS	MAXIMUM KNOCKOUT SIZE	MINIMUM DISTANCE BETWEEN KNOCKOUTS
48"	4"	6"	36"	6"
54"	4.5"	8"	42"	8"
60"	5"	8"	48"	8"
72"	6"	8"	60"	12"
84"	8"	12"	72"	12"
96"	8"	12"	84"	12"
120"	10"	12"	96"	12"
144"	12"	12"	108"	12"

PIPE ALLOWANCES

CATCH BASIN DIAMETER	PIPE MATERIAL WITH MAXIMUM INSIDE DIAMETER				
	CONCRETE	ALL METAL	CPSSP ①	SOLID WALL PVC ②	PROFILE WALL PVC ③
48"	24"	30"	24"	30"	30"
54"	30"	36"	30"	36"	36"
60"	36"	42"	36"	42"	42"
72"	42"	54"	42"	48"	48"
84"	54"	60"	54"	48"	48"
96"	60"	72"	60"	48"	48"
120"	66"	84"	60"	48"	48"
144"	78"	96"	60"	48"	48"

① Corrugated Polyethylene Storm Sewer Pipe (**Standard Specification 9-05.20**)
② (**Standard Specification 9-05.12(1)**)
③ (**Standard Specification 9-05.12(2)**)

CASEY M. KRAMER
STATE OF WASHINGTON
44535
REGISTERED
PROFESSIONAL ENGINEER
1-3-12

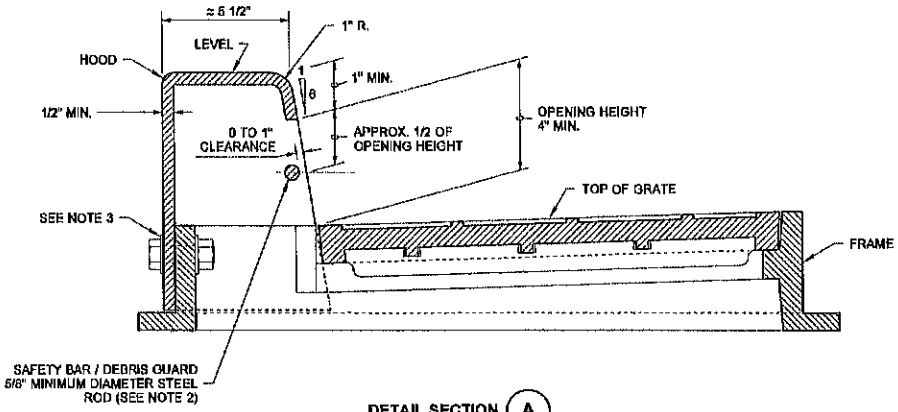
CATCH BASIN TYPE 2

STANDARD PLAN B-10.20-01

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 2/7/12
Washington State Department of Transportation

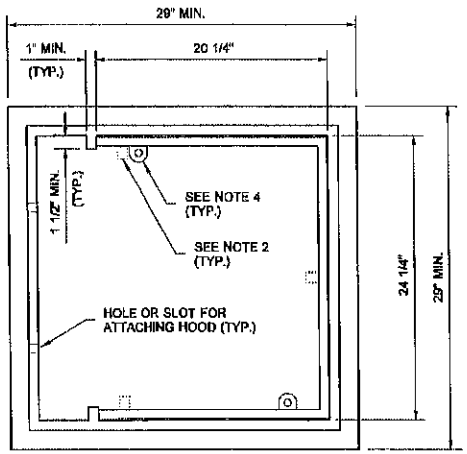
DRAWN BY: FERN LIDDELL



DETAIL SECTION (A)

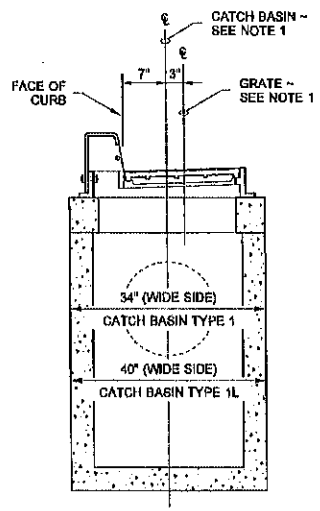
NOTES

1. This inlet requires the precast catch basin unit to be rotated 90 degrees so that the narrow side is parallel to the curb line. When calculating offsets from curb to CL of the precast catch basin, please note that the CL of the grate is not the CL of the precast catch basin. See **Section A**
2. The dimensions of the frame and hood may vary slightly among different manufacturers. The Frame may have cast features intended to support a debris guard. Hood units may be mounted inside or outside of the frame. The methods for fastening the safety bar / debris guard rod to the hood may vary. The hood may include casting lugs. The top of the hood may be cast with a pattern.
3. Attach the hood to the frame with two 3/4" × 2" hex head bolts, nuts, and oversize washers. The washers shall have diameters adequate to ensure full bearing across the slots.
4. Bolt-down capability is required on all frames, grates and covers, unless specified in the Contract. Provide two holes in the Frame that are vertically aligned with the grate slots. The frame shall accept the 5/8" × 11 NC × 2" allen head cap screw by being tapped, or other approved mechanism. The location of bolt-down holes varies among manufacturers. See BOLT-DOWN DETAIL, **Standard Plan B-30.10.**
5. Only ductile iron Vaned Grates shall be used. See **Standard Plans B-30.30 and B-30.40** for grate details. Refer to **Standard Specification 9-05.15(2)** for additional requirements.
6. This plan is intended to show the installation details of a manufactured product. This plan is not intended to show the specific details necessary to fabricate the castings depicted in this drawing.

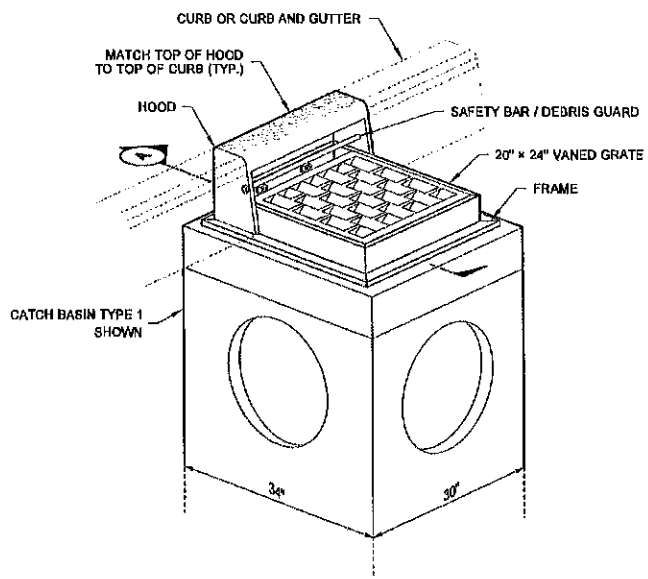


TOP VIEW

FRAME DETAIL



SECTION (A)



ISOMETRIC VIEW

COMBINATION INLET
FRAME, HOOD, AND VANED GRATE

COMBINATION INLET

STANDARD PLAN B-25.20-01

SHEET 1 OF 1 SHEET

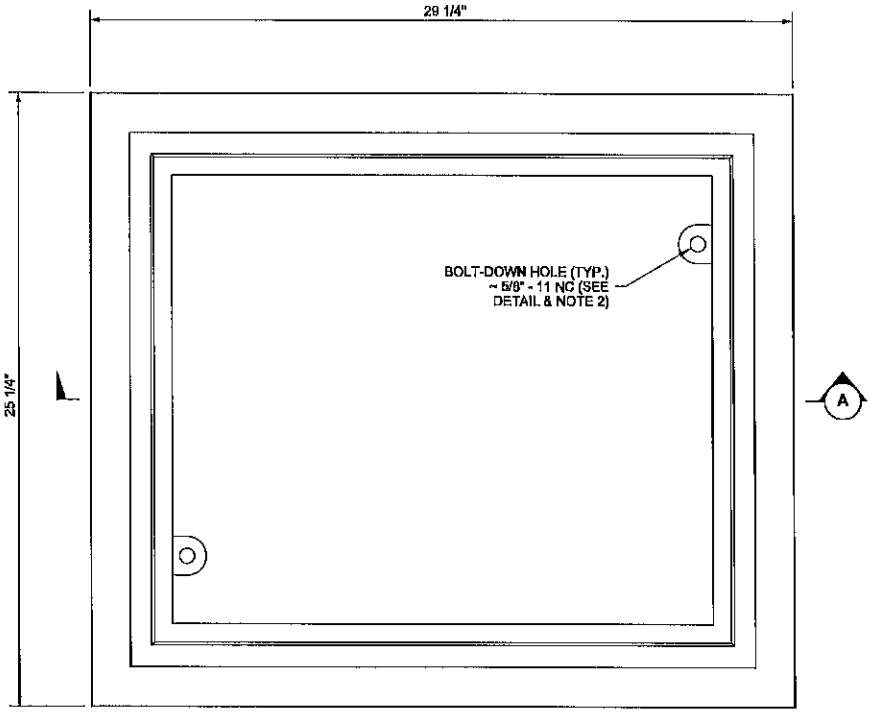
APPROVED FOR PUBLICATION

3/15/12

STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

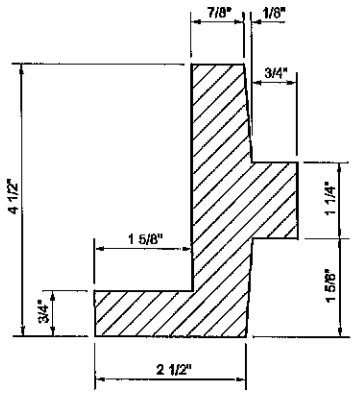
DRAWN BY: LISA CYFORD



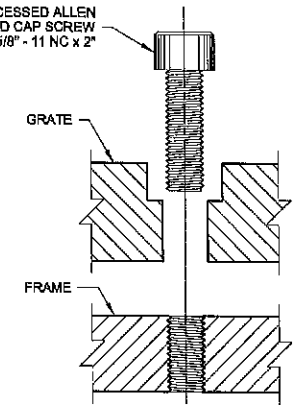
TOP

NOTES

1. This frame is designed to accommodate 20" × 24" grates or covers as shown on Standard Plans **B-30.20, B-30.30, B-30.40,** and **B-30.50.**
2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 11 NC × 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
3. Refer to **Standard Specification 9-05.15(2)** for additional requirements.

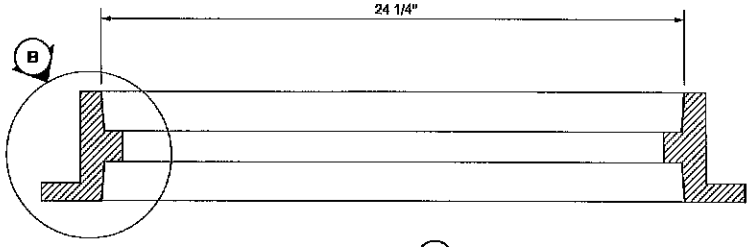


DETAIL B

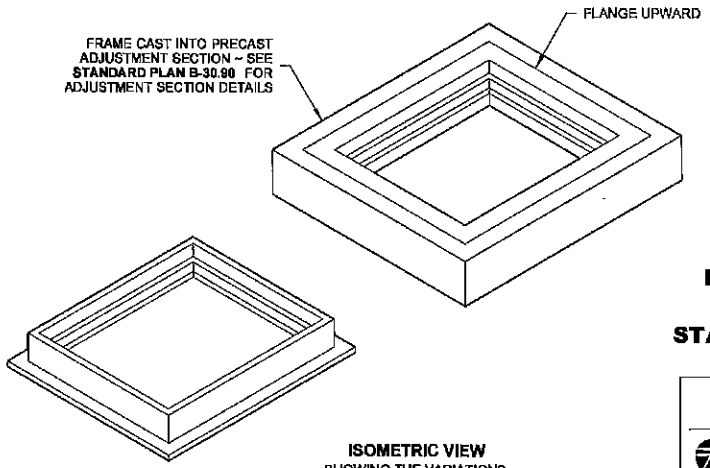


SECTION

BOLT-DOWN DETAIL
SEE NOTE 2



SECTION A



ISOMETRIC VIEW
SHOWING THE VARIATIONS

NOTE: THE PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC CODE DATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED BY THE STATE DESIGN ENGINEER, IS ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

RECTANGULAR FRAME (REVERSIBLE)

STANDARD PLAN B-30.10-01

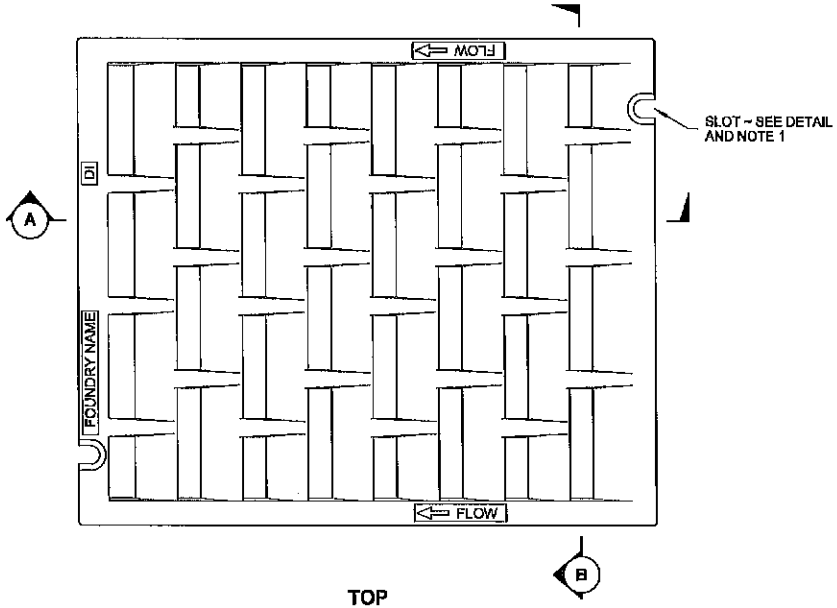
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

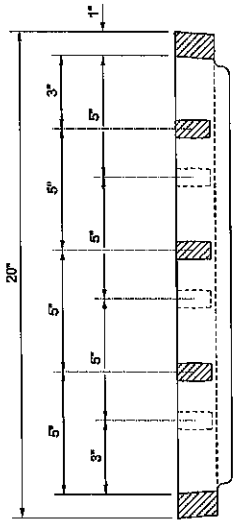
Pasco Bakotich III — STATE DESIGN ENGINEER — *04/26/12* — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD



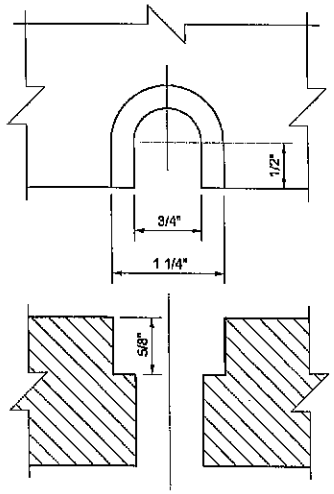
TOP

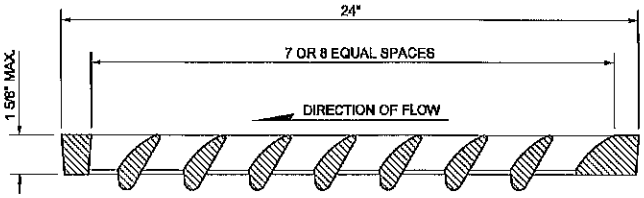


SECTION (B)

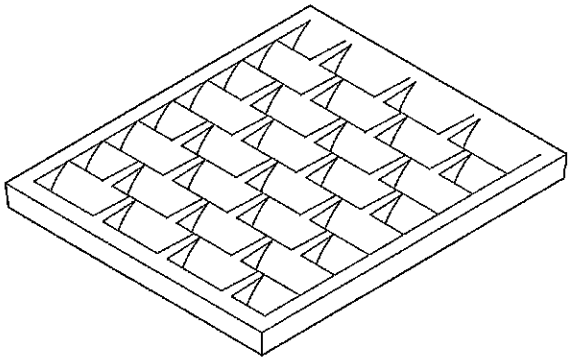
NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 11 NC × 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. For frame details, see **Standard Plan B-30.10.**
3. Refer to **Standard Specification 9-05.15(2)** for additional requirements.

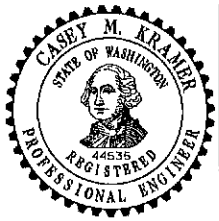




SECTION (A)



ISOMETRIC



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

RECTANGULAR VANED GRATE

STANDARD PLAN B-30.30-01

SHEET 1 OF 1 SHEET

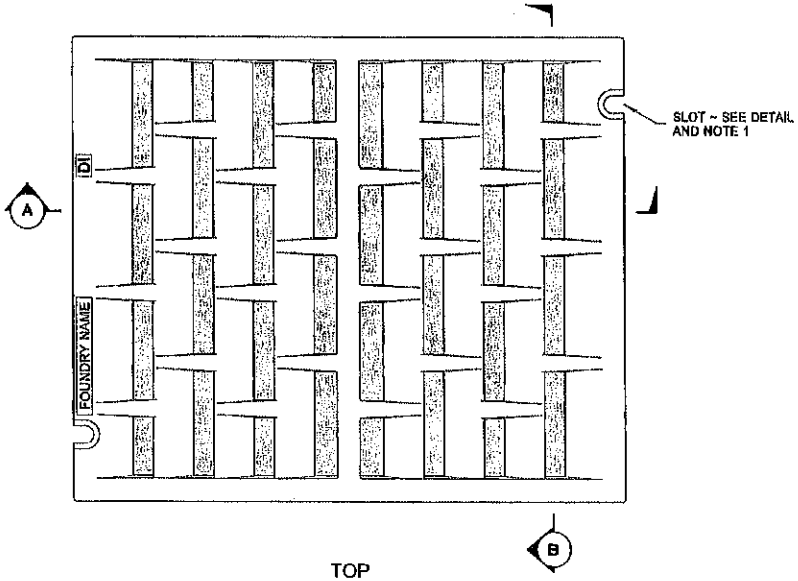
APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER

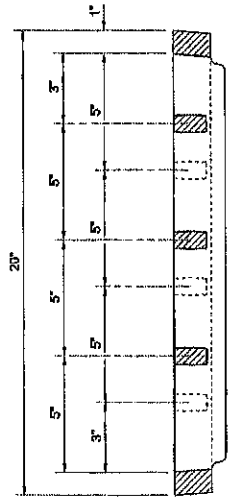
04/26/12 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD



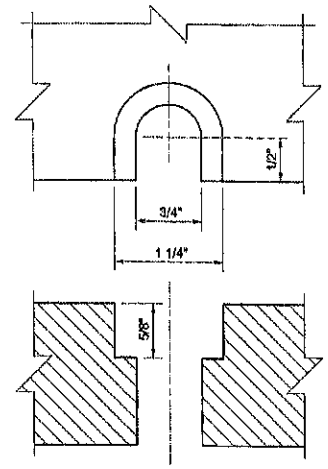
TOP



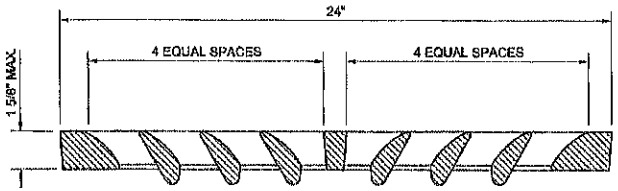
SECTION (B)

NOTES

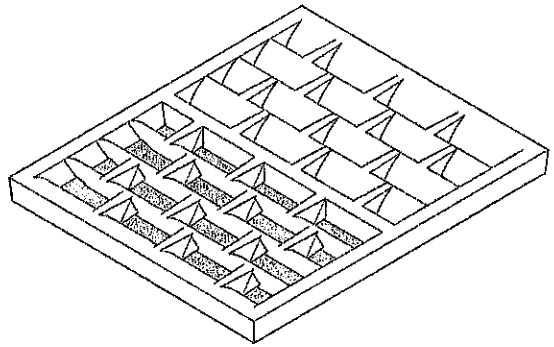
1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 11 NC × 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Refer to **Standard Specification 9-06.16(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10.**



BOLT-DOWN SLOT DETAIL
SEE NOTE 1



SECTION (A)



ISOMETRIC

4-25-12

RECTANGULAR BI-DIRECTIONAL VANED GRATE

STANDARD PLAN B-30.40-01

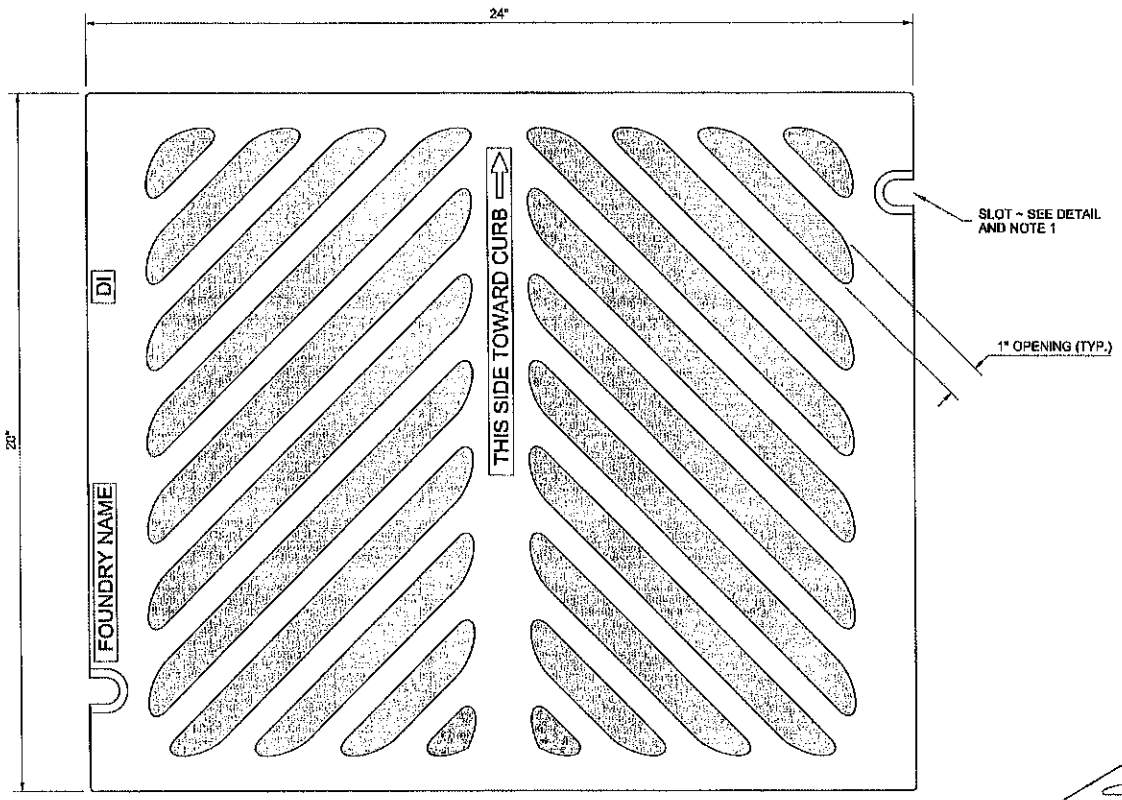
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 4/26/12

Washington State Department of Transportation

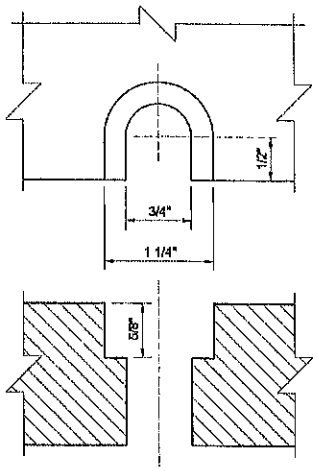
DRAWN BY: LISA CYFORD



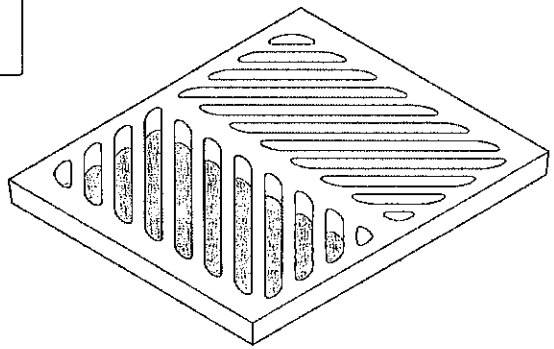
TOP

NOTES

1. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 11 NC × 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.
2. Refer to **Standard Specification 9-05.15(2)** for additional requirements.
3. For frame details, see **Standard Plan B-30.10.**
4. The thickness of the grate shall not exceed 1 5/8".



BOLT-DOWN SLOT DETAIL
SEE NOTE 1



ISOMETRIC

CASEY M. KRAMER
STATE OF WASHINGTON
44535
REGISTERED
PROFESSIONAL ENGINEER

4-25-12

RECTANGULAR HERRINGBONE GRATE

STANDARD PLAN B-30.50-01

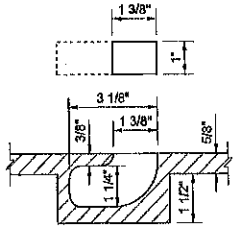
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

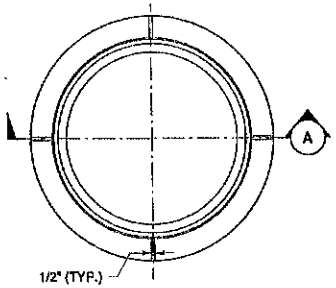
STATE DESIGN ENGINEER — DATE 4/26/12

Washington State Department of Transportation

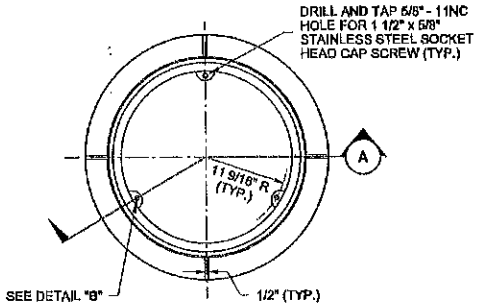
DRAWN BY: LISA CYFORD



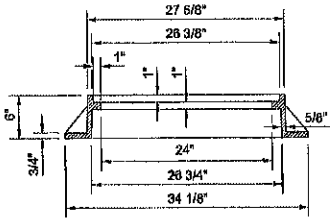
BLIND PICK NOTCH
DETAIL "A"



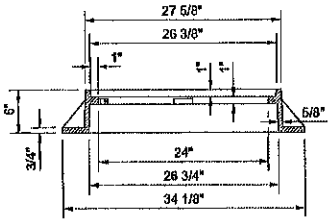
RING PLAN



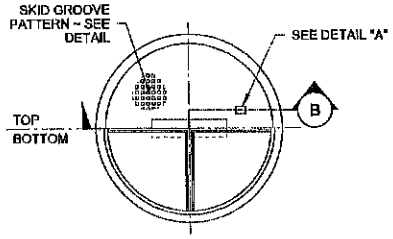
RING PLAN



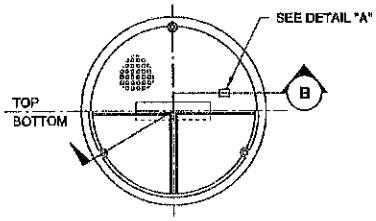
RING SECTION (A)



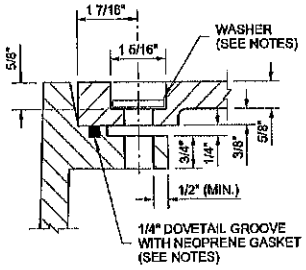
RING SECTION (A)



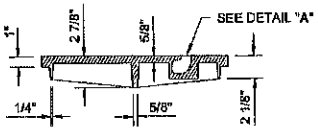
COVER PLAN



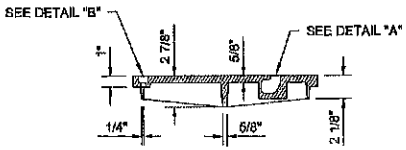
COVER PLAN



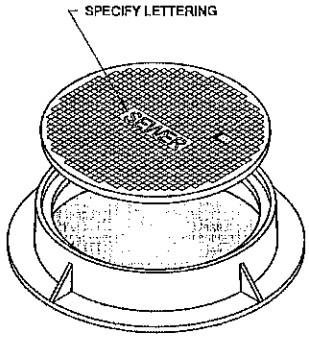
BOLT-DOWN / WATERTIGHT
DETAIL "B"



COVER SECTION (B)
(SEE NOTE 7)
STANDARD
TYPE 1



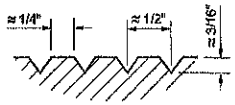
COVER SECTION (B)
(SEE NOTE 7)
BOLT-DOWN / WATERTIGHT
TYPE 2



ISOMETRIC VIEW

NOTES

1. The gasket and groove may be in the seat (frame) or in the underside of the cover. The gasket may be "T" shaped in section. The groove may be cast or machined.
2. Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 3 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8" - 1 NC × 2" Allen head cap screw by being tapped, or other approved mechanism. Location of bolt down holes varies by manufacturer.
3. For bolt-down manhole ring and covers that are not designated "Watertight," the neoprene gasket, groove, and washer are not required.
4. Washer shall be neoprene (Detail "B").
5. In lieu of blind pick notch for manhole covers, a single 1" pick hole is acceptable. Hole location and number of holes may vary by manufacturer.
6. Alternative reinforcing designs are acceptable in lieu of the rib design.
7. For clarity, the vertical scale of the Cover Section has been exaggerated, it is 1.5 times the horizontal scale (1H:1.5V).



SKID GROOVE PATTERN
DETAIL

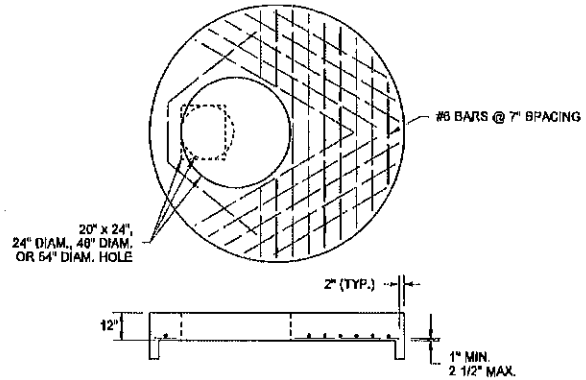
4-25-12

CIRCULAR FRAME (RING) AND COVER

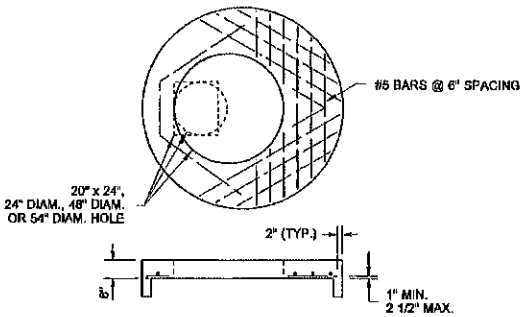
STANDARD PLAN B-30.70-03

SHEET 1 OF 1 SHEET

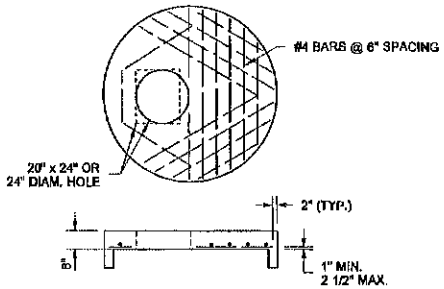
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE
Washington State Department of Transportation



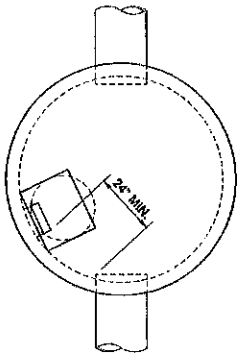
84" or 96" FLAT SLAB TOP



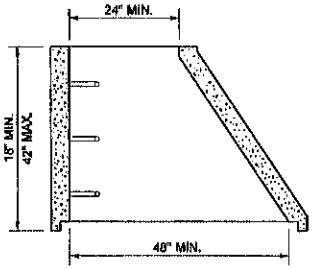
72" FLAT SLAB TOP



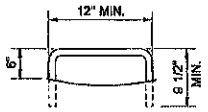
48", 54", or 60" FLAT SLAB TOP



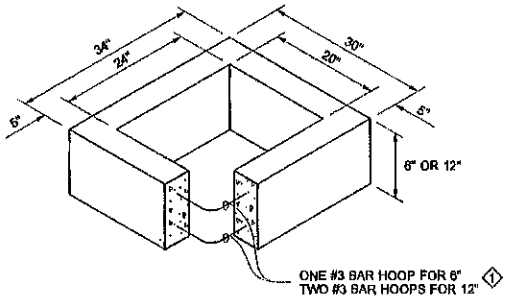
TYPICAL ORIENTATION
FOR ACCESS AND STEPS



ECCENTRIC CONE SECTION

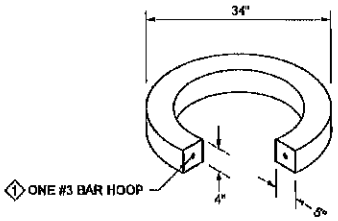


STEP



RECTANGULAR ADJUSTMENT SECTION

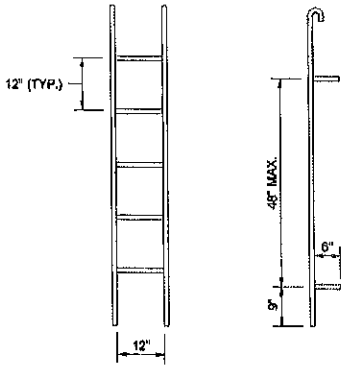
1 As an acceptable alternative to rebar, wire mesh having a minimum area of 0.12 square inches per foot may be used for adjustment sections.



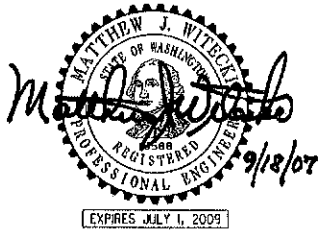
CIRCULAR ADJUSTMENT SECTION

NOTE

Ladder rungs for manholes and catch basins shall meet the requirements of AASHTO M 199.



PREFABRICATED LADDER



MISCELLANEOUS DETAILS FOR DRAINAGE STRUCTURES STANDARD PLAN B-30.90-01

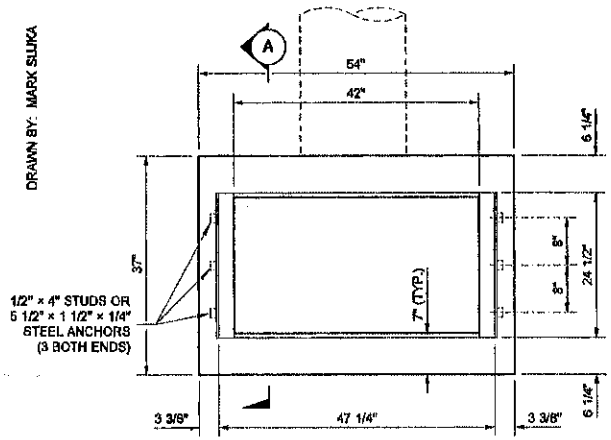
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

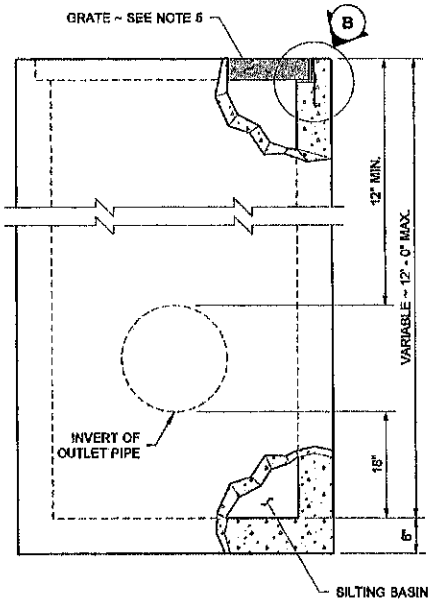
STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

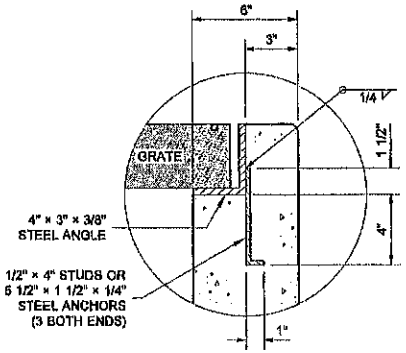
DRAWN BY: MARK SLUKA



TOP VIEW



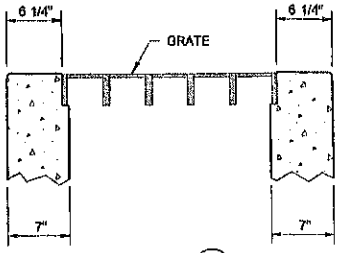
SIDE VIEW



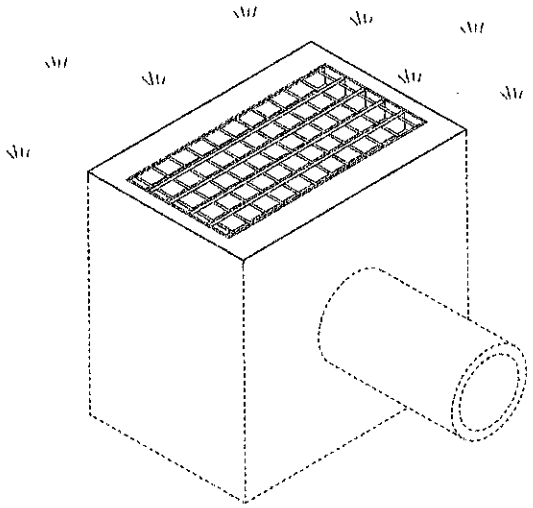
DETAIL B

NOTES

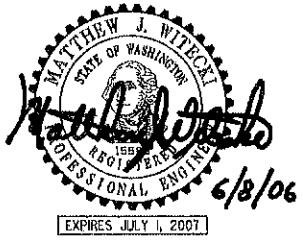
1. The Steel Angles shall be set so that each bearing bar of prefabricated grate shall have full bearing on both ends. The finished top of concrete shall be even with the grate surface.
2. All exposed concrete shall be finished with a 1/2" radius.
3. The grade line of the top inside of any pipe shall enter no lower than the grade line of the top inside of the outlet pipe.
4. Pipes may enter through the knockouts on any side at any reasonable angle, provided the outside of the pipe can be contained between two opposite walls.
5. See contract for type of grate specified. See Standard Plan B-40.20 and B-40.40 for grate details.



SECTION A



ISOMETRIC VIEW



GRATE INLET TYPE 1
(CAST-IN-PLACE)

STANDARD PLAN B-35.20-00

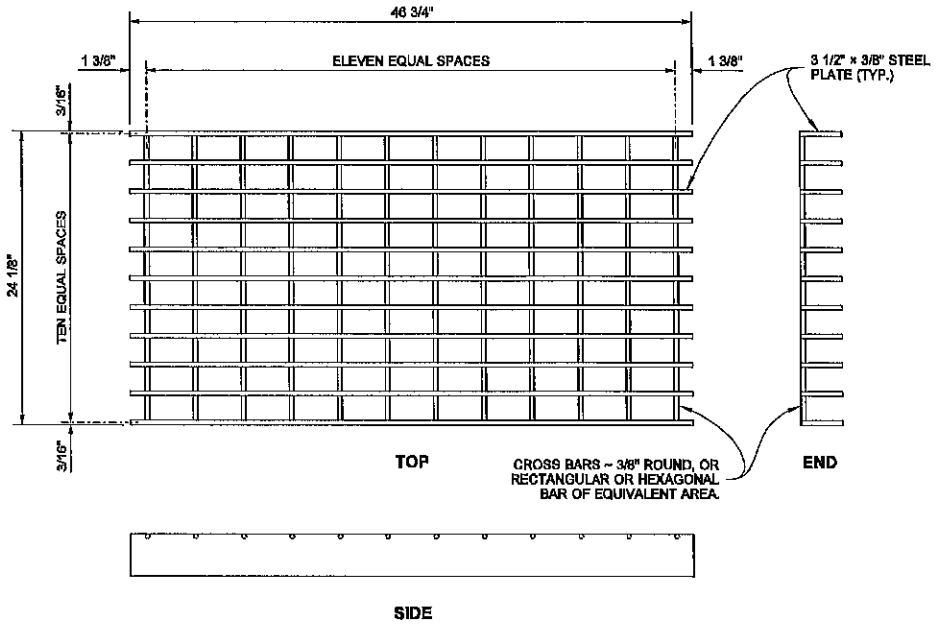
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

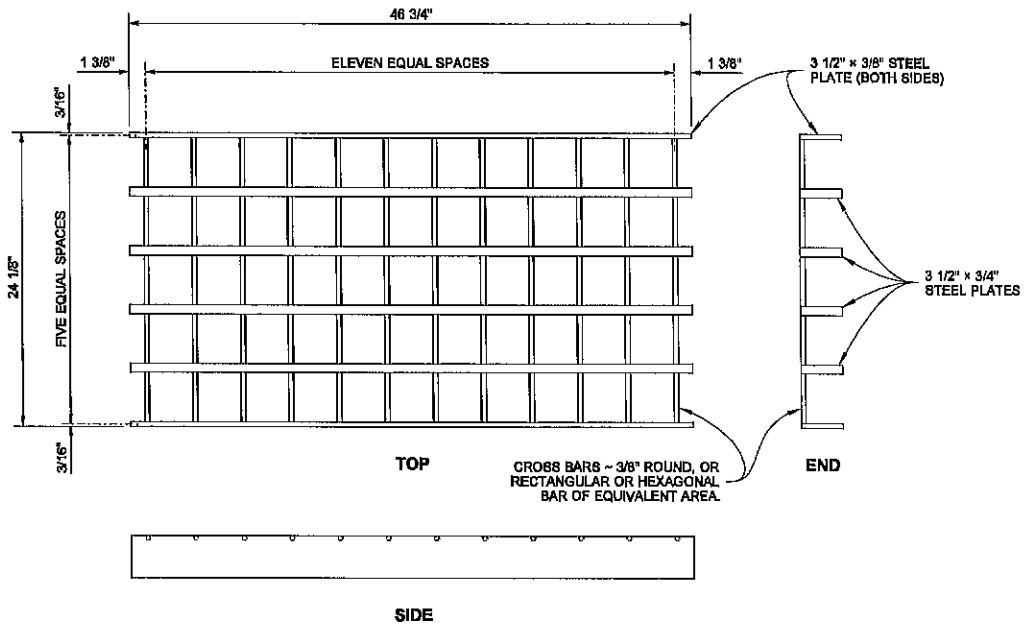
Harold Stimpson 6-8-06

STATE DESIGN ENGINEER — DATE

Washington State Department of Transportation

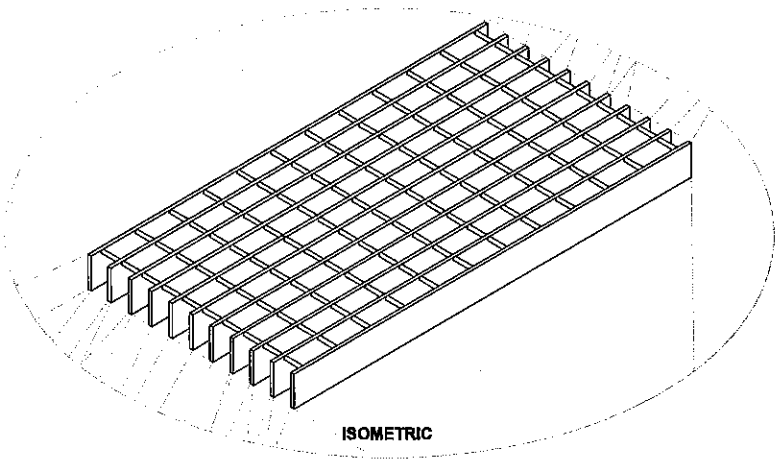


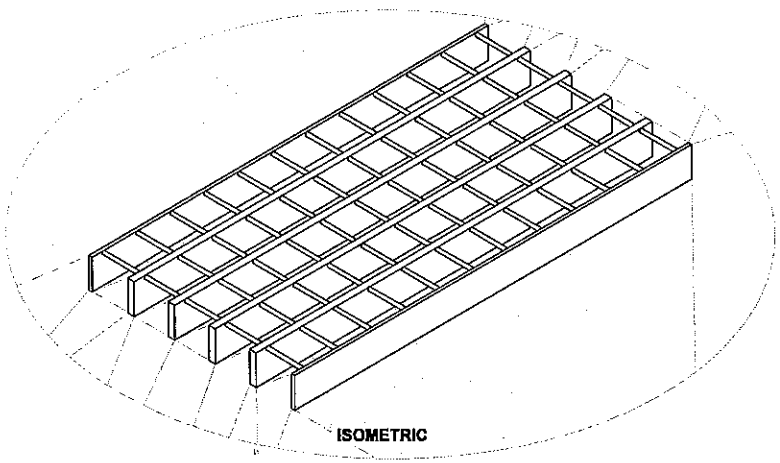
GRATE "A"
(APPROXIMATE WEIGHT 215 LBS)

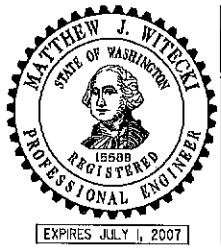


GRATE "B"
(APPROXIMATE WEIGHT 215 LBS)

DRAWN BY: MARK SUJKA







NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT BUT WAS ELECTRONICALLY SEALED. THE ORIGINAL SEALED BY WASHINGTON STATE REGISTERED PROFESSIONAL ENGINEER IS ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

WELDED GRATES FOR GRATE INLET

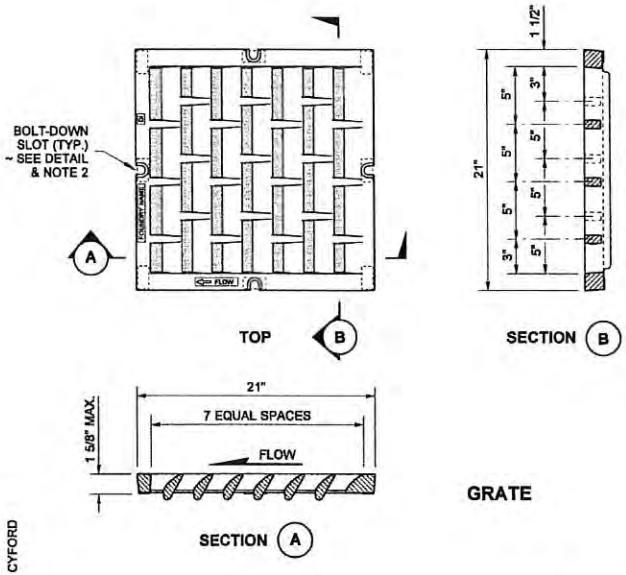
STANDARD PLAN B-40.20-00

SHEET 1 OF 1 SHEET

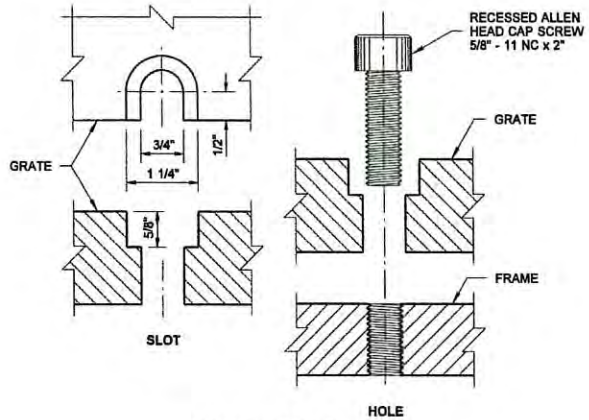
APPROVED FOR PUBLICATION

Harold J. Peterfeso — STATE DESIGN ENGINEER — *06-01-06* — DATE

Washington State Department of Transportation



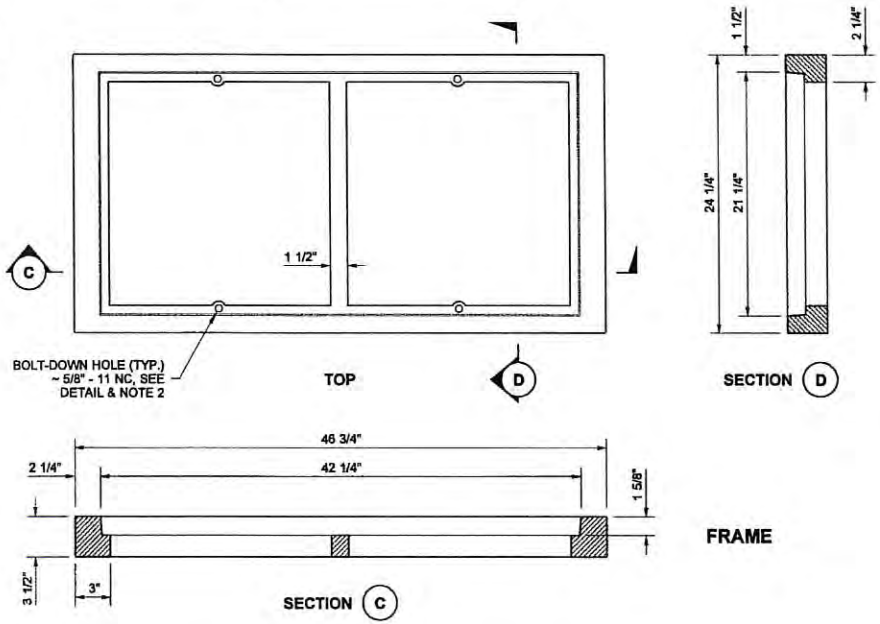
GRATE



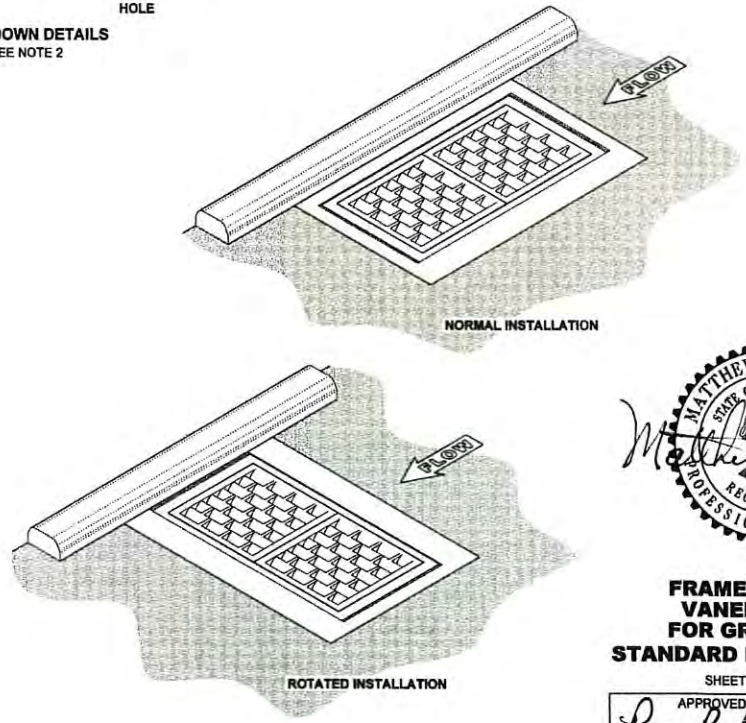
BOLT-DOWN DETAILS
SEE NOTE 2

NOTES

1. The Contract may specify a rotated inlet installation. Orient the Grates in the Frame so they intercept flow.
2. When bolt-down grates are specified in the Contract, provide two slots in the grate that are centered with the holes in the frame. Location of bolt-down slots varies among different manufacturers.
3. Refer to Standard Specification 9-05.15(2) for additional requirements.
4. Frame and Grates shall be Ductile Iron.



FRAME



ISOMETRIC VIEWS
SEE NOTE 1

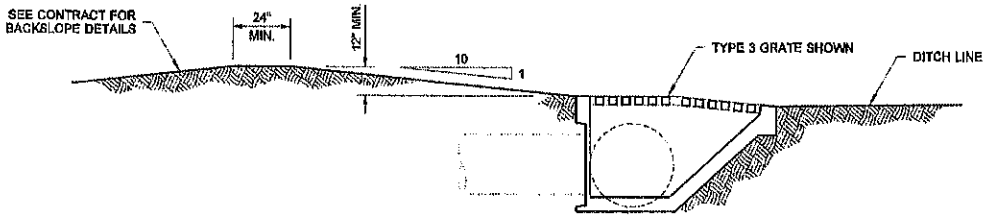
DRAWN BY: LISA CYFORD

FRAME AND DUAL VANED GRATES FOR GRATE INLET
STANDARD PLAN B-40.40-01

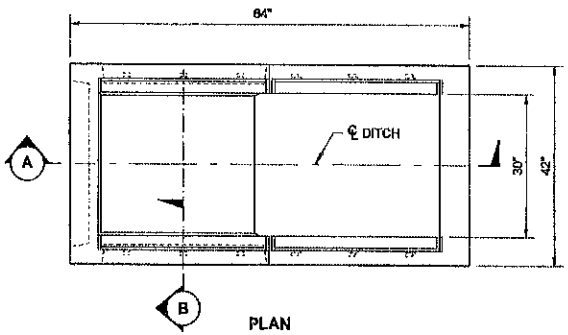
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 6/10/10
Washington State Department of Transportation

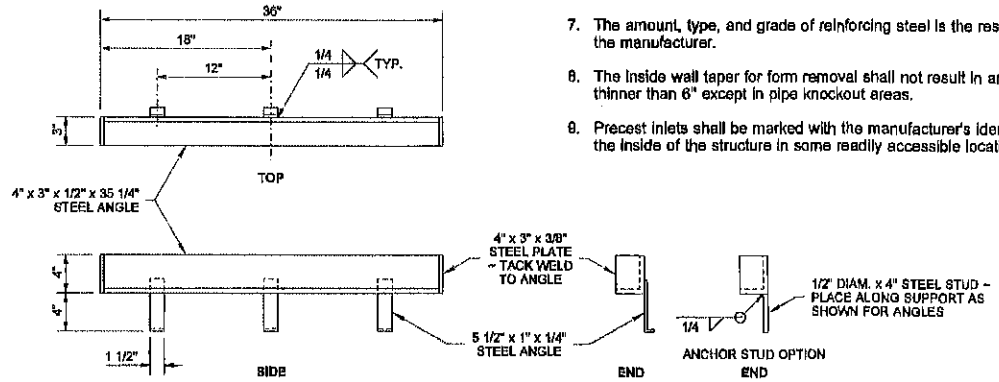
DRAWN BY: MARK SUJKA



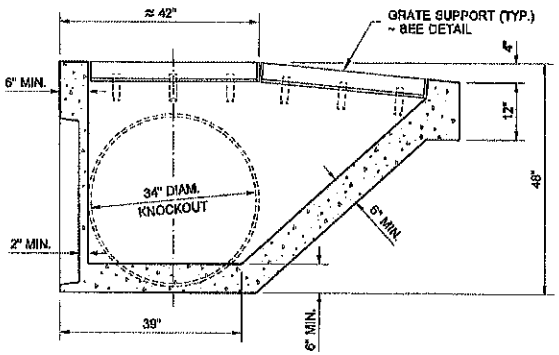
SECTION ON DITCH LINE
DIKE INSTALLATION FOR PREFERRED SLOPE



PLAN

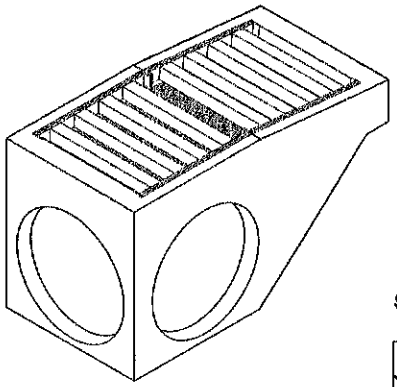


GRATE SUPPORT DETAIL
(FOUR SUPPORTS REQUIRED)



SECTION (A)

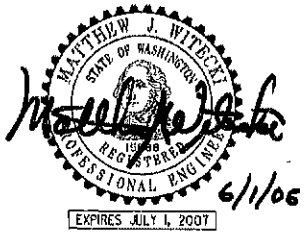
SECTION (B)



ISOMETRIC
(SHOWN WITH TYPE 1 GRATE)

NOTES

1. The top of the inlet shall be placed at ground level to present an unobstructed ditch or median section.
2. Bevel or round exposed concrete edges 1/2".
3. Pipes may enter through the knockouts at any reasonable angle provided the outside of the pipe can be contained within the knockout provided.
4. The grade line of the lowest inlet pipe shall enter the structure at an elevation equal to or higher than the grade line of the outlet pipe.
5. All pickup holes shall be grouted full after the inlet has been placed.
6. The steel angles shall be set so that each bearing bar of the grate shall have full seating on both ends. The finished top of concrete shall be even with the grate surface. For grates, see Standard Plan B-50-20.
7. The amount, type, and grade of reinforcing steel is the responsibility of the manufacturer.
8. The inside wall taper for form removal shall not result in any wall section thinner than 6" except in pipe knockout areas.
9. Precast inlets shall be marked with the manufacturer's identification on the inside of the structure in some readily accessible location.



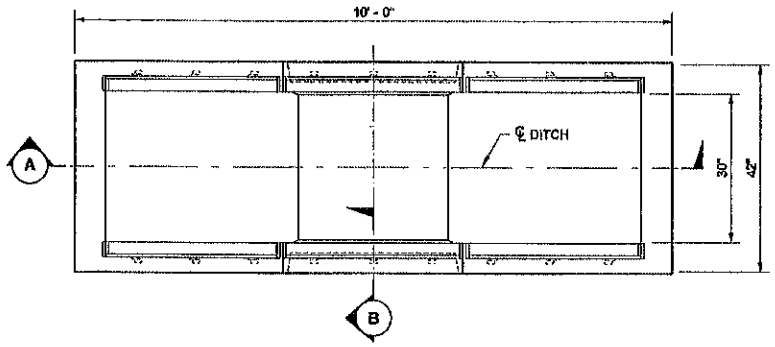
DROP INLET TYPE 1

STANDARD PLAN B-45.20-00

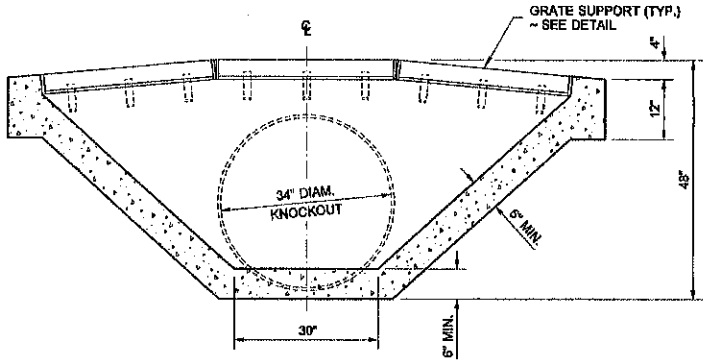
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Harold Petersen 6/1/06
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

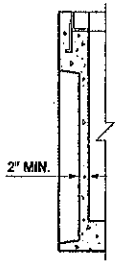
DRAWN BY: MARK SUJKA



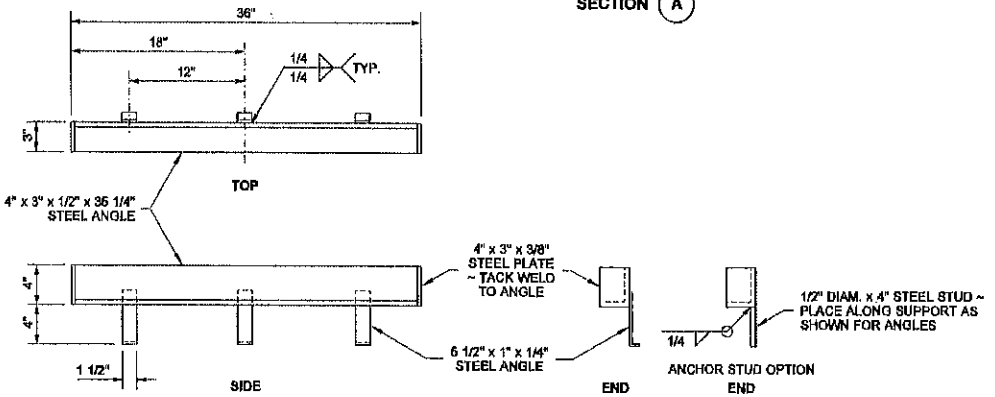
PLAN



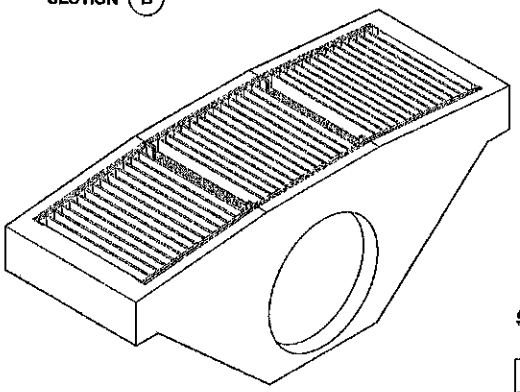
SECTION (A)



SECTION (B)



GRATE SUPPORT DETAIL
(SIX SUPPORTS REQUIRED)



ISOMETRIC
(SHOWN WITH TYPE 2 GRATE)

NOTES

1. The top of the inlet shall be placed at ground level to present an unobstructed ditch or median section.
2. Bevel or round exposed concrete edges 1/2".
3. Pipes may enter through the knockouts at any reasonable angle provided the outside of the pipe can be contained within the knockout provided.
4. The grade line of the lowest inlet pipe shall enter the structure at an elevation equal to or higher than the grade line of the outlet pipe.
5. All pickup holes shall be grouted full after the inlet has been placed.
6. The steel angles shall be set so that each bearing bar of the grate shall have full seating on both ends. The finished top of concrete shall be even with the grate surface. For grates, see Standard Plan B-50.20.
7. The amount, type, and grade of reinforcing steel is the responsibility of the manufacturer.
6. The inside wall taper for form removal shall not result in any wall section thinner than 6" except in pipe knockout areas.
9. Precast inlets shall be marked with the manufacturer's identification on the inside of the structure in some readily accessible location.

MATTHEW J. WITECKI
STATE OF WASHINGTON
15186
REGISTERED
PROFESSIONAL ENGINEER
6/1/06
EXPIRES JULY 1, 2007

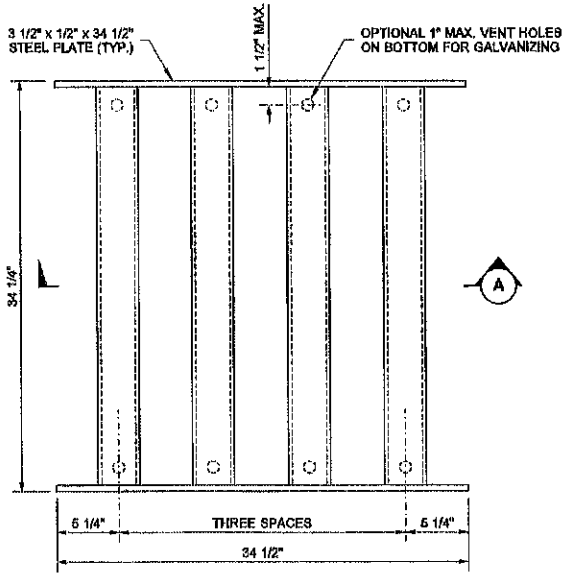
DROP INLET TYPE 2

STANDARD PLAN B-45.40-00

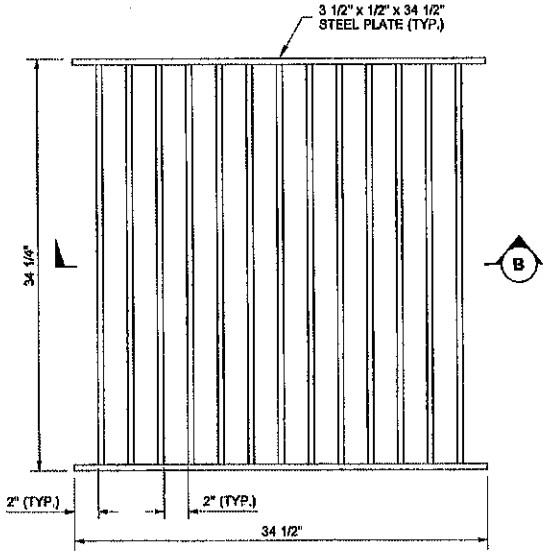
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Harold Petersen 6-1-06
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation

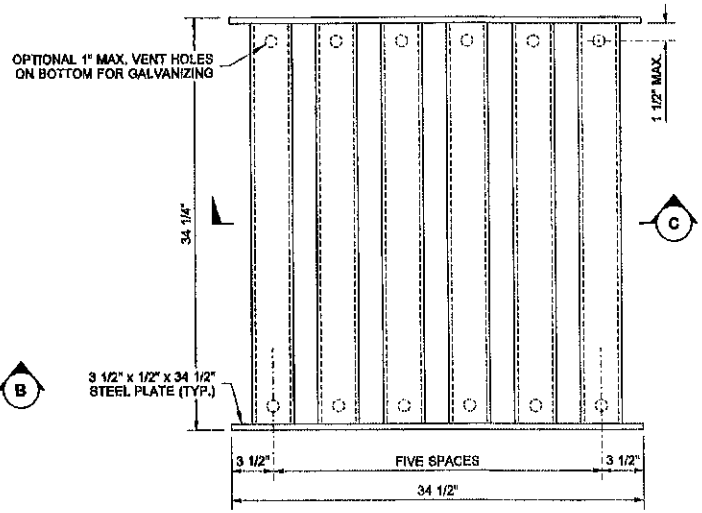
DRAWN BY: MARK SLUKA



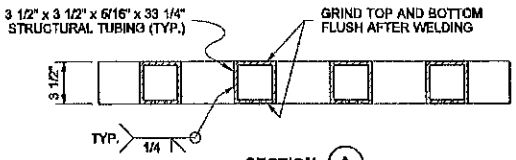
TYPE 1



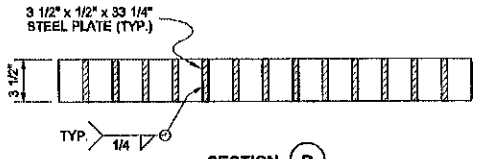
TYPE 2



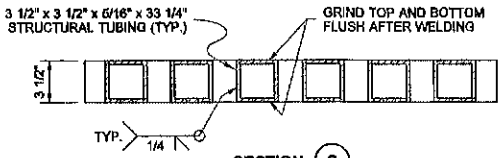
TYPE 3



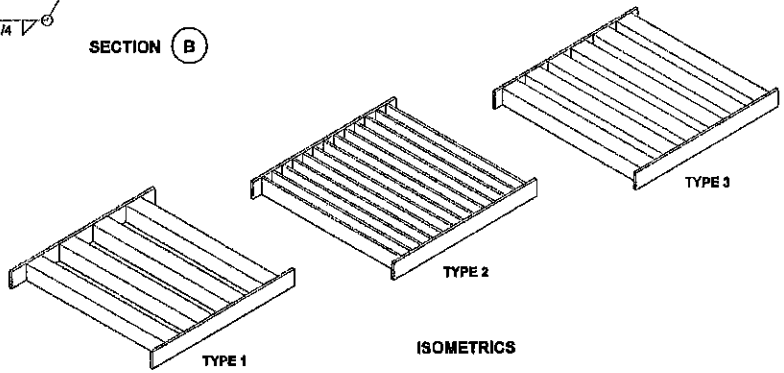
SECTION A



SECTION B



SECTION C



ISOMETRICS

MATTHEW J. WITECKI
STATE OF WASHINGTON
15559
REGISTERED
PROFESSIONAL ENGINEER
6/1/06
EXPIRES JULY 1, 2007

GRATES FOR DROP INLET

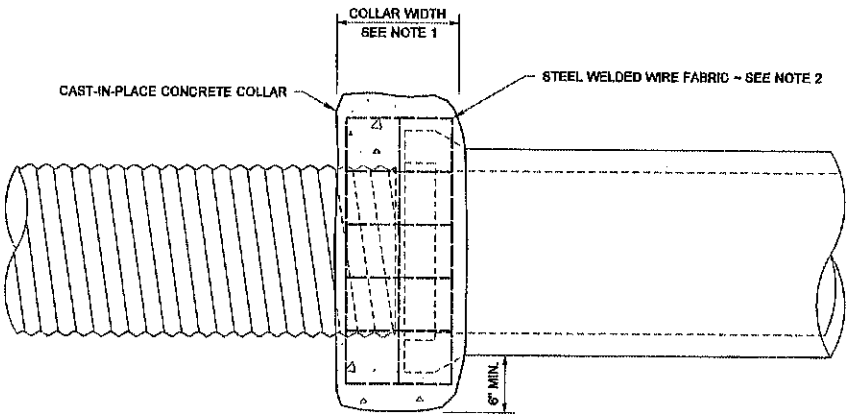
STANDARD PLAN B-50.20-00

SHEET 1 OF 1 SHEET

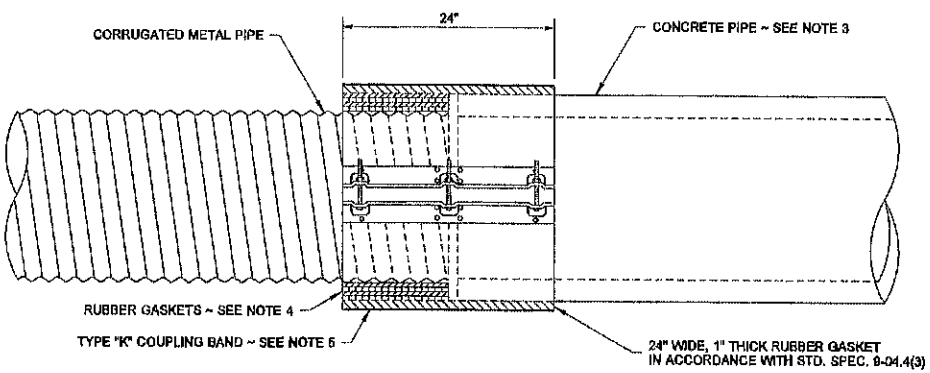
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER 6-1-06 DATE

Washington State Department of Transportation



CONCRETE COLLAR OPTION



COUPLING BAND OPTION

NOTES

1. The Concrete Collar width shall be one half of the outside pipe diameter of the largest pipe. The minimum Concrete Collar width shall be 12". Concrete Collars may be used with all pipe materials and diameters. The Concrete Collar option shall only be used to extend existing pipes.

2. Steel Welded Wire Fabric shall be in accordance with Standard Specification 9-07.7. Install two wraps for size 6 × 6 W1.4 × W1.4 (10 Gage) Steel Welded Wire Fabric or one wrap for any of the following sizes:
   6 × 6 W2.1 × W2.1 (8 Gage)
   6 × 6 W2.9 × W2.9 (6 Gage)
   4 × 4 W2.9 × W2.9 (6 Gage)
   4 × 4 W4.0 × W4.0 (4 Gage)

3. When a Coupling Band connection requires attachment to the bell end of a concrete pipe, the bell end of the pipe shall be removed before the connection is installed.

4. Increase the outside diameter of the metal pipe to match the outside diameter of the concrete pipe by installing 12" wide rubber gaskets, thickness as required (Coupling Band only). The rubber gaskets shall be in accordance with Standard Specification 9-04.4(3).

5. Use a flat Type K Coupling Band. Type K Coupling Bands with dimples are not allowed for the installation detail shown. The Coupling Band option shall only be used for extending existing pipes that have an inside diameter of 36" or less.

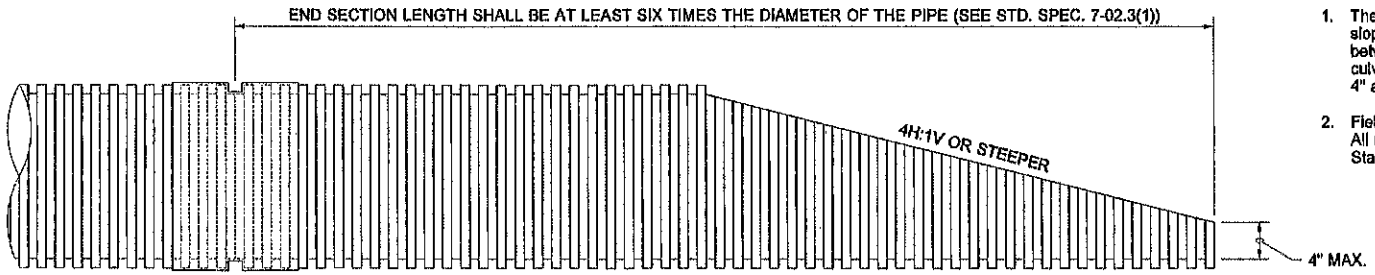
MATTHEW J. WITECKI
STATE OF WASHINGTON
15198
REGISTERED PROFESSIONAL ENGINEER
6/8/06
EXPIRES JULY 1, 2007

CONNECTION DETAILS FOR DISSIMILAR CULVERT PIPE

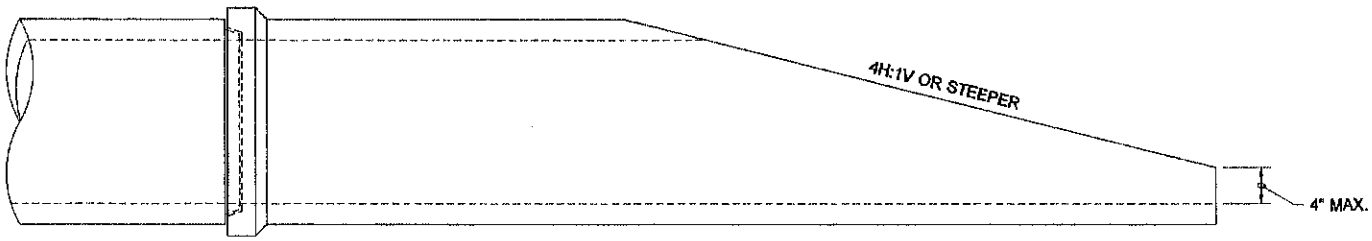
STANDARD PLAN B-60.20-00

SHEET 1 OF 1 SHEET

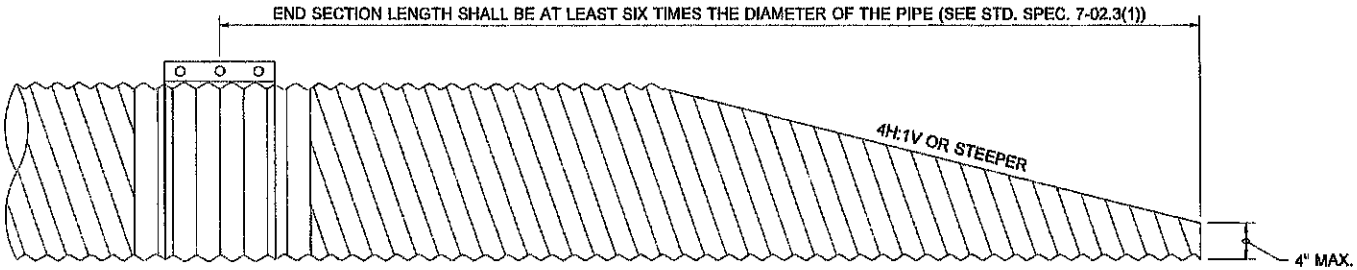
APPROVED FOR PUBLICATION
Harold Peterson 6-8-06
STATE DESIGN ENGINEER DATE
Washington State Department of Transportation



THERMOPLASTIC PIPE



CONCRETE PIPE



METAL PIPE

NOTES

1. The culvert ends shall be beveled to match the embankment or ditch slope and shall not be beveled flatter than 4H:1V. When slopes are between 4H:1V and 6H:1V, shape the slope in the vicinity of the culvert end to ensure that no part of the culvert protrudes more than 4" above the ground line.
2. Field cutting of culvert ends is permitted when approved by the Engineer. All field-cut culvert pipe shall be treated with treatment as shown in the Standard Specifications or General Special Provisions.

FOR CULVERTS 30" DIAMETER OR LESS

MATTHEW J. WITECKI
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
EXPIRES JULY 4, 2007
6/1/06

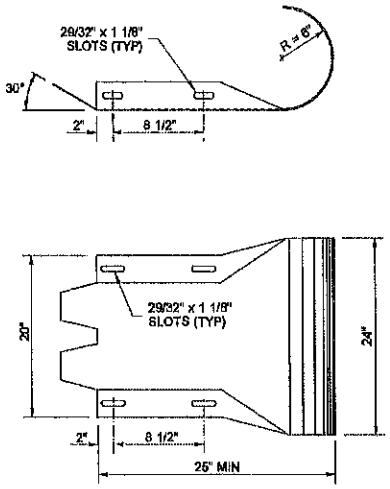
BEVELED END SECTIONS

STANDARD PLAN B-70.20-00

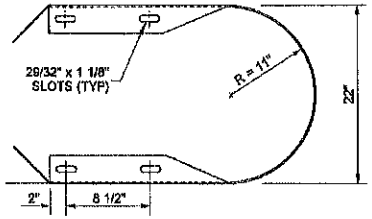
SHEET 1 OF 1 SHEET

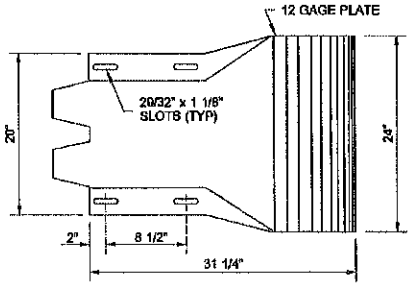
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 6-1-06
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



DESIGN C (THRIE BEAM)



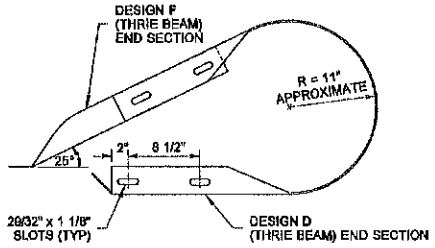


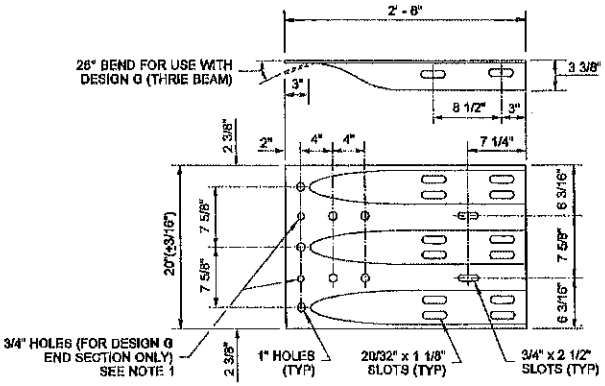
DESIGN D (THRIE BEAM)

NOTES

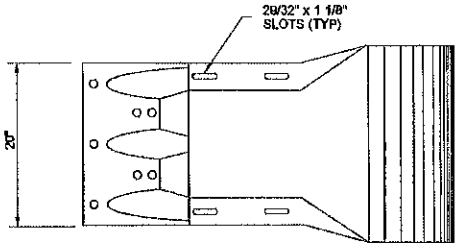
1. Attach guardrail to bridge rail or concrete barrier with 7/8" diameter bolts (five minimum) **Standard Spec. 9-06.5(4)**, with thin slab ferrule inserts or resin bonded anchors. See the Contract Plans.

2. In cases where Design F End Section is lapped on the outside of the guardrail, a galvanized 1" ID, 2" OD, 0.134" thick, narrow Type A Plain Washer or an anchor rail washer will be placed under the splice bolt heads.

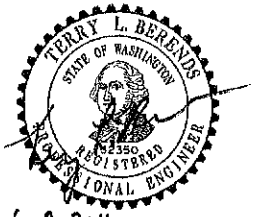




DESIGN F (THRIE BEAM)



DESIGN G (THRIE BEAM)



6-8-2011

THRIE BEAM
END SECTIONS

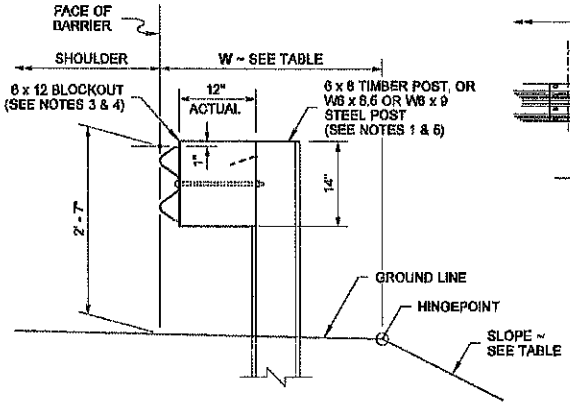
STANDARD PLAN C-7a

SHEET 1 OF 1 SHEET

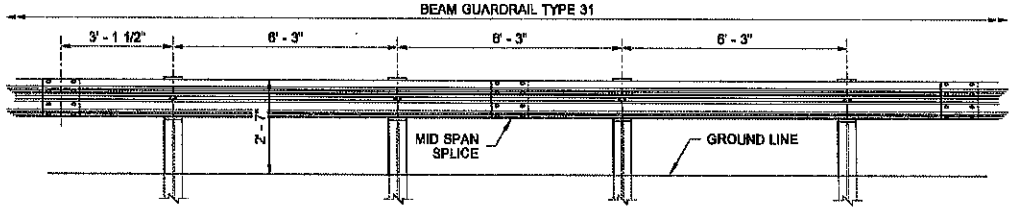
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 6/10/11

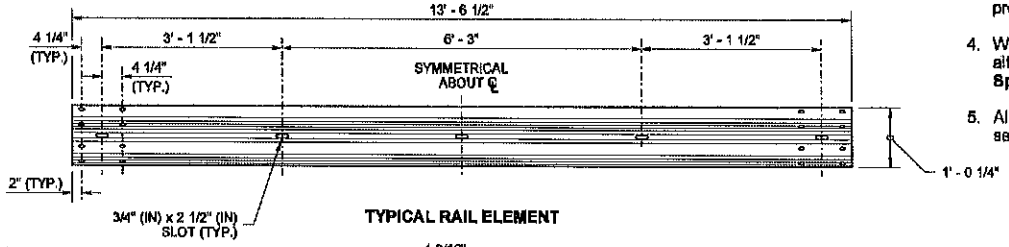
Washington State Department of Transportation



TYPICAL SECTION ~ WITHOUT CURB
(6' - 0" LONG POSTS)



TYPICAL ELEVATION

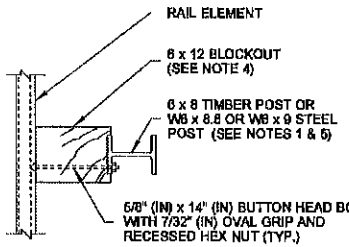


TYPICAL RAIL ELEMENT

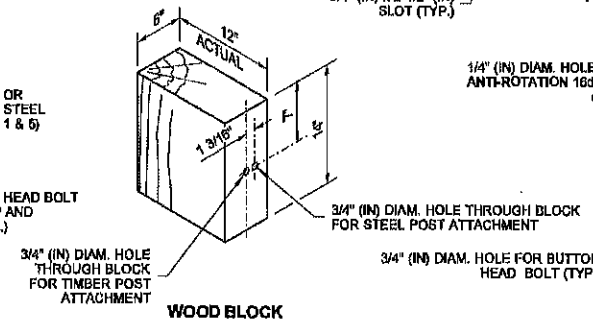
NOTES

1. Refer to **Standard Plans C-1** and **C-1b** for additional details not shown on this plan.
2. Extend shoulder pavement to provide a base for the extruded curb. See Contract Plans for exceptions to distances shown.
3. Use a single block or combination of blocks (no more than two (2) to achieve the actual 12" (in) offset. See **Standard Specification 9-16.3(2)**. Wood blocks shall be secured to the posts with anti-rotation nails. If combination blocks are used, the adjacent blocks shall be toenailed with two 16d galvanized nails to prevent block rotation.
4. Wood blocks are shown. Blocks of an approved alternative material may be used. See **Standard Specification 9-16.3(2)**.
5. All posts for any standard barrier run shall be of the same type: timber or steel.

SLOPE \ EMBANKMENT TABLE	
SLOPE	W (FT)
2H : 1V OR FLATTER	2.5' MIN.
STEEPER THAN 2H : 1V BUT NOT STEEPER THAN 1H : 1V	4.0' MIN.

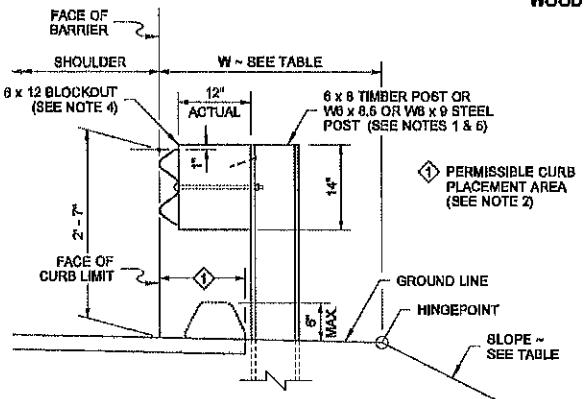


PLAN VIEW

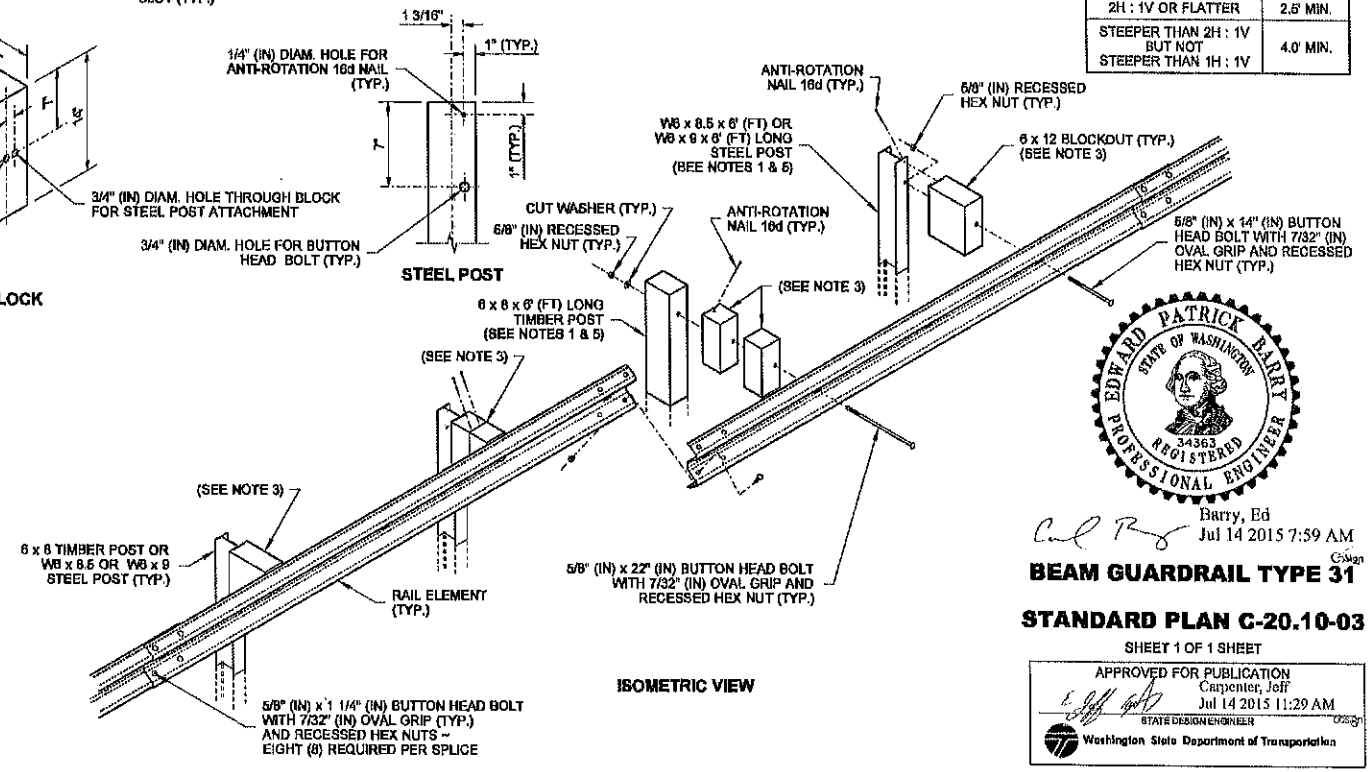


WOOD BLOCK

STEEL POST



ELEVATION VIEW
TYPICAL SECTION ~ WITH CURB
(6' - 0" LONG POSTS)



ISOMETRIC VIEW

Barry, Ed
Jul 14 2015 7:59 AM

BEAM GUARDRAIL TYPE 31

STANDARD PLAN C-20.10-03

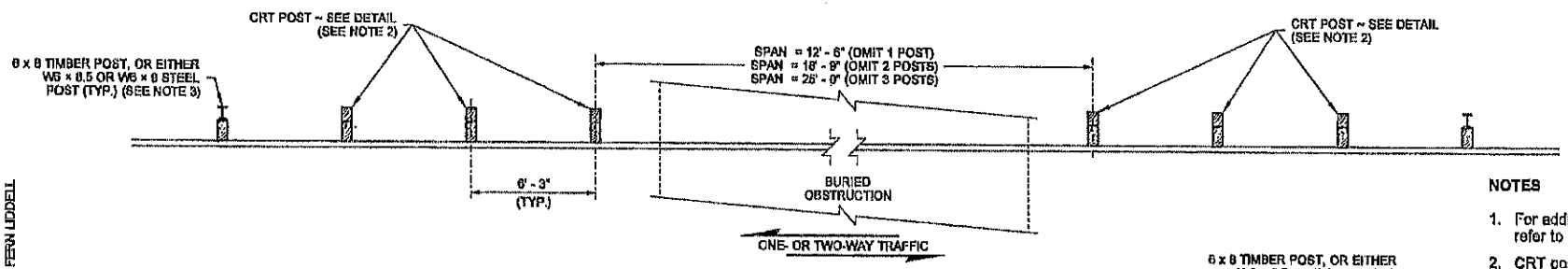
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Carpenter, Jeff
Jul 14 2015 11:29 AM
STATE DESIGN ENGINEER

Washington State Department of Transportation

DRAWN BY: FERN LIDDELL

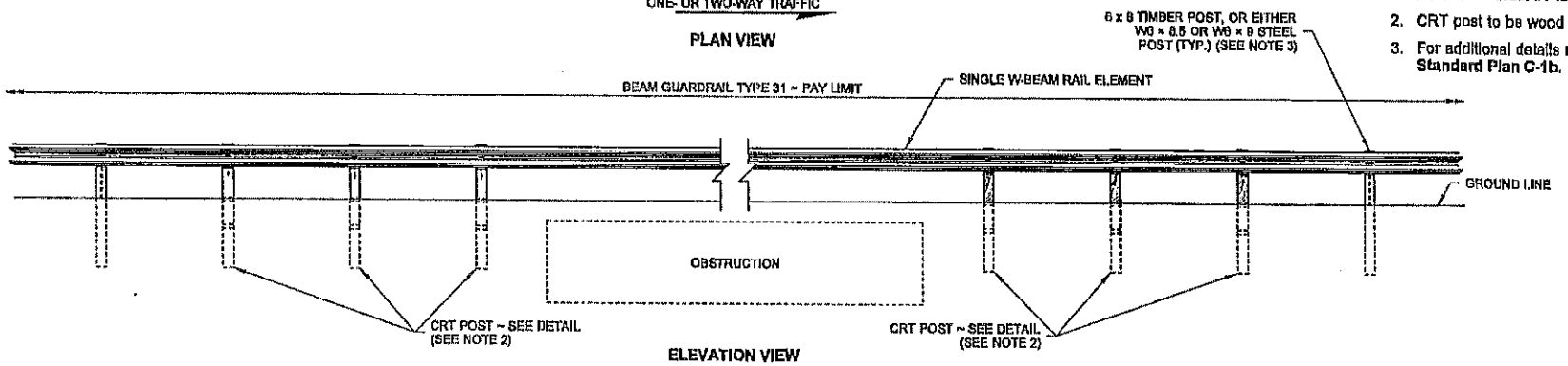
DRAWN BY: FERN LIDDELL



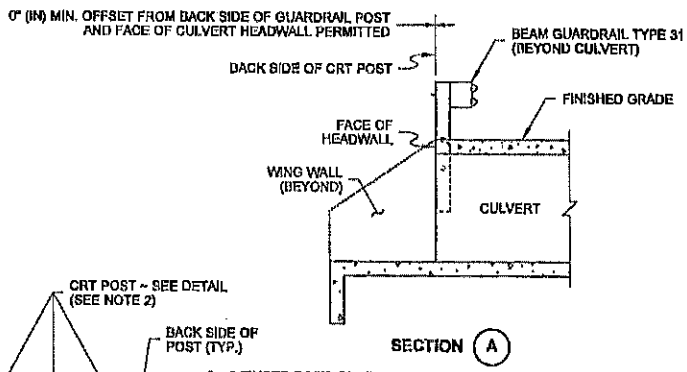
PLAN VIEW

NOTES

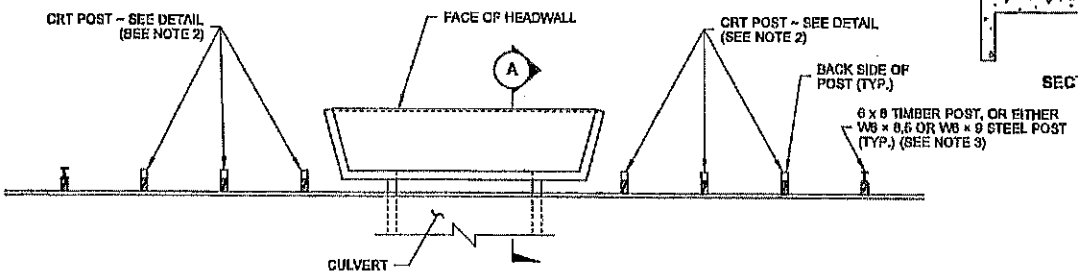
1. For additional details not shown on this plan, refer to **Standard Plan C-20.10.**
2. CRT post to be wood only.
3. For additional details not shown, see **Standard Plan C-1b.**



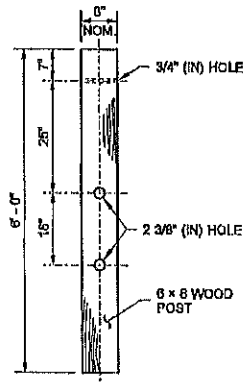
ELEVATION VIEW



SECTION (A)



SPAN WITH HEADWALL DETAIL



CONTROLLED RELEASING
TERMINAL (CRT) POST DETAIL

EDWARD PATRICK BARRY
STATE OF WASHINGTON
24363
REGISTERED
PROFESSIONAL ENGINEER

Barry, Ed
Jul 14 2015 7:36 AM

BEAM GUARDRAIL TYPE 31
PLACEMENT 12' - 6", 18' - 9",
OR 25' - 0" SPAN
STANDARD PLAN C-20.40-05

SHEET 1 OF 1 SHEET

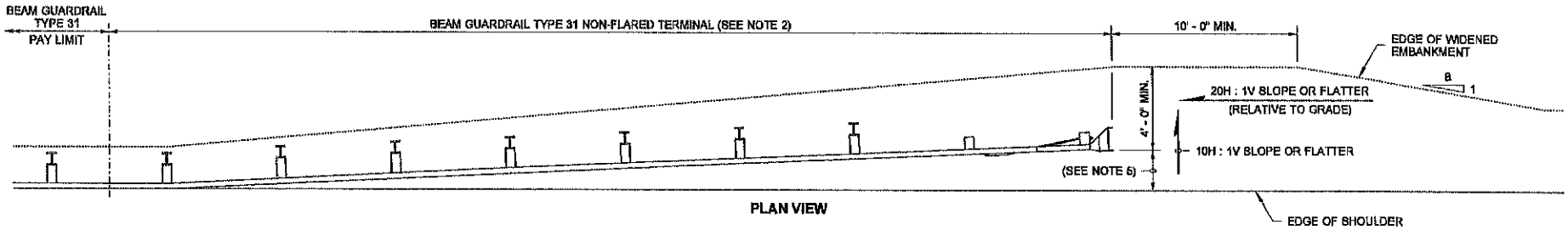
APPROVED FOR PUBLICATION
Carpenter, Jeff
Jul 14 2015 11:28 AM
STATE DESIGN ENGINEER

Washington State Department of Transportation

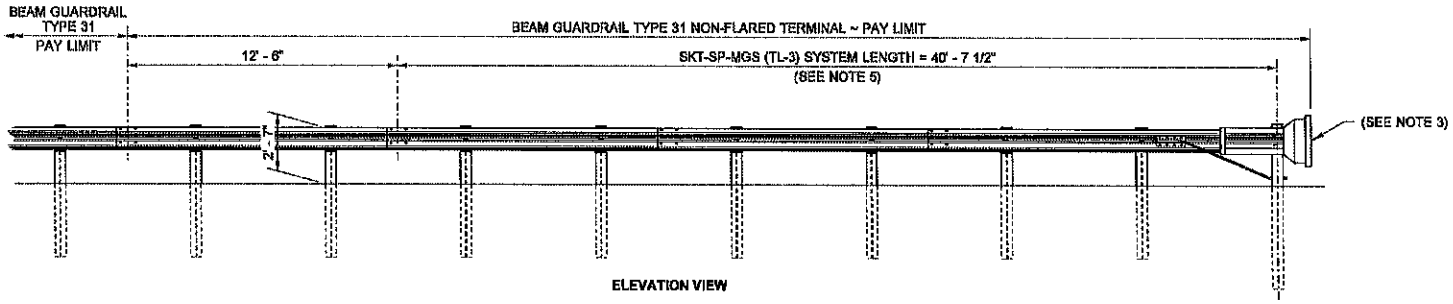
DRAWN BY: COLBY FLETCHER

NOTES

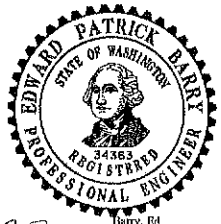
1. This terminal is FHWA accepted at Test Level Three (TL-3) and may be used for all posted speeds.
2. An SKT-SP-MGS (TL-3) as manufactured by Road Systems, Inc. shall be installed according to manufacturer's recommendations.
3. A reflectorized object marker shall be installed according to manufacturer's recommendations.
4. When snow load post washers and snow load rail washers are required by the Contract, the snow load rail washers shall not be installed within the terminal limits.
5. Terminal shall be installed at a widening, ensuring the end piece is entirely off the shoulder. While this terminal does not require an offset at the end, a flare is recommended. A maximum flare of 25 : 1 or flatter over the length of the terminal is allowed for the SKT-SP-MGS (TL-3), with a maximum offset of 24" (in) over 50' (ft).
6. For terminal details, see WSDOT approved manufacturer's drawings.



PLAN VIEW



ELEVATION VIEW



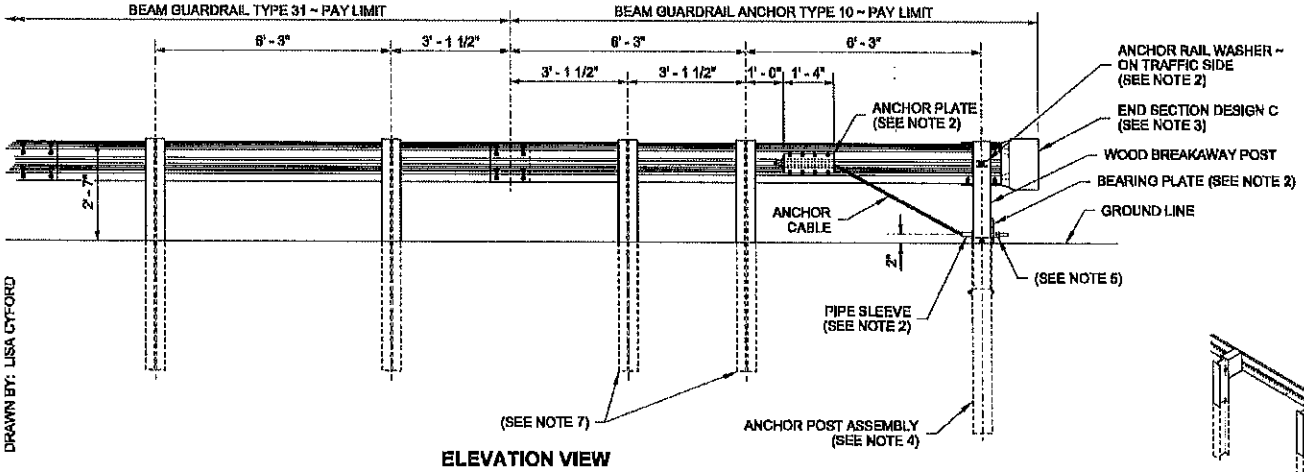
Barry, Ed
Oct 23 2014 11:34 AM

BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS) STANDARD PLAN C-22.40-04

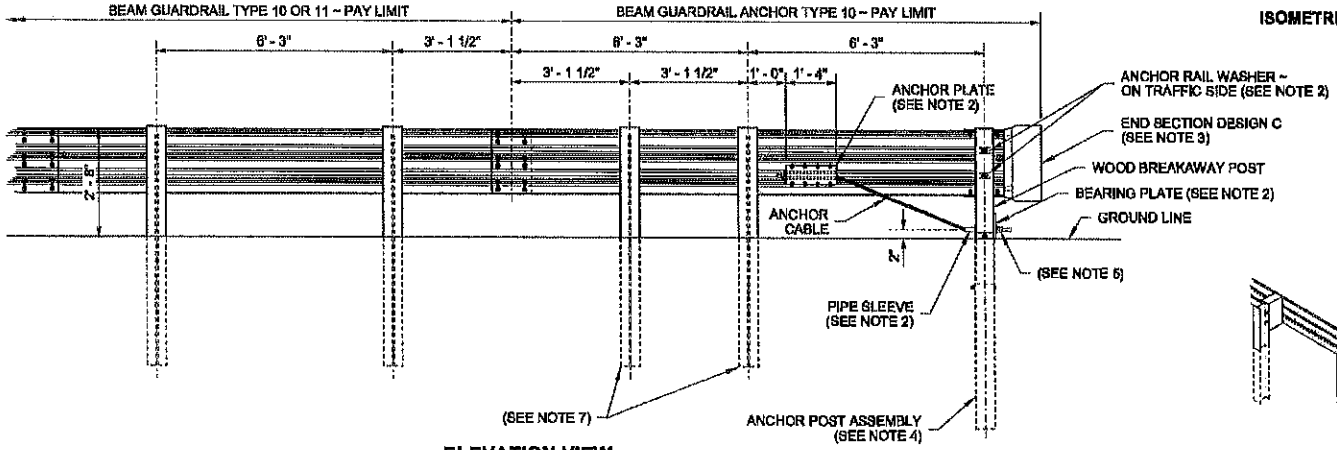
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
Bakotich, Pasco
Oct 23 2014 12:10 PM
STATE DESIGN ENGINEER

Washington State Department of Transportation



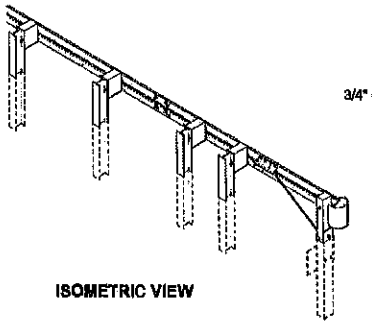
ELEVATION VIEW
W-BEAM



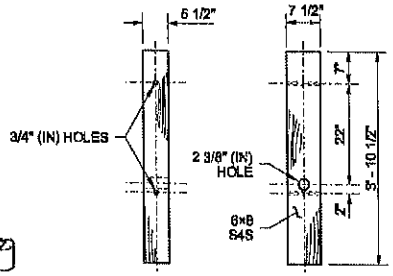
ELEVATION VIEW
THRIE BEAM

NOTES

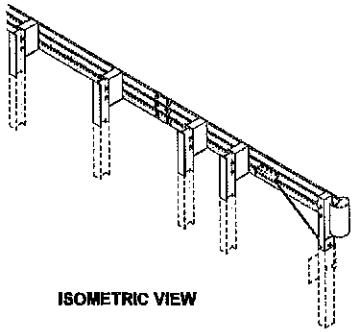
1. For use on the end of guardrail runs when a crashworthy terminal is not required.
2. For additional details not shown, see **Standard Plan C-6c**.
3. For end section details, see **Standard Plans C-7** and **C-7a**.
4. Use details for Wood Breakaway post shown on this plan and components shown on **Standard Plan C-1b**.
5. Fasten the Anchor Cable using two 1" (in) nuts and washer, at both ends of cable. Outside nut shall be torqued against inside nut a minimum of 100 ft.-lbs.
6. Wood blocks shown. Blocks of alternate material may be used. See **Standard Specification 9-16.3(2)**.
7. Posts shall match those of the connecting run: timber or steel.



ISOMETRIC VIEW



WOOD BREAKAWAY POST DETAIL



ISOMETRIC VIEW

Barry, Ed
May 6 2014 3:16 PM

BEAM GUARDRAIL (TYPE 31)
ANCHOR TYPE 10

STANDARD PLAN C-23.60-03

SHEET 1 OF 1 SHEET

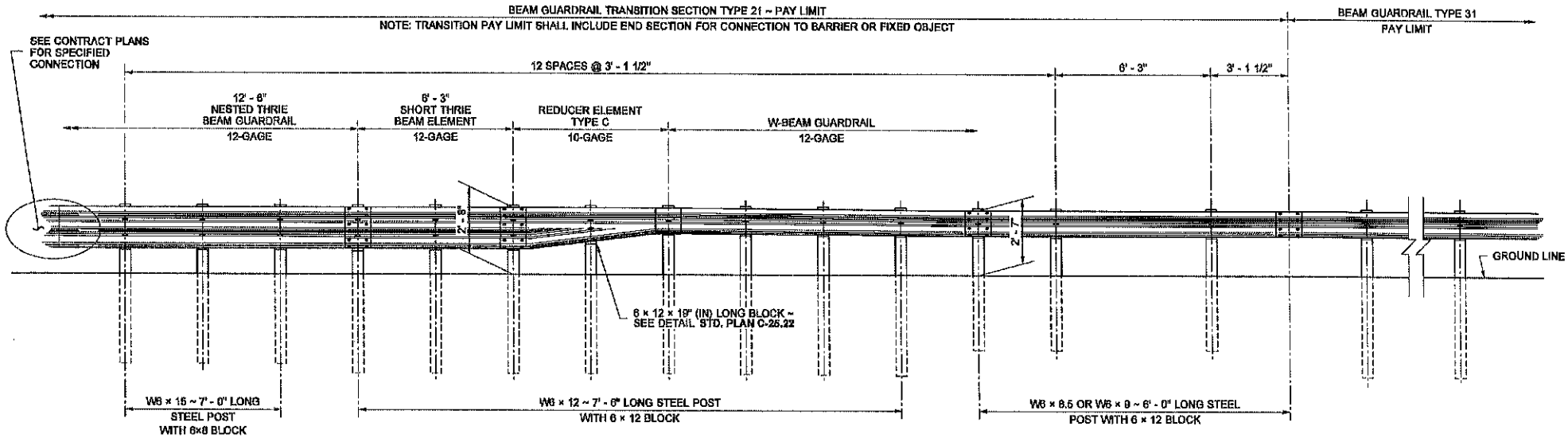
APPROVED FOR PUBLICATION
Bakotich, Pasco
Jun 11 2014 1:10 PM
STATE DESIGN ENGINEER
Washington State Department of Transportation

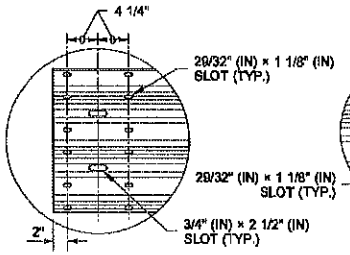
DRAWN BY: LISA CYFORD

DRAWN BY: FERN LIDDELL

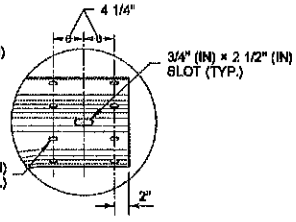
NOTES

1. This guardrail transition is for connection to a vertical concrete shape, a single slope, or a safety-shape barrier. The toe of the single slope and the safety-shape barrier shall be tapered or the barrier blocked out so that the toe of the barrier does not project past the face of the approach guardrail.
2. See **Standard Plan C-24.10** for details regarding connection to bridge rail or traffic barrier.
3. For details of typical components, see **Standard Plans C-1b** and **C-20.10**.

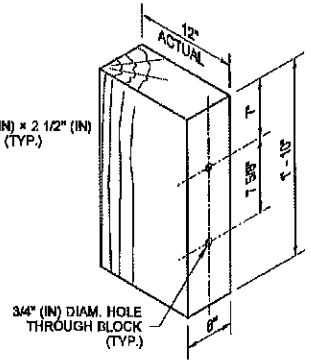




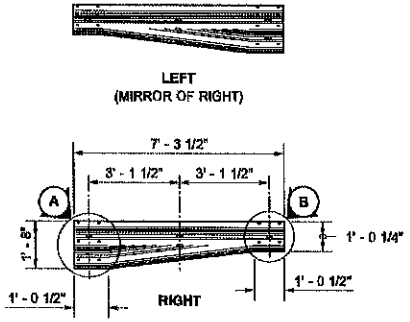
DETAIL (A)



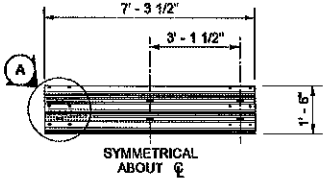
DETAIL (B)



THRIE BEAM WOOD BLOCK



REDUCER ELEMENT TYPE C



SHORT THRIE BEAM ELEMENT

Barry, Ed
Jul 14 2015 8:06 AM

BEAM GUARDRAIL (TYPE 31) TRANSITION SECTION TYPE 21

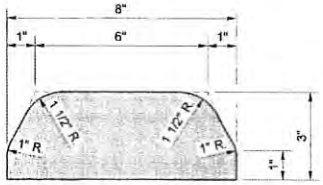
STANDARD PLAN C-25.20-06

SHEET 1 OF 1 SHEET

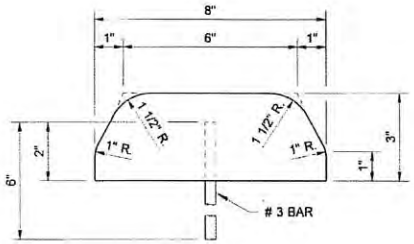
APPROVED FOR PUBLICATION
Carpenter, Jeff
Jul 14 2015 11:26 AM
STATE DESIGN ENGINEER

Washington State Department of Transportation

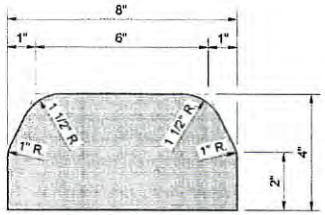
DRAWN BY: BILL BERENS



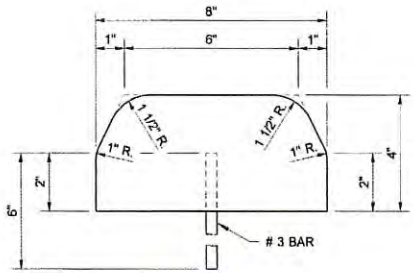
TYPE 1
(HOT MIX ASPHALT)



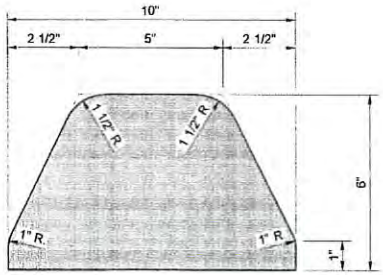
TYPE 4
(CEMENT CONCRETE)



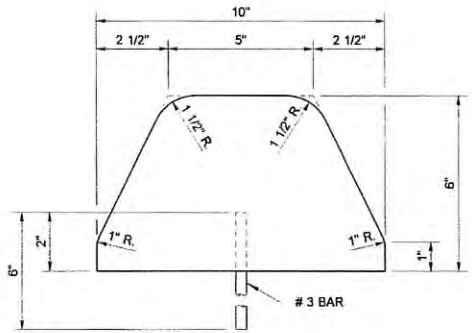
TYPE 2
(HOT MIX ASPHALT)



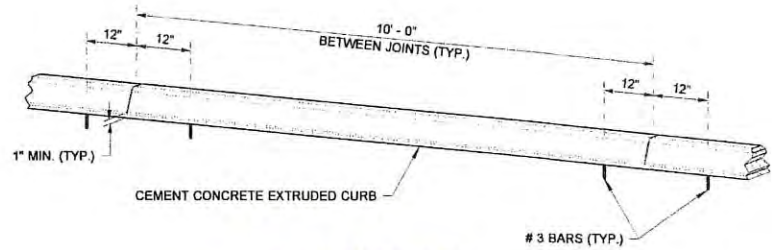
TYPE 5
(CEMENT CONCRETE)



TYPE 3
(HOT MIX ASPHALT)



TYPE 6
(CEMENT CONCRETE)



SPACING OF ANCHOR BARS
(FOR TYPES 4, 5, AND 6)

NOTE

JOINTS MAY BE FORMED DURING INSTALLATION USING A RIGID DIVIDER OR SAWCUT AFTER CONCRETE CURES TO MINIMUM STRENGTH.

KEN LEROY SMITH
STATE OF WASHINGTON
31805
REGISTERED
PROFESSIONAL ENGINEER
01/23/07

EXPIRES AUGUST 26, 2007

EXTRUDED CURB

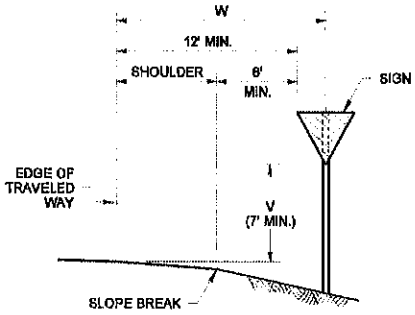
STANDARD PLAN F-10.42-00

SHEET 1 OF 1 SHEET

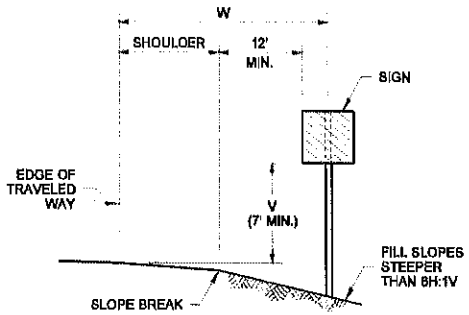
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 01/23/07

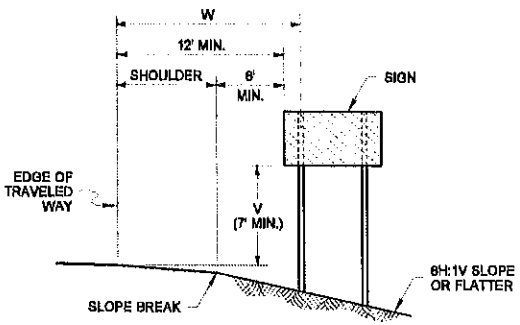
Washington State Department of Transportation



SIGN INSTALLATION IN FILL SECTION



SIGN INSTALLATION ON STEEP FILL SLOPES

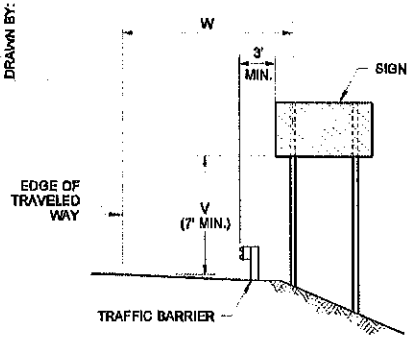


MULTIPLE SIGN POST INSTALLATION IN FILL SECTION

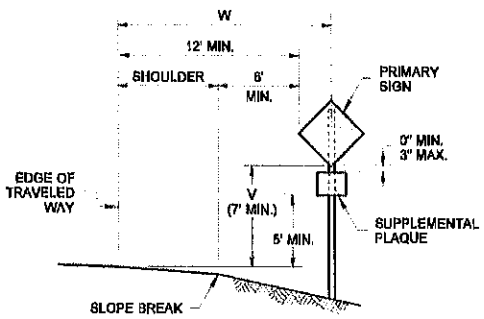
NOTES

1. Refer to the Sign Specification Sheet of the Contract for the 'V' and 'W' distances.
2. The minimum vertical distance from the bottom of the sign to the ground shall not be less than 7' for signs located within the Design Clear Zone.

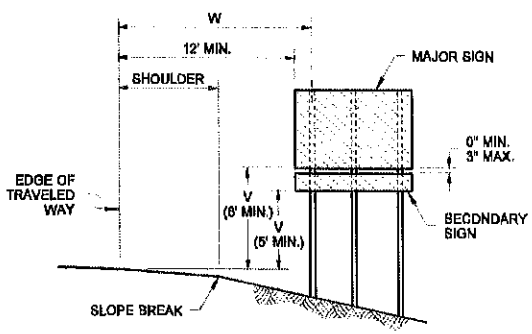
DRAWN BY: MARK SLUKA



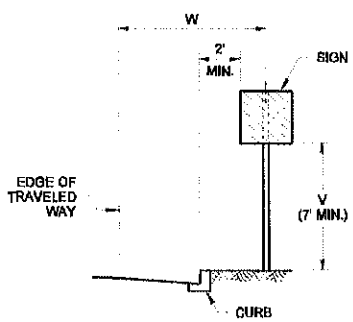
SIGN INSTALLATION BEHIND TRAFFIC BARRIER



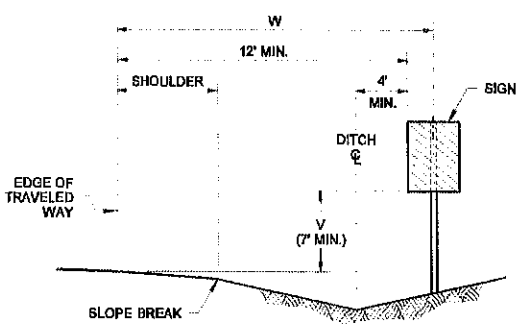
SIGN WITH SUPPLEMENTAL PLAQUE INSTALLATION IN FILL SECTION



GUIDE OR DIRECTIONAL SIGN WITH SECONDARY SIGN INSTALLATION ON EXPRESSWAYS AND FREEWAYS

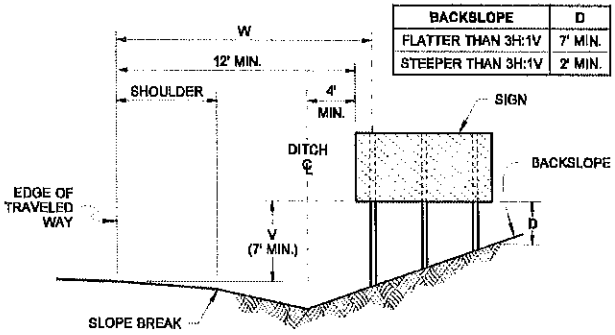


SIGN INSTALLATION IN CURB SECTION

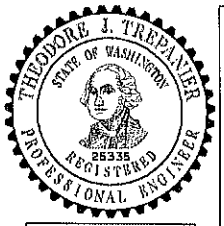


SIGN INSTALLATION IN DITCH SECTION

BACKSLOPE	D
FLATTER THAN 3H:1V	7' MIN.
STEEPER THAN 3H:1V	2' MIN.



MULTIPLE SIGN POST INSTALLATION IN DITCH SECTION



EXPIRES AUGUST 9, 2009

NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNLESS IT BEARS THE ENGINEER'S SEAL, THE ORIGINAL SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION. IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

GROUND MOUNTED SIGN PLACEMENT

STANDARD PLAN G-20.10-00

SHEET 1 OF 1 SHEET

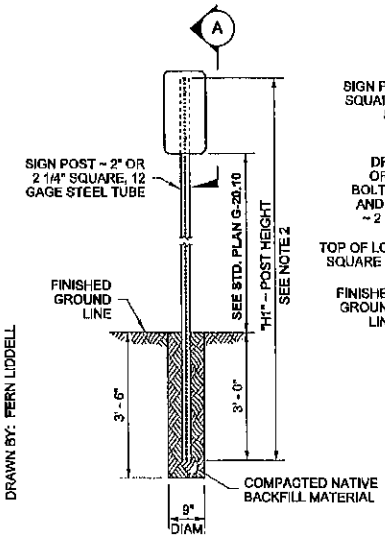
APPROVED FOR PUBLICATION

Pasco Bakotich III — STATE DESIGN ENGINEER

09-20-07 — DATE

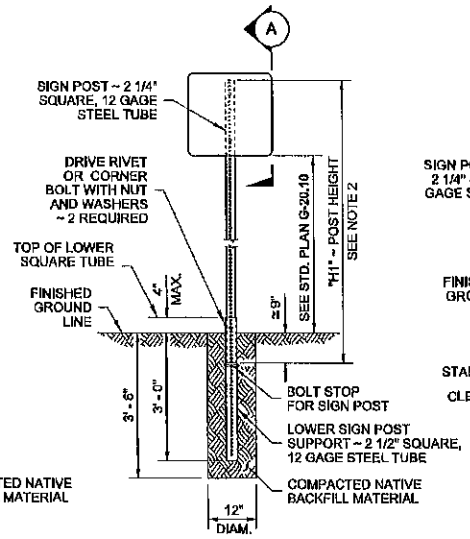
Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



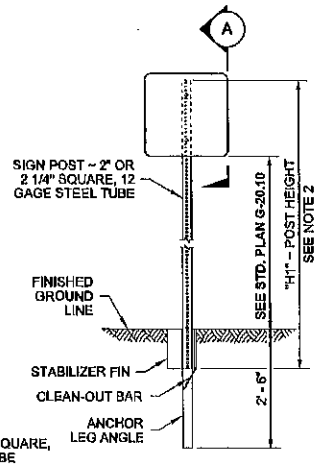
ELEVATION

TYPE ST-1 SIGN SUPPORT



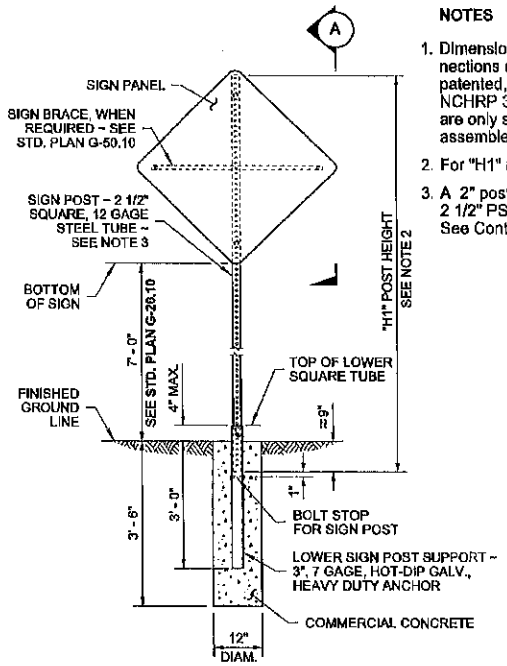
ELEVATION

TYPE ST-2 SIGN SUPPORT



ELEVATION

TYPE ST-3 SIGN SUPPORT

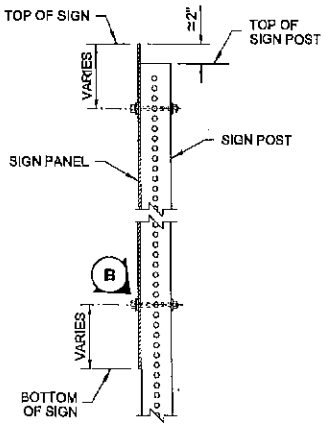


ELEVATION

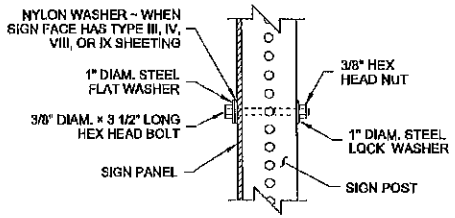
TYPE ST-4 SIGN SUPPORT

NOTES

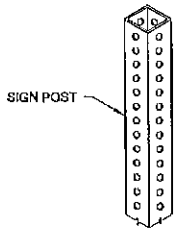
1. Dimensions for the parts used to assemble the base connections are intentionally not shown. Base connections are patented, manufactured products that are in compliance with NCHRP 350 crash test criteria. The base connection details are only shown on this plan to illustrate how the parts are assembled.
2. For "H1" refer to the Sign Specification Sheet in the Contract.
3. A 2" post with a 2 1/4" PSST anchor, or a 2 1/4" post with a 2 1/2" PSST anchor may be substituted. ~ See Contract Plans.



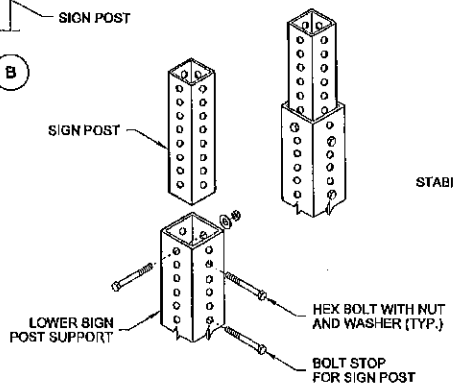
VIEW (A)



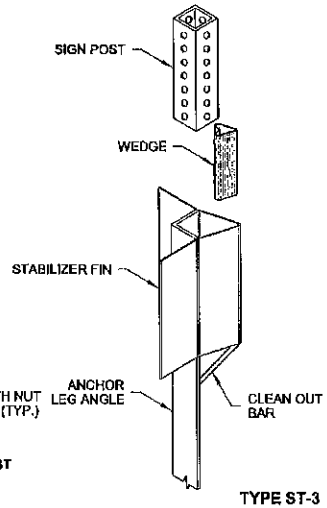
DETAIL (B)



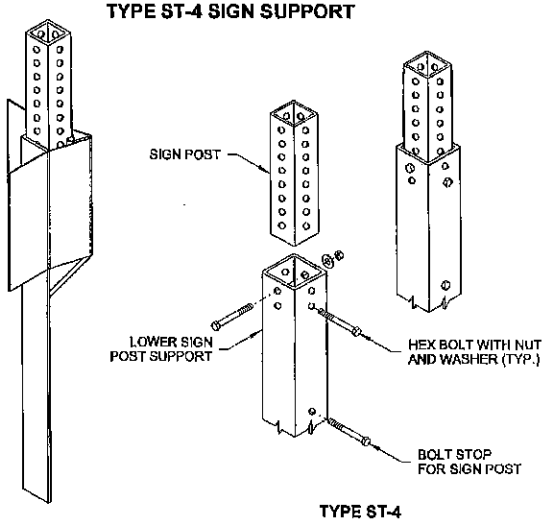
TYPE ST-1



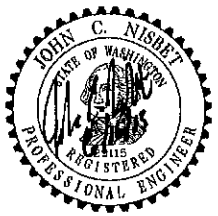
TYPE ST-2



TYPE ST-3



TYPE ST-4



STEEL SIGN SUPPORT TYPES ST-1 ~ ST-4 INSTALLATION DETAILS

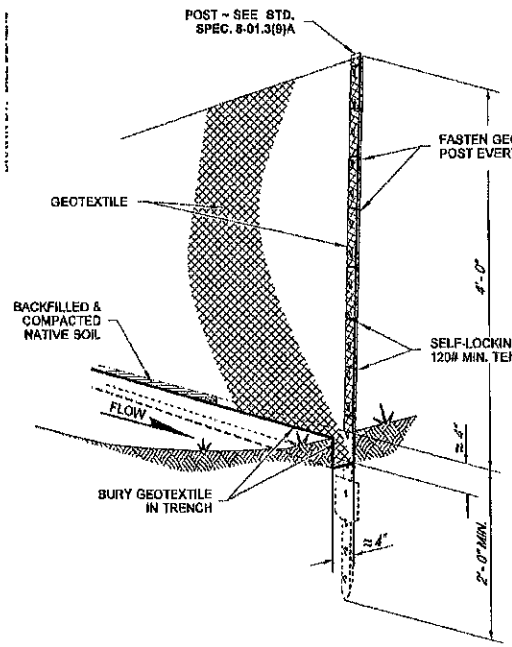
STANDARD PLAN G-24.50-02

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 6/24/13

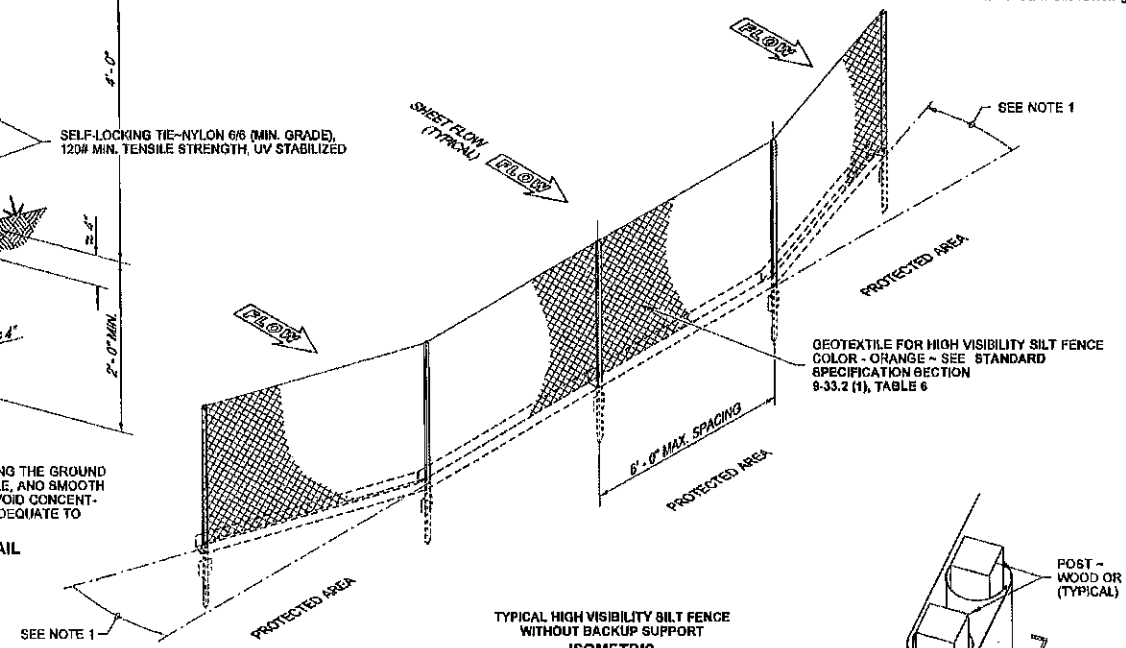
Washington State Department of Transportation



NOTE

DURING EXCAVATION, MINIMIZE DISTURBING THE GROUND AROUND TRENCH AS MUCH AS IS FEASIBLE, AND SMOOTH SURFACE FOLLOWING EXCAVATION TO AVOID CONCENTRATING FLOWS. COMPACTION MUST BE ADEQUATE TO PREVENT UNDERCUTTING FLOWS.

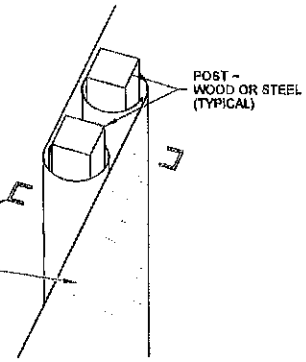
TYPICAL INSTALLATION DETAIL
(STEEL POSTS SHOWN)



TYPICAL HIGH VISIBILITY SILT FENCE WITHOUT BACKUP SUPPORT
ISOMETRIC
(STEEL POSTS SHOWN)

NOTES

1. Install the ends of the high visibility silt fence to point slightly upslope to prevent sediment from flowing around the ends of the fence.
2. Perform maintenance in accordance with **Standard Specifications 8-01.3(9)A and 8-01.3(15).**
3. Splices shall never be placed in low spots or sump locations. If splices are located in low or sump areas, the fence may need to be reinstalled unless the Project Engineer approves the installation.
4. Install silt fencing parallel to mapped contour lines.



SPLICED FENCE SECTIONS SHALL BE CLOSE ENOUGH TOGETHER TO PREVENT SILT LADEN WATER FROM ESCAPING THROUGH THE FENCE AT THE OVERLAP. JOINING SECTIONS SHALL NOT BE PLACED IN LOW SPOTS OR IN SUMP LOCATIONS.

SPLICE DETAIL
(WOOD POSTS SHOWN)

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
SANDRA L. SALISBURY
CERTIFICATE NO. 000860
March 11, 2013

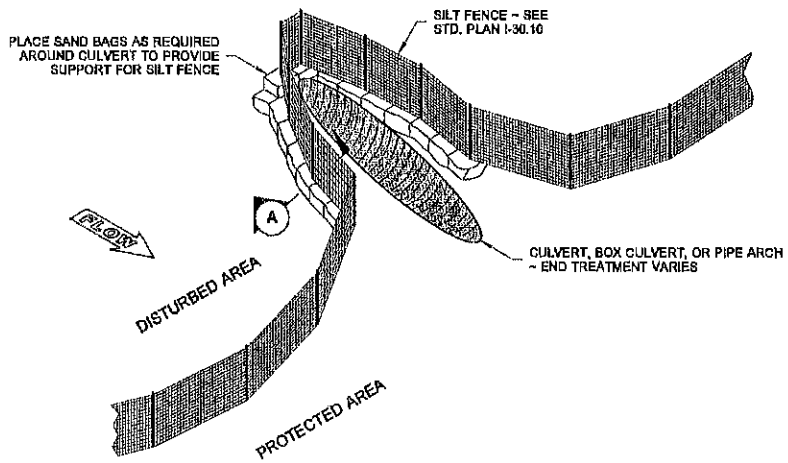
HIGH VISIBILITY SILT FENCE

STANDARD PLAN I-30.17-00

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 3/22/13
Washington State Department of Transportation

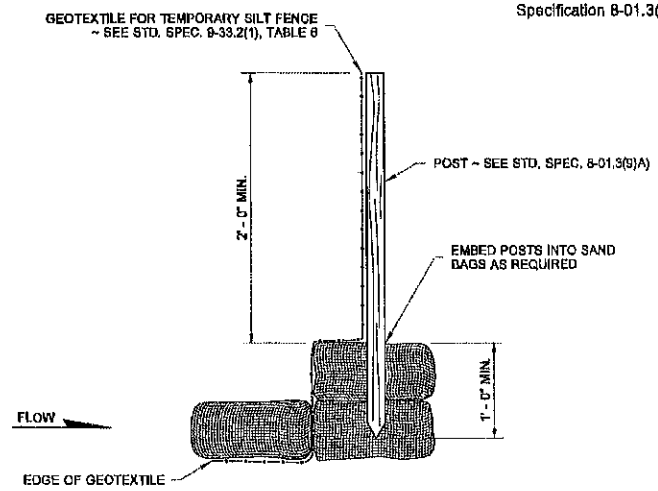
DRAWN BY: LISA CYFORD



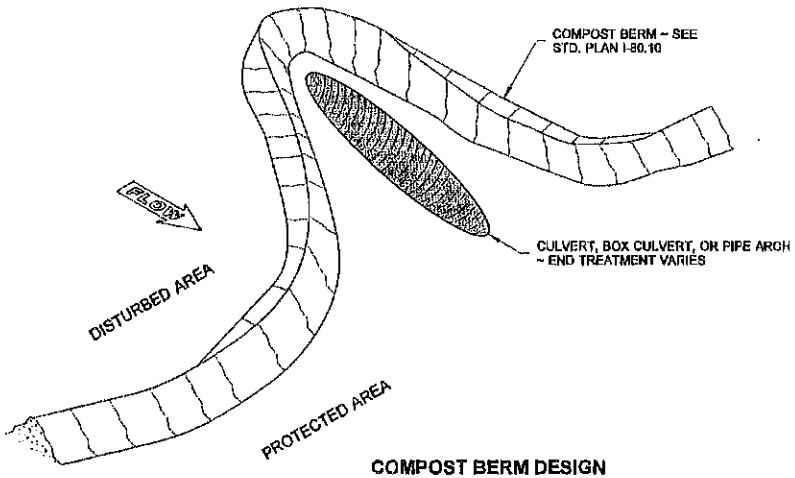
SILT FENCE DESIGN

NOTE

Perform maintenance in accordance with Standard Specification 8-01.3(9)A and 8-01.3(15).



SECTION A



COMPOST BERM DESIGN

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
9/20/07

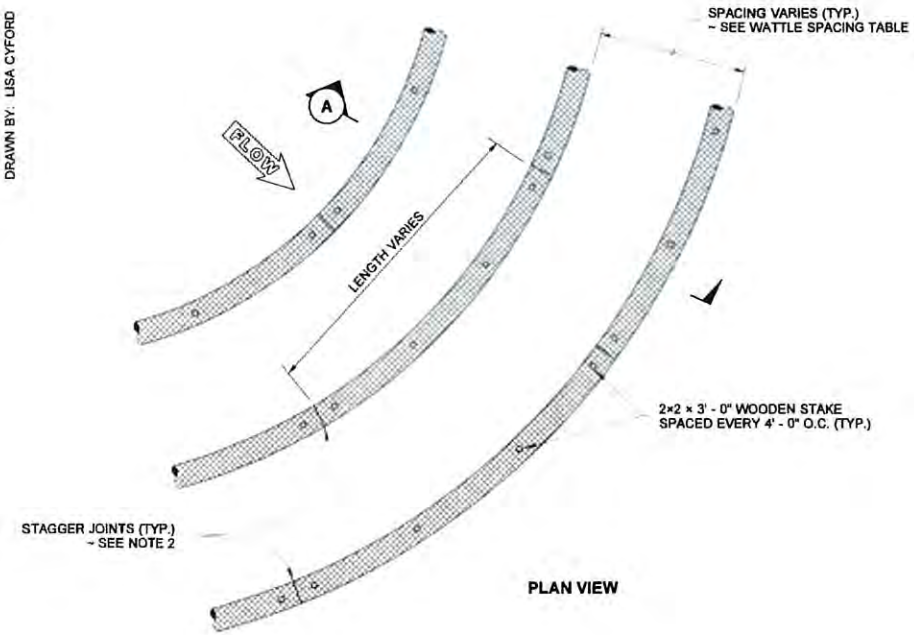
EROSION CONTROL AT CULVERT ENDS

STANDARD PLAN I-30.20-00

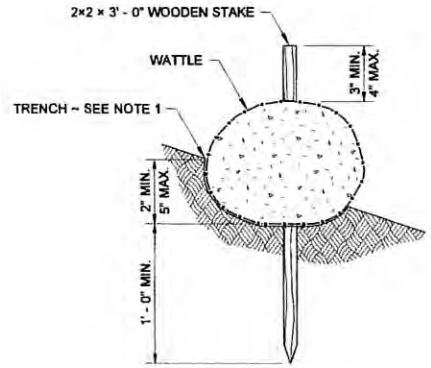
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER 9/20/07 DATE
Washington State Department of Transportation

DRAWN BY: LISA CYFORD



PLAN VIEW

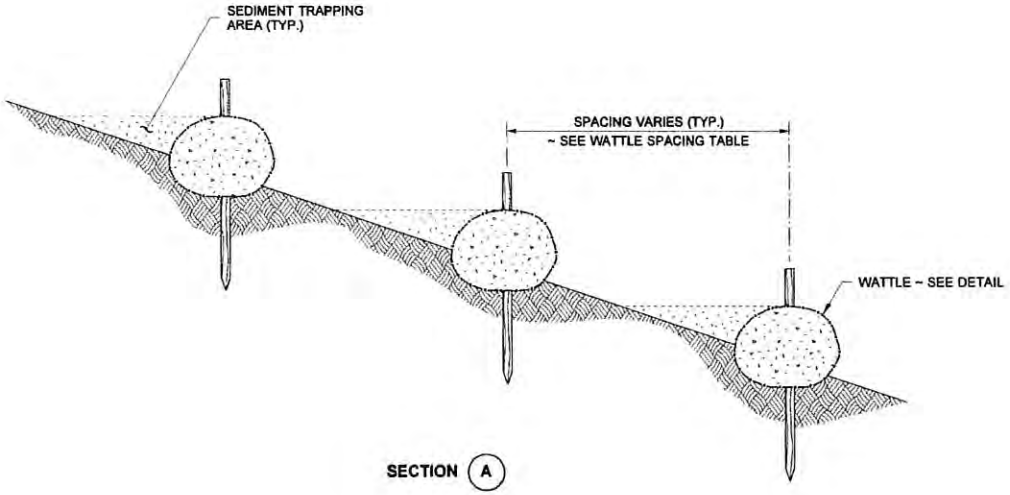


TYPICAL SECTION

WATTLE DETAIL

NOTES

1. Wattles shall be in accordance with Standard Specification 9-14.5(5). Install Wattles along contours. Installation shall be in accordance with Standard Specification 8-01.3(10).
2. Securely knot each end of Wattle. Abut adjacent Wattles tightly, end to end, without overlapping the ends.
3. Pilot holes may be driven through the Wattles and into the soil when soil conditions require.
4. Live stakes may be used for permanent installation and shall be in accordance with Standard Specification 9-14.5(6).
5. Wattles shall be inspected regularly, and immediately after a rainfall produces runoff, to ensure they remain thoroughly entrenched and in contact with the soil.
6. Perform maintenance in accordance with Standard Specification 8-01.3(15).



SECTION A

WATTLE SPACING TABLE	
SLOPE	MAXIMUM SPACING
1:1	10' - 0"
2:1	20' - 0"
3:1	30' - 0"
4:1	40' - 0"

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT

MARK W. MAURER

CERTIFICATE NO. 000598

9/20/07

WATTLE INSTALLATION ON SLOPE

STANDARD PLAN I-30.30-00

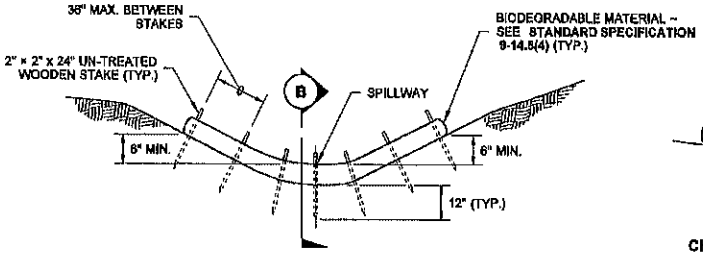
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

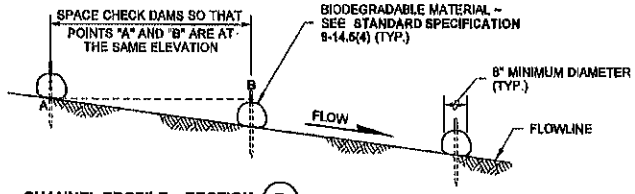
STATE DESIGN ENGINEER — DATE 9/20/07

Washington State Department of Transportation

DRAWN BY: FERN LIDDELL



TYPICAL CHANNEL SECTION



CHANNEL PROFILE ~ SECTION (B)

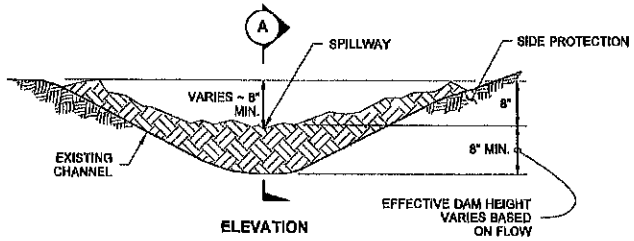
BIODEGRADABLE CHECK DAM

BIODEGRADABLE CHECK DAM NOTE

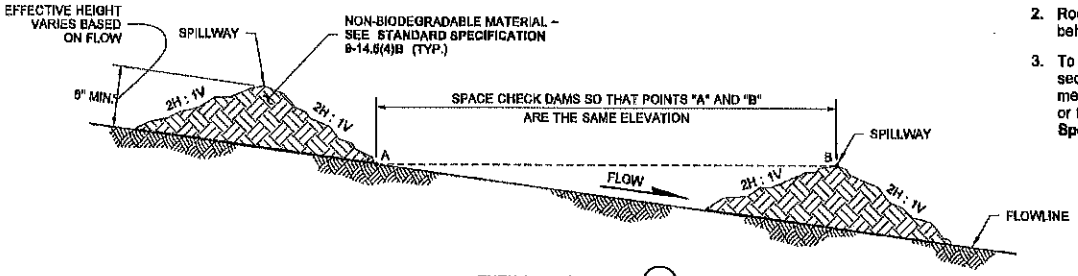
1. Biodegradable Check Dams may need additional or modified staking to prevent undercutting or scouring.

GENERAL NOTES

1. Check Dams shall meet the requirements of **Standard Specifications 8-01.3(6) and 9-14.5(4).**
2. In channels, install the sloped ends of the Check Dam a minimum of 8" higher than the spillway to ensure water flows over the dam and not around it.
3. Perform maintenance in accordance with **Standard Specification 8-01.3(16).**
4. Remove Check Dams in accordance with **Standard Specification 8-01.3(16).**



ELEVATION



EXTENDED SECTION (A)

NON-BIODEGRADABLE CHECK DAM

NON-BIODEGRADABLE CHECK DAM NOTES

1. Non-Biodegradable Manufactured Check Dam devices approved for use under **Standard Specification 9-14.5(4)** shall be installed per manufacturer's recommendations and shall perform in accordance with **Standard Specification 8-01.3(6).**
2. Rock Check Dams shall be placed outside of the clear zone or behind traffic barrier.
3. To ensure adequate damming time, Rock Check Dams used as sediment control may need to be enhanced with plastic that meets the requirements of **Standard Specification 9-14.5(3)** or fabric that meets the geotextile requirements of **Standard Specification 9-33.2(1), Table 6.**

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
SANDRA L. SALISBURY
LICENSE NO. 860
DATE: 6 June 2013

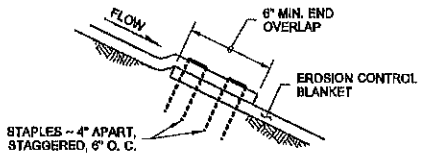
NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT IN AN ELECTRONIC DUPLICATE. THE ORIGINAL, SIGNED BY THE ENGINEER, AND APPROVED FOR PUBLICATION, IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

CHECK DAMS ON CHANNELS

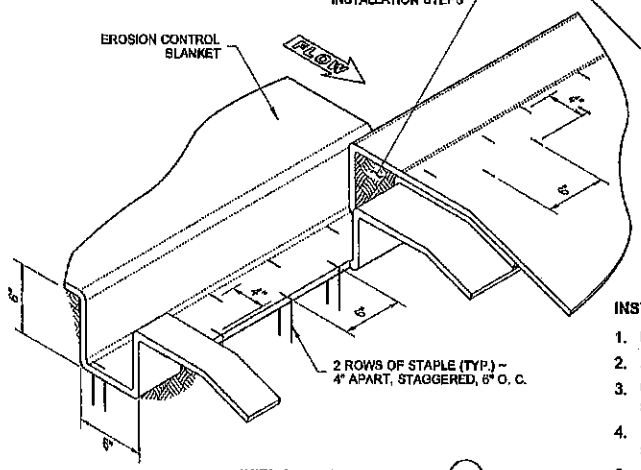
STANDARD PLAN I-50.20-01

SHEET 1 OF 1 SHEET

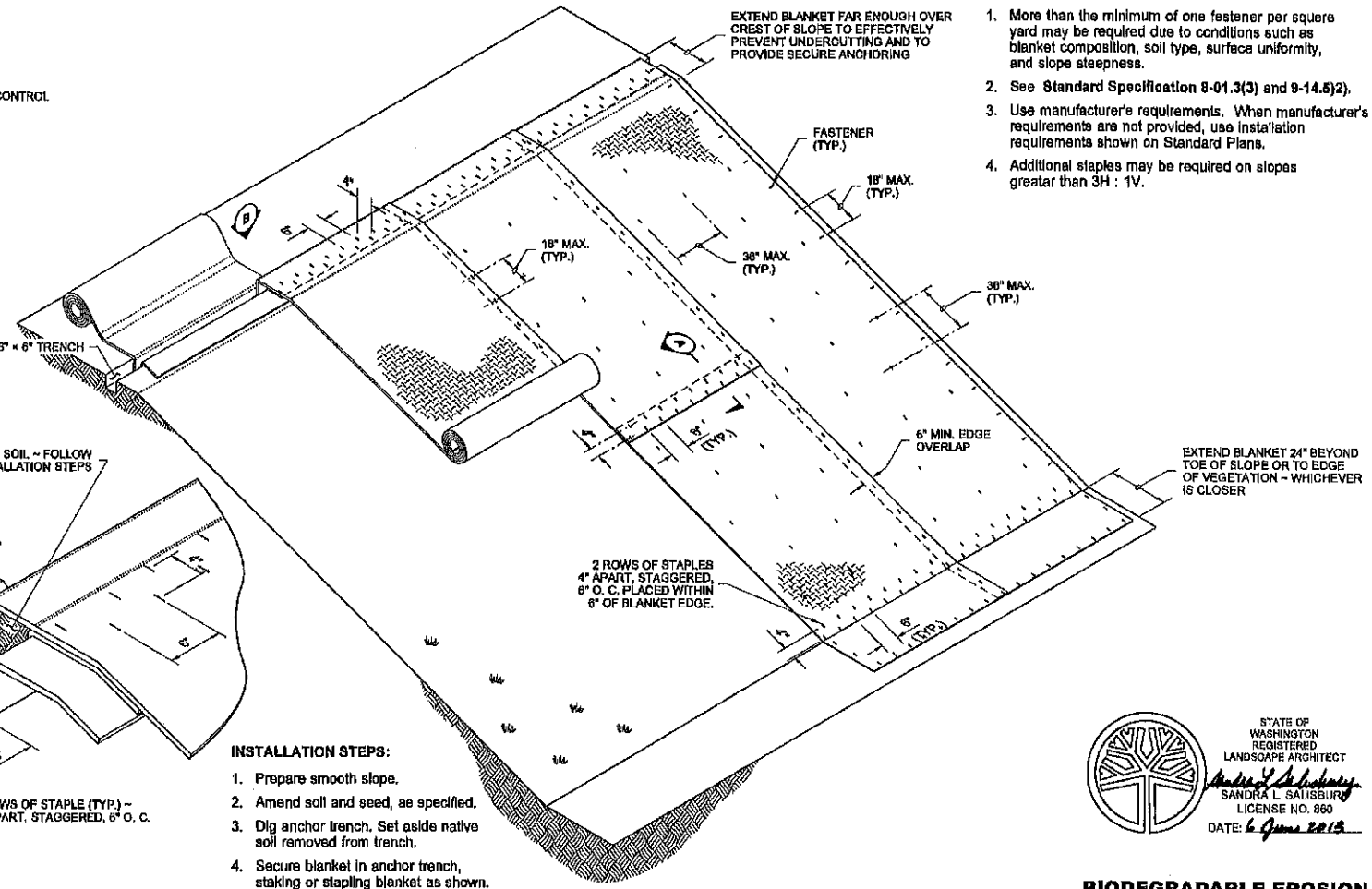
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE
Washington State Department of Transportation



SHINGLE SPLICE ~ SECTION (A)



INITIAL ANCHOR ~ DETAIL (B)



ISOMETRIC VIEW

INSTALLATION STEPS:

1. Prepare smooth slope.
2. Amend soil and seed, as specified.
3. Dig anchor trench. Set aside native soil removed from trench.
4. Secure blanket in anchor trench, staking or stapling blanket as shown.
5. Replace native soil previously removed from trench.
6. Roll blanket down the slope in a controlled manner, taking care to remove excess slack, and taking care not to stretch blanket.
7. Stake or staple blanket as shown so there are no gaps between the blanket and the soil. Staple while unrolling blanket to minimize walking on blanket.

NOTES

1. More than the minimum of one fastener per square yard may be required due to conditions such as blanket composition, soil type, surface uniformity, and slope steepness.
2. See **Standard Specification 8-01.3(3)** and **9-14.5)2)**.
3. Use manufacturer's requirements. When manufacturer's requirements are not provided, use installation requirements shown on Standard Plans.
4. Additional staples may be required on slopes greater than 3H : 1V.

DRAWN BY: LISA CYFORD

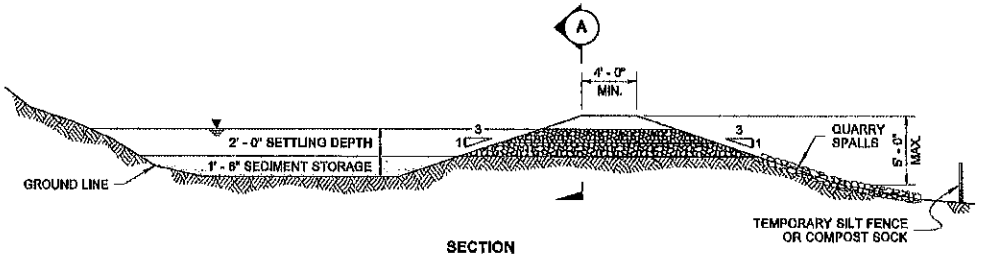
STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
SANDRA L. SALISBURY
LICENSE NO. 860
DATE: 6 June 2013

BIODEGRADABLE EROSION CONTROL BLANKET PLACEMENT FOR SLOPES
STANDARD PLAN I-60.10-01

SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER — DATE 6/10/13
Washington State Department of Transportation

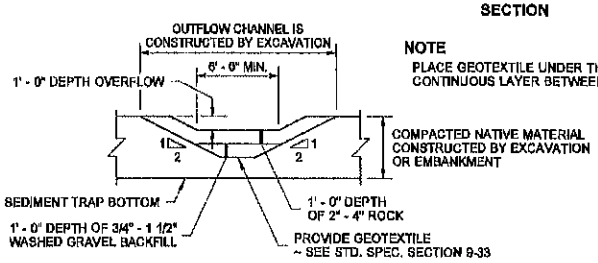
DRAWN BY: BILL BERENS



SECTION

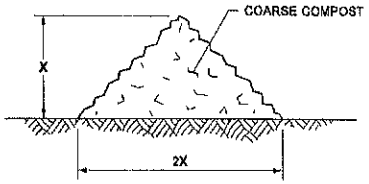
NOTE

PLACE GEOTEXTILE UNDER THE SPILLWAY AND SIDE SLOPES. PROVIDE A CONTINUOUS LAYER BETWEEN THE GRAVEL/ROCK AND THE NATIVE EARTHEN MATERIAL.



SECTION (A)

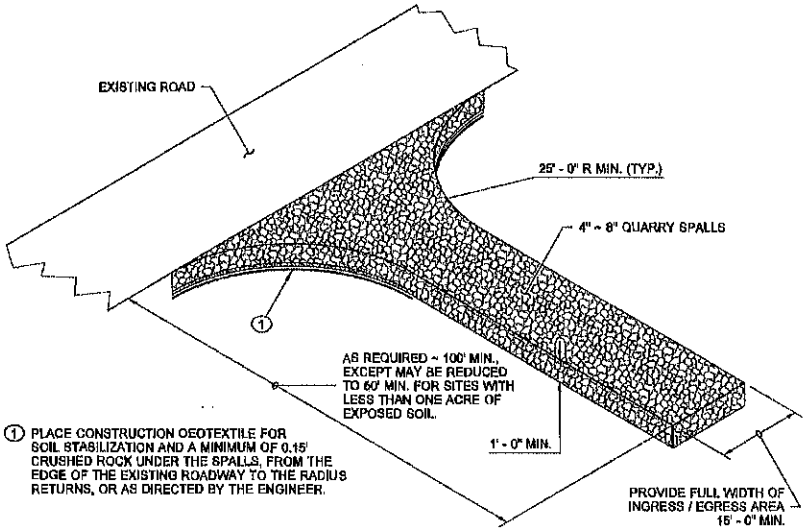
TEMPORARY SEDIMENT TRAP



X = 1' - 0" FOR SLOPES 4H:1V OR FLATTER
X = 1' - 6" FOR SLOPES STEEPER THAN 4H:1V

TYPICAL SECTION

COMPOST BERM DETAIL



(1) PLACE CONSTRUCTION GEOTEXTILE FOR SOIL STABILIZATION AND A MINIMUM OF 0.15' CRUSHED ROCK UNDER THE SPALLS, FROM THE EDGE OF THE EXISTING ROADWAY TO THE RADIUS RETURNS, OR AS DIRECTED BY THE ENGINEER.

ISOMETRIC VIEW

STABILIZED CONSTRUCTION ENTRANCE

STATE OF WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
MARK W. MAURER
CERTIFICATE NO. 000598
8/10/2009

MISCELLANEOUS EROSION CONTROL DETAILS

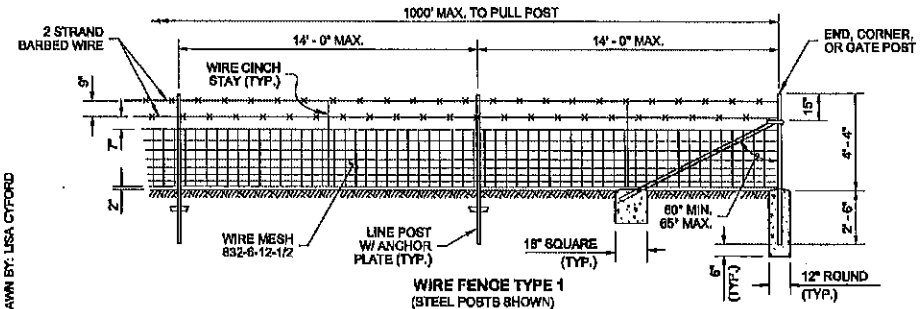
STANDARD PLAN I-80.10-01

SHEET 1 OF 1 SHEET

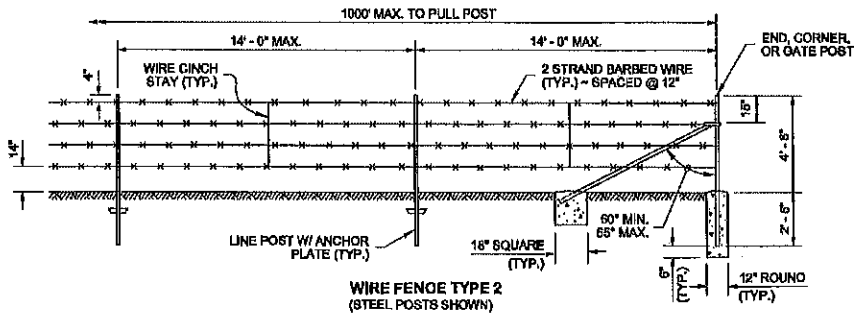
APPROVED FOR PUBLICATION
STATE DESIGN ENGINEER
8/11/09
DATE

Washington State Department of Transportation

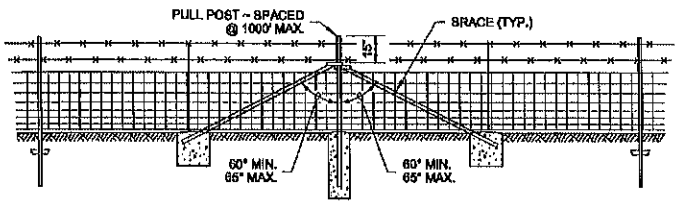
DRAWN BY: LISA CYFORD



WIRE FENCE TYPE 1
(STEEL POSTS SHOWN)



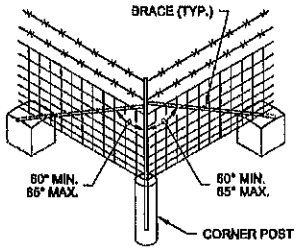
WIRE FENCE TYPE 2
(STEEL POSTS SHOWN)



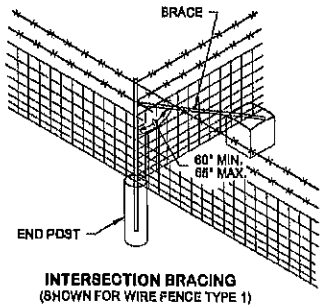
INTERMEDIATE BRACING/PULL POST
(SHOWN FOR WIRE FENCE TYPE 1)

NOTES

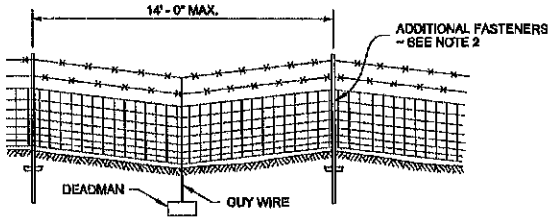
1. The bracing and pull post details for Wire Fence Type 2 are the same as for Type 1.
2. Attach the wire mesh to the posts using four fasteners. Three additional fasteners per post are required within end at the limits of sag conditions. Use additional fasteners on posts that mark the angle point of any sudden change in topography.
3. See **Standard Specification 9-16.2(1)** for wood post sizes. Wood anchors (for wood posts) shall be 2 × 4 lumber, 12" long minimum, and fastened with three 16d galvanized nails.



CORNER BRACING
(SHOWN FOR WIRE FENCE TYPE 1)



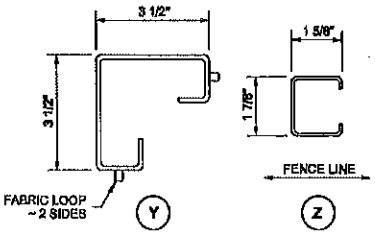
INTERSECTION BRACING
(SHOWN FOR WIRE FENCE TYPE 1)



GRADE DEPRESSION (SAG) DETAIL
(STEEL POSTS SHOWN)

POST SPECIFICATIONS				
POST	PIPE	ROLL FORMED		T-POST
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2" DIAM.	Y	5.10	
LINE OR BRACE POST	2" DIAM.	Z	1.65	1.33

STEEL POSTS AND BRACES



6·19·2012

WIRE FENCE TYPES 1 & 2 AND WIRE GATES

STANDARD PLAN L-10.10-02

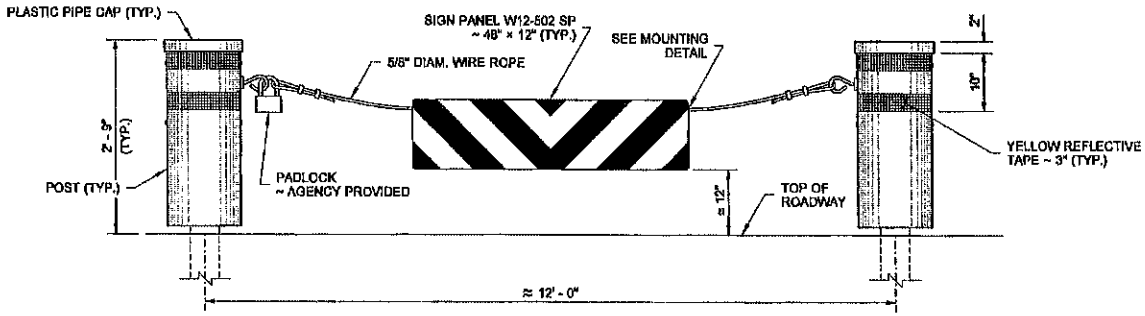
SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 6/21/12

Washington State Department of Transportation

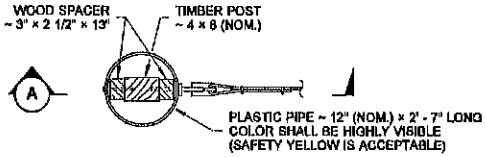
DRAWN BY: BILL SERENS



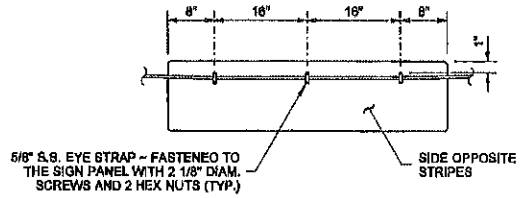
ELEVATION

NOTE

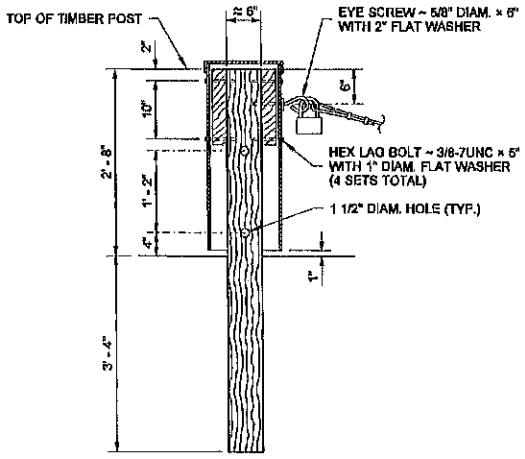
Hardware shall be stainless steel or galvanized in accordance with AASHTO M232.



TOP VIEW
(CAP NOT SHOWN)
END POST



SIGN PANEL MOUNTING DETAIL



SECTION (A)

ACCESS CONTROL GATE

STANDARD PLAN L-70.10-01

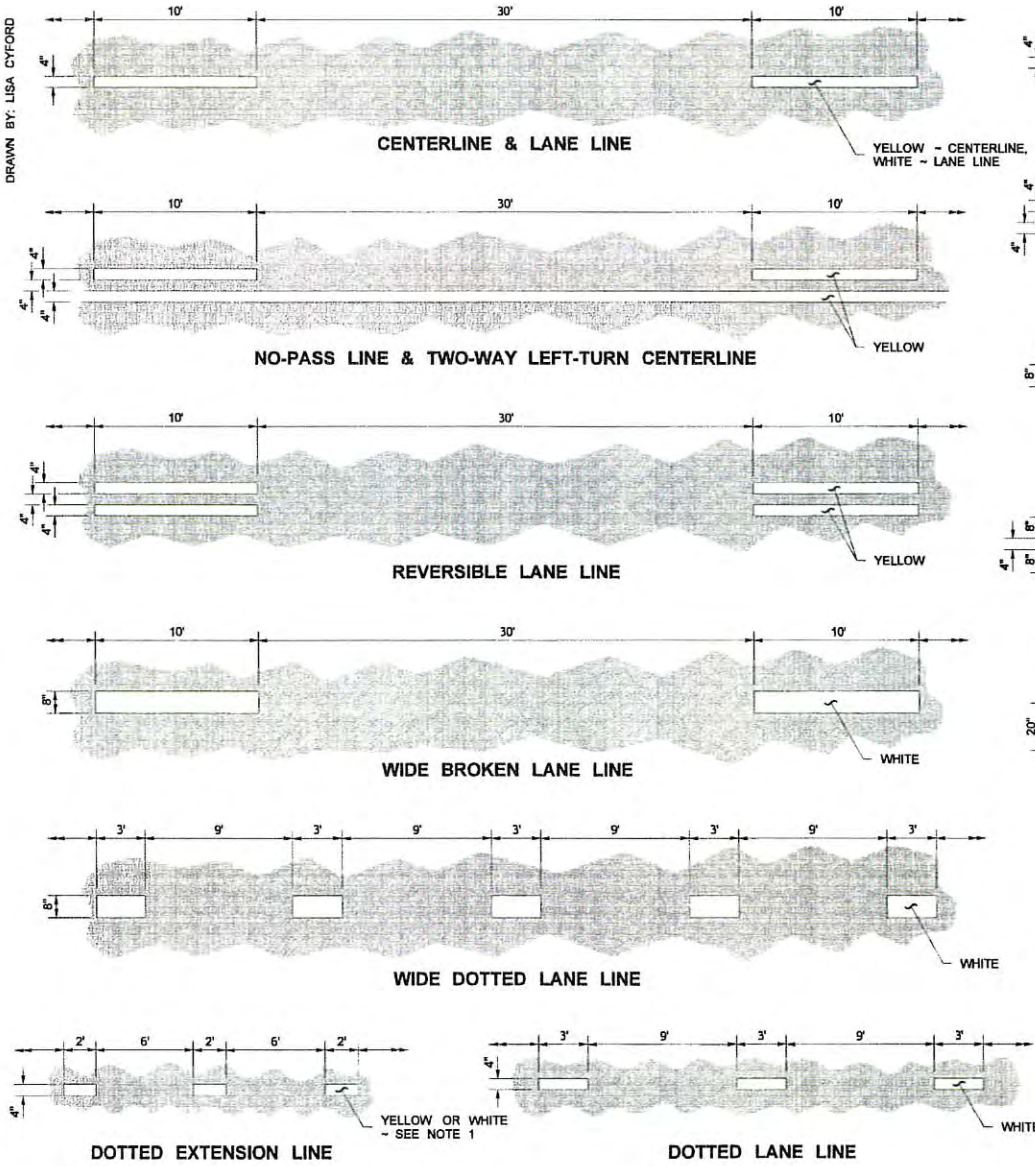
SHEET 1 OF 1 SHEET

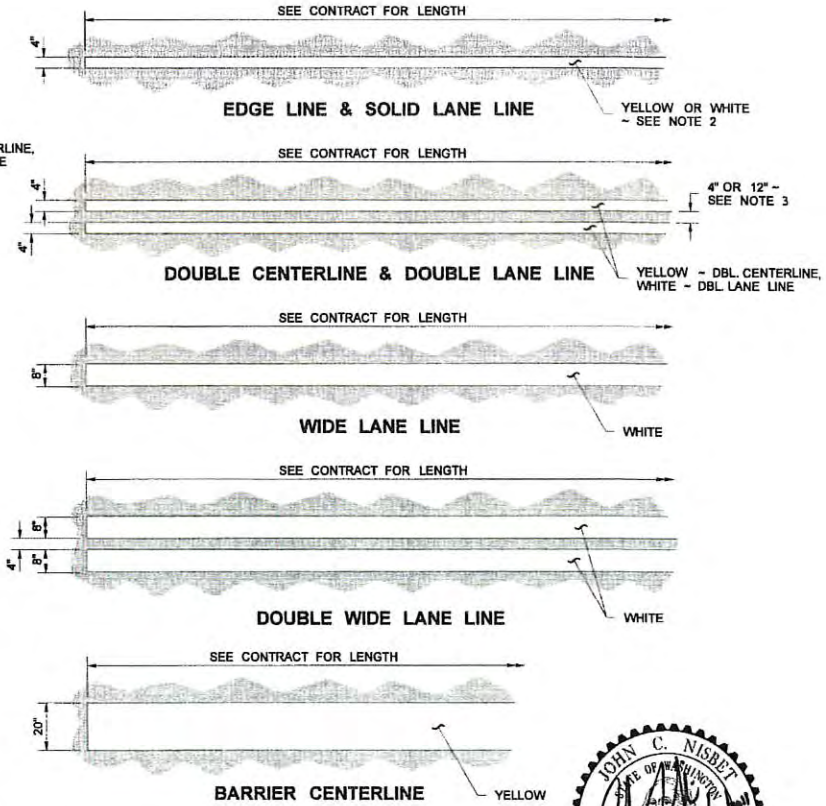
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE 5/21/08

Washington State Department of Transportation

DRAWN BY: LISA CYFORD





NOTES

1. Dotted Extension Line shall be the same color as the line it is extending.
2. Edge Line shall be white on the right edge of traveled way, and yellow on the left edge of traveled way (on one-way roadways). Solid Lane Line shall be white.
3. The distance between the lines of the Double Centerline shall be 12" everywhere, except 4" for left-turn channelization and narrow roadways with lane widths of 10 feet or less. Local Agencies (on non-state routes) may specify a 4" distance for all locations.

   The distance between the lines of the Double Lane Line shall be 4".

LONGITUDINAL MARKING PATTERNS

STANDARD PLAN M-20.10-02

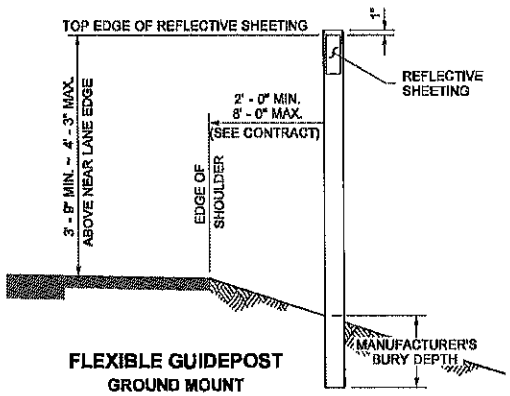
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

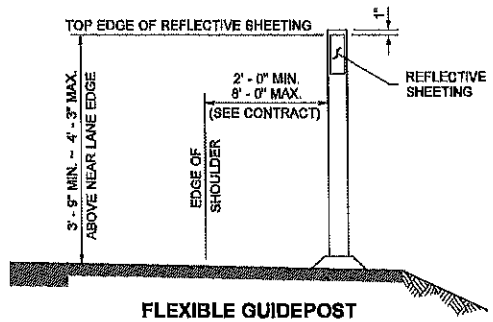
STATE DESIGN ENGINEER — DATE 6/3/11

Washington State Department of Transportation

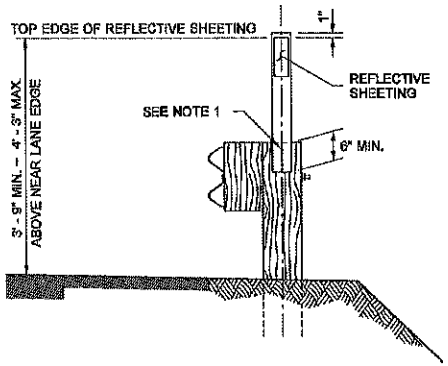
DRAWN BY: LISA CYFORD



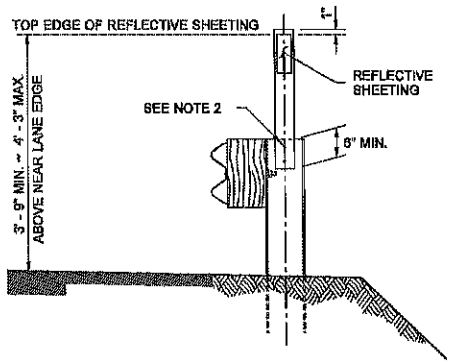
FLEXIBLE GUIDEPOST
GROUND MOUNT



FLEXIBLE GUIDEPOST
SURFACE MOUNT



FLEXIBLE GUIDEPOST
GUARDRAIL MOUNT
(USE FOR WOODEN GUARDRAIL POSTS)



FLEXIBLE GUIDEPOST
GUARDRAIL MOUNT
(USE FOR STEEL GUARDRAIL POSTS)

NOTES

1. When the Contract Plans requires a guidepost with concurrent guardrail runs, the Contractor shall either:
   A. Drive the flexible guidepost in line with the guardrail posts, or
   BMount the shorter flexible guidepost onto the guardrail post.
2. Guideposts shall be fastened to the wooden guardrail post using two 2" × 3/8" lag screws with washers, along centerline of post. Also acceptable is any approved attachment method submitted by the guidepost manufacturer.
3. Guideposts shall be fastened to the steel guardrail posts using two galvanized 2" × 3/8" bolts with a washer on both sides, a lock washer, and nut. The nut shall be tightened to properly compress the lock washer. The drilled holes in the guardrail post web shall be painted with galvanizing repair paint as described in **Standard Specification Section 8-11.3(1)C** . Also acceptable is any approved attachment method submitted by the guidepost manufacturer.
4. When concrete barrier runs concurrent, the Contractor shall mount Barrier Delineators where guideposts are required.

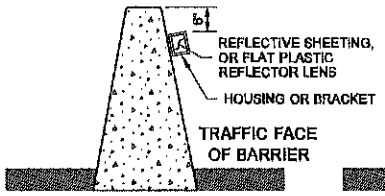
GUIDEPOST TYPE DEFINITIONS ~ REFLECTIVE SHEETING APPLICATIONS

TYPE W	TYPE WW		TYPE Y	TYPE YY	
○	⦶		●	⊕	
FACING TRAFFIC	FACING TRAFFIC	BACK SIDE	FACING TRAFFIC	FACING TRAFFIC	BACK SIDE
3" × 8"	3" × 8"	3" × 4"	3" × 8"	3" × 8"	3" × 8"
WHITE	WHITE	WHITE / WHITE	YELLOW	YELLOW	YELLOW

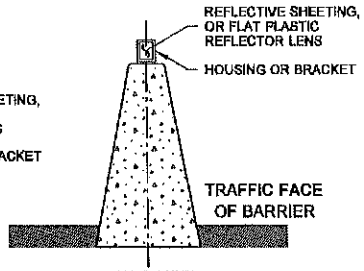
BARRIER DELINEATOR REQUIREMENTS

- Spacing of Barrier Delineators shall be as shown in the Plans.
- The housing or bracket can be flexible or rigid, molded from a durable plastic or other durable material approved by the engineer, and shall be attached to the barrier with an adhesive recommended by the manufacturer. The attachment point on the barrier surface shall be free of dirt, curing compound, moisture, paint, or any other matter that would adversely affect the adhesive bond.
- Barrier Delineators shall be one-sided for single direction traffic, or two-sided for bi-directional traffic. Color shall be white on the right of traffic, and yellow on the left of traffic.
- The reflective surface shall be rectangular or trapezoidal.
- Reflective Sheeting: 12 square inches minimum surface area; Type III, IV, V, or VI, selected from approved materials listed in the Qualified Products List.
- Plastic Reflector: 9 square inches minimum surface area; acrylic or polycarbonate conforming to AASHTO M 290. Reflectors shall equal or exceed the following minimum values of Specific Intensity:

OBSERVATION ANGLE	ENTRANCE ANGLE	SPECIFIC INTENSITY (cd/ft-c)	
		WHITE	YELLOW
0.1°	0°	126	75
0.1°	20°	60	30



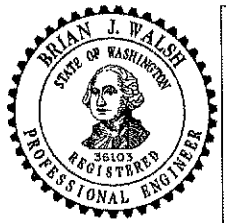
SIDE MOUNT
PER CONTRACT



TOP MOUNT
PER CONTRACT

BARRIER DELINEATORS

(CONCRETE BARRIER TYPES AND LOCATIONS VARY, SINGLE SLOPE IN MEDIAN SHOWN)



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNTIL IT BEARS THE ORIGINAL, SIGNED BY THE ENGINEER AND APPROVED FOR PUBLICATION, IS NOT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

GUIDEPOSTS AND BARRIER DELINEATORS

STANDARD PLAN M-40.10-02

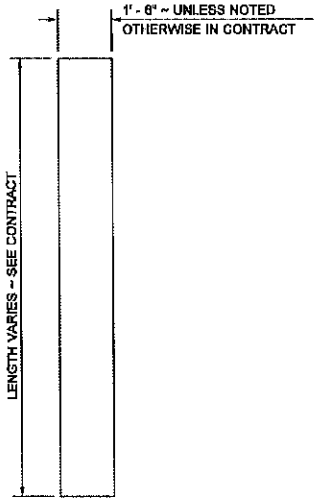
SHEET 1 OF 1 SHEET

APPROVED FOR PUBLICATION

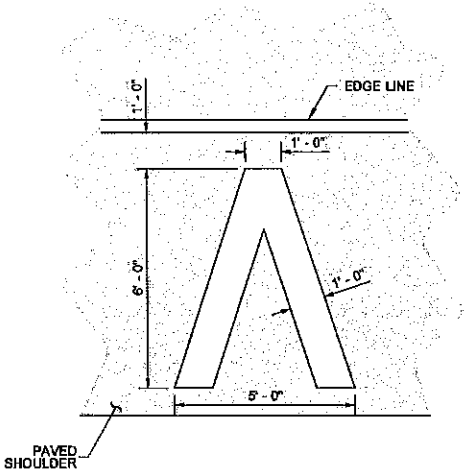
Pasco Bakotich III — STATE DESIGN ENGINEER
05-11-11 — DATE

Washington State Department of Transportation

DRAWN BY: LISA CYFORD



STOP LINE

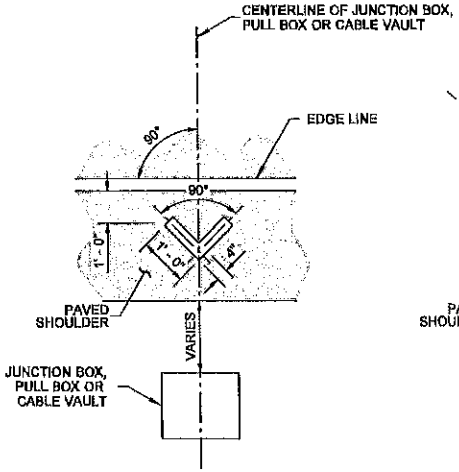


MARKING AREA = 11.73 SQ.FT.

HALF-MILE MARKER

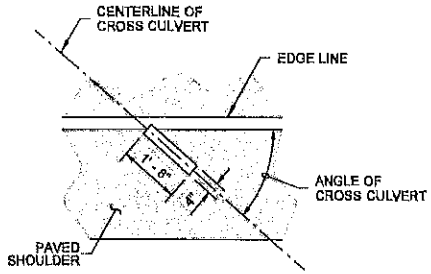
NOTES

1. If Rumble Strips are present, install marking outside of the Rumble Strip.



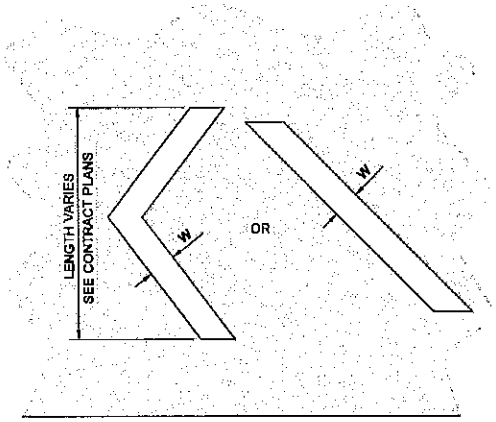
MARKING AREA = 0.56 SQ. FT.

JUNCTION BOX, PULL BOX, OR CABLE VAULT MARKINGS



MARKING AREA = 0.56 SQ.FT.

CROSS CULVERT

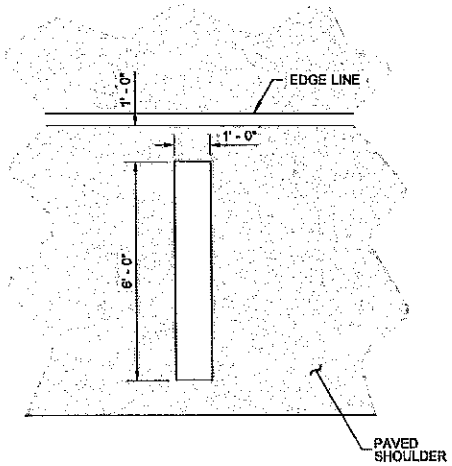


WHITE OR YELLOW ~ SEE CONTRACT PLANS

CHEVRON OR DIAGONAL

CROSSHATCH MARKING

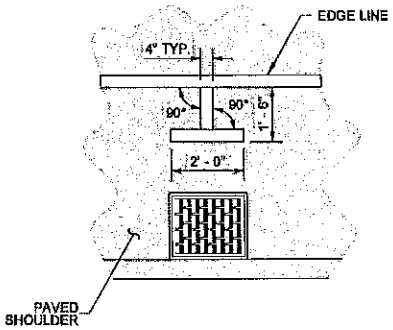
W = 8" FOR POSTED SPEED LIMIT OF 40 MPH OR LOWER
W = 12" FOR POSTED SPEED LIMIT OF 45 MPH OR HIGHER



MARKING AREA = 6.00 SQ.FT.

FULL MILE MARKER

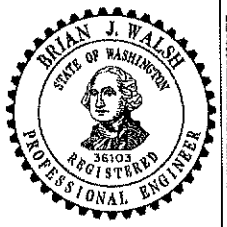
AERIAL SURVEILLANCE MARKERS



MARKING AREA = 1.06 SQ.FT.

DRAINAGE STRUCTURE INLET

DRAINAGE MARKING



NOTE: THIS PLAN IS NOT A LEGAL ENGINEERING DOCUMENT UNLESS AND UNTIL IT BEARS THE ORIGINAL WET SEAL AND SIGNATURE OF THE ENGINEER AND APPROVED FOR PUBLICATION IS KEPT ON FILE AT THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION. A COPY MAY BE OBTAINED UPON REQUEST.

SYMBOL MARKINGS MISCELLANEOUS

STANDARD PLAN M-24.60-03

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

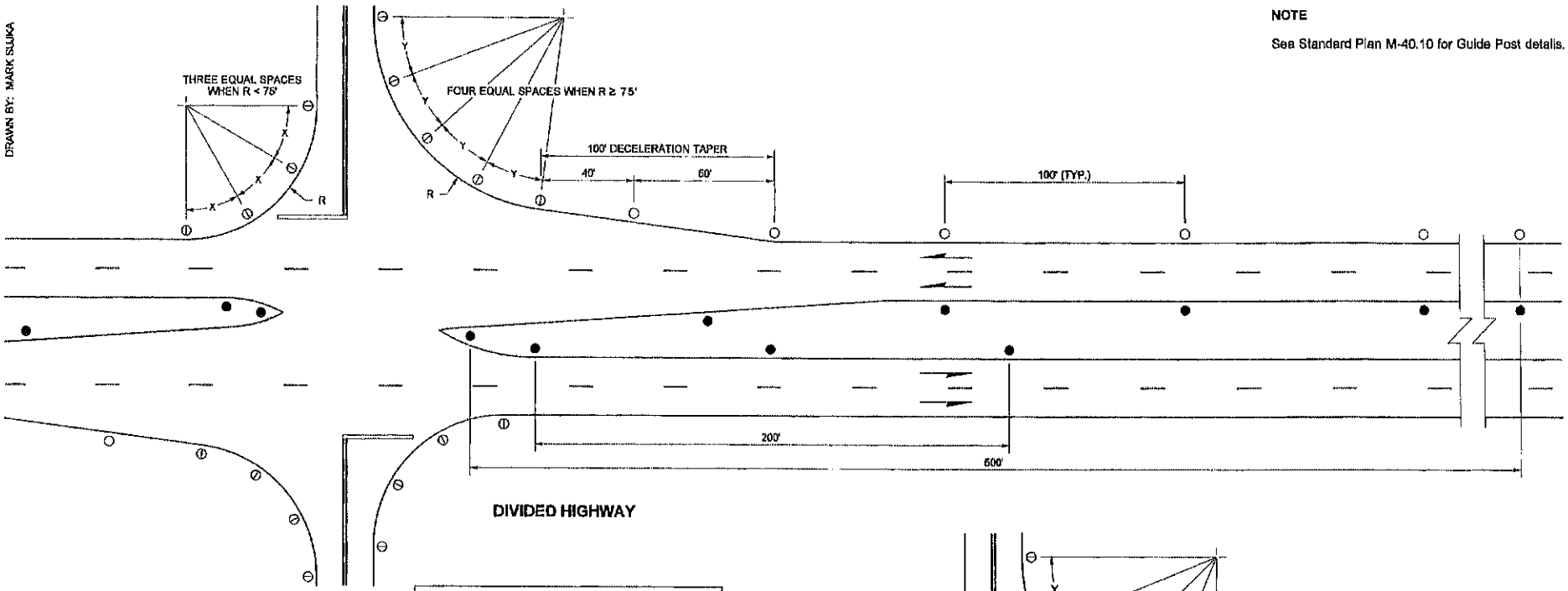
Pasco Bakotich III — STATE DESIGN ENGINEER — *05-11-11* — DATE

Washington State Department of Transportation

DRAWN BY: MARK SLUKA

NOTE

See Standard Plan M-40.10 for Guide Post details.



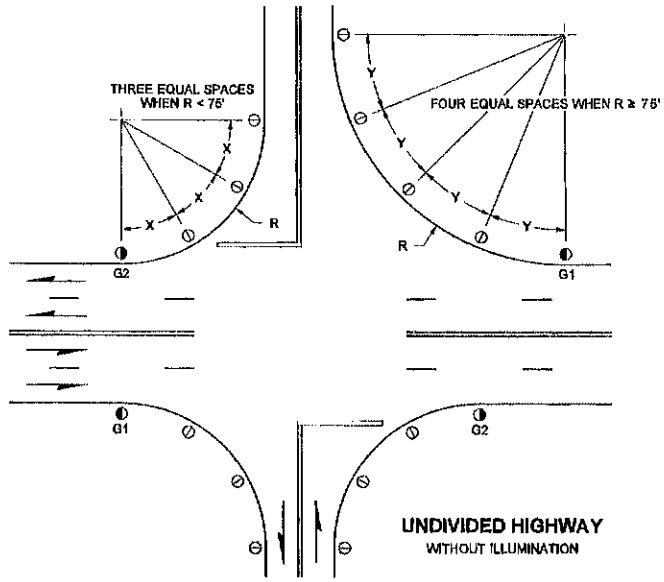
DIVIDED HIGHWAY

LEGEND
○ TYPE W
◐ TYPE WW
● TYPE Y

SEE TYPE DEFINITIONS, STD. PLAN M-40.10

REFLECTIVE SHEETING APPLICATIONS

TYPE G1		TYPE G2	
G1		G2	
FACING TRAFFIC	BACK SIDE	FACING TRAFFIC	BACK SIDE
3"	3"	3"	3"
6" WHITE	4" WHITE	6" WHITE	4" WHITE
4"	4"	4"	4"
6" GREEN	4" WHITE	8" GREEN	4" WHITE



UNDIVIDED HIGHWAY
WITHOUT ILLUMINATION

THEODORE J. TREPANIER
STATE OF WASHINGTON
25335
REGISTERED PROFESSIONAL ENGINEER
9/19/08
EXPIRES AUGUST 9, 2009

GUIDE POST PLACEMENT GRADE INTERSECTIONS

STANDARD PLAN M-40.30-00

SHEET 1 OF 1 SHEET

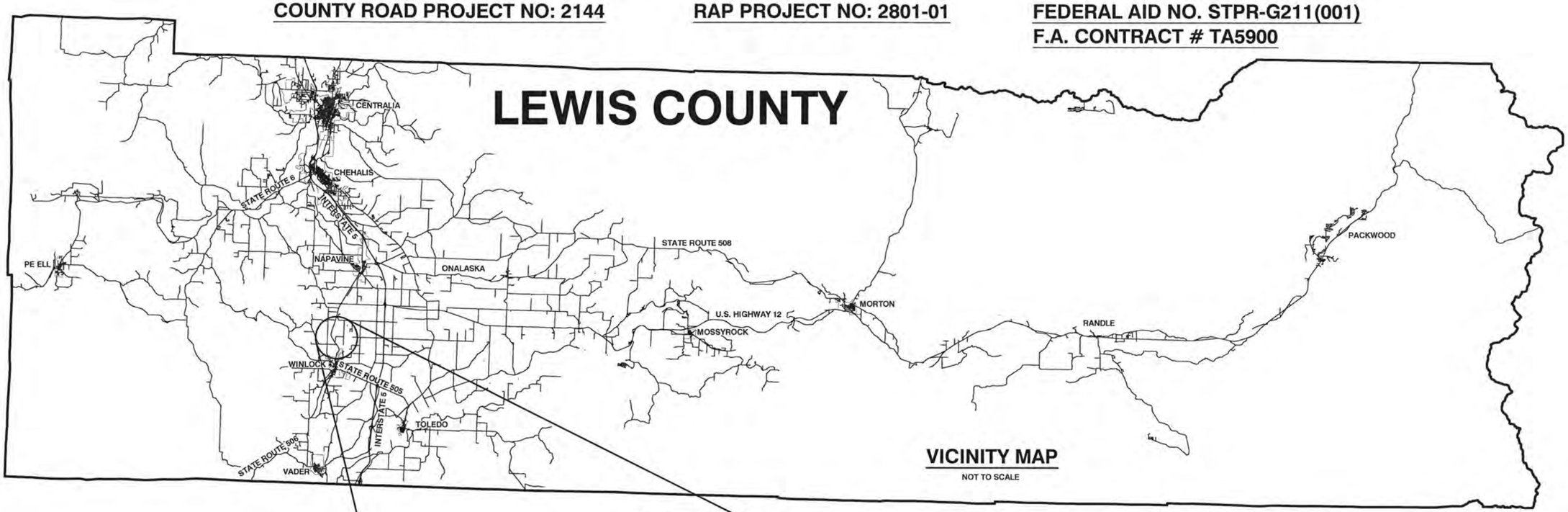
APPROVED FOR PUBLICATION

STATE DESIGN ENGINEER — DATE

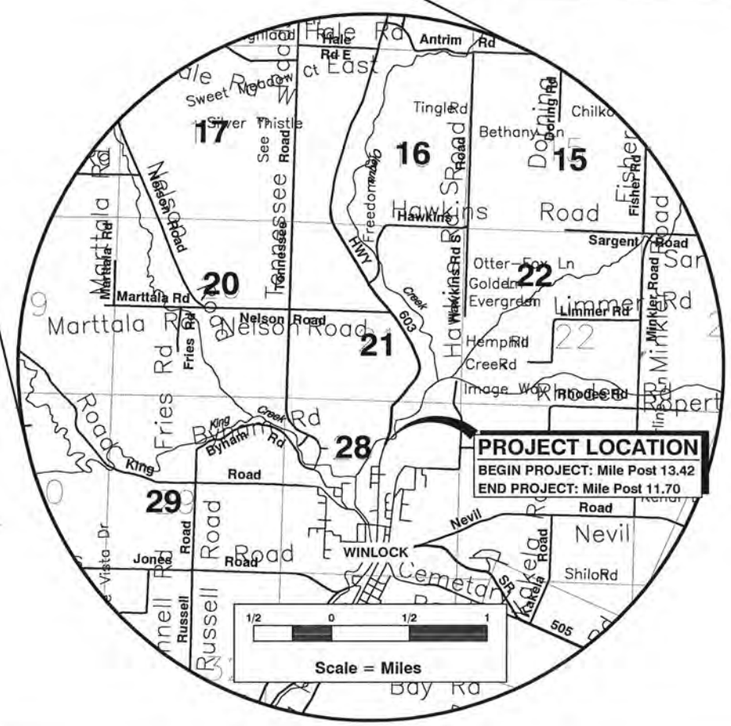
Washington State Department of Transportation

HIGHWAY 603 STABILIZATION

COUNTY ROAD PROJECT NO: 2144 **RAP PROJECT NO: 2801-01** **FEDERAL AID NO. STPR-G211(001)**
F.A. CONTRACT # TA5900



VICINITY MAP
NOT TO SCALE



LEWIS COUNTY
DEPARTMENT OF PUBLIC WORKS
APPROVED FOR CONSTRUCTION:

Assistant County Engineer — Date: 3-15-16

TIM D. FIFE — STATE OF WASHINGTON — #24184 — REGISTERED PROFESSIONAL ENGINEER

COMMISSIONERS:

EDNA J. FUND, DISTRICT 1
P.W. SCHULTE, DISTRICT 2
GARY STAMPER, DISTRICT 3

Lewis County
Department of Public Works

ENGINEERING-DESIGN SECTION

SHEET INDEX

SHEET NO.	DESCRIPTION
1	VICINITY MAP AND SHEET INDEX
2	LEGEND
3	SUMMARY OF QUANTITIES
4 - 18	TESC PLAN
19 - 23	ROADWAY SECTIONS
24 - 46	PLAN AND PROFILE
47	NELSON ROAD PLAN AND PROFILE
48	HAWKINS ROAD PLAN AND PROFILE AND ROADWAY DETAILS
49 - 57	ROADWAY DETAILS
58 - 64	GUARDRAIL DETAILS
65 - 76	WALL DETAILS
77 - 84	APPROACH DETAILS
85 - 107	STORMWATER PLAN AND PROFILE
108 - 121	POND DETAILS
122 - 126	STRIPING PLAN
127	TRAFFIC CONTROL
R1 - R8	RIGHT OF WAY MAP

LEGEND

EXISTING FEATURES

- CONIFER TREE
- DECIDUOUS TREE
- SHRUB
- STUMP
- WATER METER
- TELEPHONE VAULT
- TELEPHONE RISER
- POWER POLE
- SERVICE POLE
- GUY POLE
- GUY WIRE
- LIGHT POLE
- SIGN
- MAILBOX
- BOLLARD
- UNDERDRAIN
- CULVERT/STORM SEWER
- CENTERLINE
- ROAD EDGE
- GUARDRAIL
- DRIVEWAY (ASPHALT)
- DRIVEWAY (GRAVEL)
- BRIDGE/SIDEWALK
- BUILDING
- FENCE
- GATE
- STREAM
- OVERHEAD UTILITIES
- UNDERGROUND UTILITIES
- SLIDE AREA

SURVEY FEATURES

- POINT OF CURVATURE
  POINT OF INTERSECTION
  POINT OF TANGENT
- SECTION LINE
- 1/4 SECTION LINE
- 1/16 SECTION LINE
- RIGHT OF WAY ALIGNMENT
- RIGHT OF WAY
- RAILROAD RIGHT OF WAY
- CONSTRUCTION EASEMENT
- DRAINAGE EASEMENT
- PROPERTY LINE

NEW CONSTRUCTION FEATURES

- CALLOUT
- TYPE 1L CATCH BASIN W/VANED GRATE
- TYPE 2 CATCH BASIN W/VANED GRATE
- TYPE 2 CATCH BASIN W/CIRCULAR COVER
- POND OUTLET STRUCTURE
- GRATE INLET TYPE 1 (CAST IN PLACE)
- DROP INLET (TYPE 1)
- DROP INLET (TYPE 2)
- CULVERT
- PRECAST REINF. SPLIT BOX CULVERT
- ROAD SIDE GRADING
- 1 FT. POND CONTOURS
- GRAVEL APPROACH, ROAD SHOULDER
- EMERGENCY/OVERFLOW SPILL WAY
- ROCK PAD/SLOPE PROTECTION
- GRASS/BIOSWALE SURFACE
- ROADWAY SURFACE WITH EXTRUDED CURB (TYPE 5)
- ROADWAY SURFACE WITH PAVED INVERT
- STRUCTURAL EARTH WALL
- GUARDRAIL (TYPE 31)
- ACCESS CONTROL GATE
- CENTERLINE (MAIN LINE, INTERSECTIONS, POND ACCESS)
- FENCE
- FLOW (DITCH, BIOSWALE)
- STORM SEWER FLOW (CATCH BASIN TO POND)
- FLAT BOTTOM DITCH (VARIABLE)
- EXISTING GROUND (PROFILE)
- APPROACH LOCATION (PROFILE)

GENERAL NOTES

1. SURVEY HORIZONTAL DATUM; WASHINGTON STATE PLANE, SOUTH GRID, NAD 83/91
VERTICAL DATUM: NGVD 29

2. EXISTING UTILITIES SHOWN ON THE PLANS ARE PER SURFACE LOCATIONS, RECORD DRAWINGS, AND LIMITED POTHOLE DATA. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF CONFLICT EXISTS, NOTIFY THE ENGINEER AND UTILITY COMPANY. PROCEED ONLY AS DIRECTED PER STANDARD POLICY AND REGULATIONS.

3. AT ALL TIMES FOR THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL HAVE ON HAND, THE PROJECT CONTRACT PROVISIONS AND PLANS, AND A CURRENT EDITION OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (M 41-10).

4. THE CONTRACTOR IS RESPONSIBLE FOR THE DIRECTION OF THE WORK, NEVERTHELESS THE CONTRACTOR WILL COORDINATE, COOPERATE AND ASSIST IN THE INSPECTION PROCESSES THAT IS REQUIRED FOR THE COMPLETION OF THE PROJECT.

5. GRANTED A 3 DAY IN ADVANCE WRITTEN NOTICE, ALL NECESSARY CONSTRUCTION SURVEY SHALL BE PROVIDED AT NO COST TO THE CONTRACTOR. HOWEVER, THE CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING NEEDED SURVEY STAKES DESTROYED THROUGH NORMAL OPERATIONS, NEGLIGENCE, OR INATTENTION.

6. AT THE END OF EACH DAY, THE CONTRACTOR SHALL CLEAN UP THE PROJECT AREA AND LEAVE IT IN A NEAT AND SECURED MANNER. UPON COMPLETION, THE CONTRACTOR SHALL LEAVE THE PROJECT FREE OF DEBRIS AND UNUSED MATERIAL.

7. CONTRACTOR TO MAINTAIN INGRESS AND EGRESS FROM THE PROJECT SITE, AND PRIVATE PROPERTY DRIVEWAYS DURING CONSTRUCTION.

8. AT A MINIMUM, THE CONTRACTOR IS TO MAINTAIN ALTERNATING ONE WAY TRAFFIC CONTROL UNLESS APPROVED TRAFFIC CONTROL PLAN ALLOWS OTHERWISE.

9. CONTRACTOR SHALL PROTECT EXISTING WATER SERVICE LINES. ALL DISTURBED WATER SERVICE LINES SHALL BE REPAIRED AS DIRECTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF EXISTING WATER SERVICE LINES DESTROYED THROUGH NEGLIGENCE AND/OR INATTENTION.

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

LEGEND

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

SUMMARY OF QUANTITIES

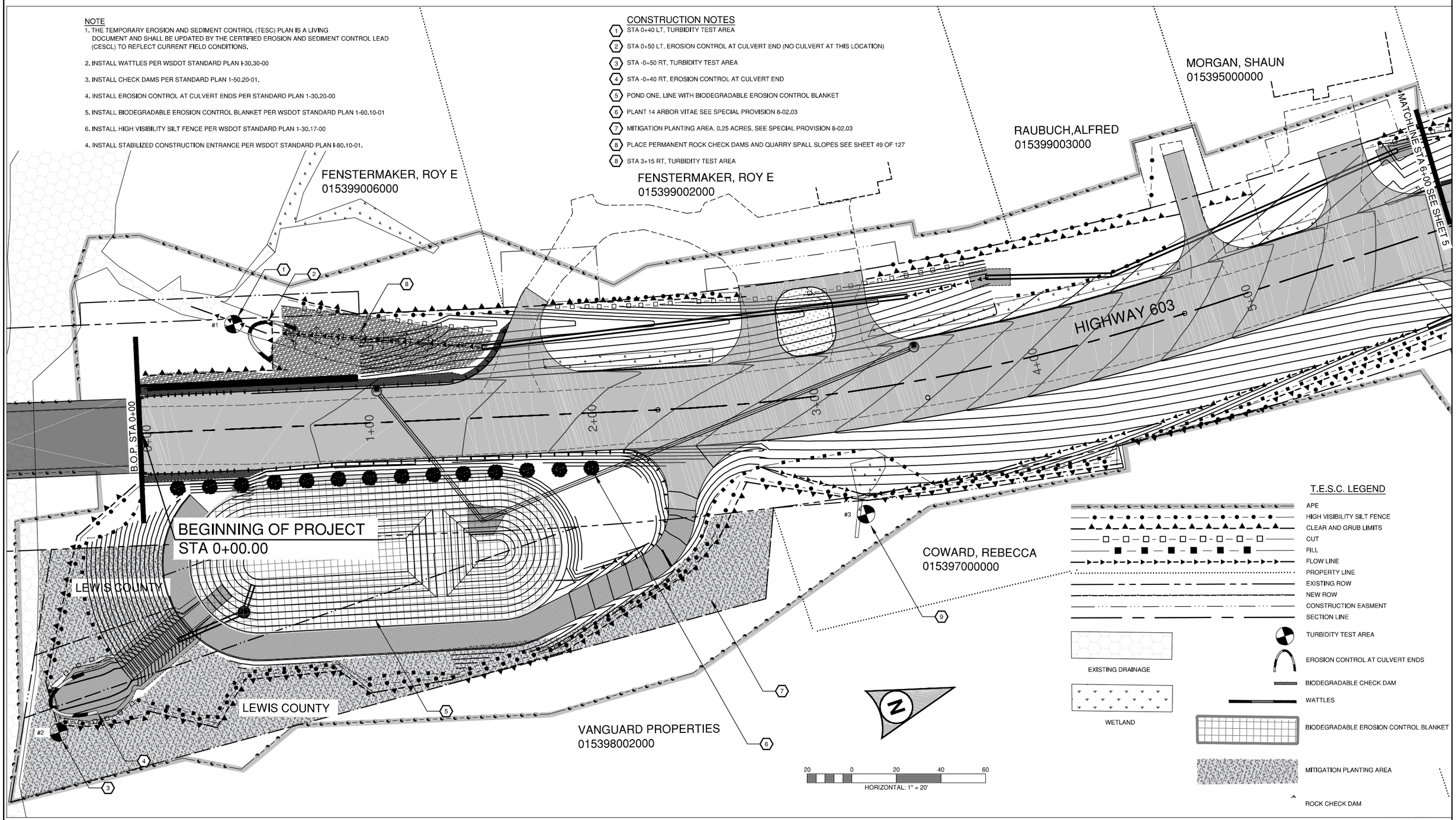
ITEM NO.	STD. ITEM NO.	ITEM DESCRIPTION	TOTAL QUANTITY	UNIT
		PREPARATION		
1	0001	MOBILIZATION	LUMP SUM	LUMP SUM
2	0025	CLEARING AND GRUBBING	14.1	ACRE
3	0050	REMOVING STRUCTURE AND OBSTRUCTION	LUMP SUM	LUMP SUM
4	0170	REMOVING GUARDRAIL	1,137	L.F.
5	0230	REMOVING WIRE FENCE	606	L.F.
		GRADING		
6	0310	ROADWAY EXCAVATION INCL. HAUL	34,256	C.Y.
7	0408	SELECT BORROW INCL. HAUL	37,768	TON
8	0470	EMBANKMENT COMPACTION	2,925	C.Y.
		DRAINAGE		
9	0921	ROCK FOR EROSION AND SCOUR PROTECTION CLASS A	575	TON
10	1030	DITCH EXCAVATION INCL. HAUL	13	C.Y.
11	1040	CHANNEL EXCAVATION INCL. HAUL	1,963	C.Y.
12	1058	DROP INLET TYPE 1	3	EACH
13	1059	DROP INLET TYPE 2	1	EACH
14	1063	COMBINATION INLET	2	EACH
15	1086	QUARRY SPALLS	2,142	TON
16	S.P.	UNDERDRAIN PIPE 4 IN. DIAM.	547	L.F.
17	S.P.	DRAIN PIPE 4 IN. DIAM.	31	L.F.
18	1171	DRAIN PIPE 8 IN. DIAM.	13	L.F.
19	S.P.	SCHEDULE A CULV. PIPE 18 IN. DIAM. FROM STOCKPILE	749	L.F.
20	S.P.	PLAIN CONC. CULV. PIPE 24 IN. DIAM. FROM STOCKPILE	24	L.F.
21	S.P.	PLAIN CONC. CULV. PIPE 18 IN. DIAM. FROM STOCKPILE	54	L.F.
22	1253	CL. III REINF. CONC. CULV. PIPE 36 IN. DIAM.	64	L.F.
23	S.P.	CL. IV REINF. CONC. CULV. PIPE 18 IN. DIAM. FROM STOCKPILE	152	L.F.
24	S.P.	CL. V REINF. CONC. CULV. PIPE 18 IN. DIAM. FROM STOCKPILE	176	L.F.
25	1294	CL. V REINF. CONC. CULV. PIPE 24 IN. DIAM.	61	L.F.
26	2281	PLAIN ST. CULV. PIPE ARCH 0.064 IN. TH. 21 IN. SPAN	64	L.F.
27	3026	PRECAST REINF. CONC. SPLIT BOX CULVERT 8'-0" SPAN X 1'-0" RISE	LUMP SUM	LUMP SUM
28	S.P.	RAISED DRAINAGE GRATE	LUMP SUM	LUMP SUM
		STORMWATER		
29	3091	CATCH BASIN TYPE 1L	20	EACH
30	3105	CATCH BASIN TYPE 2 48 IN. DIAM.	27	EACH
31	3106	CATCH BASIN TYPE 2 54 IN. DIAM. (POND OUTLET STRUCTURE)	4	EACH
32	3107	CATCH BASIN TYPE 2 72 IN. DIAM. (POND OUTLET STRUCTURE)	1	EACH
33	3109	CATCH BASIN TYPE 2 60 IN. DIAM. (2-FLOW SPLITTER)	3	EACH
34	3152	TESTING STORM SEWER PIPE	6,901	L.F.
35	S.P.	PLAIN CONC. STORM SEWER PIPE 24 IN. DIAM FROM STOCKPILE	48	L.F.
36	3480	CL. V REINF. CONC. STORM SEWER PIPE 12 IN. DIAM.	288	L.F.
37	S.P.	CL. V REINF. CONC. STORM SEWER PIPE 18 IN. DIAM FROM STOCKPILE	2,502	L.F.
38	3541	SCHEDULE A STORM SEWER PIPE 12 IN. DIAM.	83	L.F.
39	S.P.	SCHEDULE A STORM SEWER PIPE 18 IN. DIAM. FROM STOCKPILE	3,980	L.F.
40	S.P.	SCHEDULE A STORM SEWER PIPE 24 IN. DIAM. FROM STOCKPILE	78	L.F.
41	1053	GRATE INLET TYPE 1	4	EACH
42	S.P.	BIOSWALE SPECIAL STRUCTURES	LUMP SUM	LUMP SUM
		STRUCTURE		
43	7169	STRUCTURAL EARTH WALL	2,242	S.F.
		SURFACING		
44	5100	CRUSHED SURFACING BASE COURSE	30,997	TON
45	5120	CRUSHED SURFACING TOP COURSE	8,037	TON
46	S.P.	SHOULDER FINISHING	3.47	MILE
		HOT MIX ASPHALT		
47	5767	HMA CL. 1/2 IN. PG 64-22	7,485	TON
48	5873	HMA FOR APPROACH CL. 1/2 IN. PG 64-22	500	TON
49	S.P.	COMMERCIAL HMA	EST.	DOLLAR
		EROSION CONTROL AND ROADSIDE PLANTING		
50	6373	SILT FENCE	10,245	L.F.
51	6403	ESC LEAD	30	DAY
52	S.P.	TOPSOIL TYPE A	142	C.Y.
53	6414	SEEDING, FERTILIZING, AND MULCHING	14.1	ACRE
54	6455	BIODEGRADABLE EROSION CONTROL BLANKET	8,450	S.Y.
55	6463	CHECKDAM	1,140	L.F.
56	6479	WATTLE	1,610	L.F.
57	6555	SOD INSTALLATION	255	S.Y.
58	S.P.	EROSION CONTROL AT CULVERT ENDS	14	EACH
59	S.P.	MITIGATION PLANTING	LUMP SUM	LUMP SUM
		TRAFFIC		
60	6711	BEAM GUARDRAIL TYPE 31-8 FT. LONG POST	575	L.F.
61	6712	BEAM GUARDRAIL TYPE 31-9 FT. LONG POST	6,068.75	L.F.
62	6713	BEAM GUARDRAIL TYPE 31-11 FT. LONG POST	275	L.F.
63	6719	BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL	10	EACH
64	6727	EXTRUDED CURB	4,709	L.F.
65	6757	BEAM GUARDRAIL TYPE 31	112.50	L.F.
66	6760	BEAM GUARDRAIL TRANSITION SECTION TYPE 21	2	EACH
67	6766	BEAM GUARDRAIL ANCHOR TYPE 10	12	EACH
68	6806	PAINT LINE	23,740	L.F.
69	6832	FLEXIBLE GUIDE POST	125	EACH
70	6859	PLASTIC STOP LINE	95	L.F.
71	6889	RECESSED PAVEMENT MARKER	1.2	HUND
72	6890	PERMANENT SIGNING	LUMP SUM	LUMP SUM
73	6971	PROJECT TEMPORARY TRAFFIC CONTROL	LUMP SUM	LUMP SUM
74	6982	CONSTRUCTION SIGNS CLASS A	409	S.F.
		OTHER ITEMS		
75	4006	STRUCTURE EXCAVATION CLASS A INCL. HAUL	609	C.Y.
76	7006	STRUCTURE EXCAVATION CLASS B INCL. HAUL	21,513	C.Y.
77	7008	SHORING OR EXTRA EXCAVATION CLASS B	19,990	S.F.
78	7014	GRAVEL BACKFILL FOR DRAIN	105	C.Y.
79	7018	WATER	2,400	MGAL
80	7027	COMMERCIAL CONCRETE	3	C.Y.
81	7030	ST. REINF. BAR	53	L.B.
82	7111	WIRE FENCE TYPE 2	1,110	L.F.
83	7118	DOUBLE WIRE GATE 20'	1	EACH
84	7145	ACCESS CONTROL GATE	3	EACH
85	7490	TRIMMING AND CLEANUP	LUMP SUM	LUMP SUM
86	7530	CONSTRUCTION GEOTEXTILE FOR SEPARATION	4,130	S.Y.
87	7550	CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE	110	S.Y.
88	7562	MAILBOX SUPPORT TYPE 1	15	EACH
89	7568	GRAVEL BORROW FOR STRUCTURAL EARTH WALL INCL. HAUL	1,000	TON
90	7715	FORCE ACCOUNT UNSUITABLE SUBGRADE REMOVAL	EST.	DOLLAR
91	7725	REIMBURSEMENT FOR THIRD PARTY DAMAGE	EST.	DOLLAR
92	7728	MINOR CHANGE	CALC.	DOLLAR
93	7736	SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN	LUMP SUM	LUMP SUM

NOTE

1. THE TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PLAN IS A LIVING DOCUMENT AND SHALL BE UPDATED BY THE CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) TO REFLECT CURRENT FIELD CONDITIONS.
2. INSTALL WATTLES PER WSDOT STANDARD PLAN I-30.30-00
3. INSTALL CHECK DAMS PER STANDARD PLAN 1-50.20-01.
4. INSTALL EROSION CONTROL AT CULVERT ENDS PER STANDARD PLAN 1-30.20-00
5. INSTALL BIODEGRADABLE EROSION CONTROL BLANKET PER WSDOT STANDARD PLAN 1-60.10-01
6. INSTALL HIGH VISIBILITY SILT FENCE PER WSDOT STANDARD PLAN 1-30.17-00
4. INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STANDARD PLAN I-80.10-01.

CONSTRUCTION NOTES

1. STA 0+40 LT, TURBIDITY TEST AREA
2. STA 0+50 LT, EROSION CONTROL AT CULVERT END (NO CULVERT AT THIS LOCATION)
3. STA -0+50 RT, TURBIDITY TEST AREA
4. STA -0+40 RT, EROSION CONTROL AT CULVERT END
5. POND ONE, LINE WITH BIODEGRADABLE EROSION CONTROL BLANKET
6. PLANT 14 ARBOR VITAE SEE SPECIAL PROVISION 8-02.03
7. MITIGATION PLANTING AREA, 0.25 ACRES, SEE SPECIAL PROVISION 8-02.03
8. PLACE PERMANENT ROCK CHECK DAMS AND QUARRY SPALL SLOPES SEE SHEET 49 OF 127
8. STA 3+15 RT, TURBIDITY TEST AREA



Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

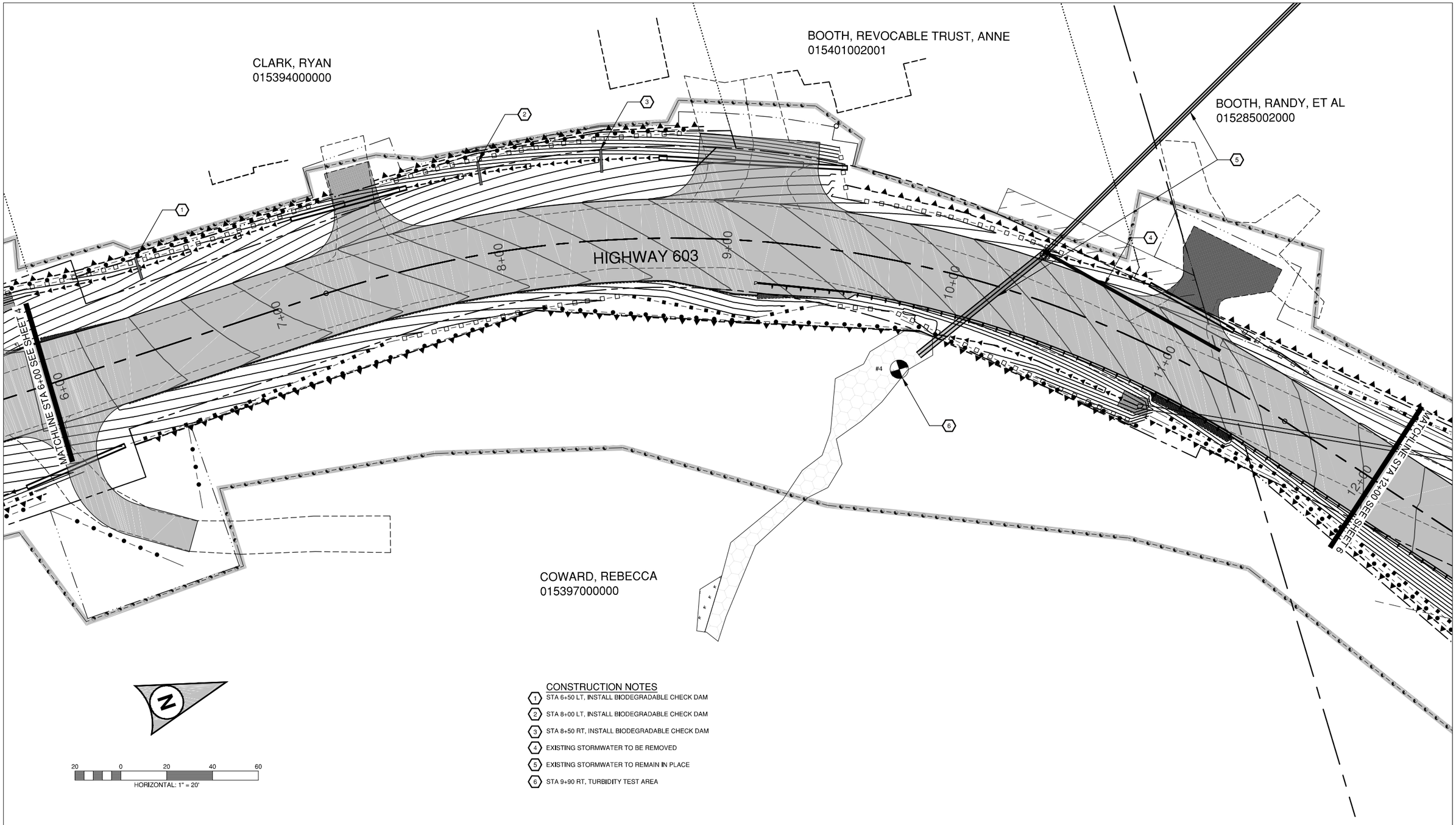
TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 6+50 LT, INSTALL BIODEGRADABLE CHECK DAM
2. STA 8+00 LT, INSTALL BIODEGRADABLE CHECK DAM
3. STA 8+50 RT, INSTALL BIODEGRADABLE CHECK DAM
4. EXISTING STORMWATER TO BE REMOVED
5. EXISTING STORMWATER TO REMAIN IN PLACE
6. STA 9+90 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

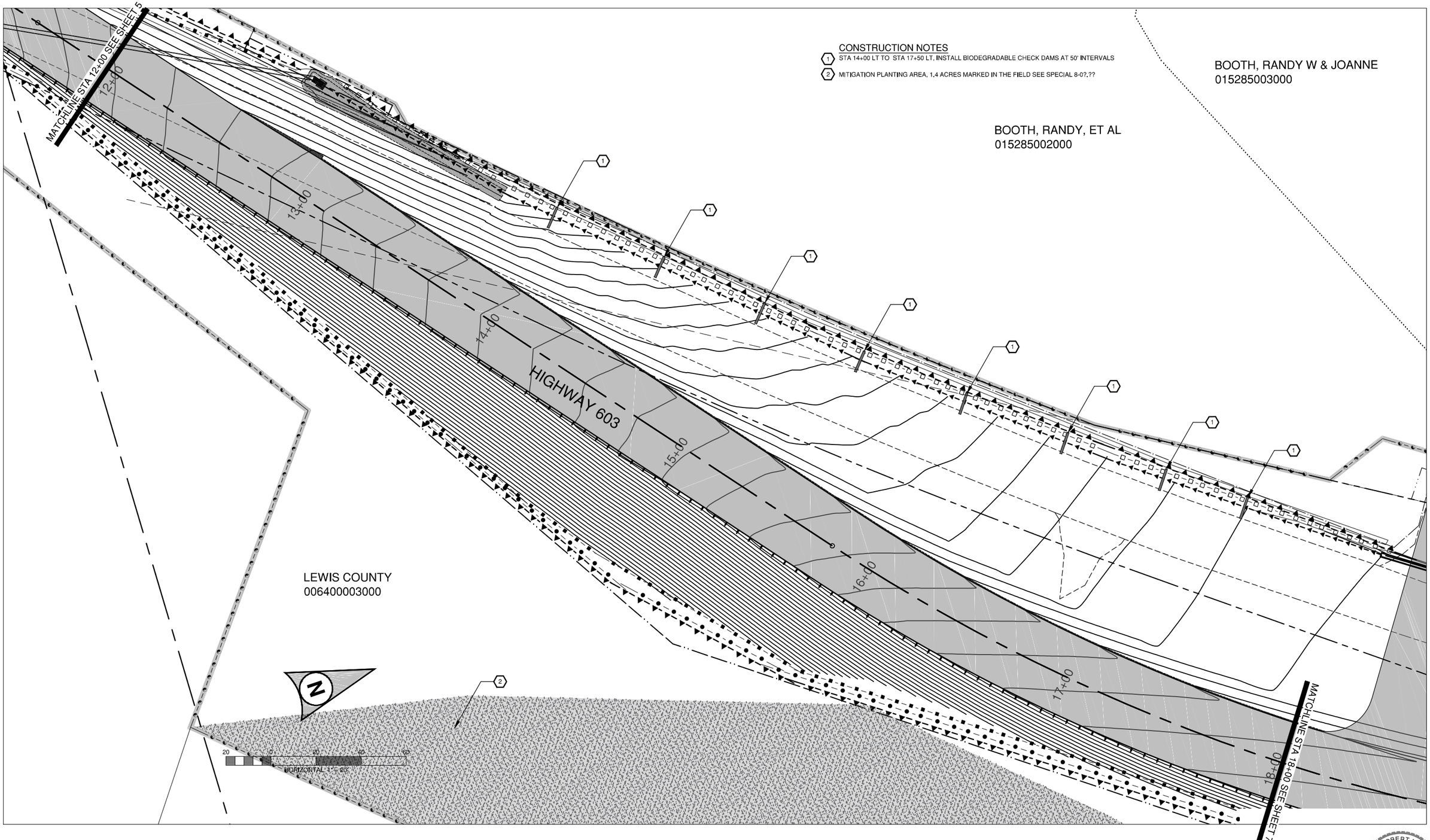
TESC PLAN

SHEET 5 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

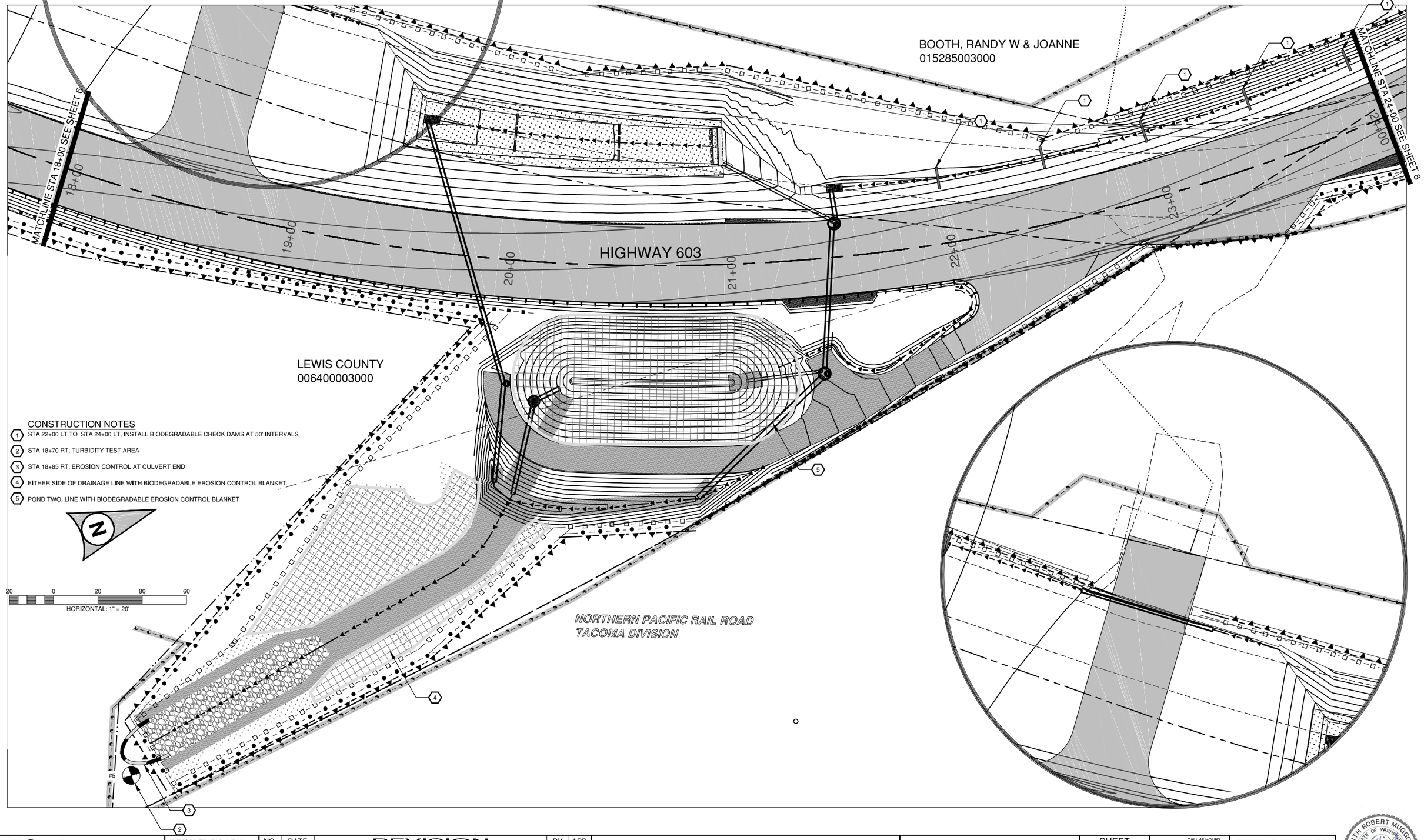
TESC PLAN

SHEET 6 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

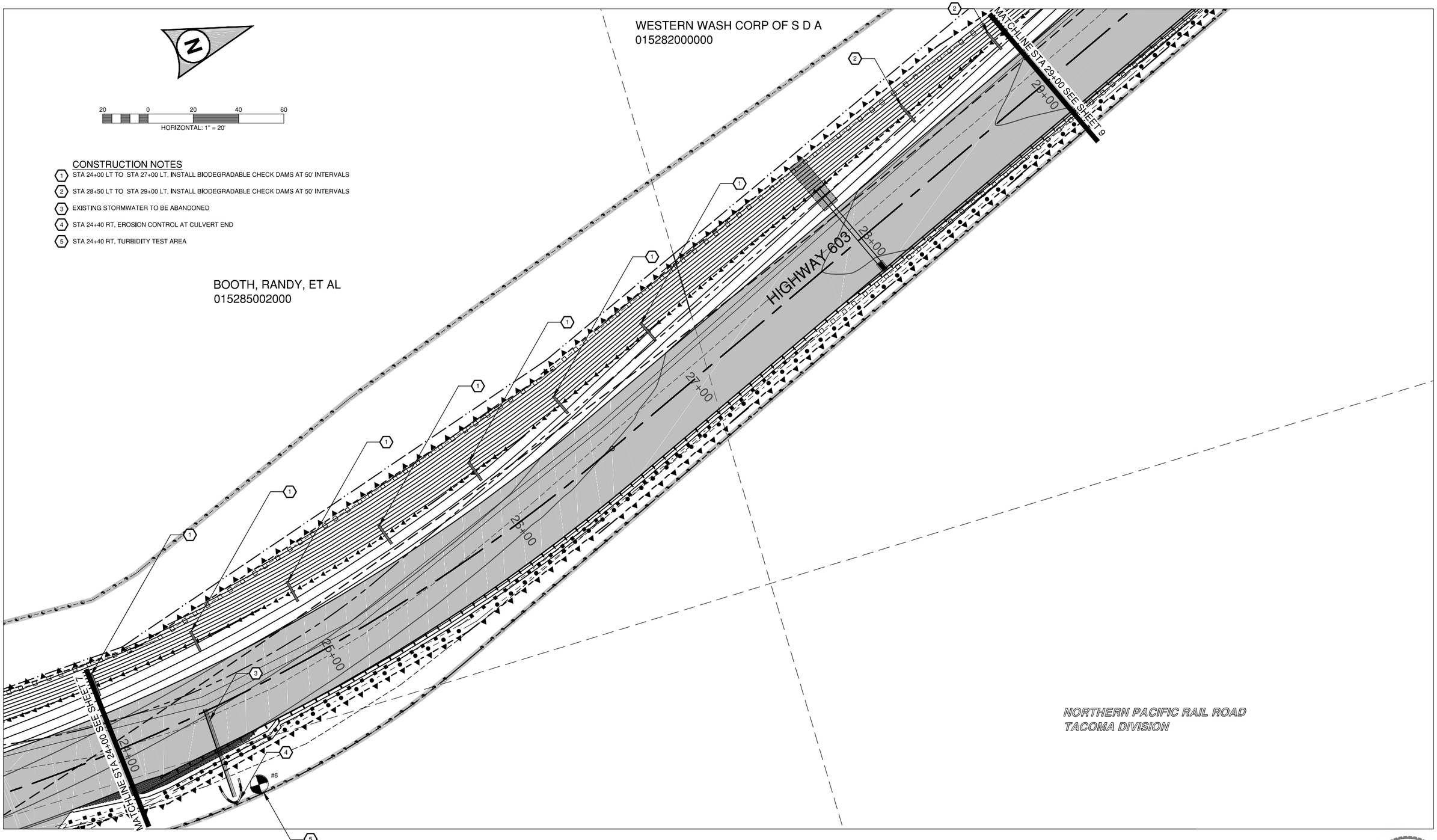
TESC PLAN

SHEET 7 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 24+00 LT TO STA 27+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. STA 28+50 LT TO STA 29+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
3. EXISTING STORMWATER TO BE ABANDONED
4. STA 24+40 RT, EROSION CONTROL AT CULVERT END
5. STA 24+40 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

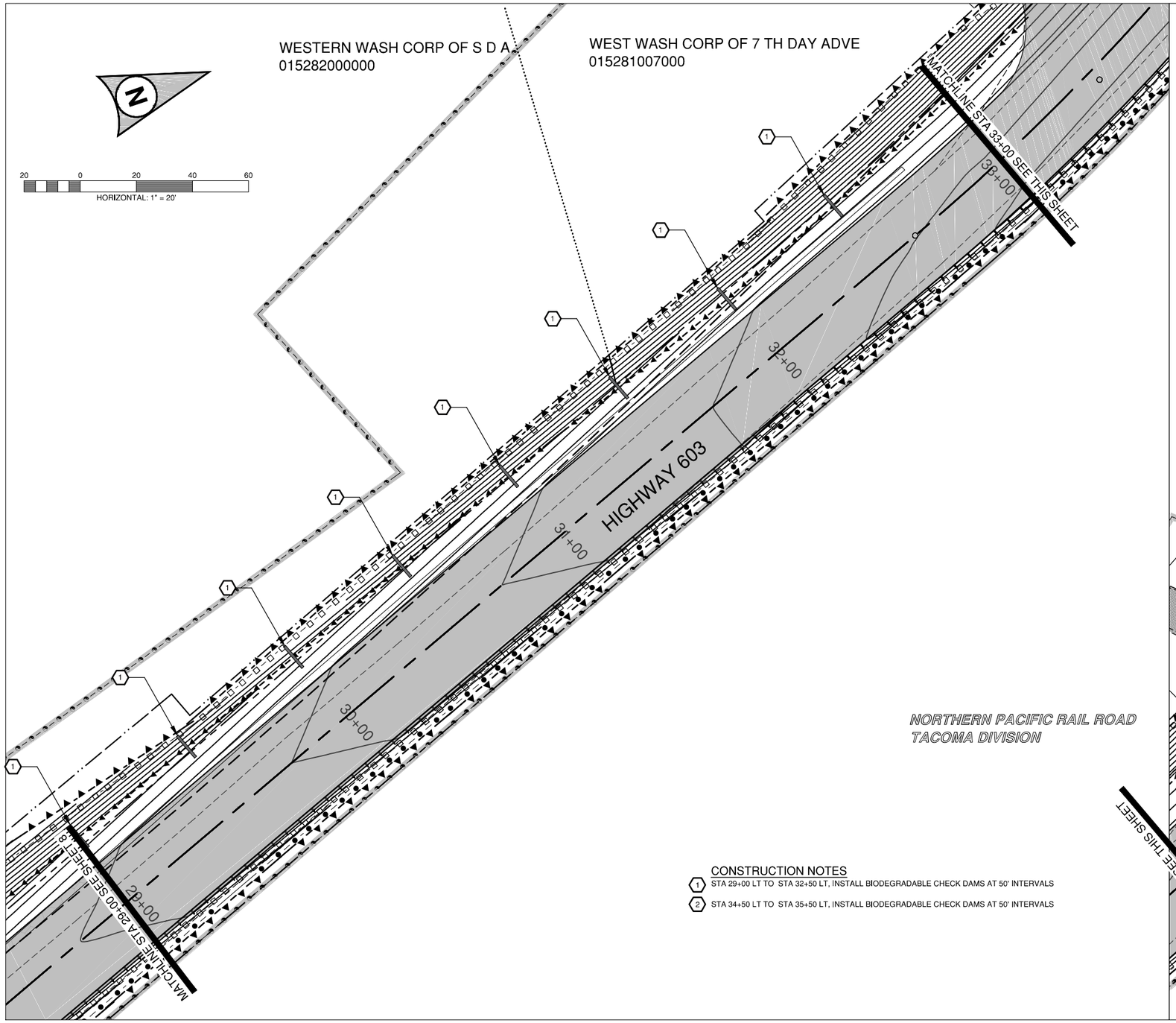
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

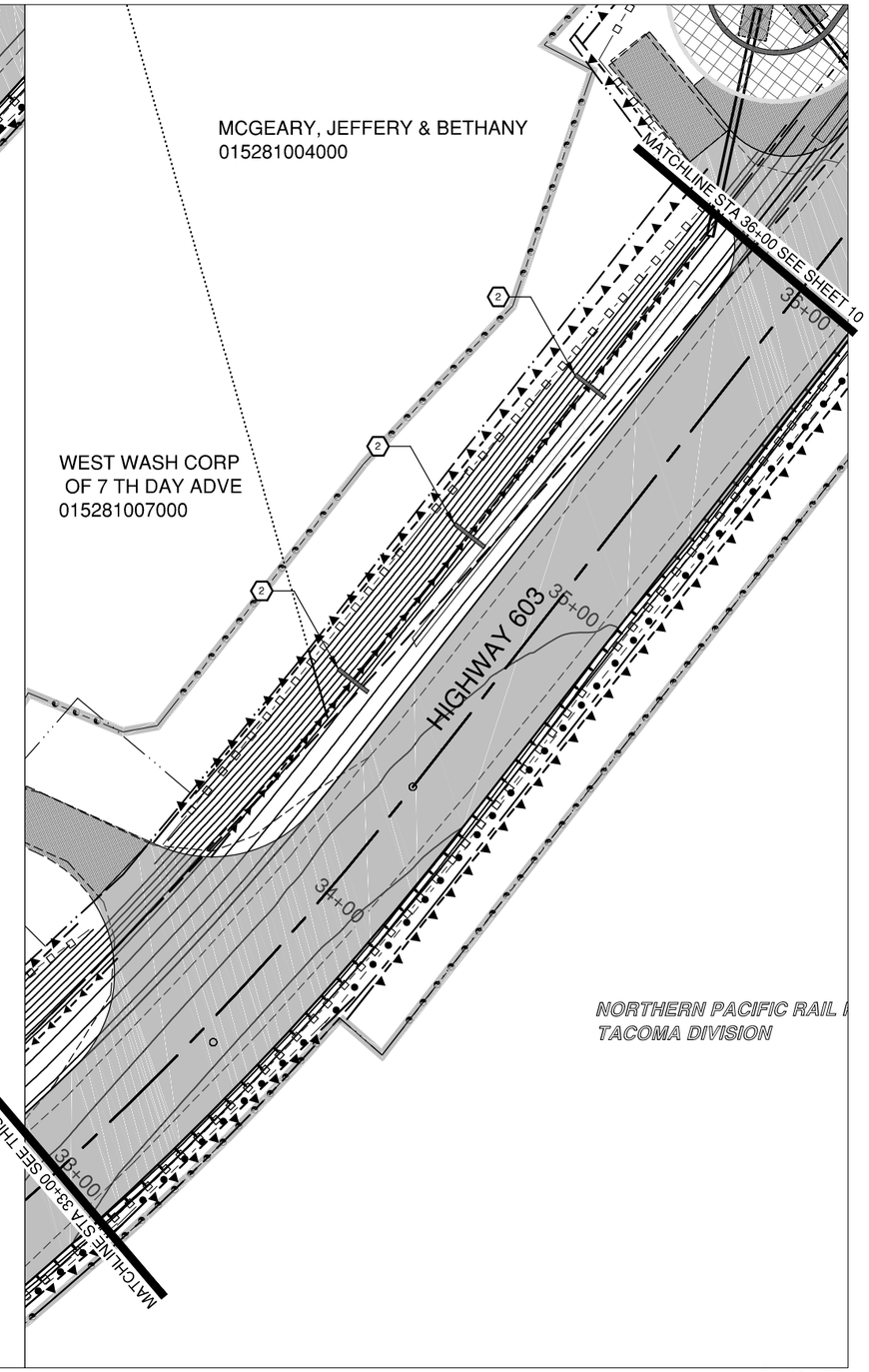
TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





CONSTRUCTION NOTES

1. STA 29+00 LT TO STA 32+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. STA 34+50 LT TO STA 35+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

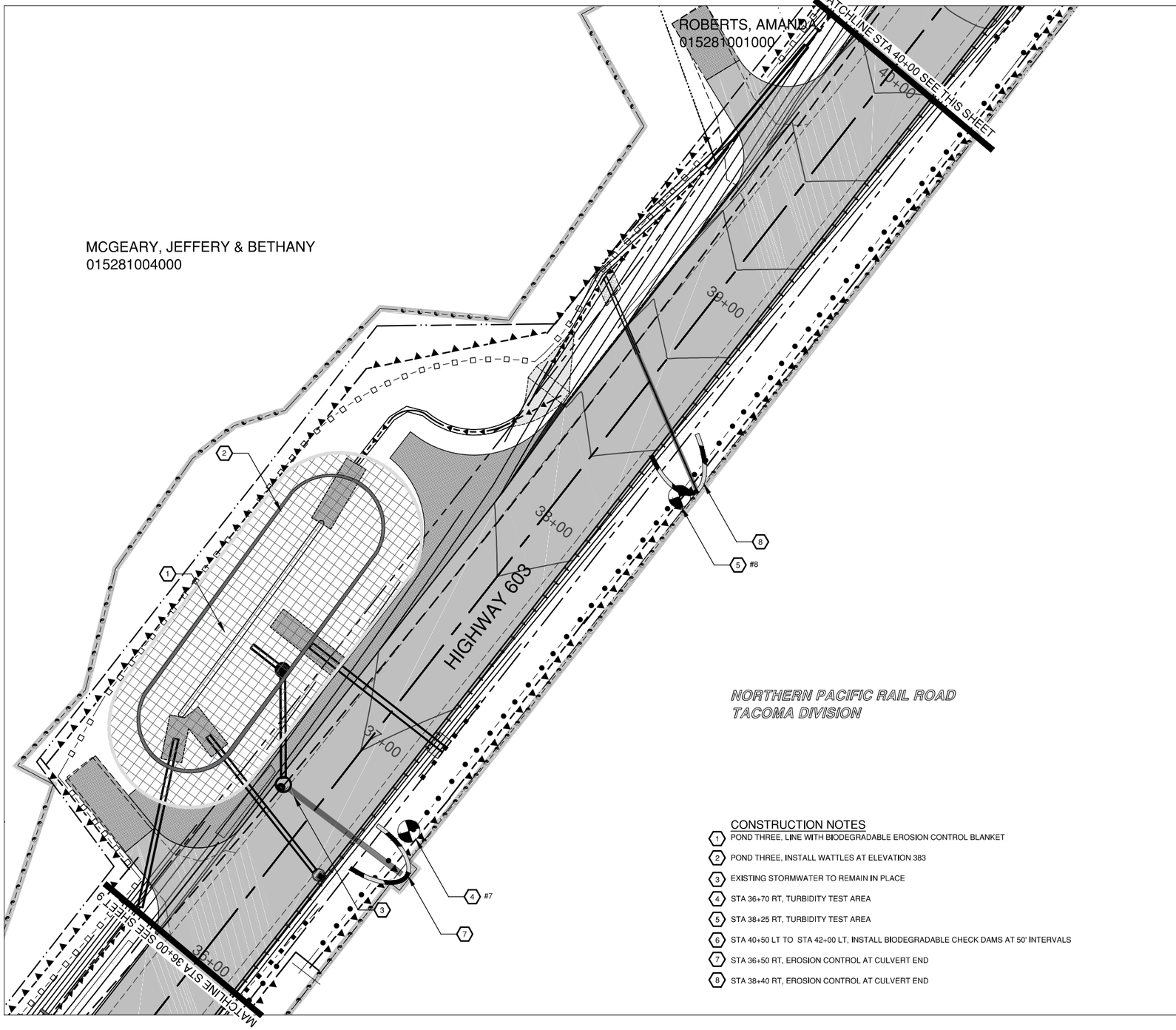
TESC PLAN

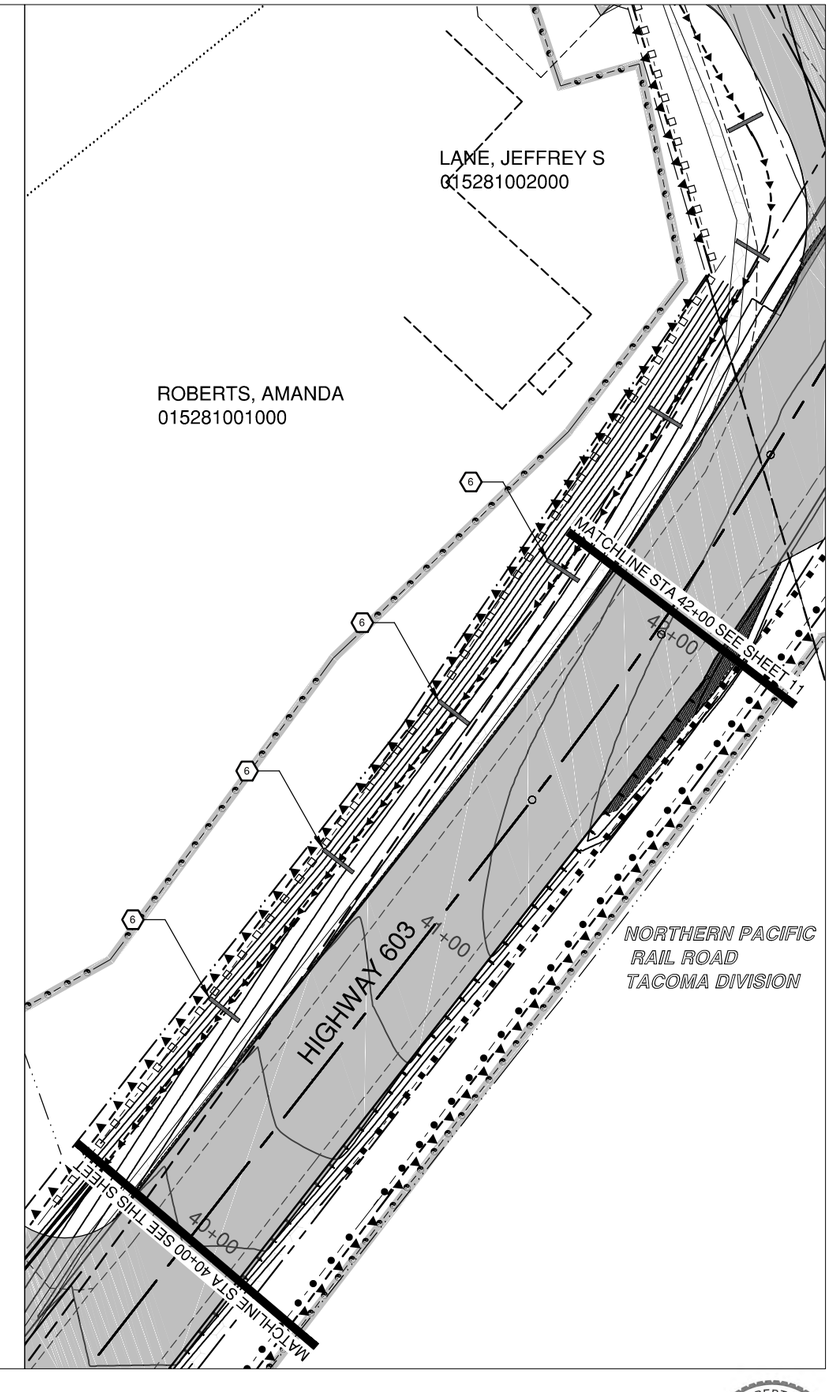
SHEET 9 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





CONSTRUCTION NOTES

1. POND THREE, LINE WITH BIODEGRADABLE EROSION CONTROL BLANKET
2. POND THREE, INSTALL WATTLES AT ELEVATION 383
3. EXISTING STORMWATER TO REMAIN IN PLACE
4. STA 36+70 RT, TURBIDITY TEST AREA
5. STA 38+25 RT, TURBIDITY TEST AREA
6. STA 40+50 LT TO STA 42+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
7. STA 36+50 RT, EROSION CONTROL AT CULVERT END
8. STA 38+40 RT, EROSION CONTROL AT CULVERT END

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

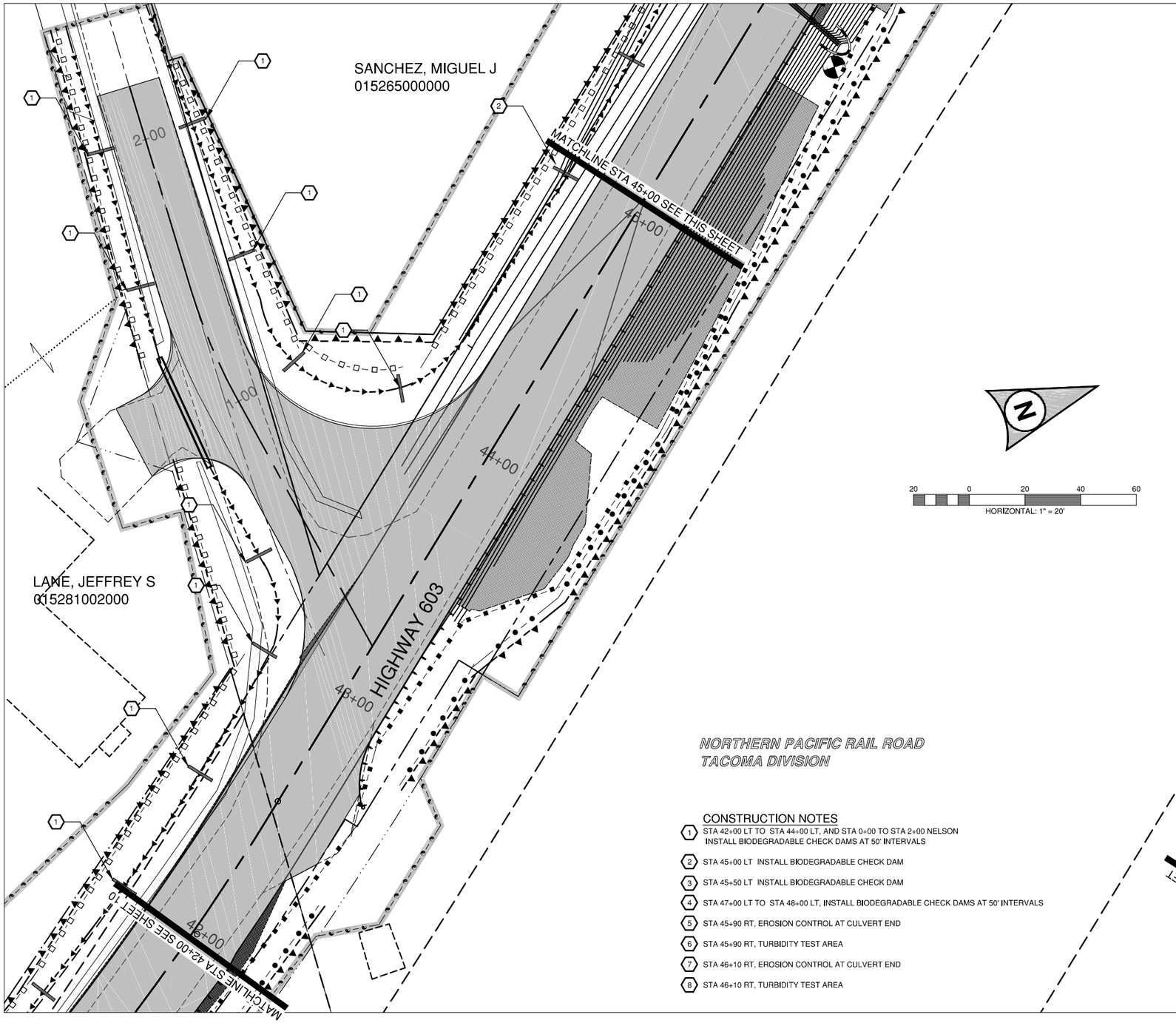
TESC PLAN

SHEET 10 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 42+00 LT TO STA 44+00 LT, AND STA 0+00 TO STA 2+00 NELSON INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. STA 45+00 LT INSTALL BIODEGRADABLE CHECK DAM
3. STA 45+50 LT INSTALL BIODEGRADABLE CHECK DAM
4. STA 47+00 LT TO STA 48+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
5. STA 45+90 RT, EROSION CONTROL AT CULVERT END
6. STA 45+90 RT, TURBIDITY TEST AREA
7. STA 46+10 RT, EROSION CONTROL AT CULVERT END
8. STA 46+10 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

HOFFMAN, DONALD R & JESSIE M
015273002003

MATCHLINE STA 52+00 SEE THIS SHEET

NORTHERN PACIFIC RAIL ROAD
TACOMA DIVISION

HIGHWAY 603

52+00

51+00

50+00

49+00

48+00

MATCHLINE STA 48+00 SEE SHEET 11

N

20 0 20 40 60
HORIZONTAL: 1" = 20'

CONSTRUCTION NOTES
1 STA 48+00 LT TO STA 53+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS

NORTHERN PACIFIC RAIL ROAD
TACOMA DIVISION

BELVILL, TOM L
015272001002

MATCHLINE STA 54+00 SEE SHEET 13

HAWK

54+00

53+00

52+00

MATCHLINE STA 52+00 SEE THIS SHEET

HIGHWAY 603

NORTHERN PACIFIC RAIL ROAD
TACOMA DIVISION

Lewis County
Department of Public Works

2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

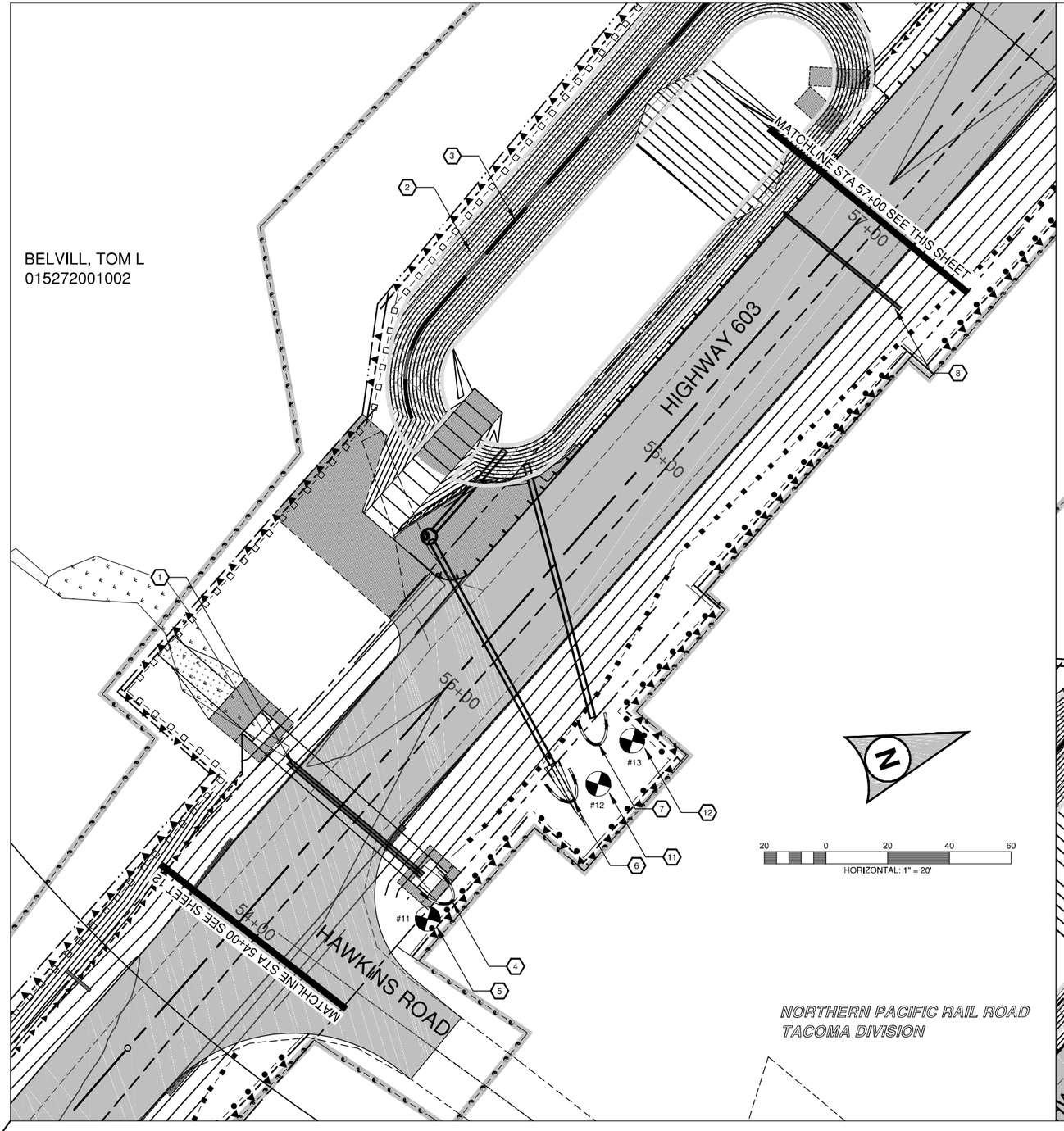
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

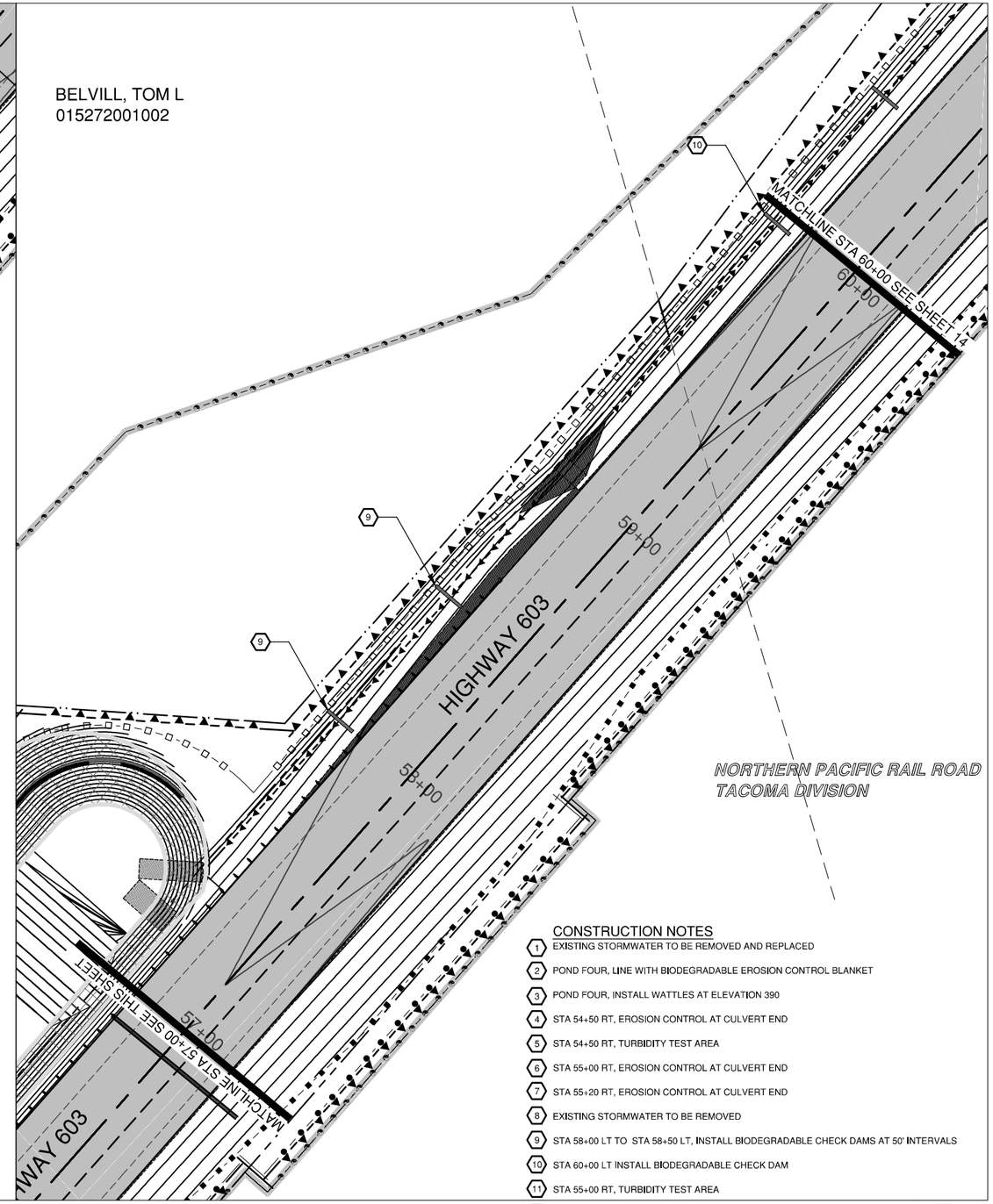
TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





N

20 0 20 40 60

HORIZONTAL: 1" = 20'

NORTHERN PACIFIC RAIL ROAD
TACOMA DIVISION

NORTHERN PACIFIC RAIL ROAD
TACOMA DIVISION

CONSTRUCTION NOTES

1. EXISTING STORMWATER TO BE REMOVED AND REPLACED
2. POND FOUR, LINE WITH BIODEGRADABLE EROSION CONTROL BLANKET
3. POND FOUR, INSTALL WATTLES AT ELEVATION 390
4. STA 54+50 RT, EROSION CONTROL AT CULVERT END
5. STA 54+50 RT, TURBIDITY TEST AREA
6. STA 55+00 RT, EROSION CONTROL AT CULVERT END
7. STA 55+20 RT, EROSION CONTROL AT CULVERT END
8. EXISTING STORMWATER TO BE REMOVED
9. STA 58+00 LT TO STA 58+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
10. STA 60+00 LT INSTALL BIODEGRADABLE CHECK DAM
11. STA 55+00 RT, TURBIDITY TEST AREA
12. STA 55+20 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

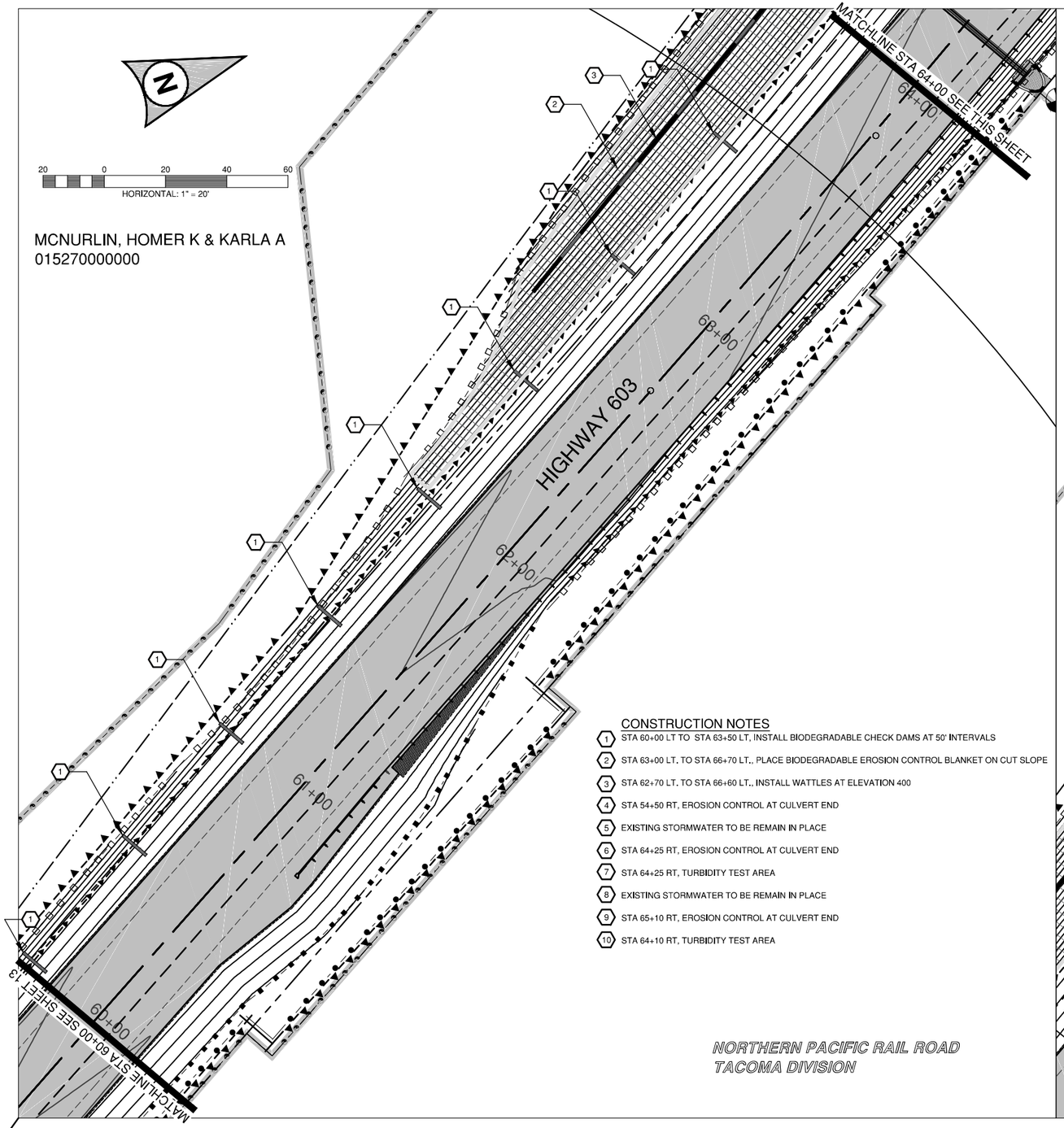
TESC PLAN

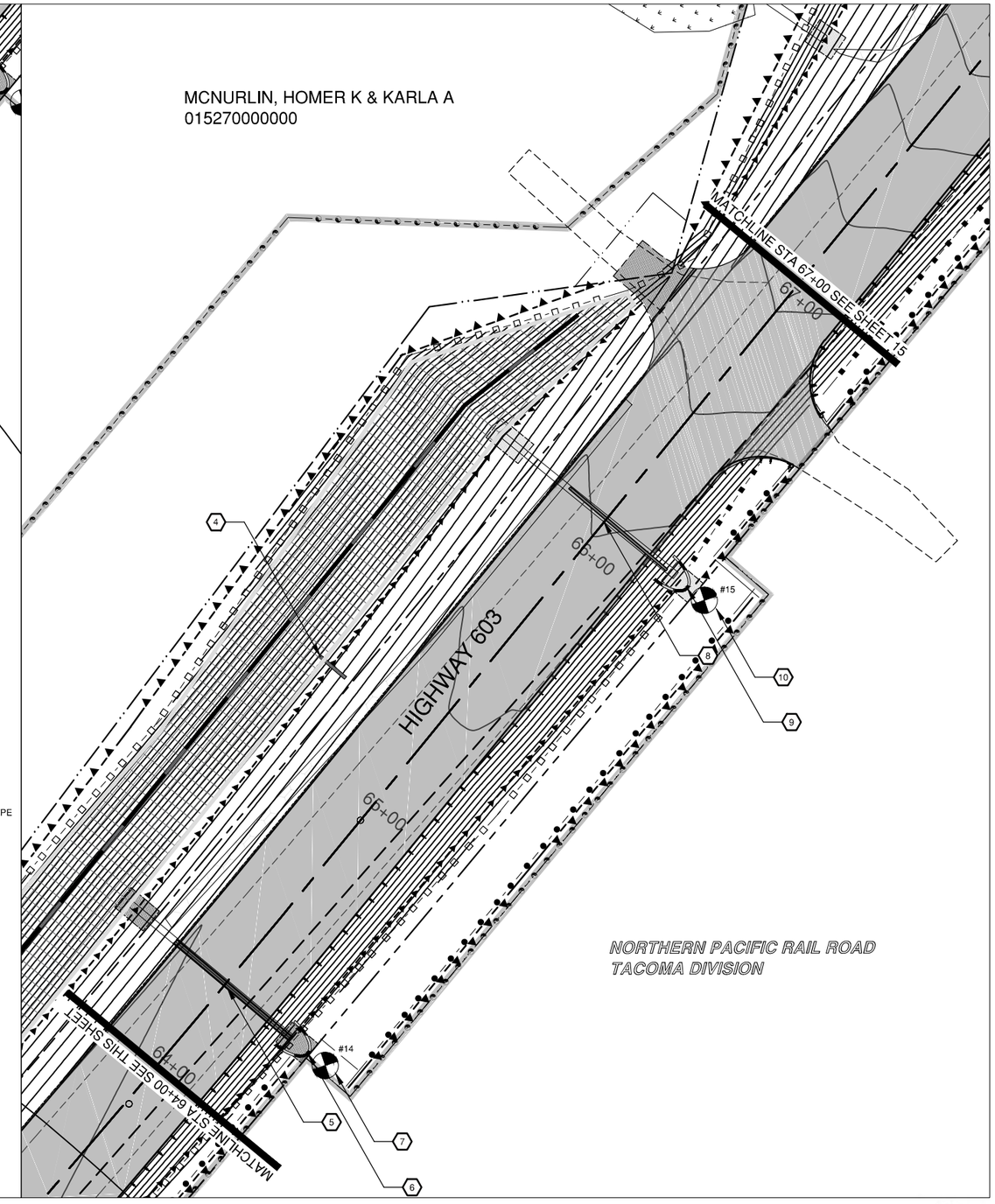
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
#36208





CONSTRUCTION NOTES

1. STA 60+00 LT TO STA 63+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. STA 63+00 LT. TO STA 66+70 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
3. STA 62+70 LT. TO STA 66+60 LT., INSTALL WATTLES AT ELEVATION 400
4. STA 54+50 RT, EROSION CONTROL AT CULVERT END
5. EXISTING STORMWATER TO BE REMAIN IN PLACE
6. STA 64+25 RT, EROSION CONTROL AT CULVERT END
7. STA 64+25 RT, TURBIDITY TEST AREA
8. EXISTING STORMWATER TO BE REMAIN IN PLACE
9. STA 65+10 RT, EROSION CONTROL AT CULVERT END
10. STA 64+10 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

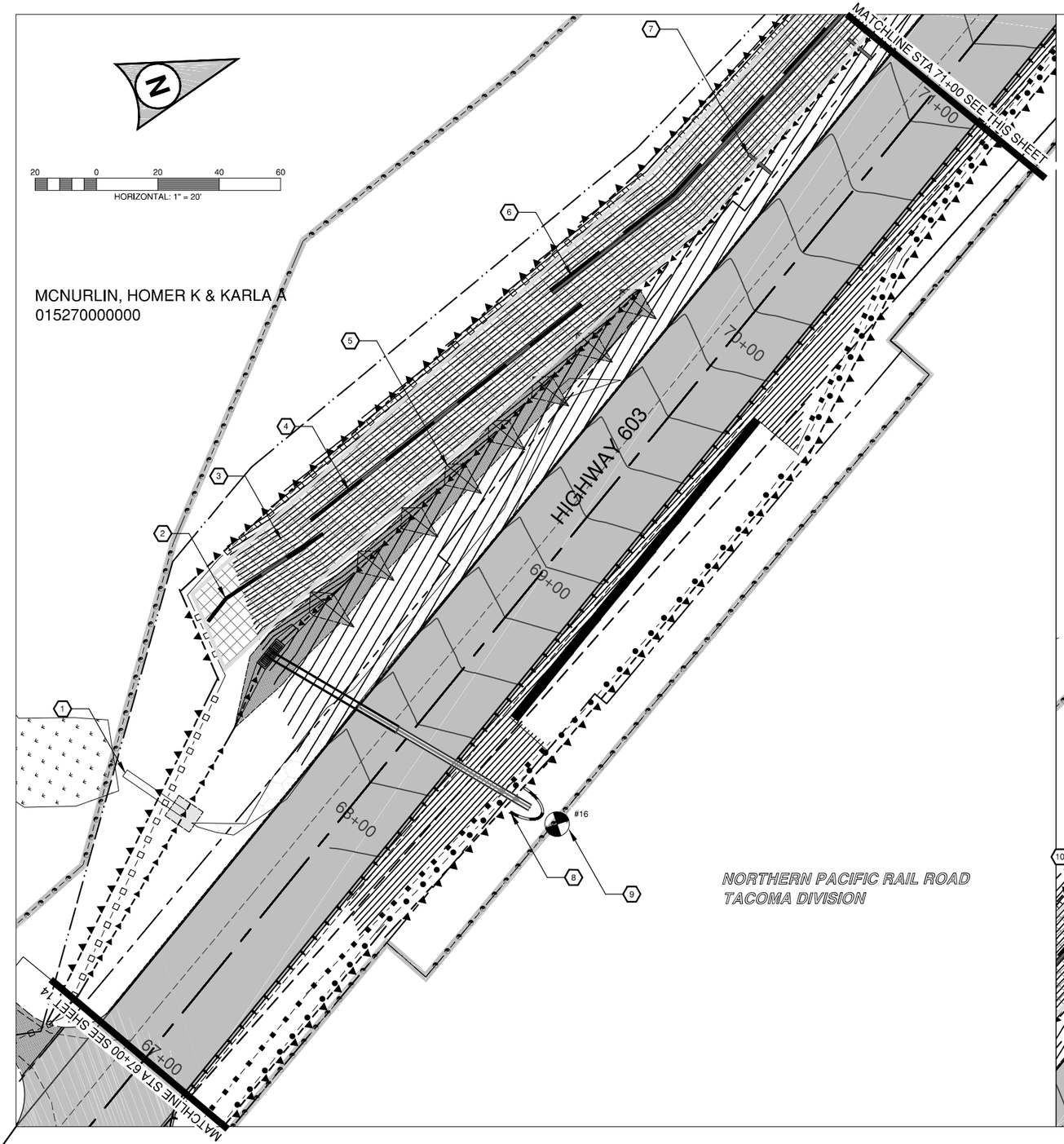
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

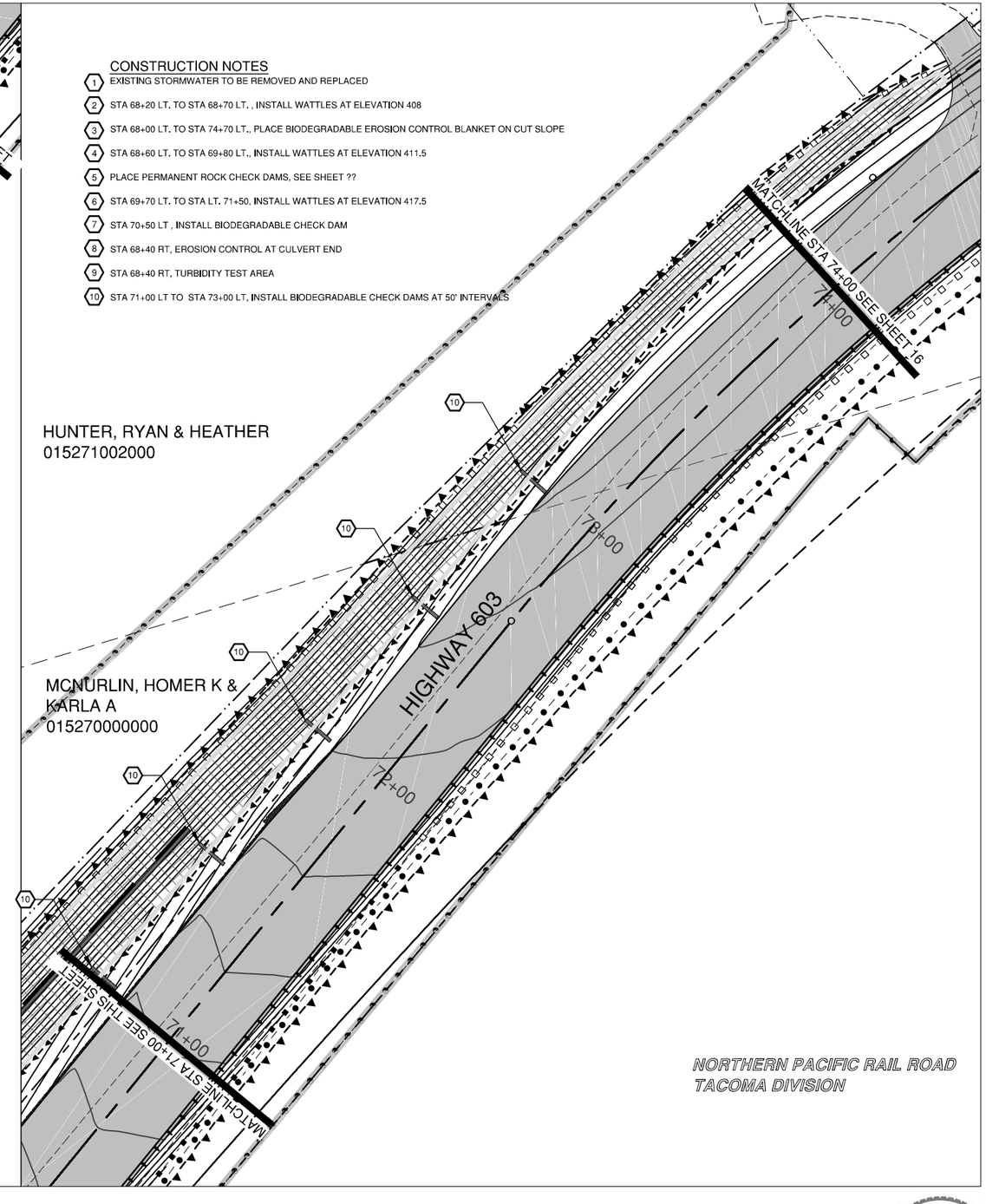
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. EXISTING STORMWATER TO BE REMOVED AND REPLACED
2. STA 68+20 LT. TO STA 68+70 LT. , INSTALL WATTLES AT ELEVATION 408
3. STA 68+00 LT. TO STA 74+70 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
4. STA 68+60 LT. TO STA 69+80 LT., INSTALL WATTLES AT ELEVATION 411.5
5. PLACE PERMANENT ROCK CHECK DAMS, SEE SHEET ??
6. STA 69+70 LT. TO STA LT. 71+50, INSTALL WATTLES AT ELEVATION 417.5
7. STA 70+50 LT , INSTALL BIODEGRADABLE CHECK DAM
8. STA 68+40 RT, EROSION CONTROL AT CULVERT END
9. STA 68+40 RT, TURBIDITY TEST AREA
10. STA 71+00 LT TO STA 73+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS



Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

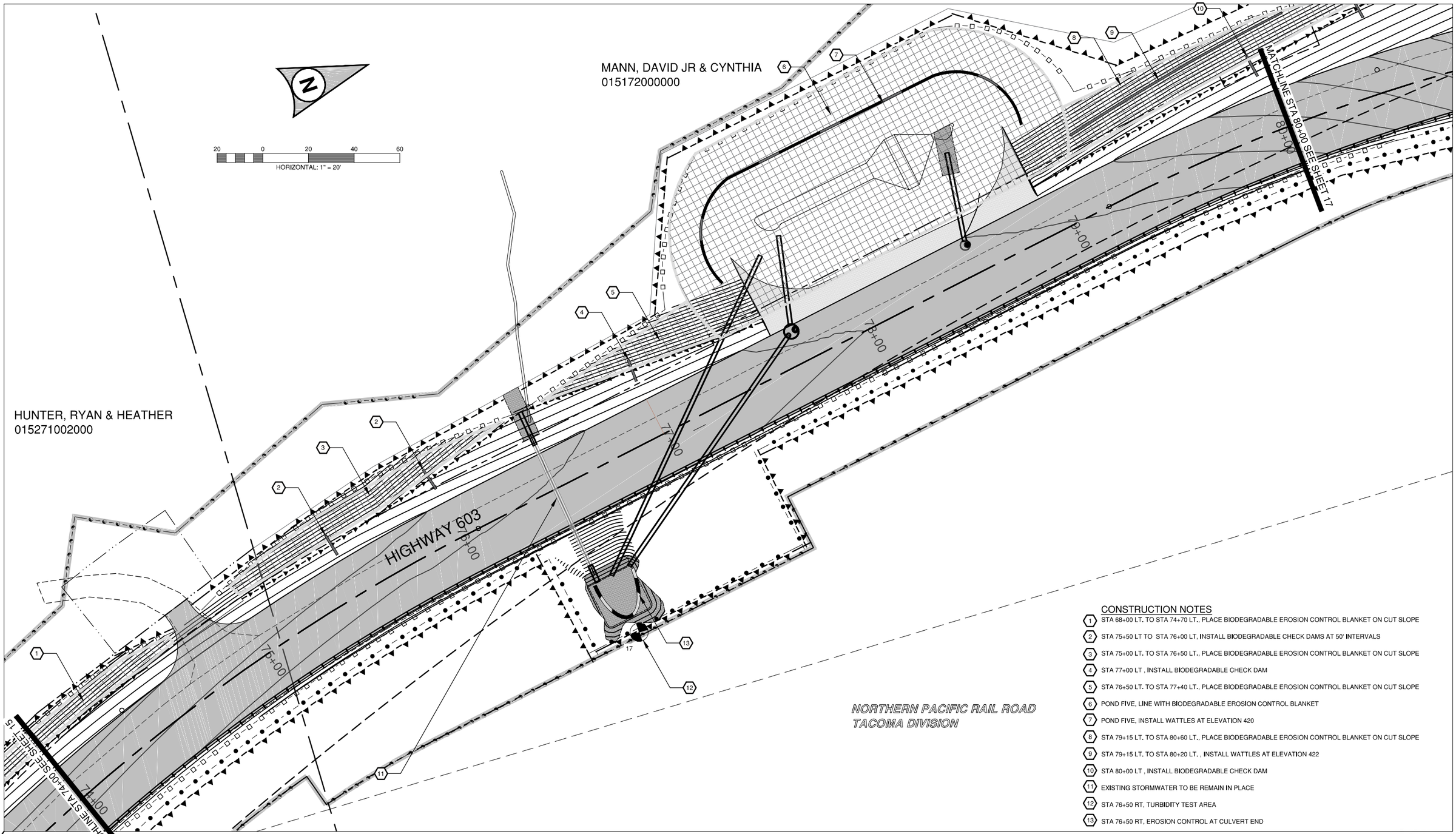
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

TESC PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 68+00 LT. TO STA 74+70 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
2. STA 75+50 LT TO STA 76+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
3. STA 75+00 LT. TO STA 76+50 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
4. STA 77+00 LT , INSTALL BIODEGRADABLE CHECK DAM
5. STA 76+50 LT. TO STA 77+40 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
6. POND FIVE, LINE WITH BIODEGRADABLE EROSION CONTROL BLANKET
7. POND FIVE, INSTALL WATTLES AT ELEVATION 420
8. STA 79+15 LT. TO STA 80+60 LT., PLACE BIODEGRADABLE EROSION CONTROL BLANKET ON CUT SLOPE
9. STA 79+15 LT. TO STA 80+20 LT. , INSTALL WATTLES AT ELEVATION 422
10. STA 80+00 LT , INSTALL BIODEGRADABLE CHECK DAM
11. EXISTING STORMWATER TO BE REMAIN IN PLACE
12. STA 76+50 RT, TURBIDITY TEST AREA
13. STA 76+50 RT, EROSION CONTROL AT CULVERT END

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

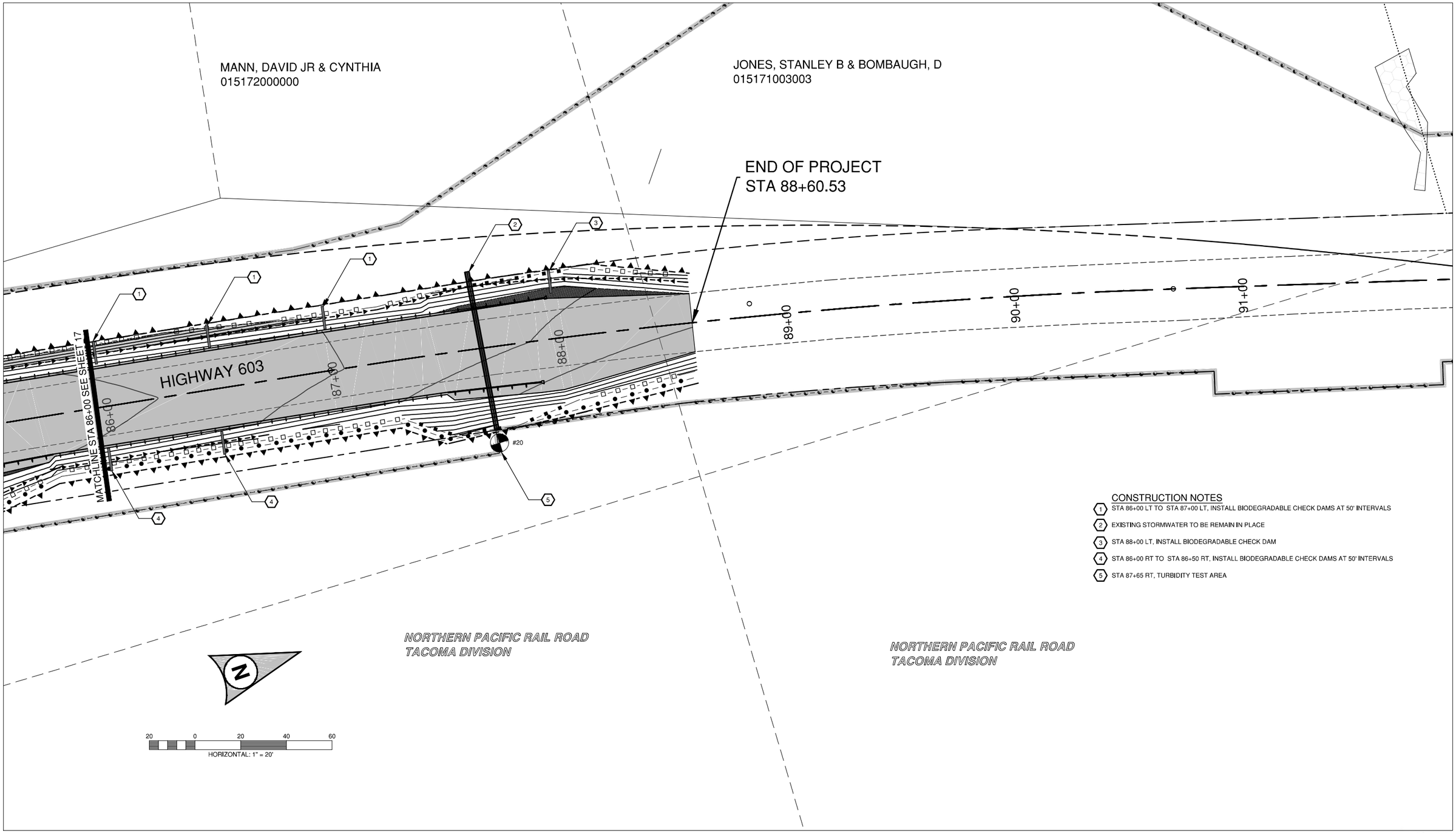
TESC PLAN

SHEET 16 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER
3/14/16



CONSTRUCTION NOTES

1. STA 86+00 LT TO STA 87+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. EXISTING STORMWATER TO BE REMAIN IN PLACE
3. STA 88+00 LT, INSTALL BIODEGRADABLE CHECK DAM
4. STA 86+00 RT TO STA 86+50 RT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
5. STA 87+65 RT, TURBIDITY TEST AREA

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

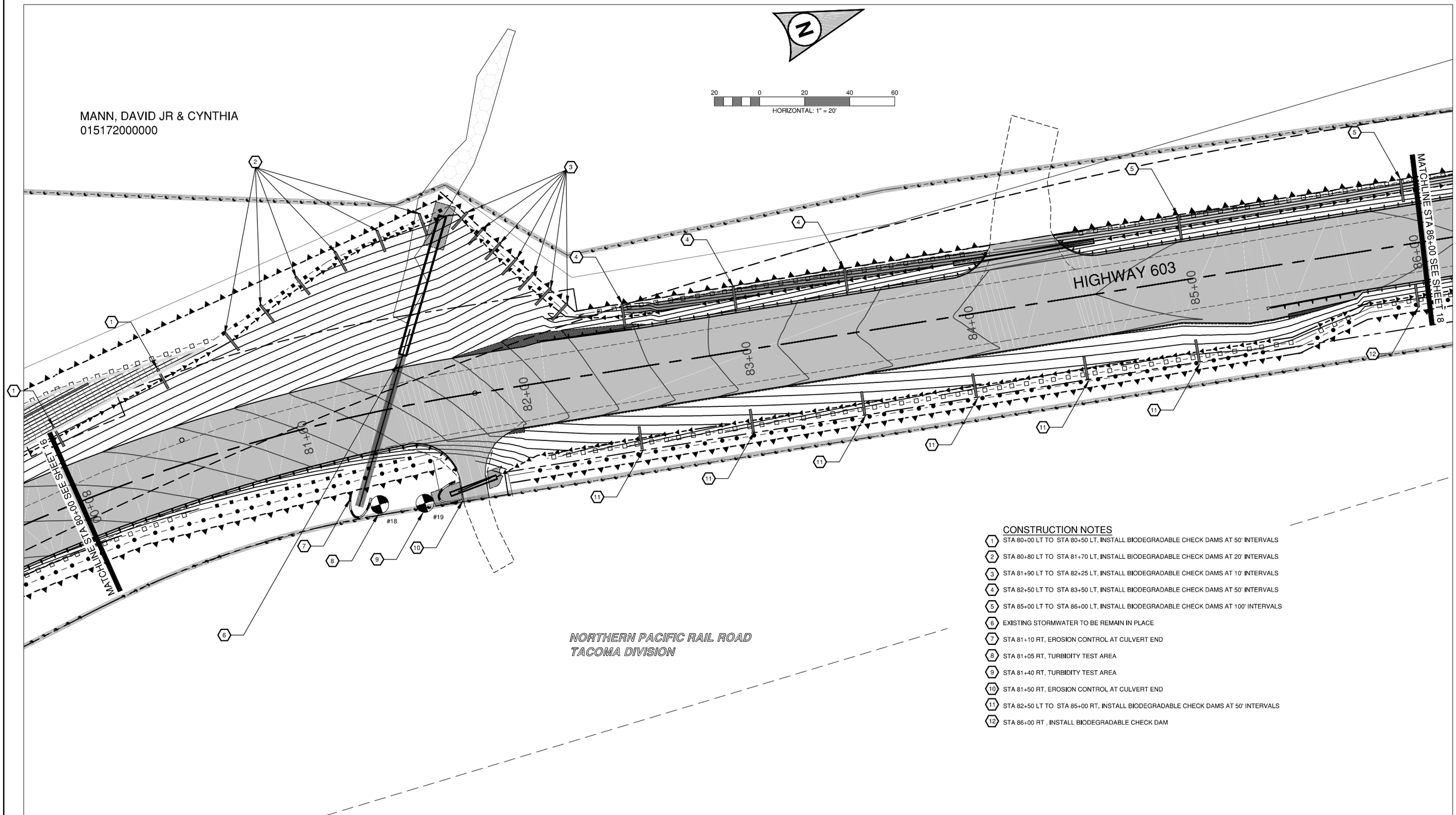
TESC PLAN

SHEET 18 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 80+00 LT TO STA 80+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
2. STA 80+80 LT TO STA 81+70 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 20' INTERVALS
3. STA 81+90 LT TO STA 82+25 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 10' INTERVALS
4. STA 82+50 LT TO STA 83+50 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
5. STA 85+00 LT TO STA 86+00 LT, INSTALL BIODEGRADABLE CHECK DAMS AT 100' INTERVALS
6. EXISTING STORMWATER TO BE REMAIN IN PLACE
7. STA 81+10 RT, EROSION CONTROL AT CULVERT END
8. STA 81+05 RT, TURBIDITY TEST AREA
9. STA 81+40 RT, TURBIDITY TEST AREA
10. STA 81+50 RT, EROSION CONTROL AT CULVERT END
11. STA 82+50 LT TO STA 85+00 RT, INSTALL BIODEGRADABLE CHECK DAMS AT 50' INTERVALS
12. STA 86+00 RT , INSTALL BIODEGRADABLE CHECK DAM

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

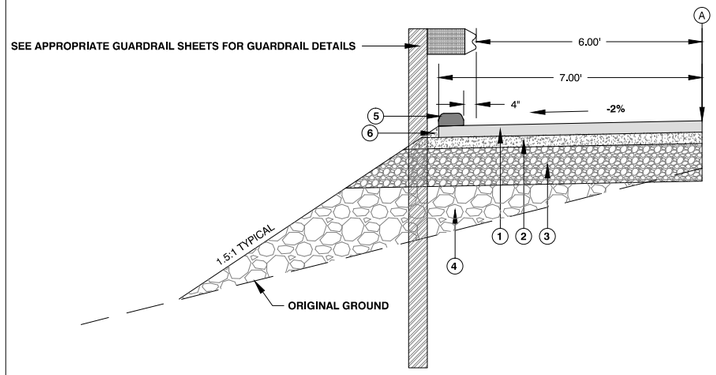
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

TESC PLAN

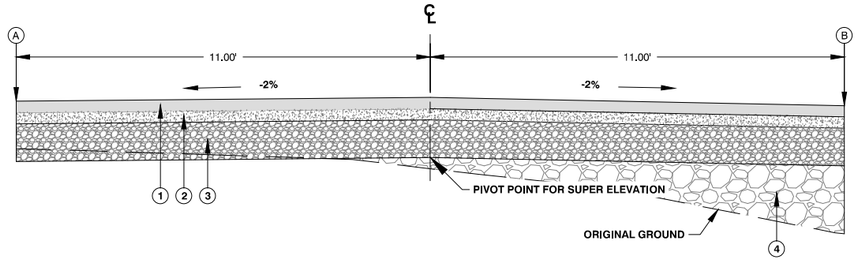
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



STA 0+14.00 TO STA 1+40.00 (HIGHWAY 603)
STA 83+02.00 TO STA 83+97.00 (HIGHWAY 603)
STA 84+63.00 TO STA 87+21.00 (HIGHWAY 603)



ROADWAY SECTION

STATION 0+00.00 TO STATION 88+60.53 (HIGHWAY 603)
NOT TO SCALE

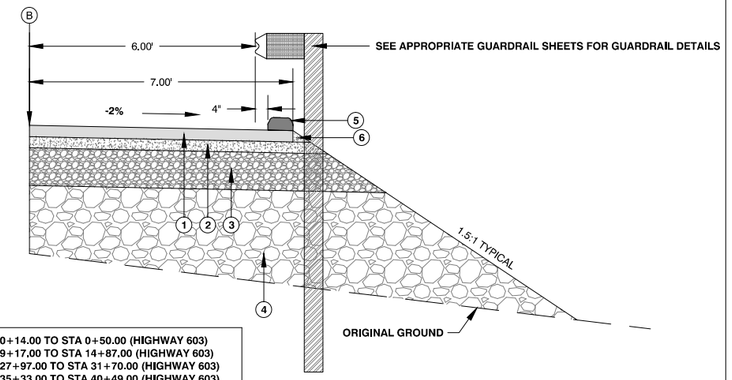
1. HMA CLASS 1/2" IN. PG 64-22, 0.30' COMPACTED DEPTH (PAVE 2 LIFTS OF 0.15' COMPACTED DEPTH)
2. CRUSHED SURFACING TOP COURSE, 0.30' COMPACTED DEPTH
3. CRUSHED SURFACING BASE COURSE, 1.00' COMPACTED DEPTH
4. SELECT BORROW WHEN REQUIRED TO ACHIEVE PROFILE ELEVATIONS
5. EXTRUDED CURB, TYPE 5 (CEMENT CONCRETE), PER WSDOT STANDARD PLAN F-10.42-00
6. SHOULDER ROCK, 0.30' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)
7. PAVED INVERT, QUANTITIES INCLUDED IN HMA CLASS 1/2" IN. PG 64-22
8. SHOULDER ROCK, 0.63' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)

CONSTRUCTION NOTES

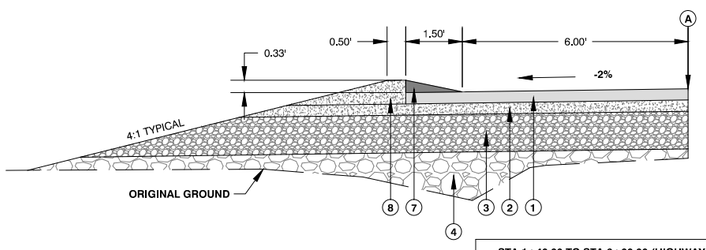
ALL DISTANCES CALLED OUT WILL VARY WITHIN TRANSITION LIMITS

CROSS SLOPES SHALL FOLLOW SUPER ELEVATION RATES AS STAKED IN THE FIELD BY THE ENGINEER

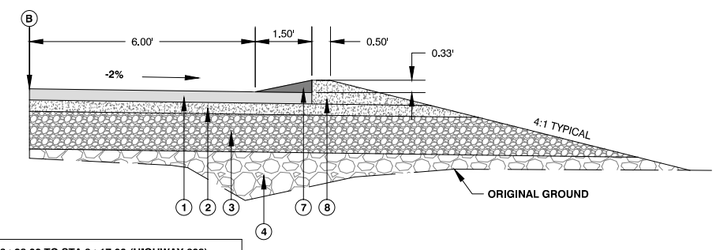
COUNTY RIGHT OF WAY LIMITS WILL ALTER SOME SLOPES



STA 0+14.00 TO STA 0+50.00 (HIGHWAY 603)
STA 9+17.00 TO STA 14+87.00 (HIGHWAY 603)
STA 27+97.00 TO STA 31+70.00 (HIGHWAY 603)
STA 35+33.00 TO STA 40+49.00 (HIGHWAY 603)
STA 43+52.00 TO STA 47+00.00 (HIGHWAY 603)
STA 47+62.00 TO STA 52+41.00 (HIGHWAY 603)
STA 61+24.00 TO STA 62+42.00 (HIGHWAY 603)
STA 65+49.00 TO STA 66+42.00 (HIGHWAY 603)
STA 66+97.00 TO STA 81+45.00 (HIGHWAY 603)
STA 85+42.00 TO STA 88+11.27 (HIGHWAY 603)



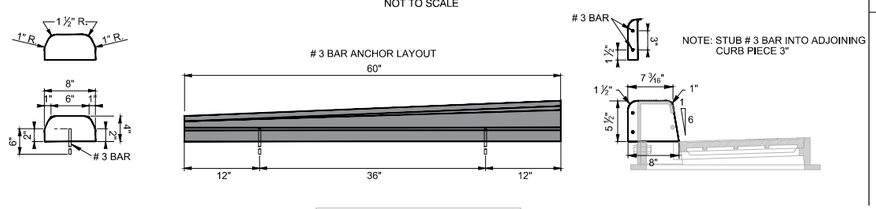
STA 1+40.00 TO STA 6+00.00 (HIGHWAY 603)
STA 12+99.00 TO STA 21+00.00 (HIGHWAY 603)
STA 38+37.00 TO STA 42+88.81 (HIGHWAY 603)
STA 46+25.00 TO STA 49+35.00 (HIGHWAY 603)
STA 54+17.00 TO STA 55+34.50 (HIGHWAY 603)
STA 59+00.00 TO STA 71+68.00 (HIGHWAY 603)

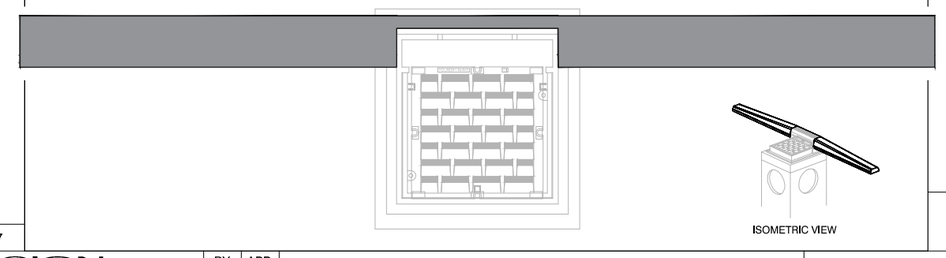


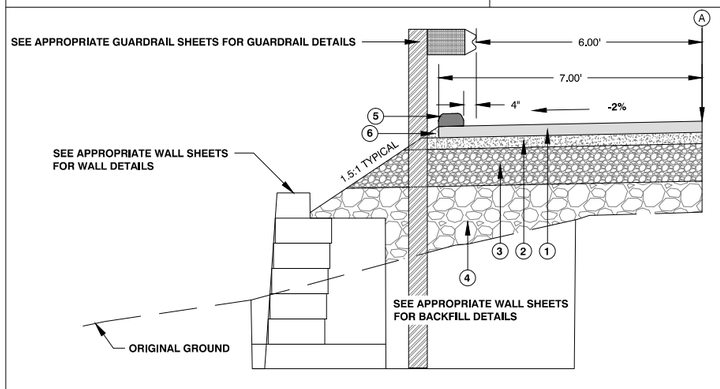
STA 6+28.00 TO STA 9+17.00 (HIGHWAY 603)
STA 52+40.00 TO STA 53+42.00 (HIGHWAY 603)
STA 54+57.00 TO STA 61+25.00 (HIGHWAY 603)
STA 81+99.00 TO STA 85+42.00 (HIGHWAY 603)

SPECIAL EXTRUDED CURB DETAIL

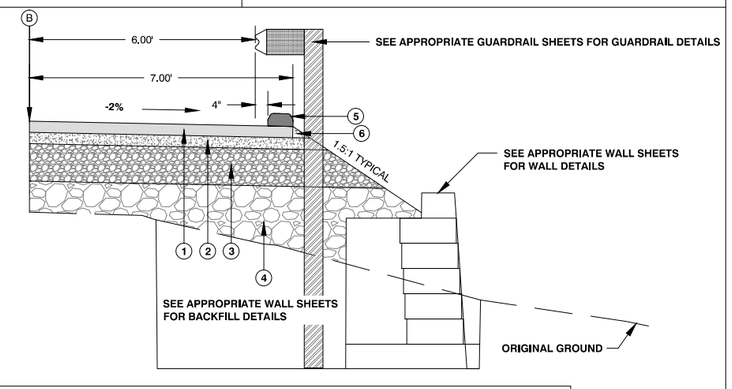
FOR COMBINATION INLET GRATES STA 35+82.00 RT AND STA 78+92.00 RT
NOT TO SCALE







STA 0+00.50 TO STA 1+00.52 (HIGHWAY 603) SEE STRUCTURE EARTH WALL B-B DETAILS ON SHEET 65 OF 127



STA 36+40.00 TO STA 37+00.00 (HIGHWAY 603) SEE STRUCTURE EARTH WALL C-C DETAILS ON SHEET 67 OF 127
STA 37+35.00 TO STA 40+25.25 (HIGHWAY 603) SEE STRUCTURE EARTH WALL D-D DETAILS ON SHEET 68 OF 127
STA 68+60.00 TO STA 69+85.25 (HIGHWAY 603) SEE STRUCTURE EARTH WALL E-E DETAILS ON SHEET 72 OF 127

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

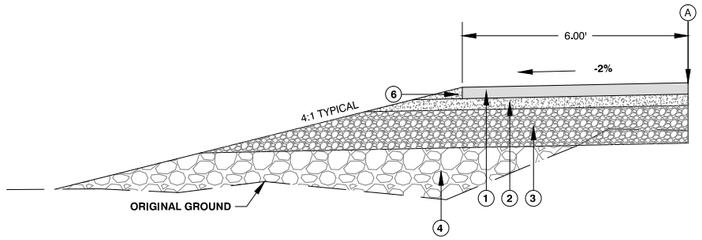
TYPICAL SECTION

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

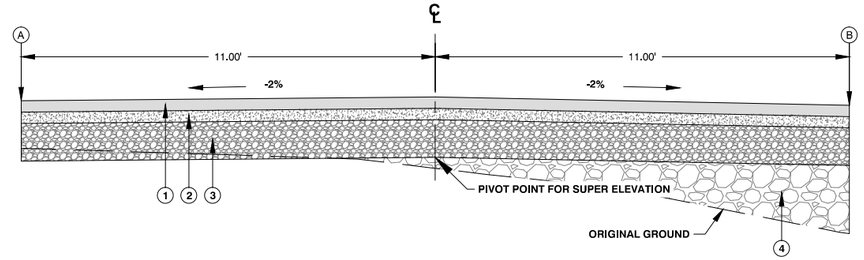
Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

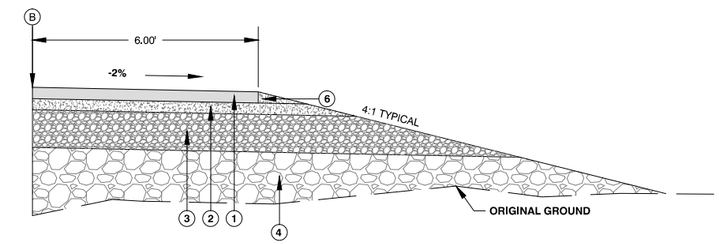


(HIGHWAY 603) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER

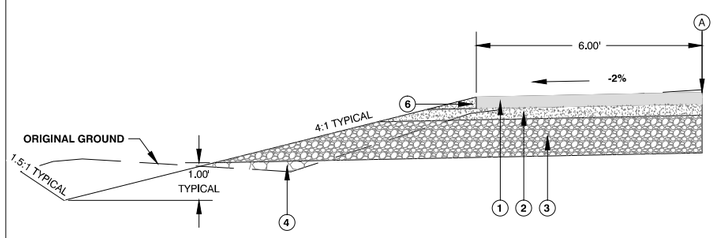


ROADWAY SECTION

STATION 0+00.00 TO STATION 88+60.53 (HIGHWAY 603)
NOT TO SCALE



(HIGHWAY 603) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER



(HIGHWAY 603) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER

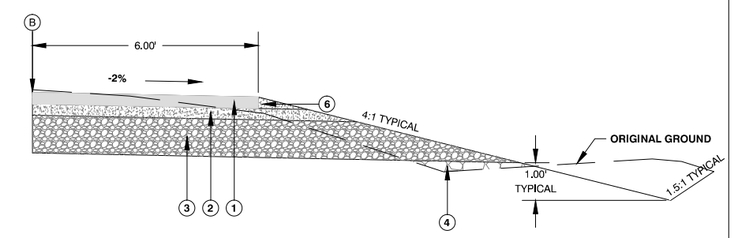
1. HMA CLASS 1/2" IN. PG 64-22, 0.30' COMPACTED DEPTH (PAVE 2 LIFTS OF 0.15' COMPACTED DEPTH)
2. CRUSHED SURFACING TOP COURSE, 0.30' COMPACTED DEPTH
3. CRUSHED SURFACING BASE COURSE, 1.00' COMPACTED DEPTH
4. SELECT BORROW WHEN REQUIRED TO ACHIEVE PROFILE ELEVATIONS
5. EXTRUDED CURB, TYPE 5 (CEMENT CONCRETE), PER WSDOT STANDARD PLAN F-10.42-00
6. SHOULDER ROCK, 0.30' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)
7. PAVED INVERT, QUANTITIES INCLUDED IN HMA CLASS 1/2" IN. PG 64-22
8. SHOULDER ROCK, 0.63' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)

CONSTRUCTION NOTES

ALL DISTANCES CALLED OUT WILL VARY WITHIN TRANSITION LIMITS

CROSS SLOPES SHALL FOLLOW SUPER ELEVATION RATES AS STAKED IN THE FIELD BY THE ENGINEER

COUNTY RIGHT OF WAY LIMITS WILL ALTER SOME SLOPES



(HIGHWAY 603) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

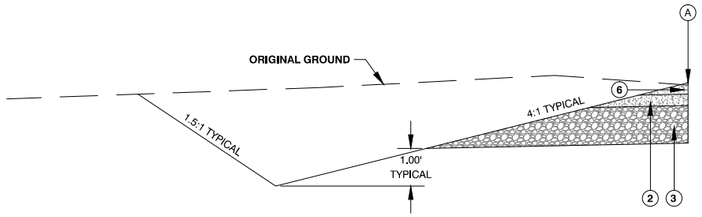
TYPICAL SECTION

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

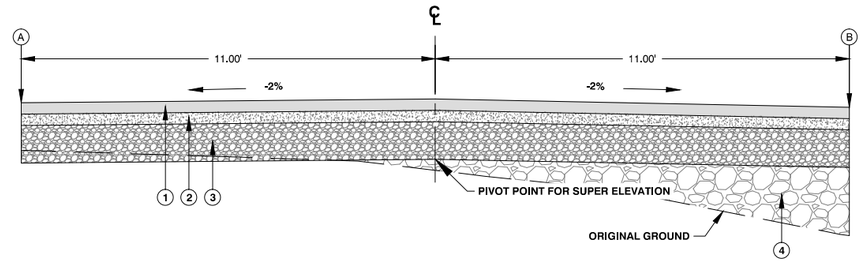
Keith Robert Muggoch, P.E.
Senior Engineer
Design

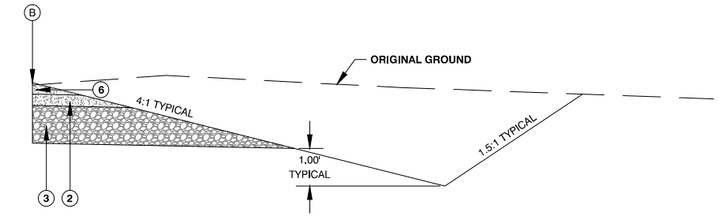
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



(NELSON ROAD) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER





(NELSON ROAD) LOCATIONS TO BE STAKED IN THE FIELD BY THE ENGINEER

ROADWAY SECTION

STATION 0+19.63 TO STATION 2+20.00 (NELSON ROAD)
NOT TO SCALE

1. HMA CLASS 1/2" IN. PG 64-22, 0.30' COMPACTED DEPTH (PAVE 2 LIFTS OF 0.15' COMPACTED DEPTH)
2. CRUSHED SURFACING TOP COURSE, 0.30' COMPACTED DEPTH
3. CRUSHED SURFACING BASE COURSE, 1.00' COMPACTED DEPTH
4. SELECT BORROW WHEN REQUIRED TO ACHIEVE PROFILE ELEVATIONS
5. EXTRUDED CURB, TYPE 5 (CEMENT CONCRETE), PER WSDOT STANDARD PLAN F-10.42-00
6. SHOULDER ROCK, 0.30' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)
7. PAVED INVERT, QUANTITIES INCLUDED IN HMA CLASS 1/2" IN. PG 64-22
8. SHOULDER ROCK, 0.63' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)

CONSTRUCTION NOTES

ALL DISTANCES CALLED OUT WILL VARY WITHIN TRANSITION LIMITS

CROSS SLOPES SHALL FOLLOW SUPER ELEVATION RATES AS STAKED IN THE FIELD BY THE ENGINEER

COUNTY RIGHT OF WAY LIMITS WILL ALTER SOME SLOPES

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603
STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

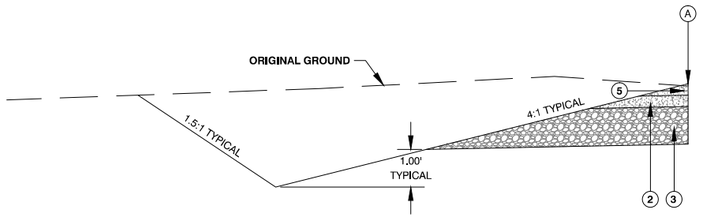
TYPICAL SECTION

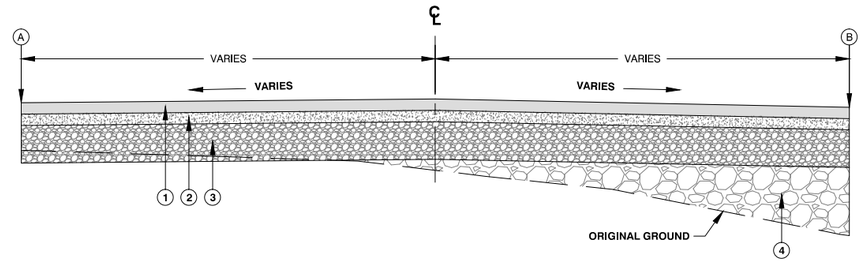
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

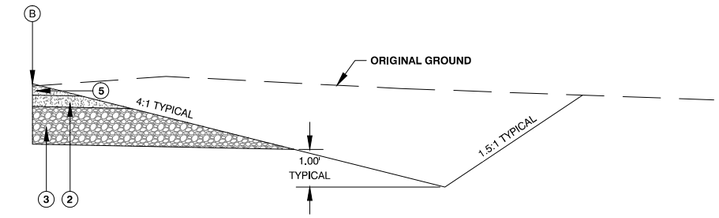
Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

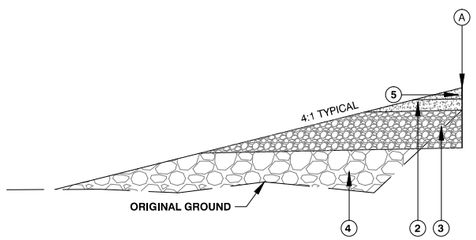




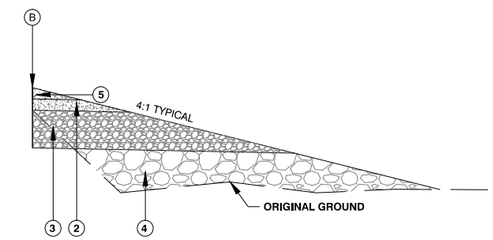


APPROACH PAVING SECTION

NOT TO SCALE



1. HMA CLASS 1/2" IN. PG 64-22, 0.30' COMPACTED DEPTH (PAVE 2 LIFTS OF 0.15' COMPACTED DEPTH)
2. CRUSHED SURFACING TOP COURSE, 0.30' COMPACTED DEPTH
3. CRUSHED SURFACING BASE COURSE, 1.00' COMPACTED DEPTH
4. SELECT BORROW WHEN REQUIRED TO ACHIEVE PROFILE ELEVATIONS
5. SHOULDER ROCK, 0.30' COMPACTED DEPTH (CRUSHED SURFACING TOP COURSE APPLIED AFTER PAVING)



CONSTRUCTION NOTES

ALL APPROACH WIDTHS VARY AND WILL BE STAKED IN THE FIELD BY THE ENGINEER

CROSS SLOPES SHALL FOLLOW SUPER ELEVATION RATES AS STAKED IN THE FIELD BY THE ENGINEER

COUNTY RIGHT OF WAY LIMITS WILL ALTER SOME SLOPES

SEE APPROPRIATE APPROACH SHEETS FOR APPROACH DETAILS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603
STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

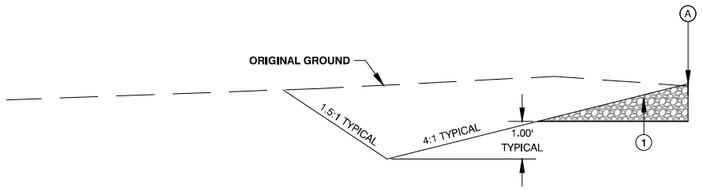
APPROACH PAVING SECTION

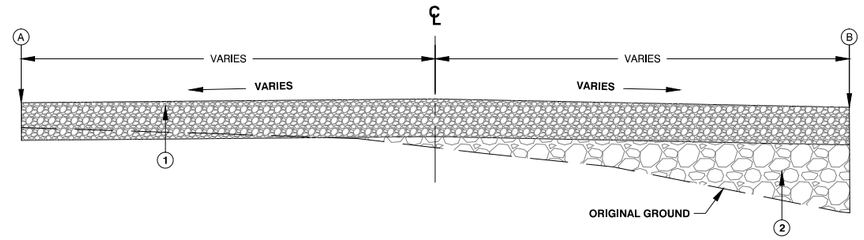
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

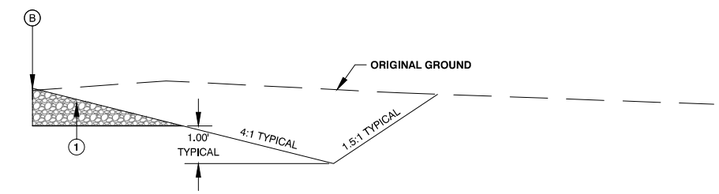
Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

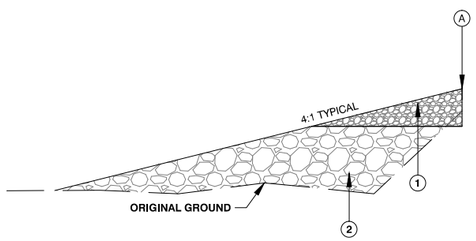


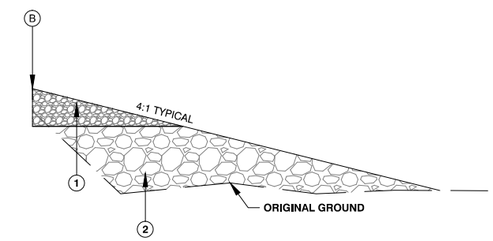




APPROACH GRAVEL SECTION

NOT TO SCALE





1. CRUSHED SURFACING BASE COURSE, 1.00' COMPACTED DEPTH
2. SELECT BORROW WHEN REQUIRED TO ACHIEVE PROFILE ELEVATIONS

CONSTRUCTION NOTES

ALL APPROACH WIDTHS VARY AND WILL BE STAKED IN THE FIELD BY THE ENGINEER

CROSS SLOPES SHALL FOLLOW SUPER ELEVATION RATES AS STAKED IN THE FIELD BY THE ENGINEER

COUNTY RIGHT OF WAY LIMITS WILL ALTER SOME SLOPES

SEE APPROPRIATE APPROACH SHEETS FOR APPROACH DETAILS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603
STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

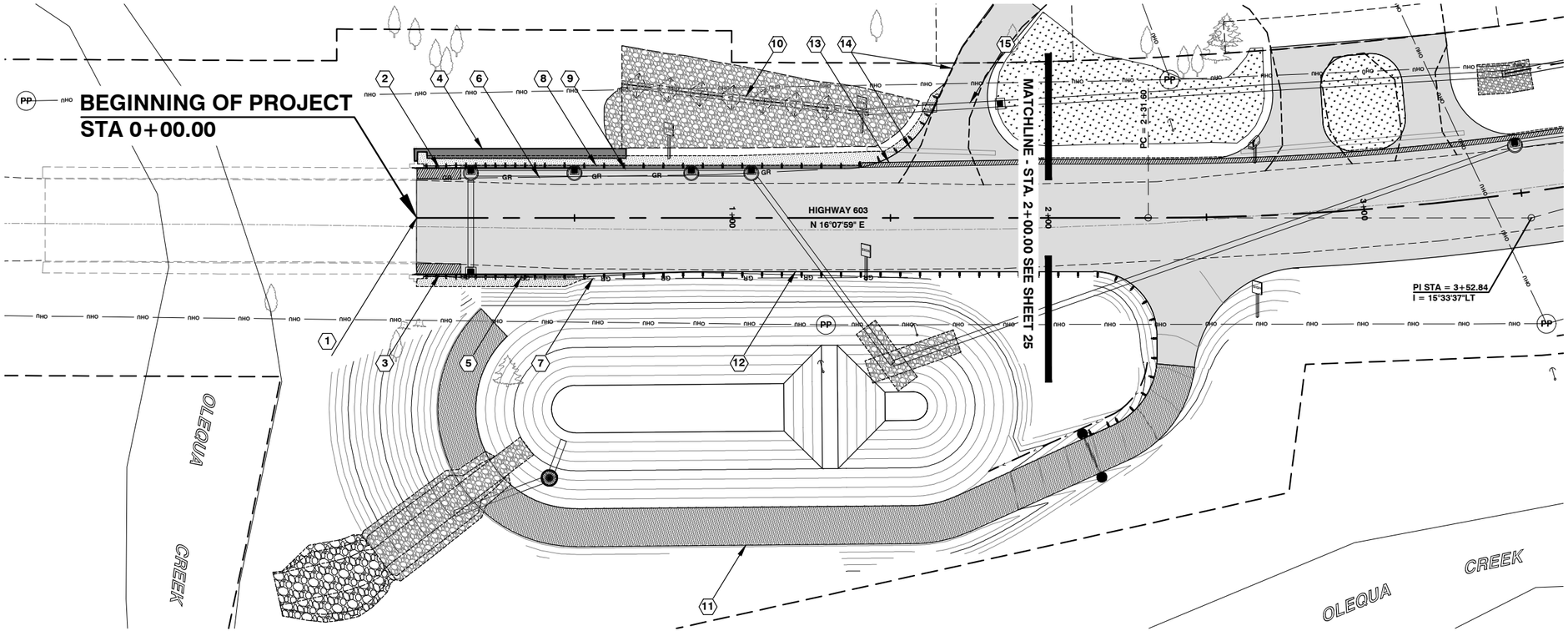
APPROACH GRAVEL SECTION

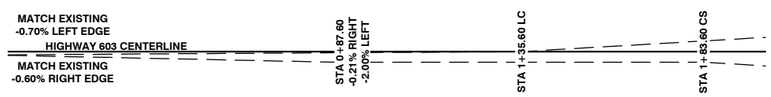
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

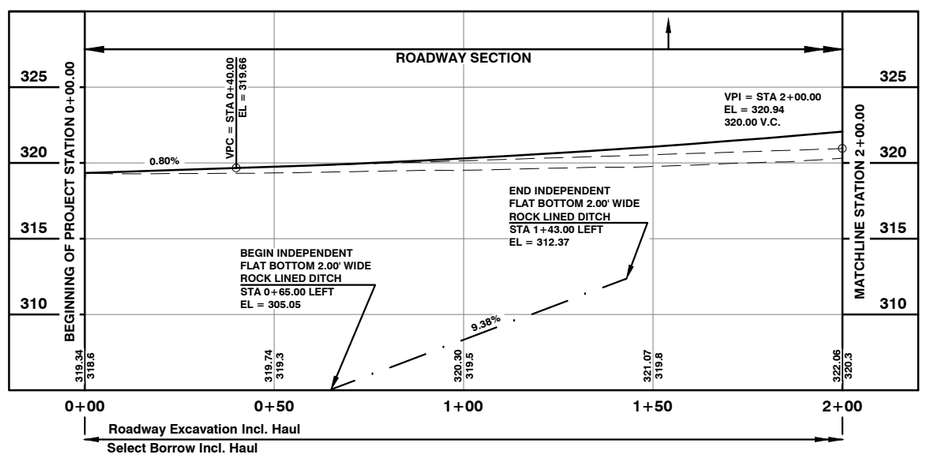
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.







CONSTRUCTION NOTES

1. STA 0+00.00
   CONSTRUCT BRIDGE BUTT JOINT
   SEE BRIDGE BUTT JOINT DETAIL ON SHEET 48 OF 127
2. CONSTRUCT RAMP
   SEE HMA RAMP DETAIL ON SHEET 48 OF 127
3. CONSTRUCT RAMP
   SEE HMA RAMP DETAIL ON SHEET 48 OF 127
4. CONSTRUCT STRUCTURAL EARTH WALL
   SEE STRUCTURAL EARTH WALL B-B DETAILS ON SHEETS
   65 OF 127 AND 76 OF 127
5. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS
   85 OF 127 - 107 OF 127
6. REMOVE EXISTING GUARDRAIL
   SEE GUARDRAIL RUN A AND B DETAILS ON SHEET
   58 OF 127
7. REMOVE EXISTING GUARDRAIL
   SEE GUARDRAIL RUN A AND B DETAILS ON SHEET
   58 OF 127
8. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS
   85 OF 127 - 107 OF 127
9. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN B DETAIL ON SHEET 58 OF 127
10. CONSTRUCT ROCK LINED DITCH
    SEE FLAT BOTTOM 2.00' WIDE ROCK LINED DITCH DETAILS
    ON SHEET 49 OF 127
11. CONSTRUCT TREATMENT/DETENTION POND
    SEE STORMWATER TREATMENT/DETENTION POND 1
    DETAILS ON SHEET 108 OF 127
12. CONSTRUCT GUARDRAIL
    SEE GUARDRAIL RUN A DETAIL ON SHEET 58 OF 127
13. CONSTRUCT PAVED INVERT
    SEE STORMWATER PLAN AND PROFILE SHEETS
    85 OF 127 - 107 OF 127
14. STA 1+54.07 LEFT
    REMOVE EXISTING 12 IN. DIAM. CORRUGATED METAL PIPE
    16.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
    27.00 TON SELECT BORROW INCL. HAUL
    CONSTRUCT APPROACH
    SEE APPROACH DETAIL ON SHEET 77 OF 127
15. CONSTRUCT 18 IN. DIAM. DRAINAGE BY PASS SYSTEM
    SEE 18 IN. DIAM. DRAINAGE BY PASS SYSTEM DETAILS
    ON SHEET 50 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR
STORMWATER DRAINAGE SYSTEM

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 0+00.00 TO STA 2+00.00

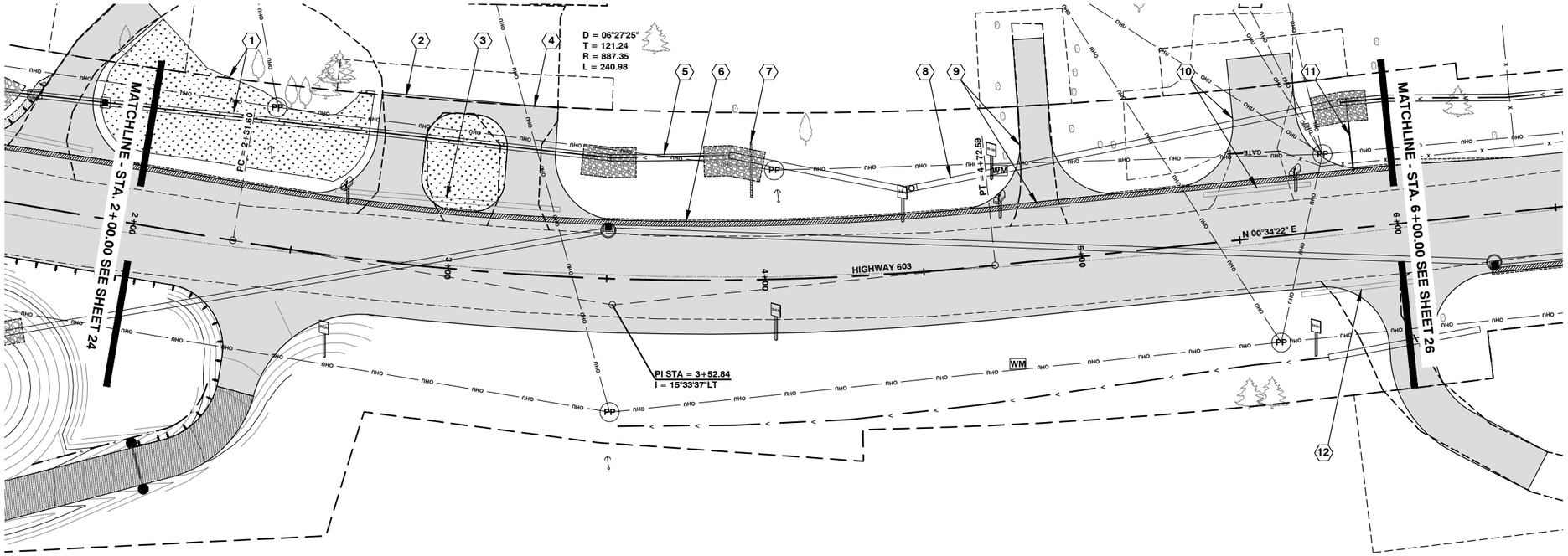
SHEET 24 OF 127

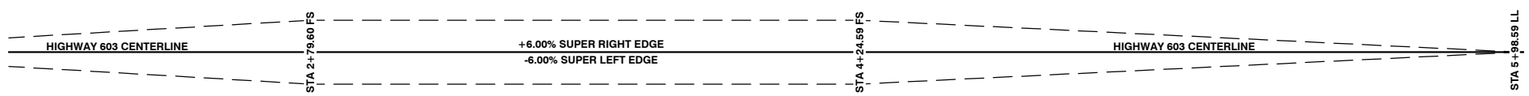
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

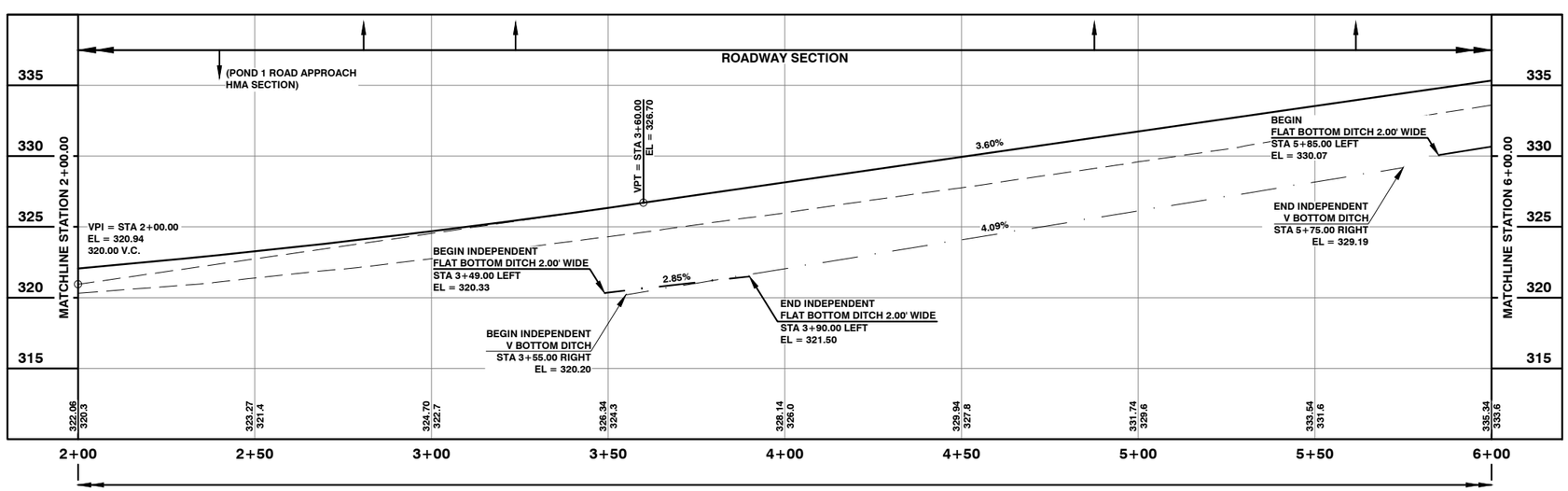
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.







CONSTRUCTION NOTES

1. CONSTRUCT 18 IN. DIAM. DRAINAGE BY PASS SYSTEM
   SEE 18 IN. DIAM. DRAINAGE BY PASS SYSTEM DETAILS
   ON SHEET 50 OF 127
2. STA 2+80.75 LEFT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 77 OF 127
3. STA 2+98.00 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   25.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   44.00 TON SELECT BORROW INCL. HAUL
4. STA 3+23.77 LEFT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 77 OF 127
5. STA 3+49.00 TO 3+90.00 LEFT
   CONSTRUCT FLAT BOTTOM DITCH 2 FT. WIDE
   SEE FLAT BOTTOM DITCH 2 FT. WIDE DETAIL ON
   SHEET 57 OF 127
6. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
7. STA 3+96.07 LEFT
   TRIM BACK EXISTING 6 IN. DIAM. DRAIN PIPE TO GRADE
   SEE EXISTING DRAIN PIPE DETAIL ON SHEET 51 OF 127
   1 EACH
8. STA 3+88.96 TO STA 5+85.96 LEFT
   CONSTRUCT 18 IN. DIAM. DITCH BY-PASS SYSTEM
   SEE 18 IN. DIAM. DITCH BY-PASS SYSTEM DETAIL ON SHEET 51 OF 127
9. STA 4+87.64 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   8.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   13.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 78 OF 127
10. STA 5+61.65 LEFT
    REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
    15.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
    25.00 TON SELECT BORROW INCL. HAUL
    CONSTRUCT APPROACH
    SEE APPROACH DETAIL ON SHEET 78 OF 127
11. STA 5+87.81 LEFT
    CUT BACK EXISTING 4 IN. DIAM. DRAIN PIPE TO GRADE
    SEE EXISTING DRAIN PIPE DETAIL ON SHEET 51 OF 127
    1 EACH
12. STA 5+86.00 RIGHT
    REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
    16.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
    27.00 TON SELECT BORROW INCL. HAUL

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

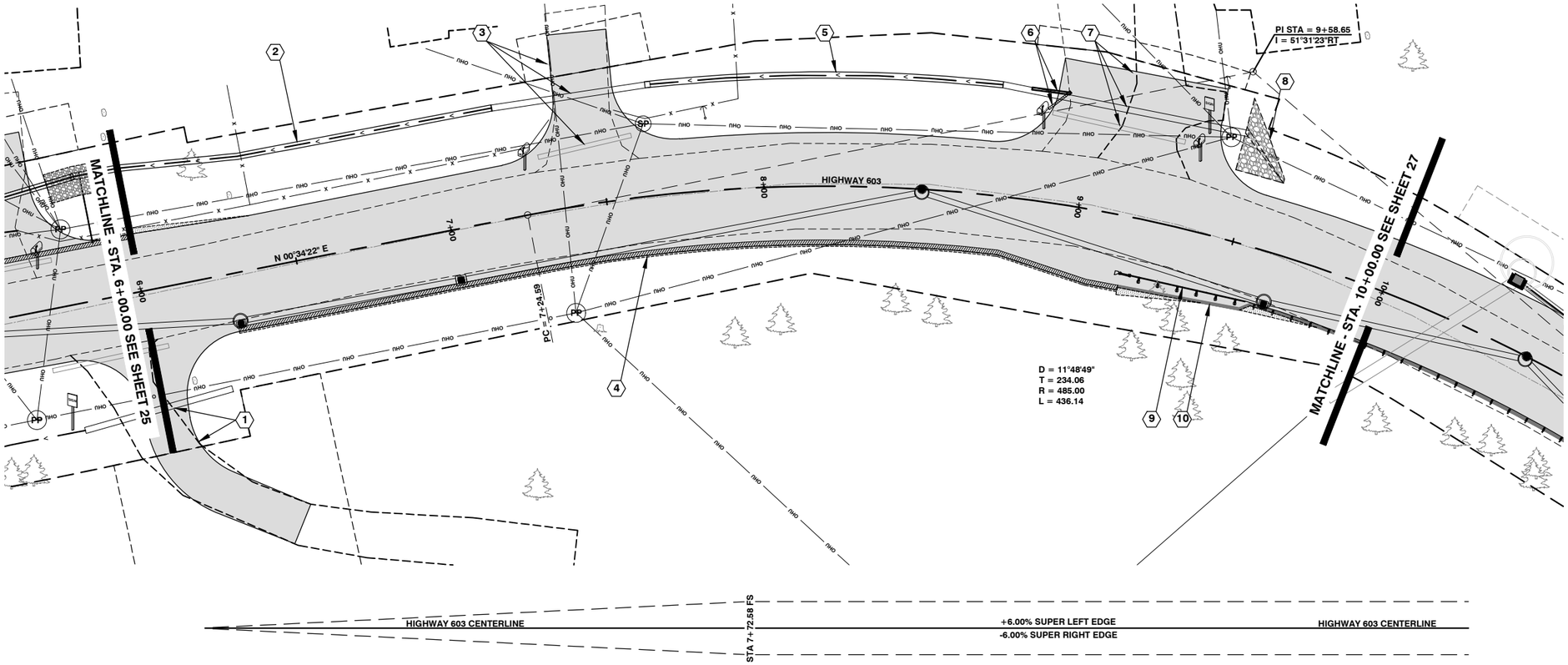
PLAN AND PROFILE
STA 2+00.00 TO STA 6+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



CONSTRUCTION NOTES

1. STA 6+01.21 RIGHT
   SCHEDULE A CULV. PIPE 18" DIAM., 48.52' LONG
   OUTLET INV. = 329.15 (STA 5+74.11, 39.66' RIGHT)
   INLET INV. = 332.08 (STA 6+22.37, 35.75' RIGHT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 78 OF 127

2. STA 5+85.00 TO 7+20.00 LEFT
   CONSTRUCT FLAT BOTTOM DITCH 2 FT. WIDE
   (3 FT. DEEP FROM SUBGRADE SHOULDER)
   SEE FLAT BOTTOM DITCH 2 FT. WIDE DETAIL ON SHEET 57 OF 127

3. STA 7+45.74 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   11.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   20.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT CL. IV REINF. CONC. CULV. PIPE 18" DIAM., 50.92' LONG
   OUTLET INV. = 335.99 (STA 7+19.79, 35.48' LEFT)
   INLET INV. = 338.06 (STA 7+67.56, 35.18' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 79 OF 127

4. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

5. STA 7+66.00 TO 8+72.00 LEFT
   CONSTRUCT FLAT BOTTOM DITCH 2 FT. WIDE
   (3 FT. DEEP FROM SUBGRADE SHOULDER)
   SEE FLAT BOTTOM DITCH 2 FT. WIDE DETAIL ON SHEET 57 OF 127

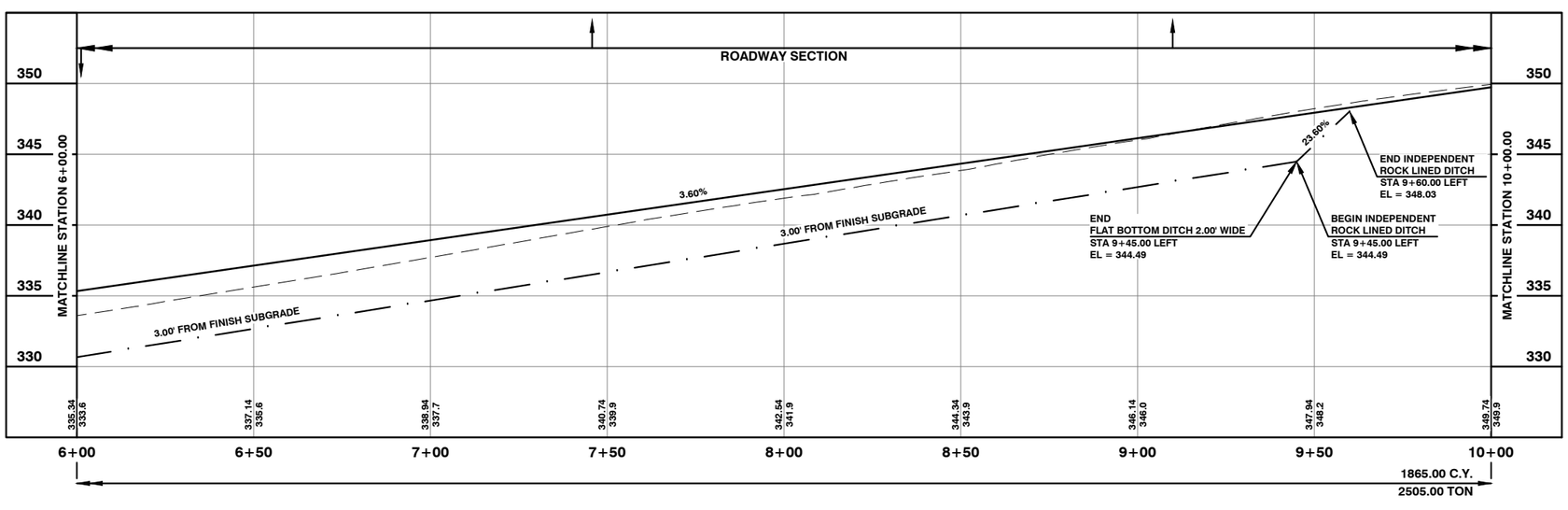
6. CUT BACK AND EXTEND EXISTING 8 IN. DIAM. DRAIN PIPE
   SEE 8 IN. DIAM. DRAIN PIPE DETAIL ON SHEET 51 OF 127

7. STA 9+09.93 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   14.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   10.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 79.37' LONG
   OUTLET INV. = 341.86 (STA 8+71.93, 35.15' LEFT)
   INLET INV. = 345.17 (STA 9+46.00, 34.26' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 79 OF 127

8. STA 9+45.00 TO 9+60.00 LEFT
   CONSTRUCT ROCK LINED DITCH
   SEE ROCK LINED DITCH TRANSITION DETAIL ON SHEET 51 OF 127
   12.00 TON QUARRY SPALLS
   25.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

9. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN C DETAIL ON SHEET 59 OF 127

10. CONSTRUCT EXTRUDED CURB
    SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127



NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

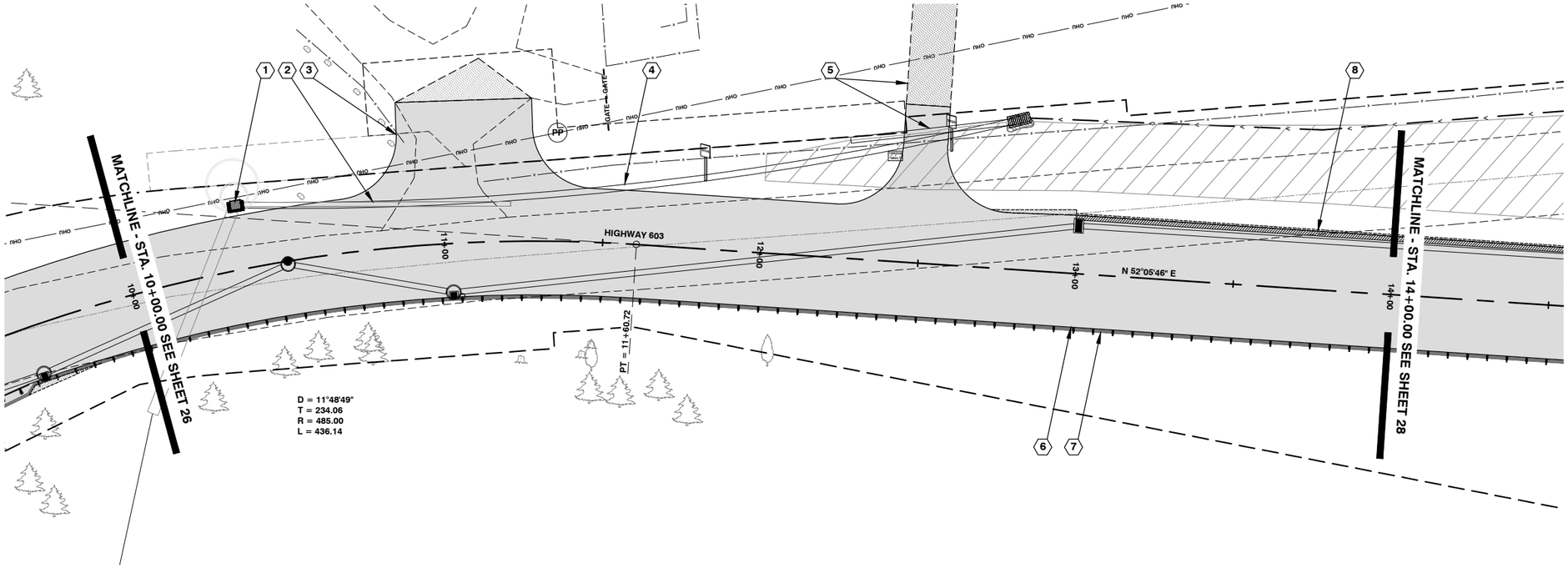
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 6+00.00 TO STA 10+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH STATE OF WASHINGTON #36208 REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

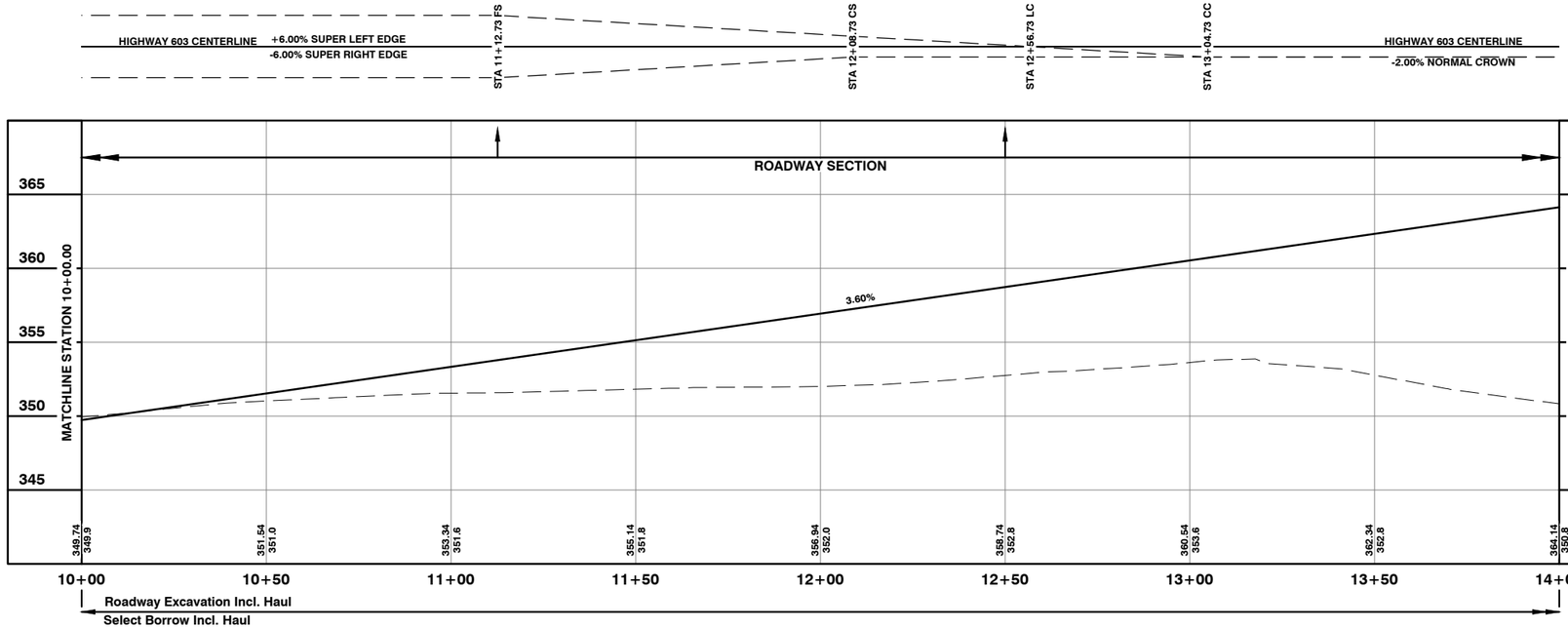


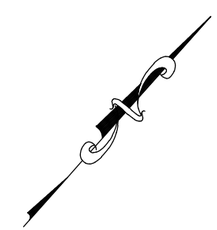
CONSTRUCTION NOTES

1. STA 10+37.00 LEFT
   RAISE EXISTING DRAINAGE GRATE
   SEE DRAINAGE GRATE DETAIL ON SHEET 52 OF 127
2. STA 10+79.00 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
3. STA 11+12.59 LEFT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 79 OF 127
4. CONSTRUCT STORM DRAIN SYSTEM
   SEE STORM DRAIN SYSTEM DETAILS ON SHEET 53 OF 127
5. STA 12+50.00 LEFT
   CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 50.20' LONG
   INLET INV. = 353.00 (STA 12+26.26, 37.42' LEFT)
   OUTLET INV. = 352.00 (STA 12+75.65, 46.35' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 80 OF 127
6. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN C DETAIL ON SHEET 59 OF 127
7. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
8. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE NW 1/4, NE 1/4 SECTION 28
& SW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

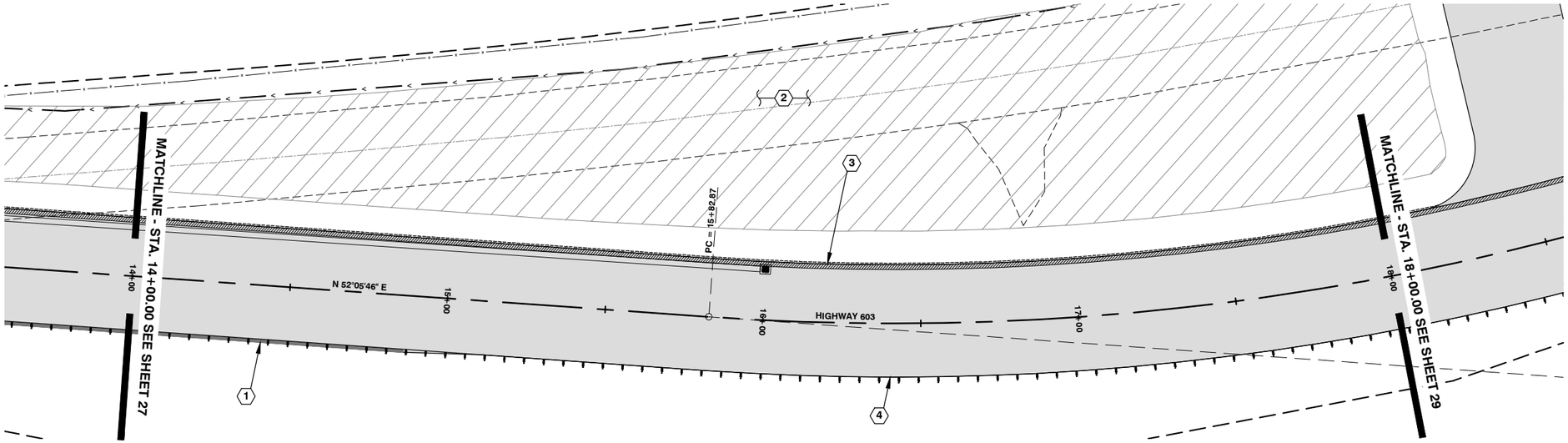
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

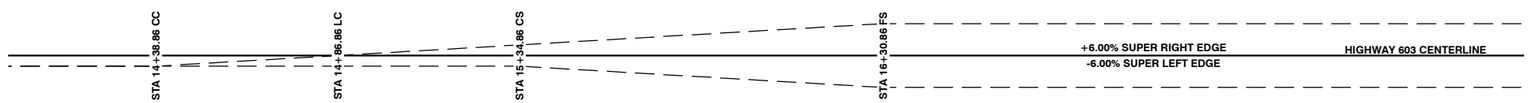
PLAN AND PROFILE
STA 10+00.00 TO STA 14+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



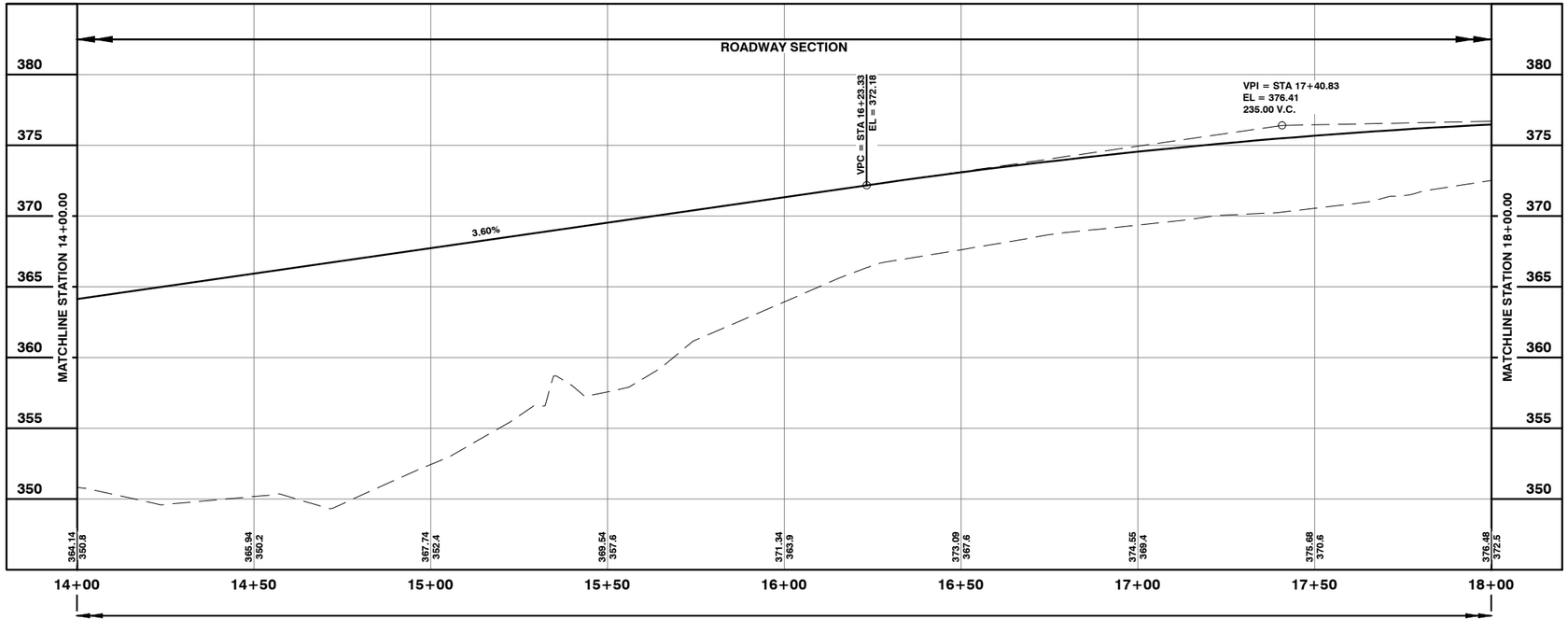


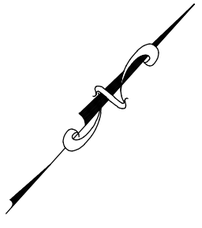
CONSTRUCTION NOTES

1. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
2. STA 12+00.00 TO STA 23+12.50 LEFT
   REMOVE PAVEMENT, REGRADE TO STAKES SET BY THE ENGINEER AND HYDROSEED
   ALL COST FOR REMOVING AND DISPOSING OF EXISTING PAVEMENT SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER CUBIC YARD FOR "ROADWAY EXCAVATION INCL. HAUL" (INCLUDED IN MAINLINE QUANTITIES)
   1.00 ACRE SEEDING, FERTILIZING, AND MULCHING
3. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN C DETAIL ON SHEET 59 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE SW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

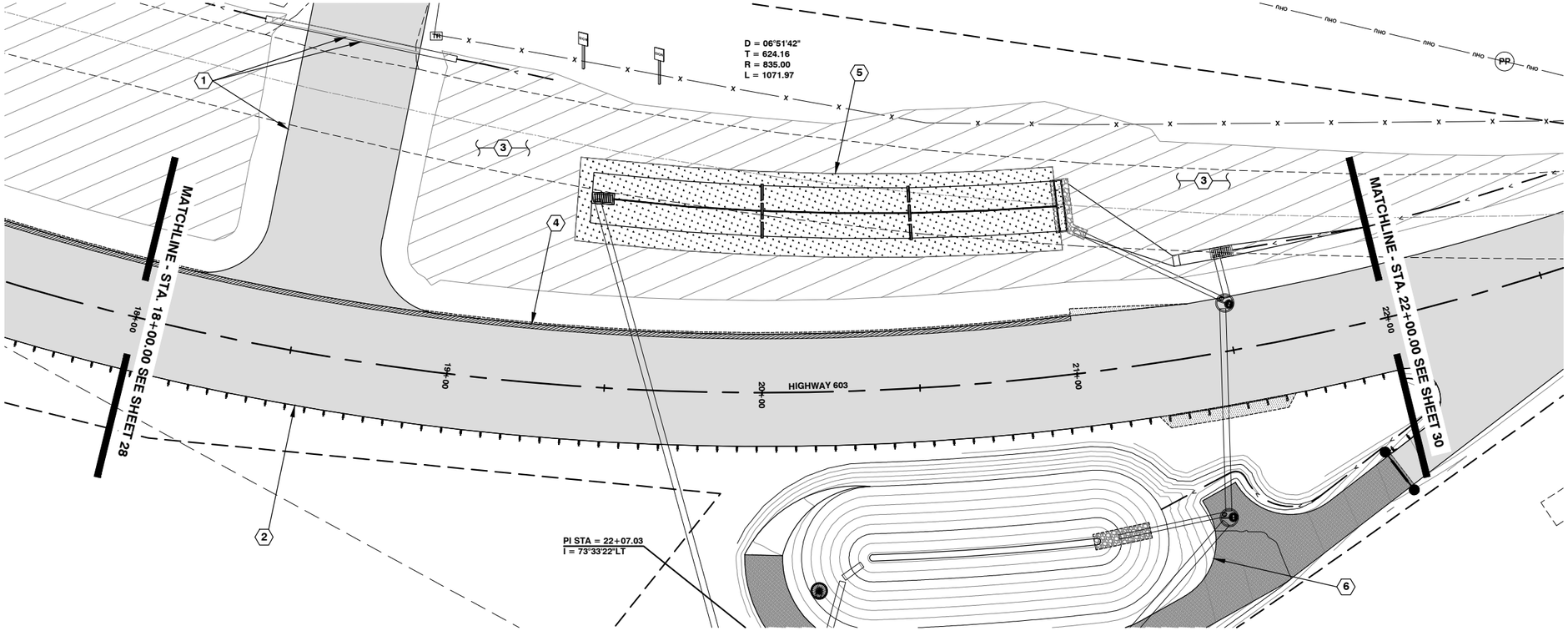
PLAN AND PROFILE
STA 14+00.00 TO STA 18+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

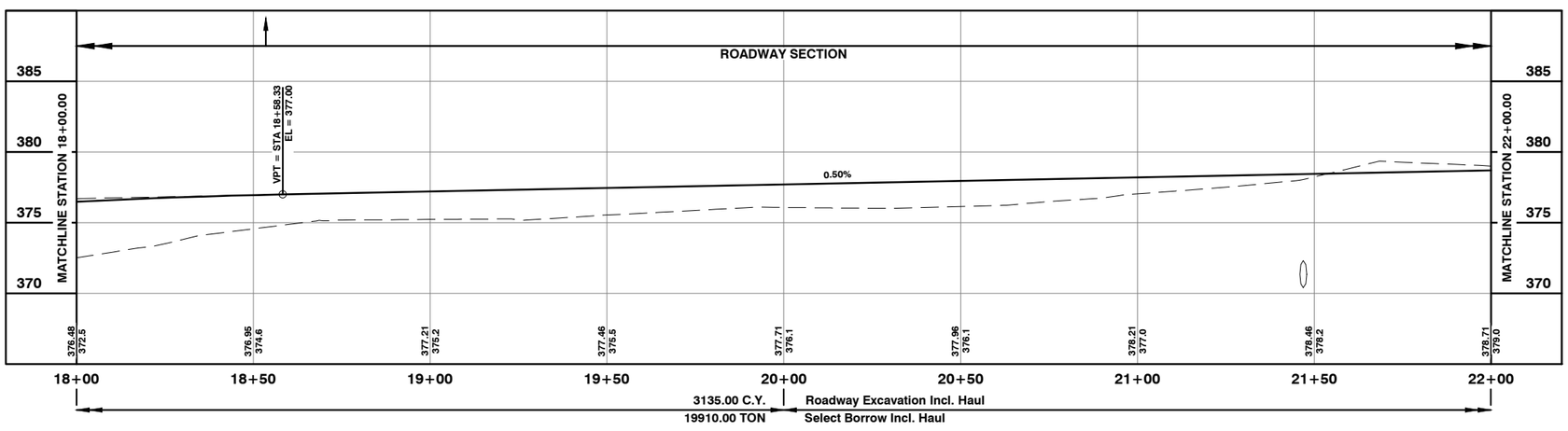


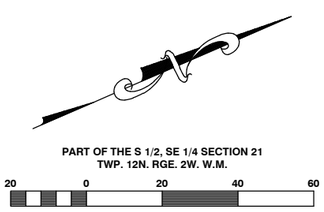
CONSTRUCTION NOTES

1. STA 18+53.51 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   CONSTRUCT CL. V REINF. CONC. CULV. PIPE 18" DIAM., 57.04' LONG
   OUTLET INV. = 373.03 (STA 18+22.79, 100.79' LEFT)
   INLET INV. = 373.44 (STA 18+87.57, 99.06' LEFT)
   21.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 80 OF 127
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN C DETAIL ON SHEET 59 OF 127
3. STA 12+00.00 TO STA 23+12.50 LEFT
   REMOVE PAVEMENT, REGRADE TO STAKES SET BY THE ENGINEER AND HYDROSEED
   ALL COST FOR REMOVING AND DISPOSING OF EXISTING PAVEMENT SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER CUBIC YARD FOR "ROADWAY EXCAVATION INCL. HAUL" (INCLUDED IN MAINLINE QUANTITIES)
   1.00 ACRE SEEDING, FERTILIZING, AND MULCHING
4. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
5. CONSTRUCT BIOSWALE
   SEE FLAT BOTTOM BIOSWALE 16 FT. WIDE DETAILS SHEET 54 OF 127
6. CONSTRUCT DETENTION POND
   SEE STORMWATER DETENTION POND 2 DETAILS ON SHEET 110 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

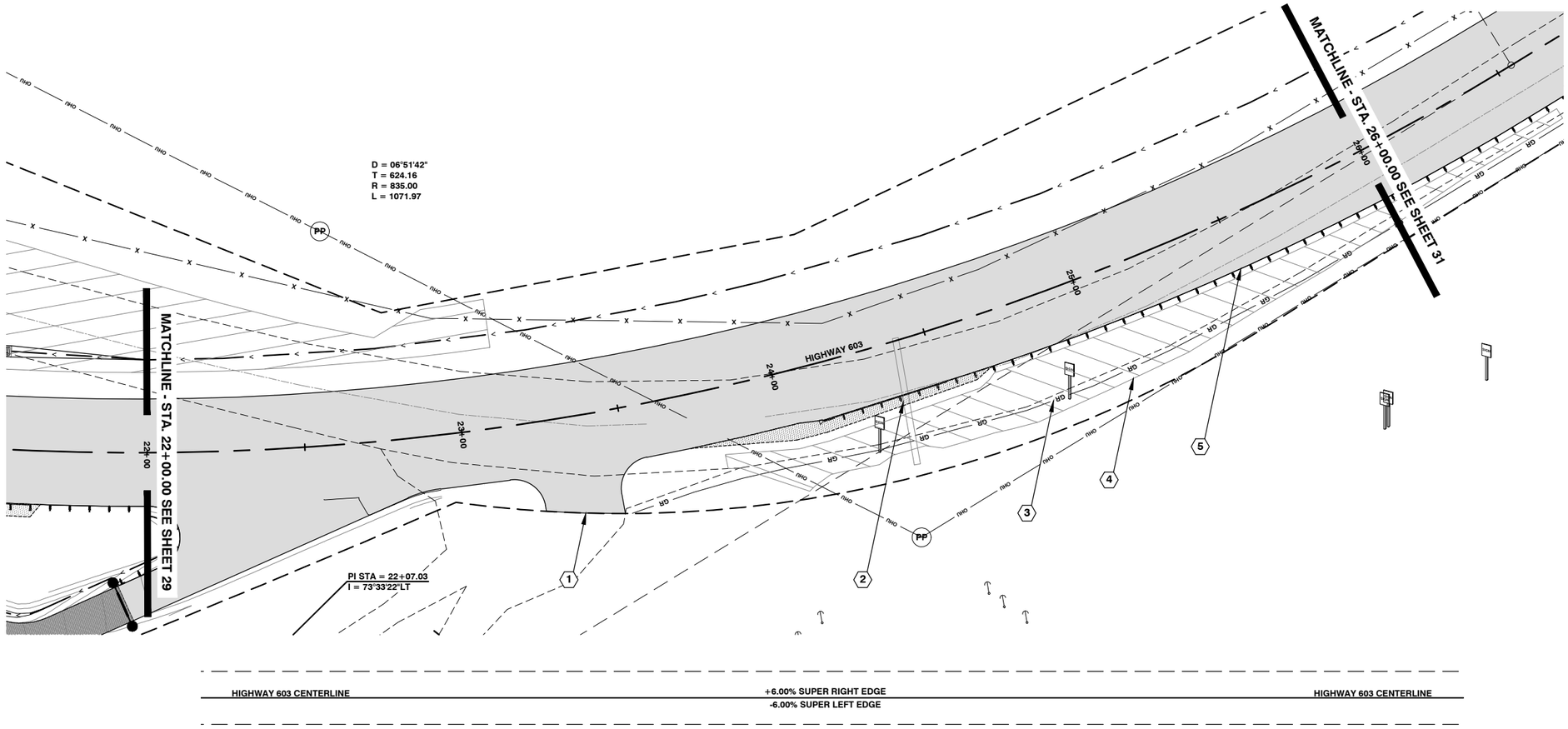
PLAN AND PROFILE
STA 18+00.00 TO STA 22+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

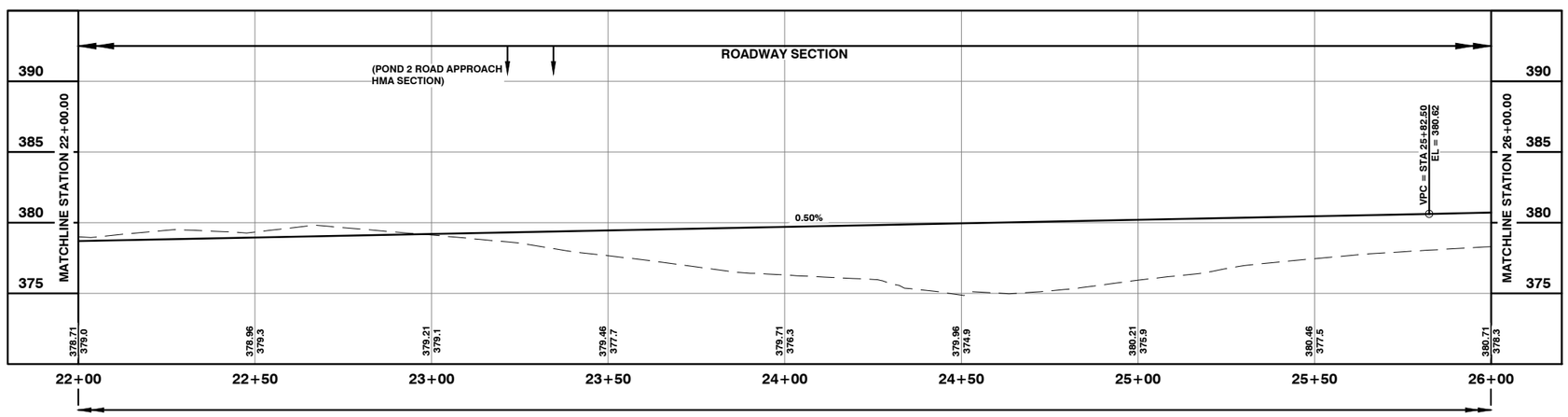


CONSTRUCTION NOTES

1. STA 22+34.55 RIGHT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 80 OF 127
2. STA 24+38.00 RIGHT
   REMOVE EXISTING 18 IN. DIAM. CONC. CULVERT.
   28.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   160.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   48.00 TON SELECT BORROW INCL. HAUL
3. REMOVE EXISTING GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
4. STA 23+70.00 TO STA 26+60.00 LEFT
   REMOVE PAVEMENT, REGRADE TO STAKES SET BY THE ENGINEER AND HYDROSEED
   ALL COST FOR REMOVING AND DISPOSING OF EXISTING PAVEMENT SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER CUBIC YARD FOR "ROADWAY EXCAVATION INCL. HAUL" (INCLUDED IN MAINLINE QUANTITIES)
   0.07 ACRE SEEDING, FERTILIZING, AND MULCHING
5. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM



PART OF THE S 1/2, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

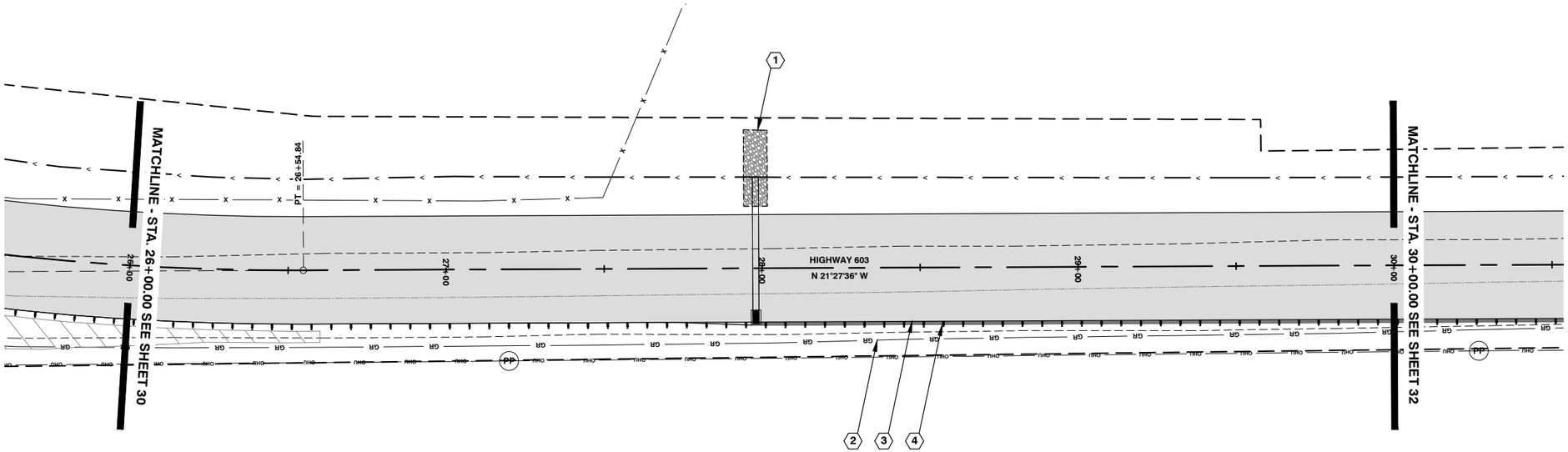
PLAN AND PROFILE
STA 22+00.00 TO STA 26+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

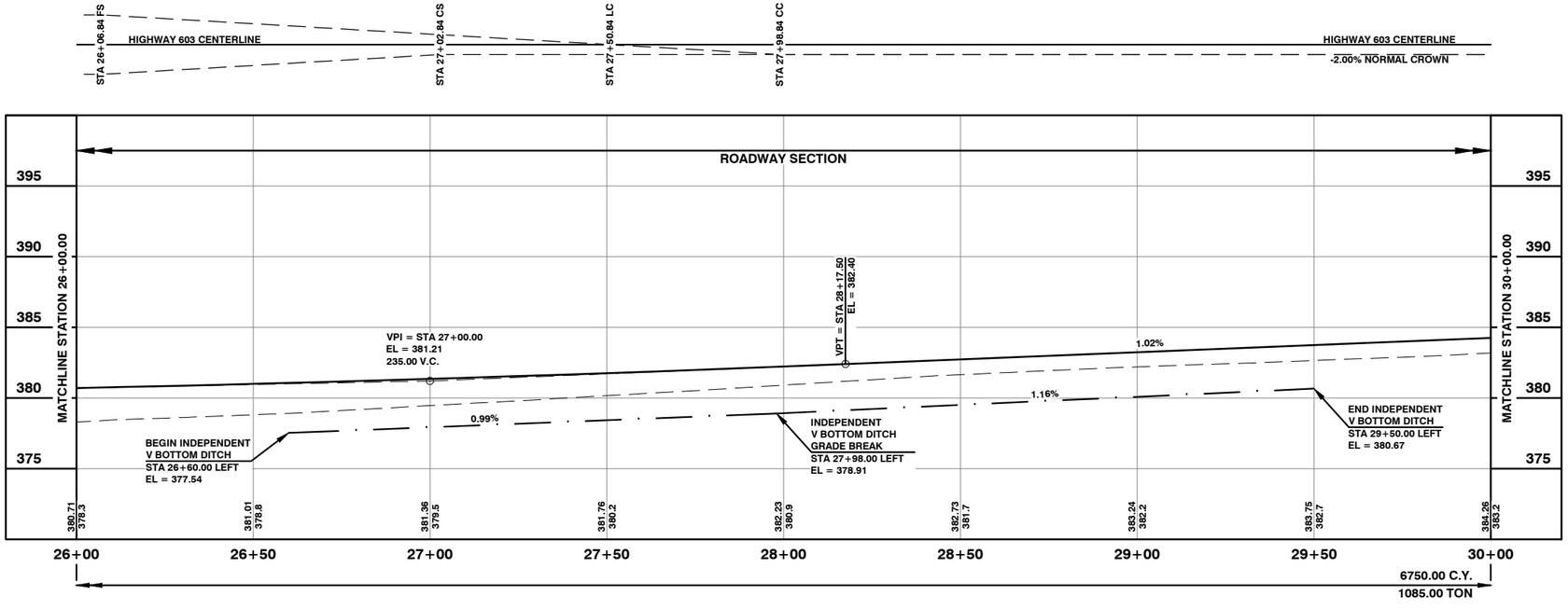


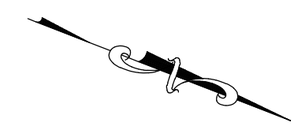
CONSTRUCTION NOTES

1. STA 27+98.00 LEFT
   CONSTRUCT OUTLET ROCK PROTECTION
   SEE STORM SEWER OUTLET PROTECTION DETAIL ON SHEET 52 OF 127
   13.00 TON QUARRY SPALLS
2. REMOVE EXISTING GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
3. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
4. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE W 1/2, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

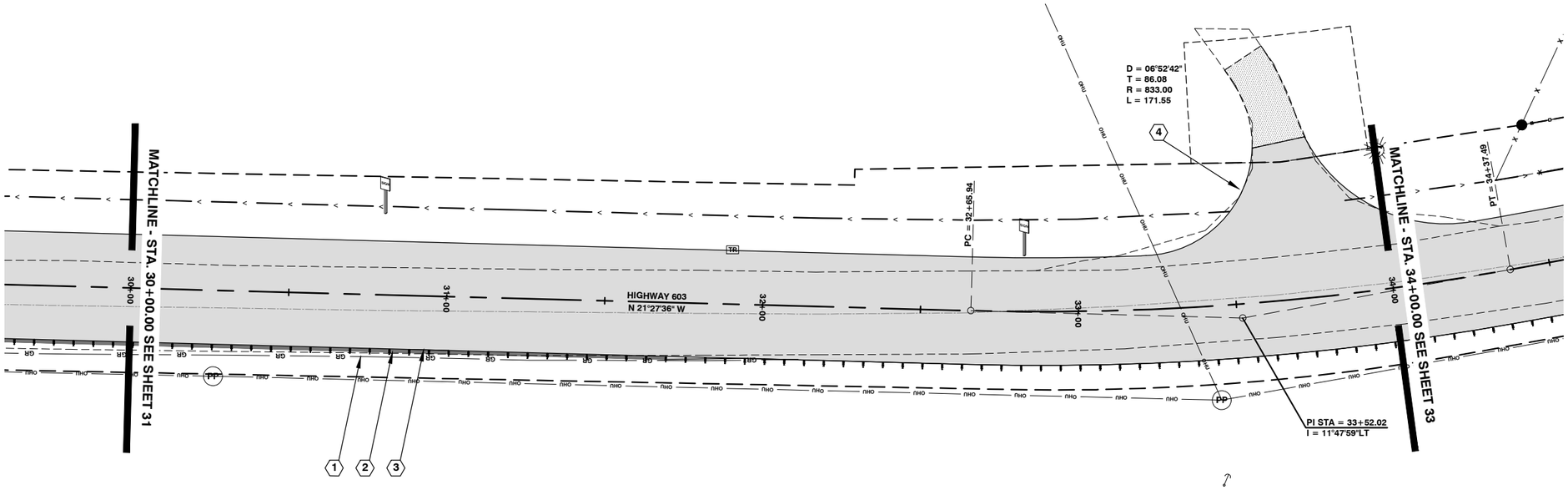
PLAN AND PROFILE
STA 26+00.00 TO STA 30+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

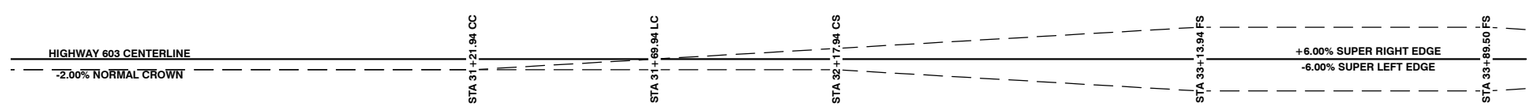


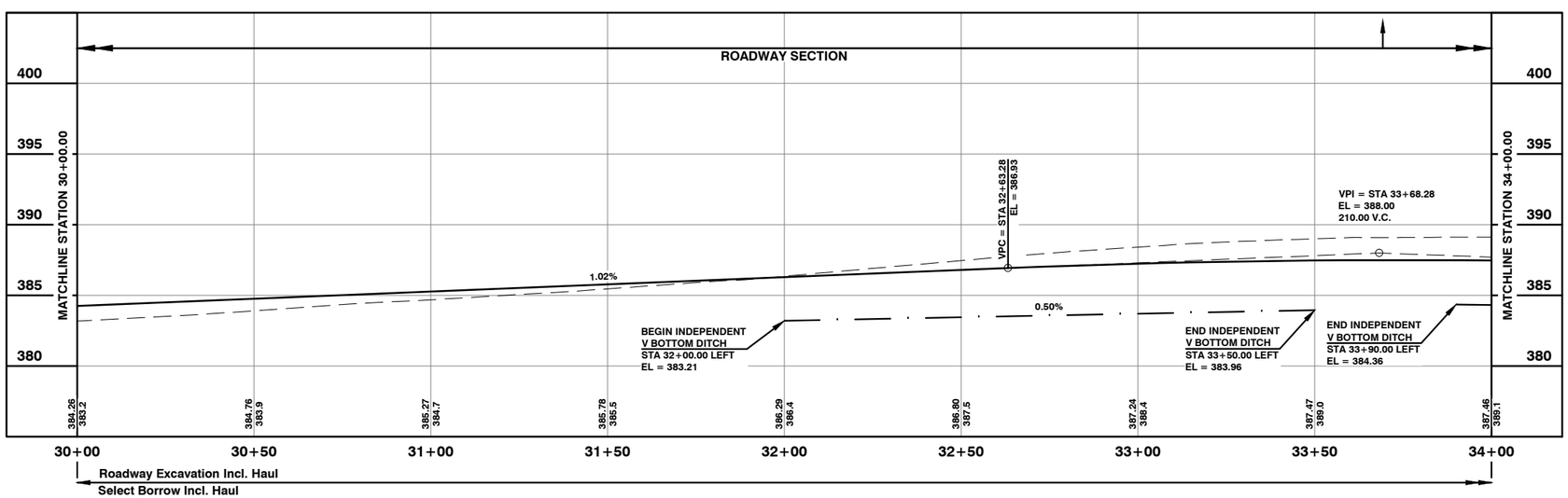
CONSTRUCTION NOTES

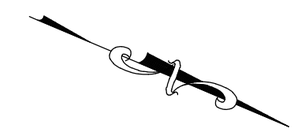
1. REMOVE EXISTING GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
3. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 33+69.29 LEFT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 81 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE NW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

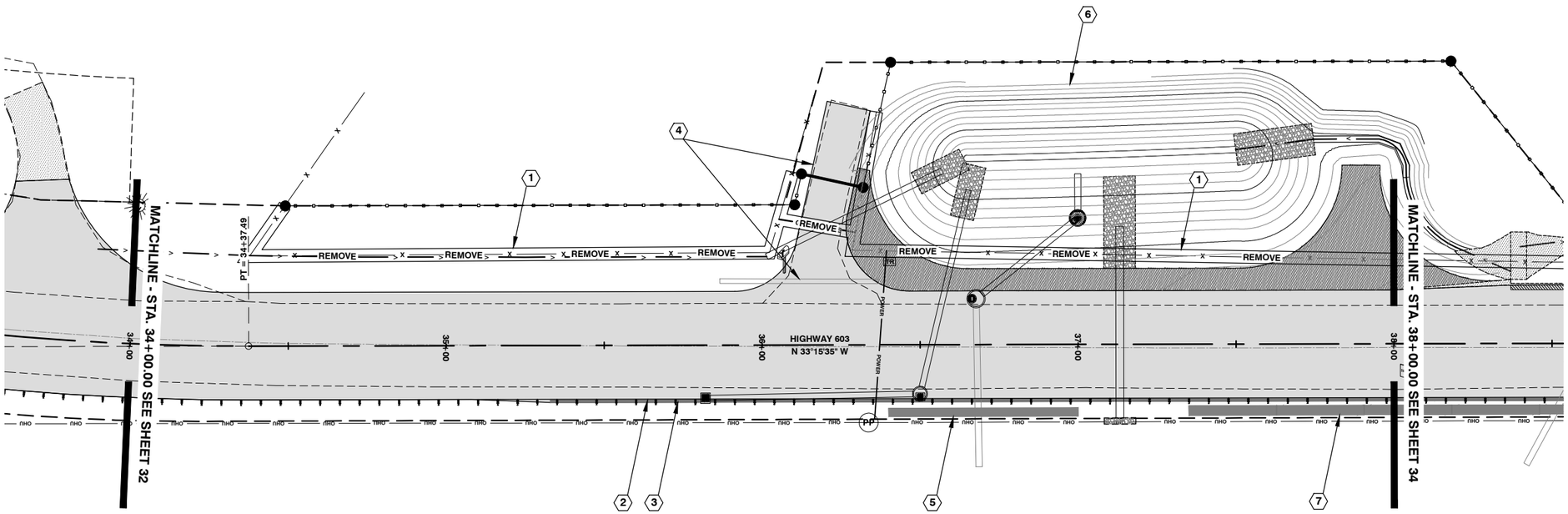
PLAN AND PROFILE
STA 30+00.00 TO STA 34+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

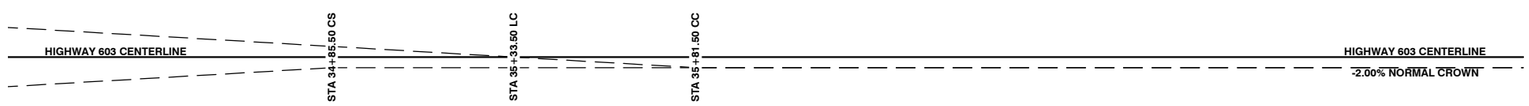


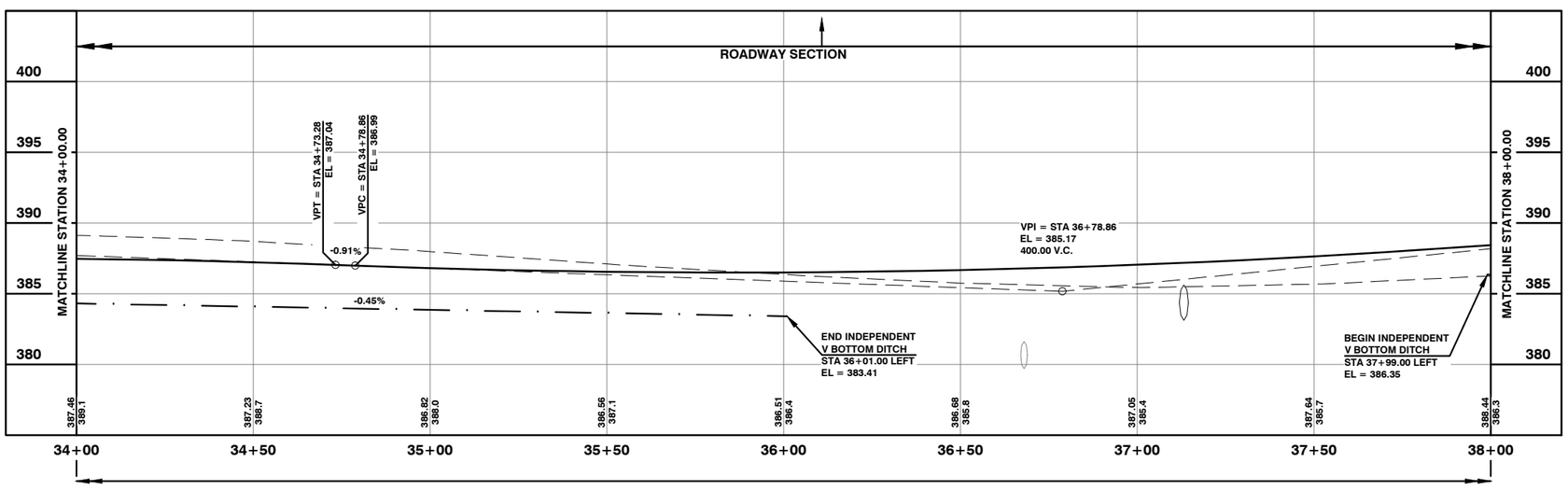
CONSTRUCTION NOTES

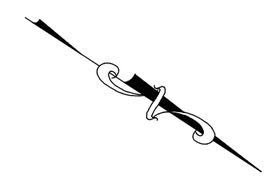
1. STA 34+49.05 TO STA 39+45.38 LEFT
   REMOVE EXISTING WIRE FENCE AND GATE
   EXISTING GATE REMOVED SHALL BE RETURNED TO PROPERTY OWNER AND BE INCLUDED IN THE UNIT CONTRACT PRICE PER L.F. FOR "REMOVING WIRE FENCE"
   606.00 L.F. REMOVING WIRE FENCE
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127
3. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 36+10.82 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. CULVERT.
   21.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   27.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 81 OF 127
5. CONSTRUCT STRUCTURAL EARTH WALL
   SEE STRUCTURAL EARTH WALL C-C DETAILS ON SHEETS 67 OF 127 AND 76 OF 127
6. CONSTRUCT TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 3 DETAILS ON SHEET 115 OF 127
7. CONSTRUCT STRUCTURAL EARTH WALL
   SEE STRUCTURAL EARTH WALL D-D DETAILS ON SHEETS 68 OF 127 AND 76 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE NW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

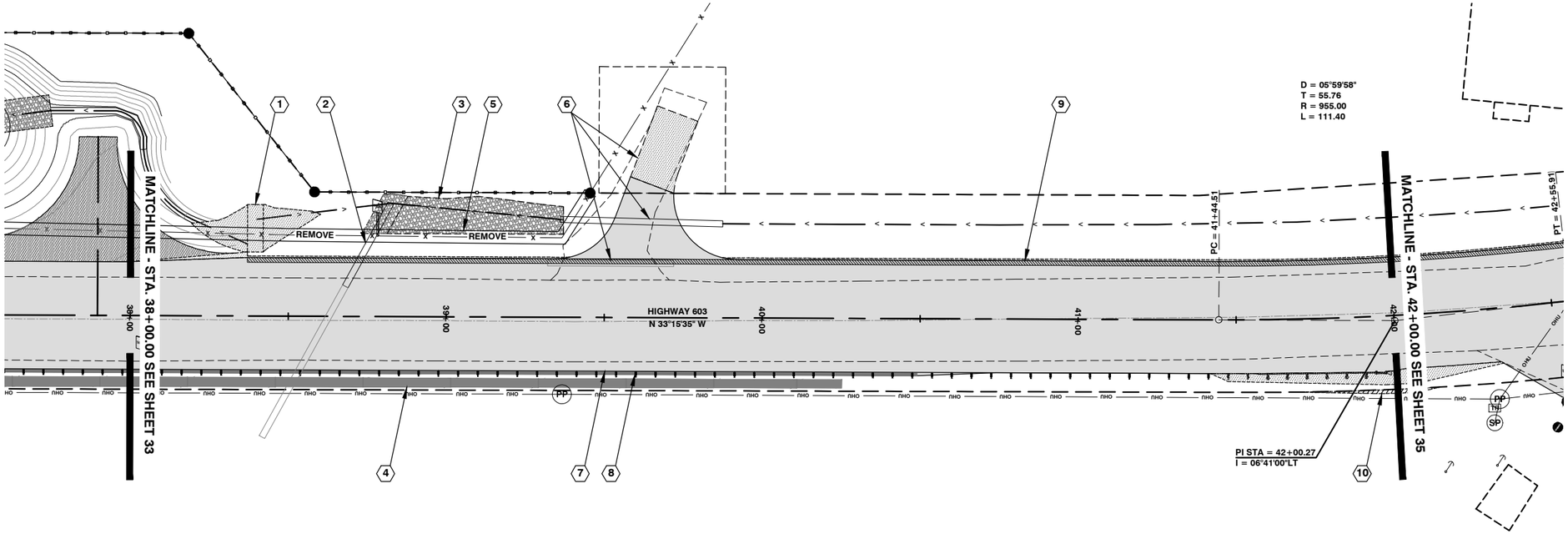
PLAN AND PROFILE
STA 34+00.00 TO STA 38+00.00

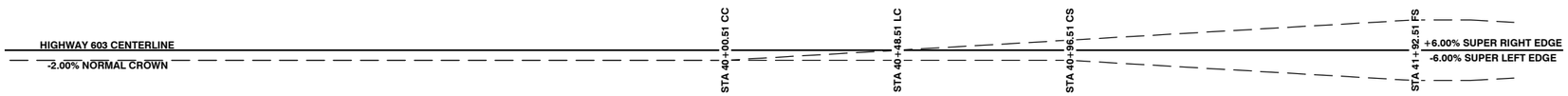
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

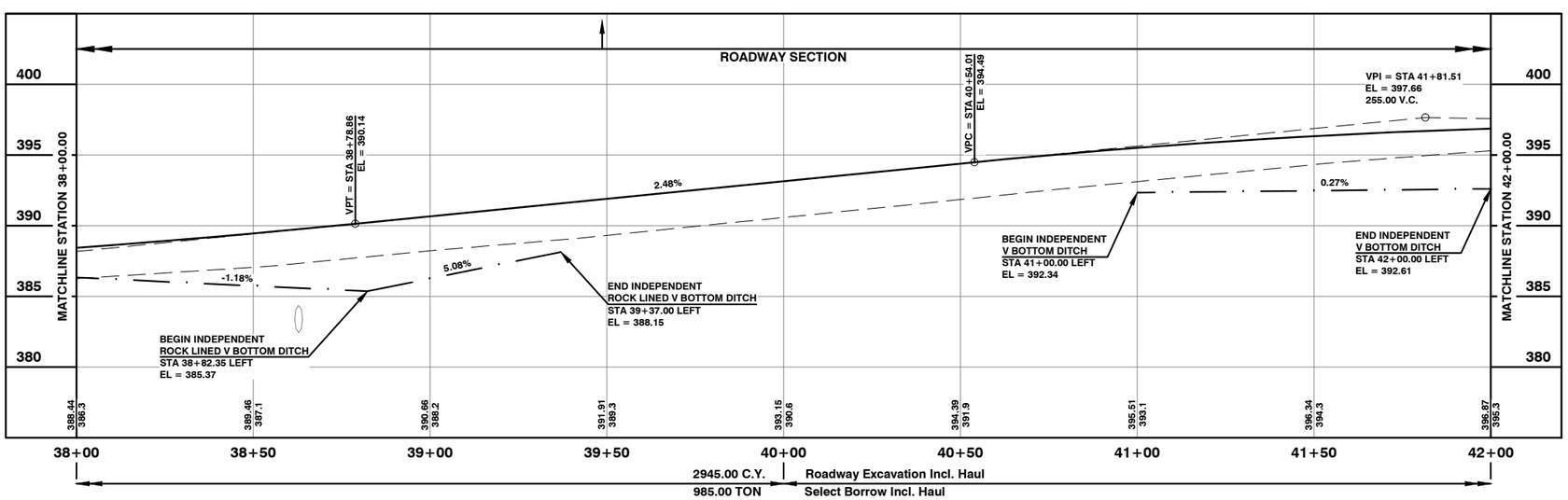
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.







CONSTRUCTION NOTES

1. STA 38+39.50 LEFT
   CONSTRUCT DITCH BERM
   SEE STA 38+39.50 LEFT DITCH BERM DETAIL
   ON SHEET 57 OF 127

2. STA 38+75.00 LEFT
   REMOVE 10.00' OF EXISTING 18 IN. DIAM. CONC. PIPE
   EXTEND THE INLET OF EXISTING 18 IN. DIAM. CONC. PIPE
   SEE WSDOT STANDARD PLAN CONNECTION DETAILS FOR DISSIMILAR
   CULVERT PIPE B-60.20-00 AND BEVELED END SECTIONS B-70.20-00
   CONSTRUCT PLAIN CULV. PIPE 18" DIAM., 30.00' LONG
   @ CONNECTION INV. = 383.38 (STA 38+68.05, 9.53' LEFT)
   INLET INV. = 385.37 (STA 38+82.35, 35.82' LEFT)
   14.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   40.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   5.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL
   ON SHEET 52 OF 127
   7.00 TON QUARRY SPALLS

3. STA 38+82.35 TO STA 39+37.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   42.00 TON QUARRY SPALLS
   150.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

4. CONSTRUCT STRUCTURAL EARTH WALL
   SEE STRUCTURAL EARTH WALL D-D DETAILS ON
   SHEETS 68 OF 127 AND 76 OF 127

5. STA 34+49.05 TO STA 39+45.38 LEFT
   REMOVE EXISTING WIRE FENCE AND GATE
   EXISTING GATE REMOVED SHALL BE RETURNED TO PROPERTY OWNER
   AND BE INCLUDED IN THE UNIT CONTRACT PRICE PER L.F.
   FOR "REMOVING WIRE FENCE"
   606.00 L.F. REMOVING WIRE FENCE

6. STA 39+48.71 LEFT
   REMOVE EXISTING 18 IN. DIAM. CORRUGATED PLASTIC PIPE
   12.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   21.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT CL. IV REINF. CONC. CULV. PIPE 18 IN. DIAM., 51.45' LONG
   OUTLET INV. = 388.12 (STA 39+36.00, 30.97' LEFT)
   INLET INV. = 389.71 (STA 39+87.41, 29.76' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 81 OF 127

7. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN D DETAIL ON SHEET 60 OF 127

8. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

9. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

10. STA 41+69.00 TO 42+13.00 RIGHT
    CUT 2:1 SHOULDER VERTICAL AT RIGHT OF WAY LIMITS
    SEE GUARDRAIL LANDING DETAIL ON SHEET 57 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE NW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

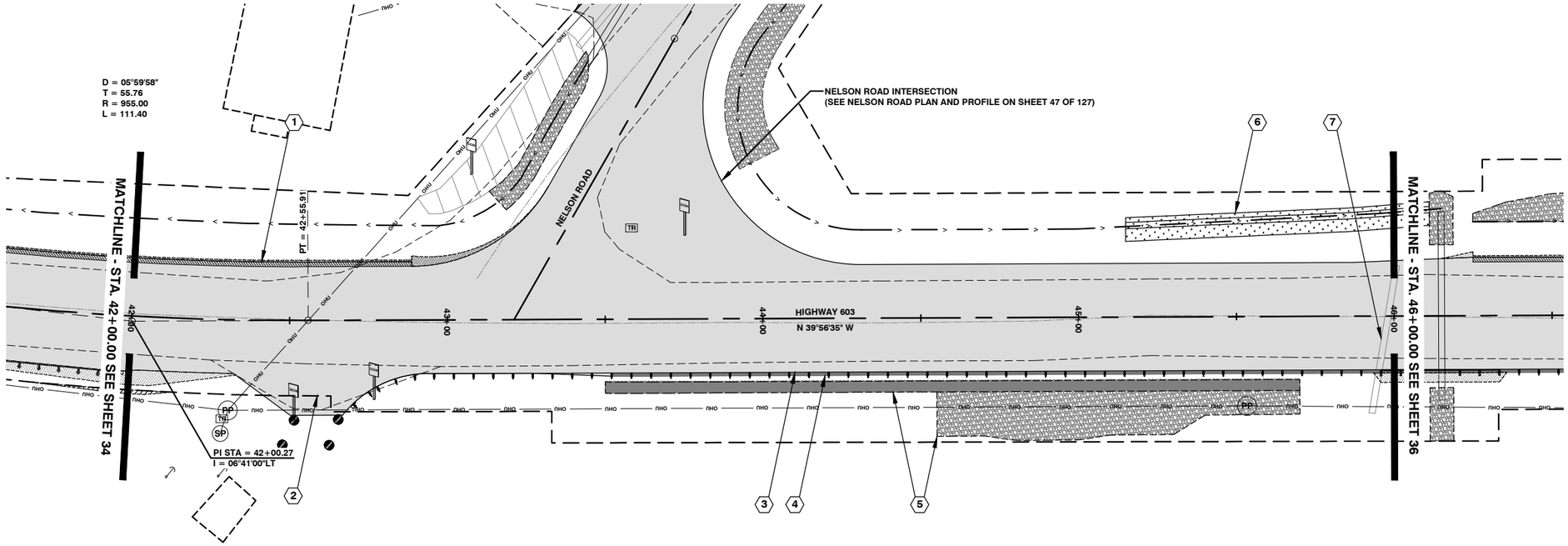
PLAN AND PROFILE
STA 38+00.00 TO STA 42+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

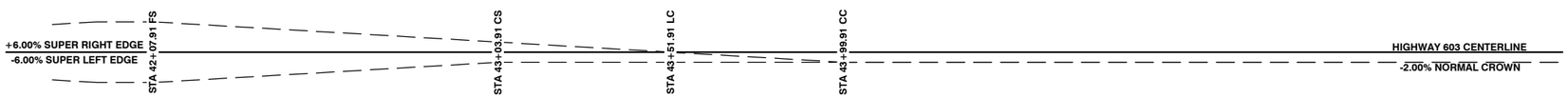


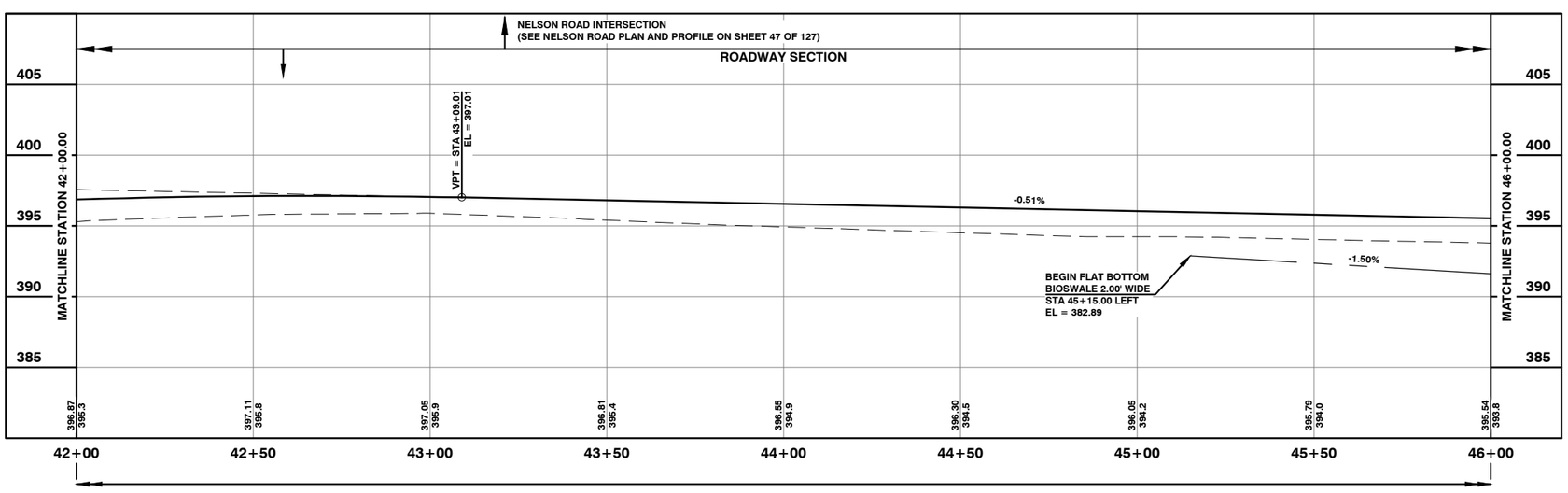
CONSTRUCTION NOTES

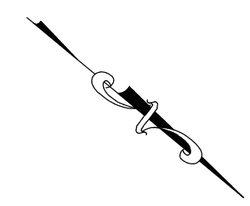
1. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
2. STA 42+58.47 RIGHT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 82 OF 127
3. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN E DETAIL ON SHEET 61 OF 127
4. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
5. STA 43+50.00 TO STA 45+70.00 RIGHT
   CONSTRUCT ROCK SLOPE
   SEE QUARRY SPALLS ROCK SLOPE DETAIL SHEET 75 OF 127
   EXCAVATION WITHIN THE SLOPE CONSTRUCTION LIMITS
   SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y.
   FOR "ROADWAY EXCAVATION INCL. HAUL"
6. STA 45+15.00 TO STA 46+15.00 LEFT
   CONSTRUCT FLAT BOTTOM BIOSWALE 2 FT. WIDE
   SEE FLAT BOTTOM BIOFILTRATION SWALE 2 FT. WIDE DETAIL
   ON SHEET 57 OF 127
   EXCAVATION FOR THE PLACEMENT OF TOPSOIL TYPE A
   SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y.
   FOR "ROADWAY EXCAVATION INCL. HAUL"
   12.00 C.Y. TOPSOIL TYPE A
   0.03 SEEDING, FERTILIZING, AND MULCHING
7. STA 45+97.00
   REMOVE EXISTING 18 IN. DIAM. ALUMINUM PIPE
   34.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   207.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   58.00 TON SELECT BORROW INCL. HAUL

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE NW 1/4, SE 1/4 & SW 1/4, NE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

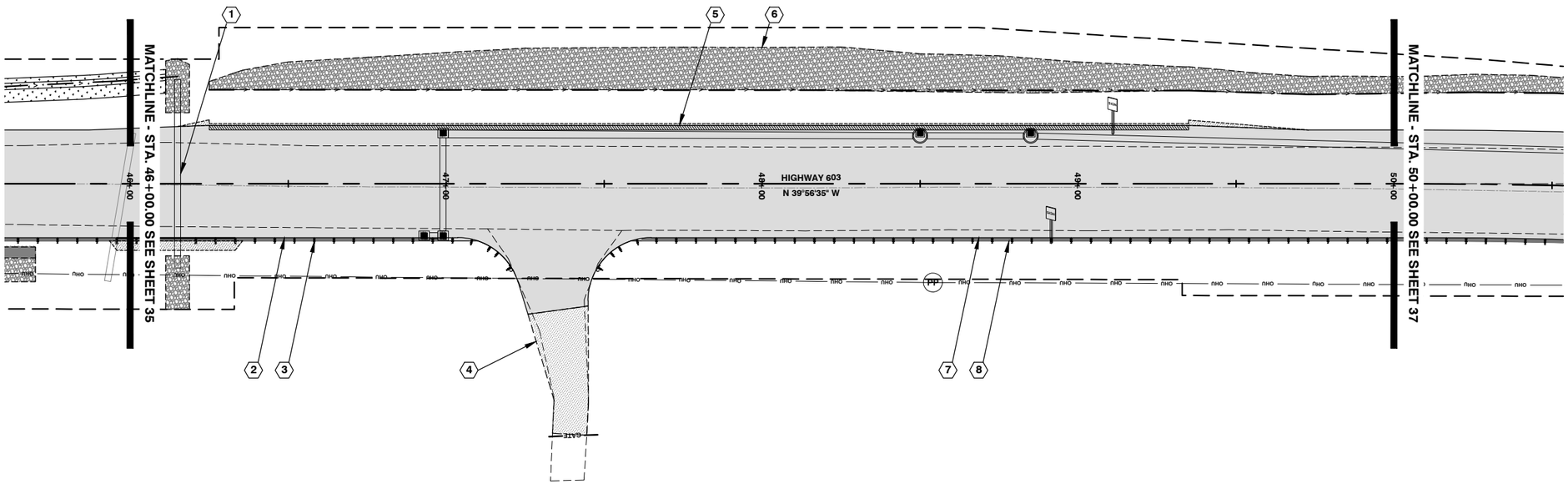
PLAN AND PROFILE
STA 42+00.00 TO STA 46+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

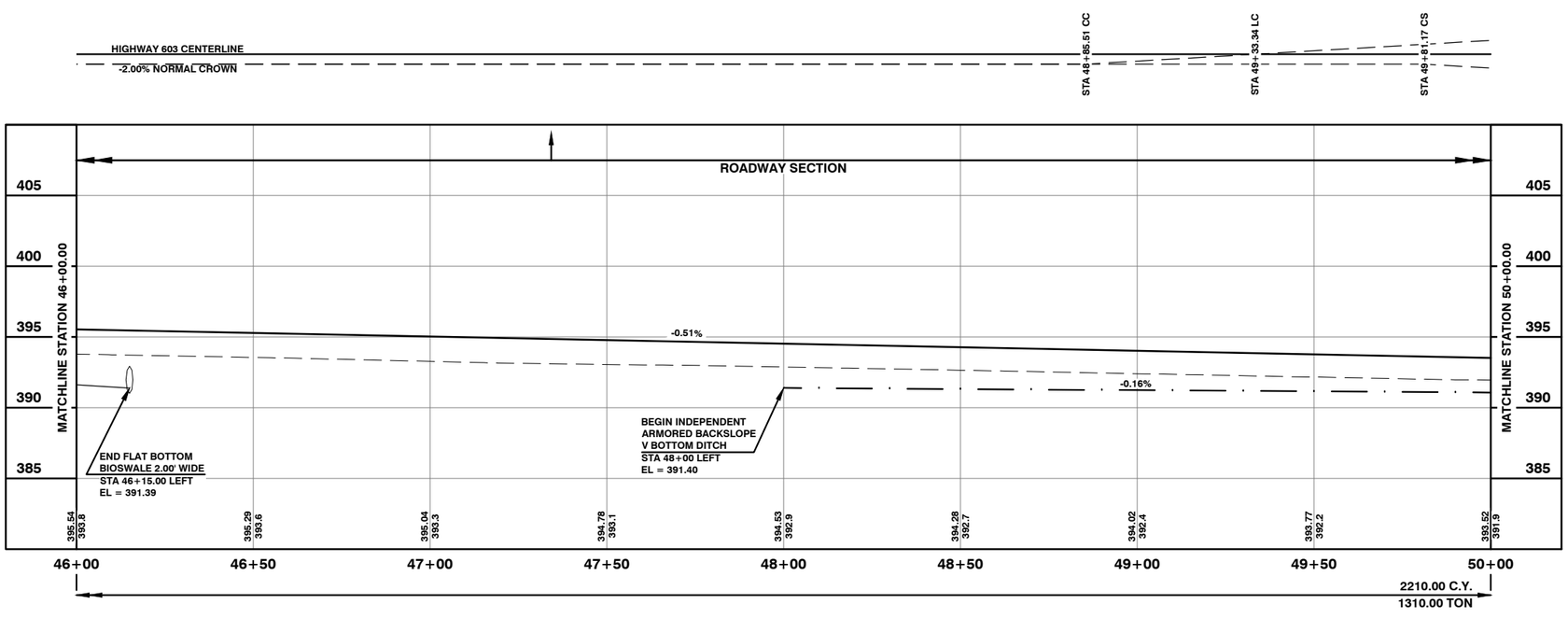


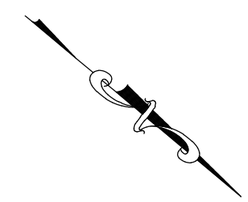
CONSTRUCTION NOTES

1. STA 46+15.00
   CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 59.63' LONG
   INLET INV. = 391.39 (STA 46+15.00, 32.96' LEFT)
   OUTLET INV. = 391.09 (STA 46+15.00, 26.67' RIGHT)
   20.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   1.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET AND OUTLET PROTECTION
   WITH FLOW DISPERSAL OUTLET PAD. SEE FLOW DISPERSAL PAD
   AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   15.00 TON QUARRY SPALLS
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN E DETAIL ON SHEET 60 OF 127
3. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 47+34.31 RIGHT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 82 OF 127
5. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
6. STA 48+00.00 TO STA 54+17.00 LEFT
   ARMOR DITCH BACKSLOPE
   SEE DITCH BACKSLOPE ROCK PROTECTION DETAIL ON SHEET 57 OF 127
   430.00 TON QUARRY SPALLS
7. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN F DETAIL ON SHEET 61 OF 127
8. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE SW 1/4, NE 1/4 & SE 1/4, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

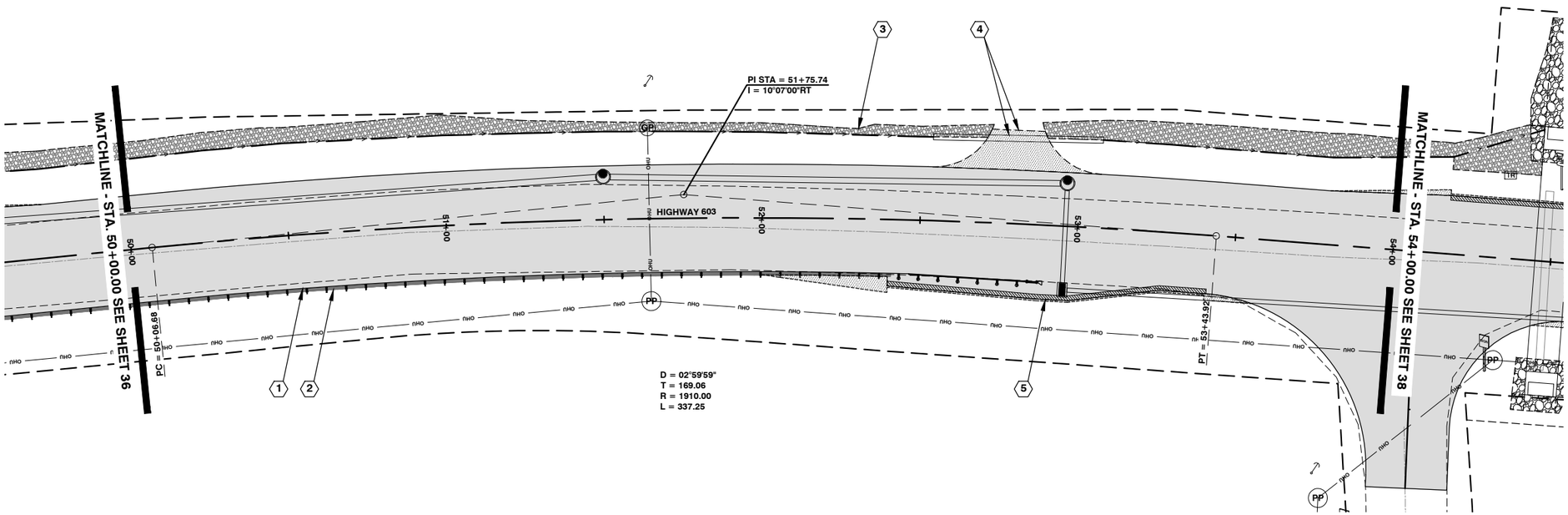
PLAN AND PROFILE
STA 46+00.00 TO STA 50+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

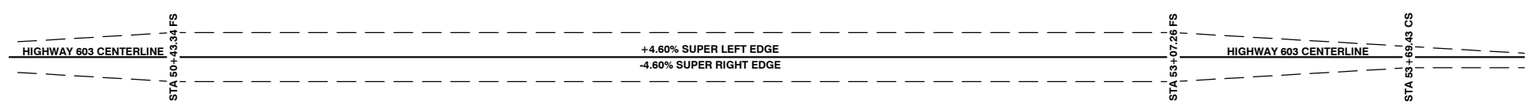


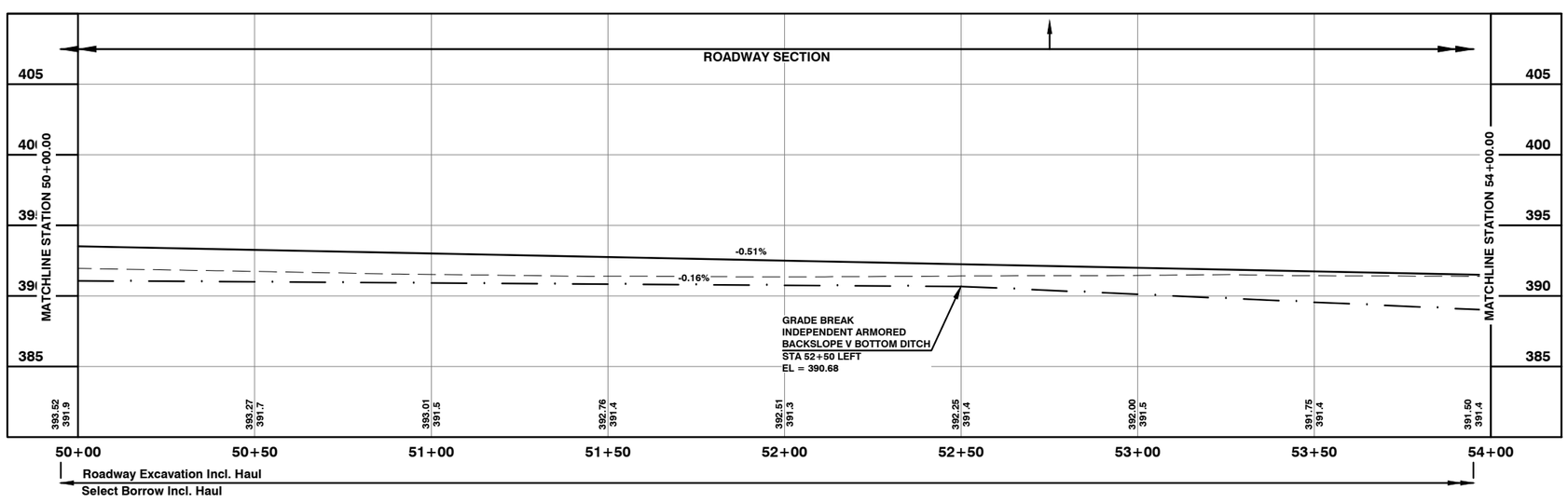
CONSTRUCTION NOTES

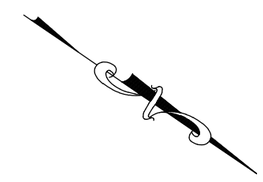
1. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN F DETAIL ON SHEET 61 OF 127
2. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
3. STA 48+00 TO STA 54+17 LEFT
   ARMOR DITCH BACKSLOPE
   SEE DITCH BACKSLOPE ROCK PROTECTION DETAIL ON SHEET 57 OF 127
   320.00 TON QUARRY SPALLS
4. STA 52+80.00 LEFT
   CONSTRUCT CL. V REINF. CONC. CULV. PIPE 18 IN. DIAM., 53.80' LONG
   INLET INV. = 390.64 (STA 52+53.46, 26.49' LEFT)
   OUTLET INV. = 390.05 (STA 53+06.49, 27.81' LEFT)
   CONSTRUCT ROCK APPROACH
   SEE ROCK APPROACH DETAIL ON SHEET 52 OF 127
   35.00 TON CRUSHED SURFACING BASE COURSE
5. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE SE 1/4, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 50+00.00 TO STA 54+00.00

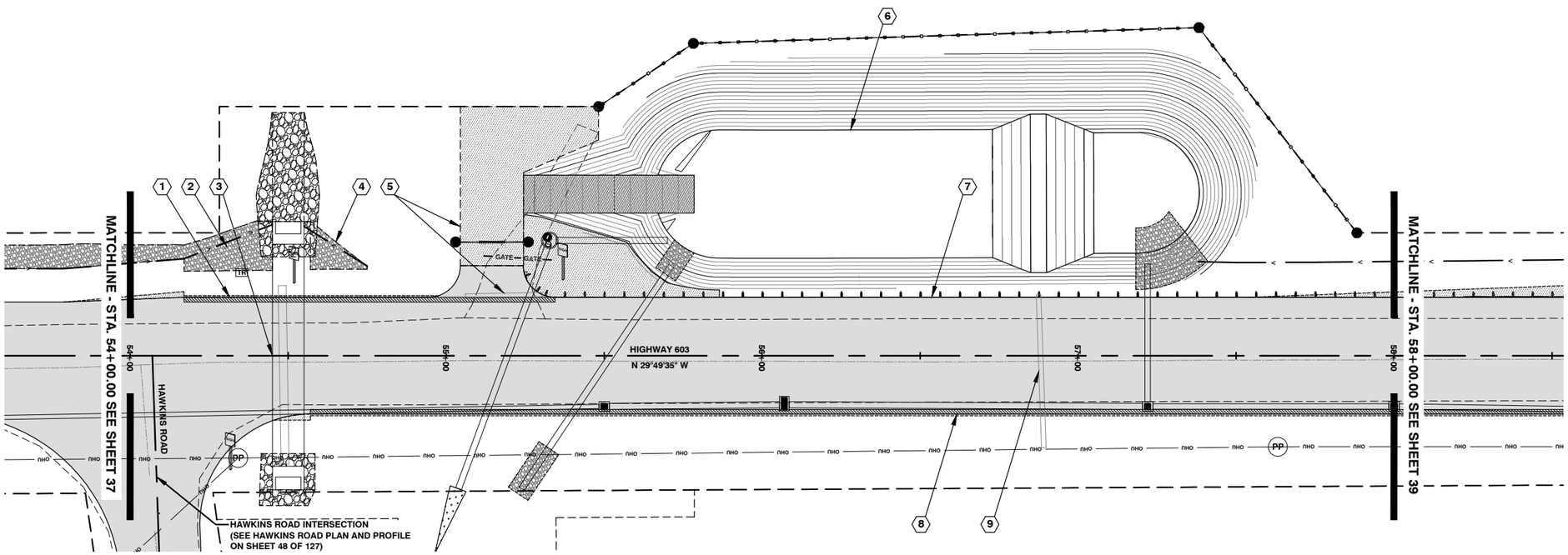
SHEET 37 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

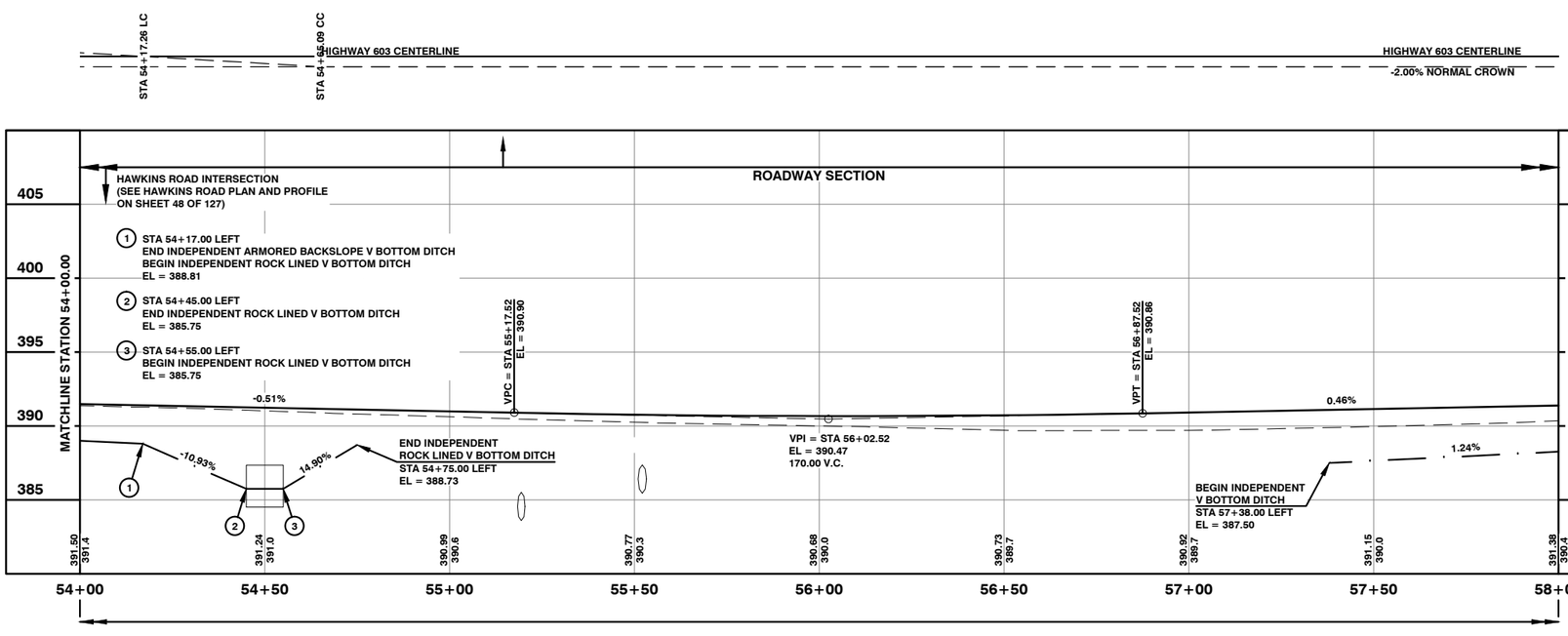


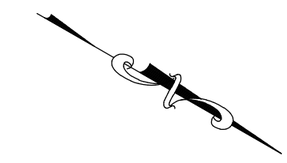
CONSTRUCTION NOTES

1. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
2. STA 54+17.00 TO STA 54+45.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   21.00 TON QUARRY SPALLS
   55.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
3. STA 54+50.00
   REMOVE EXISTING 24 IN. DIAM. CONC. PIPE
   CONSTRUCT PRECAST REINF. CONC. SPLIT BOX CULVERT
   SEE DETAILS ON SHEET 55 OF 127
4. STA 54+55.00 TO STA 54+75.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   11.00 TON QUARRY SPALLS
   25.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
5. STA 55+14.50 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   7.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   10.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT APPROACH
   SEE STORMWATER TREATMENT/DETENTION POND 4
   DETAILS ON SHEET 117 OF 127
6. CONSTRUCT TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 4
   DETAILS ON SHEET 117 OF 127
7. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN G DETAIL ON SHEET 62 OF 127
8. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
9. STA 56+88.00
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   17.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   29.00 SELECT BORROW INCL. HAUL

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE SE 1/4, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 54+00.00 TO STA 58+00.00

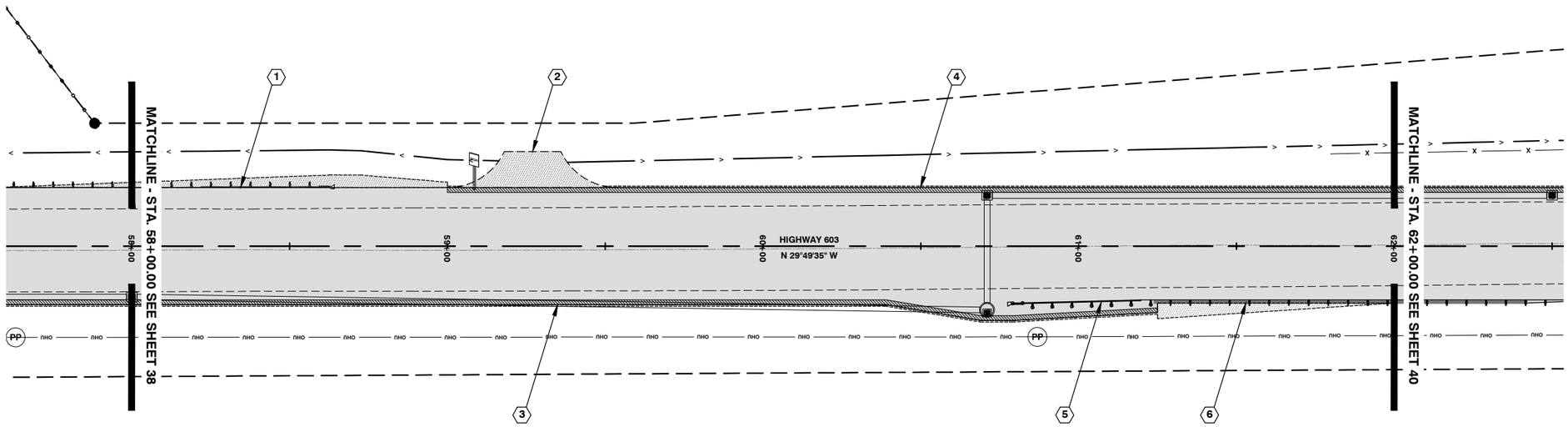
SHEET 38 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

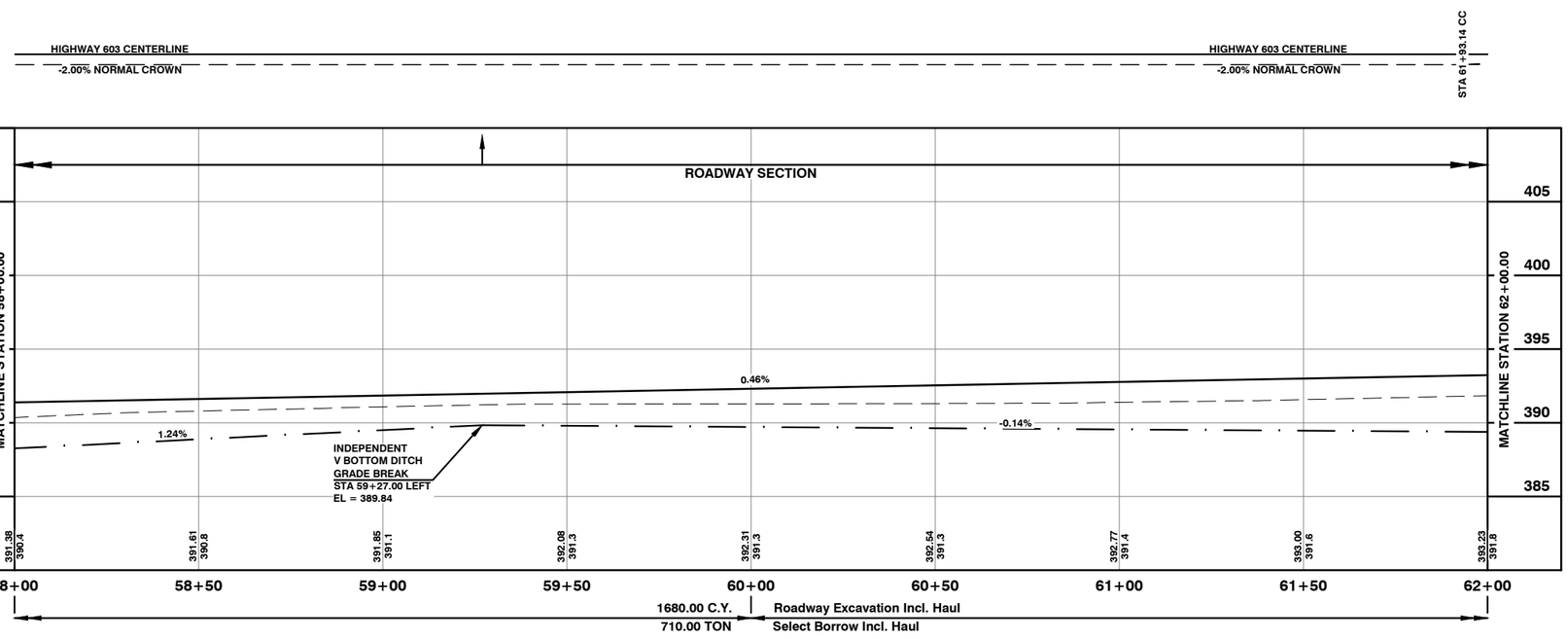


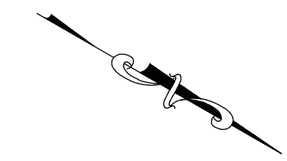
CONSTRUCTION NOTES

1. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN G DETAIL ON SHEET 62 OF 127
2. STA 59+27.00 LEFT
   CONSTRUCT ROCK APPROACH
   SEE ROCK APPROACH DETAIL ON SHEET 52 OF 127
   30.00 TON CRUSHED SURFACING BASE COURSE
3. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
5. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN H DETAIL ON SHEET 62 OF 127
6. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM





PART OF THE E 1/2, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 58+00.00 TO STA 62+00.00

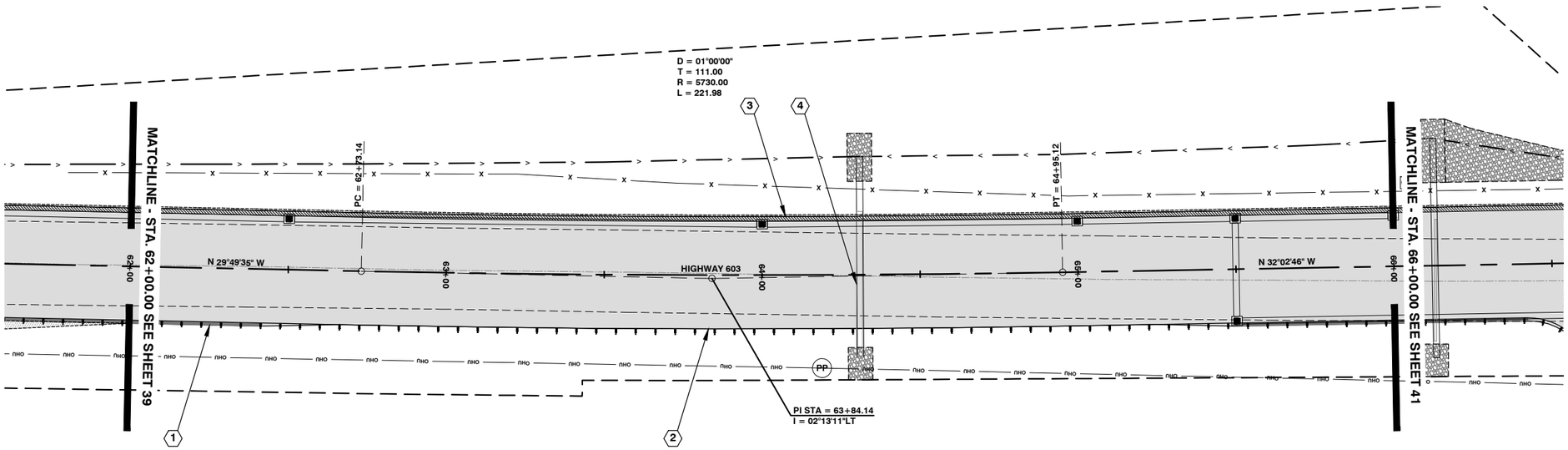
SHEET 39 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

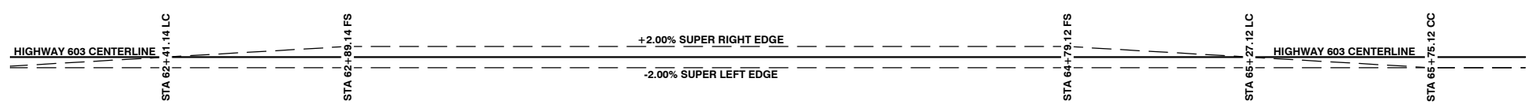


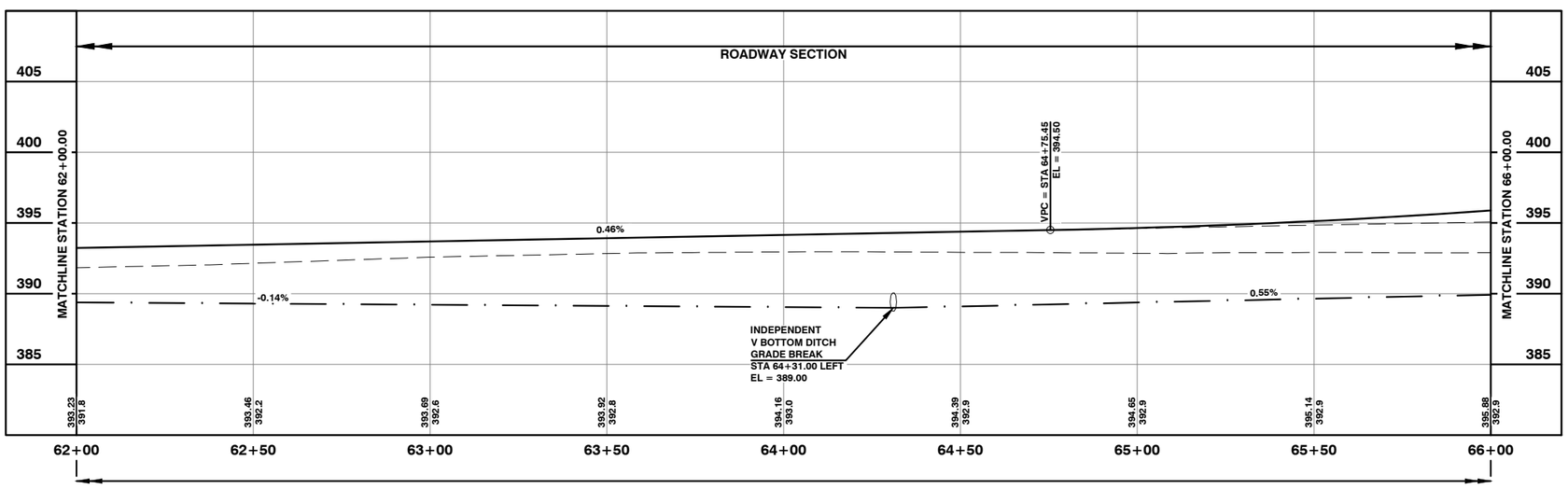
CONSTRUCTION NOTES

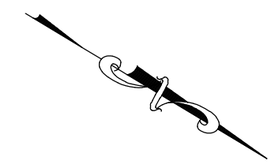
1. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN H DETAIL ON SHEET 62 OF 127
3. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 64+31.00
   REMOVE EXISTING 18 IN. DIAM. CONC. PIPE
   CONSTRUCT PLAIN ST. CULV.PIPE ARCH 0.064 IN. TH. 21 IN. SPAN, 63.36' LONG
   INLET INV. = 389.00 (STA 64+31.00, 37.37' LEFT)
   OUTLET INV. = 388.65 (STA 64+31.00, 25.98' RIGHT)
   41.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   175.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   19.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET AND OUTLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   14.00 TON QUARRY SPALLS

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE NE 1/4, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

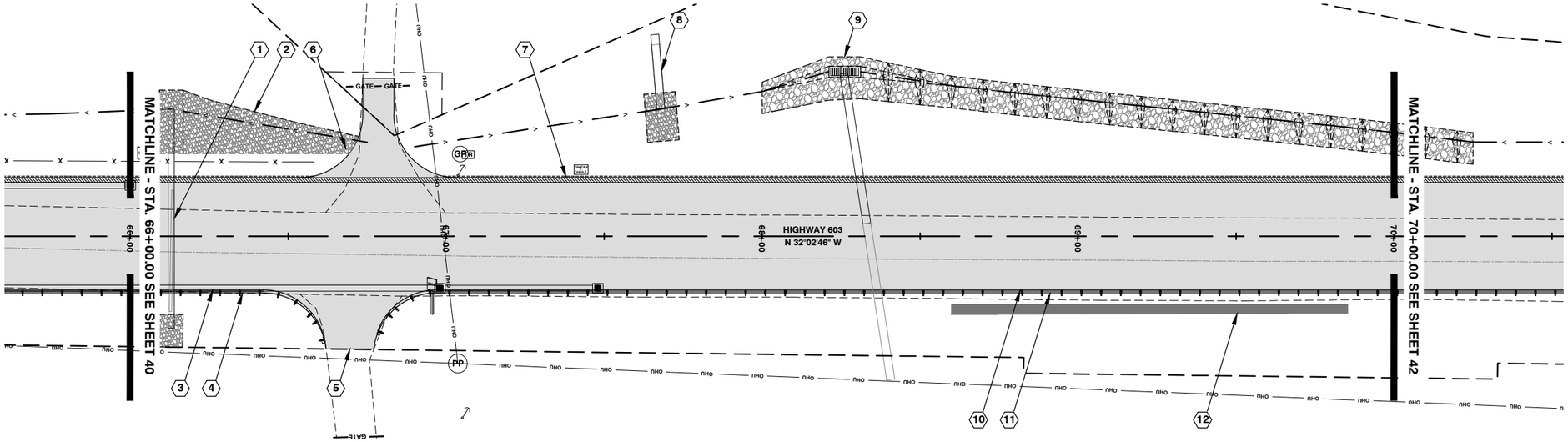
PLAN AND PROFILE
STA 62+00.00 TO STA 66+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

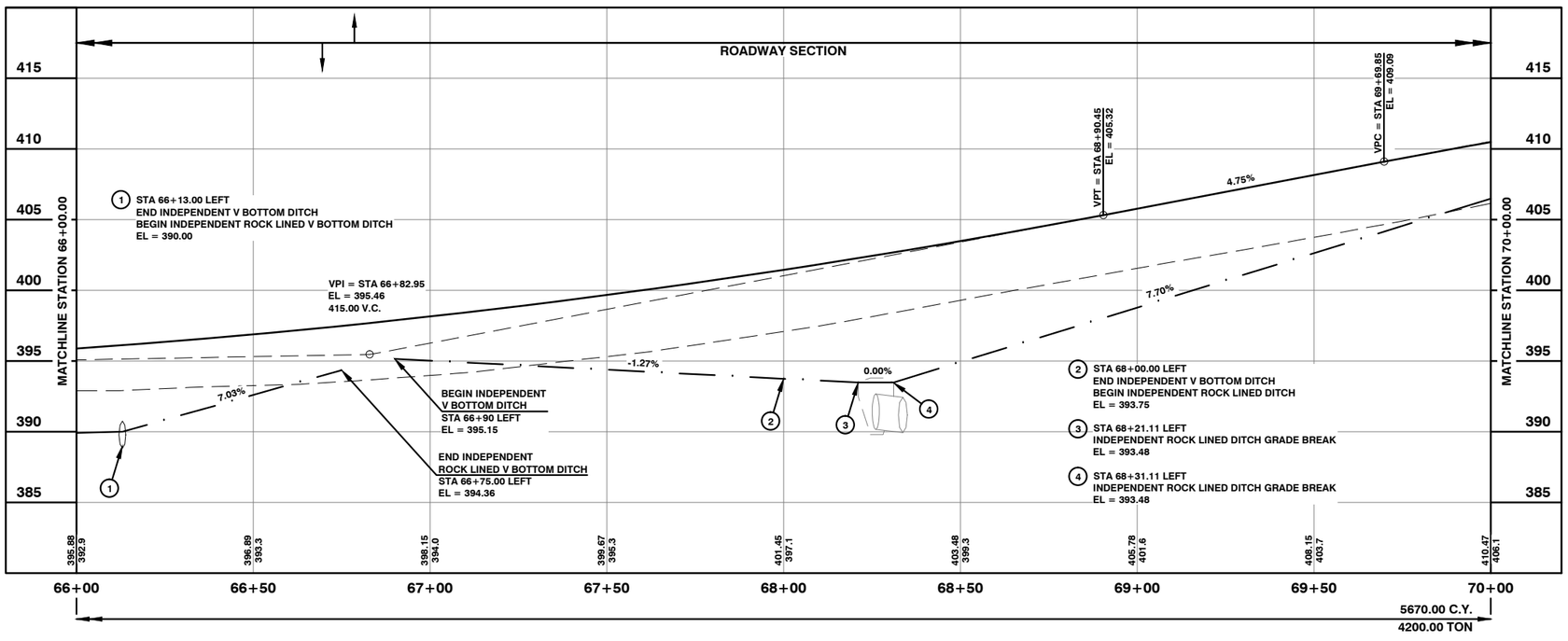
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



HIGHWAY 603 CENTERLINE
-2.00% NORMAL CROWN

HIGHWAY 603 CENTERLINE
-2.00% NORMAL CROWN



CONSTRUCTION NOTES

1. STA 66+13.00
   REMOVE EXISTING 8 IN. DIAM. CONC. PIPE
   CONSTRUCT SCHEDULE A CULV. PIPE 18 IN. DIAM., 69.05' LONG
   INLET INV. = 390.00 (STA 66+13.00, 40.24' LEFT)
   OUTLET INV. = 388.55 (STA 66+13.00, 28.80' RIGHT)
   34.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   171.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   16.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET AND OUTLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   14.00 TON QUARRY SPALLS
2. STA 66+13.00 TO STA 66+75.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   48.00 TON QUARRY SPALLS
   115.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
3. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN H DETAIL ON SHEET 62 OF 127
4. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
5. STA 66+69.58 RIGHT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 82 OF 127
6. STA 66+78.54 LEFT
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 83 OF 127
7. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
8. STA 67+67.00 LEFT
   REMOVE EXISTING 24 IN. DIAM. CORRUGATED METAL PIPE
   CONSTRUCT PLAIN CONC. CULV. PIPE 24 IN. DIAM., 23.68' LONG
   INLET INV. = 394.89 (STA 67+66.00, 63.86' LEFT)
   OUTLET INV. = 394.16 (STA 67+67.94, 40.27' LEFT)
   (EXISTING GROUND TO BE GRADED TO BLEND INTO
   NEWLY CONSTRUCTED CULVERT)
   27.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   105.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   7.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT OUTLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL
   ON SHEET 52 OF 127
   8.00 TON QUARRY SPALLS
9. STA 68+00.00 TO 70+25.00 LEFT
   CONSTRUCT 24 IN. DIAM. CONC. EXTENSION WITH ROCK LINE DITCH
   SEE DETAILS ON SHEET 56 OF 127
10. CONSTRUCT GUARDRAIL
    SEE GUARDRAIL RUN I DETAIL ON SHEET 63 OF 127
11. CONSTRUCT EXTRUDED CURB
    SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
12. CONSTRUCT STRUCTURAL EARTH WALL
    SEE STRUCTURAL EARTH WALL E-E DETAILS ON
    SHEETS 72 OF 127 AND 76 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE NE 1/4, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

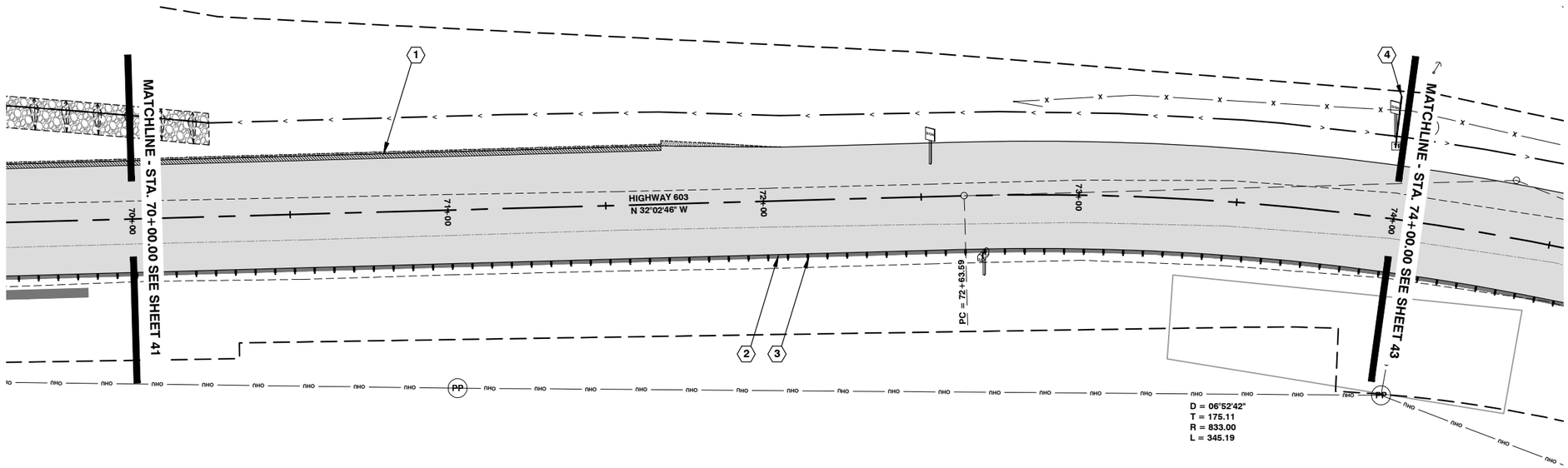
PLAN AND PROFILE
STA 66+00.00 TO STA 70+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

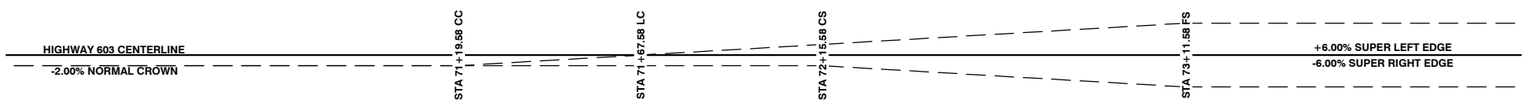


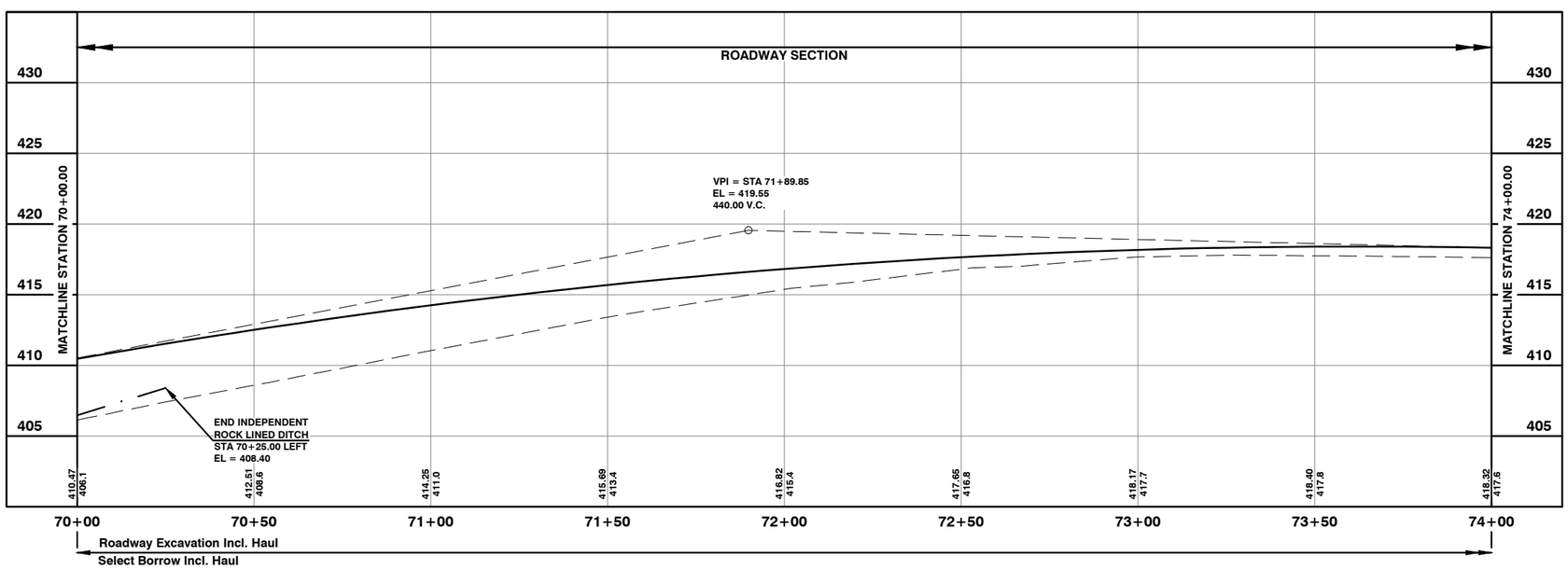
CONSTRUCTION NOTES

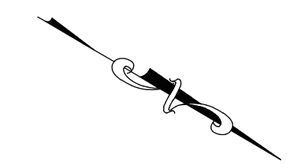
1. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN I DETAIL ON SHEET 63 OF 127
3. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 73+97.59 LEFT
   CUT BACK EXISTING 4 IN. DIAM. DRAIN PIPE TO GRADE
   SEE EXISTING DRAIN PIPE DETAIL ON SHEET 51 OF 127
   1 EACH

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM







PART OF THE N 1/2, NW 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 70+00.00 TO STA 74+00.00

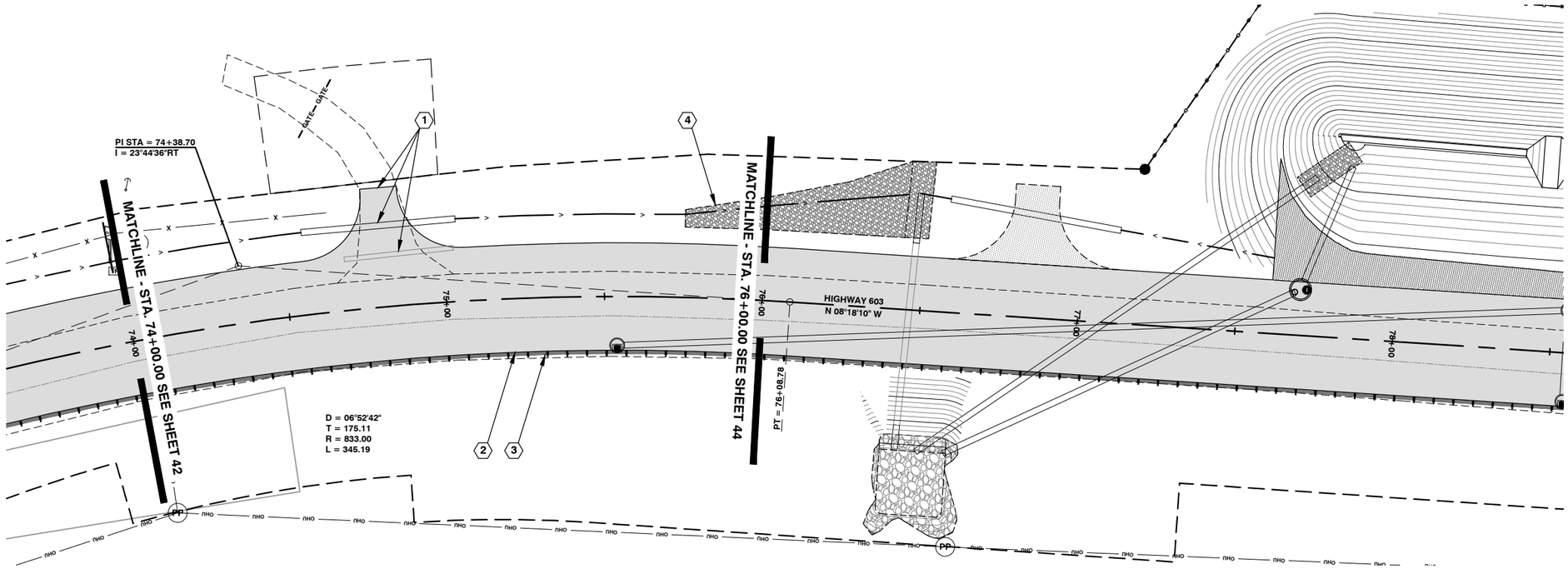
SHEET 42 OF 127

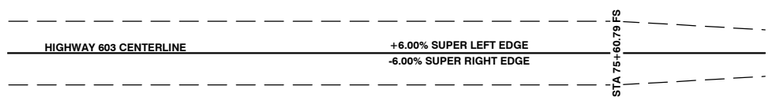
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

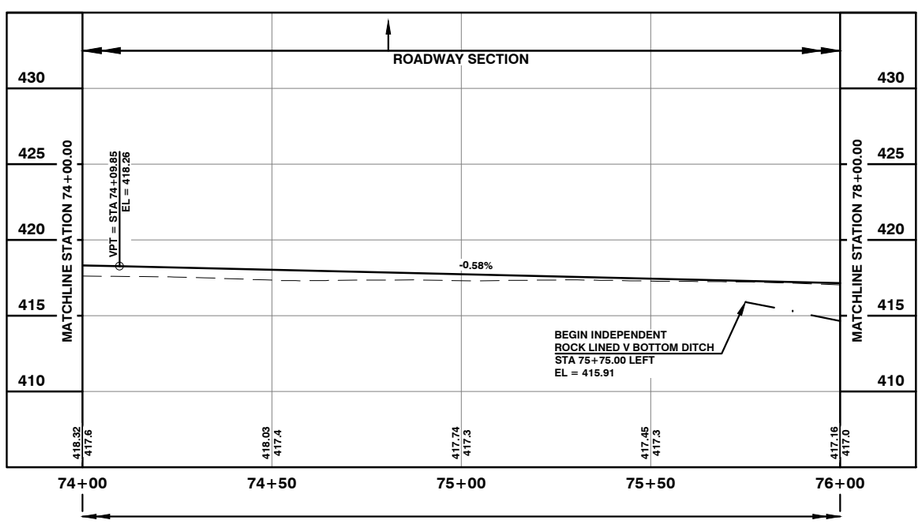
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.







CONSTRUCTION NOTES

1. STA 74+81.40 LEFT
   REMOVE EXISTING 12 IN. DIAM. CORRUGATED PLASTIC PIPE
   10.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   12.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT CL. IV REINF. CONC. CULV. PIPE 18" DIAM., 49.02' LONG
   INLET INV. = 416.72 (STA 74+56.65, 26.15' LEFT)
   OUTLET INV. = 416.44 (STA 75+04.19, 26.16' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 83 OF 127
2. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN I DETAIL ON SHEET 63 OF 127
3. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
4. STA 75+75.00 TO STA 76+48.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   40.00 TON QUARRY SPALLS
   110.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE NW 1/4, NW 1/4 SECTION 21
& SW 1/4, SW 1/4 SECTION 16
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 74+00.00 TO STA 76+00.00

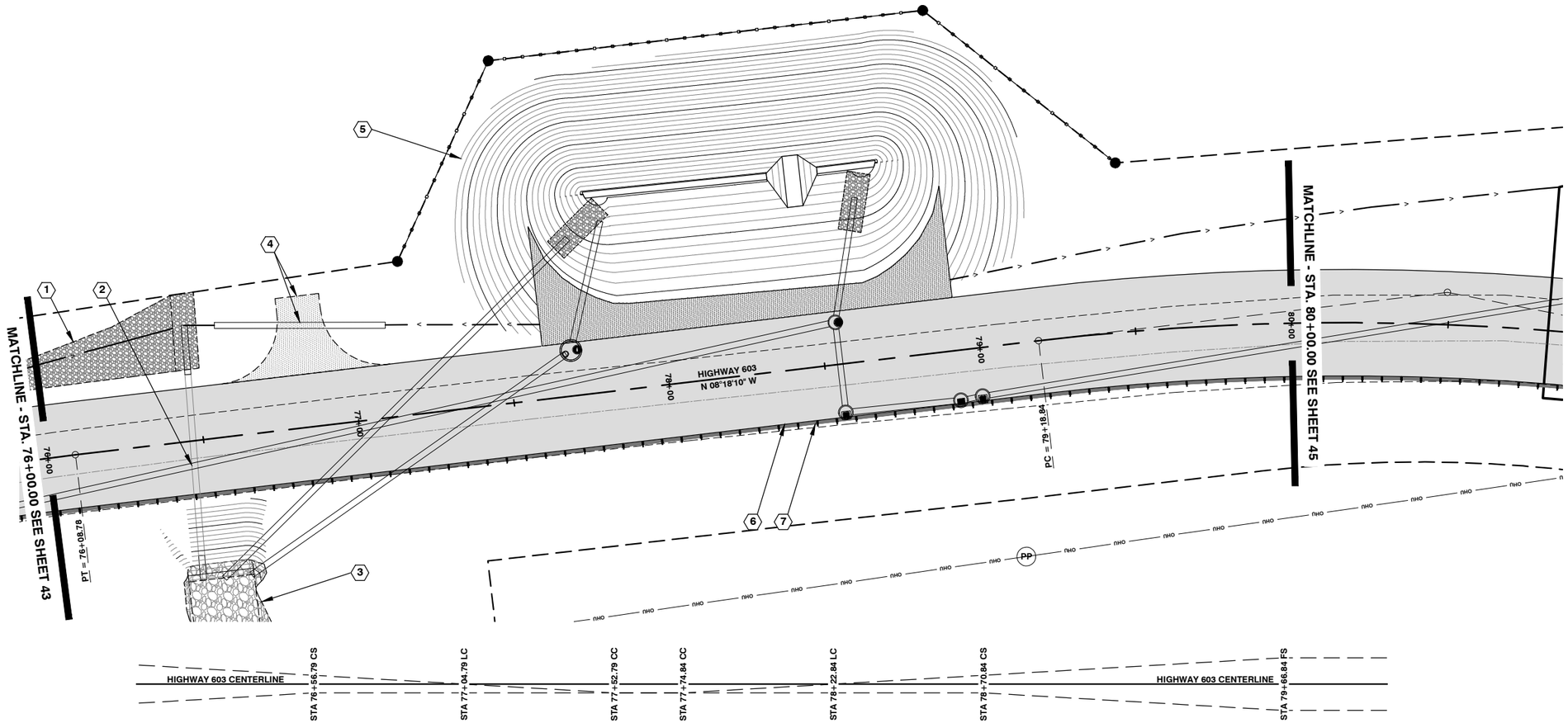
SHEET 43 OF 127

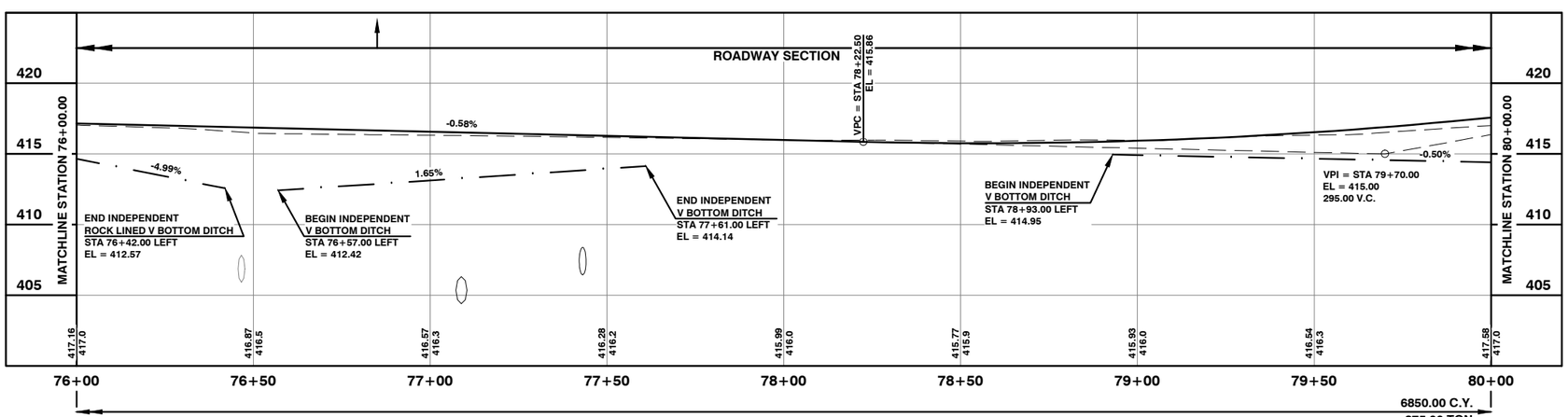
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.





CONSTRUCTION NOTES

1. STA 75+75.00 TO STA 76+48.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   40.00 TON QUARRY SPALLS
   90.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

2. STA 76+46.60
   (INLET EXTENSION)
   REMOVE 5.50' OF EXISTING 18 IN. DIAM. CONC. PIPE
   EXTEND THE INLET OF EXISTING 18 IN. DIAM. CONC. PIPE
   SEE WSDOT STANDARD PLAN CONNECTION DETAILS FOR DISSIMILAR CULVERT PIPE B-60.20-00 AND BEVELED END SECTIONS B-70.20-00
   CONSTRUCT PLAIN CONC. CULV. PIPE 18 IN. DIAM., 16.00' LONG
   INLET INV. = 412.27 (STA 76+48.16, 37.02' LEFT)
   @ CONNECTION INV. = 409.66 (STA 76+47.50, 21.25' LEFT)
   6.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   25.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   3.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   11.00 TON QUARRY SPALLS
   (OUTLET EXTENSION)
   REMOVE 4.70' OF EXISTING 18 IN. DIAM. CONC. PIPE
   EXTEND THE OUTLET OF EXISTING 18 IN. DIAM. CONC. PIPE
   SEE WSDOT STANDARD PLAN CONNECTION DETAILS FOR DISSIMILAR CULVERT PIPE B-60.20-00 AND BEVELED END SECTIONS B-70.20-00
   CONSTRUCT PLAIN CONC. CULV. PIPE 18 IN. DIAM., 8.00' LONG
   @ CONNECTION INV. = 400.04 (STA 76+45.06, 36.69' RIGHT)
   OUTLET INV. = 398.73 (STA 76+44.72, 44.57' RIGHT)
   8.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   36.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   3.00 TON SELECT BORROW INCL. HAUL

3. STA 76+50.50 LEFT
   CONSTRUCT OUTLET ROCK PAD
   SEE OUTLET ROCK PAD DETAILS ON SHEET 121 OF 127

4. STA 76+85.00 LEFT
   CONSTRUCT SCHEDULE A CULV. PIPE 18 IN. DIAM., 54.65' LONG
   OUTLET INV. = 412.43 (STA 76+57.74, 35.89' LEFT)
   INLET INV. = 413.33 (STA 77+12.00, 29.49' LEFT)
   CONSTRUCT ROCK APPROACH
   SEE ROCK APPROACH DETAIL ON SHEET 52 OF 127
   140.00 TON CRUSHED SURFACING BASE COURSE

5. CONSTRUCT TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 5 DETAILS ON SHEET 119 OF 127

6. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN I DETAIL ON SHEET 63 OF 127

7. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM

PART OF THE SW 1/4, SW 1/4 SECTION 16
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

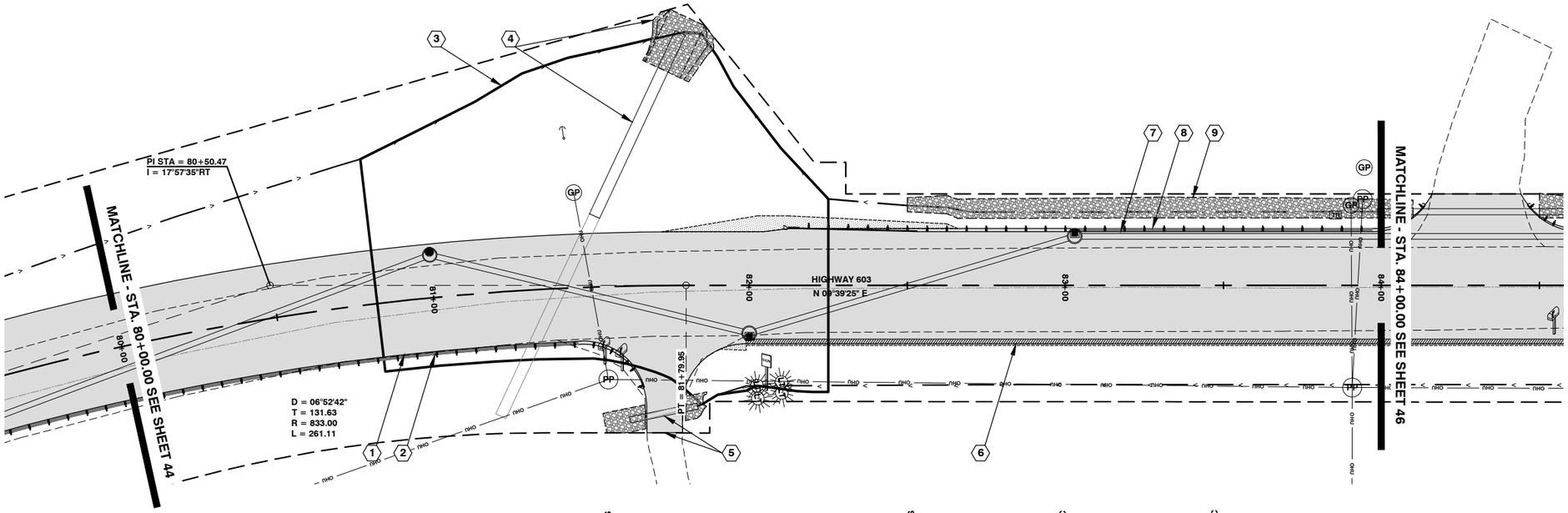
PLAN AND PROFILE
STA 76+00.00 TO STA 80+00.00

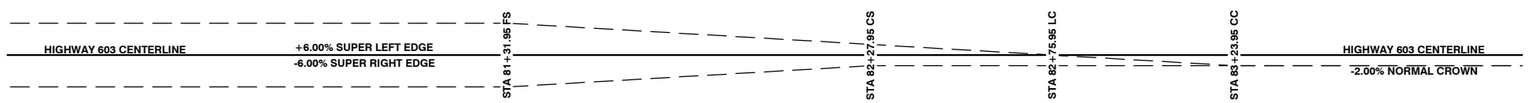
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

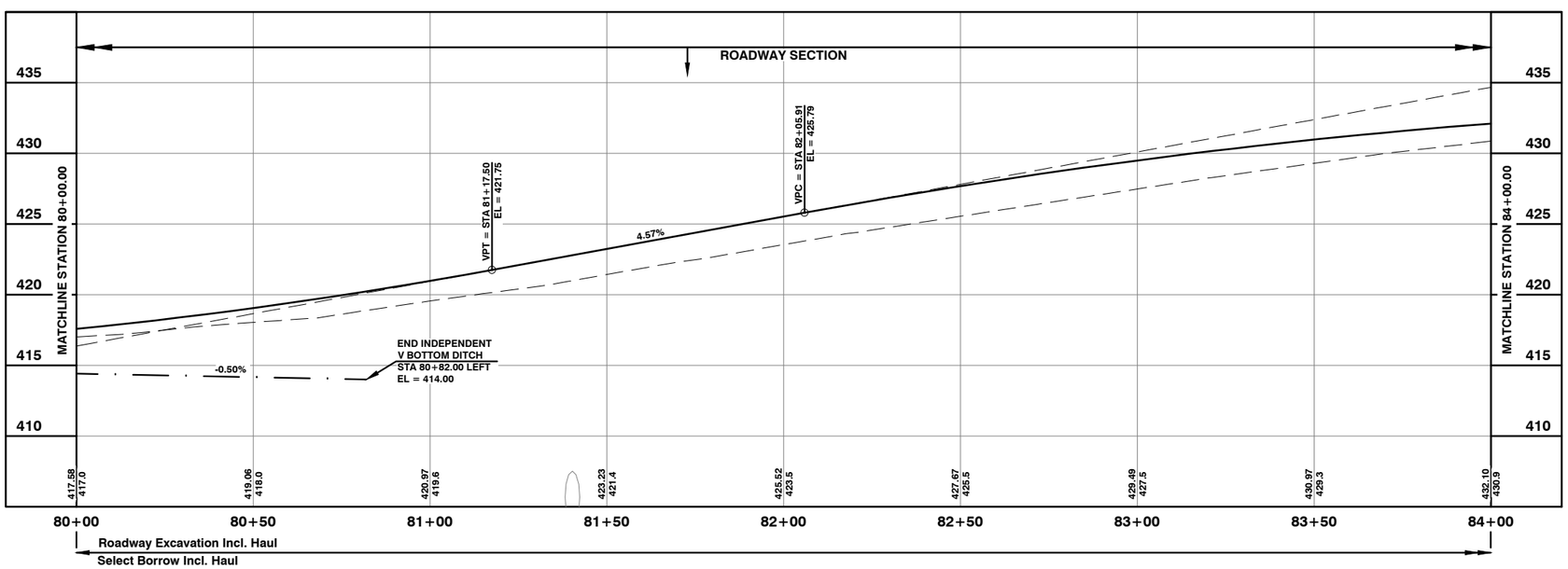
TWP. 12N. RGE. 2W. W.M.





CONSTRUCTION NOTES

1. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN I DETAIL ON SHEET 63 OF 127
2. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
3. STA 80+82.00 TO STA 82+25.00 LEFT
   CONSTRUCT EARTH EMBANKMENT (METHOD A)
   OF EXCAVATED SURPLUS MATERIAL APPROVED BY THE ENGINEER
   1300.00 C.Y. EMBANKMENT COMPACTION
4. STA 81+65.00 LEFT
   EXTEND THE INLET OF EXISTING 36 IN. DIAM. CONC. CULV. PIPE
   SEE WSDOT STANDARD PLAN CONNECTION DETAILS FOR
   DISSIMILAR CULVERT PIPE STANDARD PLAN B-60.20-00
   CONSTRUCT CL. III REINF. CONC. CULV. PIPE 36 IN. DIAM., 64.00' LONG
   @ CONNECTION INV. = 405.27 (STA 81+51.73, 22.45' LEFT)
   INLET INV. = 408.00 (STA 81+78.25, 79.87' LEFT)
   48.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   77.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   CONSTRUCT INLET CHANNEL WITH SLOPE PROTECTION
   SEE INLET CHANNEL WITH SLOPE PROTECTION DETAIL ON SHEET 57 OF 127
5. STA 81+72.78 RIGHT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
   CONSTRUCT CL. V REINF. CONC. CULV. PIPE 18" DIAM., 21.78' LONG
   OUTLET INV. = 414.70 (STA 81+61.28, 42.36' RIGHT)
   INLET INV. = 415.60 (STA 81+83.55, 38.19' RIGHT)
   7.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   CONSTRUCT INLET AND OUTLET PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   11.00 TON QUARRY SPALLS
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 83 OF 127
6. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
7. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN J DETAIL ON SHEET 64 OF 127
8. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
9. STA 82+50.00 TO STA 84+10.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   85.00 TON QUARRY SPALLS
   195.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION



NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR
STORMWATER DRAINAGE SYSTEM

PART OF THE SW 1/4, SW 1/4 SECTION 16
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

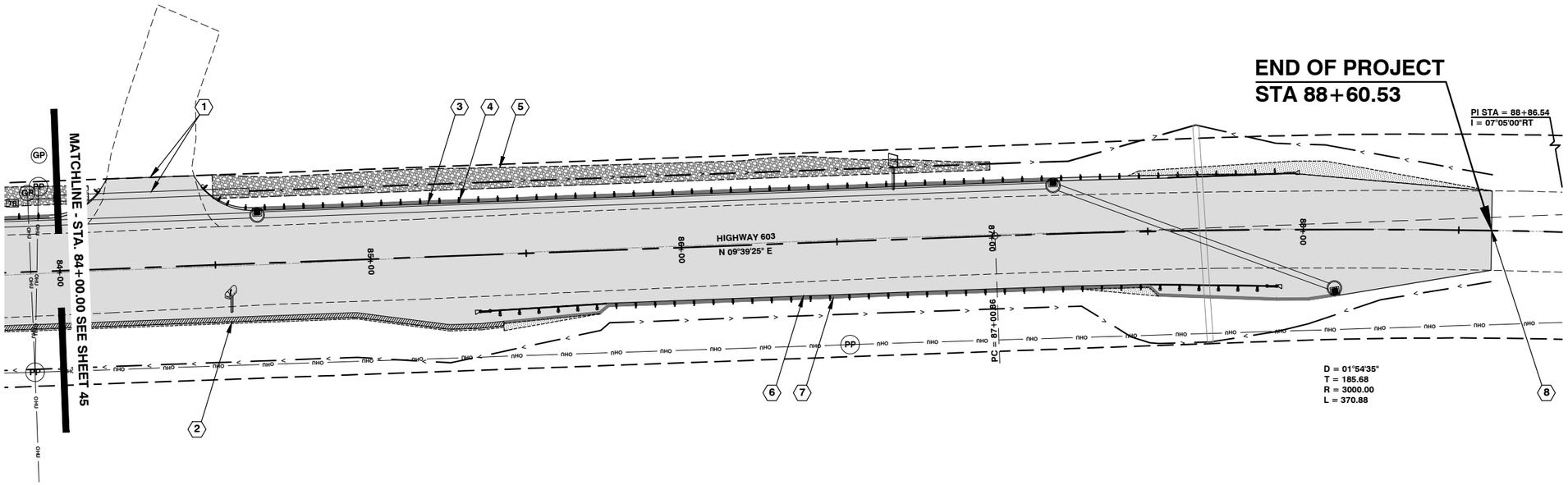
PLAN AND PROFILE
STA 80+00.00 TO STA 84+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

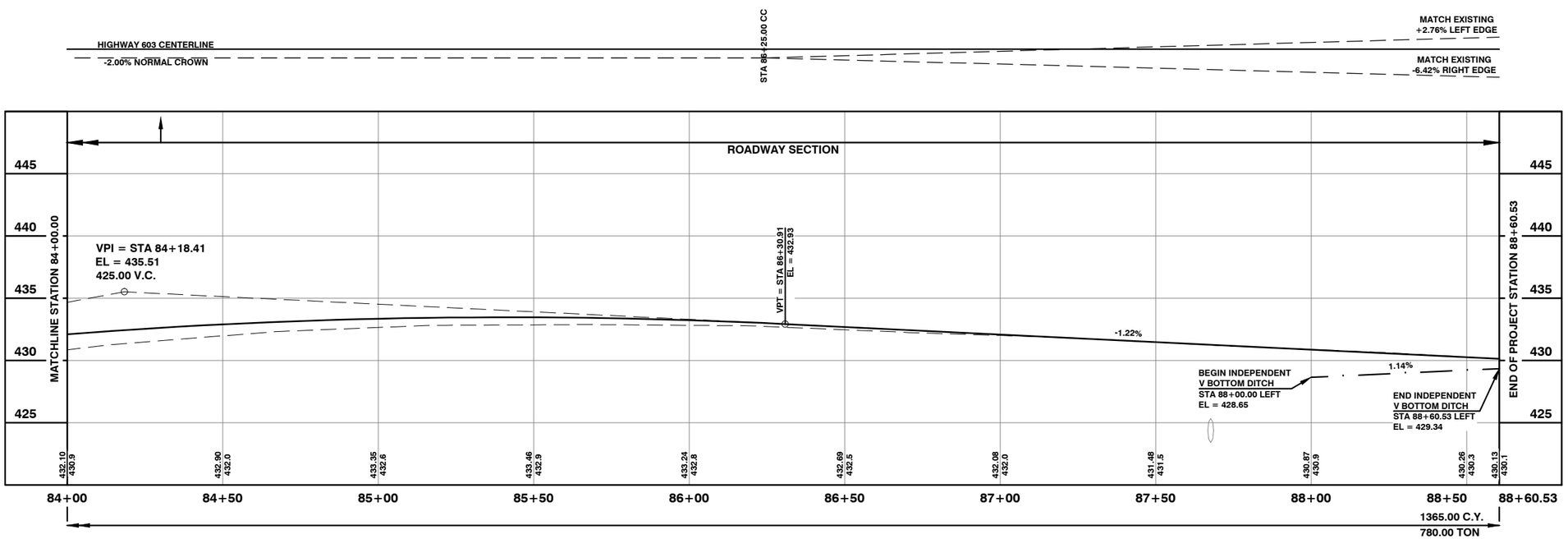


CONSTRUCTION NOTES

1. STA 84+30.11 LEFT
   CONSTRUCT CL. V REINF. CONC. CULV. PIPE 18" DIAM., 62.98' LONG
   OUTLET INV. = 429.05 (STA 83+98.77, 23.33' LEFT)
   INLET INV. = 430.01 (STA 84+61.74, 23.33' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 84 OF 127
2. CONSTRUCT PAVED INVERT
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
3. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN K DETAIL ON SHEET 64 OF 127
4. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
5. STA 84+50.00 TO STA 87+00.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   135.00 TON QUARRY SPALLS
   355.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
6. CONSTRUCT GUARDRAIL
   SEE GUARDRAIL RUN L DETAIL ON SHEET 64 OF 127
7. CONSTRUCT EXTRUDED CURB
   SEE STORMWATER PLAN AND PROFILE SHEETS 85 OF 127 - 107 OF 127
8. STA 88+60.53
   CONSTRUCT TYPICAL BUTT JOINT
   SEE TYPICAL BUTT JOINT DETAIL ON SHEET 48 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR STORMWATER DRAINAGE SYSTEM



PART OF THE SW 1/4, SW 1/4 SECTION 16
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 84+00.00 TO STA 88+60.53

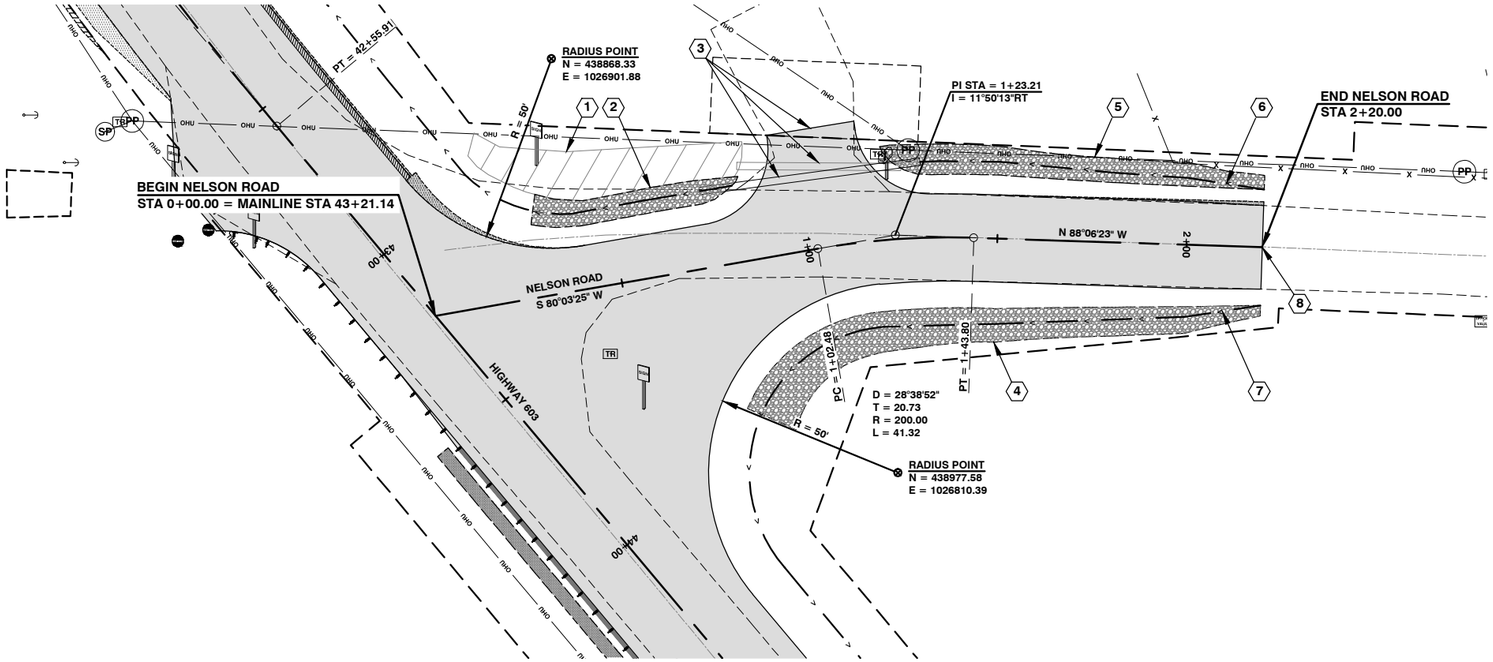
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



CONSTRUCTION NOTES

1. STA 0+12.40 TO STA 0+84.20 LEFT
   EXISTING DITCH AND SURROUNDING AREA TO BE REGRADED WITH
   EXCAVATED SURPLUS MATERIAL AS APPROVED AND STAKED BY THE ENGINEER
   35.00 C.Y. EMBANKMENT COMPACTION

2. STA 0+29.00 TO STA 0+85.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   (ARMOR AROUND APPROACH CULVERT)
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   62.00 TON QUARRY SPALLS
   100.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

3. STA 1+05.58 LEFT
   REMOVE EXISTING 18 IN. DIAM. CORRUGATED METAL PIPE
   12.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   12.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT CL. V REINF. CONC. CULV. PIPE 18" DIAM., 58.81' LONG
   OUTLET INV. = 396.32 (STA 0+74.29, 20.40' LEFT)
   INLET INV. = 399.91 (STA 1+30.25, 20.09' LEFT)
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 84 OF 127

4. STA 0+88.60 TO STA 2+20.00 RIGHT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   118.00 TON QUARRY SPALLS
   375.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

5. STA 1+20.90 TO STA 2+20.00 LEFT
   CONSTRUCT ROCK LINED V BOTTOM DITCH
   (ARMOR AROUND APPROACH CULVERT)
   SEE ROCK LINED V BOTTOM DITCH DETAIL ON SHEET 57 OF 127
   54.00 TON QUARRY SPALLS
   150.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

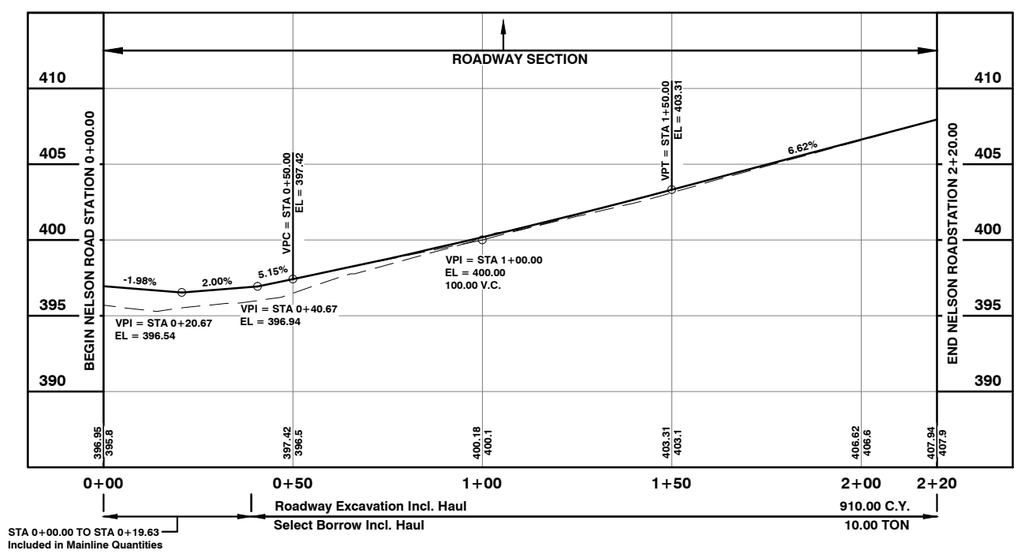
6. STA 2+00.00 TO 2+20.00 LEFT
   TRANSITION DITCH TO MATCH EXISTING

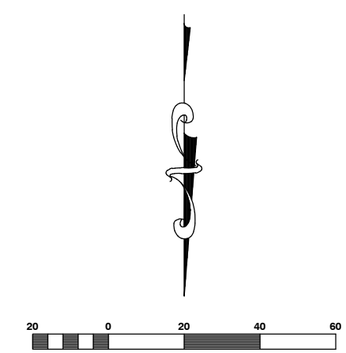
7. STA 2+00.00 TO 2+20.00 RIGHT
   TRANSITION DITCH TO MATCH EXISTING

8. STA 2+20.00
   CONSTRUCT TYPICAL BUTT JOINT
   SEE TYPICAL BUTT JOINT DETAIL ON SHEET 48 OF 127

NOTES :
ALL EXISTING PAVEMENT SHALL BE GROUND

SEE SHEETS 85 OF 127 - 107 OF 127 FOR
STORMWATER DRAINAGE SYSTEM





HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

NELSON ROAD PLAN AND PROFILE
STA 0+00.00 TO STA 2+00.00

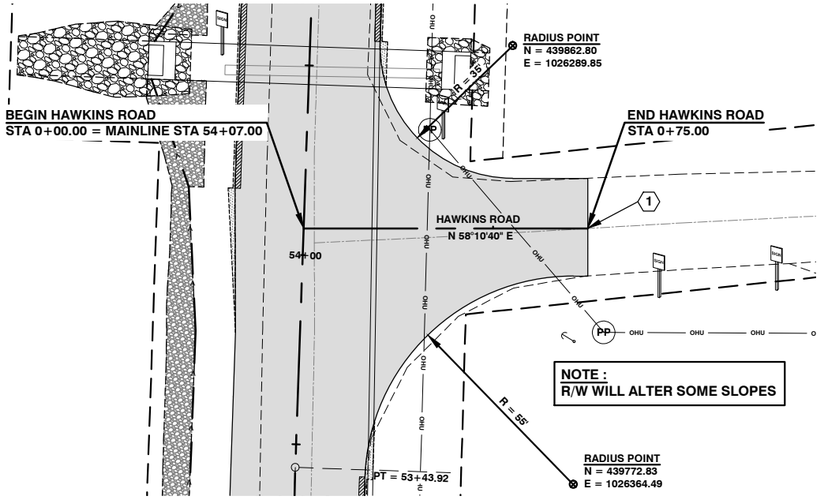
SHEET 47 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

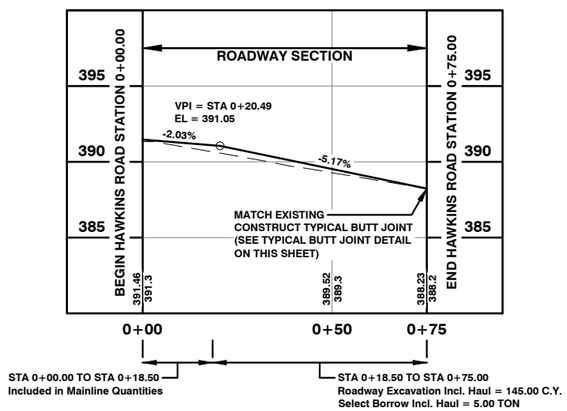
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



PLAN VIEW



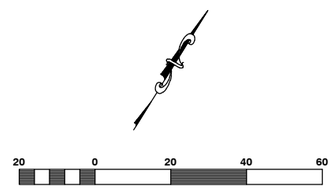
PROFILE VIEW

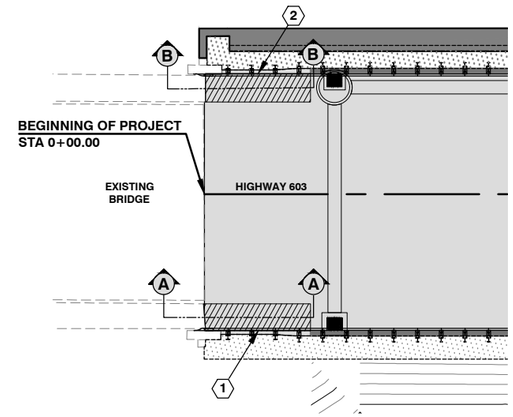
HAWKINS ROAD PLAN AND PROFILE

STA 0+00 TO STA 0+75.00

CONSTRUCTION NOTES

1. STA 0+75.00
CONSTRUCT TYPICAL BUTT JOINT
SEE TYPICAL BUTT JOINT DETAIL ON THIS SHEET

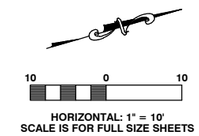


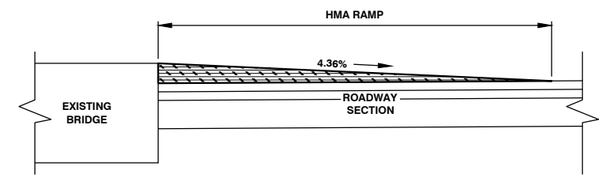


PLAN VIEW

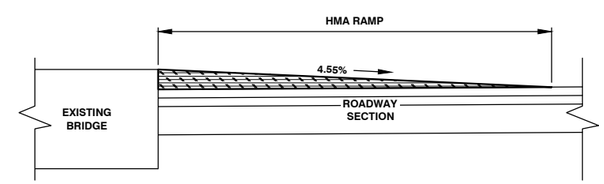
CONSTRUCTION NOTES

1. STA 0+00.00 TO STA 0+14.00 RIGHT,
CONSTRUCT HMA RAMP (LENGTH 14.00 FT. X WIDTH 3.57 FT.)
2.00 TON HMA CL.1/2 IN. PG 22-64
2. STA 0+00.15 TO STA 0+14.00 LEFT,
CONSTRUCT HMA RAMP (LENGTH 13.85 FT. X WIDTH 3.75 FT.)
2.00 TON HMA CL.1/2 IN. PG 22-64



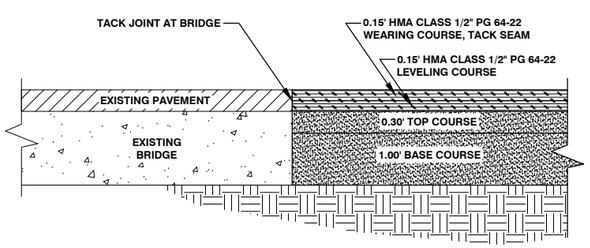


A SECTION A
STA 0+00.00 TO STA 0+14.00 RIGHT
NOT TO SCALE



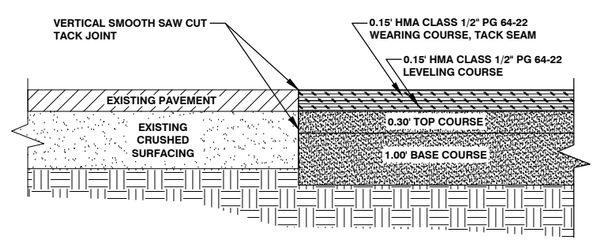
B SECTION B
STA 0+00.15 TO STA 0+14.00 LEFT
NOT TO SCALE

HMA RAMP DETAIL



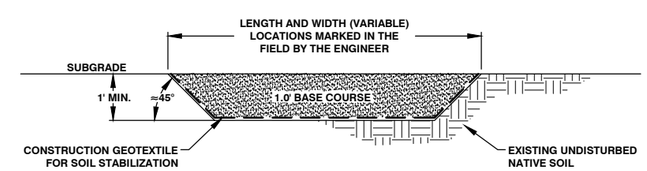
BRIDGE BUTT JOINT DETAIL

NOT TO SCALE



TYPICAL BUTT JOINT DETAIL

NOT TO SCALE



TYPICAL DIGOUT DETAIL

NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

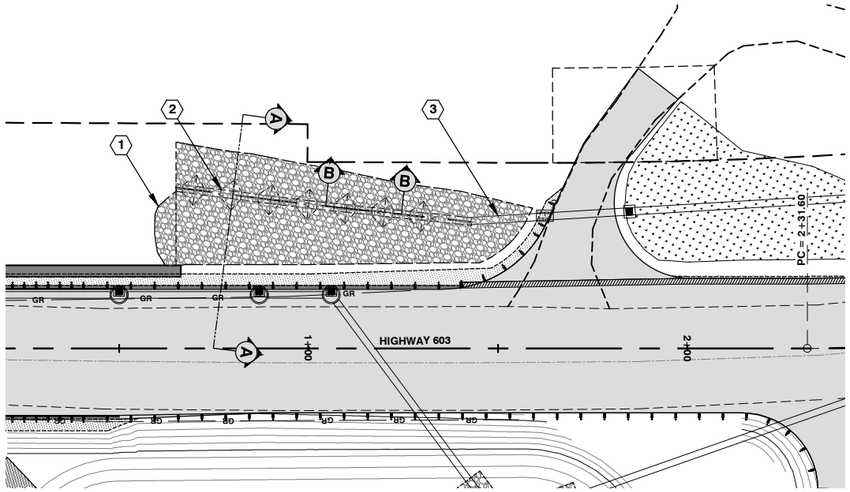
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HAWKINS ROAD PLAN AND PROFILE
STA 0+00.00 TO STA 0+75.00
AND ROADWAY DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

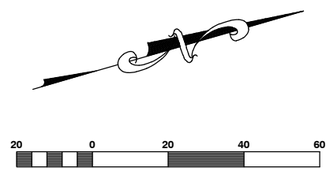
TWP. 12N. RGE. 2W. W.M.



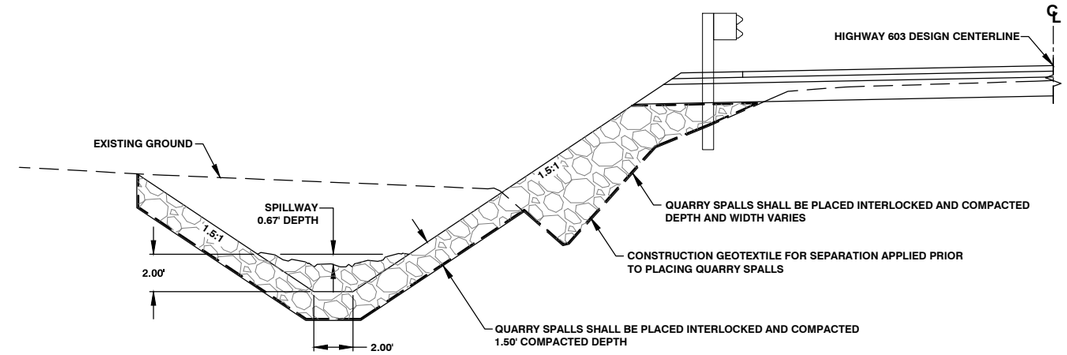
PLAN VIEW

CONSTRUCTION NOTES

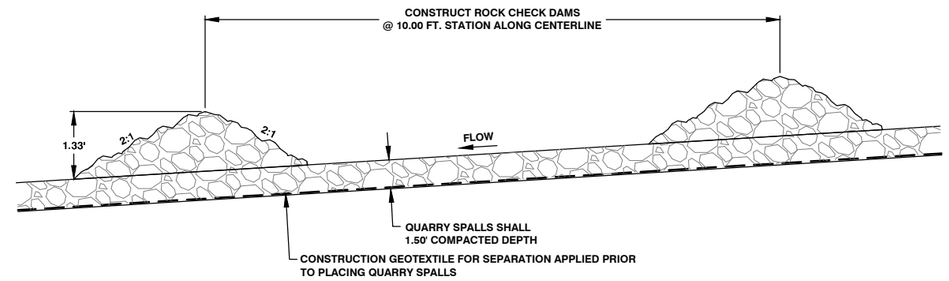
1. TRANSITION QUARRY SPALLS FROM FRONT WALL EMBEDMENT SLOPE TO FLAT BOTTOM 2.00' WIDE DITCH INSLOPE AS STAKED IN THE FIELD BY THE ENGINEER
2. STA 0+65.00 TO 1+43.00 LEFT
   CONSTRUCT FLAT BOTTOM 2.00' WIDE DITCH WITH ROCK CHECKDAM
   340.00 TON QUARRY SPALLS
   355.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   EXCAVATION FOR THE PLACEMENT OF QUARRY SPALLS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y. FOR "ROADWAY EXCAVATION INCL. HAUL"
3. ARMOUR APPROACH FILL SLOPE WITH QUARRY SPALLS AS STAKED IN THE FIELD BY THE ENGINEER
   SEE ROCK SLOPE PROTECTION DETAIL ON THIS SHEET



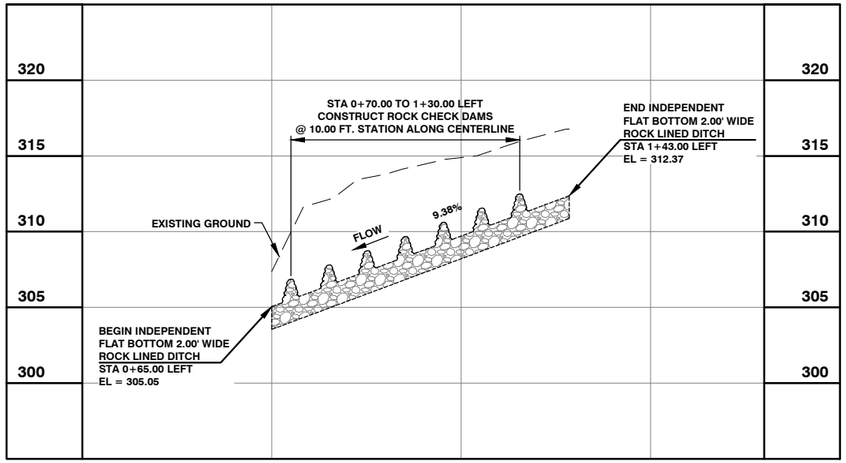
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



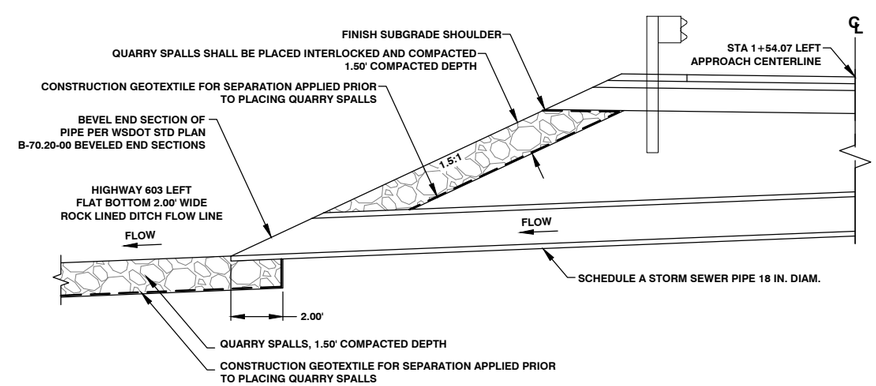
SECTION A
NOT TO SCALE



SECTION B
NOT TO SCALE



PROFILE VIEW



ROCK SLOPE PROTECTION DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

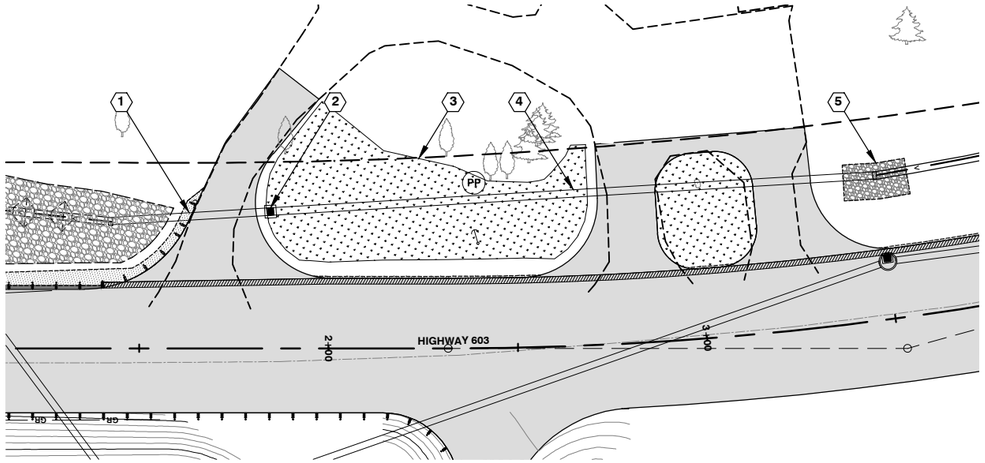
ROADWAY DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

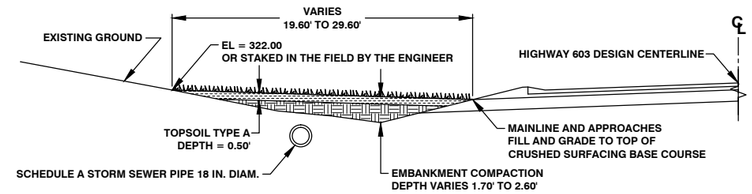
TWP. 12N. RGE. 2W. W.M.



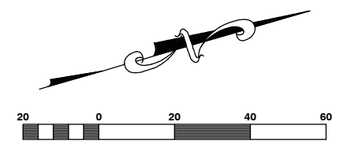
PLAN VIEW

CONSTRUCTION NOTES

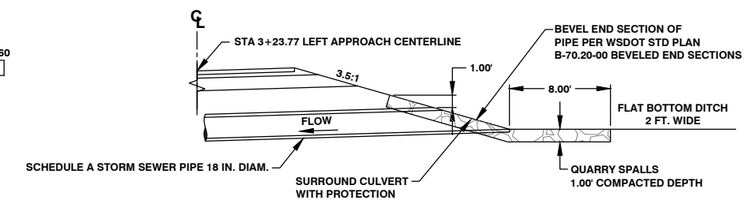
1. CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 43.13 ' LONG
   OUTLET INV. = 312.26 (STA 1+41.82, 33.54' LEFT)
   @ CATCH BASIN INV. = 316.15 (STA 1+84.70, 36.10' LEFT)
2. STA 1+84.70, 36.10' LEFT (CB #51) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH HERRINGBONE GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR HERRINGBONE GRATE B-30.50-01
3. FILL, GRADE AND INSTALL SOD TO STAKES SET BY THE ENGINEER
   SEE FILL AND GRADE DETAIL ON THIS SHEET
   125.00 C.Y. EMBANKMENT COMPACTION
   45.00 C.Y. TOPSOIL TYPE A
   255.00 S.Y. SOD INSTALLATION
4. CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 160.22 ' LONG
   @ CATCH BASIN INV. = 316.15 (STA 1+84.70, 36.10' LEFT)
   INLET INV. = 320.37 (STA 3+50.00, 38.11' LEFT)
5. CONSTRUCT INLET ROCK PROTECTION
   SEE INLET ROCK PROTECTION DETAIL ON THIS SHEET
   8.00 TON QUARRY SPALLS

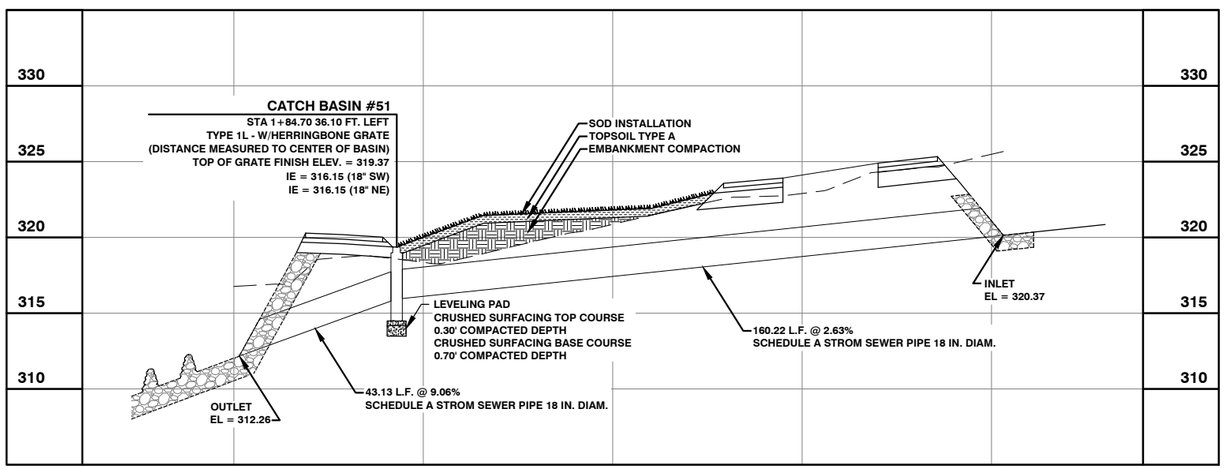


FILL AND GRADE DETAIL
NOT TO SCALE



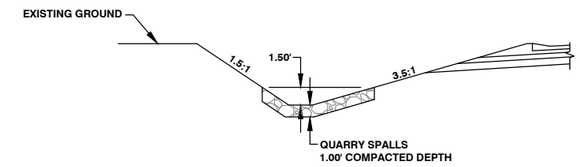
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



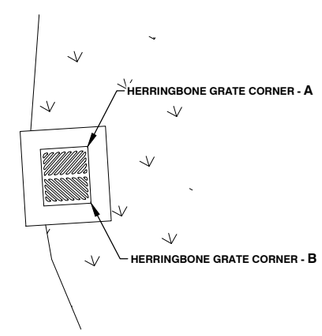


Structure Excavation Class B Incl. Haul	130.00 C.Y.
Select Borrow Incl. Haul	60.00 TON
Shoring or Extra Excavation Class B	704.00 S.F.

PROFILE VIEW



INLET ROCK PROTECTION DETAIL
NOT TO SCALE



HERRINGBONE GRATE PLACEMENT DETAIL
NOT TO SCALE

HERRINGBONE GRATE PLACEMENT TABLE

CATCH BASIN#	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
51	1+85.47	37.15', LEFT		1L	319.37
	1+85.59		35.15', LEFT		

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

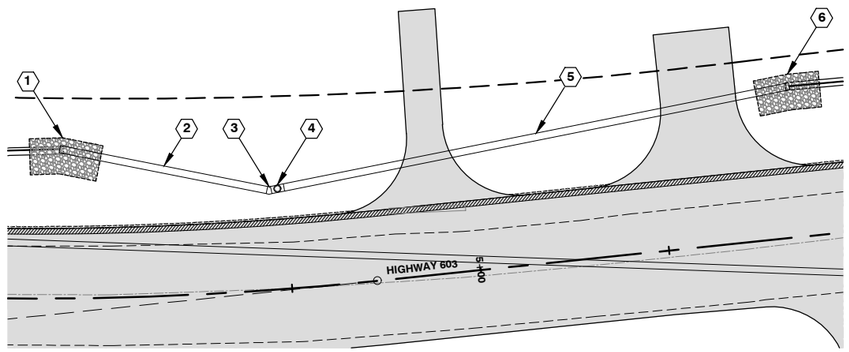
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



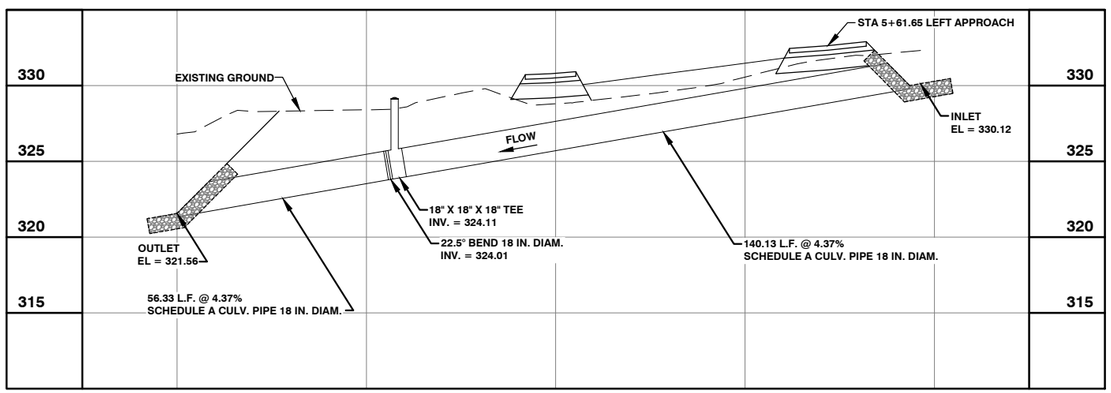
PLAN VIEW

CONSTRUCTION NOTES

1. CONSTRUCT OUTLET ROCK PROTECTION
   SEE INLET AND OUTLET ROCK PROTECTION DETAIL ON THIS SHEET
   10.00 TON QUARRY SPALLS
2. CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 56.33 ' LONG
   OUTLET INV. = 321.56 (STA 3+88.96, 39.42' LEFT)
   @ 22.5° BEND INV. = 324.01 (STA 4+45.79, 26.26' LEFT)
3. STA 4+45.79 26.26' LEFT
   INSTALL 22.5° BEND 18 IN. DIAM.
4. STA 4+48.15 26.54' LEFT
   CONSTRUCT CLEAN OUT
   SEE CLEAN OUT DETAIL ON THIS SHEET
5. CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 140.13' LONG
   @ CLEAN OUT INV. = 324.11 (4+48.15, 26.54' LEFT)
   INLET INV. = 330.12 (STA 5+85.96, 39.86' LEFT)
6. CONSTRUCT INLET ROCK PROTECTION
   SEE INLET AND OUTLET ROCK PROTECTION DETAIL ON THIS SHEET
   10.00 TON QUARRY SPALLS

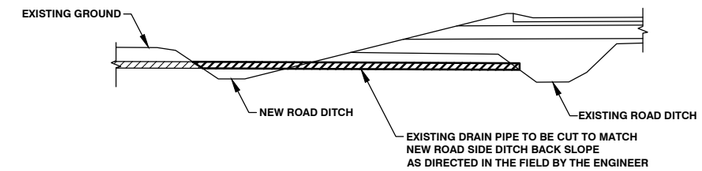
20 0 20

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

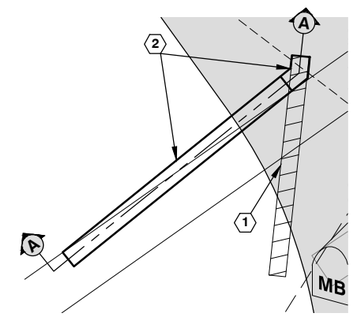


Structure Excavation Class B Incl. Haul — 120.00 C.Y.
Select Borrow Incl. Haul — 95.00 TON
Shoring or Extra Excavation Class B — 514.00 S.F.

PROFILE VIEW



EXISTING DRAIN PIPE DETAIL
NOT TO SCALE

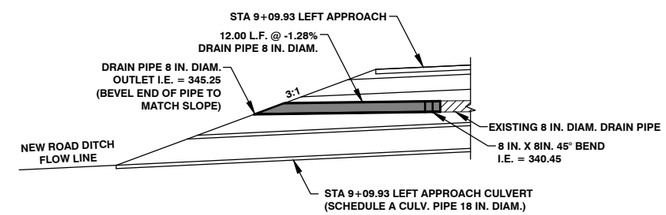


PLAN VIEW

CONSTRUCTION NOTES

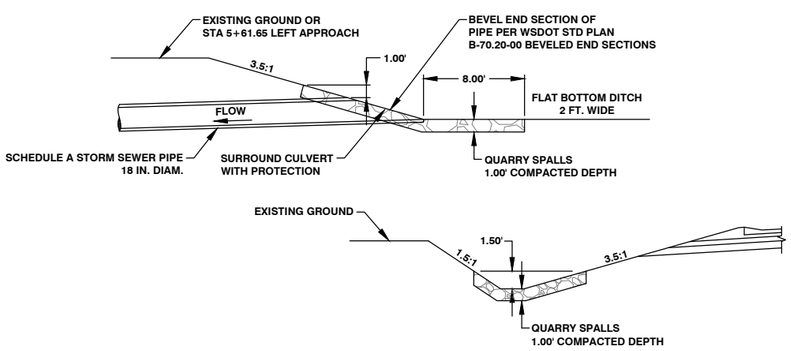
1. STA 8+88.26 LEFT
   CUT BACK EXISTING 8 IN. DIAM. DRAIN PIPE TO
   APPROXIMATE STA 8+92.00, 35.60' LEFT
2. INSTALL DRAIN PIPE 8 IN. DIAM.,
   12.00' LONG, WITH 8 IN. X 8 IN. 45 ° BEND
   DRAIN PIPE 8 IN. DIAM. OUTLET INV. = 345.25 (STA 8+80.60, 35.04' LEFT)
   8 IN. X 8 IN. 45° BEND INV. = 345.40 (STA 8+91.54, 35.11' LEFT)
   1 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   13.00 L.F. DRAIN PIPE 8 IN. DIAM.
   (COST OF 8 IN. X 8 IN. 45° BEND IS INCLUDED IN THE CONTRACT
   UNIT BID ITEM "DRAIN PIPE 8 IN. DIAM.")

NOTE:
ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER
PRIOR TO INSTALLATION

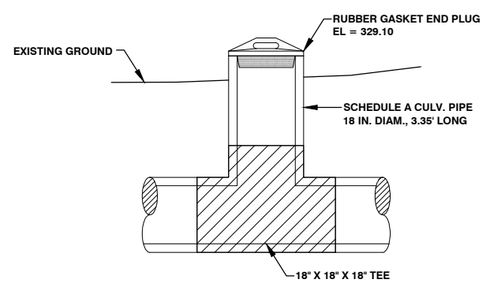


SECTION A

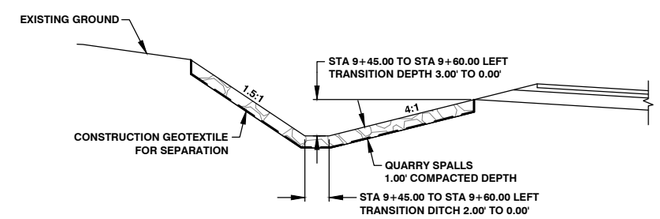
8 IN. DIAM. DRAIN PIPE DETAIL
NOT TO SCALE



INLET AND OUTLET ROCK PROTECTION DETAIL
NOT TO SCALE



CLEAN OUT DETAIL
NOT TO SCALE



ROCK LINED DITCH TRANSITION DETAIL
NOT TO SCALE

18 IN. DIAM. DITCH BY-PASS SYSTEM DETAIL

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

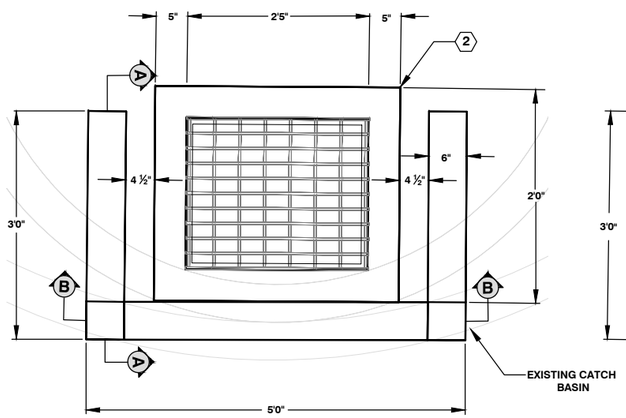
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

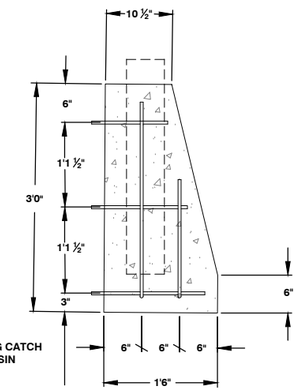
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

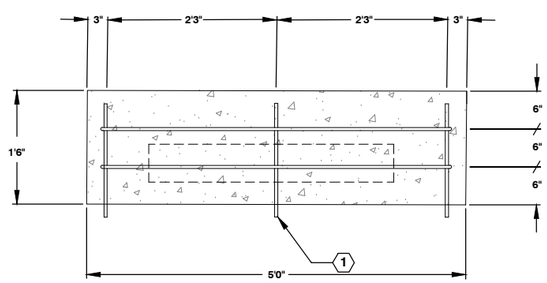
TWP. 12N. RGE. 2W. W.M.



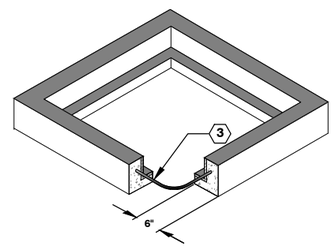
PLAN VIEW



A SECTION A



B SECTION B



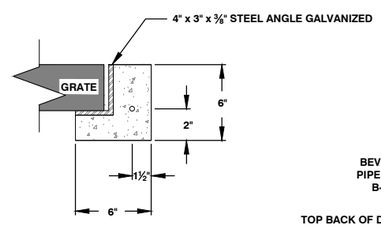
6" RISER ISOMETRIC VIEW

CONSTRUCTION NOTES

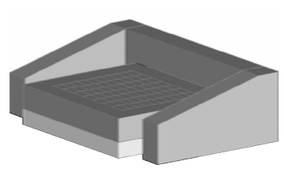
STA 10+37.00 LEFT
RAISE EXISTING DRAINAGE GRATE 6" WITH COLLAR AS SHOWN

1. ALL REBAR IS #4 WITH MINIMUM 2" COVER (WITH EXCEPTION OF HOOP) VERTICAL REBAR IS TO BE DRILLED 2" INTO EXISTING TOP OF BASIN
2. 6" RISER; SEE DETAILS THIS SHEET
3. ONE #3 BAR HOOP

HIDDEN LINES IN SECTION VIEW INDICATE RISER
CURRENT GRATE SITS IN RISER RESTING ON CATCH BASIN

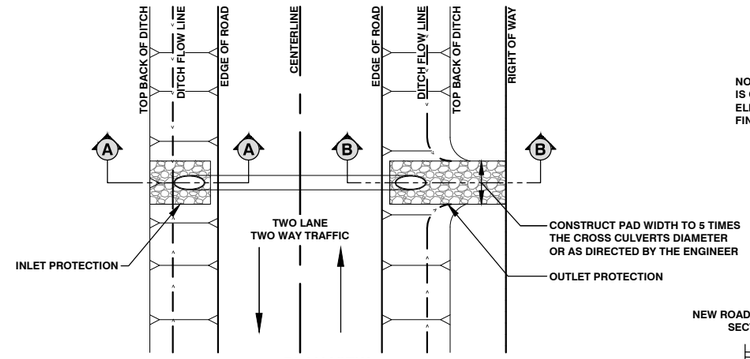


6" RISER SECTION VIEW

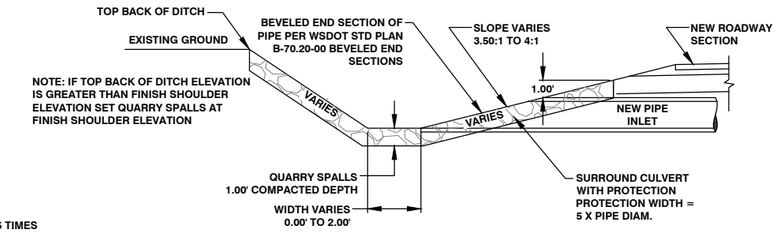


DRAINAGE GRATE DETAIL

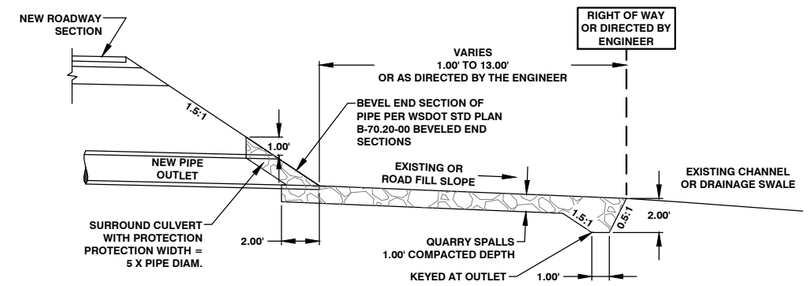
NOT TO SCALE



PLAN VIEW



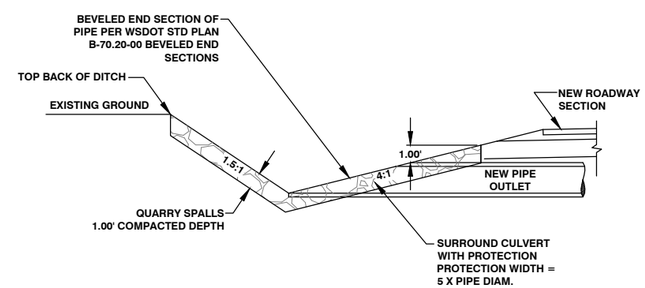
A SECTION A (INLET PROTECTION)



B SECTION B (OUTLET PROTECTION)

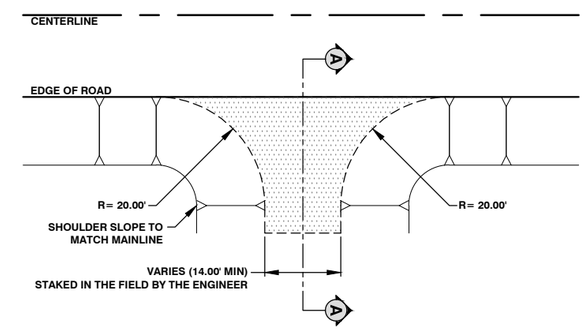
FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL

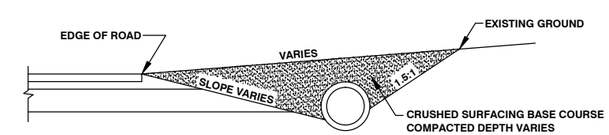
NOT TO SCALE



STORM SEWER OUTLET PROTECTION DETAIL

NOT TO SCALE





A SECTION A
NOT TO SCALE

ROCK APPROACH DETAIL

NOT TO SCALE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

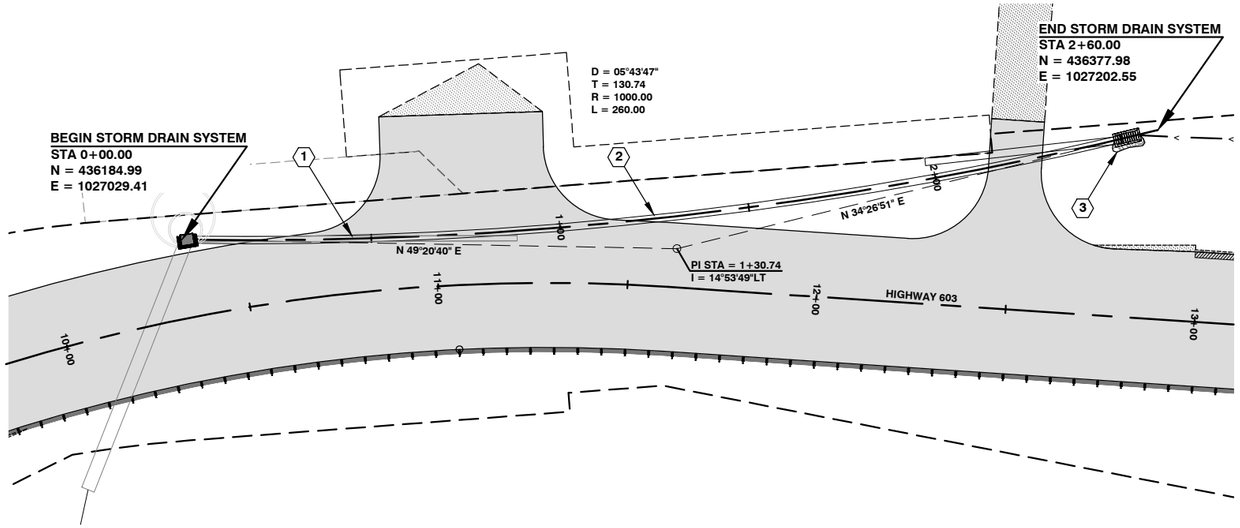
SHEET 52 OF 127

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 "It's the Law" Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH STATE OF WASHINGTON #36208 REGISTERED PROFESSIONAL ENGINEER

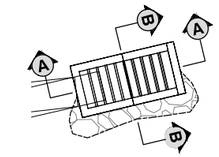
TWP. 12N. RGE. 2W. W.M.



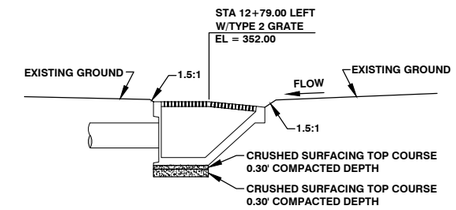
PLAN VIEW

CONSTRUCTION NOTES

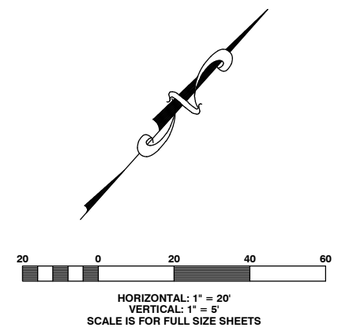
1. STA 10+79.00 LEFT
   REMOVE EXISTING 12 IN. DIAM. CONC. PIPE
2. CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 249.87 ' LONG
   @ EXISTING CATCH BASIN INV. = 345.50 (STA 10+35.73, 20.68' LEFT)
   @ DROP INLET INV. = 348.90 (STA 12+77.32, 46.86' LEFT)
3. STA 12+79.00 46.38' LEFT (DROP INLET 1)
   (DISTANCE MEASURED TO CENTER OF INLET)
   CONSTRUCT DROP INLET TYPE 1, WITH TYPE 2 GRATE
   SEE WSDOT STANDARD PLAN DROP INLET TYPE 1 B-45.20-00
   AND GRATES FOR DROP INLET (TYPE 2) B-50.20-00
   ARMOR DROP INLET (MAIN LINE FILL SLOPE)
   SEE DROP INLET ARMOR DETAIL ON THIS SHEET
   1 TON QUARRY SPALLS

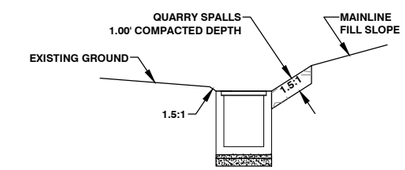


DROP INLET PLAN VIEW



A SECTION A

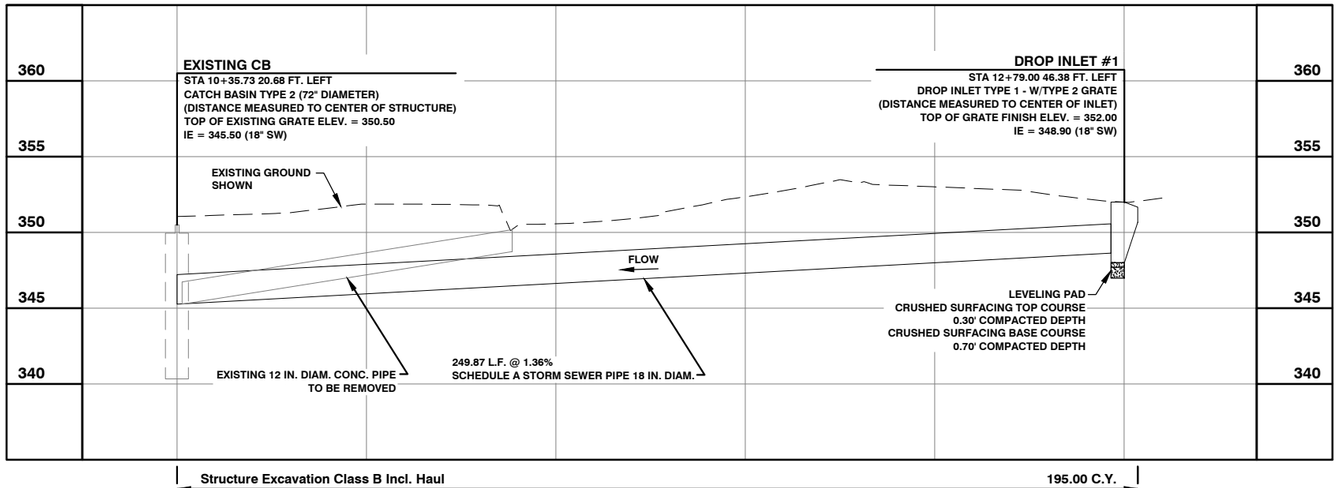




B SECTION B

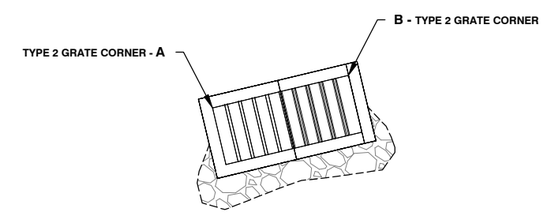
DROP INLET ARMOR DETAIL

NOT TO SCALE



Structure Excavation Class B Incl. Haul	195.00 C.Y.
Select Borrow Incl. Haul	160.00 TON
Shoring or Extra Excavation Class B	1402.00 S.F.

PROFILE VIEW



TYPE 2 GRATE PLACEMENT DETAIL

NOT TO SCALE

TYPE 2 GRATE PLACEMENT TABLE

DROP INLET#	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
1	12+75.76	47.69', LEFT		1	352.00
	12+81.49		49.46', LEFT		

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

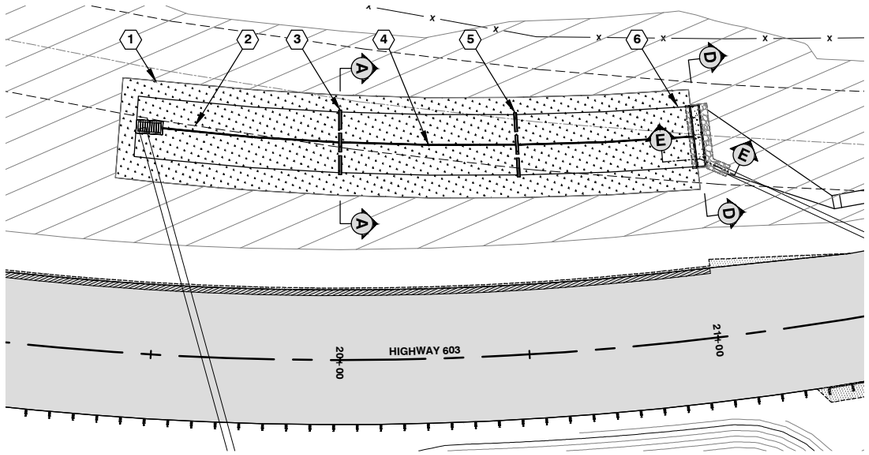
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

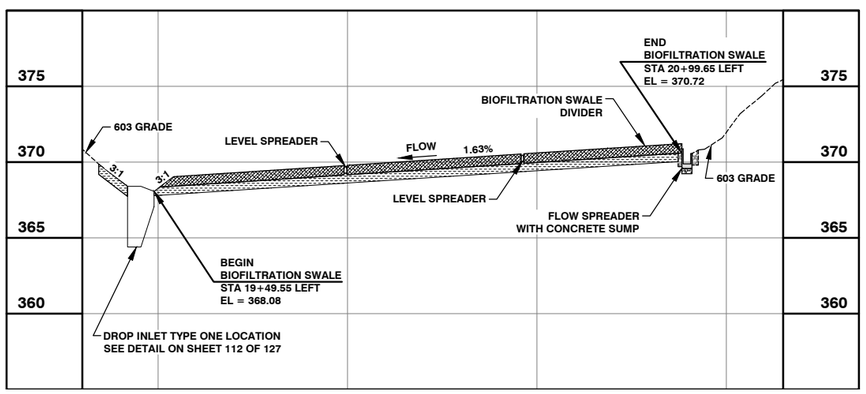
TWP. 12N. RGE. 2W. W.M.



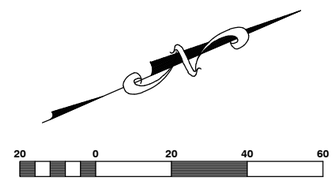
PLAN VIEW

CONSTRUCTION NOTES

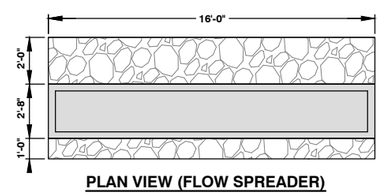
1. STA 19+42.00 TO STA 21+00 LEFT
   CONSTRUCT BIOFILTRATION SWALE 16 FT. WIDE
   EXCAVATION FOR THE PLACEMENT OF TOPSOIL TYPE A
   SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y.
   FOR "ROADWAY EXCAVATION INCL. HAUL"
   85.00 C.Y. TOPSOIL TYPE A
   0.10 SEEDING, FERTILIZING, AND MULCHING
2. CONSTRUCT BIOFILTRATION SWALE OUTLET SYSTEM
   SEE BIOFILTRATION DETAIL ON SHEET 113 OF 127
3. STA 20+00.00 LEFT
   CONSTRUCT LEVEL SPREADER
   SEE DETAIL ON THIS SHEET
   LUMP SUM BIOSWALE SPECIAL STRUCTURES
4. CONSTRUCT BIOFILTRATION SWALE DIVIDER
   SEE DETAIL ON THIS SHEET
   LUMP SUM BIOSWALE SPECIAL STRUCTURES
5. STA 20+50.00 LEFT
   CONSTRUCT LEVEL SPREADER
   SEE DETAIL ON THIS SHEET
   LUMP SUM BIOSWALE SPECIAL STRUCTURES
6. STA 21+01.05 LEFT
   CONSTRUCT FLOW SPREADER WITH CONCRETE SUMP
   SEE DETAIL ON THIS SHEET
   LUMP SUM BIOSWALE SPECIAL STRUCTURES
   8.00 TON QUARRY SPALLS



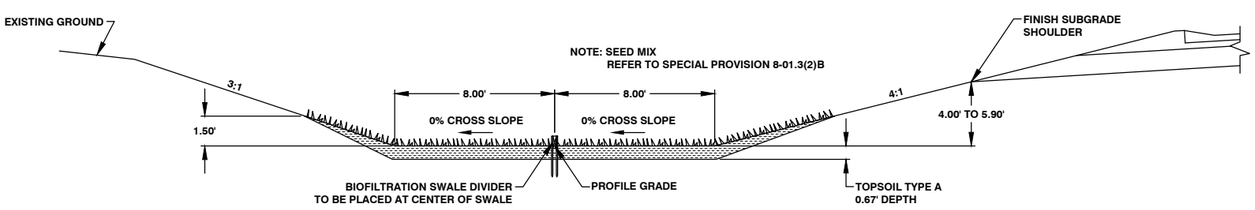
PROFILE VIEW



HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

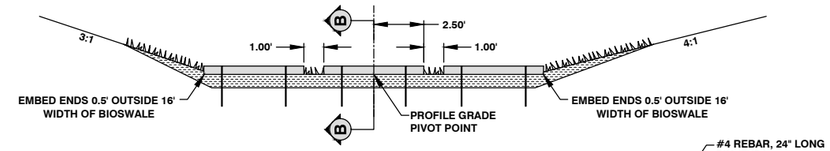


PLAN VIEW (FLOW SPREADER)

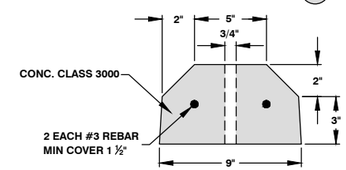


BIOFILTRATION SWALE SECTION

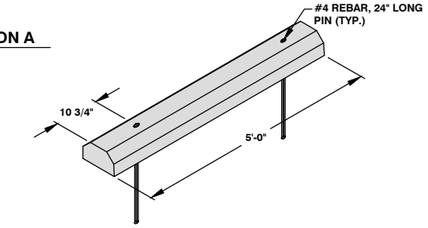
NOT TO SCALE



A SECTION A



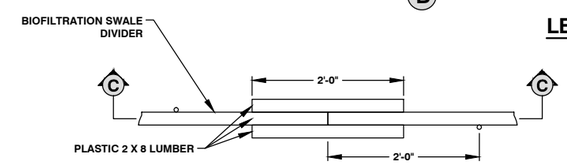
B SECTION B



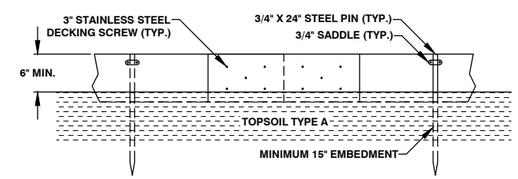
ISOMETRIC VIEW

LEVEL SPREADER DETAIL

NOT TO SCALE



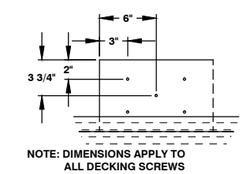
PLAN VIEW (LAP SPLICE)



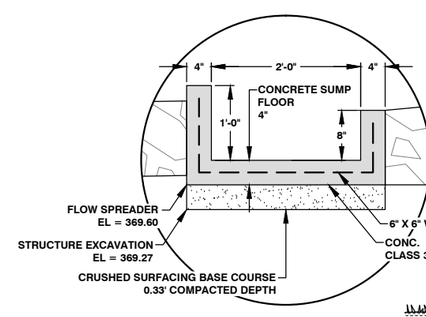
C SECTION C

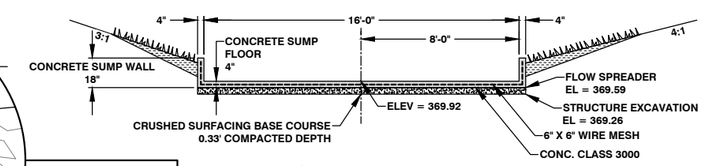
BIOFILTRATION SWALE DIVIDER DETAIL

NOT TO SCALE

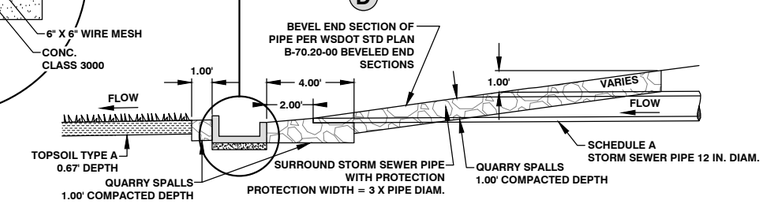


DECKING SCREW SPACING DETAIL





D SECTION D



E SECTION E

FLOW SPREADER WITH CONCRETE SUMP DETAIL

NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

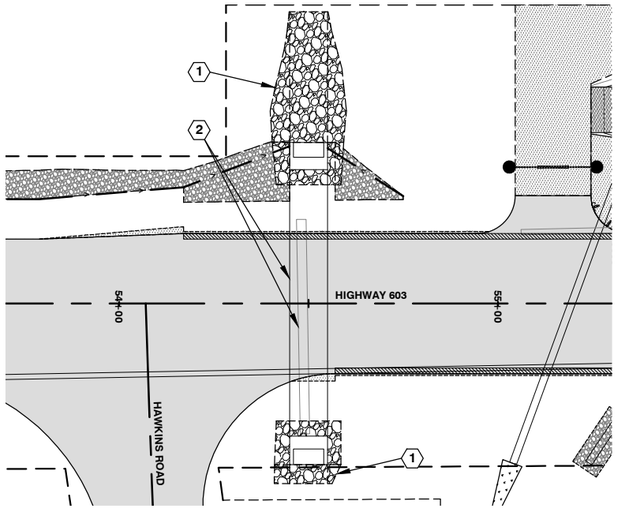
ROADWAY DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

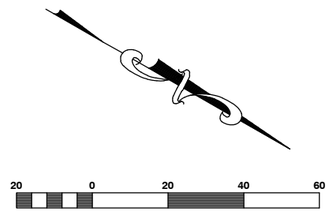


PLAN VIEW

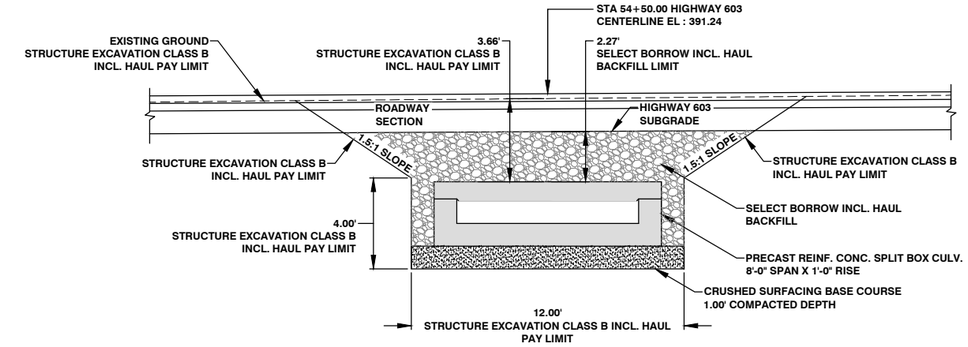
CONSTRUCTION NOTES

1. CONSTRUCT INLET AND OUTLET ARMORED DITCH
   SEE CULVERT INLET AND OUTLET DITCH ARMORING DETAIL ON THIS SHEET
   60.00 TON ROCK FOR EROSION AND SCOUR PROTECTION CLASS A
   95.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION

2. STA 54+50.00
   REMOVE EXISTING 24 IN. DIAM. CONC. PIPE
   CONSTRUCT PRECAST REINF. CONC. SPLIT BOX CULVERT
   8'-0" SPAN X 1'-0" RISE, 85.00' LONG
   INLET INV. = 385.75 (STA 54+50.00, 42.51' LEFT)
   OUTLET INV. = 385.33 (STA 54+50.00, 40.49' RIGHT)
   ALL COSTS INVOLVED IN FURNISHING, PLACING, AND
   COMPACTING OF GRAVEL BACKFILL FOR BEDDING SHALL
   BE INCLUDED IN THE UNIT CONTRACT PRICE PER TON
   FOR "CRUSHED SURFACING BASE COURSE"
   70.00 TON CRUSHED SURFACING BASE COURSE
   CONSTRUCT INLET OUTLET ROCK PROTECTION
   SEE DETAIL ON THIS SHEET
   36.00 TON ROCK FOR EROSION AND SCOUR PROTECTION CLASS A



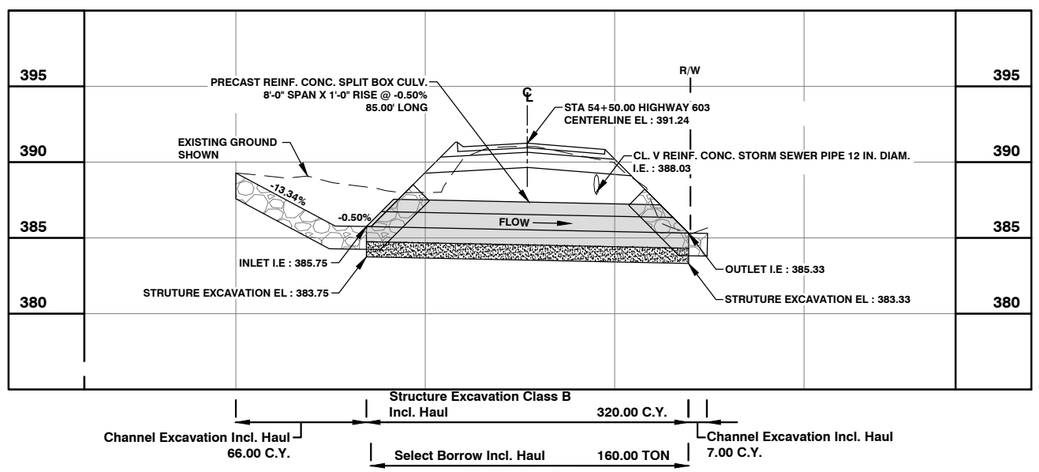
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



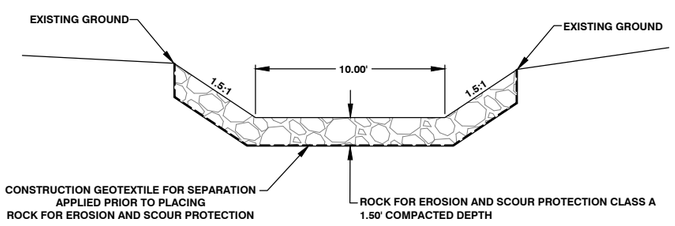
CULVERT CROSSING DETAIL
NOT TO SCALE

NOTES :
CULVERT LOAD RATING = AASHTO - HL - 93

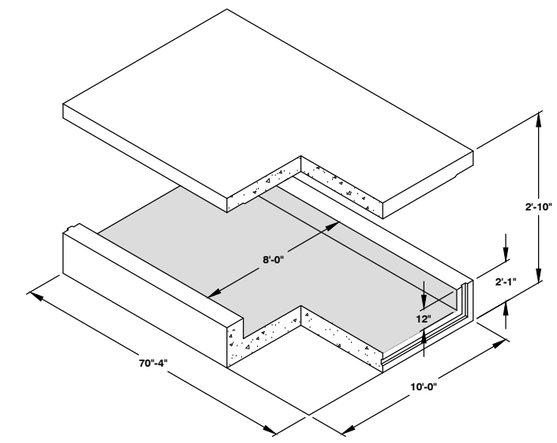
CULVERT DESIGN WILL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL



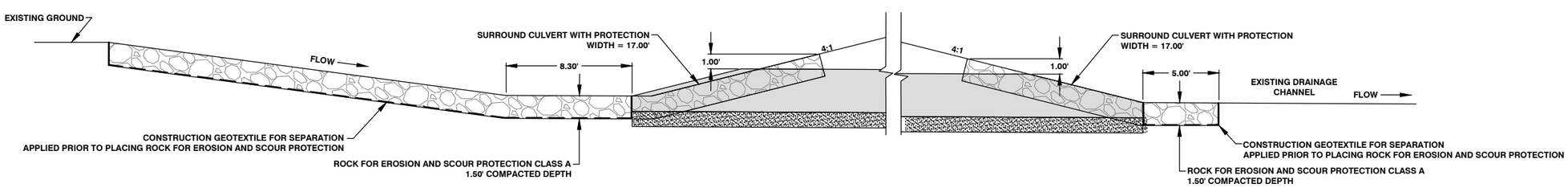
PROFILE VIEW



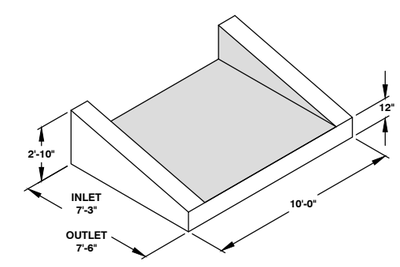
CULVERT INLET AND OUTLET DITCH ARMORING DETAIL
NOT TO SCALE



TRENCH CULVERT DETAIL
NOT TO SCALE



INLET AND OUTLET ROCK PROTECTION DETAIL
NOT TO SCALE



END TRENCH DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

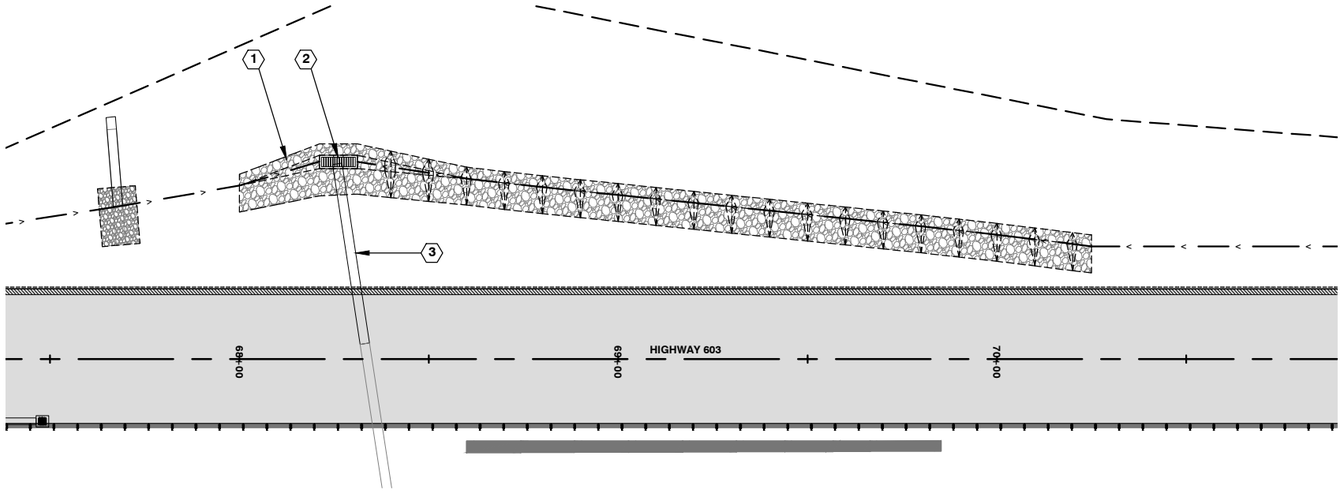
SHEET 55 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



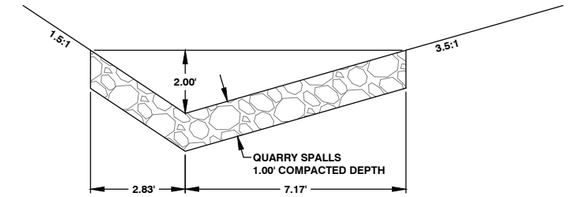
PLAN VIEW

CONSTRUCTION NOTES

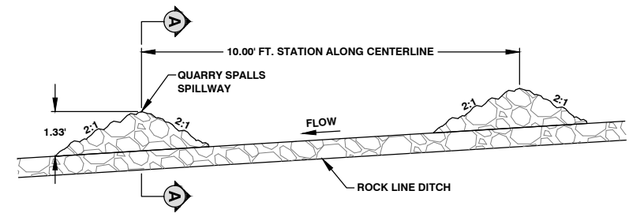
1. STA 68+00.00 TO STA 70+25.00 LEFT
CONSTRUCT ROCK LINE DITCH WITH CHECK DAMS
EXCAVATION FOR THE PLACEMENT OF QUARRY SPALLS
SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y.
FOR "ROADWAY EXCAVATION INCL. HAUL"

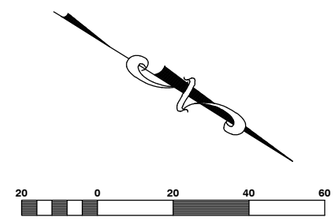
2. STA 68+26.11 52.04' LEFT (DROP INLET 4)
(DISTANCE MEASURED TO CENTER OF INLET)
CONSTRUCT DROP INLET TYPE 2, WITH TYPE 2 GRATE
SEE WSDOT STANDARD PLAN DROP INLET TYPE 2 B-45.40-00
AND GRATES FOR DROP INLET (TYPE 2) B-50.20-00
13.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
10.00 TON SELECT BORROW INCL. HAUL

3. STA 68+30.00 LEFT
EXTEND THE INLET OF EXISTING 24 IN. DIAM. CONC. PIPE
SEE WSDOT STANDARD PLAN CONNECTION DETAILS FOR
DISSIMILAR CULVERT PIPE STANDARD PLAN B-60.20-00
CONSTRUCT PLAIN CONC. STORM SEWER PIPE 24" DIAM., 48.00' LONG
@ DROP INLET INV. = 390.56 (STA 68+25.83, 51.52' LEFT)
@ CONNECTION INV. = 390.21 (STA 68+33.10, 4.07' LEFT)
62.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
272.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
40.00 TON SELECT BORROW INCL. HAUL

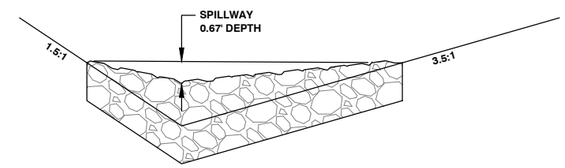


ROCK LINE DITCH DETAIL
NOT TO SCALE



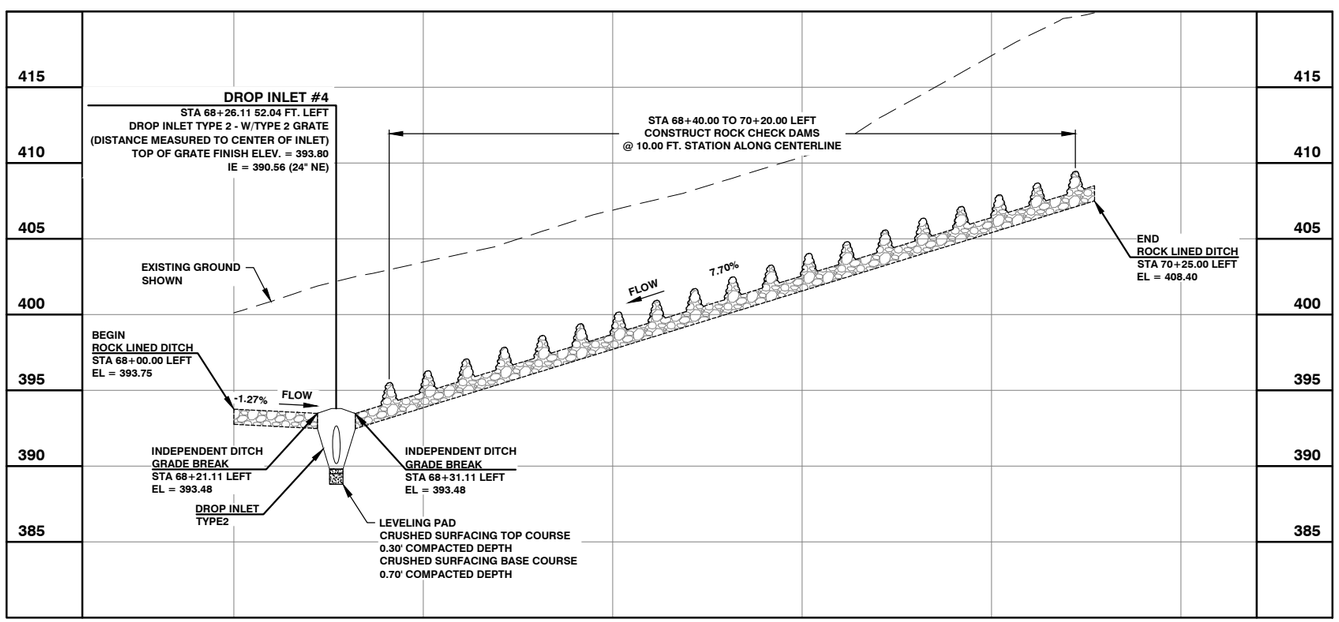


HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

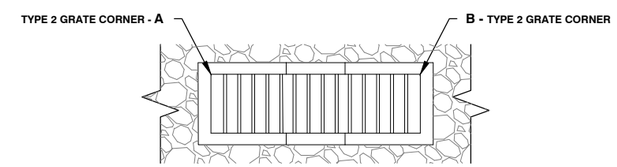


SECTION A

ROCK CHECK DAM DETAIL
NOT TO SCALE



PROFILE VIEW



TYPE 2 GRATE PLACEMENT DETAIL
NOT TO SCALE

TYPE 2 GRATE PLACEMENT TABLE

DROP INLET#	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
4	68+21.66	53.29', LEFT		2	393.80
	68+30.57		53.29', LEFT		

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

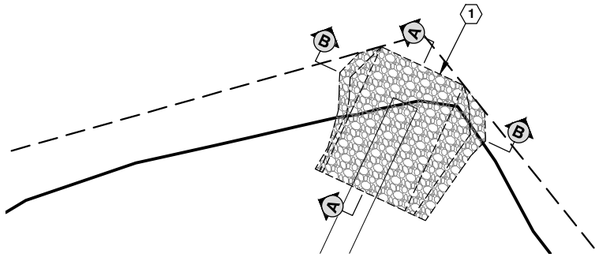
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

ROADWAY DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

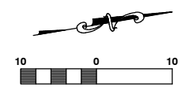
TWP. 12N. RGE. 2W. W.M.



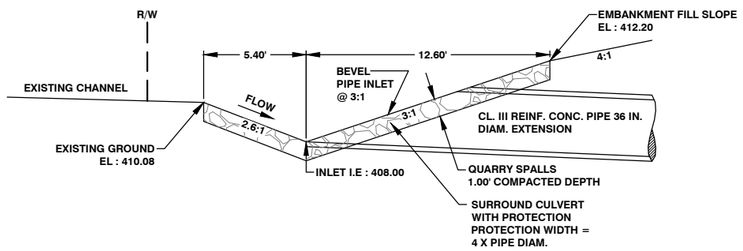
PLAN VIEW

CONSTRUCTION NOTES

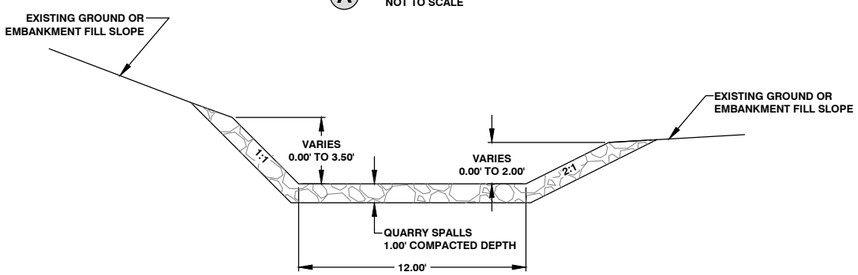
1. STA 81+65.00 LEFT
CONSTRUCT INLET CHANNEL WITH ROCK SLOPE PROTECTION
5.00 C.Y. CHANNEL EXCAVATION INCL. HAUL
19.00 TON QUARRY SPALLS



PLAN VIEW: 1" = 10'
SCALE IS FOR FULL SIZE SHEETS



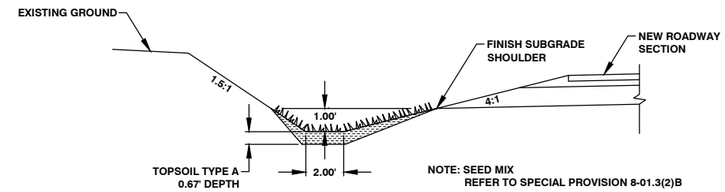
SECTION A
NOT TO SCALE



SECTION B
NOT TO SCALE

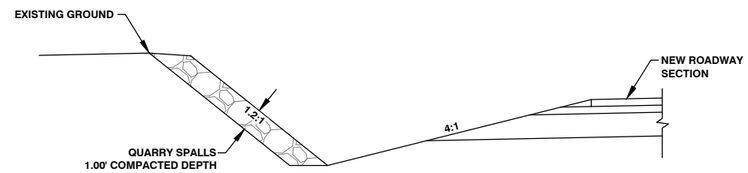
INLET CHANNEL WITH SLOPE PROTECTION DETAIL

NOT TO SCALE



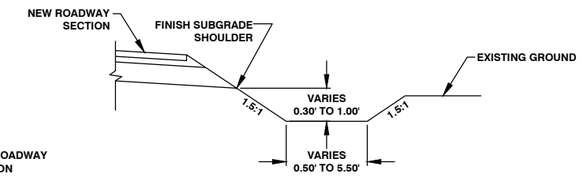
FLAT BOTTOM BIOFILTRATION SWALE 2 FT. WIDE DETAIL

NOT TO SCALE



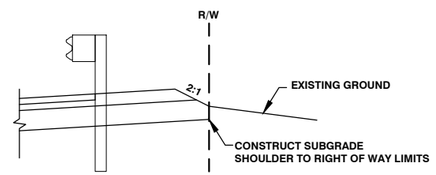
DITCH BACKSLOPE ROCK PROTECTION DETAIL

NOT TO SCALE



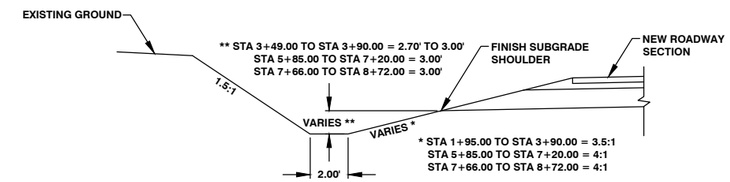
FLAT BOTTOM DITCH VARIABLE WIDTH DETAIL

NOT TO SCALE



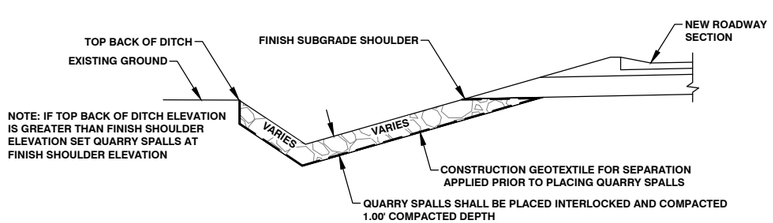
GUARDRAIL LANDING DETAIL

STA 41+69.00 TO STA 42+13.00 RIGHT
NOT TO SCALE



FLAT BOTTOM DITCH 2 FT. WIDE DETAIL

NOT TO SCALE

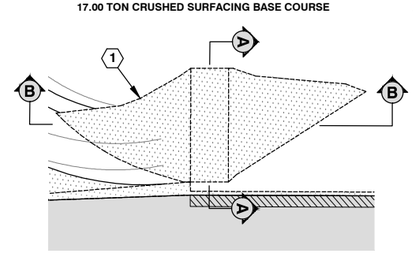


ROCK LINED V BOTTOM DITCH DETAIL

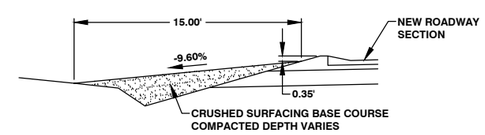
NOT TO SCALE

CONSTRUCTION NOTE

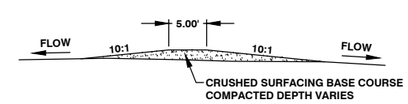
1. STA 38+39.50 LEFT
CONSTRUCT DITCH BERM
17.00 TON CRUSHED SURFACING BASE COURSE



PLAN VIEW



SECTION A



SECTION B

STA 38+39.50 LEFT DITCH BERM DETAIL

NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

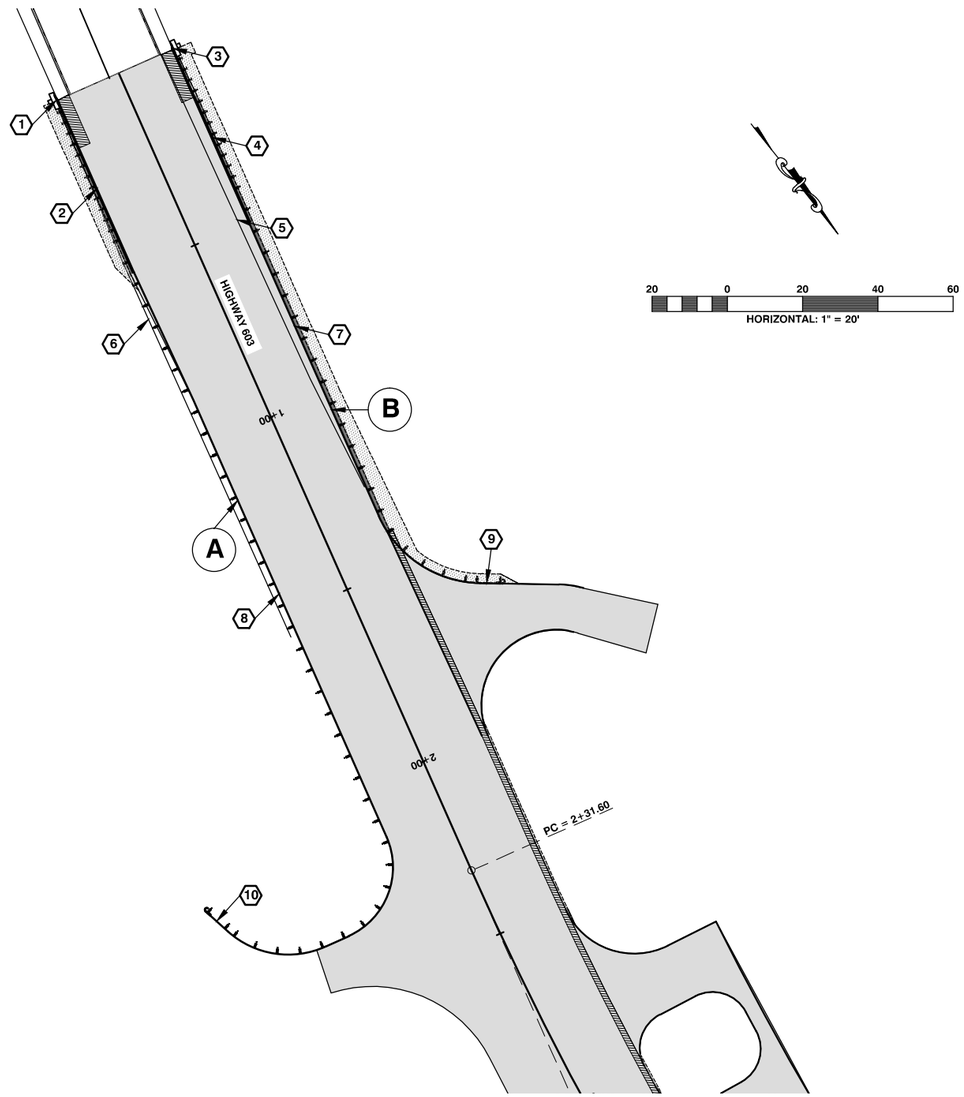
HIGHWAY 603 STABILIZATION PROJECT

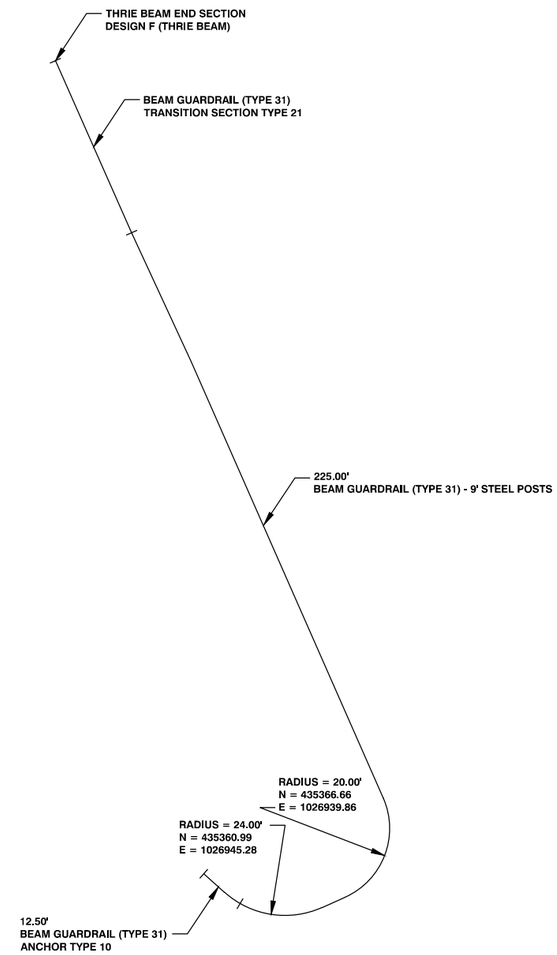
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

PLAN AND PROFILE
STA 66+00.00 TO STA 70+00.00

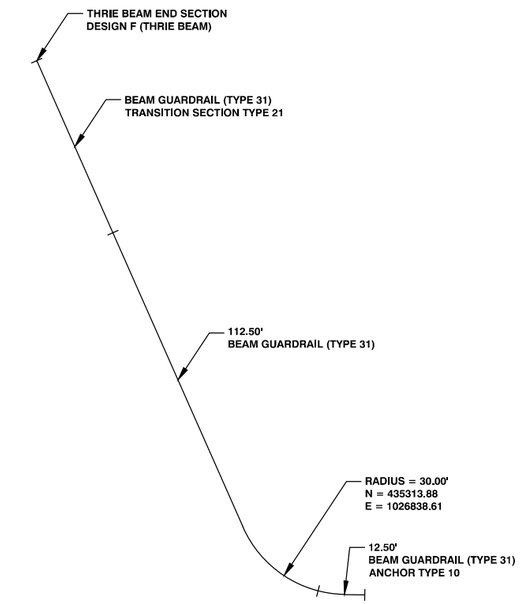
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





GUARDRAIL RUN A DETAIL



GUARDRAIL RUN B DETAIL

CONSTRUCTION NOTES

1. STA 0+00.00 RIGHT
   CONSTRUCT THRIE BEAM END SECTION - DESIGN F (THRIE BEAM)
   PER WSDOT STANDARD PLAN C-7a
   SEE GUARDRAIL RUN A DETAIL ON THIS SHEET
2. STA 0+00.00 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21
   PER WSDOT STANDARD PLAN C-25.20-06
   SEE GUARDRAIL RUN A DETAIL ON THIS SHEET
3. STA 0+00.00 LEFT
   CONSTRUCT THRIE BEAM END SECTION - DESIGN F (THRIE BEAM)
   PER WSDOT STANDARD PLAN C-7a
   SEE GUARDRAIL RUN B DETAIL ON THIS SHEET
4. STA 0+00.00 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 TRANSITION SECTION TYPE 21
   PER WSDOT STANDARD PLAN C-25.20-06
   SEE GUARDRAIL RUN B DETAIL ON THIS SHEET
5. STA 0+00.05 TO STA 1+26.94 LEFT
   REMOVE EXISTING GUARDRAIL AND ANCHORS
   127.00 L.F. REMOVING GUARDRAIL
6. STA 0+03.19 TO STA 1+55.47 RIGHT
   REMOVE EXISTING GUARDRAIL AND ANCHORS
   153.00 L.F. REMOVING GUARDRAIL
7. STA 0+49.98 TO STA 1+58.99 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN B DETAIL ON THIS SHEET
   112.50 L.F. BEAM GUARDRAIL TYPE 31
   1 POST WILL NEED TO BE DRILLED THROUGH ASPHALT
   DRILLING HOLE THROUGH ASPHALT WILL BE INCIDENTAL TO
   BEAM GUARDRAIL TYPE 31
8. STA 0+50.00 TO STA 2+44.44 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN A DETAIL ON THIS SHEET
   225.00 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
9. STA 1+58.99 LEFT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN B DETAIL ON THIS SHEET
10. STA 2+24.66 RIGHT
    CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
    PER WSDOT STANDARD PLAN C-23.60-03
    SEE GUARDRAIL RUN A DETAIL ON THIS SHEET

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

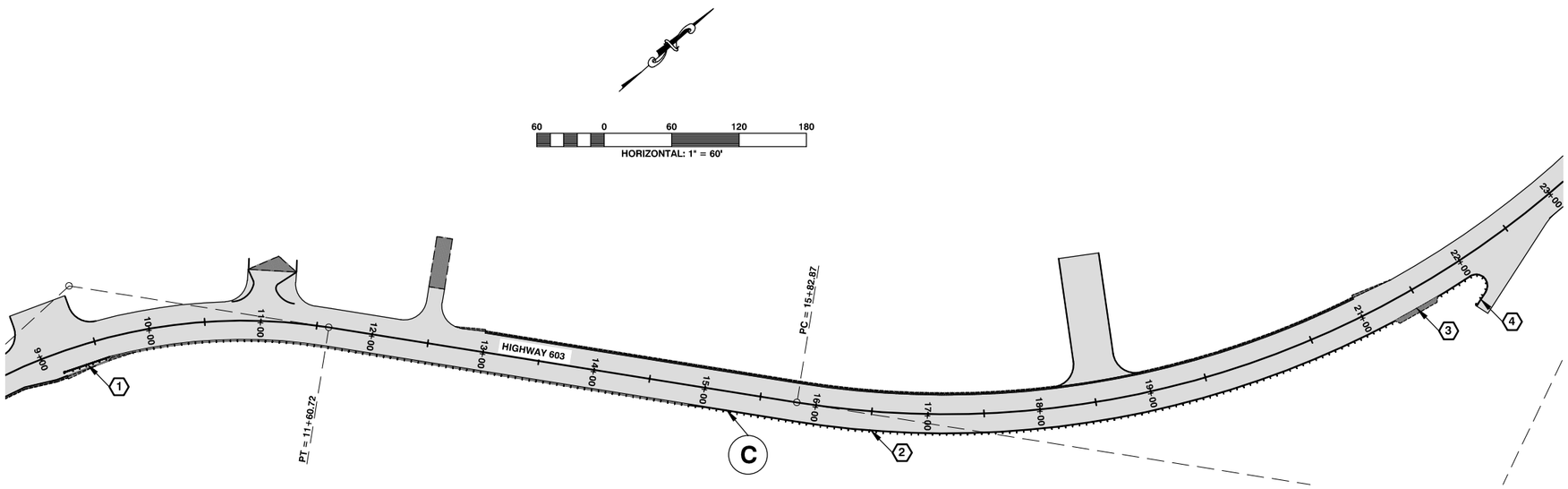
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

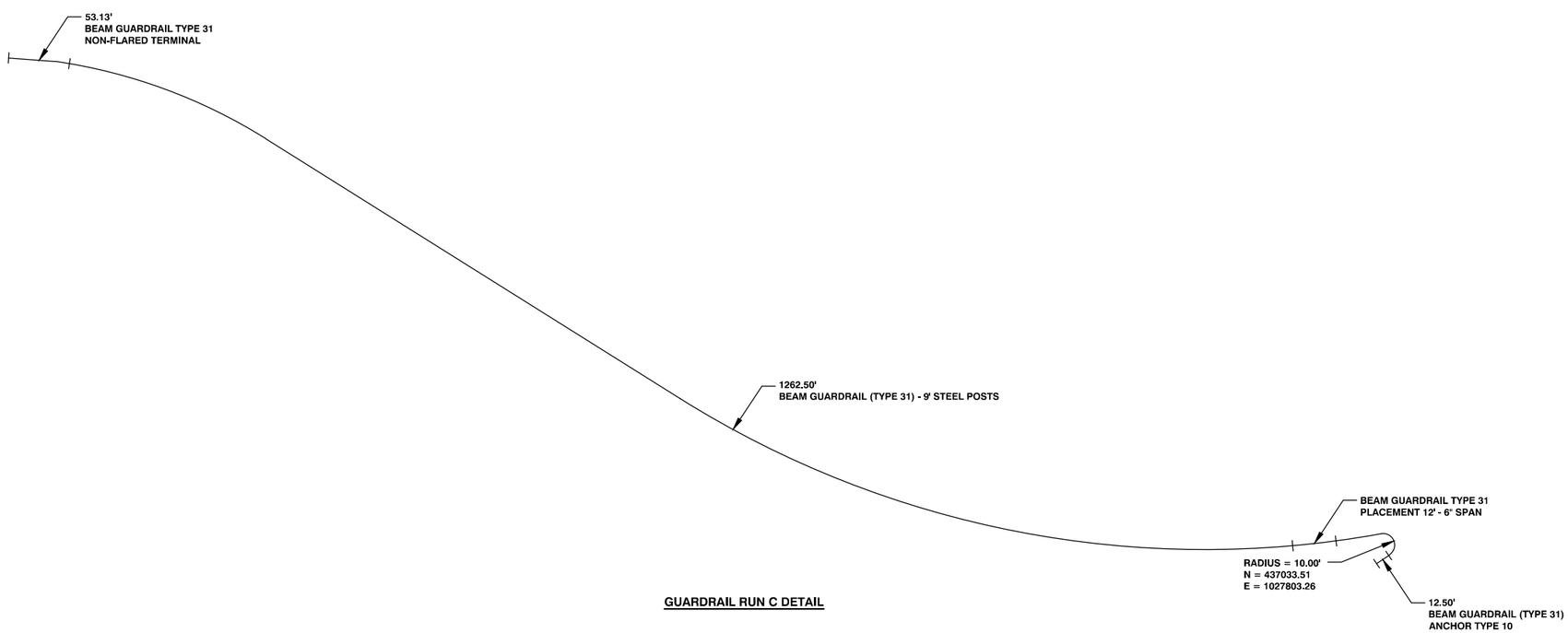
GUARDRAIL RUN A AND B DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
36208
REGISTERED PROFESSIONAL ENGINEER





GUARDRAIL RUN C DETAIL

CONSTRUCTION NOTES

1. STA 9+16.91 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN C DETAIL ON THIS SHEET
   8 POSTS WILL NEED TO BE DRILLED THROUGH ASPHALT
   DRILLING HOLES THROUGH ASPHALT WILL BE INCIDENTAL TO
   BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)

2. STA 9+72.01 TO STA 22+03.22 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN C DETAIL ON THIS SHEET
   1262.50 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST

3. CONSTRUCT BEAM GUARDRAIL TYPE 31 PLACEMENT 12' - 6" SPAN
   PER WSDOT STANDARD PLAN C-20.40-05
   AS STAKED IN THE FIELD BY THE ENGINEER
   SEE GUARDRAIL RUN C DETAIL ON THIS SHEET

4. STA 22+03.22 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN C DETAIL ON THIS SHEET

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

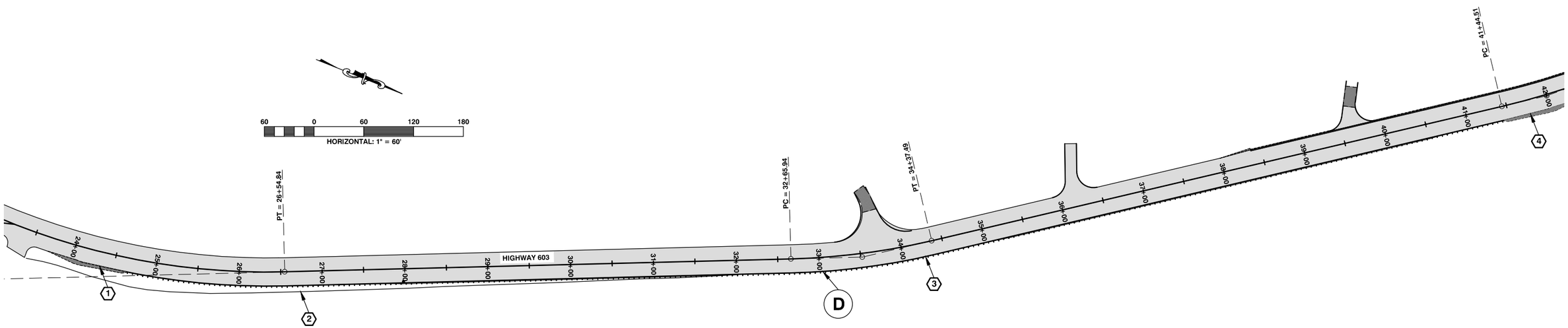
GUARDRAIL RUN C DETAILS

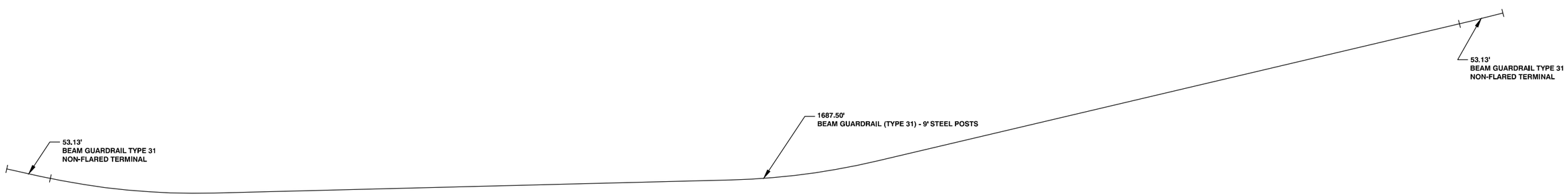
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER
3/14/16





GUARDRAIL RUN D DETAIL

CONSTRUCTION NOTES

1. STA 24+12.30 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN D DETAIL ON THIS SHEET
2. STA 23+48.99 TO STA 32+11.73 RIGHT
   REMOVE EXISTING GUARDRAIL AND ANCHORS
   875.00 L.F. REMOVING GUARDRAIL
3. STA 24+64.33 TO STA 41+44.45 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN D DETAIL ON THIS SHEET
   1687.50 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
4. STA 41+44.45 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN D DETAIL ON THIS SHEET

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

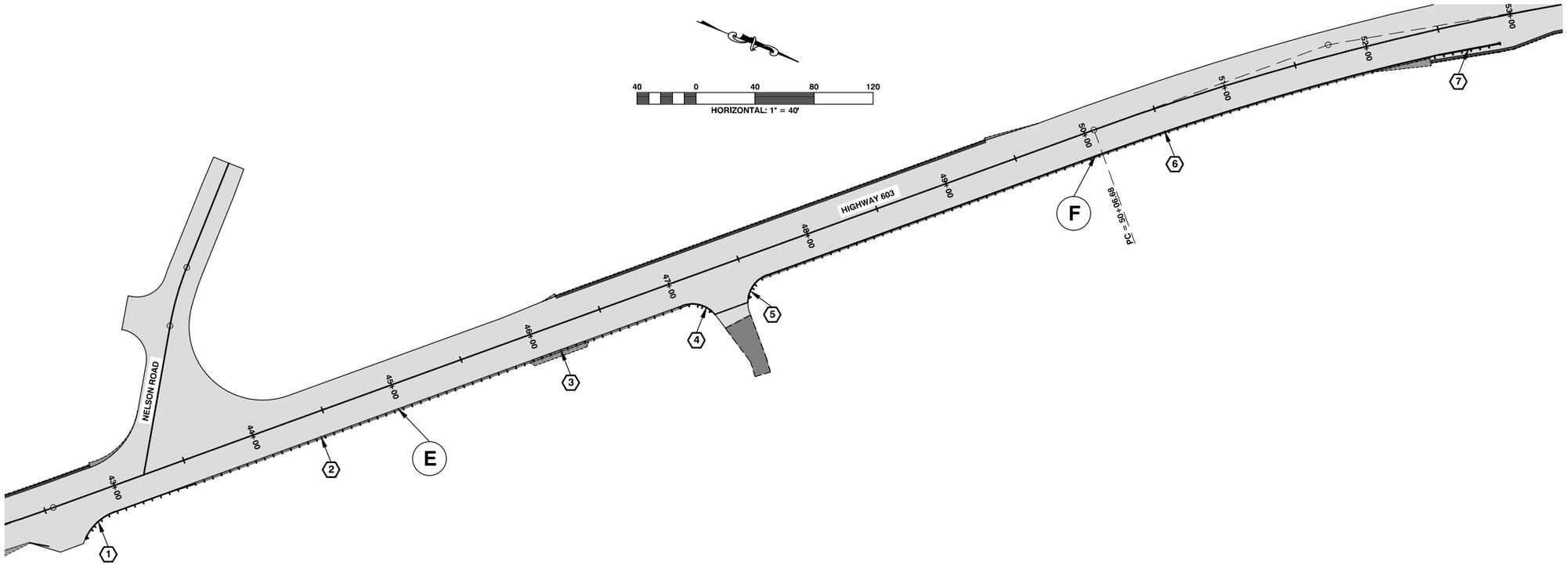
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

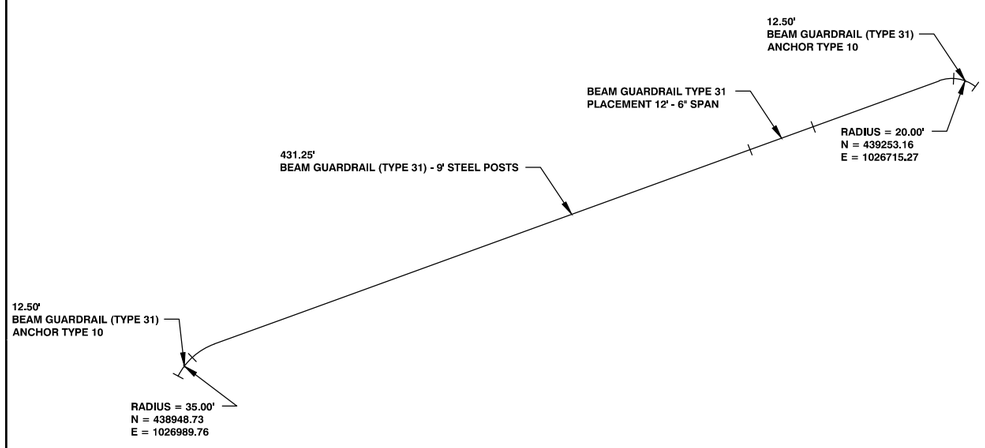
GUARDRAIL D DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

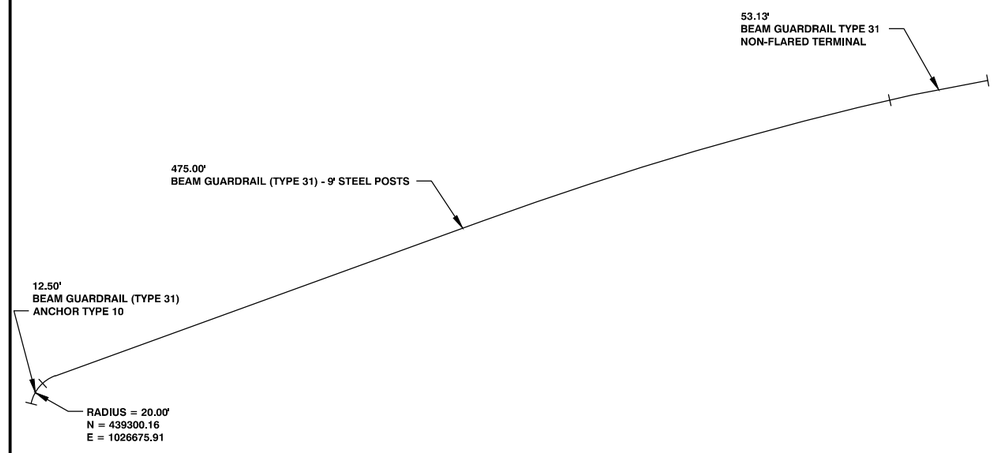
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





GUARDRAIL RUN E DETAIL



GUARDRAIL RUN F DETAIL

CONSTRUCTION NOTES

1. STA 42+70.06 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN E DETAIL ON THIS SHEET
2. STA 42+80.49 TO STA 47+11.18 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN E DETAIL ON THIS SHEET
   431.25 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
3. CONSTRUCT BEAM GUARDRAIL TYPE 31 PLACEMENT 12' - 6" SPAN
   PER WSDOT STANDARD PLAN C-20.40-05
   AS STAKED IN THE FIELD BY THE ENGINEER
   SEE GUARDRAIL RUN E DETAIL ON THIS SHEET
4. STA 47+11.18 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN E DETAIL ON THIS SHEET
5. STA 47+47.98 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN F DETAIL ON THIS SHEET
6. STA 47+57.38 TO STA 52+34.21 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN F DETAIL ON THIS SHEET
   475.00 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
7. STA 52+34.21 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL
   STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN F DETAIL ON THIS SHEET
   9 POSTS WILL NEED TO BE DRILLED THROUGH ASPHALT
   DRILLING HOLES THROUGH ASPHALT WILL BE INCIDENTAL TO
   BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS
   (ALL POSTED SPEEDS)

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

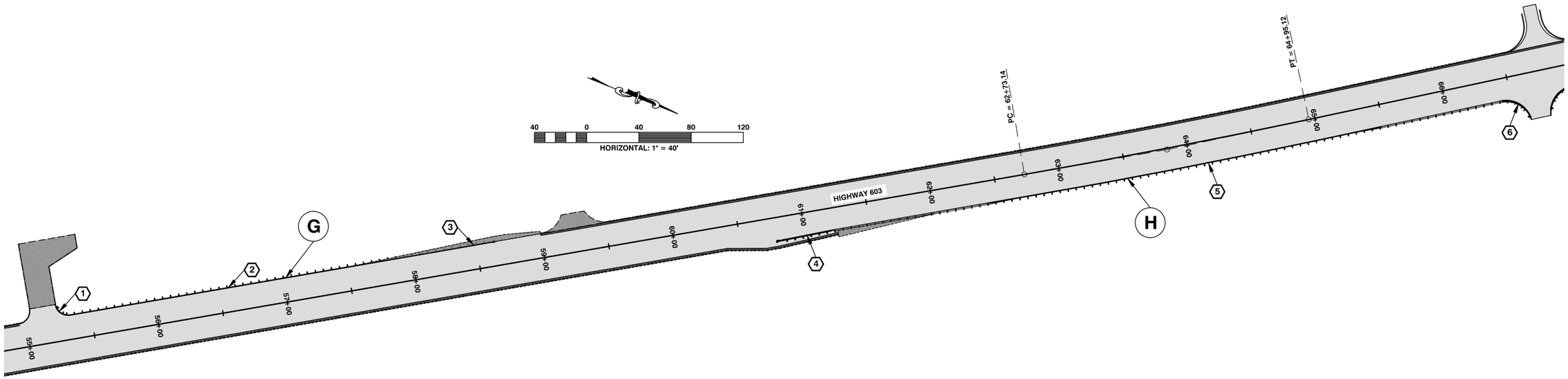
GUARDRAIL RUN E AND F DETAILS

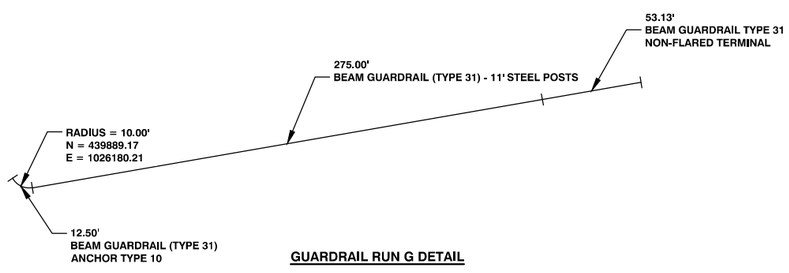
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

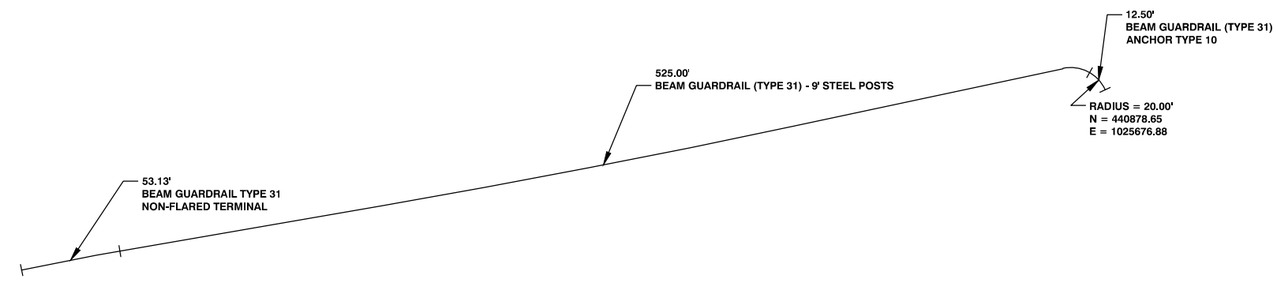
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





GUARDRAIL RUN G DETAIL



GUARDRAIL RUN H DETAIL

CONSTRUCTION NOTES

1. STA 55+25.01 LEFT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN G DETAIL ON THIS SHEET
2. STA 55+34.50 TO STA 58+09.50 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 11 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN G DETAIL ON THIS SHEET
   275.00 L.F. BEAM GUARDRAIL TYPE 31 - 11 FOOT LONG POST
3. STA 58+09.50 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN G DETAIL ON THIS SHEET
4. STA 60+79.11 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN H DETAIL ON THIS SHEET
   ASPHALT WILL BE DRILLED WITH TWELVE INCH DIAMETER HOLES TO ACCOMMODATE EIGHT POSTS.
   HOLES WILL BE PAID INCIDENTAL TO BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
5. STA 61+32.22 TO STA 66+55.31 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN H DETAIL ON THIS SHEET
   525.00 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
6. STA 66+55.31 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN H DETAIL ON THIS SHEET

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

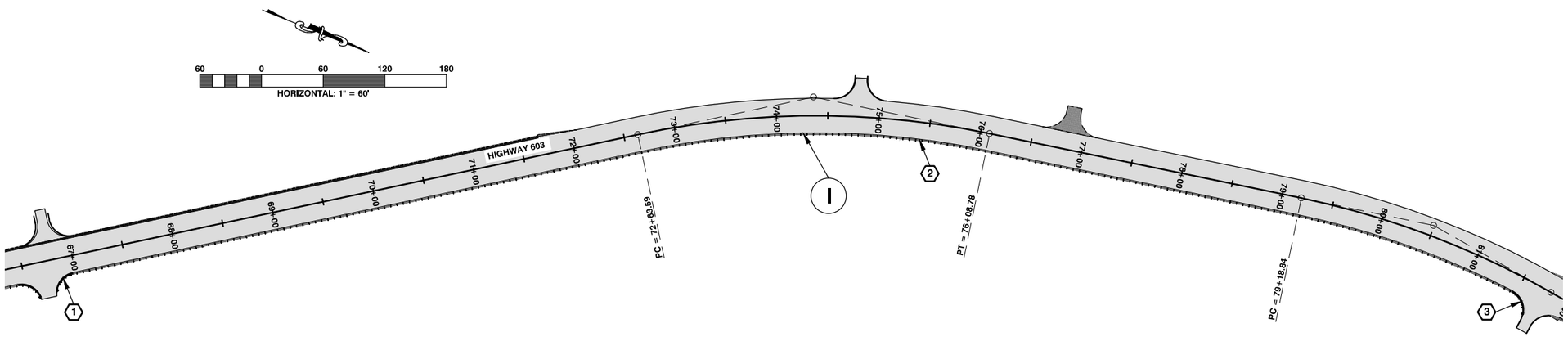
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

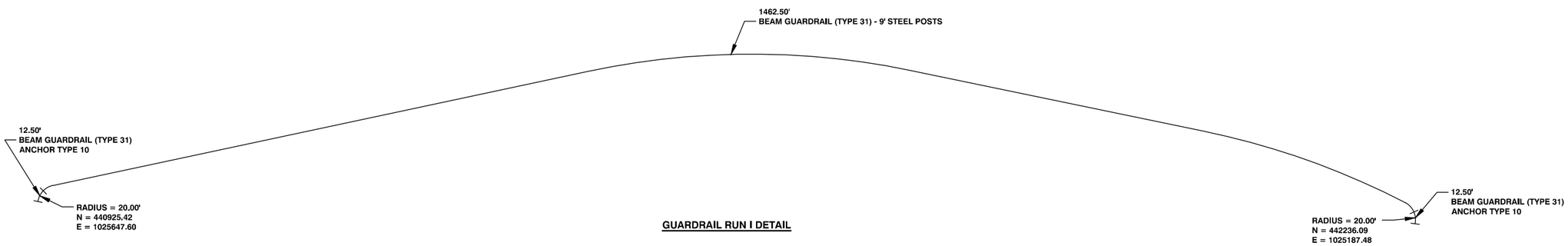
GUARDRAIL RUN G AND H DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





GUARDRAIL RUN I DETAIL

CONSTRUCTION NOTES

1. STA 66+78.43 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN I DETAIL ON THIS SHEET

2. STA 66+86.07 TO STA 81+58.88 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN I DETAIL ON THIS SHEET
   1462.50 L.F. BEAM GUARDRAIL TYPE 31 - 9 FOOT LONG POST

3. STA 81+58.88 RIGHT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN I DETAIL ON THIS SHEET

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

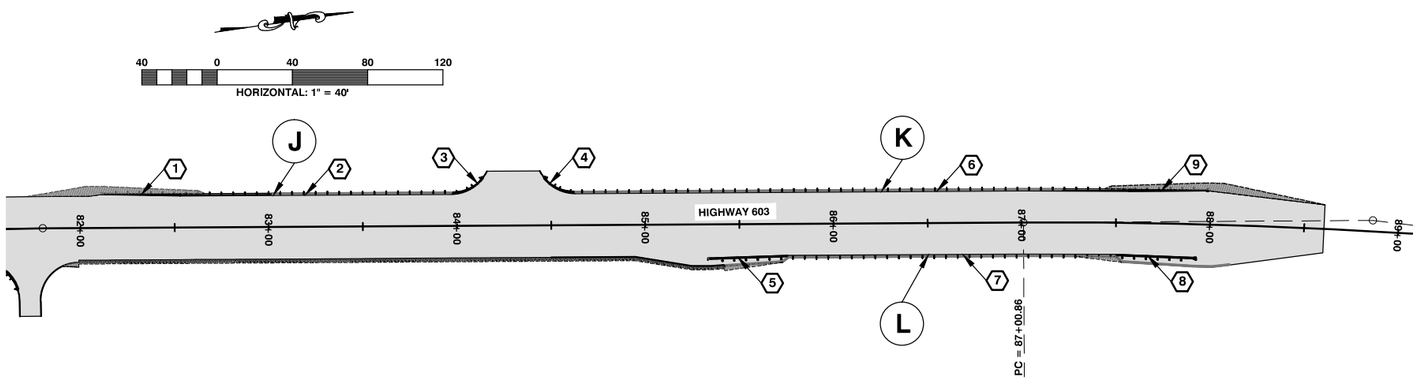
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

GUARDRAIL RUN I DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 82+12.50 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN J DETAIL ON THIS SHEET

2. STA 82+65.61 TO STA 84+03.03 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN J DETAIL ON THIS SHEET
   137.50 L.F. BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST

3. STA 84+03.03 LEFT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN J DETAIL ON THIS SHEET

4. STA 84+46.89 LEFT
   CONSTRUCT BEAM GUARDRAIL (TYPE 31) ANCHOR TYPE 10
   PER WSDOT STANDARD PLAN C-23.60-03
   SEE GUARDRAIL RUN K DETAIL ON THIS SHEET

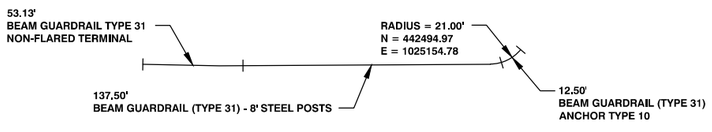
5. STA 85+34.61 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22,40-04
   SEE GUARDRAIL RUN L DETAIL ON THIS SHEET
   8 POSTS WILL NEED TO BE DRILLED THROUGH ASPHALT
   DRILLING HOLES THROUGH ASPHALT WILL BE INCIDENTAL TO
   BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)

6. STA 84+57.21 TO STA 87+44.38 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN K DETAIL ON THIS SHEET
   287.50 L.F. BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST

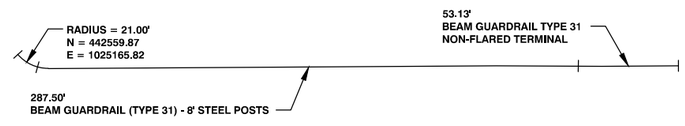
7. STA 85+87.72 TO STA 87+37.93 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST
   PER WSDOT STANDARD PLAN C-20.10-03
   SEE GUARDRAIL RUN L DETAIL ON THIS SHEET
   150.00 L.F. BEAM GUARDRAIL TYPE 31 - 8 FOOT LONG POST

8. STA 87+37.93 RIGHT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN L DETAIL ON THIS SHEET
   8 POSTS WILL NEED TO BE DRILLED THROUGH ASPHALT
   DRILLING HOLES THROUGH ASPHALT WILL BE INCIDENTAL TO
   BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)

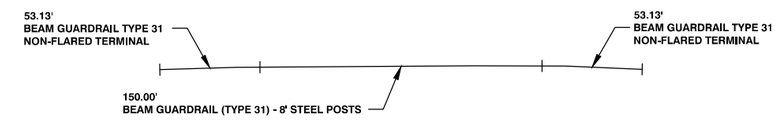
9. STA 87+44.38 LEFT
   CONSTRUCT BEAM GUARDRAIL TYPE 31 NON-FLARED TERMINAL STEEL POSTS (ALL POSTED SPEEDS)
   PER WSDOT STANDARD PLAN C-22.40-04
   SEE GUARDRAIL RUN K DETAIL ON THIS SHEET



GUARDRAIL RUN J DETAIL



GUARDRAIL RUN K DETAIL



GUARDRAIL RUN L DETAIL

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

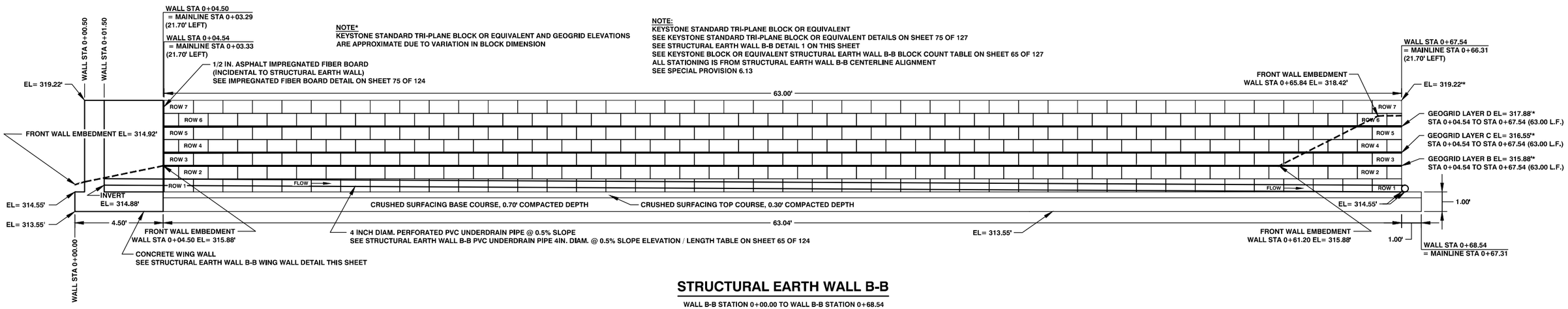
GUARDRAIL RUN J, K AND L DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

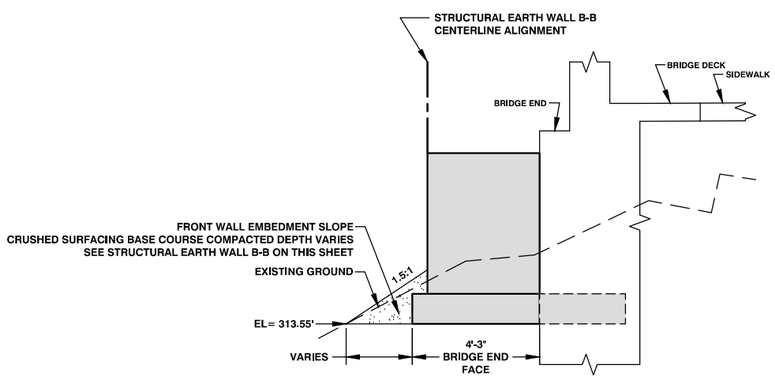
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



STRUCTURAL EARTH WALL B-B

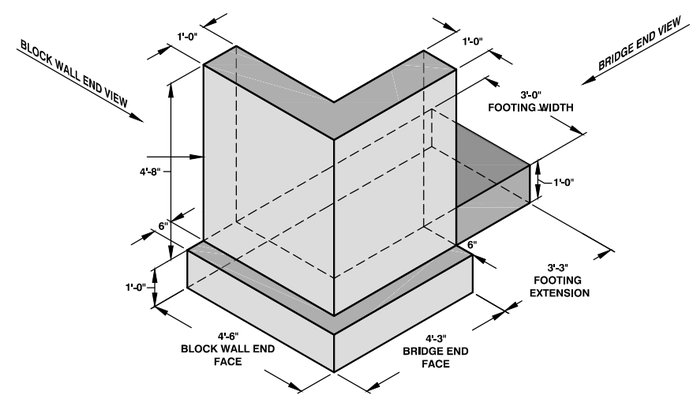
WALL B-B STATION 0+00.00 TO WALL B-B STATION 0+68.54
NOT TO SCALE

STRUCTURAL EARTH WALL B-B QUANTITIES
105.00 C.Y. STRUCTURE EXCAVATION CLASS A INCL. HAUL
2.00 C.Y. COMMERCIAL CONCRETE
51.00 LB. ST. REINF. BAR
32 TON CRUSHED SURFACING BASE COURSE
6.00 TON CRUSHED SURFACING TOP COURSE
295.00 S.F. STRUCTURAL EARTH WALL
100.00 TON GRAVEL BORROW FOR STRUCTURAL EARTH WALL INCL. HAUL
12.00 C.Y. GRAVEL BACKFILL FOR DRAIN
67.00 L.F. UNDERDRAIN PIPE 4 IN. DIAM.
8.00 L.F. DRAIN PIPE 4 IN. DIAM.
15.00 S.Y. CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE
2.00 TON QUARRY SPALLS

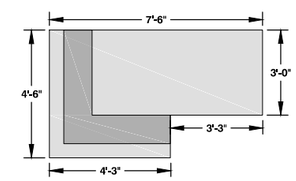


STRUCTURAL EARTH WALL B-B WING WALL DETAIL

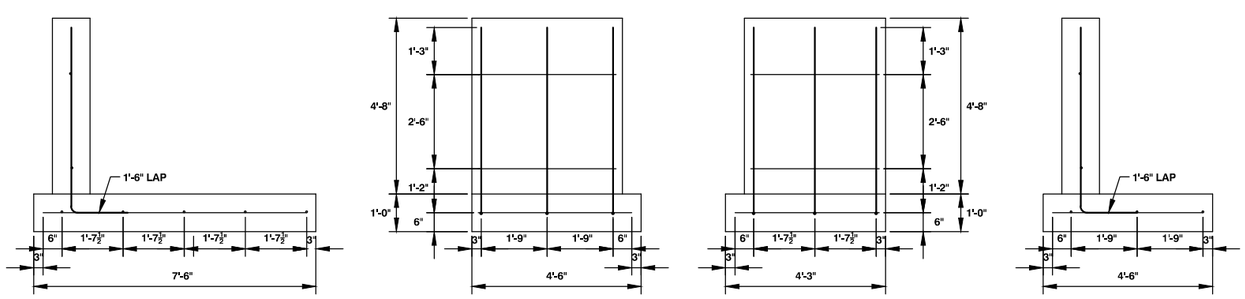
WALL B-B STATION 0+00.00 TO WALL B-B STATION 0+04.50
NOT TO SCALE



WING WALL B-B ISOMETRIC VIEW



WING WALL FOOTING B-B TOP VIEW



BLOCK WALL END VIEW | BLOCK WALL END FACE VIEW | BRIDGE END FACE VIEW | BRIDGE END VIEW

NOTES:
1. ALL REBAR SHALL BE No. 4
2. MINIMUM CONCRETE REBAR COVER IS 2".
3. CONCRETE WING WALL SHALL BE CONSTRUCTED USING COMMERCIAL CONCRETE

WING WALL REBAR LAYOUT

SCALE : 1/2" = 1'-0"

KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL B-B BLOCK COUNT TABLE			
ROW	FULL BLOCK	HALF BLOCK	FULL TOP CAP BLOCK
ROW 1	42		
ROW 2	41	2	
ROW 3	42		
ROW 4	41	2	
ROW 5	42		
ROW 6	41	2	
ROW 7			42
TOTAL BLOCKS	249	6	42

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

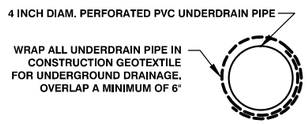
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL B-B STA 0+00.00 - STA 0+68.54
STRUCTURAL EARTH WALL B-B WING WALL DETAIL
WING WALL REBAR LAYOUT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



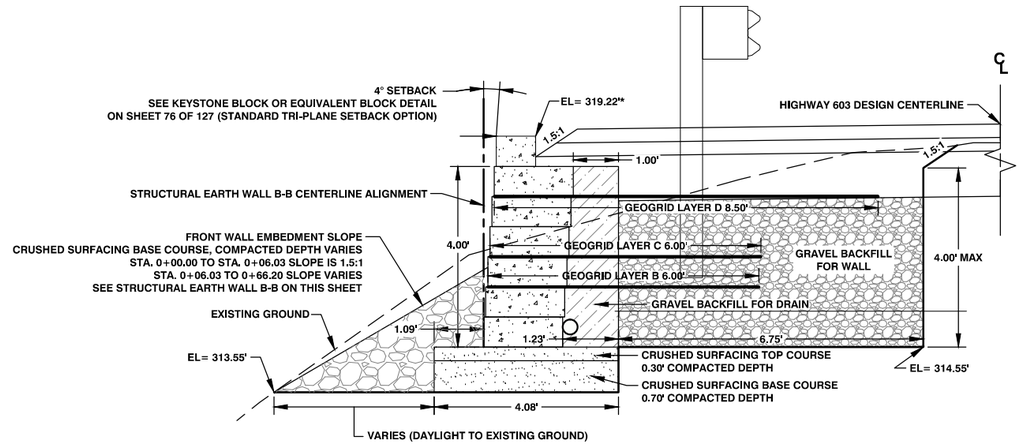
4 INCH DIAM. PERFORATED PVC UNDERDRAIN PIPE GEOTEXTILE

4 INCH DIAM. PVC UNDERDRAIN PIPE

*PIPE LENGTHS ARE FOR BID PURPOSE ONLY AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING. ELBOWS, COUPLINGS, AND END CAPS SHALL BE INCLUDED IN THE L.F. OF PIPE AND NO OTHER COMPENSATION SHALL BE PAID.

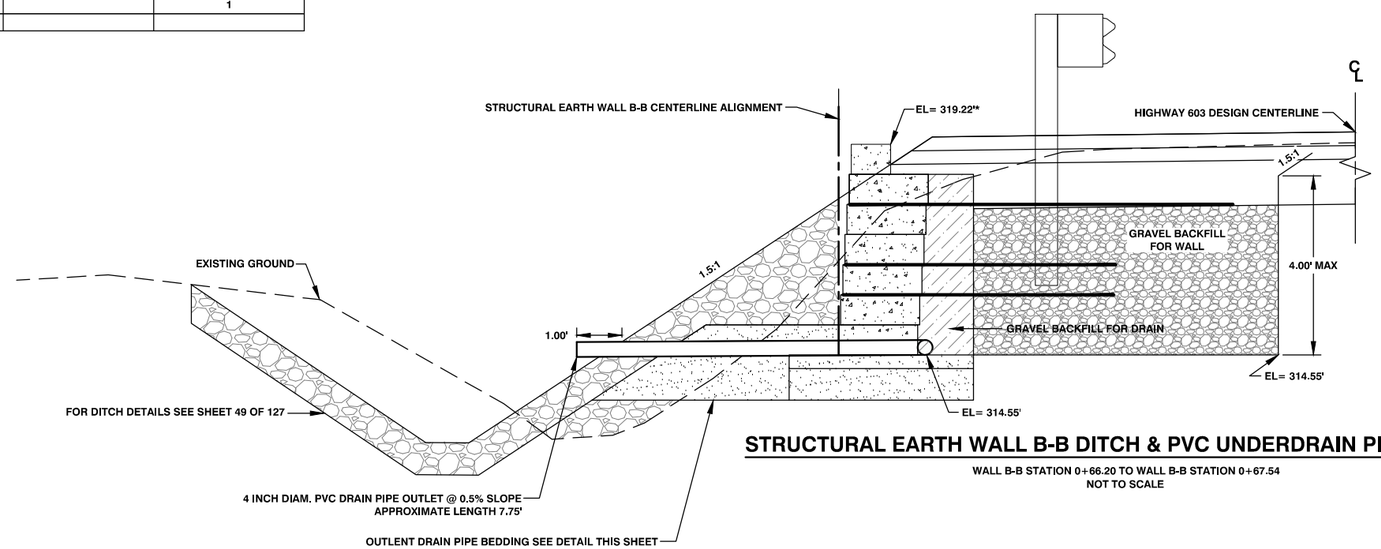
STRUCTURAL EARTH WALL B-B PVC UNDERDRAIN PIPE 4 IN. DIAM. @ 0.5% SLOPE ELEVATION / LENGTH TABLE

STATION	INVERT ELEVATION	PIPE LENGTH*	END CAPS	90° ELBOW
0+01.50	314.88'		1	
		66.21'		
0+67.71	314.55'			
		7.75' (SOLID PIPE)		1
0+67.71 (OUTLET)	314.51'			



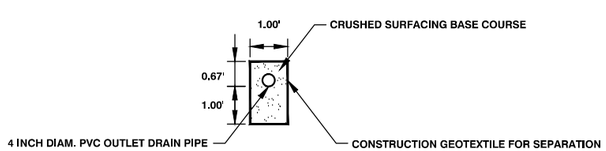
STRUCTURAL EARTH WALL B-B DETAIL 1

WALL B-B STATION 0+00.00 TO WALL B-B STATION 0+66.20
NOT TO SCALE



STRUCTURAL EARTH WALL B-B DITCH & PVC UNDERDRAIN PIPE DETAIL

WALL B-B STATION 0+66.20 TO WALL B-B STATION 0+67.54
NOT TO SCALE



OUTLET DRAIN PIPE BEDDING DETAIL

Lewis County Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

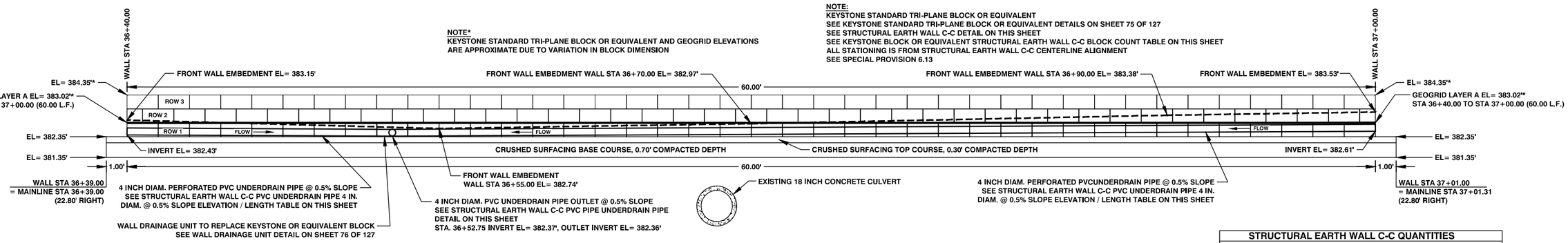
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL B-B DETAIL 1
STRUCTURAL EARTH WALL B-B PVC UNDERDRAIN PIPE DETAIL

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

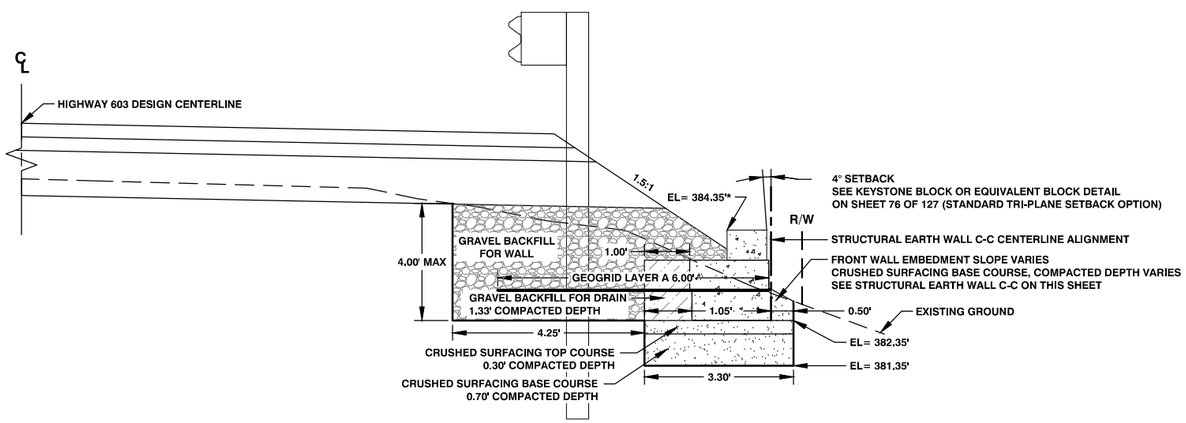
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



STRUCTURAL EARTH WALL C-C

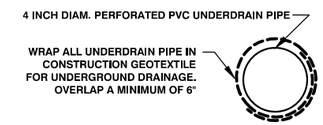
WALL C-C STATION 36+39.00 TO WALL C-C STATION 37+01.00
NOT TO SCALE

STRUCTURAL EARTH WALL C-C QUANTITIES
39.00 C.Y. STRUCTURE EXCAVATION CLASS A INCL. HAUL
12.00 TON CRUSHED SURFACING BASE COURSE
5.00 TON CRUSHED SURFACING TOP COURSE
120.00 S.F. STRUCTURAL EARTH WALL
55 TON GRAVEL BACKFILL FOR WALL
4.00 C.Y. GRAVEL BORROW FOR STRUCTURAL EARTH WALL INCLUDING HAUL
40.00 S.Y. GEOSYNTHETIC FOR REINFORCEMENT
60.00 L.F. UNDERDRAIN PIPE 4 IN. DIAM.
3.00 L.F. DRAIN PIPE 4 IN. DIAM.
11.00 S.Y. CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE

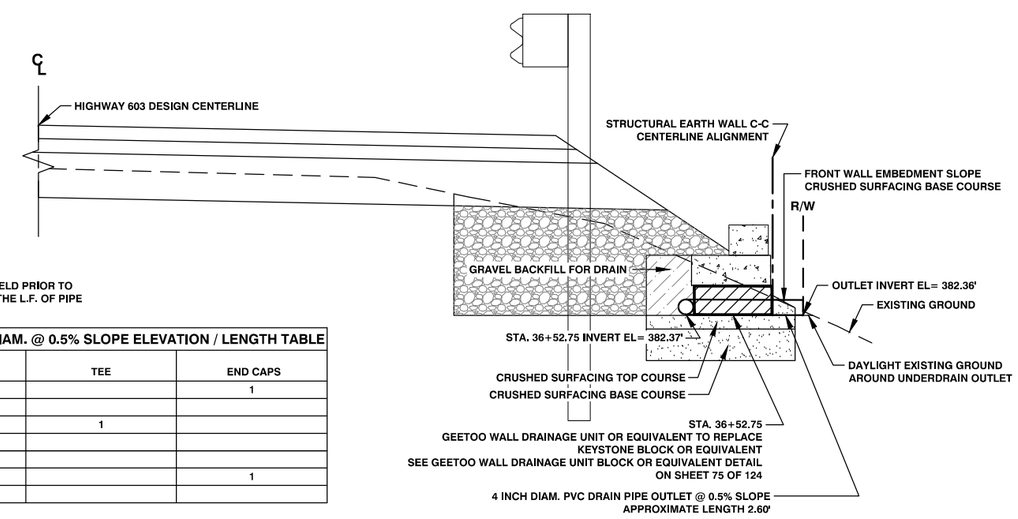


STRUCTURAL EARTH WALL C-C DETAIL

WALL C-C STATION 36+39.00 TO WALL C-C STATION 37+01.00
NOT TO SCALE



4 INCH DIAM. PERFORATED PVC UNDERDRAIN PIPE GEOTEXTILE



4 INCH DIAM. PVC UNDERDRAIN PIPE OUTLET

KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL C-C BLOCK COUNT TABLE			
ROW	FULL BLOCK	HALF BLOCK	FULL TOP CAP BLOCK
ROW 1	40		
ROW 2	39	2	
ROW 3			40
TOTAL BLOCKS	79	2	40

*PIPE LENGTHS ARE FOR BID PURPOSE ONLY AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING. ELBOWS, COUPLINGS, TEE, AND END CAPS SHALL BE INCLUDED IN THE L.F. OF PIPE AND NO OTHER COMPENSATION SHALL BE PAID.

STRUCTURAL EARTH WALL C-C PVC UNDERDRAIN PIPE 4 IN. DIAM. @ 0.5% SLOPE ELEVATION / LENGTH TABLE				
STATION	INVERT ELEVATION	PIPE LENGTH*	TEE	END CAPS
36+40.00	382.43'			1
		12.75'		
36+52.75	382.37'		1	
		2.60' (SOLID PIPE)		
36+52.75 (OUTLET)	382.36'			
		47.25'		1
37+00.00	382.61			

STRUCTURAL EARTH WALL C-C PVC UNDERDRAIN PIPE DETAIL

WALL C-C STATION 36+40.00 TO WALL C-C STATION 37+00.00
NOT TO SCALE

Lewis County Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

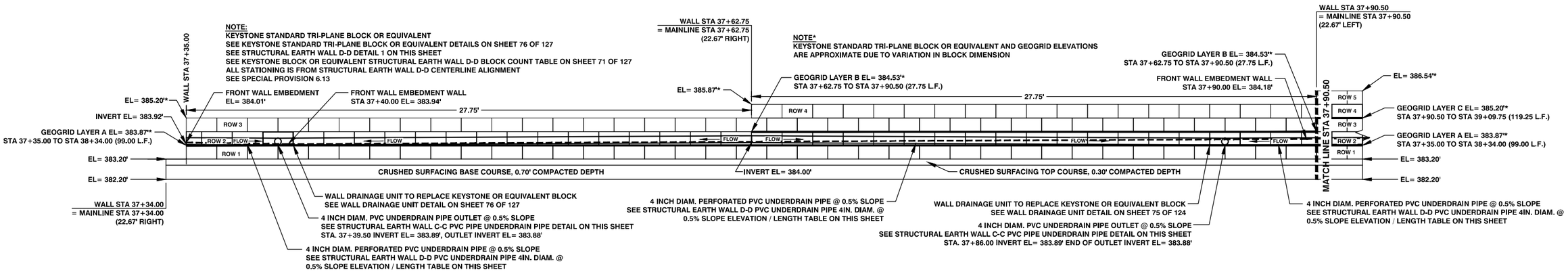
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL C-C STA 36+39.00 - STA 37+01.00
STRUCTURAL EARTH WALL C-C DETAIL
STRUCTURAL EARTH WALL C-C PVC UNDERDRAIN PIPE DETAIL
STRUCTURAL EARTH WALL WALL C-C BLOCK COUNT TABLE

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



STRUCTURAL EARTH WALL D-D

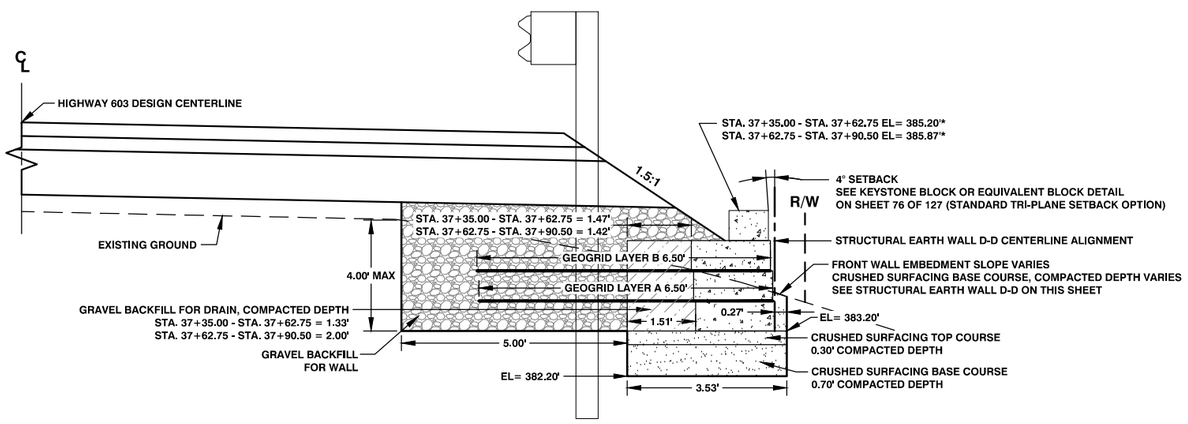
WALL D-D STATION 37+34.00 TO WALL D-D STATION 37+90.50
NOT TO SCALE

STRUCTURAL EARTH WALL D-D QUANTITIES
255.00 C.Y. STRUCTURE EXCAVATION CLASS A INCL. HAUL
70.00 TON CRUSHED SURFACING BASE COURSE
25.00 TON CRUSHED SURFACING TOP COURSE
1116.00 S.F. STRUCTURAL EARTH WALL
410 TON. GRAVEL BORROW FOR STRUCTURAL EARTH WALL INCL. HAUL
50.00 C.Y. GRAVEL BACKFILL FOR DRAIN
425.00 S.Y. GEOSYNTHETIC FOR REINFORCEMENT
294.00 L.F. UNDERDRAIN PIPE 4 IN. DIAM.
6.00 L.F. DRAIN PIPE 4 IN. DIAM.
55.00 S.Y. CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE

*PIPE LENGTHS ARE FOR BID PURPOSE ONLY AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING. ELBOWS, COUPLINGS, TEE, AND END CAPS SHALL BE INCLUDED IN THE L.F. OF PIPE AND NO OTHER COMPENSATION SHALL BE PAID.

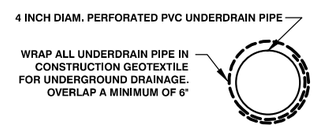
STRUCTURAL EARTH WALL D-D PVC UNDERDRAIN PIPE 4IN. DIAM. @ 0.5% SLOPE ELEVATION / LENGTH TABLE

STATION	INVERT ELEVATION	PIPE LENGTH*	TEE	90° SWEEPING ELBOW	END CAPS
37+35.00	383.92'				1
		4.50'			
37+39.50	383.89'		1		
		2.67' (SOLID PIPE)			
37+39.50 (OUTLET)	383.88'				
37+39.50	383.89'				
		23.25'			
37+62.75	384.00'				2
		23,25'			
37+86.00	383.89'		1		
		2.61' (SOLID PIPE)			
37+86.00 (OUTLET)	383.88'				
37+86.00	383.89'				
		123.75'			
39+09.75	384.51'			1	
		0.70'			
39+09.75	385.20'			1	
		75.00'			
39+84.75	385.58'			1	
		2.31'			
39+84.75	387.88'			1	
		40.50'			
40+25.25	388.08'				1

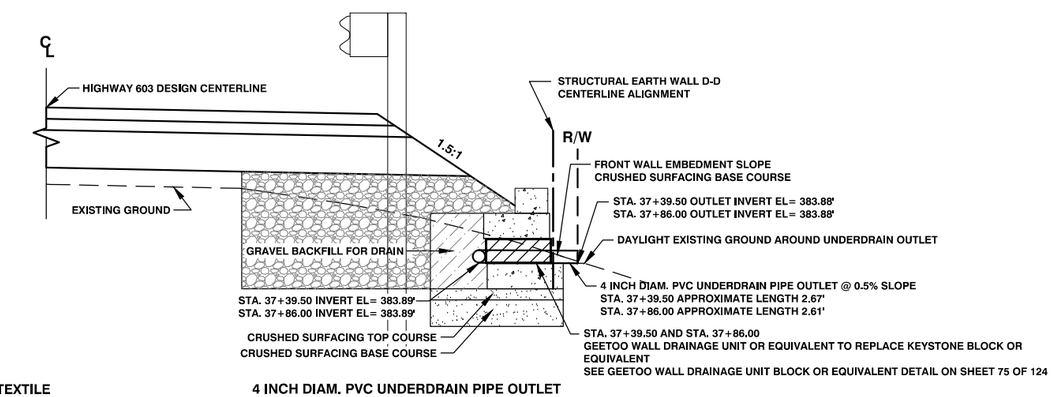


STRUCTURAL EARTH WALL D-D DETAIL 1

WALL D-D STATION 37+34.00 TO WALL D-D STATION 37+90.50
NOT TO SCALE



4 INCH DIAM. PERFORATED PVC UNDERDRAIN PIPE GEOTEXTILE



4 INCH DIAM. PVC UNDERDRAIN PIPE OUTLET

STRUCTURAL EARTH WALL D-D PVC UNDERDRAIN PIPE DETAIL

WALL D-D STATION 37+34.00 TO WALL D-D STATION 40+25.25
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

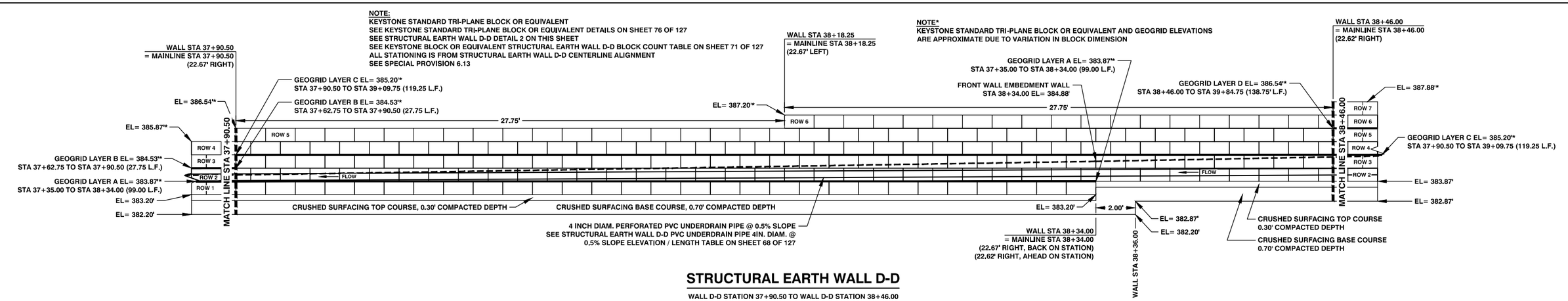
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL D-D STA 37+34.00 - STA 37+90.50
STRUCTURAL EARTH WALL D-D DETAIL 1
STRUCTURAL EARTH WALL D-D PVC UNDERDRAIN PIPE DETAIL
STRUCTURAL EARTH WALL D-D PVC UNDERDRAIN PIPE 4IN. DIAM. @ 0.50% SLOPE ELEVATION / LENGTH TABLE

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

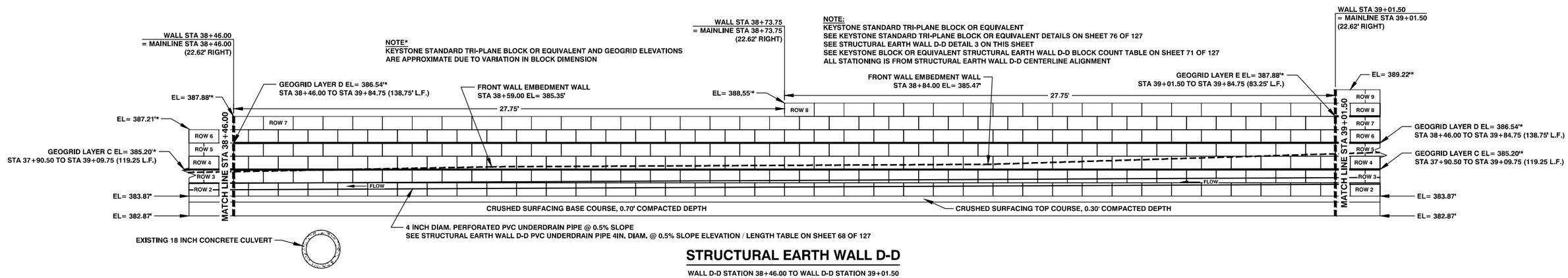
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



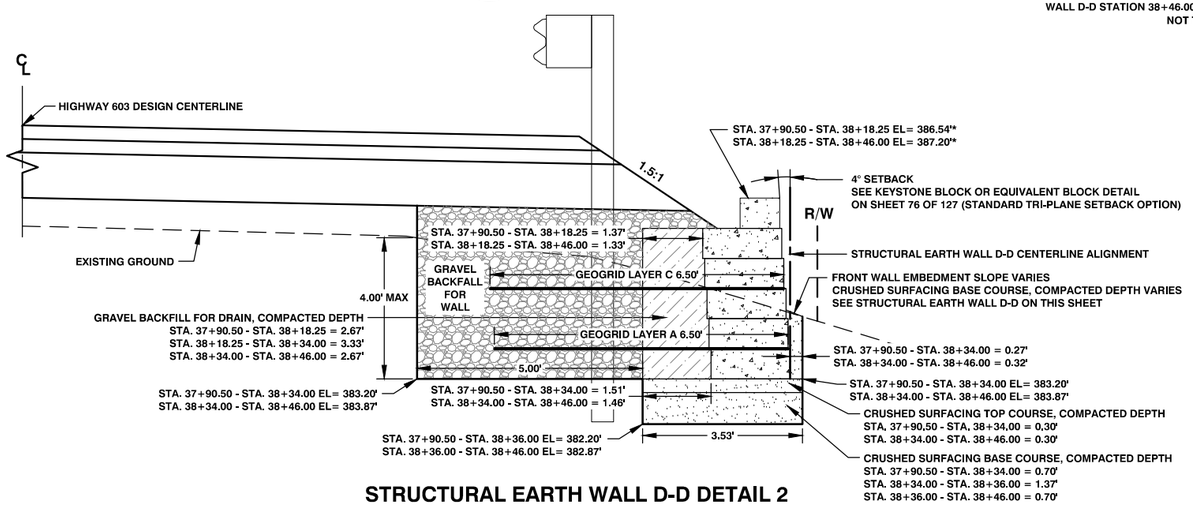
STRUCTURAL EARTH WALL D-D

WALL D-D STATION 37+90.50 TO WALL D-D STATION 38+46.00
NOT TO SCALE



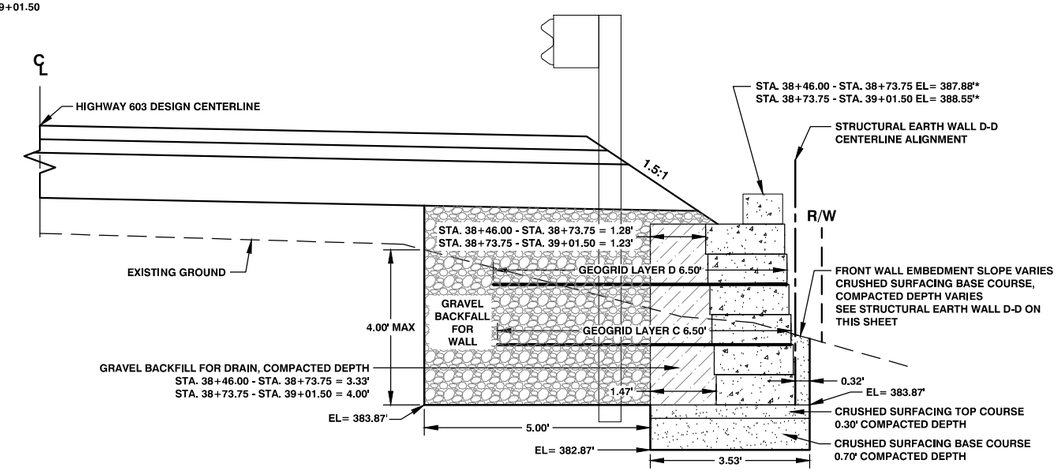
STRUCTURAL EARTH WALL D-D

WALL D-D STATION 38+46.00 TO WALL D-D STATION 39+01.50
NOT TO SCALE



STRUCTURAL EARTH WALL D-D DETAIL 2

WALL D-D STATION 37+90.50 TO WALL D-D STATION 38+46.00
NOT TO SCALE



STRUCTURAL EARTH WALL D-D DETAIL 3

WALL D-D STATION 38+46.00 TO WALL D-D STATION 39+01.50
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

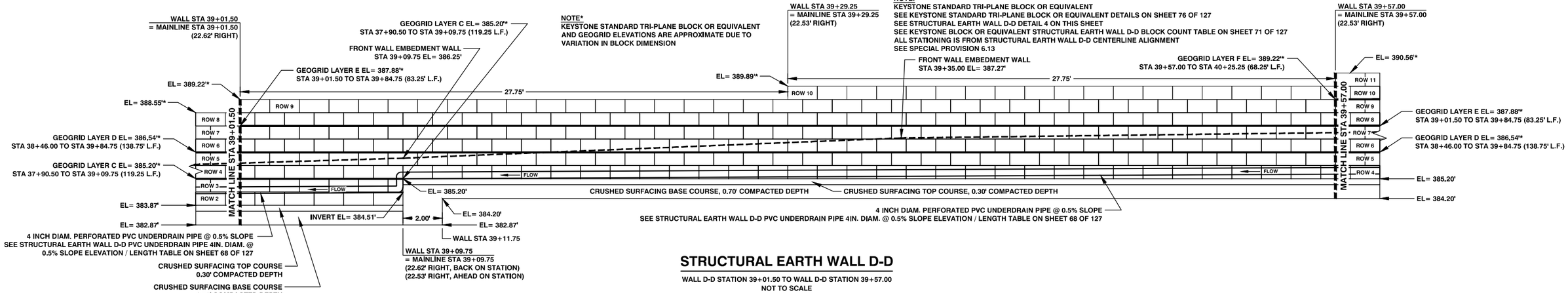
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL D-D STA 37+90.50 - STA 38+46.00
STRUCTURAL EARTH WALL D-D STA 38+46.00 - STA 39+01.50
STRUCTURAL EARTH WALL D-D DETAIL 2
STRUCTURAL EARTH WALL D-D DETAIL 3

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

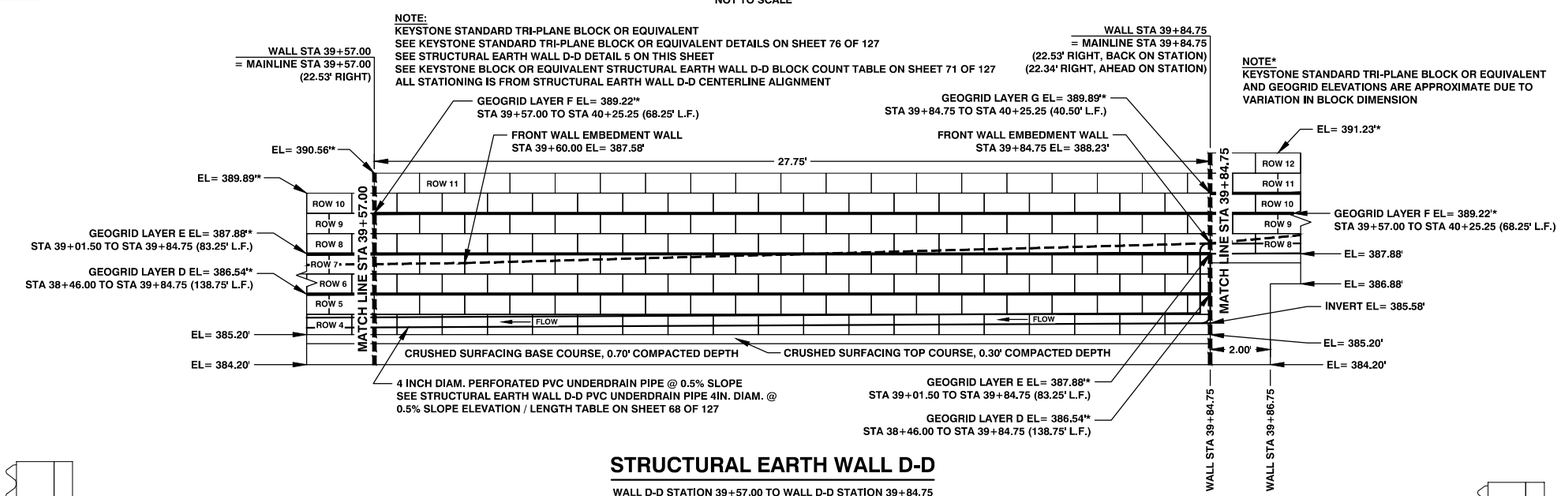
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



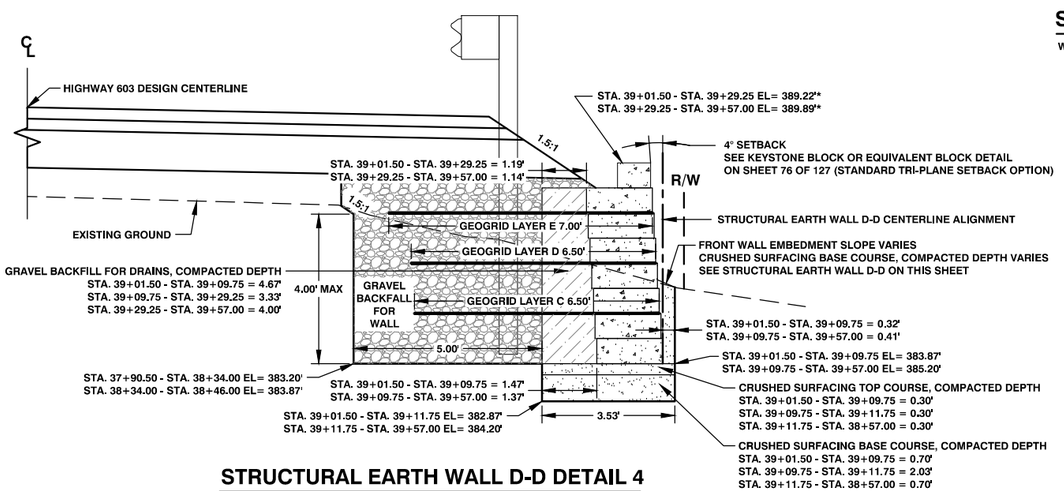
STRUCTURAL EARTH WALL D-D

WALL D-D STATION 39+01.50 TO WALL D-D STATION 39+57.00
NOT TO SCALE



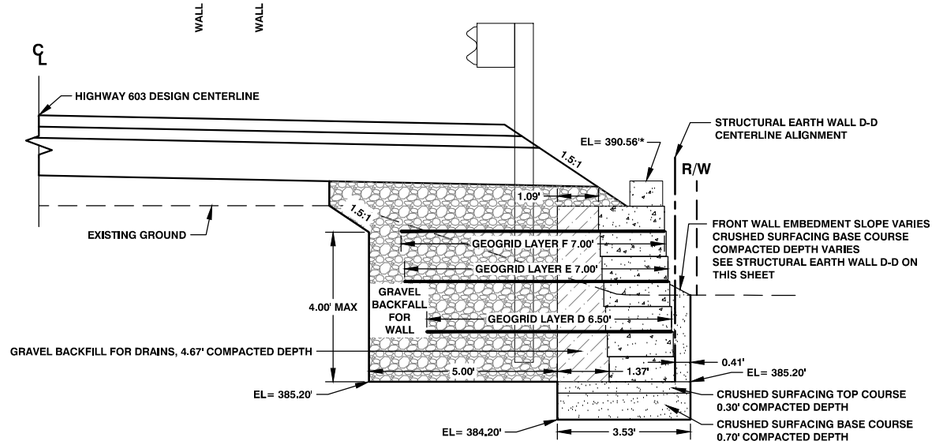
STRUCTURAL EARTH WALL D-D

WALL D-D STATION 39+57.00 TO WALL D-D STATION 39+84.75
NOT TO SCALE



STRUCTURAL EARTH WALL D-D DETAIL 4

WALL D-D STATION 39+01.50 TO WALL D-D STATION 39+57.00
NOT TO SCALE



STRUCTURAL EARTH WALL D-D DETAIL 5

WALL D-D STATION 39+57.00 TO WALL D-D STATION 39+84.75
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

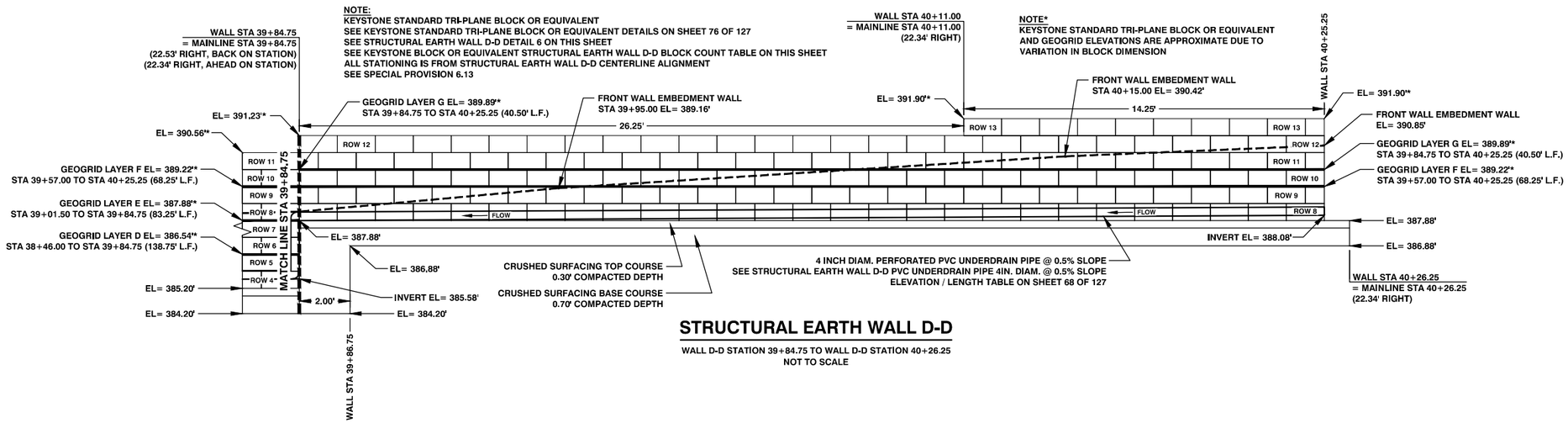
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL D-D STA 39+01.50 - STA 39+57.00
STRUCTURAL EARTH WALL D-D STA 39+57.00 - STA 39+84.75
STRUCTURAL EARTH WALL D-D DETAIL 4
STRUCTURAL EARTH WALL D-D DETAIL 5

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

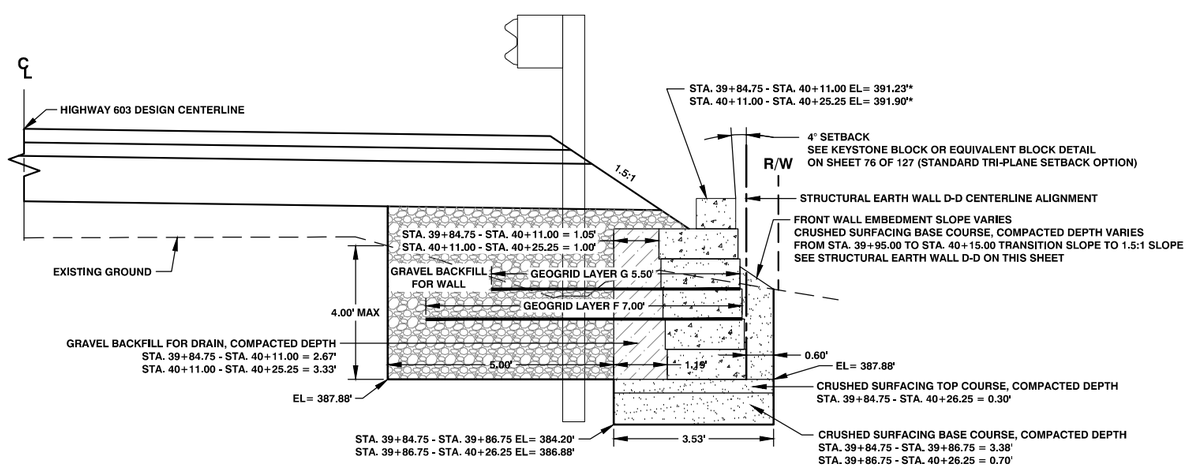
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



STRUCTURAL EARTH WALL D-D

WALL D-D STATION 39+84.75 TO WALL D-D STATION 40+26.25
NOT TO SCALE



STRUCTURAL EARTH WALL D-D DETAIL 6

WALL D-D STATION 39+84.75 TO WALL D-D STATION 40+25.25
NOT TO SCALE

KEYSTONE BLOCK OR EQUIVALENT
STRUCTURAL EARTH WALL D-D BLOCK COUNT TABLE

ROW	FULL BLOCK	HALF BLOCK	FULL TOP CAP BLOCK	HALF TOP CAP BLOCK
ROW 1	66			
ROW 2	116	1		
ROW 3	116	1		
ROW 4	129		19	
ROW 5	110	1	19	
ROW 6	92		19	
ROW 7	73	1	19	
ROW 8	82		19	
ROW 9	63	1	19	
ROW 10	45		19	
ROW 11	26	1	19	
ROW 12	9		18	
ROW 13			9	1
TOTAL BLOCKS	927	6	179	1

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

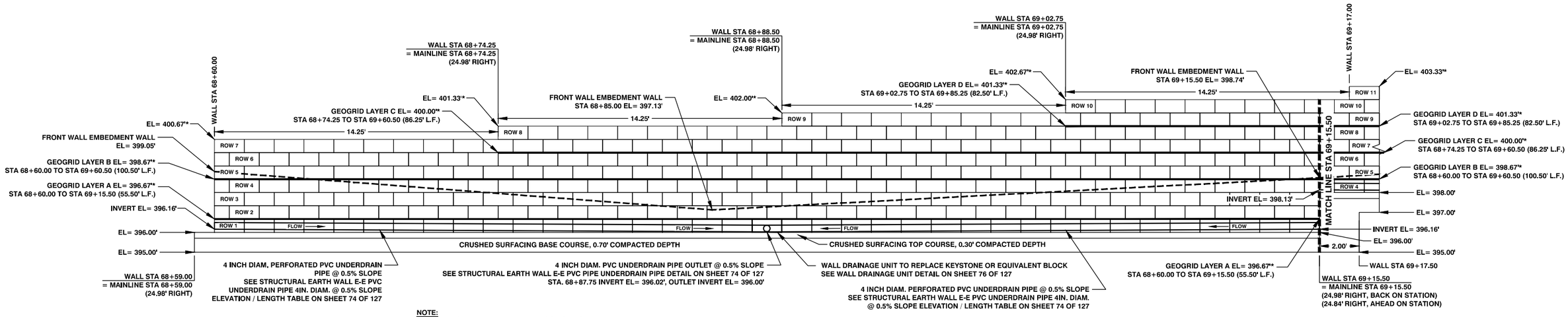
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL D-D STA 39+84.75 - 40+26.25
STRUCTURAL EARTH WALL D-D DETAIL 6
KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL D-D BLOCK COUNT TABLE

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



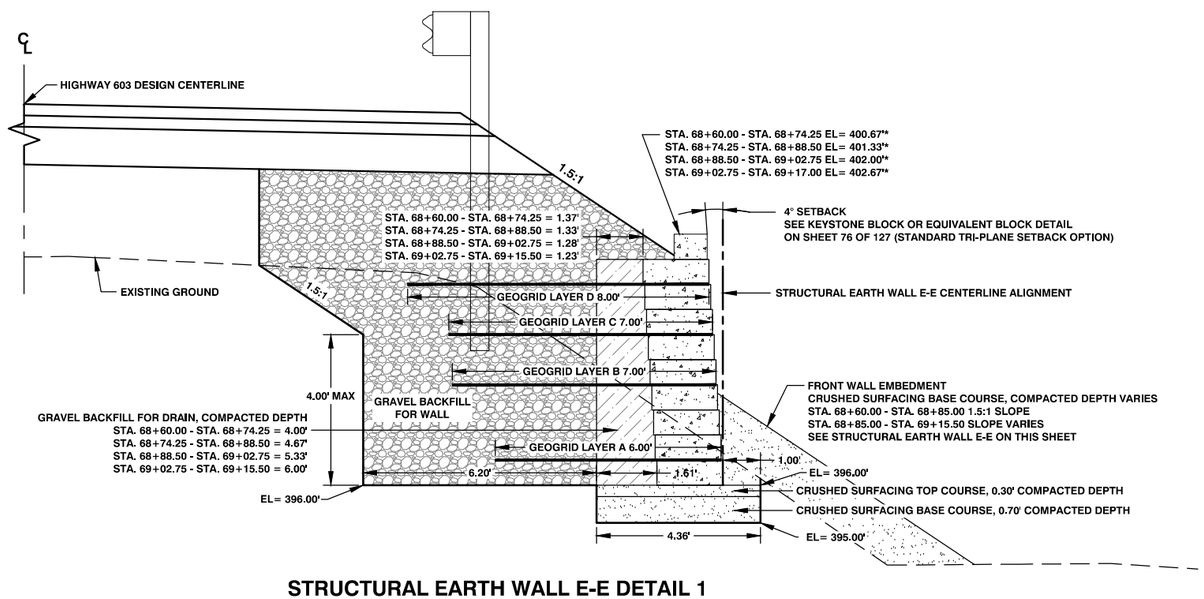
NOTE:
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT
SEE KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT DETAILS ON SHEET 76 OF 127
SEE STRUCTURAL EARTH WALL E-E DETAIL 1 ON THIS SHEET
SEE KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL E-E BLOCK COUNT TABLE ON THIS SHEET
ALL STATIONING IS FROM STRUCTURAL EARTH WALL E-E CENTERLINE ALIGNMENT
SEE SPECIAL PROVISION 6.13

NOTE*
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT
AND GEOGRID ELEVATIONS ARE APPROXIMATE DUE TO
VARIATION IN BLOCK DIMENSION

STRUCTURAL EARTH WALL E-E

WALL E-E STATION 68+59.00 TO WALL E-E STATION 69+15.50
NOT TO SCALE

STRUCTURAL EARTH WALL D-D QUANTITIES
210.00 C.Y. STRUCTURE EXCAVATION CLASS A INCL. HAUL
60.00 TON CRUSHED SURFACING BASE COURSE
15.00 TON CRUSHED SURFACING TOP COURSE
713.00 S.F. STRUCTURAL EARTH WALL
435 TON GRAVEL BORROW FOR STRUCTURAL EARTH WALL INCL. HAUL
40.00 C.Y. GRAVEL BACKFILL FOR DRAIN
330.00 S.Y. GEOSYNTHETIC FOR REINFORCEMENT
126.00 L.F. UNDERDRAIN PIPE 4 IN. DIAM.
14.00 L.F. DRAIN PIPE 4 IN. DIAM.
22.00 S.Y. CONSTRUCTION GEOTEXTILE FOR UNDERGROUND DRAINAGE



STRUCTURAL EARTH WALL E-E DETAIL 1

WALL E-E STATION 68+60.00 TO WALL E-E STATION 69+15.50
NOT TO SCALE

KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL E-E BLOCK COUNT TABLE				
ROW	FULL BLOCK	HALF BLOCK	FULL TOP CAP BLOCK	HALF TOP CAP BLOCK
ROW 1	37			
ROW 2	36	2		
ROW 3	37			
ROW 4	66	2		
ROW 5	67			
ROW 6	66	2		
ROW 7	57		10	
ROW 8	64		10	
ROW 9	54	1	10	
ROW 10	45		10	
ROW 11	35	1	10	
ROW 12	27		9	
ROW 13	18	1	9	
ROW 14	12		7	
ROW 15			12	1
TOTAL BLOCKS	621	9	87	1

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

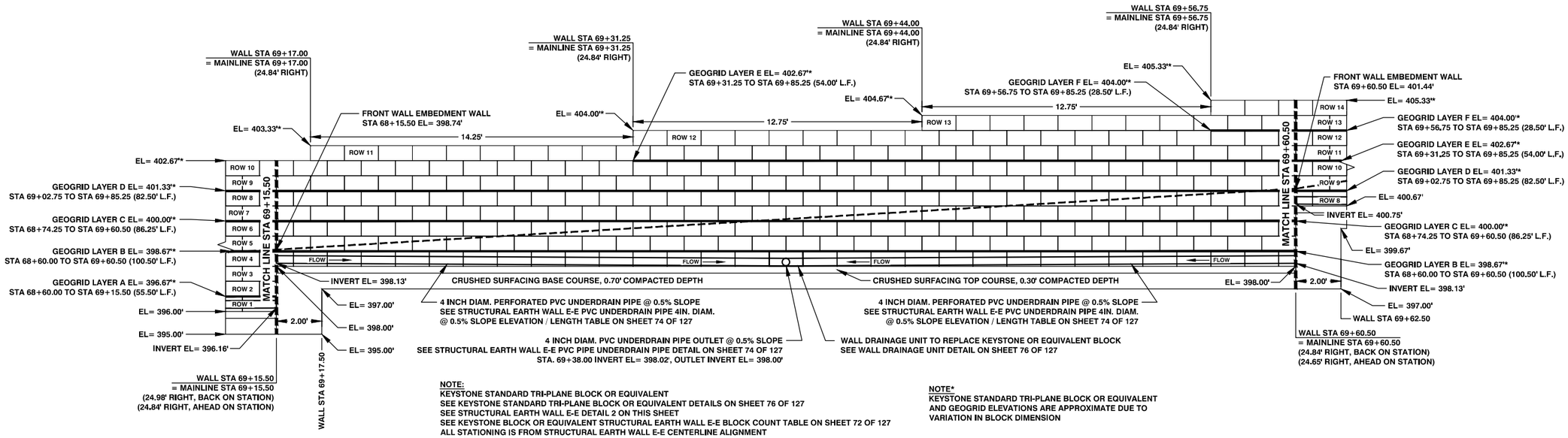
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL E-E STA 68+59.00 - 69+15.50
STRUCTURAL EARTH WALL E-E DETAIL 1
KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL E-E BLOCK COUNT TABLE

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED
PROFESSIONAL ENGINEER

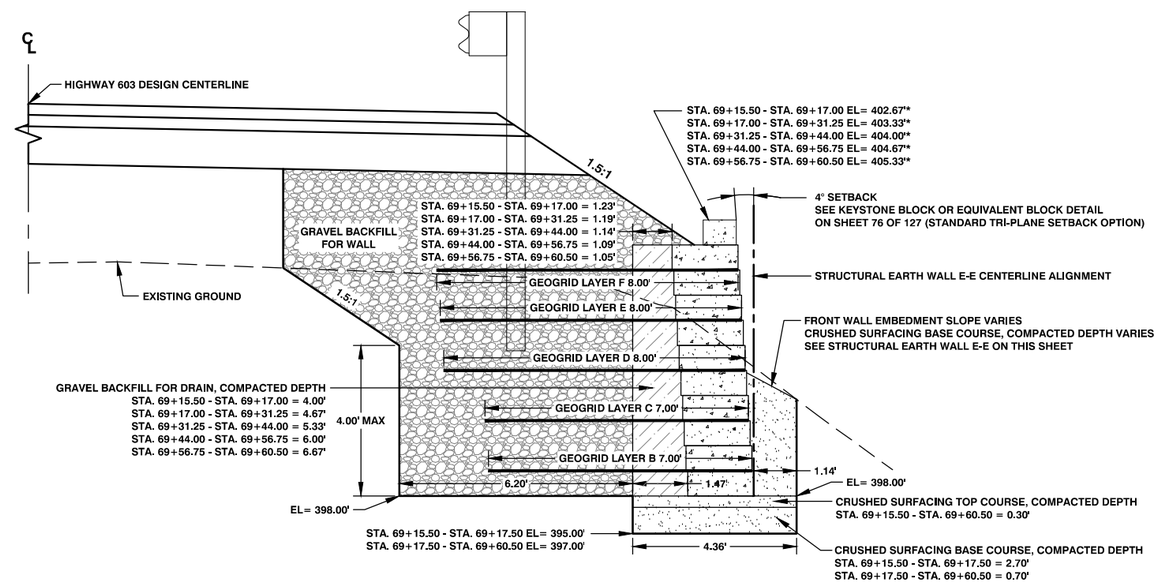


NOTE:
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT
SEE KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT DETAILS ON SHEET 76 OF 127
SEE STRUCTURAL EARTH WALL E-E DETAIL 2 ON THIS SHEET
SEE KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL E-E BLOCK COUNT TABLE ON SHEET 72 OF 127
ALL STATIONING IS FROM STRUCTURAL EARTH WALL E-E CENTERLINE ALIGNMENT
SEE SPECIAL PROVISION 6.13

NOTE*
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT
AND GEOGRID ELEVATIONS ARE APPROXIMATE DUE TO
VARIATION IN BLOCK DIMENSION

STRUCTURAL EARTH WALL E-E

WALL E-E STATION 69+15.50 TO WALL E-E STATION 69+60.50
NOT TO SCALE



STRUCTURAL EARTH WALL E-E DETAIL 2

WALL E-E STATION 69+15.50 TO WALL E-E STATION 69+60.50
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRUCTURAL EARTH WALL E-E STA 68+15.50 - 69+60.50
STRUCTURAL EARTH WALL E-E DETAIL 2

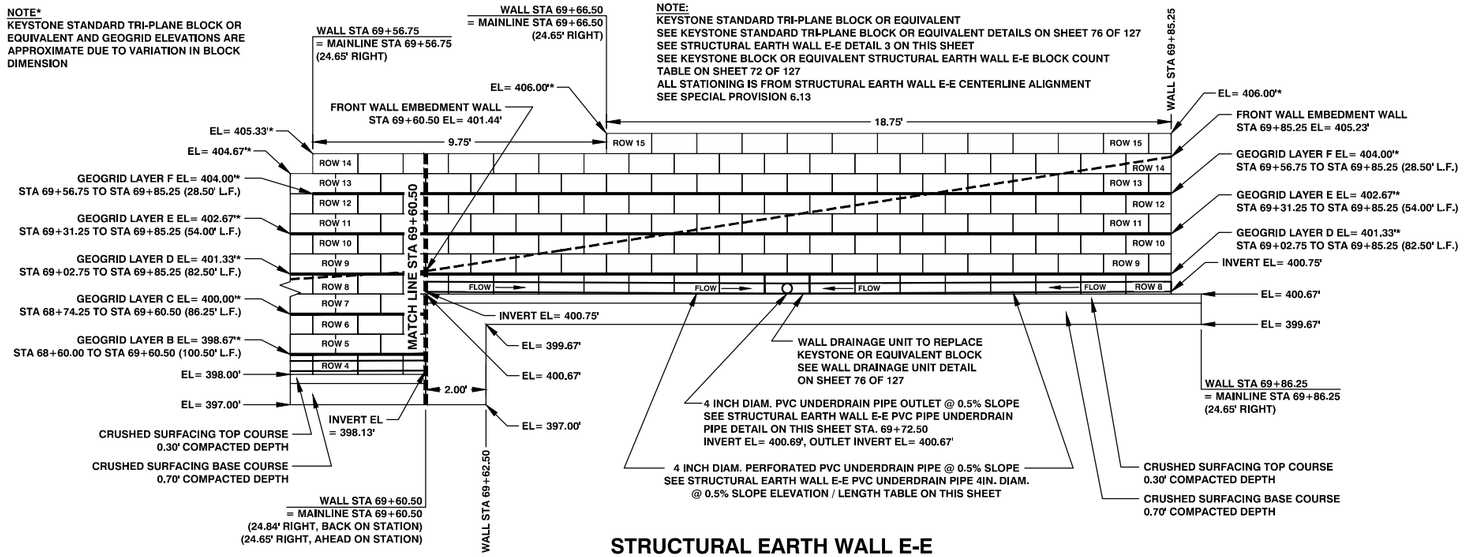
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

NOTE*
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT AND GEOGRID ELEVATIONS ARE APPROXIMATE DUE TO VARIATION IN BLOCK DIMENSION

NOTE:
KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT
SEE KEYSTONE STANDARD TRI-PLANE BLOCK OR EQUIVALENT DETAILS ON SHEET 76 OF 127
SEE STRUCTURAL EARTH WALL E-E DETAIL 3 ON THIS SHEET
SEE KEYSTONE BLOCK OR EQUIVALENT STRUCTURAL EARTH WALL E-E BLOCK COUNT TABLE ON SHEET 72 OF 127
ALL STATIONING IS FROM STRUCTURAL EARTH WALL E-E CENTERLINE ALIGNMENT
SEE SPECIAL PROVISION 6.13



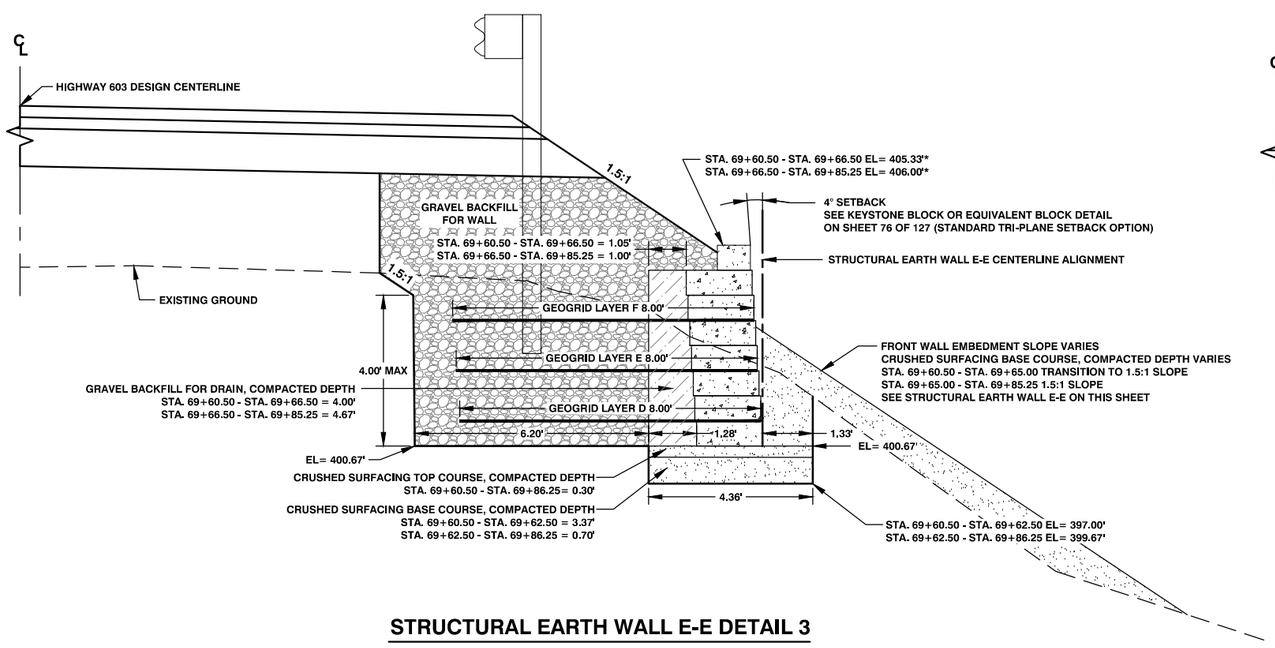
STRUCTURAL EARTH WALL E-E

WALL E-E STATION 69+60.50 TO WALL E-E STATION 69+86.25
NOT TO SCALE

*PIPE LENGTHS ARE FOR BID PURPOSE ONLY AND SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING. ELBOWS, COUPLINGS, TEE, AND END CAPS SHALL BE INCLUDED IN THE L.F. OF PIPE AND NO OTHER COMPENSATION SHALL BE PAID.

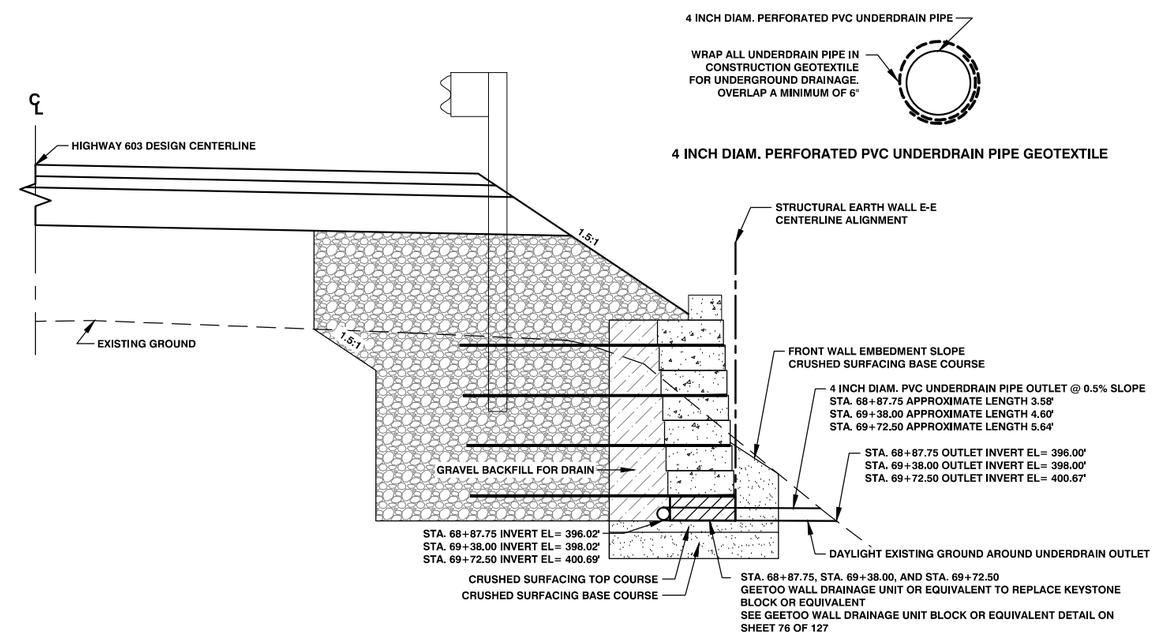
STRUCTURAL EARTH WALL E-E PVC UNDERDRAIN PIPE 4IN. DIAM. @ 0.5% SLOPE ELEVATION / LENGTH TABLE

STATION	INVERT ELEVATION	PIPE LENGTH*	TEE	END CAPS
SECTION STA. 68+60.00 - STA. 68+15.50 OUTLET				
68+60.00	396.16'			1
		27.75'		
68+87.75	396.02'		1	
		3.58' (SOLID PIPE)		
68+87.75 (OUTLET)	396.00'			
68+87.75	396.02'			
		27.75'		
69+15.50	396.16'			1
SECTION STA. 68+15.50 - STA. 69+60.50 OUTLET				
69+15.50	398.13'			1
		22.50'		
69+38.00	398.02'		1	
		4.60' (SOLID PIPE)		
69+38.00 (OUTLET)	398.00'			
69+38.00	398.02'			
		22.50'		
69+60.50	398.13'			1
SECTION STA. 69+60.50 - STA. 69+85.25 OUTLET				
69+60.50	400.75'			1
		12.00'		
69+72.50	400.69'		1	
		5.64' (SOLID PIPE)		
69+72.50 (OUTLET)	400.67'			
69+72.50	400.69'			
		12.75'		
69+85.25	400.75'			1



STRUCTURAL EARTH WALL E-E DETAIL 3

WALL E-E STATION 69+60.50 TO WALL E-E STATION 69+86.25
NOT TO SCALE



STRUCTURAL EARTH WALL E-E PVC UNDERDRAIN PIPE DETAIL

WALL E-E STATION 68+60.00 TO WALL E-E STATION 69+85.25
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

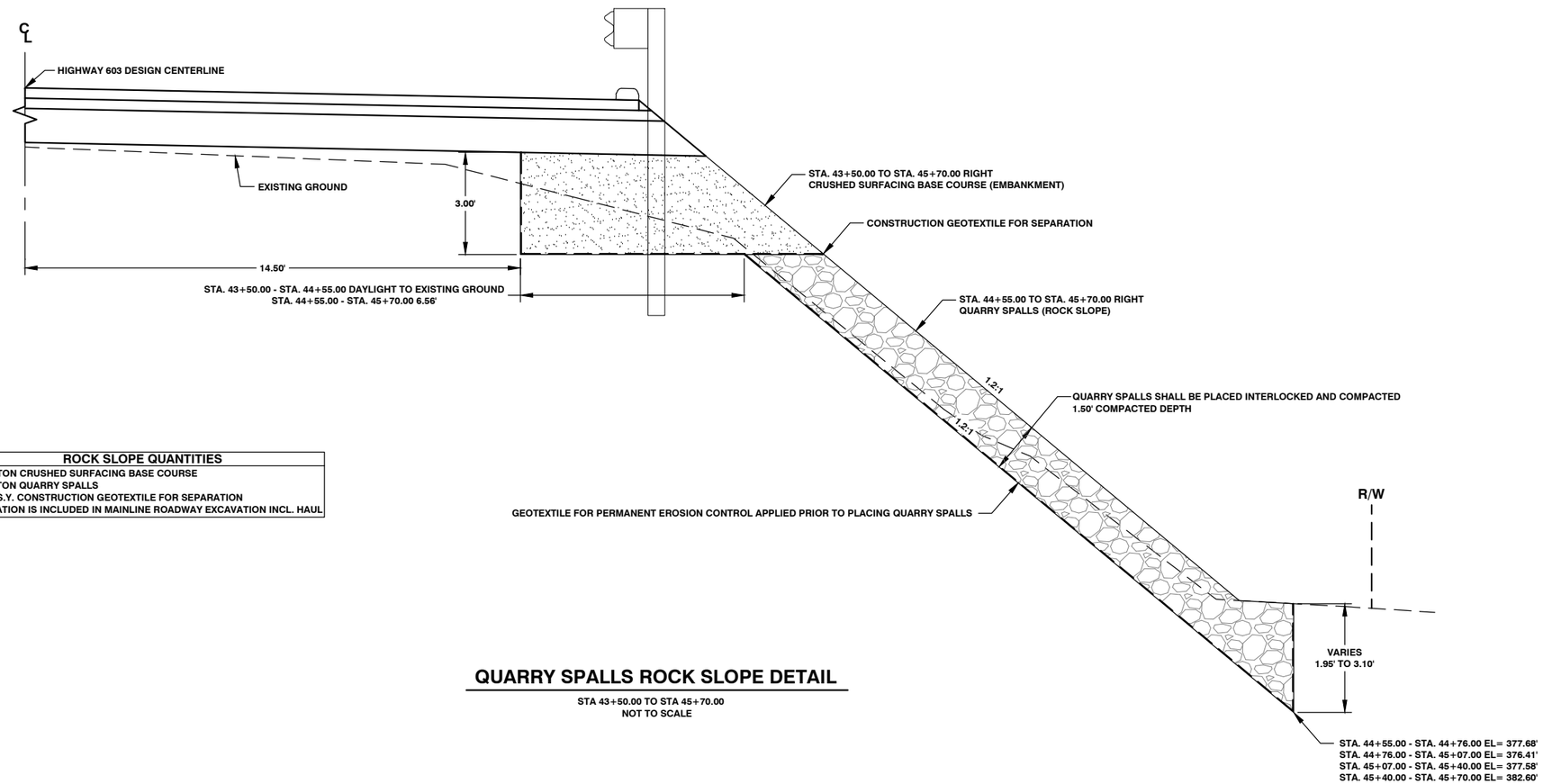
STRUCTURAL EARTH WALL E-E STA 68+60.50 - 69+86.25
STRUCTURAL EARTH WALL E-E DETAIL 3
STRUCTURAL EARTH WALL E-E PVC UNDERDRAIN PIPE DETAIL
STRUCTURAL EARTH WALL E-E PVC UNDERDRAIN PIPE 4IN. DIAM. @ 0.50% SLOPE ELEVATION / LENGTH TABLE

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



ROCK SLOPE QUANTITIES
320.00 TON CRUSHED SURFACING BASE COURSE
175.00 TON QUARRY SPALLS
605.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
EXCAVATION IS INCLUDED IN MAINLINE ROADWAY EXCAVATION INCL. HAUL

QUARRY SPALLS ROCK SLOPE DETAIL

STA 43+50.00 TO STA 45+70.00
NOT TO SCALE

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

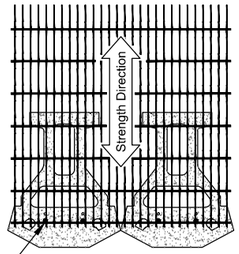
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

QUARRY SPALLS ROCK SLOPE DETAIL
STA 43+50.00 TO 45+70.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

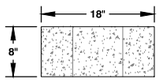
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

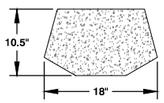


GEOGRID IS TO BE PLACED ON LEVEL BACKFILL AND EXTENDED OVER THE FIBERGLASS PINS. PLACE NEXT UNIT, AND PULL GEOGRID TAUGHT AND BACKFILL. STAKE AS REQUIRED

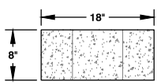
GEOGRID AND PIN CONNECTION



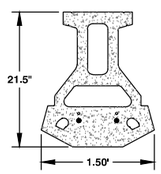
STANDARD TRI-PLANE 8 INCH TOP CAP FRONT VIEW



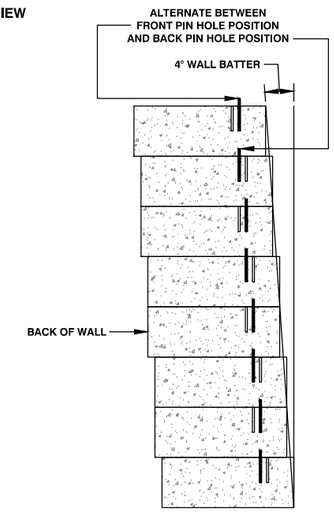
STANDARD TRI-PLANE TOP CAP TOP VIEW



STANDARD TRI-PLANE FRONT VIEW



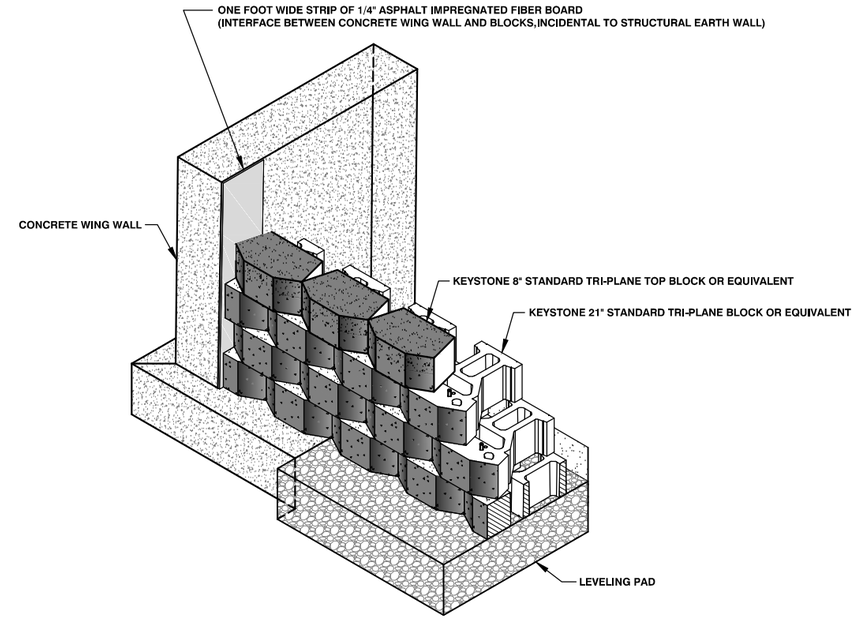
STANDARD TRI-PLANE TOP VIEW



STANDARD TRI-PLANE SETBACK OPTION

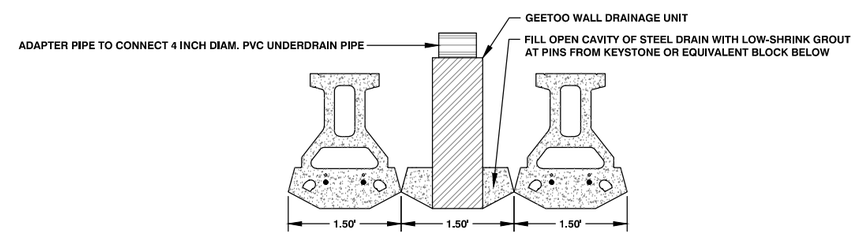
KEYSTONE BLOCK OR EQUIVALENT BLOCK DETAILS

NOT TO SCALE



IMPREGNATED FIBER BOARD DETAIL

NOT TO SCALE



WALL DRAINAGE UNIT TOP VIEW

GEETOO WALL DRAINAGE UNIT BLOCK OR EQUIVALENT DETAILS

NOT TO SCALE

NOTE:
KEYSTONE WALL SYSTEM SHOWN, ALTERNATE SYSTEMS ARE ALLOWED WITH APPROVAL FROM ENGINEER

Lewis County
Department of Public Works
2025 NE KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

KEYSTONE BLOCKOR EQUIVALENT BLOCK DETAILS
IMPREGNATED FIBER BOARD DETAIL
KEYSTONE BLOCK OR EQUIVLENT WALL DRAINAGE UNIT DETAIL

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 1+54.07 LEFT

APPROACH STATION 0+19.65 TO APPROACH STATION 0+80.00

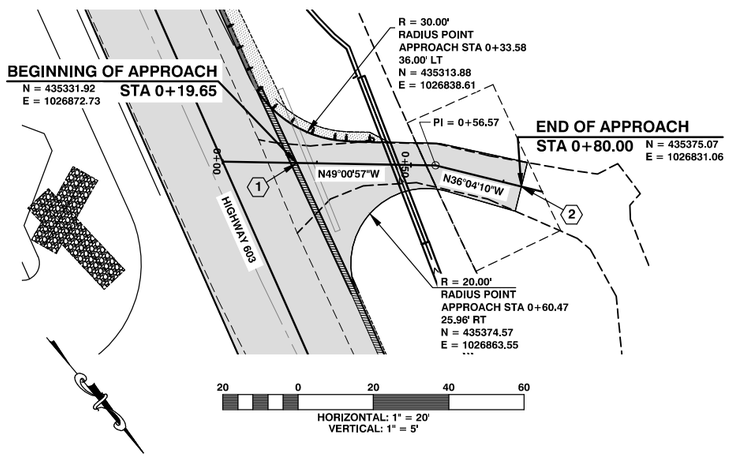
CONSTRUCTION NOTES:

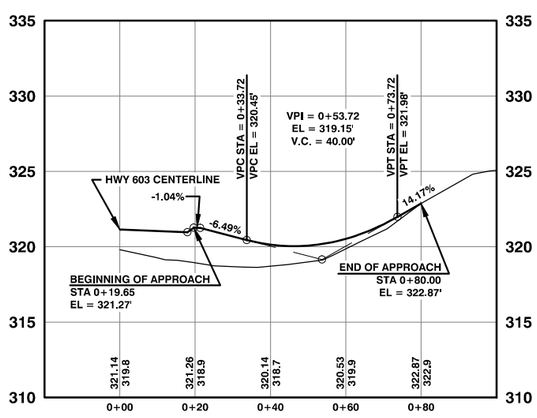
1. STA. 0+19.65 BEGIN APPROACH
   STA. 0+19.65 TO STA. 0+80.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+80.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 13.30'

NOTE:
APPROACH SLOPE VARIES FROM 3.5:1 AT STA 0+19.65 LT TO 2:1 AT STA 0+80.00 LT
APPROACH SLOPE IS 3.5:1 FROM STA 0+19.65 RT TO STA 0+80.00 RT

APPROACH QUANTITIES:

30 C.Y. ROADWAY EXCAVATION INCL. HAUL
82 TON SELECT BORROW INCL. HAUL
108 TON CRUSHED SURFACING BASE COURSE
27 TON CRUSHED SURFACING TOP COURSE
24 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 2+80.75 LEFT

APPROACH STATION 0+18.50 TO APPROACH STATION 0+53.00

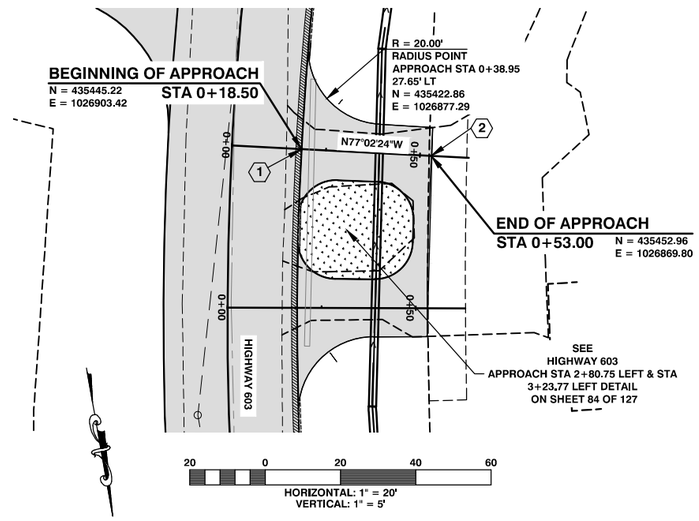
CONSTRUCTION NOTES:

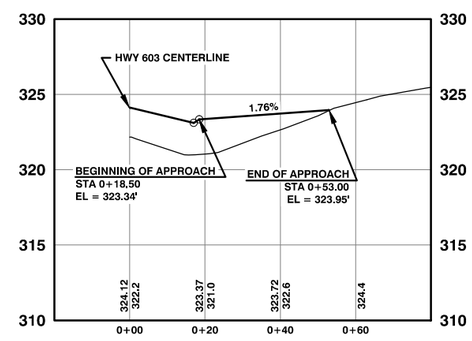
1. STA. 0+18.50 BEGIN APPROACH
   STA. 0+18.50 TO STA. 0+53.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+53.00 END OF APPROACH TO MATCH EXISTING GROUND
   SEE DETAIL ON SHEET 84 OF 127

NOTE:
APPROACH SLOPE IS 3:1 FROM STA 0+18.50 LT TO STA 0+53.00 LT

APPROACH QUANTITIES:

11 C.Y. ROADWAY EXCAVATION INCL. HAUL
69 TON SELECT BORROW INCL. HAUL
59 TON CRUSHED SURFACING BASE COURSE
18 TON CRUSHED SURFACING TOP COURSE
18 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 3+23.77 LEFT

APPROACH STATION 0+18.50 TO APPROACH STATION 0+53.00

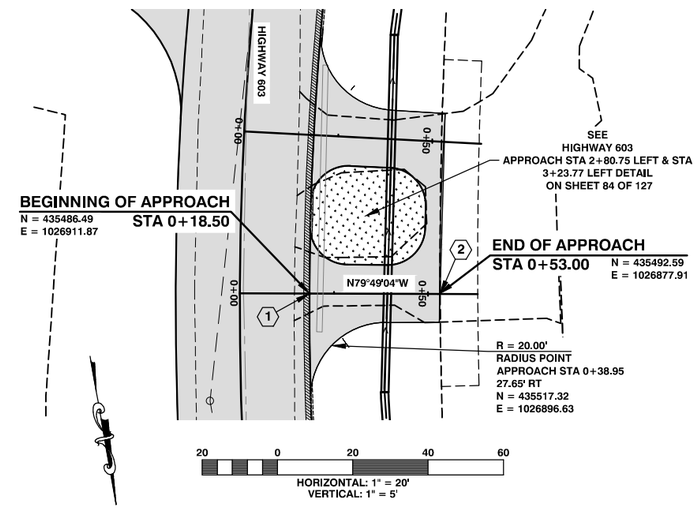
CONSTRUCTION NOTES:

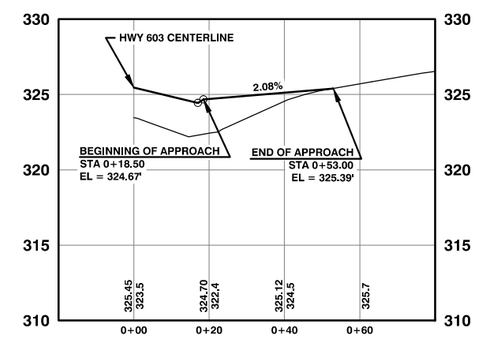
1. STA. 0+18.50 BEGIN APPROACH
   STA. 0+18.50 TO STA. 0+53.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+53.00 END OF APPROACH TO MATCH EXISTING GROUND
   SEE DETAIL ON SHEET 84 OF 127

NOTE:
APPROACH SLOPE IS 3.5:1 FROM STA 0+18.50 RT TO STA 0+53.00 RT

APPROACH QUANTITIES:

12 C.Y. ROADWAY EXCAVATION INCL. HAUL
88 TON SELECT BORROW INCL. HAUL
60 TON CRUSHED SURFACING BASE COURSE
15 TON CRUSHED SURFACING TOP COURSE
17 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 1+54.07 LEFT
HIGHWAY 603 APPROACH STA 2+80.75 LEFT
HIGHWAY 603 APPROACH STA 3+23.77 LEFT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 4+87.64 LEFT

APPROACH STATION 0+18.51 TO APPROACH STATION 0+69.96

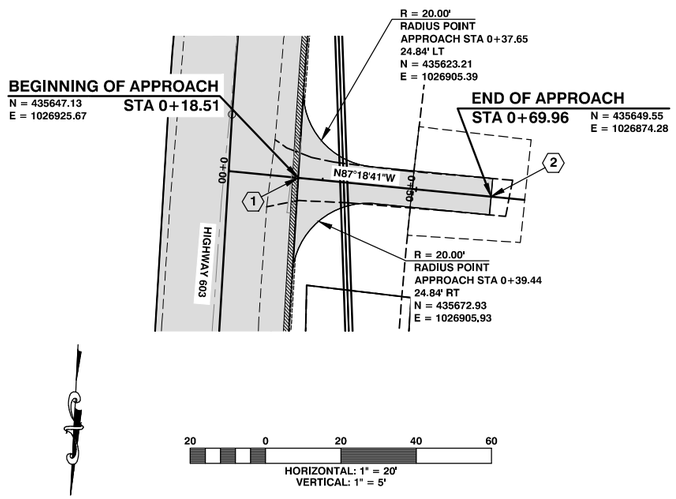
CONSTRUCTION NOTES:

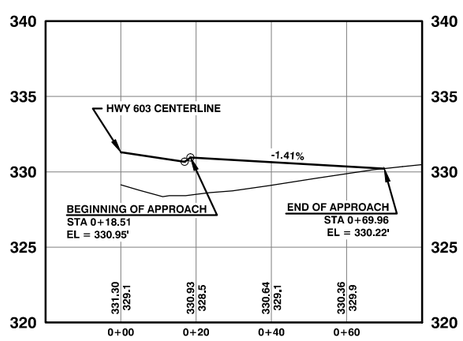
1. STA. 0+18.51 BEGIN APPROACH
   STA. 0+18.51 TO STA. 0+69.96 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+69.96 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 9.69'

NOTE:
APPROACH SLOPE IS 2:1 AT STA 0+18.51 LT TO STA 0+69.96 LT
APPROACH SLOPE IS 2:1 FROM STA 0+18.51 RT TO STA 0+69.96 RT

APPROACH QUANTITIES:

35 C.Y. ROADWAY EXCAVATION INCL. HAUL
0.5 TON SELECT BORROW INCL. HAUL
65 TON CRUSHED SURFACING BASE COURSE
17 TON CRUSHED SURFACING TOP COURSE
16 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 5+61.65 LEFT

APPROACH STATION 0+18.50 TO APPROACH STATION 0+57.00

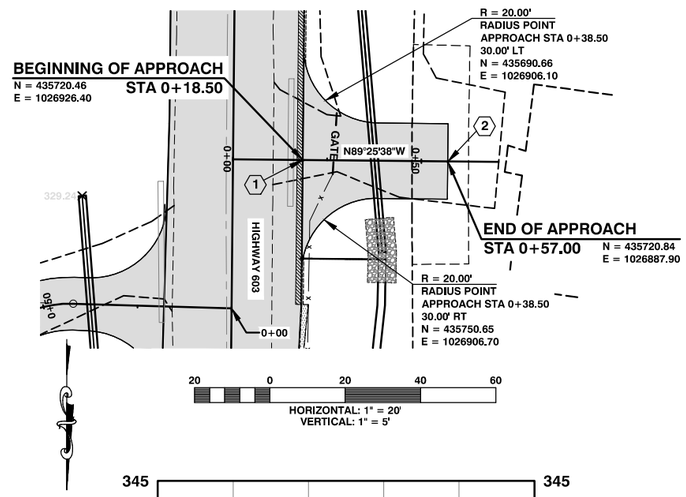
CONSTRUCTION NOTES:

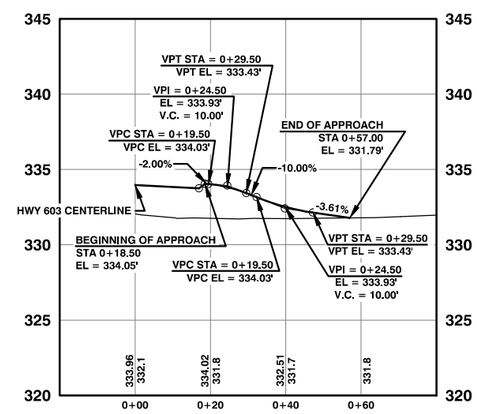
1. STA. 0+18.50 BEGIN APPROACH
   STA. 0+18.50 TO STA. 0+57.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+57.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 20.00'

NOTE:
APPROACH SLOPE IS 2:1 AT STA 0+18.50 LT TO 2:1 AT STA 0+57.00 LT
APPROACH SLOPE IS 2:1 FROM STA 0+18.50 RT TO STA 0+57.00 RT

APPROACH QUANTITIES:

62 C.Y. ROADWAY EXCAVATION INCL. HAUL
2 TON SELECT BORROW INCL. HAUL
85 TON CRUSHED SURFACING BASE COURSE
22 TON CRUSHED SURFACING TOP COURSE
22 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 6+01.21 RIGHT

APPROACH STATION 0+17.98 TO APPROACH STATION 0+98.50

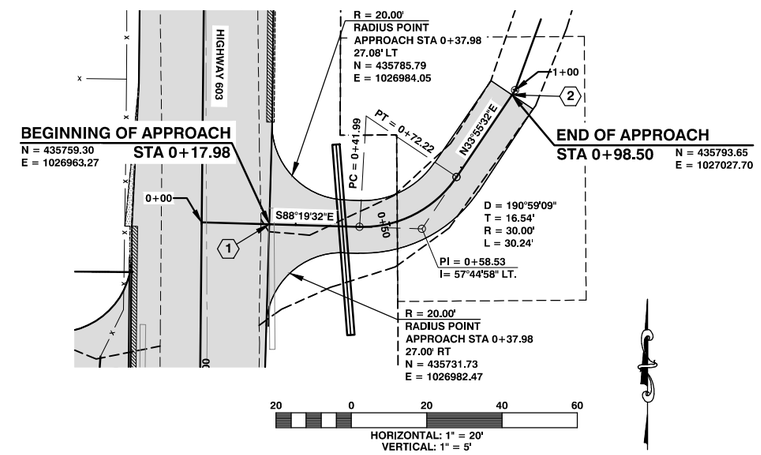
CONSTRUCTION NOTES:

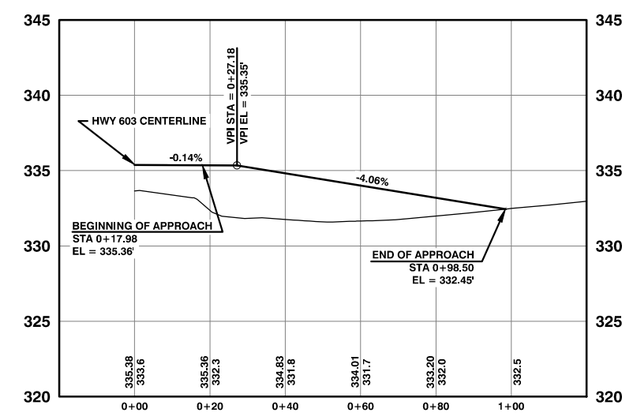
1. STA. 0+17.98 BEGIN APPROACH
   STA. 0+17.98 TO STA. 0+98.50 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+98.50 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 13.51'

NOTE:
APPROACH SLOPE VARIES FROM 4:1 AT STA 0+17.98 LT TO 2:1 AT STA 0+98.50 LT
APPROACH SLOPE VARIES FROM 4:1 AT STA 0+17.98 RT TO 2:1 AT STA 0+98.50 RT

APPROACH QUANTITIES:

16 C.Y. ROADWAY EXCAVATION INCL. HAUL
123 TON SELECT BORROW INCL. HAUL
134 TON CRUSHED SURFACING BASE COURSE
33 TON CRUSHED SURFACING TOP COURSE
30 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 4+87.64 LEFT
HIGHWAY 603 APPROACH STA 5+61.65 LEFT
HIGHWAY 603 APPROACH STA 6+01.21 RIGHT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 7+45.74 LEFT

APPROACH STATION 0+17.02 TO APPROACH STATION 0+54.50

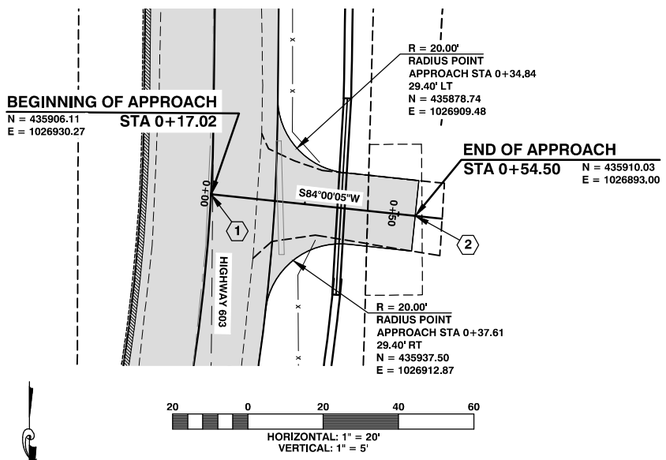
CONSTRUCTION NOTES:

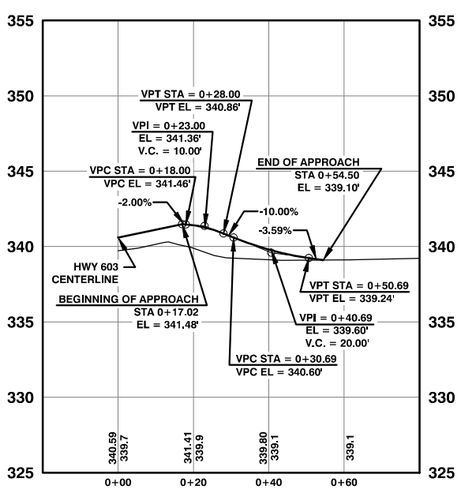
1. STA. 0+17.02 BEGIN APPROACH
   STA. 0+17.02 TO STA. 0+54.50 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+54.50 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 18.80'

NOTE:
APPROACH SLOPE IS 4:1 AT STA 0+17.02 LT TO STA 0+54.50 LT
APPROACH SLOPE IS 4:1 AT STA 0+17.02 RT TO STA 0+54.50 RT

APPROACH QUANTITIES:

26 C.Y. ROADWAY EXCAVATION INCL. HAUL
34 TON SELECT BORROW INCL. HAUL
88 TON CRUSHED SURFACING BASE COURSE
22 TON CRUSHED SURFACING TOP COURSE
20 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 9+09.93 LEFT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+45.50

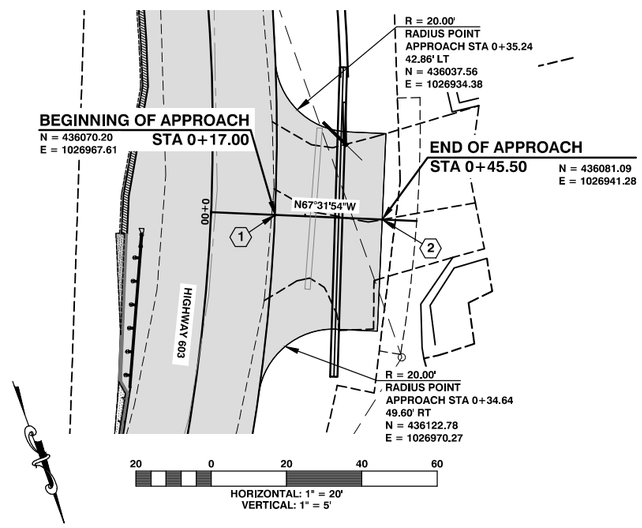
CONSTRUCTION NOTES:

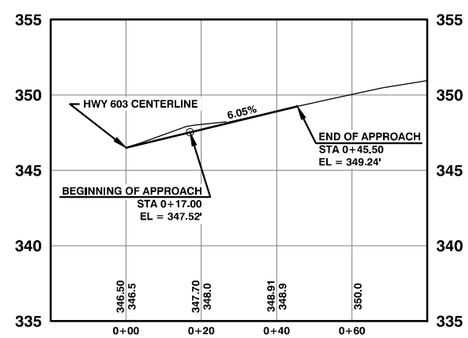
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+45.50 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+50.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 52.46'

NOTE:
APPROACH SLOPE IS 3:1 AT STA 0+17.00 LT TO 3:1 AT STA 0+45.50 LT
APPROACH SLOPE IS 3:1 AT STA 0+17.00 RT TO STA 0+45.50 RT

APPROACH QUANTITIES:

7 C.Y. ROADWAY EXCAVATION INCL. HAUL
222 TON SELECT BORROW INCL. HAUL
129 TON CRUSHED SURFACING BASE COURSE
36 TON CRUSHED SURFACING TOP COURSE
38 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

HIGHWAY 603 APPROACH STA 11+12.59 LEFT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+45.00

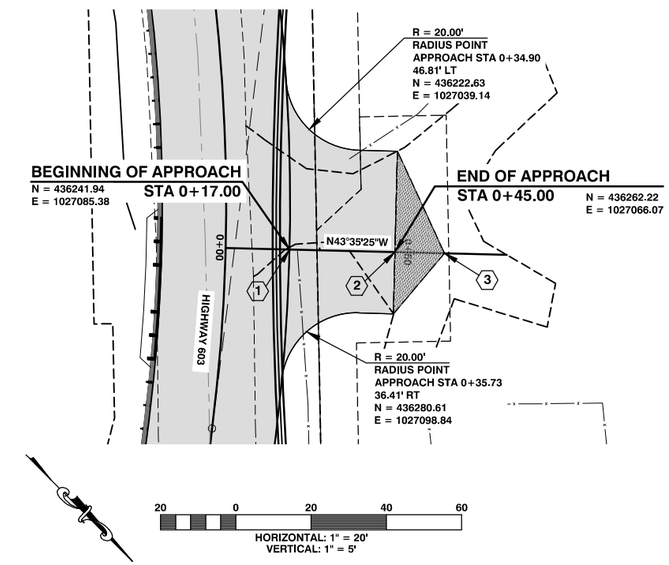
CONSTRUCTION NOTES:

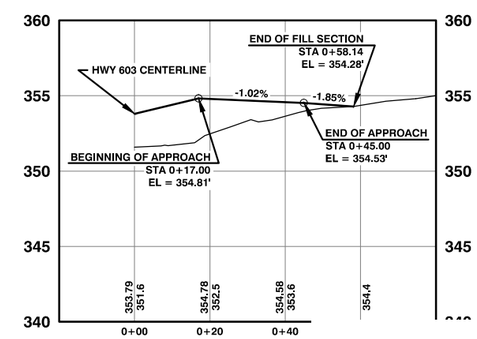
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+45.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
   TOTAL WIDTH AT END OF PAVING SECTION = 43.22'
2. STA. 0+45.00 TO STA. 0+58.14 FILL GRADING SECTION PLACE C.S.T.C. TO MATCH PAVING AND EXISTING GROUND
3. STA. 0+58.14 END OF APPROACH TO MATCH EXISTING GROUND

NOTE:
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 LT TO STA 0+45.00 LT
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 RT TO STA 0+45.00 RT

APPROACH QUANTITIES:

44 C.Y. ROADWAY EXCAVATION INCL. HAUL
2 TON SELECT BORROW INCL. HAUL
116 TON CRUSHED SURFACING BASE COURSE
35 TON CRUSHED SURFACING TOP COURSE
31 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 12+50.00 LEFT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+95.00

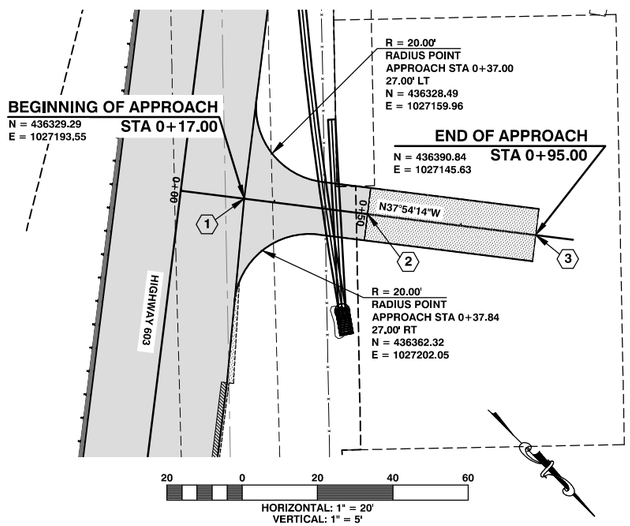
CONSTRUCTION NOTES:

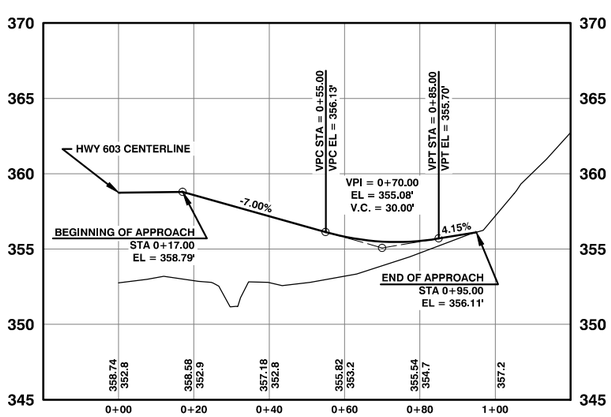
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+95.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+50.00 TO STA. 0+95.00 SEE APPROACH GRAVEL SECTION ON SHEET 23 OF 127
3. STA. 0+95.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 14.00'

NOTE:
APPROACH SLOPE IS 4:1 AT STA 0+17.00 LT TO STA 0+95.00 LT
APPROACH SLOPE IS 4:1 AT STA 0+17.00 RT TO STA 0+95.00 RT

APPROACH QUANTITIES:

26 C.Y. ROADWAY EXCAVATION INCL. HAUL
154 TON SELECT BORROW INCL. HAUL
141 TON CRUSHED SURFACING BASE COURSE
47 TON CRUSHED SURFACING TOP COURSE
15 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 18+53.51 LEFT

APPROACH STATION 0+18.51 TO APPROACH STATION 1+30.88

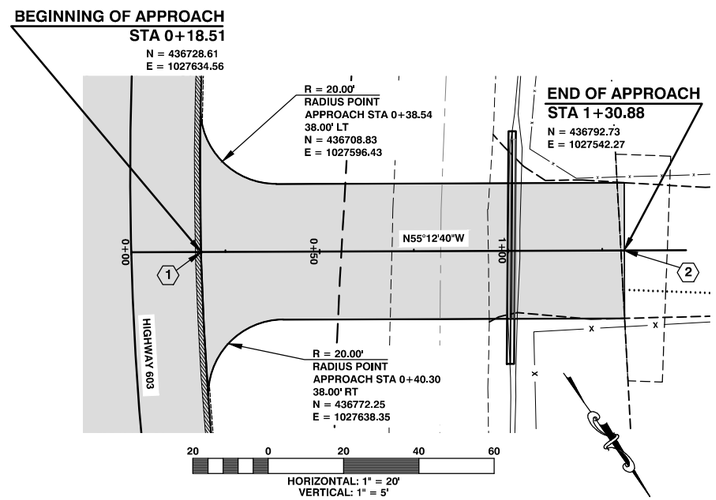
CONSTRUCTION NOTES:

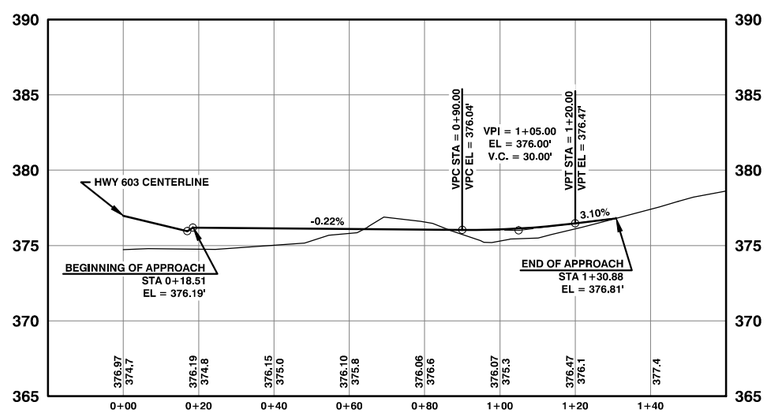
1. STA. 0+18.51 BEGIN APPROACH
   STA. 0+18.51 TO STA. 1+30.88 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 1+30.88 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 36.00'

NOTE:
APPROACH SLOPE IS 4:1 FROM STA 0+18.51 LT TO STA 1+30.88 LT
APPROACH SLOPE IS 4:1 FROM STA 0+18.51 RT TO STA 1+30.88 RT

APPROACH QUANTITIES:

67 C.Y. ROADWAY EXCAVATION INCL. HAUL
234 TON SELECT BORROW INCL. HAUL
369 TON CRUSHED SURFACING BASE COURSE
97 TON CRUSHED SURFACING TOP COURSE
97 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

HIGHWAY 603 APPROACH STA 23+34.55 RIGHT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+30.97

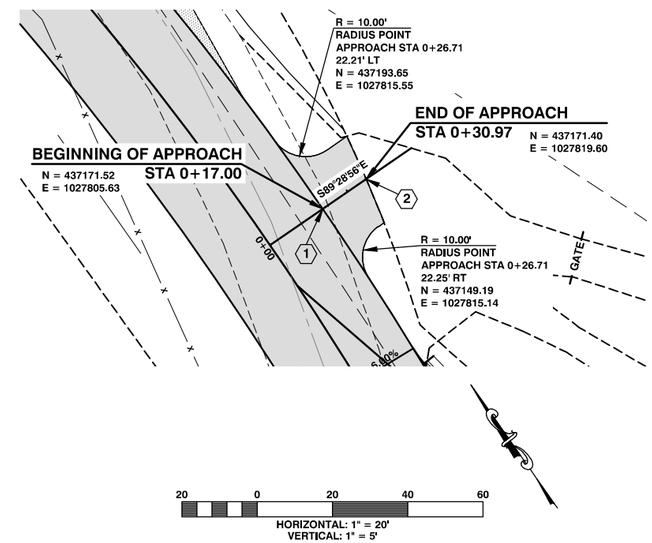
CONSTRUCTION NOTES:

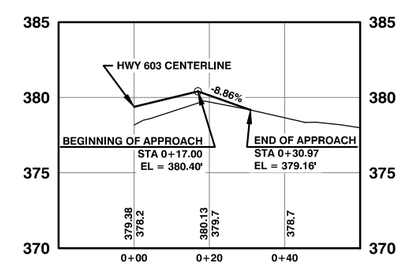
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+30.97 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+30.97 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 25.00'

NOTE:
APPROACH SLOPE IS 1.5:1 FROM STA 0+17.00 LT TO STA 0+30.97 LT
APPROACH SLOPE IS 1.5:1 FROM STA 0+17.00 RT TO STA 0+30.97 RT

APPROACH QUANTITIES:

18 C.Y. ROADWAY EXCAVATION INCL. HAUL
0 TON SELECT BORROW INCL. HAUL
30 TON CRUSHED SURFACING BASE COURSE
9 TON CRUSHED SURFACING TOP COURSE
9 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 12+50.00 LEFT
HIGHWAY 603 APPROACH STA 18+53.51 LEFT
HIGHWAY 603 APPROACH STA 23+34.55 RIGHT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 33+69.29 LEFT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+79.27

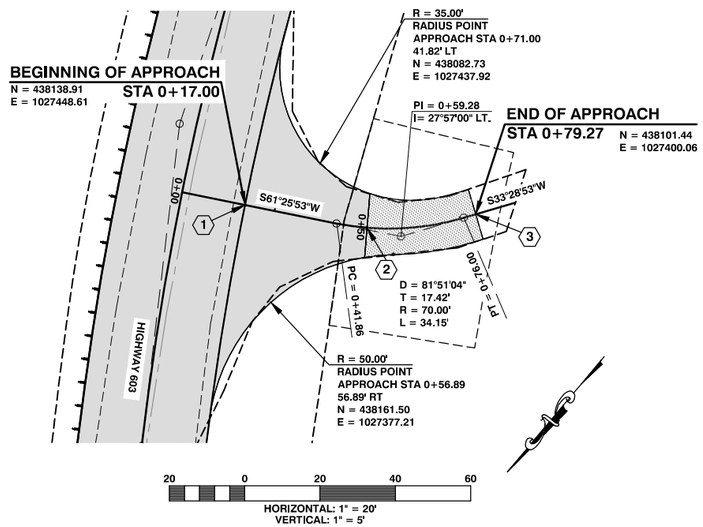
CONSTRUCTION NOTES:

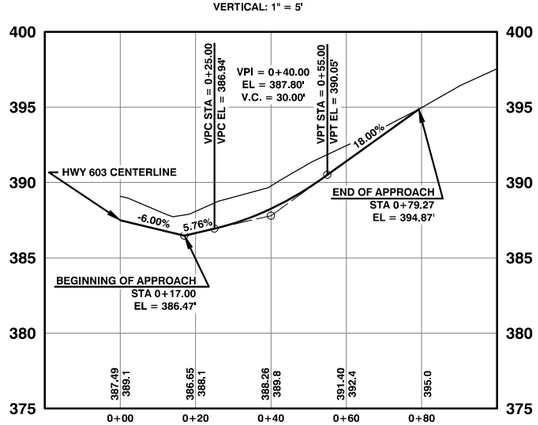
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+50.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+50.00 TO STA. 0+79.27 SEE APPROACH GRAVEL SECTION ON SHEET 23 OF 127
3. STA. 0+79.27 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 13.79'

NOTE:
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 LT TO STA 0+79.27 LT
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 RT TO STA 0+79.27 RT

APPROACH QUANTITIES:

175 C.Y. ROADWAY EXCAVATION INCL. HAUL
95 TON SELECT BORROW INCL. HAUL
169 TON CRUSHED SURFACING BASE COURSE
52 TON CRUSHED SURFACING TOP COURSE
30 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 36+10.82 LEFT

APPROACH STATION 0+17.41 TO APPROACH STATION 0+77.34

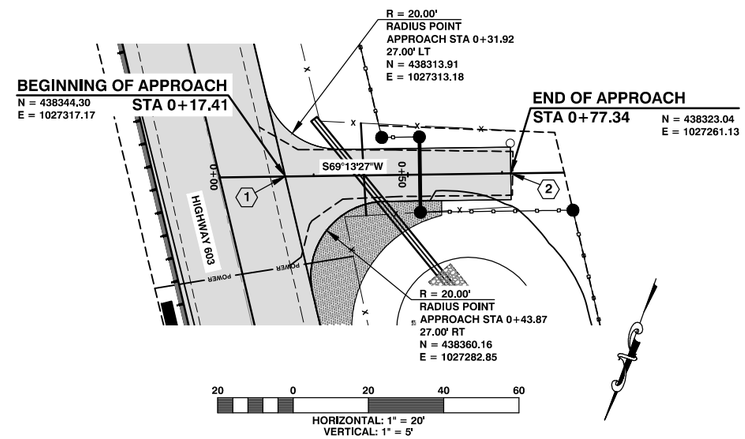
CONSTRUCTION NOTES:

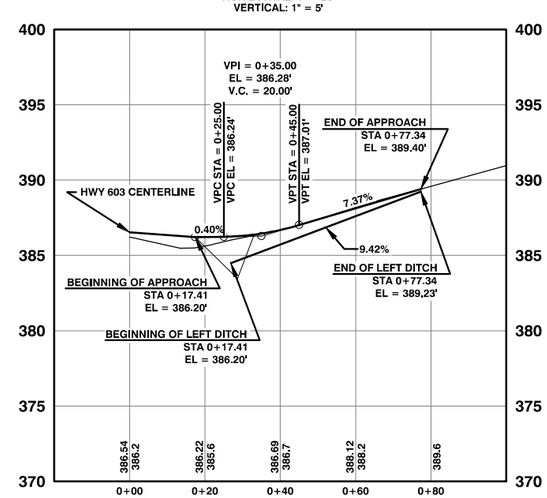
1. STA. 0+17.41 BEGIN APPROACH
   STA. 0+17.41 TO STA. 0+77.34 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+77.34 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 14.00'

NOTE:
APPROACH SLOPE VARIES FROM 4:1 AT STA 0+17.41 LT TO 1.5:1 AT STA 0+77.34 LT
APPROACH SLOPE IS 2:1 FROM STA 0+17.41 RT TO STA 0+77.34 RT

APPROACH QUANTITIES:

45 C.Y. ROADWAY EXCAVATION INCL. HAUL
10 TON SELECT BORROW INCL. HAUL
88 TON CRUSHED SURFACING BASE COURSE
27 TON CRUSHED SURFACING TOP COURSE
24 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

HIGHWAY 603 APPROACH STA 39+48.71 LEFT

APPROACH STATION 0+19.77 TO APPROACH STATION 0+69.00

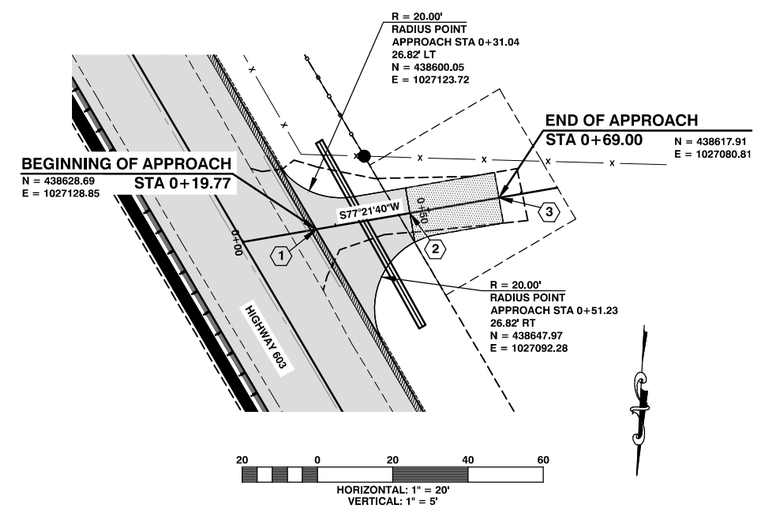
CONSTRUCTION NOTES:

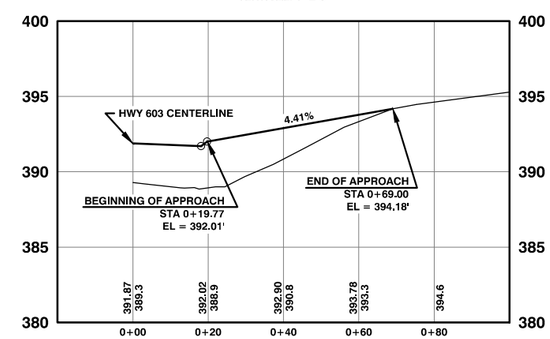
1. STA. 0+19.77 BEGIN APPROACH
   STA. 0+19.77 TO STA. 0+45.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+45.00 TO STA. 0+69.00 SEE APPROACH GRAVEL SECTION ON SHEET 23 OF 127
3. STA. 0+69.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 13.64'

NOTE:
APPROACH SLOPE IS 3.5:1 FROM STA 0+19.77 LT TO STA 0+69.00 LT
APPROACH SLOPE IS 3.5:1 FROM STA 0+19.77 RT TO STA 0+69.00 RT

APPROACH QUANTITIES:

25 C.Y. ROADWAY EXCAVATION INCL. HAUL
43 TON SELECT BORROW INCL. HAUL
92 TON CRUSHED SURFACING BASE COURSE
31 TON CRUSHED SURFACING TOP COURSE
13 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 33+69.29 LEFT
HIGHWAY 603 APPROACH STA 36+10.82 LEFT
HIGHWAY 603 APPROACH STA 39+48.71 LEFT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 42+58.47 RIGHT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+30.00

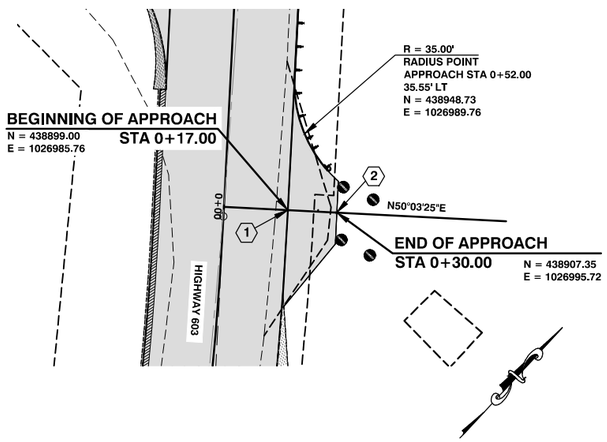
CONSTRUCTION NOTES:

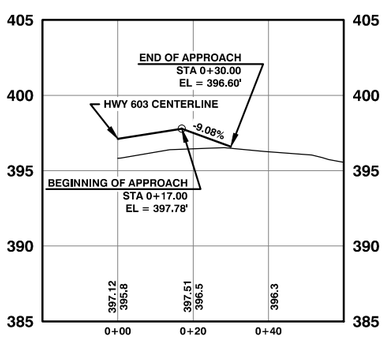
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+30.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+30.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 16.67'

NOTE:
APPROACH SLOPE IS 1.5:1 FROM STA 0+17.00 LT TO STA 0+30.00 LT
APPROACH SLOPE IS 1.5:1 FROM STA 0+17.00 RT TO STA 0+30.00 RT

APPROACH QUANTITIES:

16 C.Y. ROADWAY EXCAVATION INCL. HAUL
0 TON SELECT BORROW INCL. HAUL
37 TON CRUSHED SURFACING BASE COURSE
10 TON CRUSHED SURFACING TOP COURSE
10 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 47+34.31 RIGHT

APPROACH STATION 0+18.00 TO APPROACH STATION 0+79.55

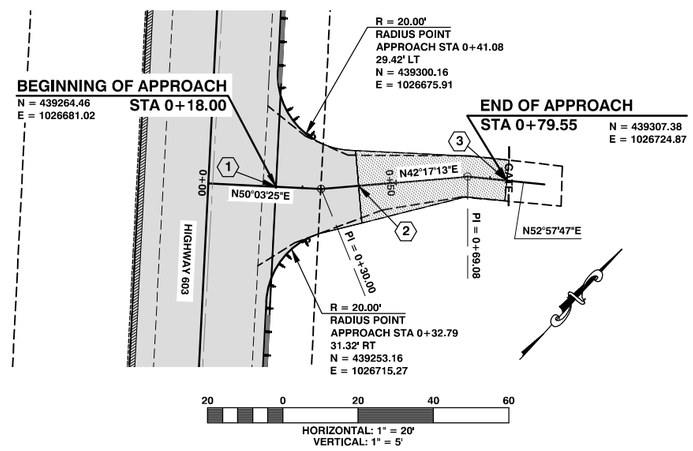
CONSTRUCTION NOTES:

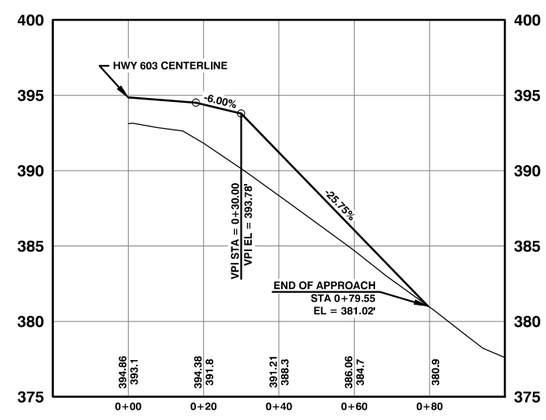
1. STA. 0+18.00 BEGIN APPROACH
   STA. 0+18.00 TO STA. 0+40.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+40.00 TO STA. 0+79.55 SEE APPROACH GRAVEL SECTION ON SHEET 23 OF 127
3. STA. 0+69.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 10.86'

NOTE:
APPROACH SLOPE IS 1.5:1 FROM STA 0+18.00 LT TO STA 0+79.55 LT
APPROACH SLOPE IS 1.5:1 FROM STA 0+18.00 RT TO STA 0+79.55 RT

APPROACH QUANTITIES:

11 C.Y. ROADWAY EXCAVATION INCL. HAUL
87 TON SELECT BORROW INCL. HAUL
95 TON CRUSHED SURFACING BASE COURSE
38 TON CRUSHED SURFACING TOP COURSE
14 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 66+69.58 RIGHT

APPROACH STATION 0+18.00 TO APPROACH STATION 0+35.67

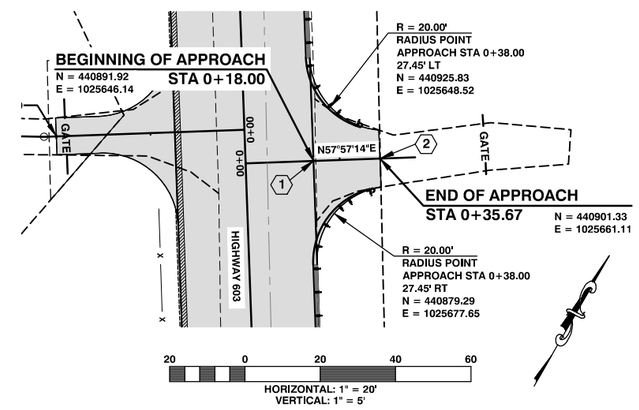
CONSTRUCTION NOTES:

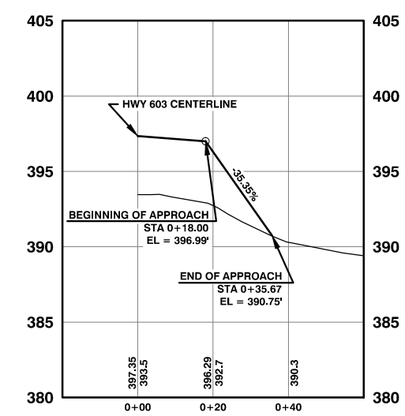
1. STA. 0+18.00 BEGIN APPROACH
   STA. 0+18.00 TO STA. 0+35.67 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+35.67 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 15.18'

NOTE:
APPROACH SLOPE IS 1.5:1 FROM STA 0+18.00 LT TO STA 0+35.67 LT
APPROACH SLOPE IS 1.5:1 FROM STA 0+18.00 RT TO STA 0+35.67 RT

APPROACH QUANTITIES:

9 C.Y. ROADWAY EXCAVATION INCL. HAUL
6 TON SELECT BORROW INCL. HAUL
40 TON CRUSHED SURFACING BASE COURSE
11 TON CRUSHED SURFACING TOP COURSE
10 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 42+58.47 RIGHT
HIGHWAY 603 APPROACH STA 47+34.31 RIGHT
HIGHWAY 603 APPROACH STA 66+69.58 RIGHT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 66+78.54 LEFT

APPROACH STATION 0+18.50 TO APPROACH STATION 0+50.00

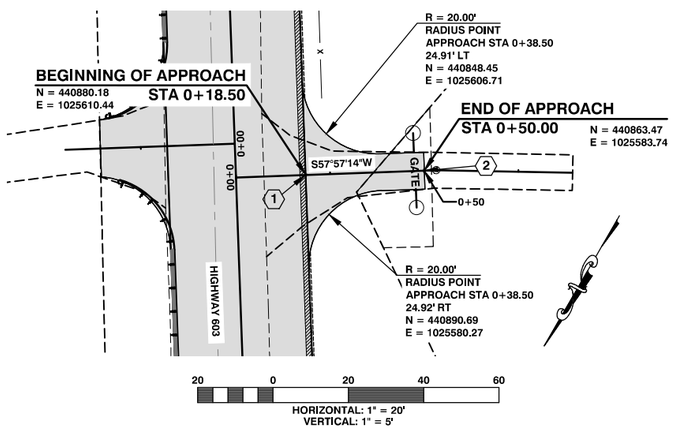
CONSTRUCTION NOTES:

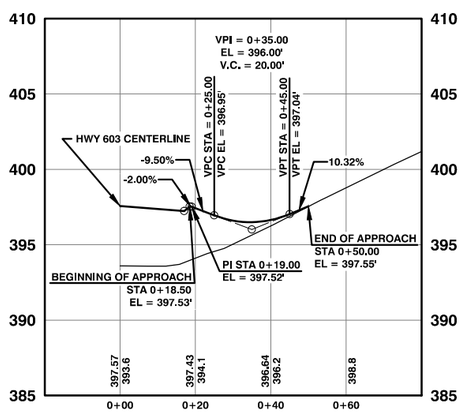
1. STA. 0+18.50 BEGIN APPROACH
   STA. 0+18.50 TO STA. 0+50.00 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+50.00 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 9.83'

NOTE:
APPROACH SLOPE IS 3.5:1 FROM STA 0+18.50 LT TO STA 0+50.00 LT
APPROACH SLOPE IS 3.5:1 FROM STA 0+18.50 RT TO STA 0+50.00 RT

APPROACH QUANTITIES:

22 C.Y. ROADWAY EXCAVATION INCL. HAUL
16 TON SELECT BORROW INCL. HAUL
57 TON CRUSHED SURFACING BASE COURSE
13 TON CRUSHED SURFACING TOP COURSE
11 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 74+81.40 LEFT

APPROACH STATION 0+17.00 TO APPROACH STATION 0+37.80

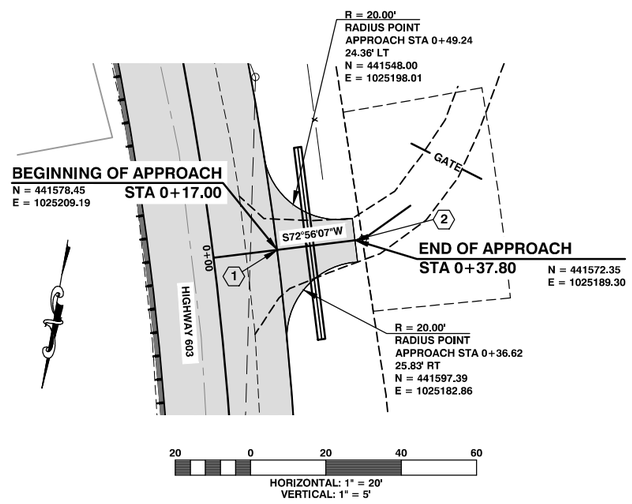
CONSTRUCTION NOTES:

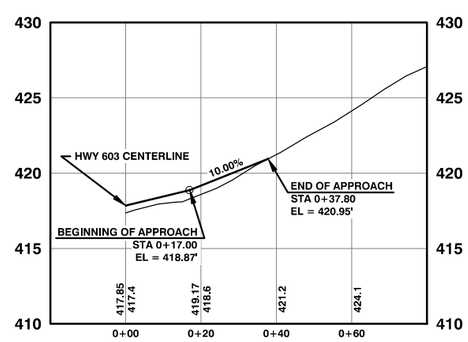
1. STA. 0+17.00 BEGIN APPROACH
   STA. 0+17.00 TO STA. 0+37.80 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+37.80 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 11.66'

NOTE:
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 LT TO STA 0+37.80 LT
APPROACH SLOPE IS 4:1 FROM STA 0+17.00 RT TO STA 0+37.80 RT

APPROACH QUANTITIES:

11 C.Y. ROADWAY EXCAVATION INCL. HAUL
17 TON SELECT BORROW INCL. HAUL
43 TON CRUSHED SURFACING BASE COURSE
11 TON CRUSHED SURFACING TOP COURSE
10 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





HIGHWAY 603 APPROACH STA 81+72.78 RIGHT

APPROACH STATION 0+18.48 TO APPROACH STATION 0+46.60

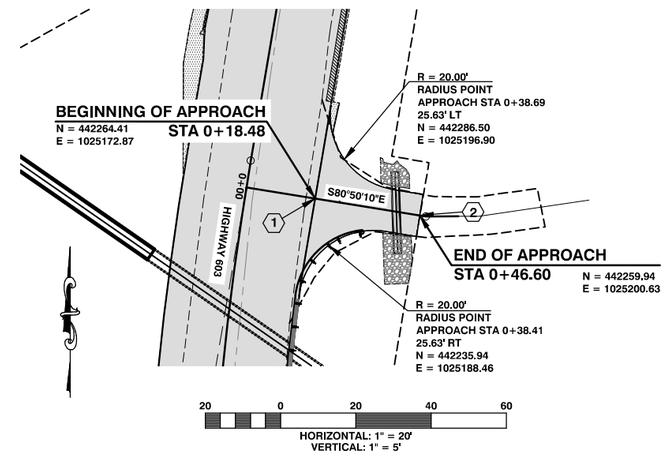
CONSTRUCTION NOTES:

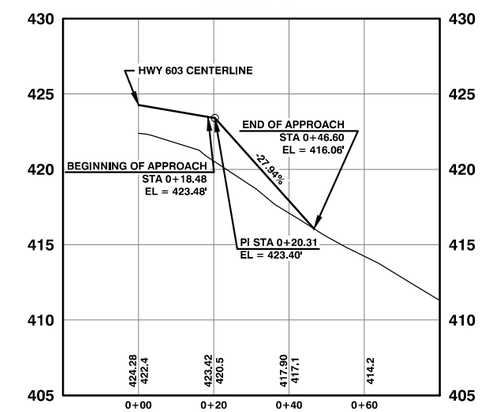
1. STA. 0+18.48 BEGIN APPROACH
   STA. 0+18.48 TO STA. 0+46.60 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+46.60 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 11.26'

NOTE:
APPROACH SLOPE VARIES FROM 4:1 AT STA 0+18.48 LT TO 1.5:1 AT STA 0+46.60 LT
APPROACH SLOPE IS 1.5:1 FROM STA 0+18.48 RT TO STA 0+46.60 RT

APPROACH QUANTITIES:

13 C.Y. ROADWAY EXCAVATION INCL. HAUL
4 TON SELECT BORROW INCL. HAUL
48 TON CRUSHED SURFACING BASE COURSE
13 TON CRUSHED SURFACING TOP COURSE
12 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 66+78.54 LEFT
HIGHWAY 603 APPROACH STA 74+81.40 LEFT
HIGHWAY 603 APPROACH STA 81+72.78 RIGHT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.

HIGHWAY 603 APPROACH STA 84+30.11 LEFT

APPROACH STATION 0+18.00 TO APPROACH STATION 0+28.93

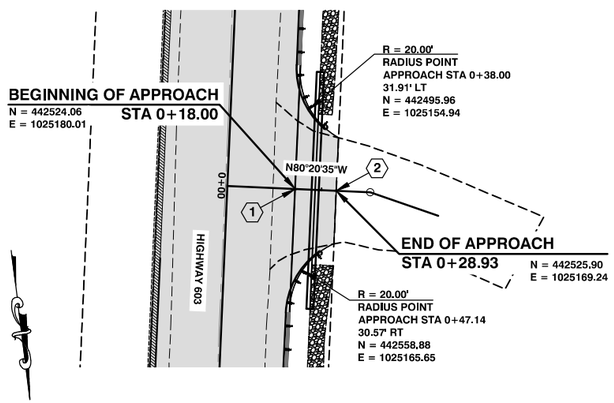
CONSTRUCTION NOTES:

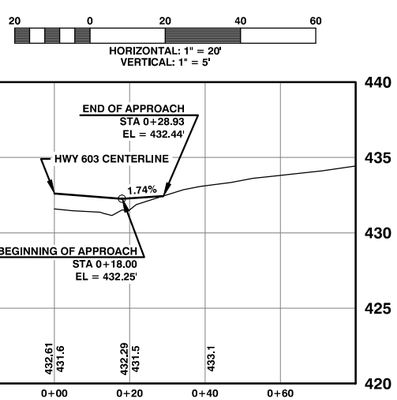
1. STA. 0+18.00 BEGIN APPROACH
   STA. 0+18.00 TO STA. 0+28.93 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+28.93 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 28.18'

NOTE:
APPROACH SLOPE IS 2:1 FROM STA 0+18.00 LT TO STA 0+28.93 LT
APPROACH SLOPE IS 2:1 FROM STA 0+18.00 RT TO STA 0+28.93 RT

APPROACH QUANTITIES:

8 C.Y. ROADWAY EXCAVATION INCL. HAUL
9 TON SELECT BORROW INCL. HAUL
36 TON CRUSHED SURFACING BASE COURSE
10 TON CRUSHED SURFACING TOP COURSE
10 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22

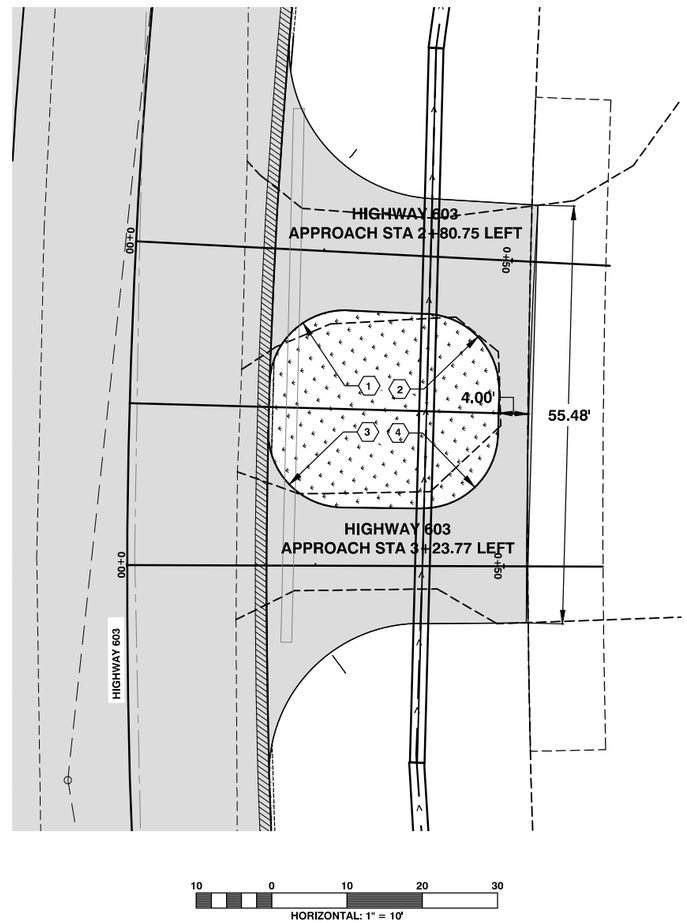




HIGHWAY 603 APPROACH STA 2+80.75 LEFT & STA 3+23.77 LEFT DETAIL

CONSTRUCTION NOTES:

1. R=10.00'
   N = 435464.80
   E = 1026897.48
2. R=10.00'
   N = 435467.06
   E = 1026887.22
3. R=10.00'
   N = 435470.82
   E = 1026898.71
4. R=10.00'
   N = 435472.77
   E = 1026888.39



APPROACH CULVERT INFORMATION CALLED OUT ON PLAN AND PROFILE SHEETS

NELSON ROAD APPROACH STA 1+05.58 LEFT

APPROACH STATION 0+11.50 TO APPROACH STATION 0+31.72

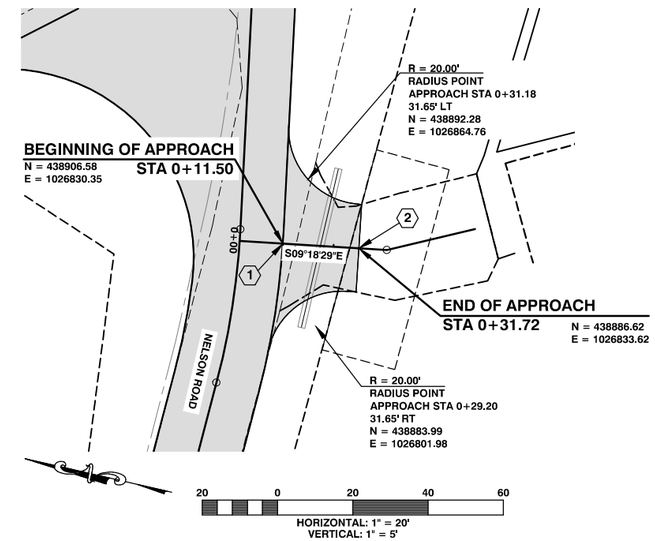
CONSTRUCTION NOTES:

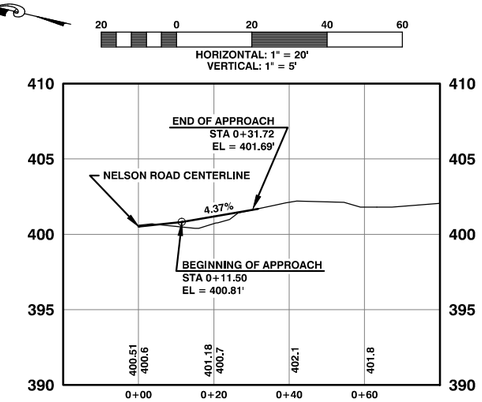
1. STA. 0+11.50 BEGIN APPROACH
   STA. 0+11.50 TO STA. 0+31.72 SEE APPROACH PAVING SECTION ON SHEET 22 OF 127
2. STA. 0+31.72 END OF APPROACH TO MATCH EXISTING GROUND
   TOTAL WIDTH AT END OF APPROACH = 23.30'
3.

NOTE:
APPROACH SLOPE IS 3.5:1 FROM STA 0+11.50 LT TO STA 0+31.72 LT
APPROACH SLOPE IS 3.5:1 FROM STA 0+11.50 RT TO STA 0+31.72 RT

APPROACH QUANTITIES:

42 C.Y. ROADWAY EXCAVATION INCL. HAUL
0.5 TON SELECT BORROW INCL. HAUL
58 TON CRUSHED SURFACING BASE COURSE
15 TON CRUSHED SURFACING TOP COURSE
15 TON HMA FOR APPROACH CLASS 1/2 IN. PG 64-22





Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : CGA
DRAWN BY : CGA
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

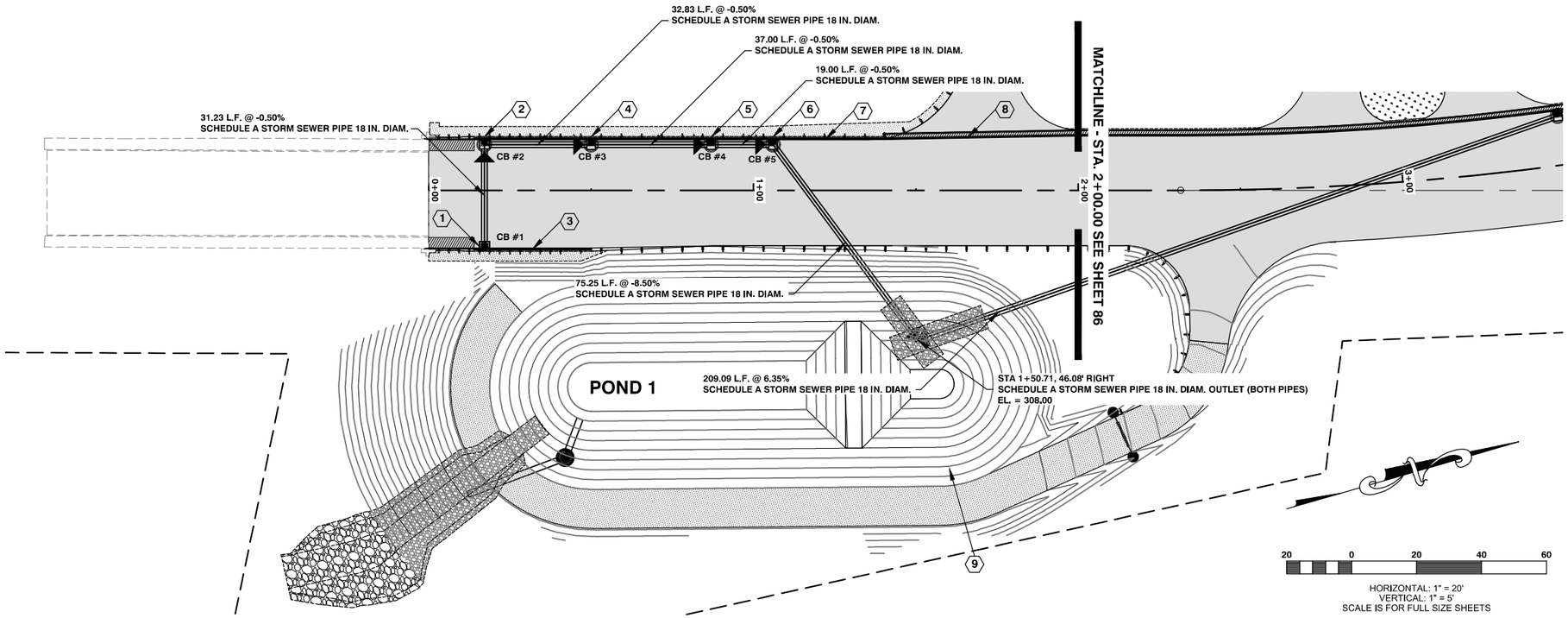
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

HIGHWAY 603 APPROACH STA 84+30.11 LEFT
HIGHWAY 603 APPROACH STA 2+80.75 LEFT & STA 3+23.77 LEFT DETAIL
NELSON ROAD APPROACH STA 1+05.58 LEFT

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

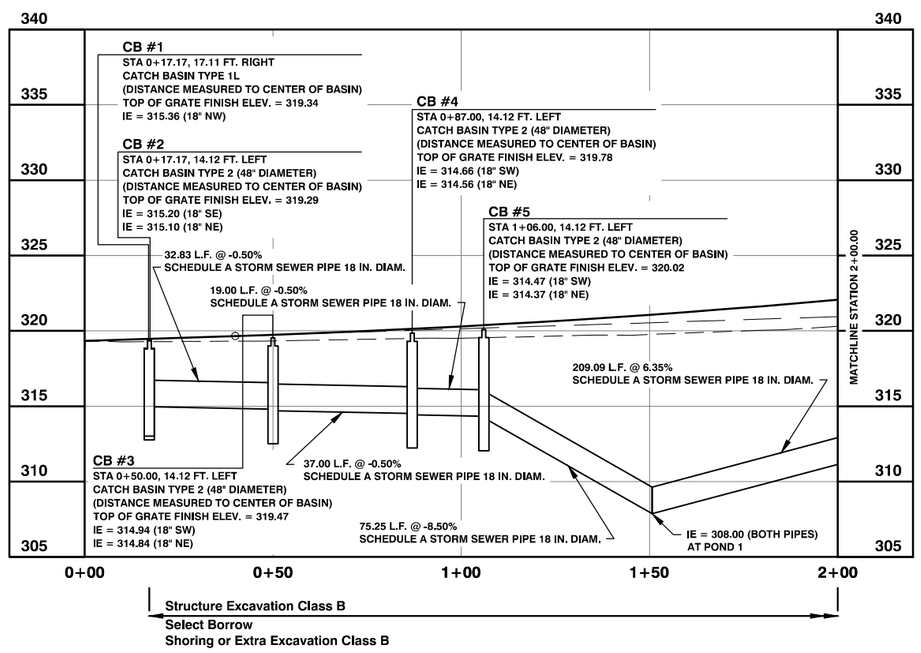
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

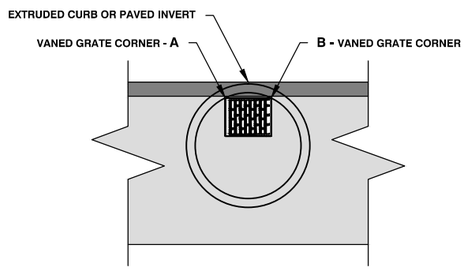


CONSTRUCTION NOTES

1. STA 0+17.17, 17.11' RIGHT (CB #1) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
2. STA 0+17.17, 14.12' LEFT (CB #2) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 0+14.00 TO STA 0+50.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   36.00 L.F. EXTRUDED CURB
4. STA 0+50.00, 14.12' LEFT (CB #3) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 0+87.00, 14.12' LEFT (CB #4) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
6. STA 1+06.00, 14.12' LEFT (CB #5) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
7. STA 0+14.00 TO STA 1+40.00 LEFT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   126.00 L.F. EXTRUDED CURB
8. STA 1+40.00 TO STA 6+00.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
9. CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 1 DETAILS ON SHEET 108 OF 127

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
1	0+16.17		17.95', RIGHT	DIRECTIONAL	319.34
	0+18.17	17.95', RIGHT			
2	0+16.17	15.85', LEFT		DIRECTIONAL	319.29
	0+18.17		15.85', LEFT		
3	0+49.00	15.85', LEFT		DIRECTIONAL	319.47
	0+51.00		15.85', LEFT		
4	0+86.00	15.85', LEFT		DIRECTIONAL	319.78
	0+88.00		15.85', LEFT		
5	1+05.00	15.85', LEFT		DIRECTIONAL	320.02
	1+07.00		15.85', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

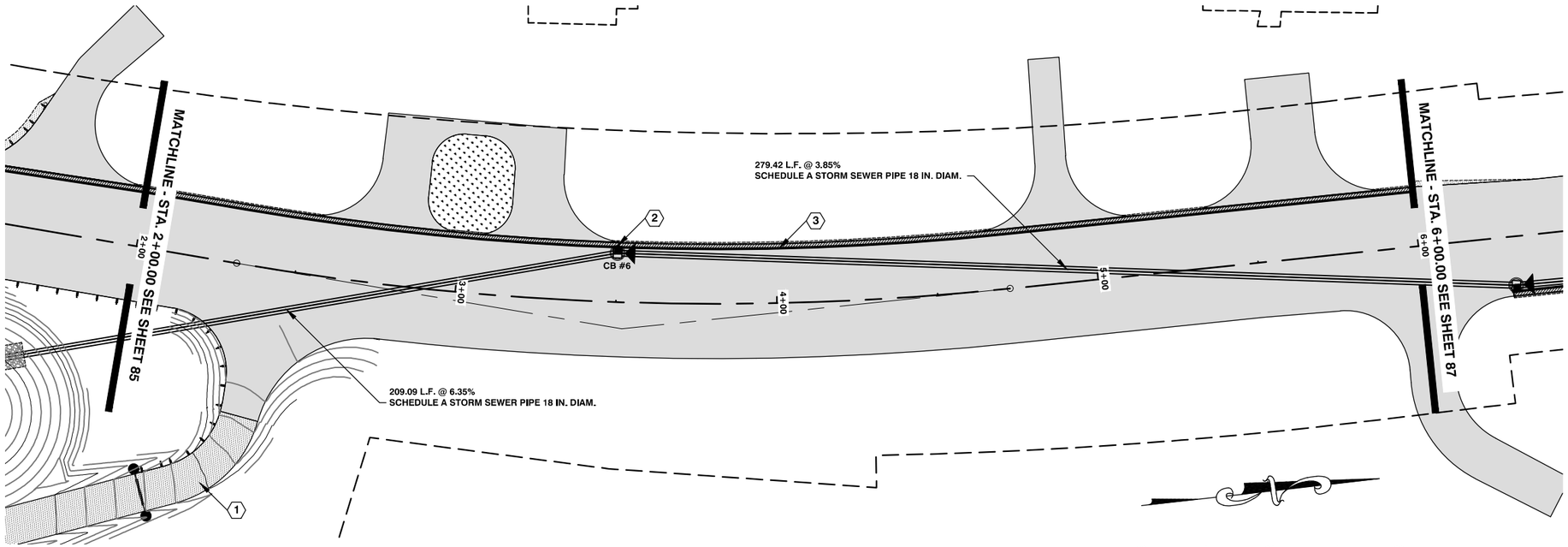
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 0+00.00 TO STA. 2+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

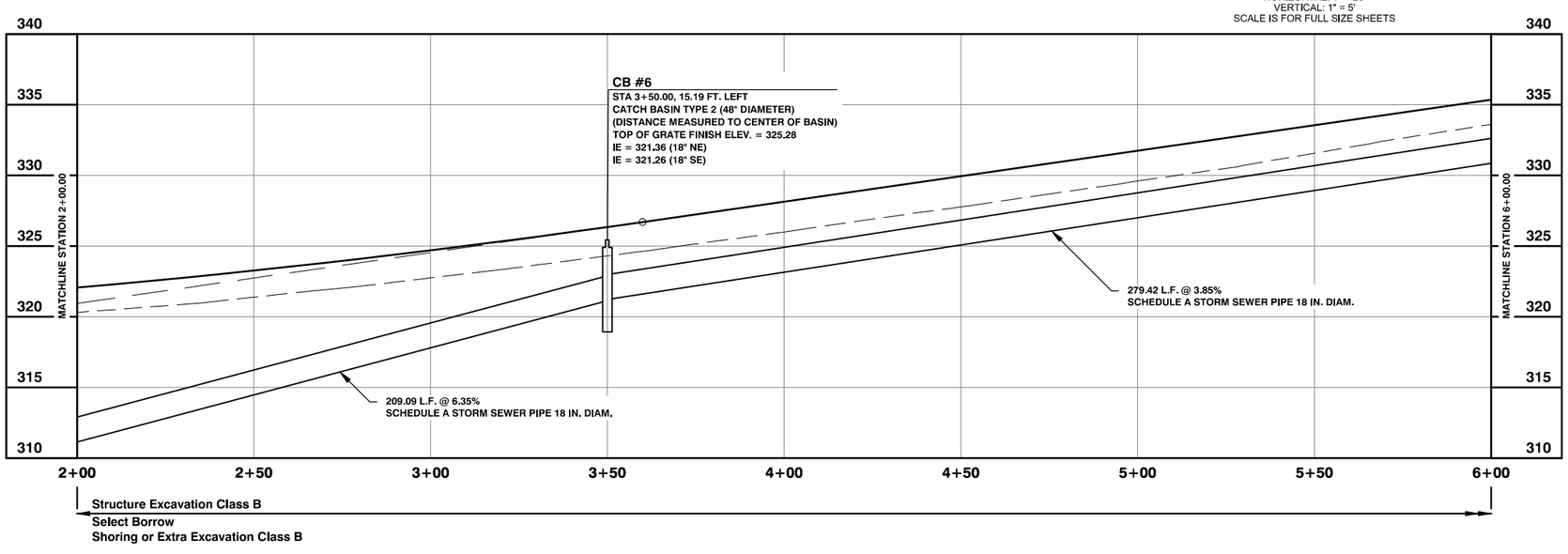


20 0 20 40 60

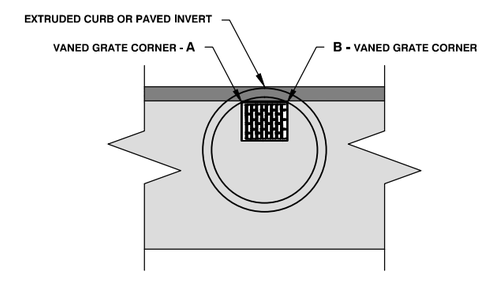
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

CONSTRUCTION NOTES

1. CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 1 DETAILS ON SHEET 108 OF 127
2. STA 3+50.00, 15.19 LEFT (CB #6) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 1+40.00 TO STA 6+00.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22



Structure Excavation Class B
Select Borrow
Shoring or Extra Excavation Class B



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
6	3+48.98	16.92', RIGHT		DIRECTIONAL	325.28
	3+51.02		16.92', RIGHT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

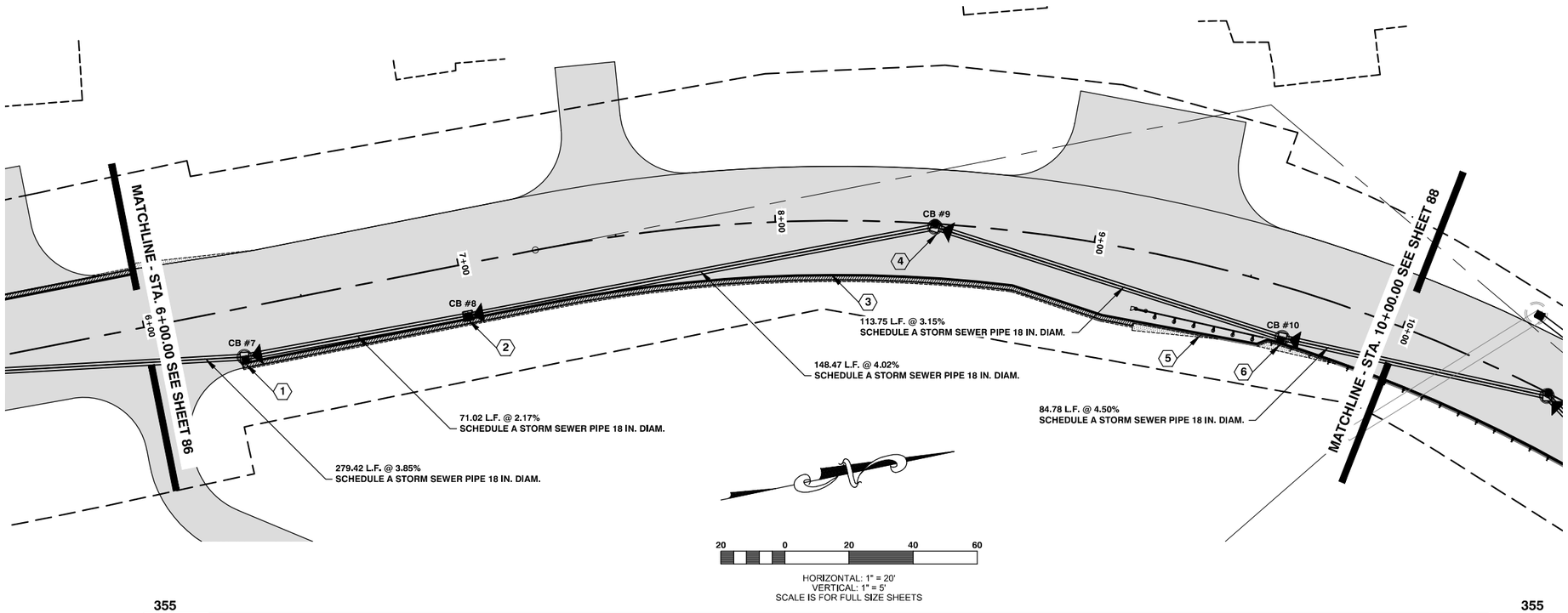
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 2+00.00 TO STA. 6+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

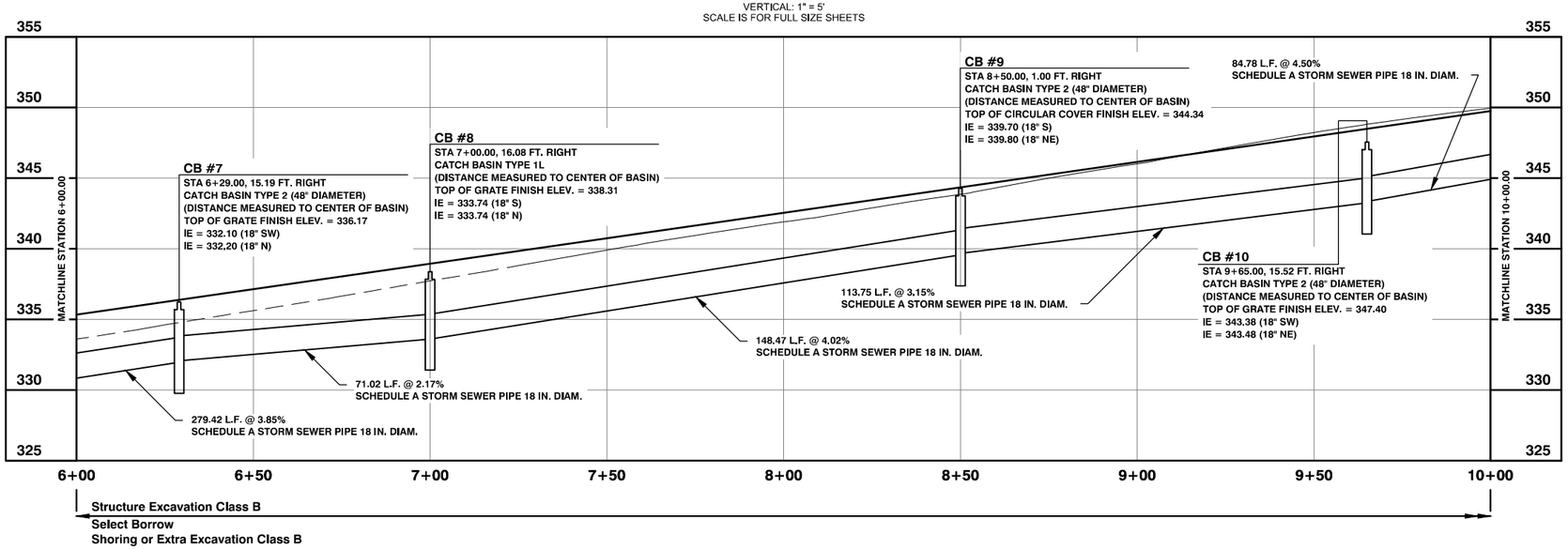
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

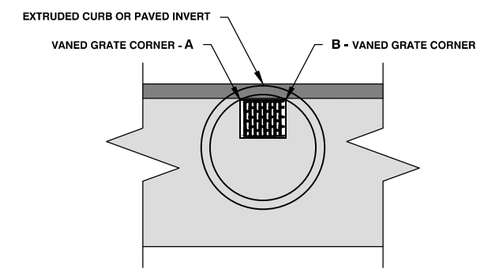


CONSTRUCTION NOTES

1. STA 6+29.00, 15.19' RIGHT (CB #7) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
2. STA 7+00.00, 16.08' RIGHT (CB #8) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 6+28.00 TO STA 9+17.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
4. STA 8+50.00, 1.00' RIGHT (CB #9) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 8+50.00, 0.00', LEFT OR RIGHT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 344.34
5. STA 9+17.00 TO STA 14+87.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   562.00 L.F. EXTRUDED CURB
6. STA 9+65.00, 15.52' RIGHT (CB #10) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
7	6+28.00		16.92', RIGHT	DIRECTIONAL	336.17
	6+30.00	16.92', RIGHT			
8	6+99.00		16.92', RIGHT	DIRECTIONAL	338.31
	7+01.00	16.92', RIGHT			
10	9+63.96		17.25', RIGHT	DIRECTIONAL	347.40
	9+66.04	17.25', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

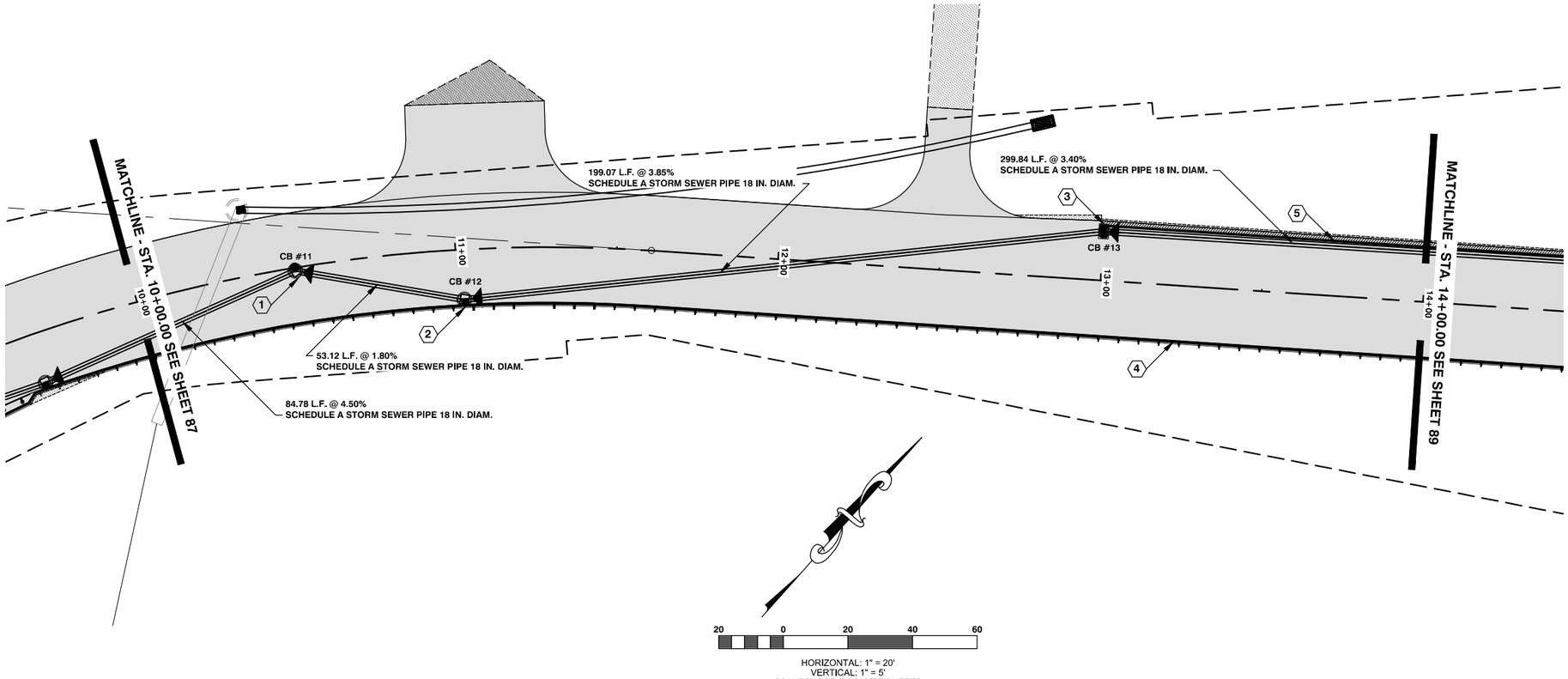
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 6+00.00 TO STA. 10+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

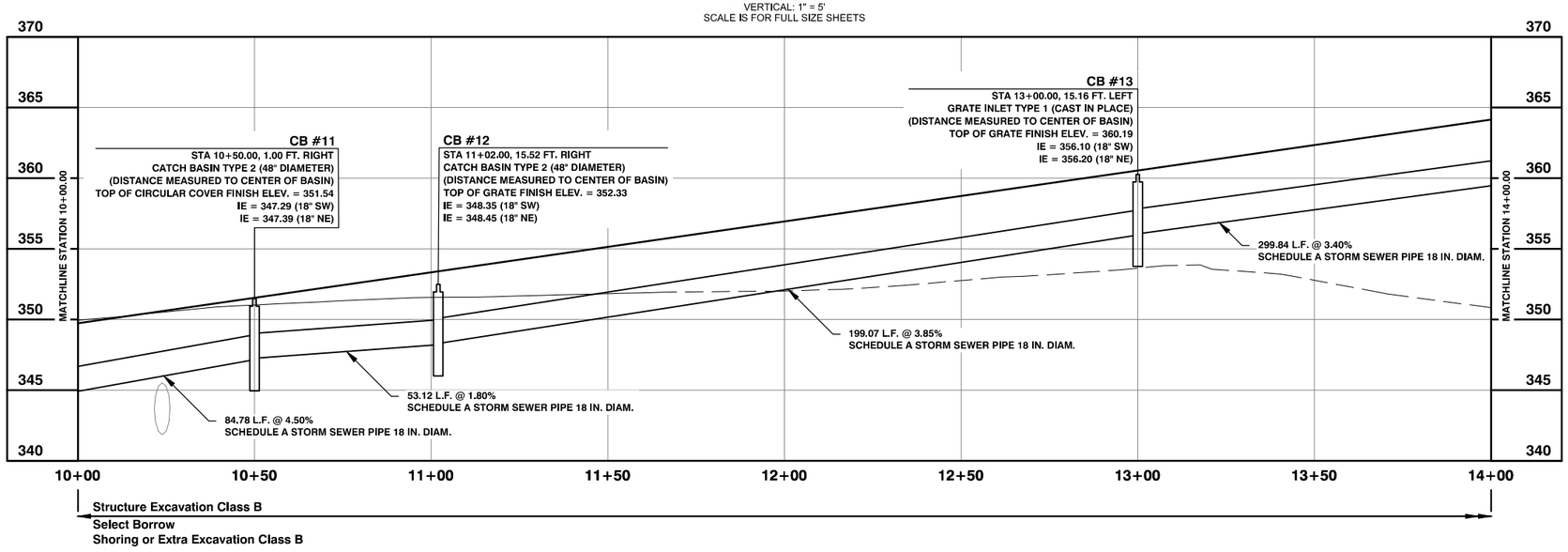
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

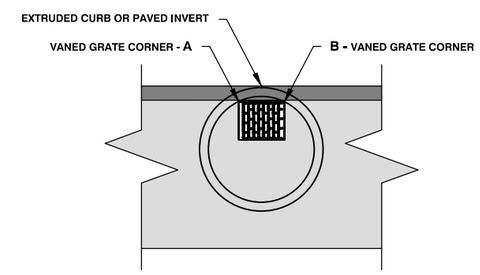


CONSTRUCTION NOTES

1. STA 10+50.00, 1.00' RIGHT (CB #11) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 10+50.00, 0.00', LEFT OR RIGHT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 351.54
2. STA 11+02.00, 15.52' RIGHT (CB #12) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 13+00.00, 15.16' LEFT (CB #13) (DISTANCE MEASURED TO CENTER OF BASIN)
   GRATE INLET TYPE 1 (CAST IN PLACE), WITH FRAME AND DUAL VANED GRATES FOR GRATE INLET
   SEE WSDOT STANDARD PLAN GRATE INLET TYPE 1 (CAST IN PLACE) B-35.20-00
   AND FRAME AND DUAL VANED GRATES FOR GRATE INLET B-40.40-01
4. STA 9+17.00 TO STA 14+87.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   562.00 L.F. EXTRUDED CURB
5. STA 12+99.00 TO STA 21+00.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
12	11+00.96		17.25', RIGHT	DIRECTIONAL	352.33
	11+03.04	17.25', RIGHT			
13	12+99.13	16.92', LEFT		DIRECTIONAL	360.19
	13+00.88		16.92', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

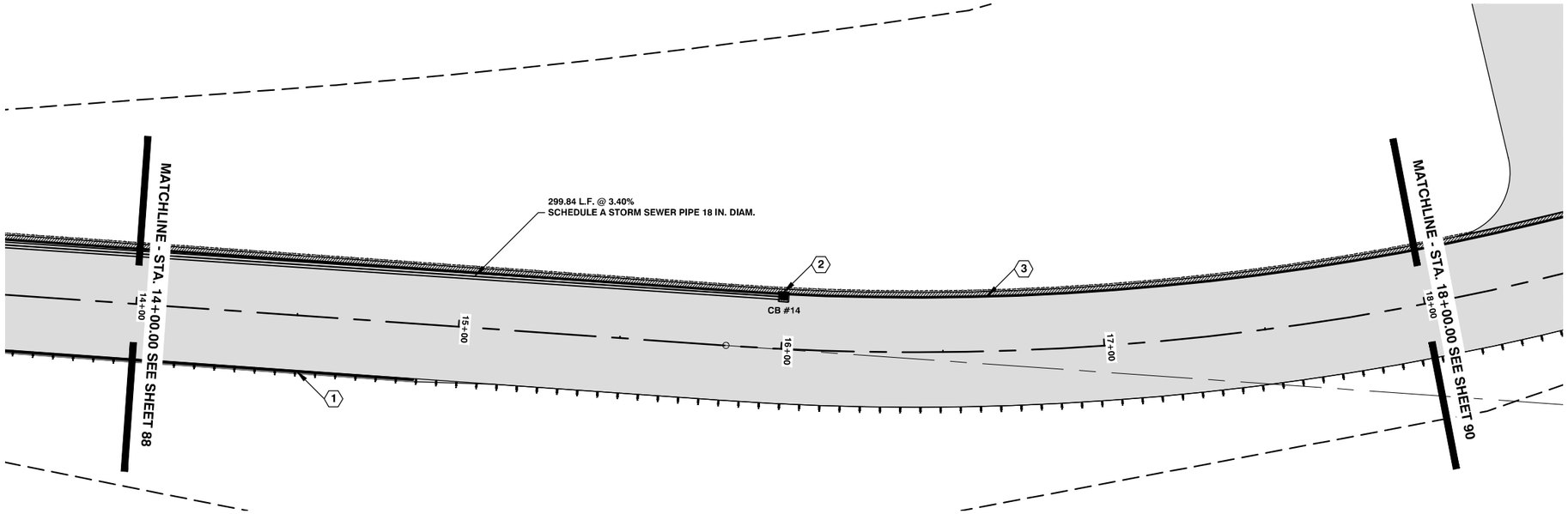
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 10+00.00 TO STA. 14+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

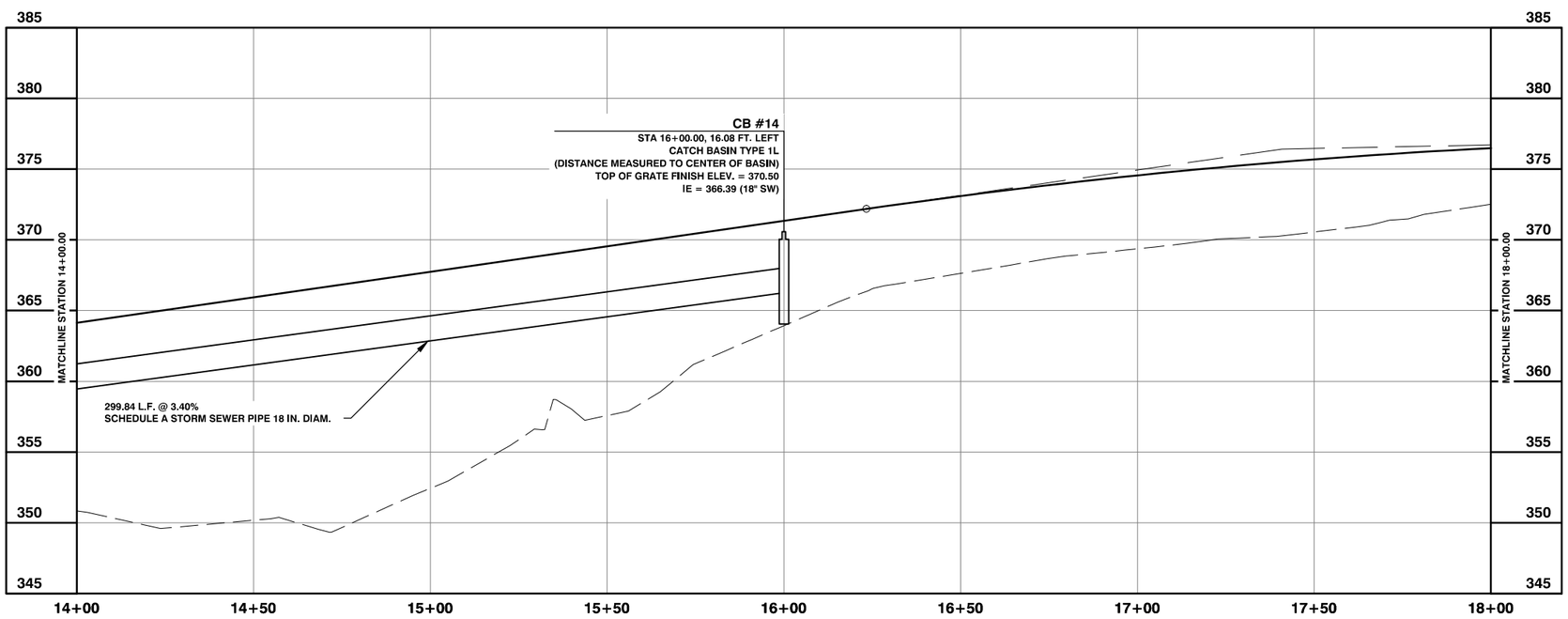
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



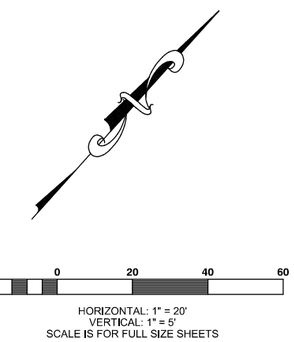
CONSTRUCTION NOTES

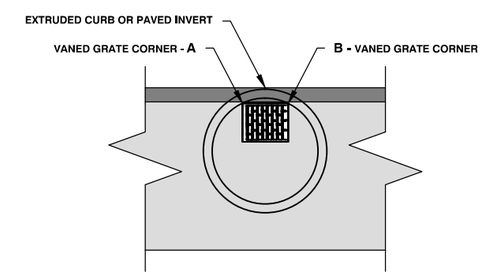
1. STA 9+17.00 TO STA 14+87.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   562.00 L.F. EXTRUDED CURB
2. STA 16+00.00, 16.08' LEFT (CB #14) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 12+99.00 TO STA 21+00.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



Structure Excavation Class B	745.00 C.Y.
Select Borrow	519.00 TON
Shoring or Extra Excavation Class B	2,449.00 S.F.





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
14	15+98.98	16.92', LEFT		DIRECTIONAL	370.50
	16+01.02		16.92', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

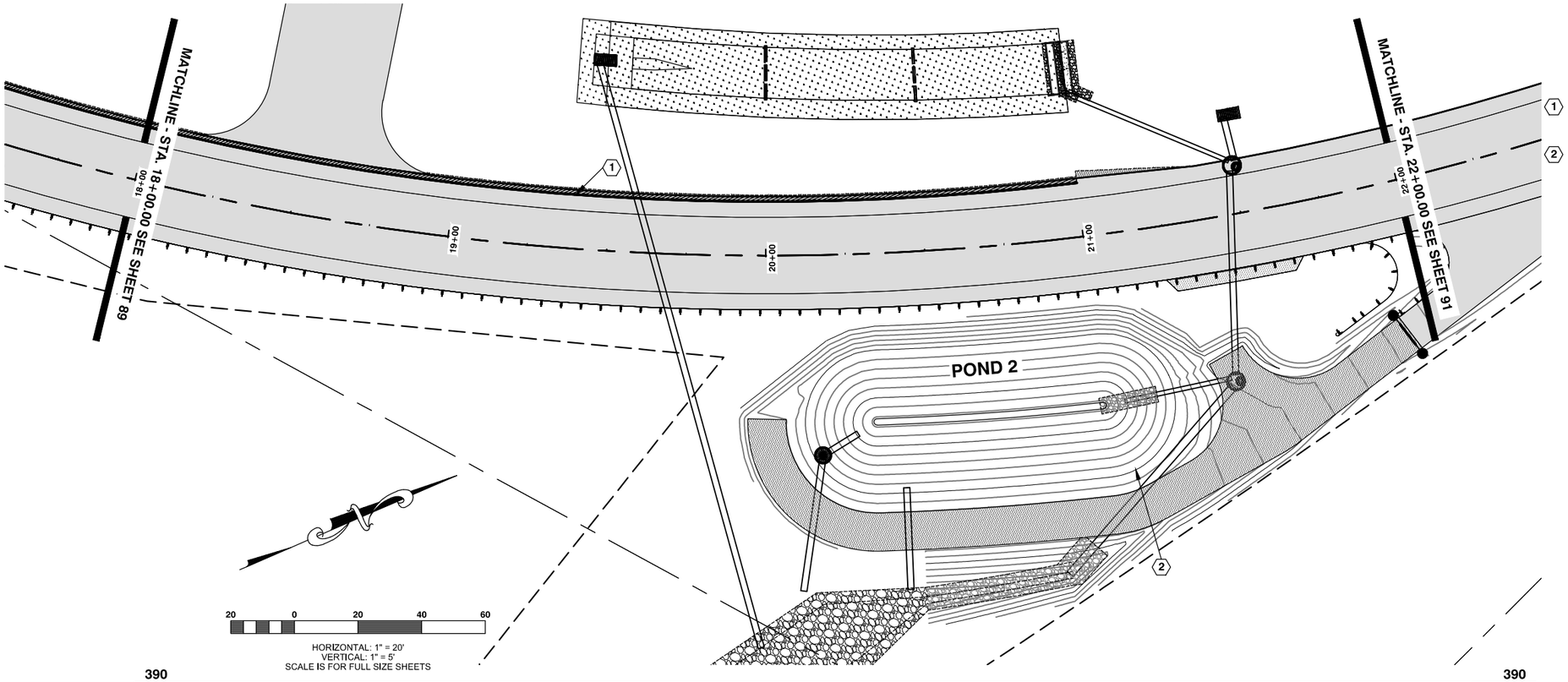
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 14+00.00 TO STA. 18+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

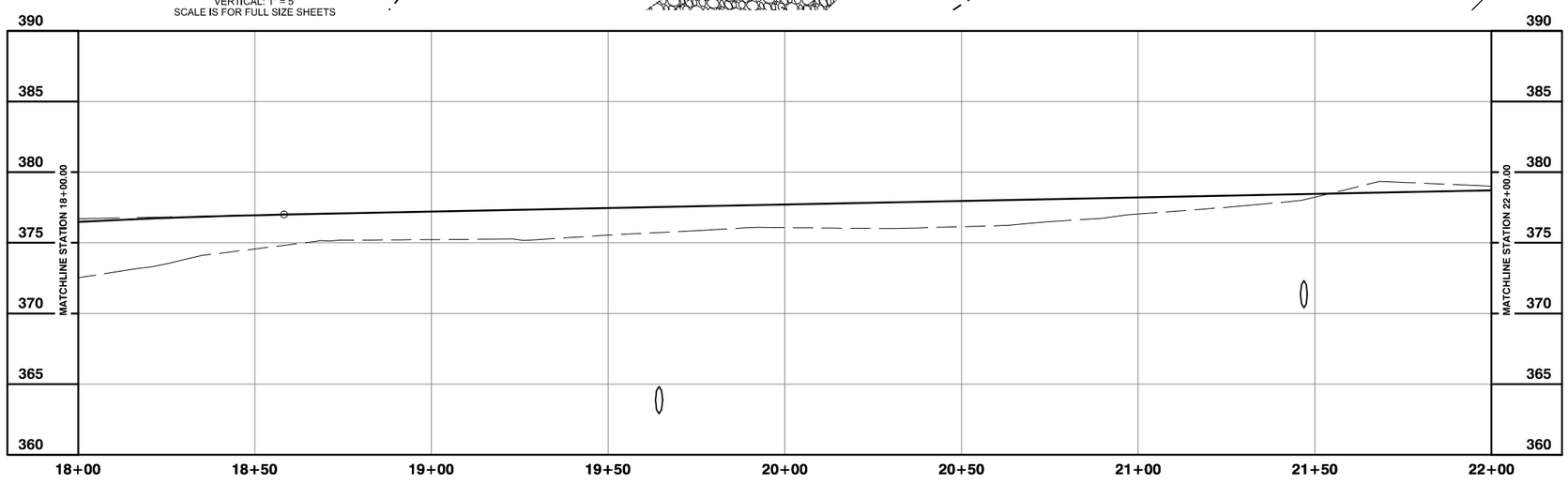
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 12+99.00 TO STA 21+00.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
2. CONSTRUCT STORMWATER DETENTION POND
   SEE STORMWATER DETENTION POND 2 DETAILS ON SHEET 110 OF 127



Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

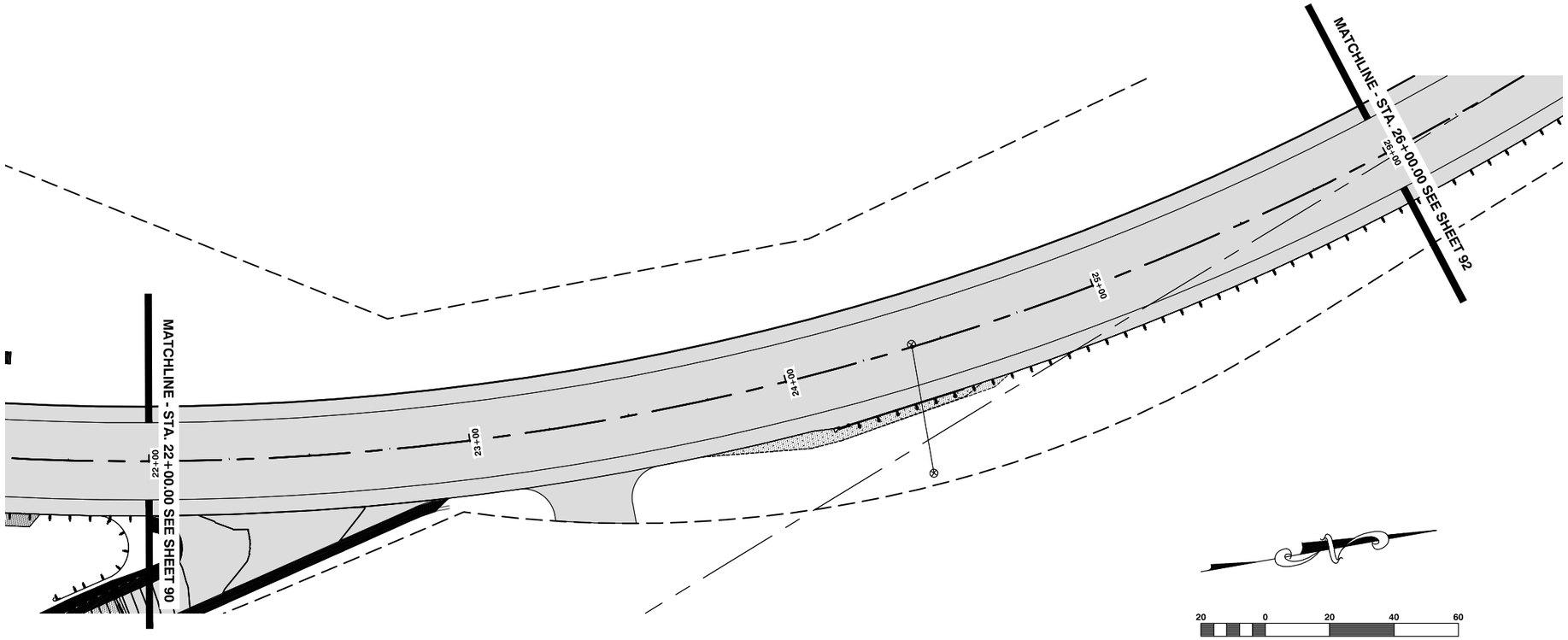
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

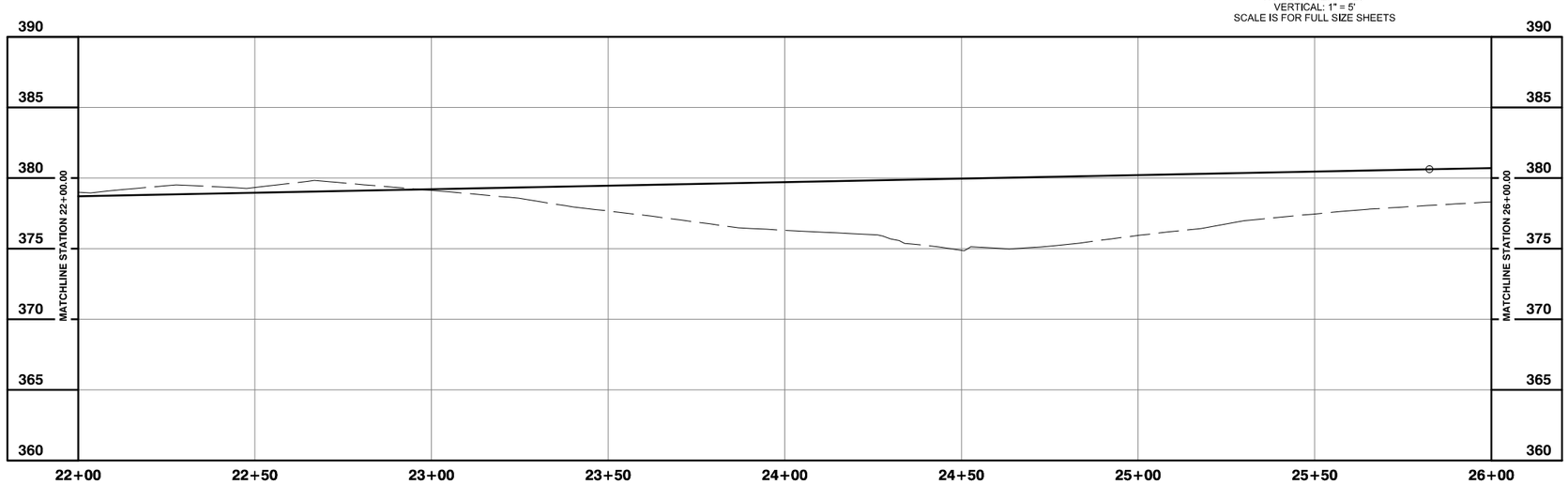
STORMWATER STA. 18+00.00 TO STA. 22+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER
3/14/16





Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 22+00.00 TO STA. 26+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

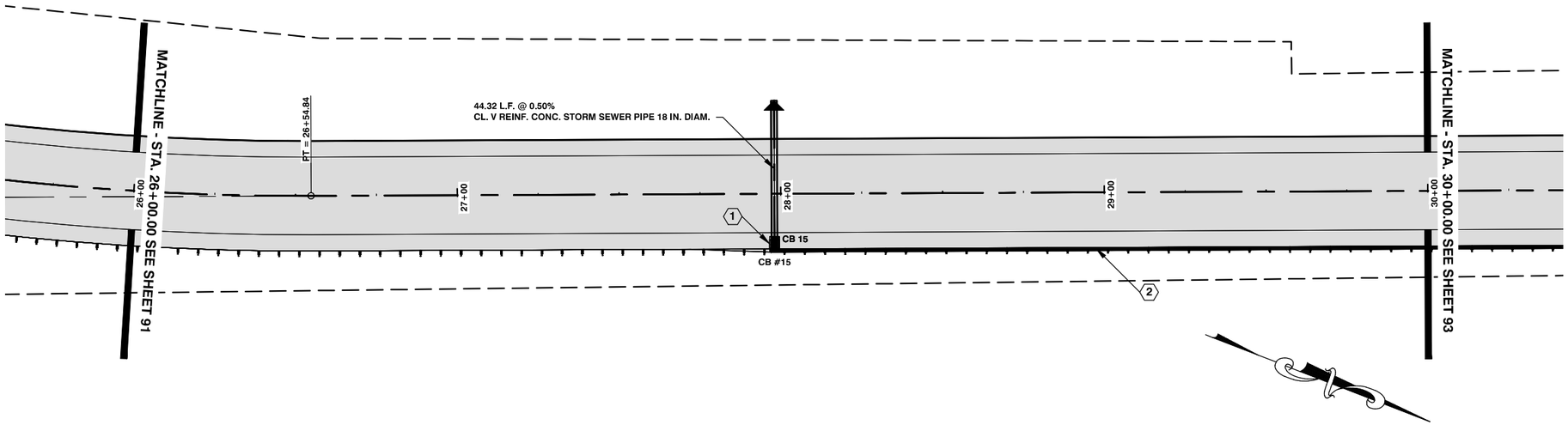
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION NOTES

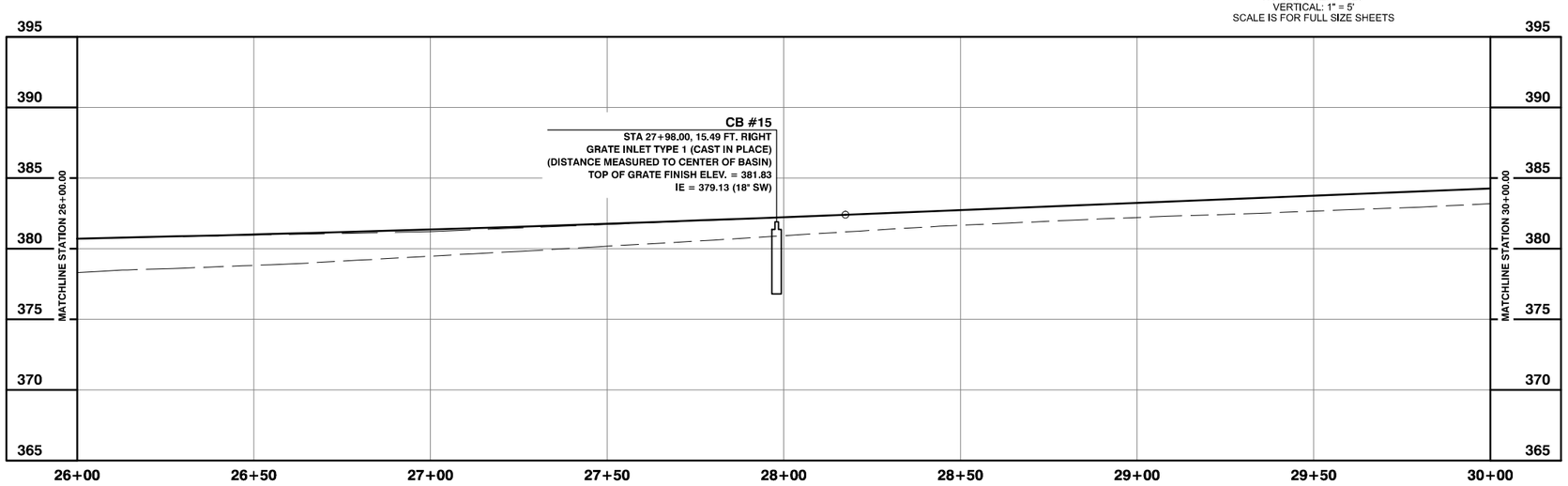
1. STA 27+98.00, 15.49' RIGHT (CB #15) (DISTANCE MEASURED TO CENTER OF BASIN)
   GRATE INLET TYPE 1 (CAST IN PLACE), WITH FRAME AND DUAL VANED GRATES FOR GRATE INLET
   SEE WSDOT STANDARD PLAN GRATE INLET TYPE 1 (CAST IN PLACE) B-35.20-00
   AND FRAME AND DUAL VANED GRATES FOR GRATE INLET B-40.40-01

2. STA 27+97.00 TO STA 31+70.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   373.00 L.F. EXTRUDED CURB

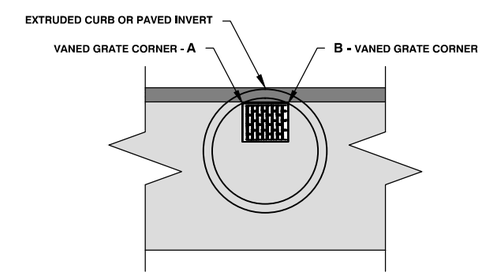
* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Structure Excavation Class B	15.00 C.Y.
Select Borrow	4.00 TON
Shoring or Extra Excavation Class B	28.00 S.F.



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
15	27+97.12	17.25', RIGHT		DIRECTIONAL	381.83
	27+98.87		17.25', RIGHT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

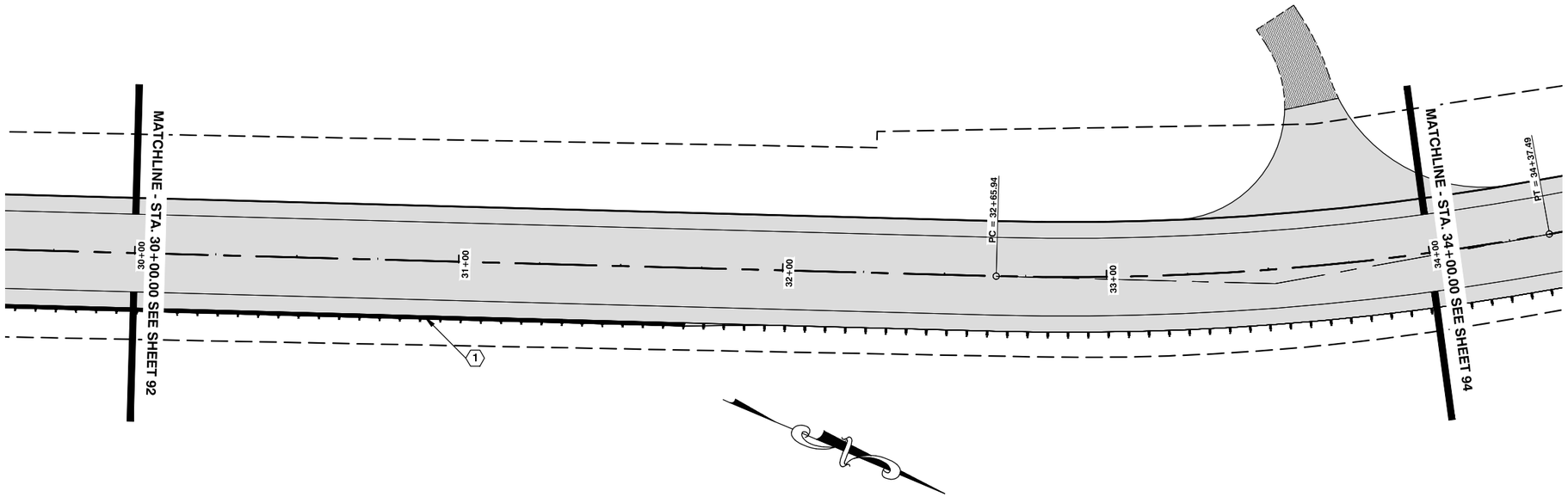
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 26+00.00 TO STA. 30+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



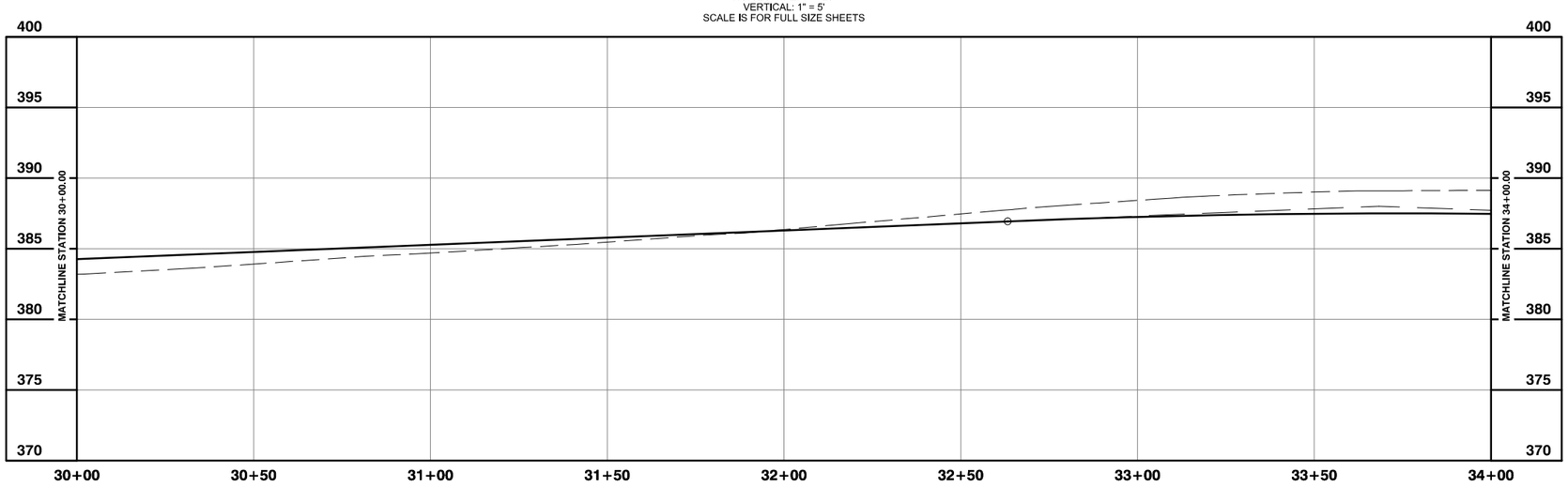
CONSTRUCTION NOTES

1. STA 27+97.00 TO STA 31+70.00 RIGHT,
CONSTRUCT EXTRUDED CURB (TYPE 5)
SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
SEE ROADWAY SECTION ON SHEET 19 OF 127
373.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

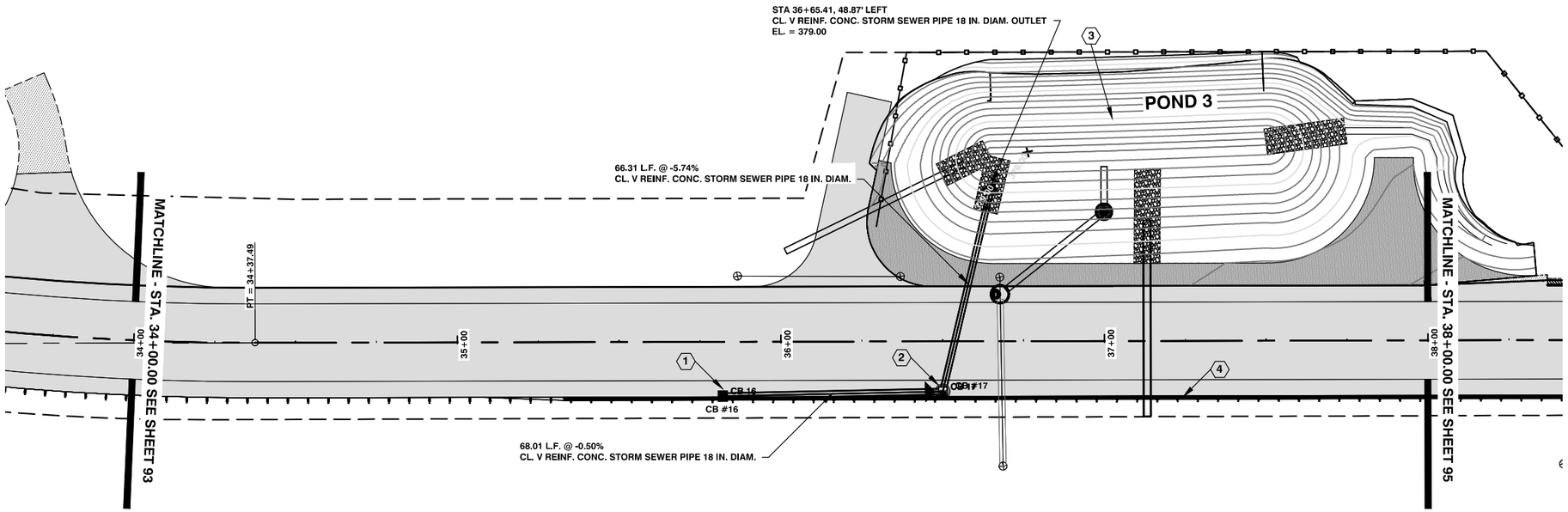
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 30+00.00 TO STA. 34+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



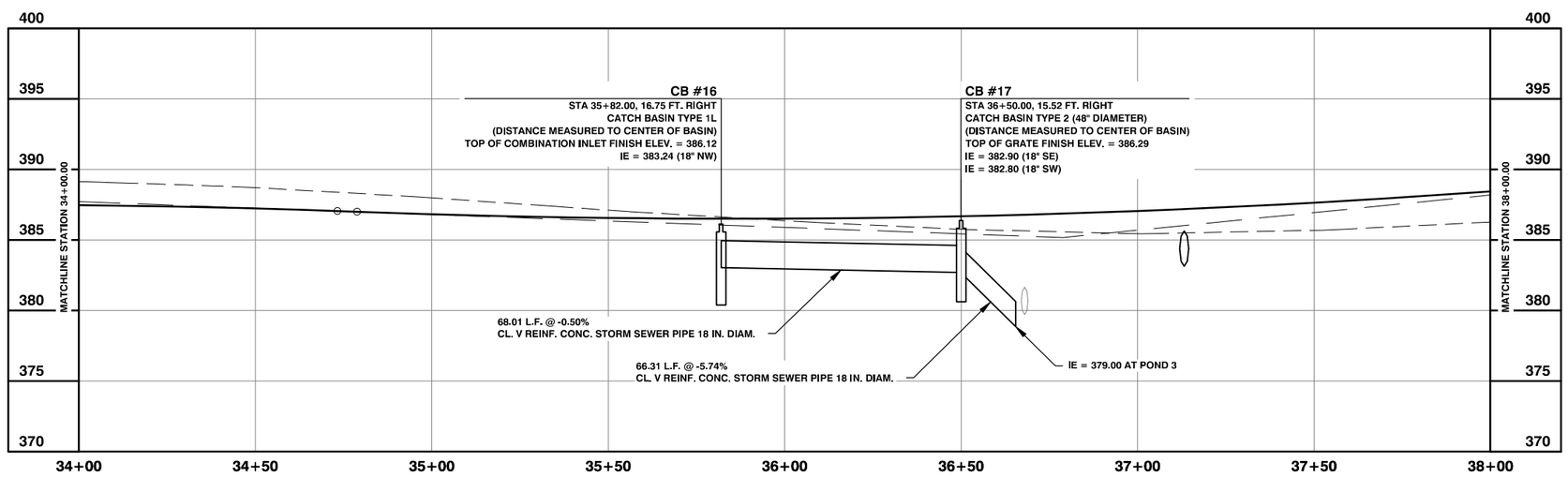
CONSTRUCTION NOTES

1. STA 35+82.00, 16.75' RIGHT (CB #16) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH COMBINATION INLET
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND COMBINATION INLET B-25.20-01
2. STA 36+50.00, 15.52' RIGHT (CB #17) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 3 DETAILS ON SHEET 115 OF 127
4. STA 35+33.00 TO STA 40+49.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE S)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   516.00 L.F. EXTRUDED CURB

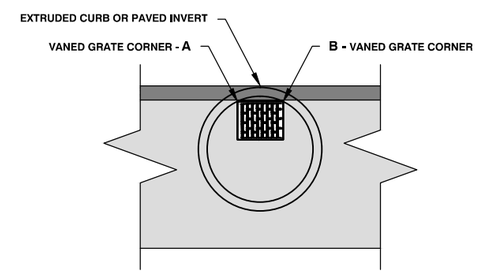
* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Structure Excavation Class B	65.00 C.Y.
Select Borrow	23.00 TON
Shoring or Extra Excavation Class B	143.00 S.F.



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
16	35+81.00		17.33', RIGHT	BI-DIRECTIONAL	386.12
	35+83.00	17.33', RIGHT			
17	36+49.00		17.25', RIGHT	DIRECTIONAL	386.29
	36+51.00	17.25', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

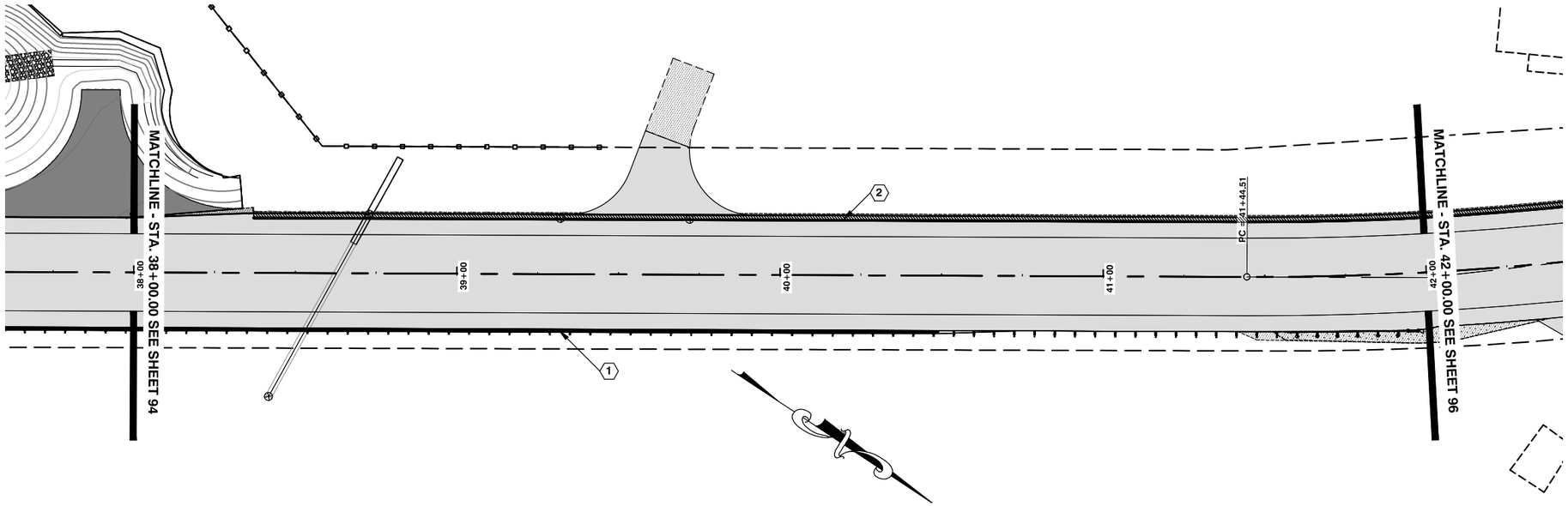
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 34+00.00 TO STA. 38+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

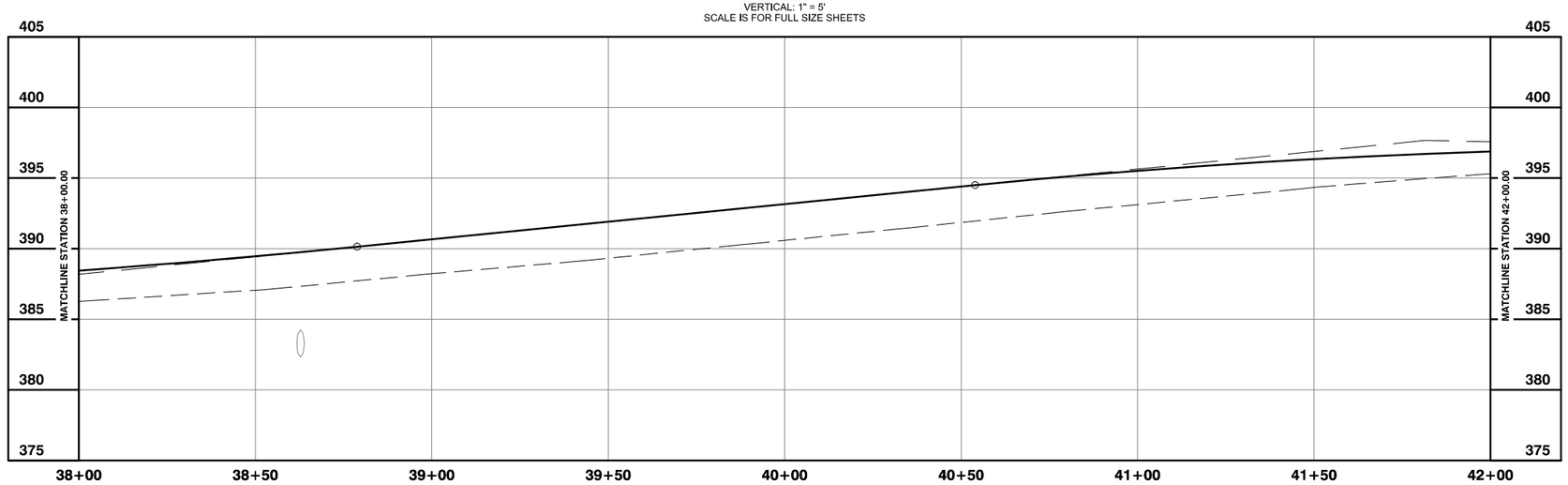
1. STA 35+33.00 TO STA 40+49.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   516.00 L.F. EXTRUDED CURB

2. STA 38+37.00 TO STA 42+88.81 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

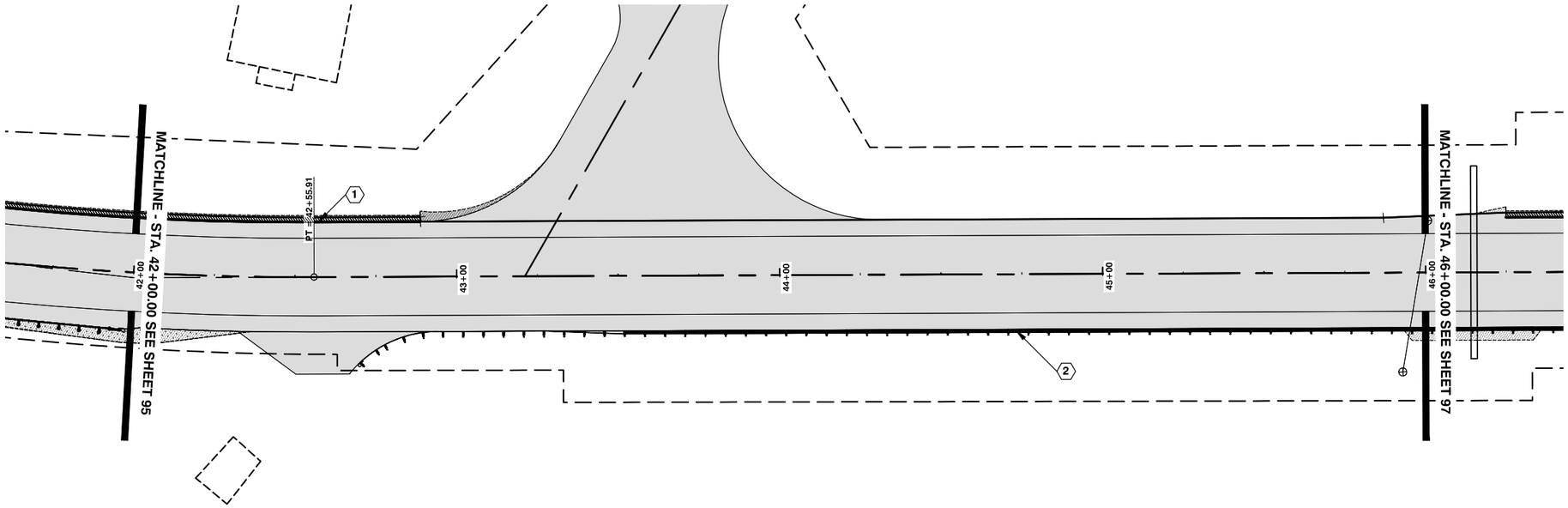
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 38+00.00 TO STA. 42+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

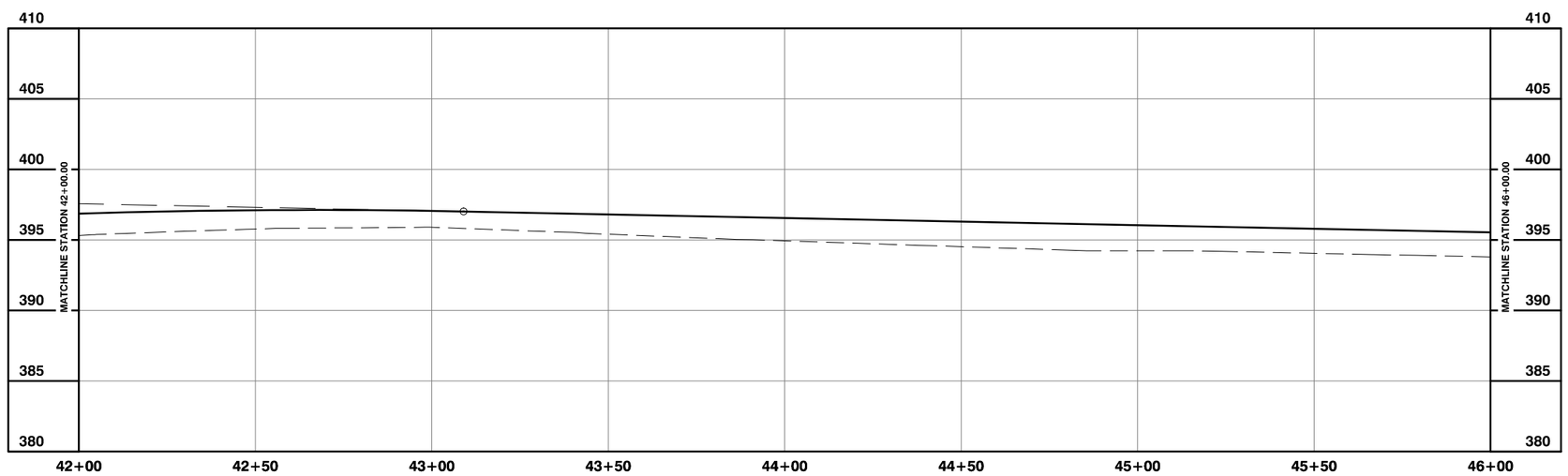


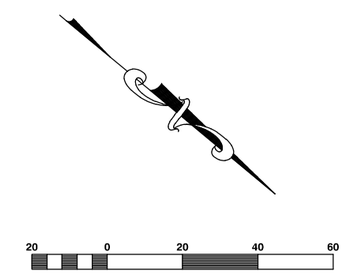
CONSTRUCTION NOTES

1. STA 38+37.00 TO STA 42+88.81 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

2. STA 43+52.00 TO STA 47+00.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   348.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB





HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

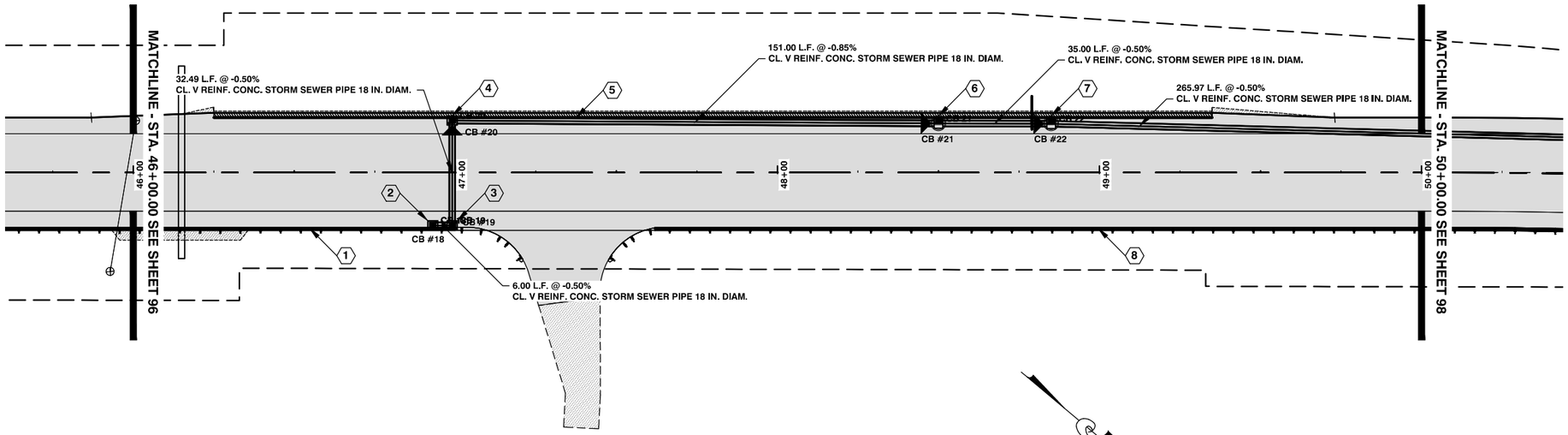
STORMWATER STA. 42+00.00 TO STA. 46+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



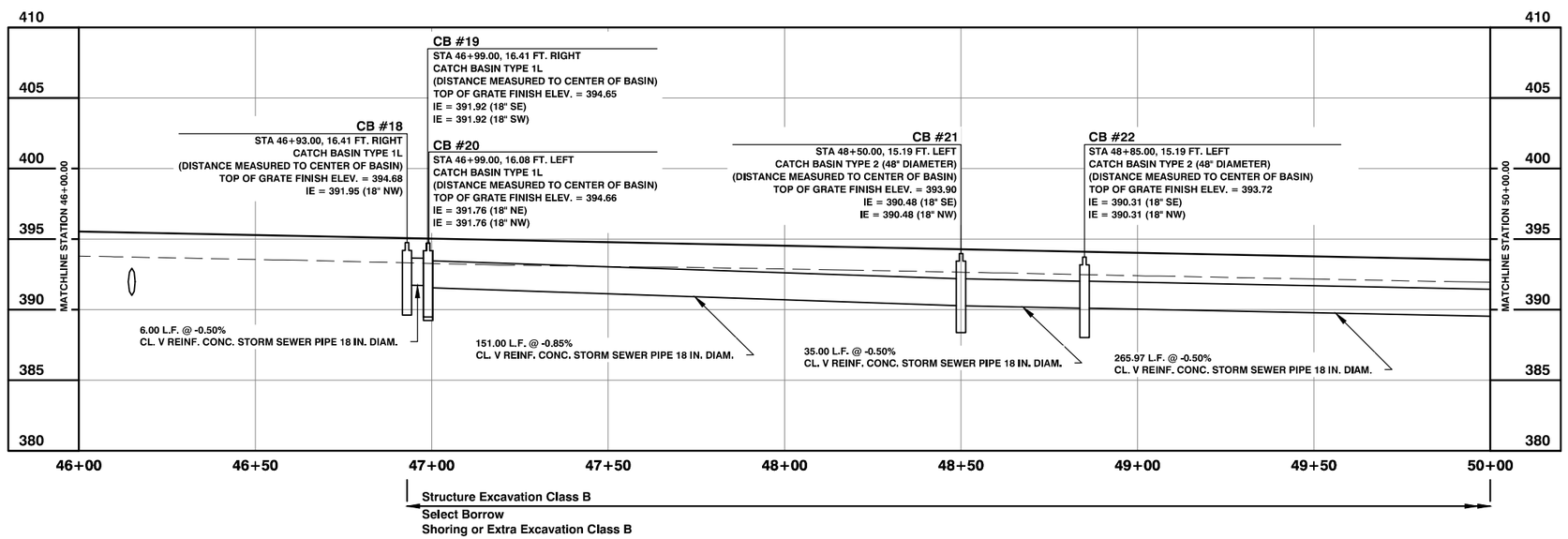
CONSTRUCTION NOTES

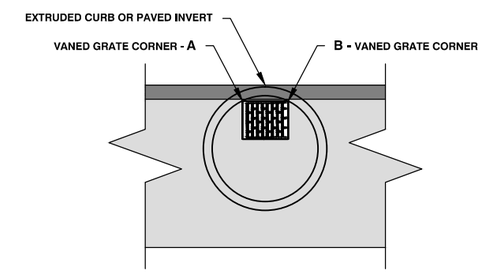
1. STA 43+52.00 TO STA 47+00.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   348.00 L.F. EXTRUDED CURB
2. STA 46+93.00, 16.41' RIGHT (CB #18) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 46+99.00, 16.41' RIGHT (CB #19) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
4. STA 46+99.00, 16.08' LEFT (CB #20) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 46+25.00 TO STA 49+35.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
6. STA 48+50.00, 15.19' LEFT (CB #21) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
7. STA 48+85.00, 15.19' LEFT (CB #22) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR BI-DIRECTIONAL VANED GRATE B-30.40-01
8. STA 47+62.00 TO STA 52+41.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   RUN EXTRUDED CURB 1' PAST PAVED INVERT
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   477.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
18	46+92.00		17.25', RIGHT	DIRECTIONAL	394.68
	46+94.00	17.25', RIGHT			
19	46+98.00		17.25', RIGHT	DIRECTIONAL	394.65
	47+00.00	17.25', RIGHT			
20	46+98.00	16.92', LEFT		DIRECTIONAL	394.66
	47+00.00		16.92', LEFT		
21	48+49.00	16.92', LEFT		DIRECTIONAL	393.90
	48+51.00		16.92', LEFT		
22	48+84.00	16.92', LEFT		BI-DIRECTIONAL	393.72
	48+86.00		16.92', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

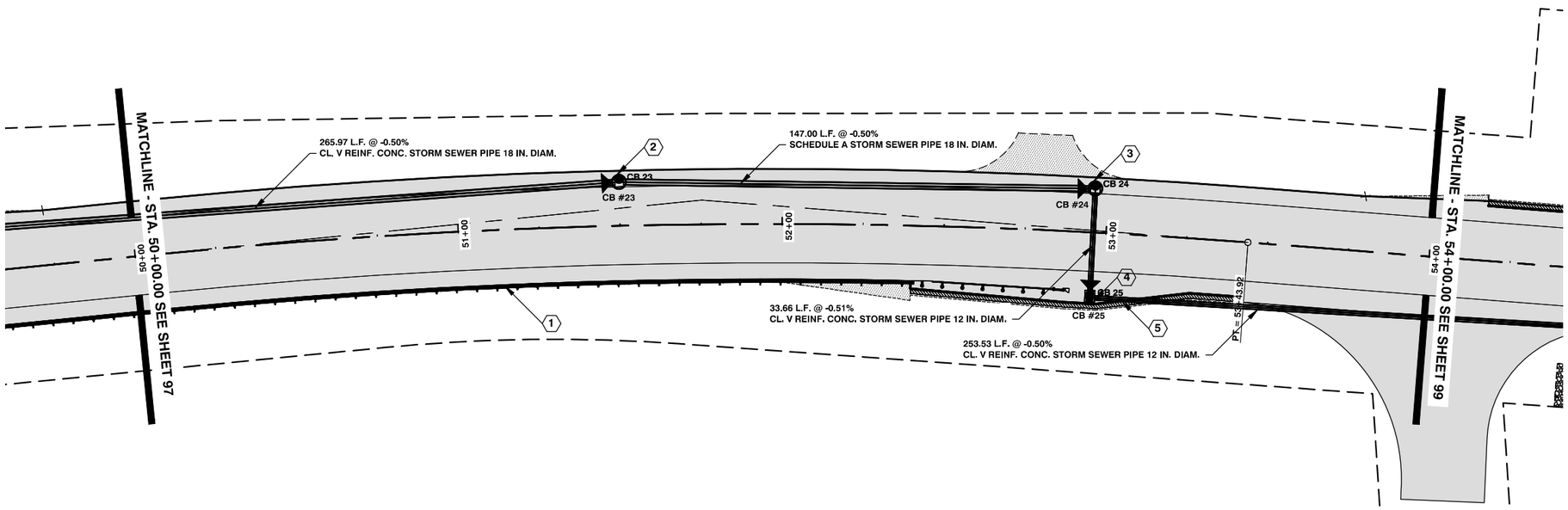
STORMWATER STA. 46+00.00 TO STA. 50+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. STA 47+62.00 TO STA 52+41.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   RUN EXTRUDED CURB 1' PAST PAVED INVERT
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   477.00 L.F. EXTRUDED CURB

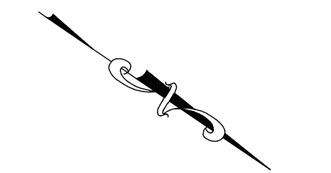
2. STA 51+50.00, 13.50' LEFT (CB #23) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 51+50.00, 14.50' LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 393.43

3. STA 52+96.00, 13.50' LEFT (CB #24) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 52+96.00, 14.50' LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 392.69

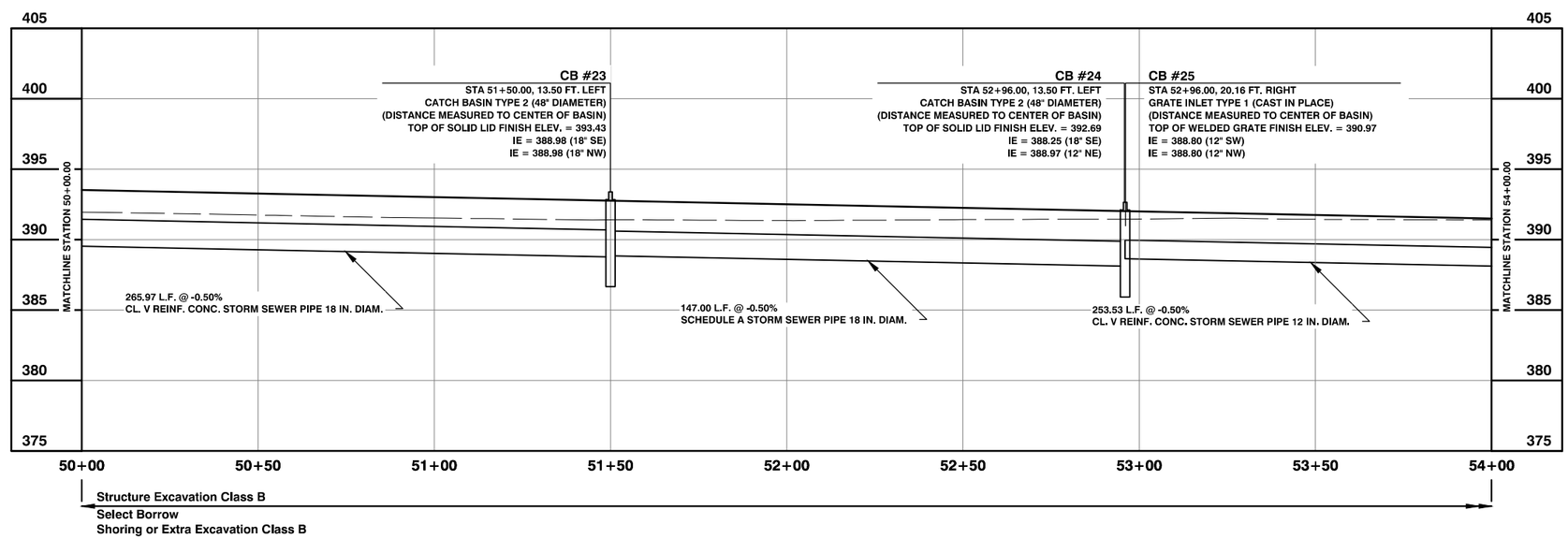
4. STA 52+96.00, 20.16' RIGHT (CB #25) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT GRATE INLET TYPE 1 (CAST IN PLACE), WITH WELDED GRATE (GRATE "A")
   SEE WSDOT STANDARD PLAN GRATE INLET TYPE 1 (CAST IN PLACE) B-35.20-00
   AND WELDED GRATES FOR GRATE INLET B-40.20-00

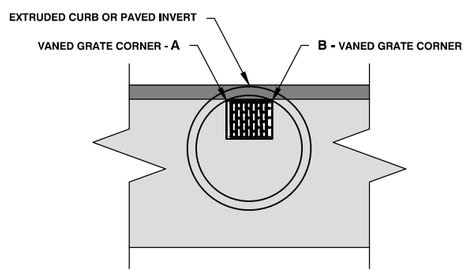
5. STA 52+40.00 TO STA 53+42.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
25	52+95.10		21.92', RIGHT	WELDED GRATE	390.97
	52+96.90	21.92', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

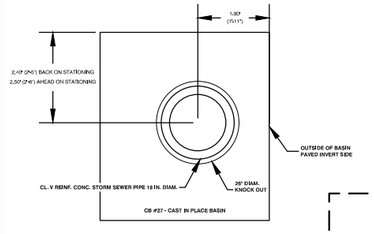
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 50+00.00 TO STA. 54+00.00

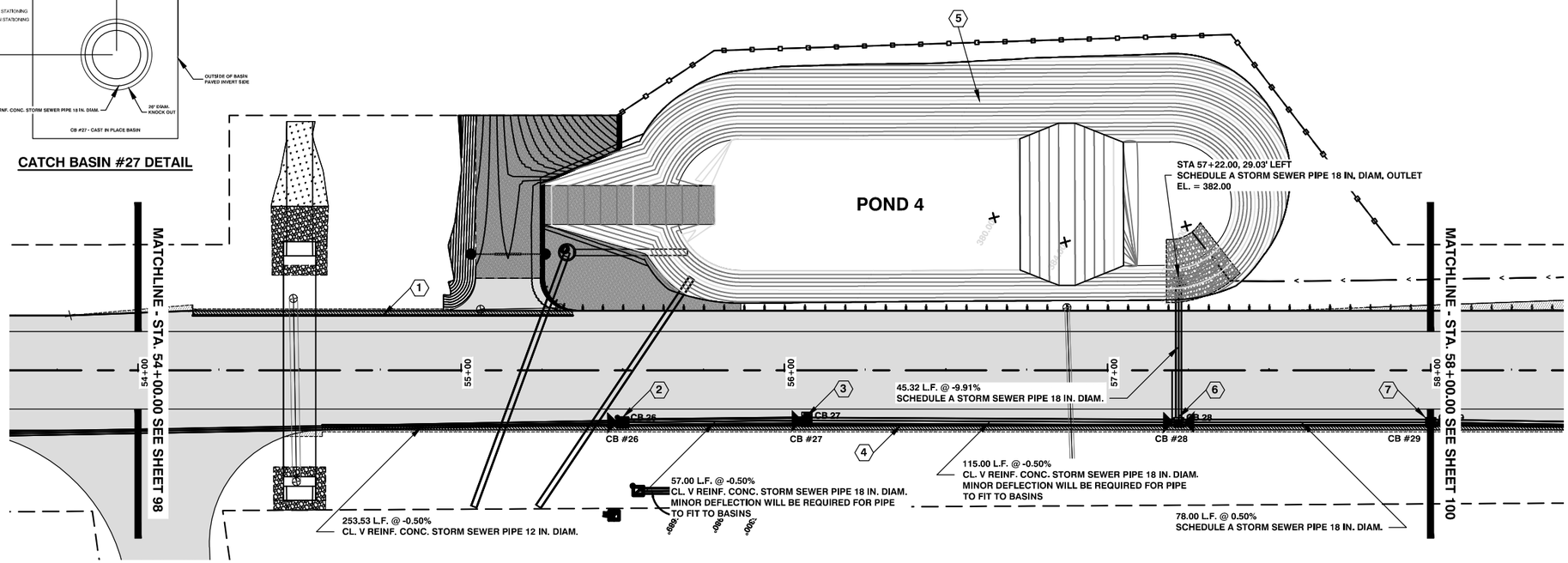
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



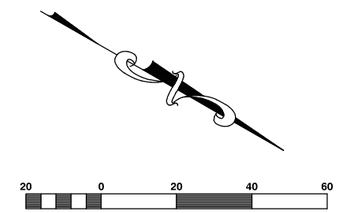
CATCH BASIN #27 DETAIL



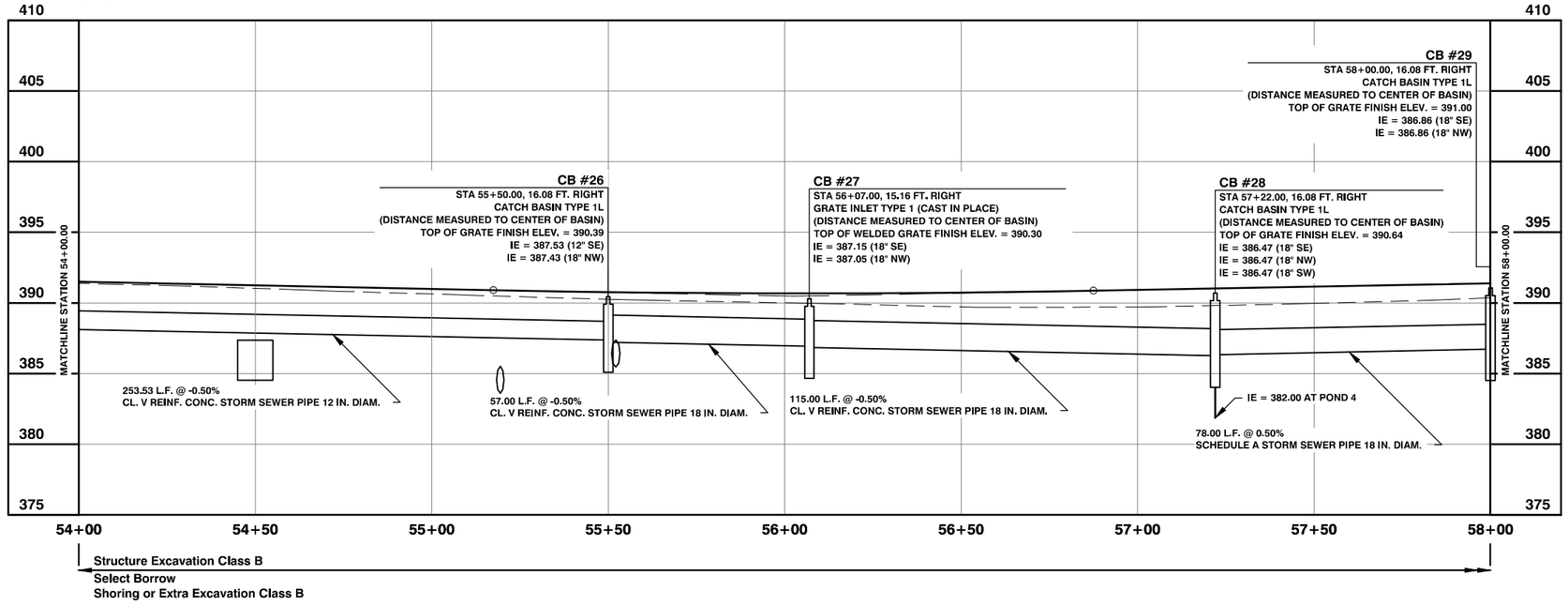
CONSTRUCTION NOTES

1. STA 54+17.00 TO STA 55+34.50 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
2. STA 55+50.00, 16.08' RIGHT (CB #26) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 56+07.00, 15.16' RIGHT (CB #27) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT GRATE INLET TYPE 1 (CAST IN PLACE), WITH WELDED GRATE (GRATE "A")
   SEE WSDOT STANDARD PLAN GRATE INLET TYPE 1 (CAST IN PLACE) B-35.20-00
   SEE WSDOT STANDARD PLAN WELDED GRATES FOR GRATE INLET B-40.20-00
   AND CATCH BASIN #27 DETAIL ON THIS SHEET
4. STA 54+57.00 TO STA 61+25.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
5. CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 4 DETAILS ON SHEET 117 OF 127
6. STA 57+22.00, 16.08' RIGHT (CB #28) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
7. STA 58+00.00, 16.08' RIGHT (CB #29) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01

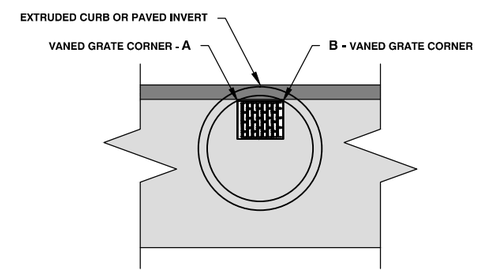
* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Structure Excavation Class B
Select Borrow
Shoring or Extra Excavation Class B



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
26	55+49.00		16.92', RIGHT	DIRECTIONAL	390.39
	55+51.00	16.92', RIGHT			
27	56+06.11		16.92', RIGHT	WELDED GRATE	390.30
	56+07.89	16.92', RIGHT			
28	57+21.00		16.92', RIGHT	DIRECTIONAL	390.64
	57+23.00	16.92', RIGHT			
29	57+99.00		16.92', RIGHT	DIRECTIONAL	391.00
	58+01.00	16.92', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

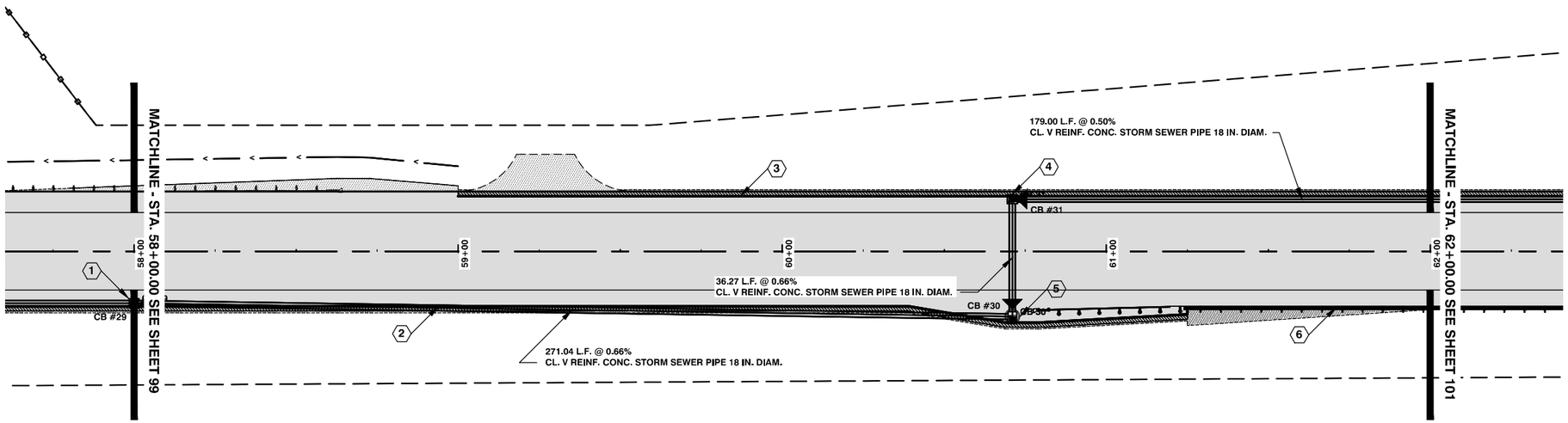
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 54+00.00 TO STA. 58+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



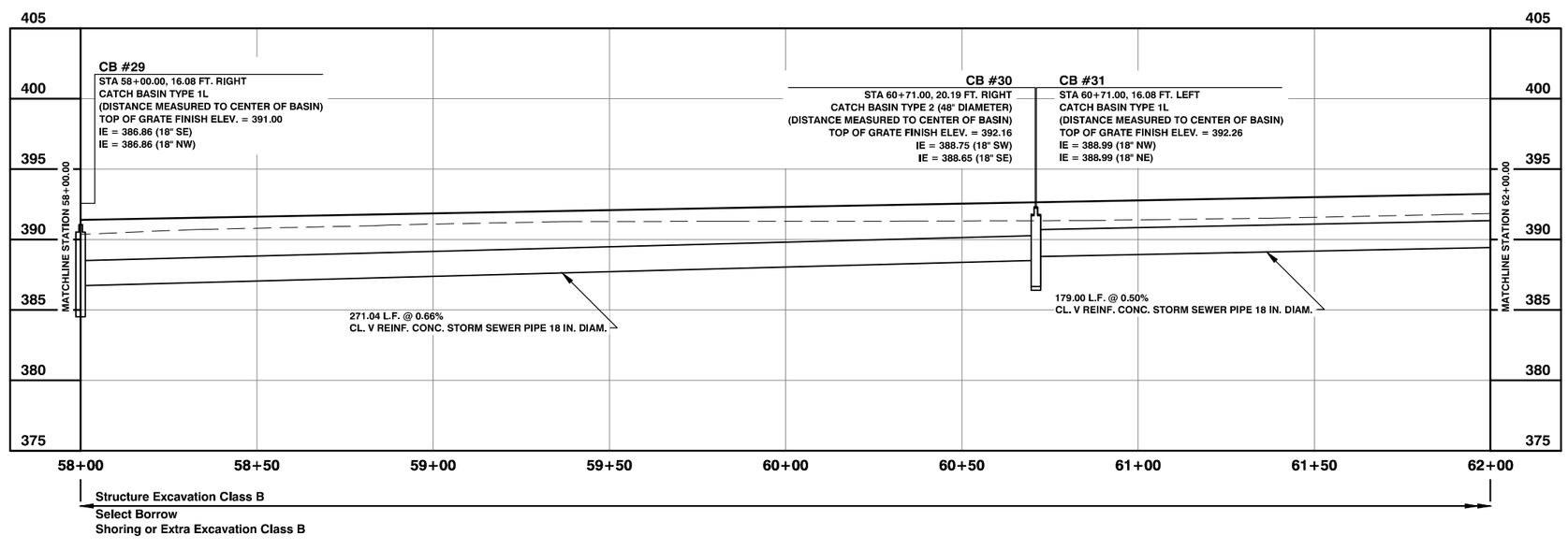
CONSTRUCTION NOTES

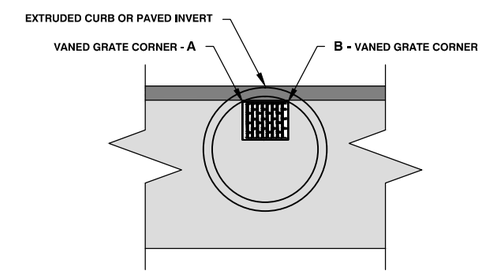
1. STA 58+00.00, 16.08' RIGHT (CB #29) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
2. STA 54+57.00 TO STA 61+25.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
3. STA 59+00.00 TO STA 71+68.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
4. STA 60+71.00, 16.08' LEFT (CB #31) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 60+71.00, 20.19' RIGHT (CB #30) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
6. STA 61+24.00 TO STA 62+42.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   RUN EXTRUDED CURB 1' PAST PAVED INVERT
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   118.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
29	57+99.00		16.92', RIGHT	DIRECTIONAL	391.00
	58+01.00	16.92', RIGHT			
30	60+70.00		21.92', RIGHT	DIRECTIONAL	392.16
	60+72.00	21.92', RIGHT			
31	60+70.00	16.92', LEFT		DIRECTIONAL	392.26
	60+72.00		16.92', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

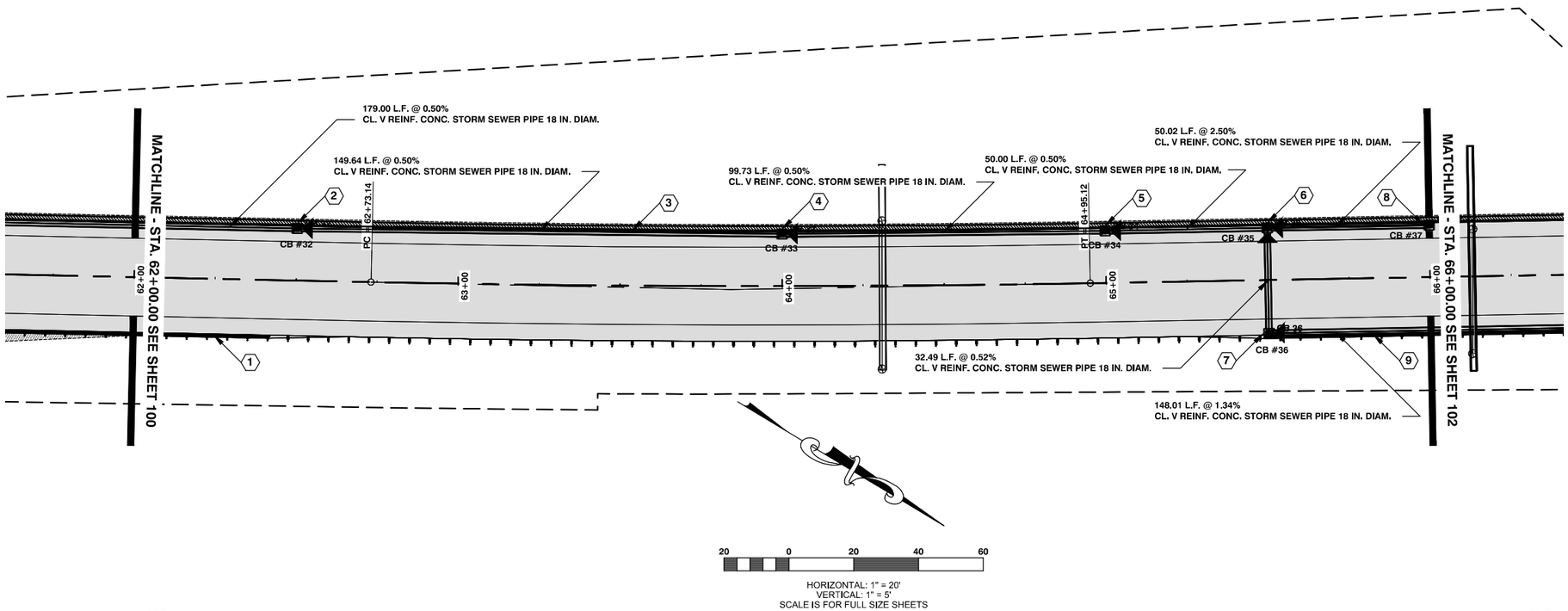
HIGHWAY 603 STABILIZATION PROJECT

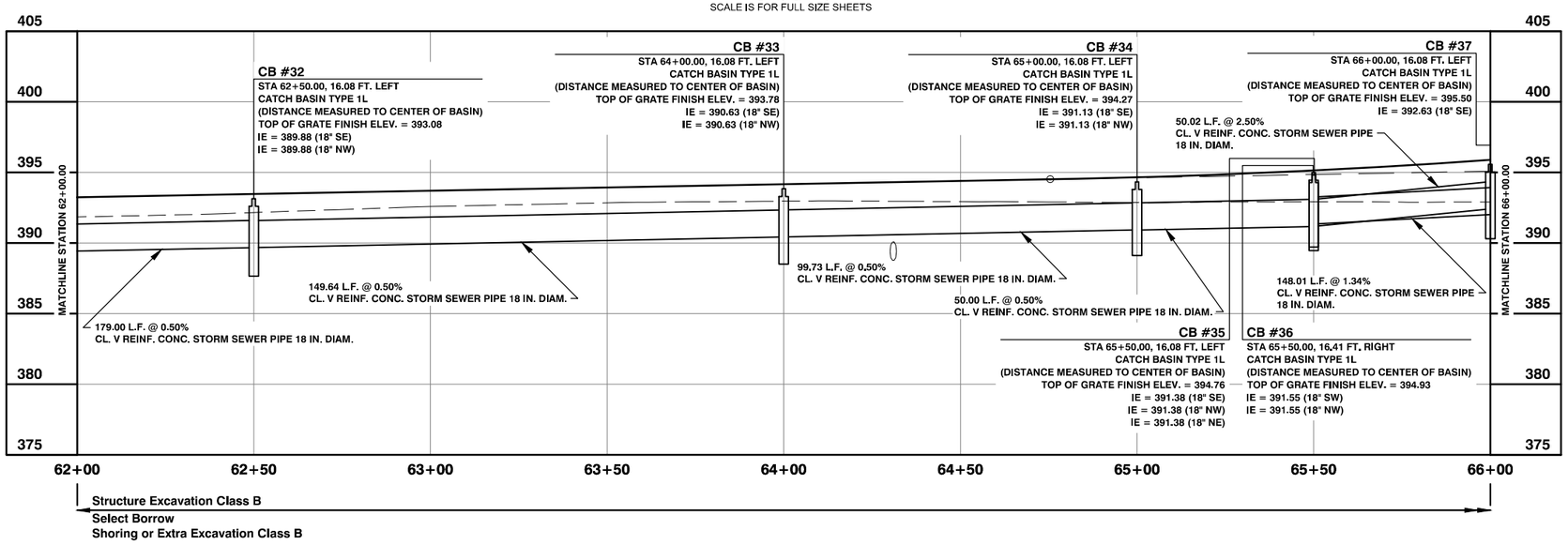
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 58+00.00 TO STA. 62+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





CONSTRUCTION NOTES

1. STA 61+24.00 TO STA 62+42.00 RIGHT,
CONSTRUCT EXTRUDED CURB (TYPE 5)
RUN EXTRUDED CURB 1' PAST PAVED INVERT
SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
SEE ROADWAY SECTION ON SHEET 19 OF 127
118.00 L.F. EXTRUDED CURB

2. STA 62+50.00, 16.08' LEFT (CB #32) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

3. STA 59+00.00 TO STA 71+68.00 LEFT,
CONSTRUCT PAVED INVERT
SEE ROADWAY SECTION ON SHEET 19 OF 127
QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

4. STA 64+00.00, 16.08' LEFT (CB #33) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

5. STA 65+00.00, 16.08' LEFT (CB #34) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

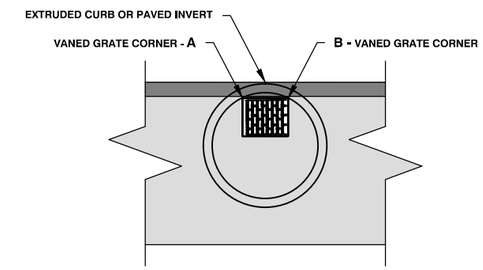
6. STA 65+50.00, 16.08' LEFT (CB #35) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

7. STA 65+50.00, 16.41' RIGHT (CB #36) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

8. STA 66+00.00, 16.08' LEFT (CB #37) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
AND RECTANGULAR VANED GRATE B-30.30-01

9. STA 65+49.00 TO STA 66+42.00 RIGHT,
CONSTRUCT EXTRUDED CURB (TYPE 5)
SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
SEE ROADWAY SECTION ON SHEET 19 OF 127
93.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
32	62+49.00	16.92', LEFT		DIRECTIONAL	393.08
	62+51.00		16.92', LEFT		
33	63+99.00	16.92', LEFT		DIRECTIONAL	393.78
	64+01.00		16.92', LEFT		
34	64+99.00	16.92', LEFT		DIRECTIONAL	394.27
	65+01.00		16.92', LEFT		
35	65+49.00	16.92', LEFT		DIRECTIONAL	394.76
	65+51.00		16.92', LEFT		
36	65+49.00		17.25', RIGHT	DIRECTIONAL	394.93
	65+51.00	17.25', RIGHT			
37	65+99.00	16.92', LEFT		DIRECTIONAL	395.50
	66+01.00		16.92', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

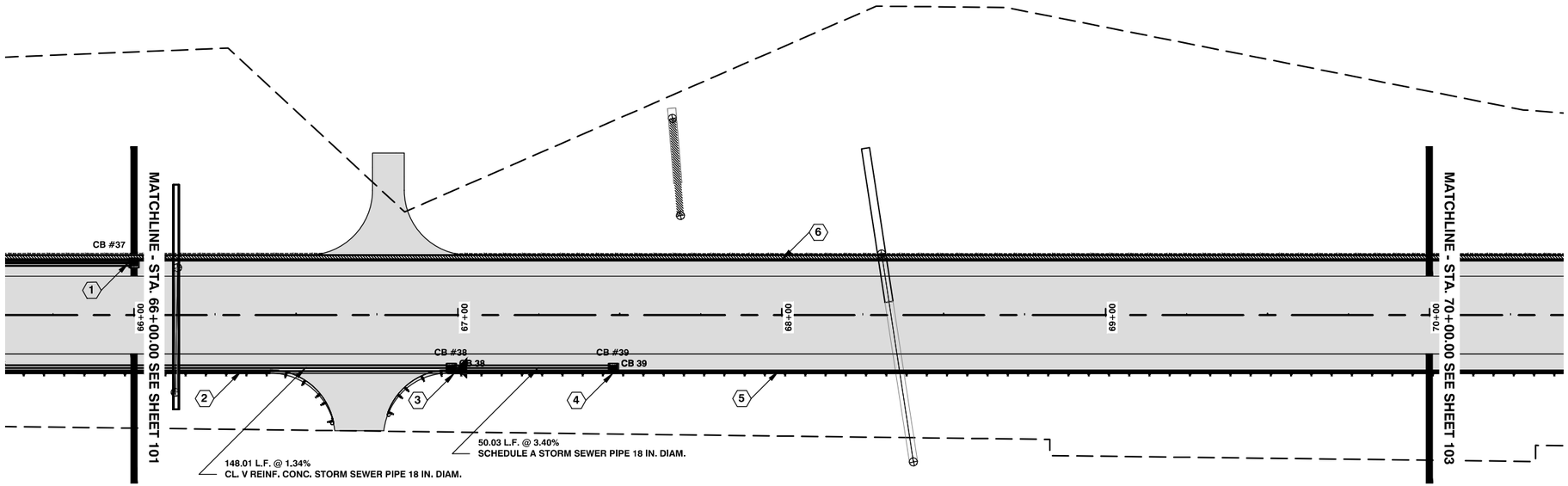
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 62+00.00 TO STA. 66+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

STATE OF WASHINGTON
KEITH ROBERT MUGGOCH
#36208
REGISTERED PROFESSIONAL ENGINEER



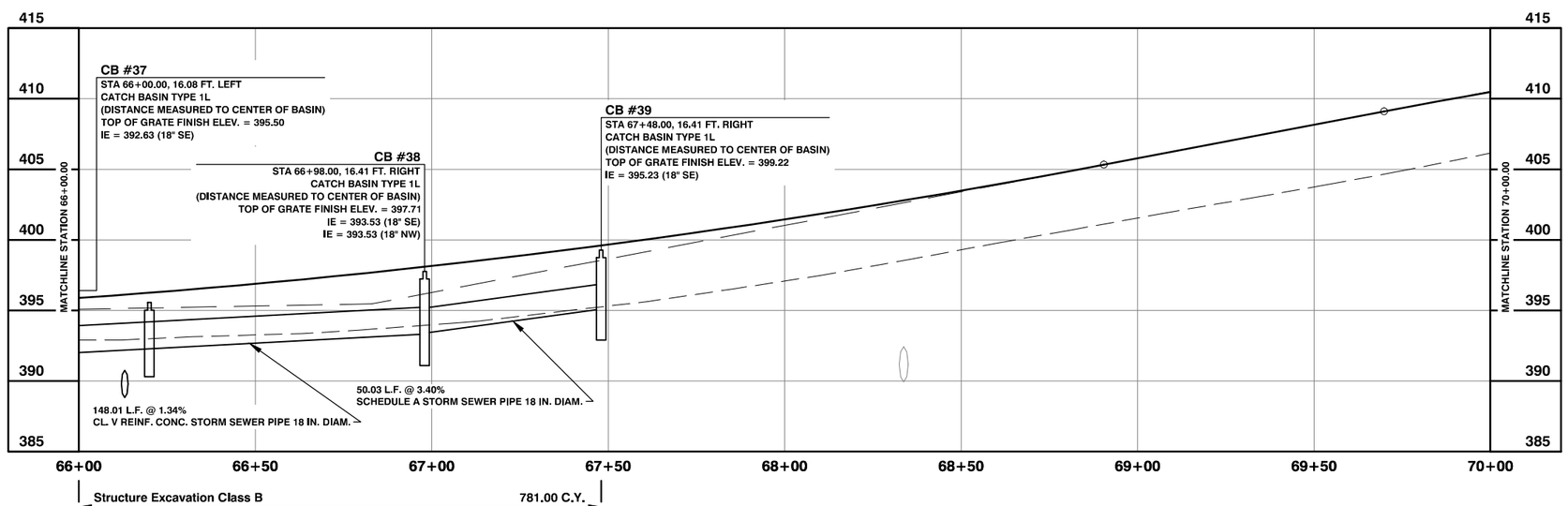
CONSTRUCTION NOTES

1. STA 66+00.00, 16.08' LEFT (CB #37) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
2. STA 65+49.00 TO STA 66+42.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   93.00 L.F. EXTRUDED CURB
3. STA 66+98.00, 16.41' RIGHT (CB #38) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
4. STA 67+48.00, 16.41' RIGHT (CB #39) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 1L, WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 1L B-5.40-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 66+97.00 TO STA 81+45.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   1436.00 L.F. EXTRUDED CURB
6. STA 59+00.00 TO STA 71+68.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

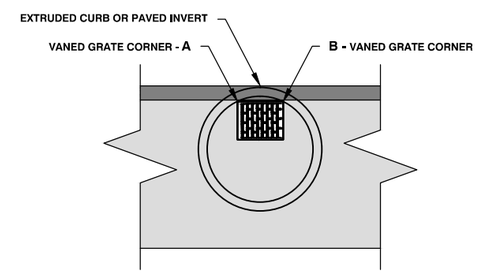
* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



Structure Excavation Class B	781.00 C.Y.
Select Borrow	144.00 TON
Shoring or Extra Excavation Class B	450.00 S.F.



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
37	65+99.00	16.92', LEFT		DIRECTIONAL	395.50
	66+01.00		16.92', LEFT		
38	66+97.00		17.25', RIGHT	DIRECTIONAL	397.71
	66+99.00	17.25', RIGHT			
39	67+47.00		17.25', RIGHT	DIRECTIONAL	399.22
	67+49.00	17.25', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

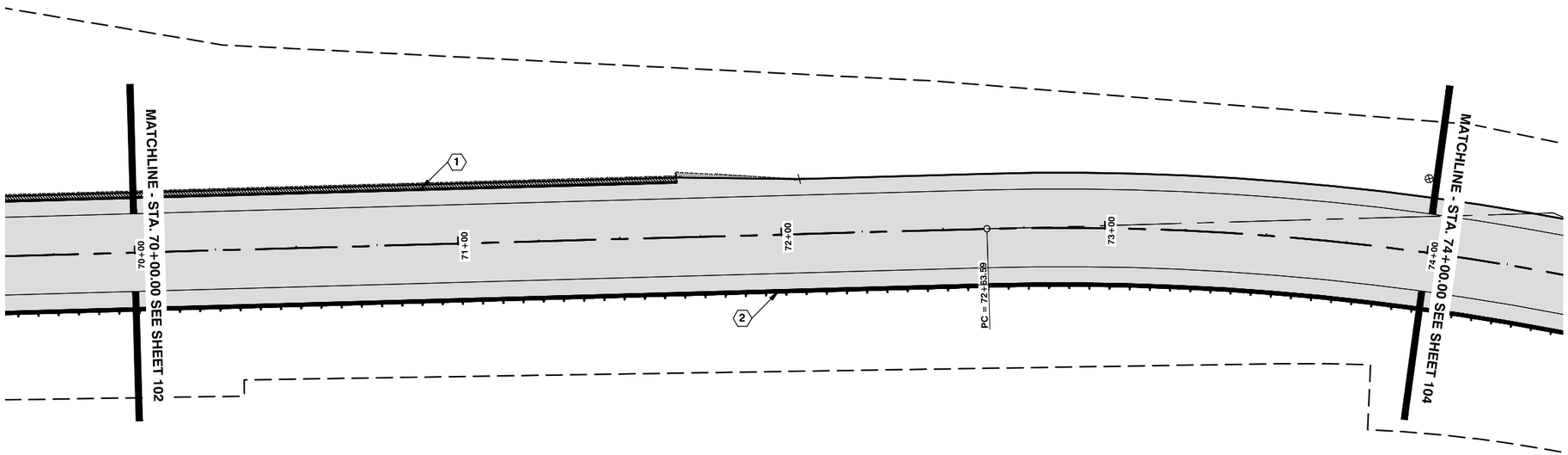
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 66+00.00 TO STA. 70+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

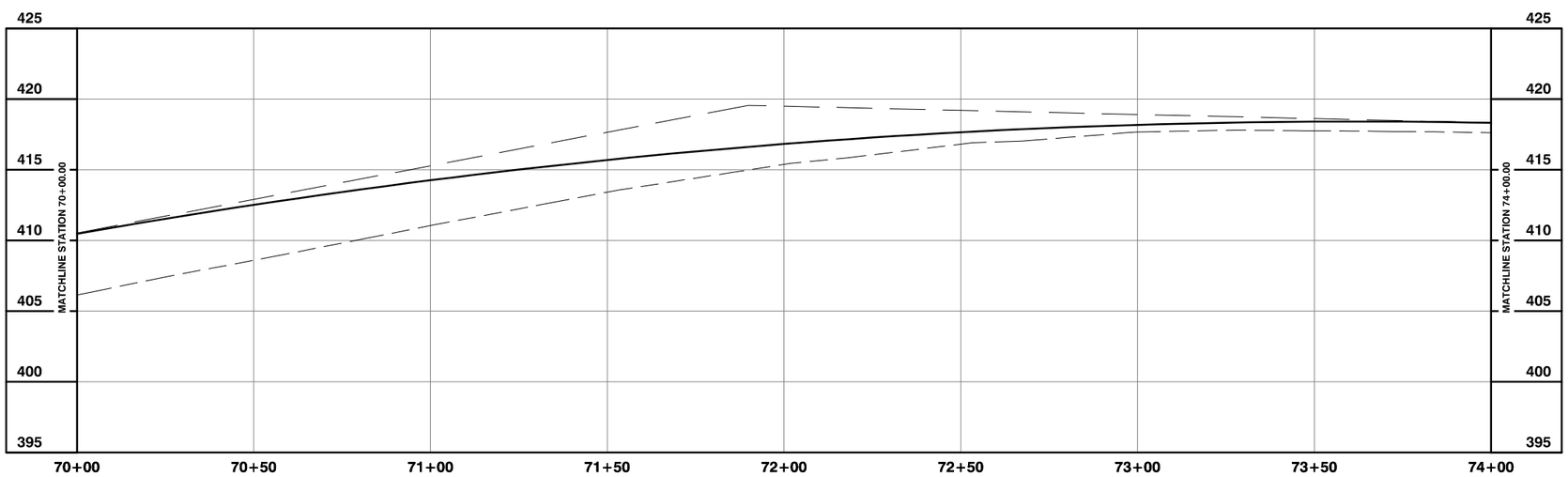


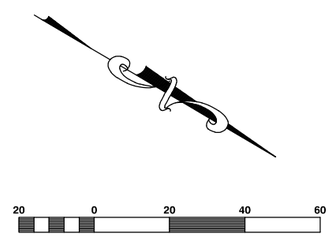
CONSTRUCTION NOTES

1. STA 59+00.00 TO STA 71+68.00 LEFT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22

2. STA 66+97.00 TO STA 81+45.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   1436.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB





HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

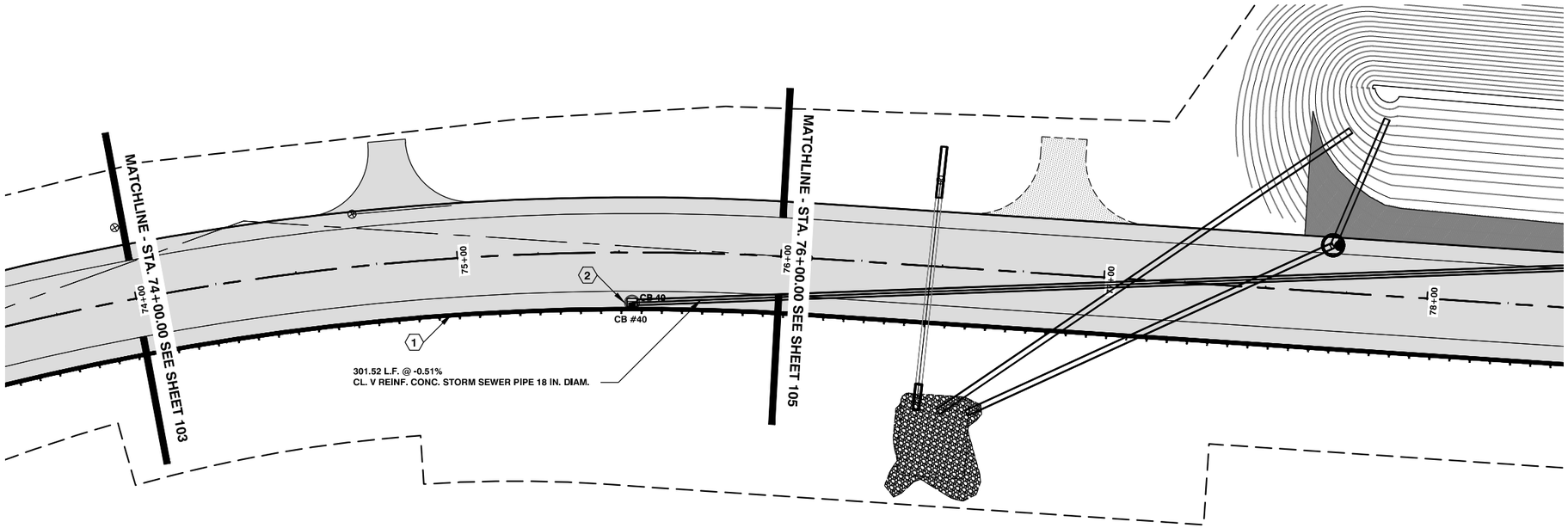
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER STA. 70+00.00 TO STA. 74+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

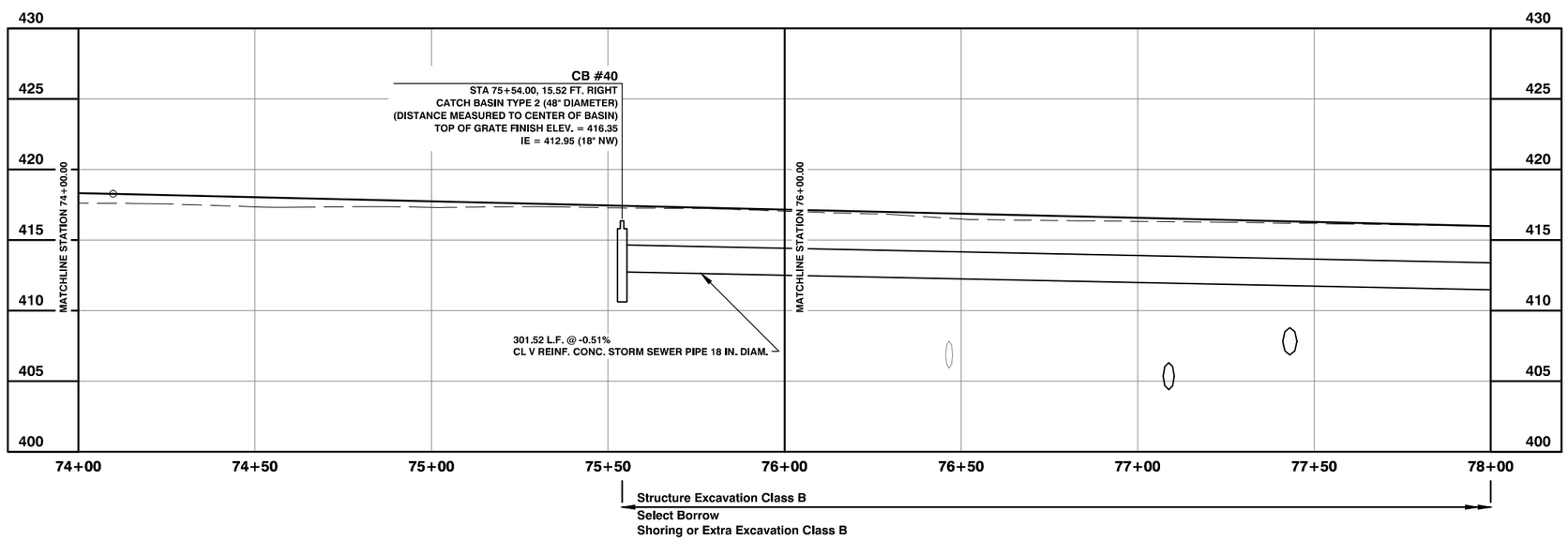
1. STA 66+97.00 TO STA 81+45.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   1436.00 L.F. EXTRUDED CURB

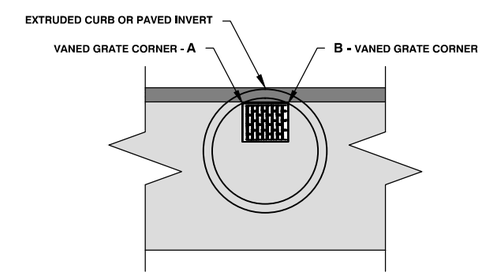
2. STA 75+54.00, 15.52' RIGHT (CB #40) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR BI-DIRECTIONAL VANED GRATE B-30.40-01

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
40	75+52.98		17.25', RIGHT	BI-DIRECTIONAL	416.35
	75+55.02	17.25', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

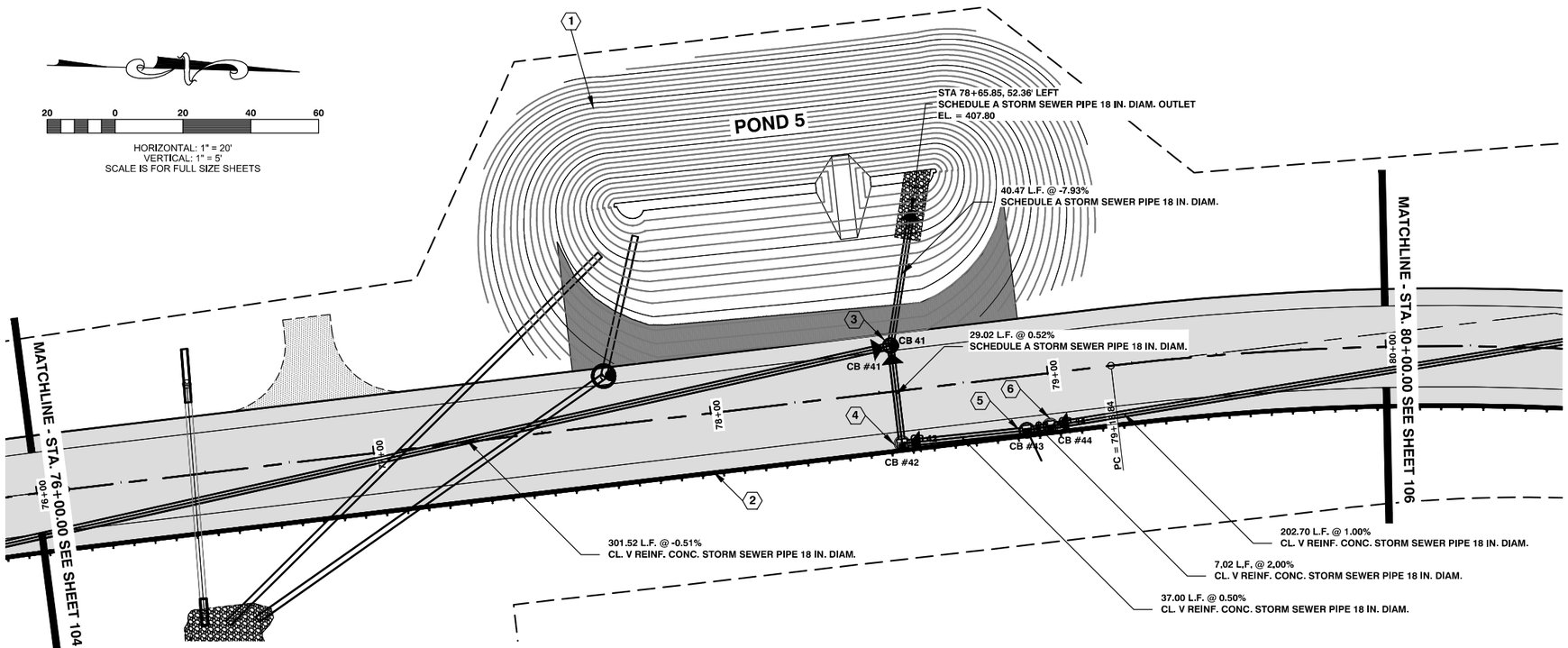
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

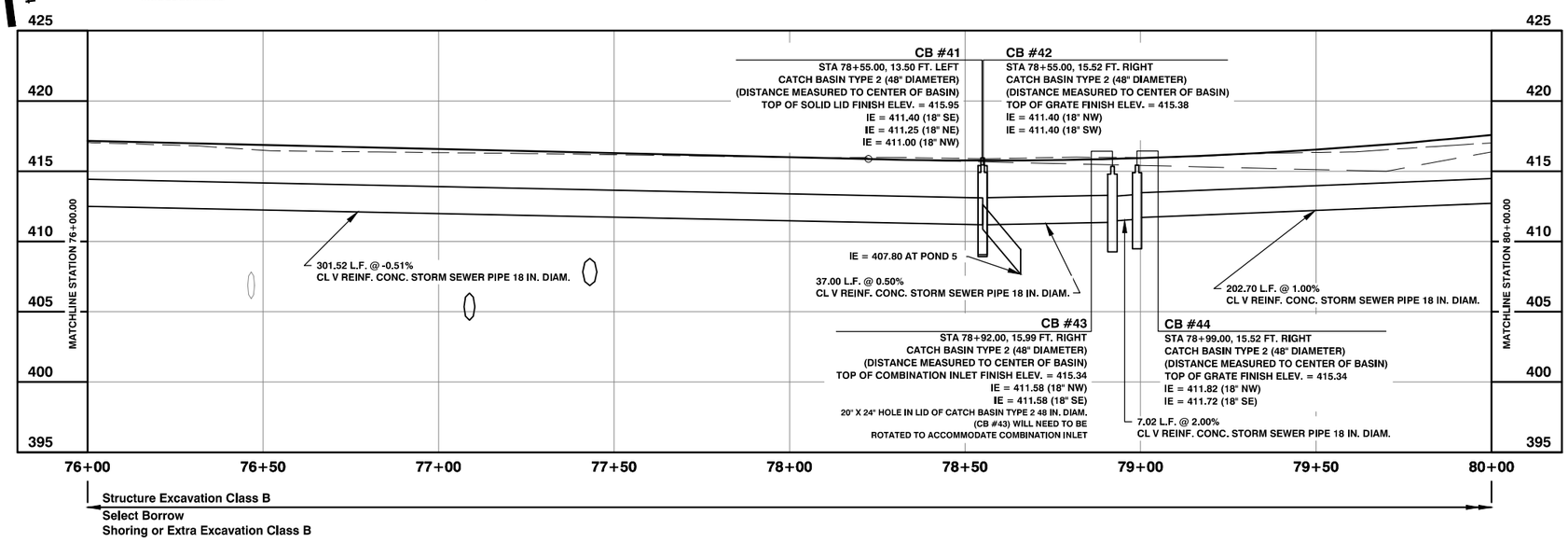
STORMWATER STA. 74+00.00 TO STA. 76+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

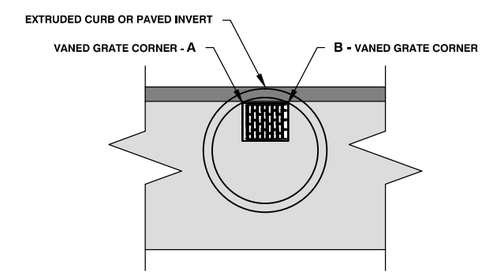




CONSTRUCTION NOTES

1. CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   SEE STORMWATER TREATMENT/DETENTION POND 5 DETAILS ON SHEET 119 OF 127
2. STA 66+97.00 TO STA 81+45.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   1436.00 L.F. EXTRUDED CURB
3. STA 78+55.00, 13.50' LEFT (CB #41) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 78+55.99, 13.36', LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 415.95
4. STA 78+55.00, 15.52' RIGHT (CB #42) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 78+92.00, 15.99' RIGHT (CB #43) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH COMBINATION INLET
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND COMBINATION INLET B-25.20-01
   20" X 24" HOLE IN LID OF CATCH BASIN TYPE 2 48 IN. DIAM. (CB #43) WILL NEED TO BE
   ROTATED TO ACCOMMODATE COMBINATION INLET
6. STA 78+99.00, 15.52' RIGHT (CB #44) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB



VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
42	78+54.00		17.25', RIGHT	DIRECTIONAL	415.38
	78+56.00	17.25', RIGHT			
43	78+91.00		17.33', RIGHT	BI-DIRECTIONAL	415.34
	78+93.00	17.33', RIGHT			
44	78+98.00		17.25', RIGHT	DIRECTIONAL	415.34
	79+00.00	17.25', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

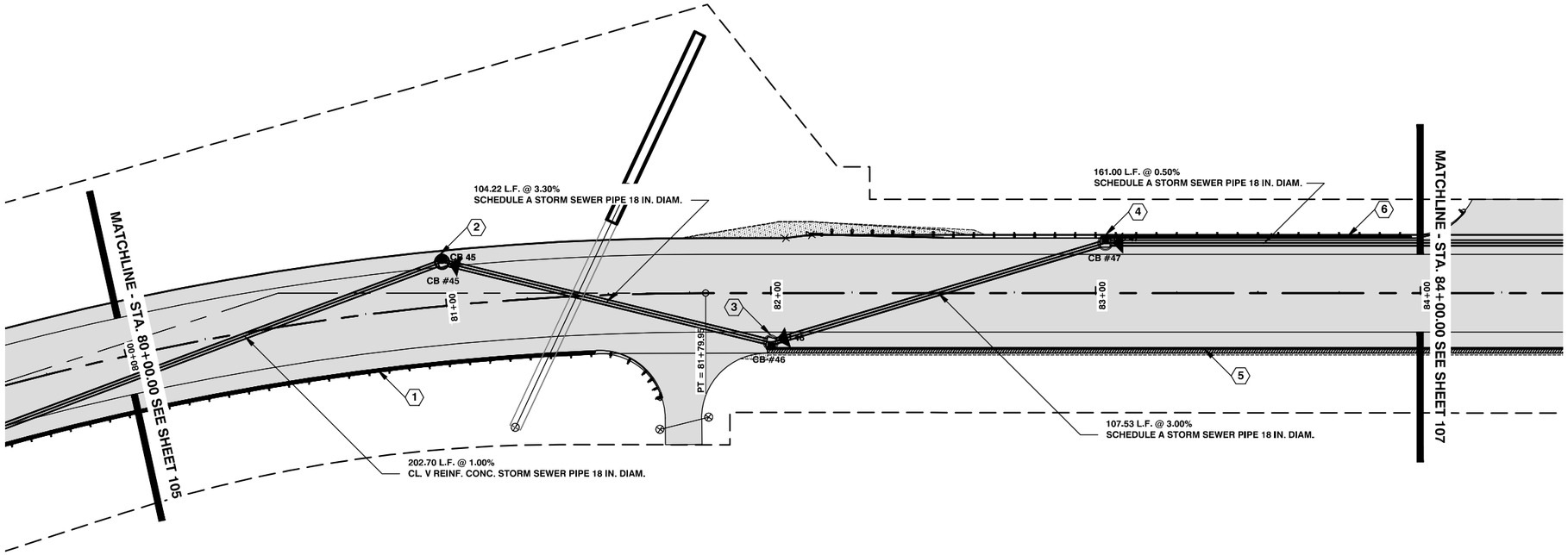
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 76+00.00 TO STA. 80+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



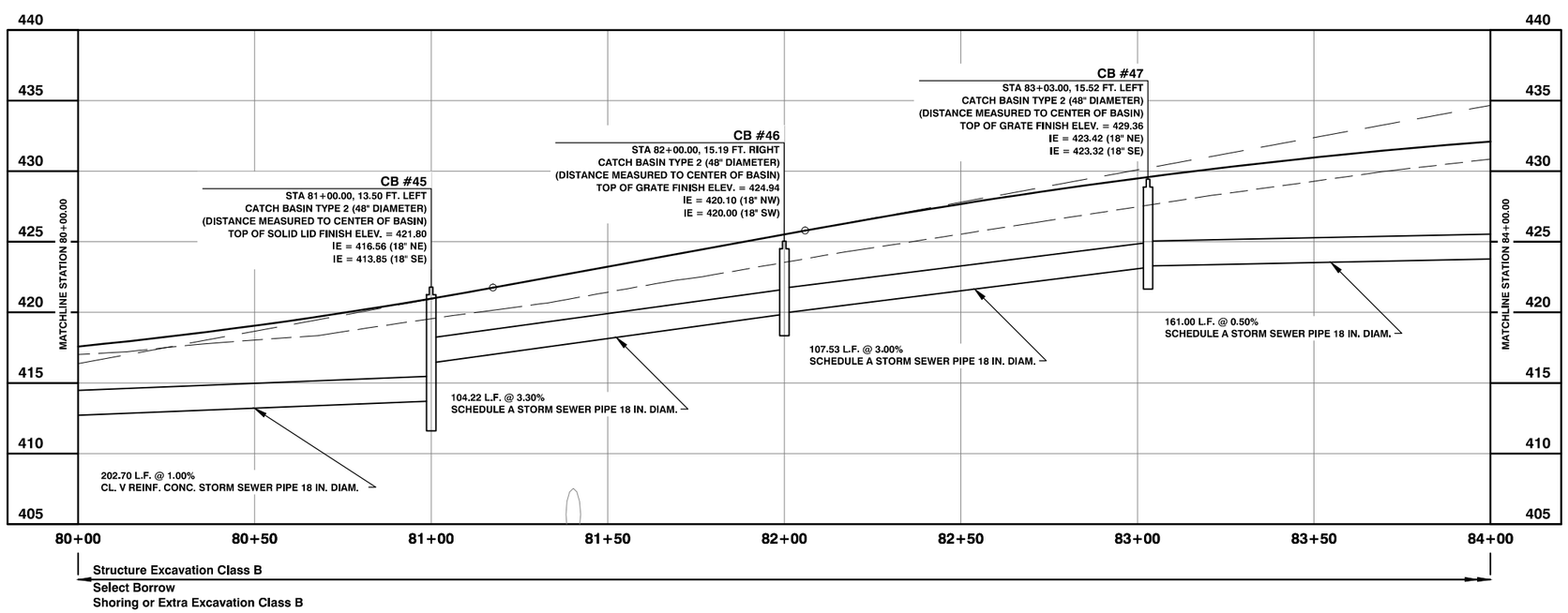
CONSTRUCTION NOTES

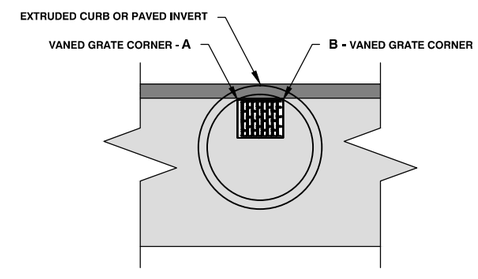
1. STA 66+97.00 TO STA 81+45.00 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   1436.00 L.F. EXTRUDED CURB
2. STA 81+00.00, 13.50' LEFT (CB #45) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH CIRCULAR (RING AND COVER)
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND CIRCULAR FRAME (RING) AND COVER B-30.70-03
   STA 81+00.00, 14.50', LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 421.80
3. STA 82+00.00, 15.19' RIGHT (CB #46) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
4. STA 83+03.00, 15.52' LEFT (CB #47) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
5. STA 81+99.00 TO STA 85+42.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
6. STA 83+02.00 TO STA 83+97.00 LEFT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   95.00 L.F. EXTRUDED CURB

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
46	81+99.00		16.92', RIGHT	DIRECTIONAL	424.94
	82+01.00	16.92', RIGHT			
47	83+02.00	17.25', LEFT		DIRECTIONAL	429.36
	83+04.00		17.25', LEFT		

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE
0.70' CRUSHED SURFACING BASE COURSE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

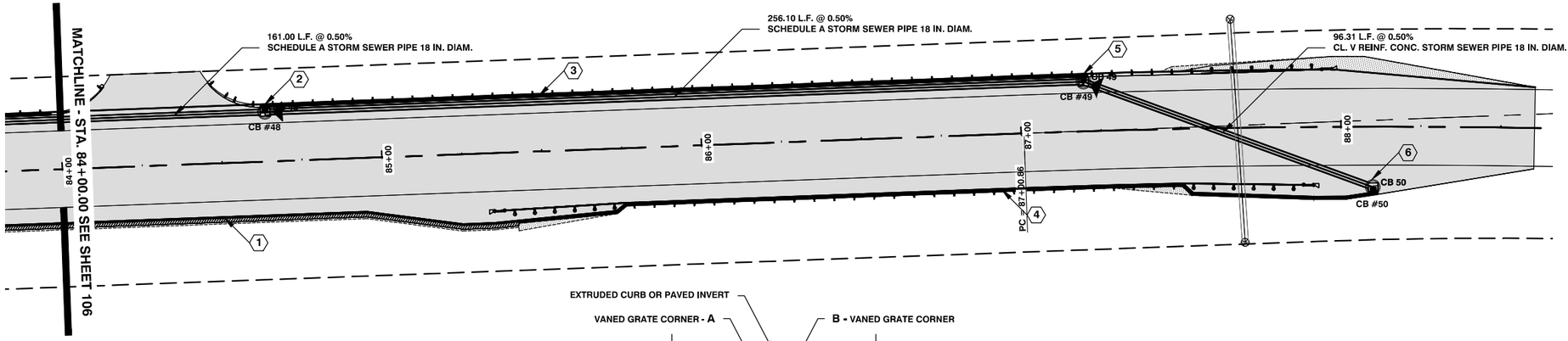
HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144
STORMWATER STA. 80+00.00 TO STA. 84+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



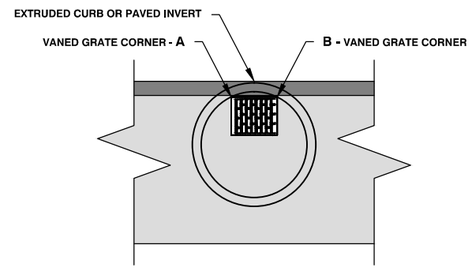
CONSTRUCTION NOTES

1. STA 81+99.00 TO STA 85+42.00 RIGHT,
   CONSTRUCT PAVED INVERT
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   QUANTITIES ARE INCLUDED IN THE BID ITEM HMA CL. 1/2 IN. PG 64-22
2. STA 84+64.00, 15.52' LEFT (CB #48) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
3. STA 84+63.00 TO STA 87+21.00 LEFT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   258.00 L.F. EXTRUDED CURB
4. STA 85+42.00 TO STA 88+11.27 RIGHT,
   CONSTRUCT EXTRUDED CURB (TYPE 5)
   SEE WSDOT STANDARD PLAN EXTRUDED CURB F-10.42-00
   SEE ROADWAY SECTION ON SHEET 19 OF 127
   271.00 L.F. EXTRUDED CURB
5. STA 87+20.00, 15.52' LEFT (CB #49) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01
6. STA 88+10.00, 18.91' RIGHT (CB #50) (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT CATCH BASIN TYPE 2 48 IN. DIAM., WITH VANED GRATE
   SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 48 IN. DIAM. B-10.20-01
   AND RECTANGULAR VANED GRATE B-30.30-01

* DISTANCES CALLED OUT FOR LENGTH OF EXTRUDED CURB IS CALLED OUT AT FACE OF CURB

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



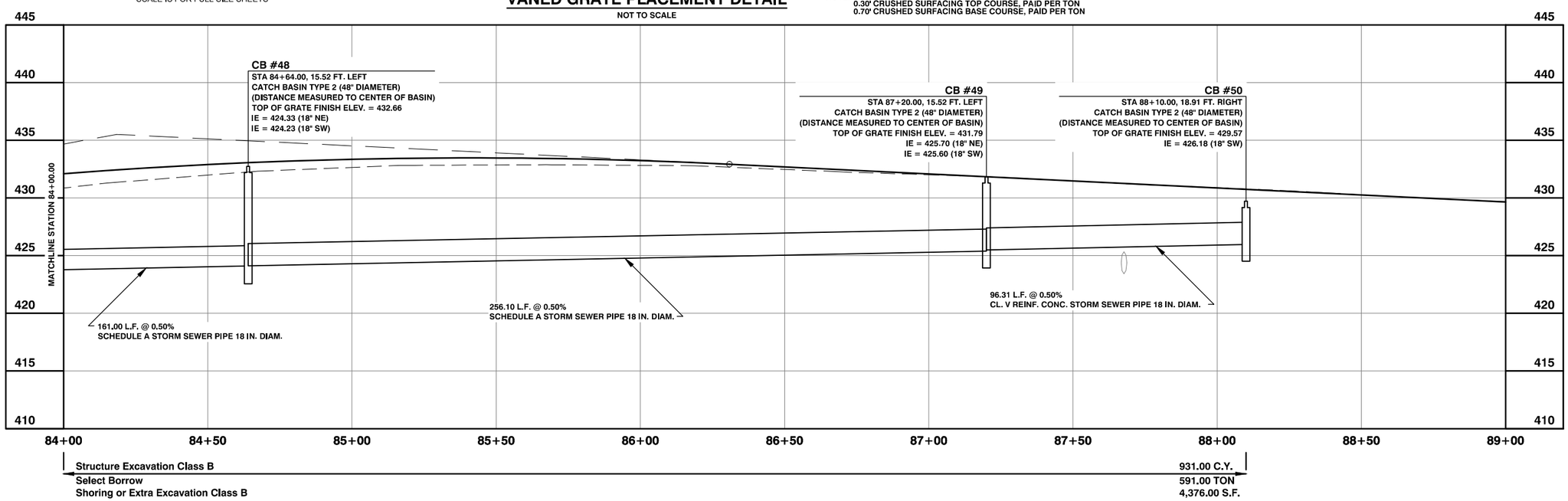
VANED GRATE PLACEMENT DETAIL

NOT TO SCALE

VANED GRATE PLACEMENT TABLE

CB #	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
48	84+63.00	17.25', LEFT		DIRECTIONAL	432.66
	84+65.00		17.25', LEFT		
49	87+19.00	17.25', LEFT		DIRECTIONAL	431.79
	87+20.99		17.25', LEFT		
50	88+09.26		20.77', RIGHT	DIRECTIONAL	429.57
	88+11.25	20.47', RIGHT			

NOTE: BEDDING FOR ALL TYPES OF CATCH BASINS SHALL BE
0.30' CRUSHED SURFACING TOP COURSE, PAID PER TON
0.70' CRUSHED SURFACING BASE COURSE, PAID PER TON



Structure Excavation Class B	931.00 C.Y.
Select Borrow	591.00 TON
Shoring or Extra Excavation Class B	4,376.00 S.F.

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : JDP
DRAWN BY : JDP
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

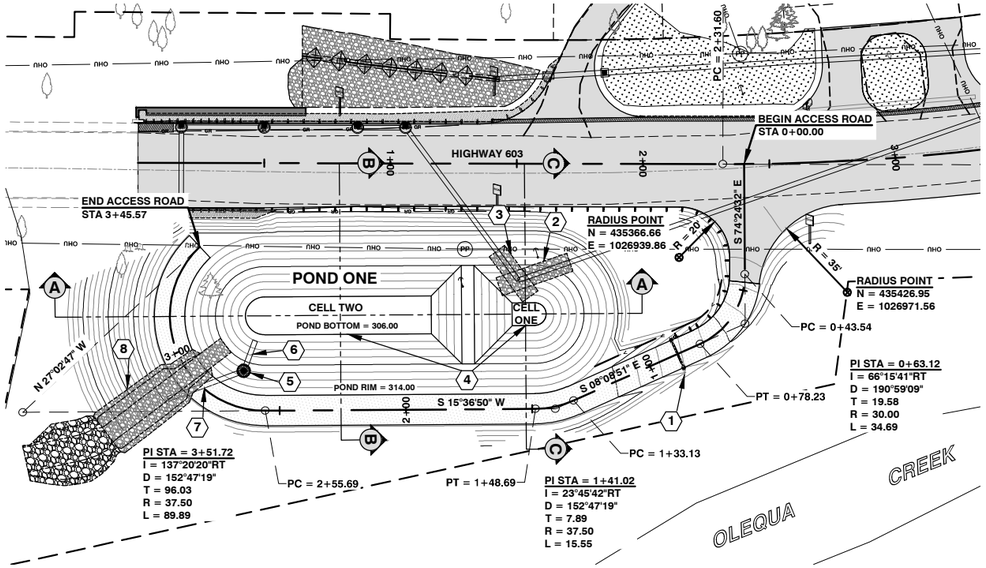
STORMWATER STA. 84+00.00 TO STA. 88+60.53

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



PLAN VIEW

CONSTRUCTION NOTES

1. ACCESS ROAD STA 0+88.00
   CONSTRUCT ACCESS CONTROL GATE
   (11' - 0" WIDE CENTER OF POST TO CENTER OF POST)
   SEE WSDOT STANDARD PLAN
   ACCESS CONTROL GATE L-70.10-01
   1 EACH ACCESS CONTROL GATE

2. CONSTRUCT ROCK PAD AT THE OUTLET OF
   18 IN. DIAM. STORM SEWER PIPE
   SEE ROCK PAD DETAIL ON SHEET 109 OF 127
   34.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   13.00 TON QUARRY SPALLS

3. CONSTRUCT ROCK PAD AT THE OUTLET OF
   18 IN. DIAM. STORM SEWER PIPE
   SEE ROCK PAD DETAIL ON SHEET 109 OF 127
   27.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   10.00 TON QUARRY SPALLS

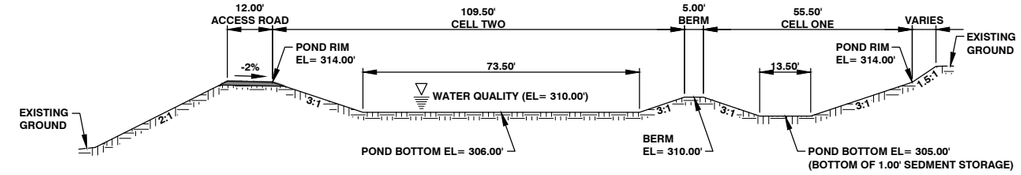
4. AS STAKED IN THE FIELD
   CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   1870.00 C.Y. STRUCTURE EXCAVATION INCL. HAUL CLASS B
   50.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   1230.00 C.Y. EMBANKMENT COMPACTION
   355.00 TON CRUSHED SURFACING BASE COURSE
   18.00 TON CRUSHED SURFACING TOP COURSE
   16.00 TON HMA FOR APPROACH CL. 1/2 IN. PG 64-22

5. ACCESS ROAD STA 2+69.57 14.24 RIGHT
   (DISTANCE MEASURED TO CENTER OF STRUCTURE)
   CONSTRUCT OUTLET STRUCTURE SPECIAL 54 IN. TYPE 2
   WITH DEBRIS CAGE
   SEE CATCH BASIN TYPE 2 - 54" DIAM. DETAIL ON SHEET 109 OF 127

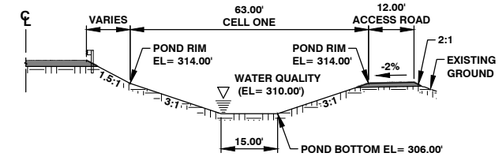
6. ACCESS ROAD STA 2+69.57 RIGHT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE
   18" DIAM., 12.75' LONG
   INLET INV. = 307.00 (ACCESS ROAD STA 2+69.57, 27.00' RIGHT)
   @ OUTLET STRUCTURE INV. = 310.00 (ACCESS ROAD STA 2+69.57, 14.24' RIGHT)

7. ACCESS ROAD STA 2+83.29
   CONSTRUCT SCHEDULE A STORM SEWER PIPE
   18" DIAM., 32.00' LONG
   @ OUTLET STRUCTURE INV. = 310.00 (ACCESS ROAD STA 2+69.57, 14.24' RIGHT)
   OUTFALL INV. = 309.20 (ACCESS ROAD STA 2+88.22, 12.96' LEFT)

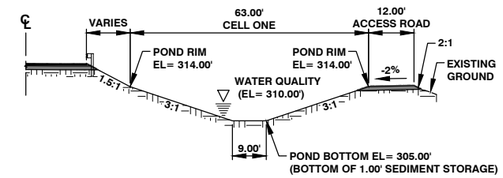
8. ACCESS ROAD STA 2+90.57
   CONSTRUCT EMERGENCY OVERFLOW SPILLWAY
   SEE EMERGENCY OVERFLOW SPILLWAY DETAIL ON SHEET 109 OF 127



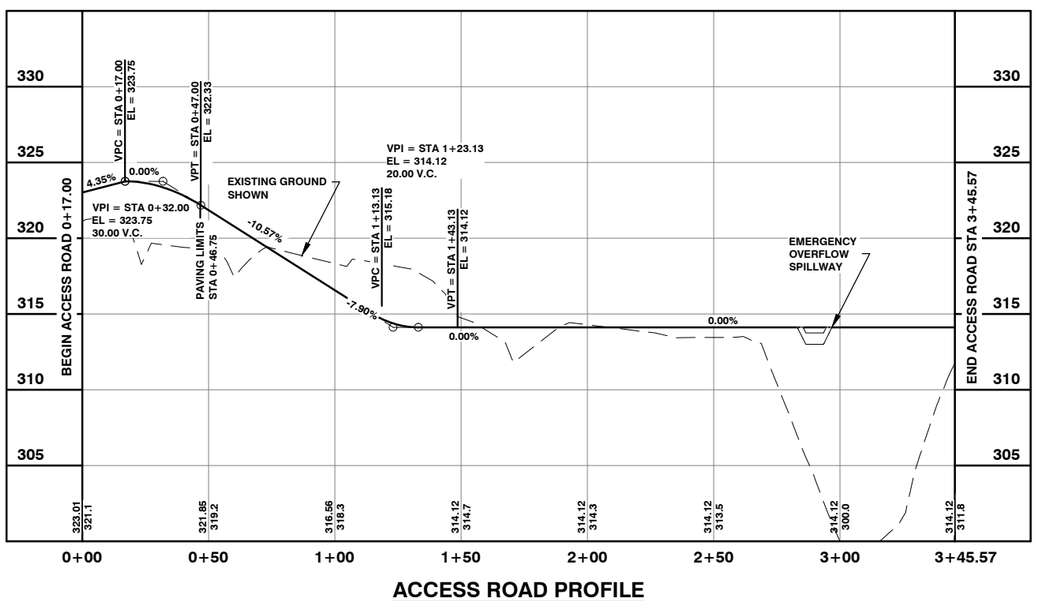
A SECTION A
NOT TO SCALE



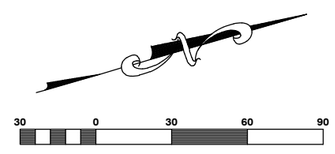
B SECTION B
NOT TO SCALE



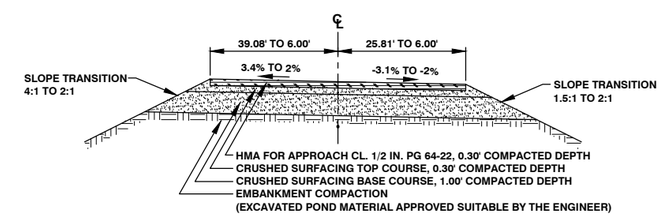
C SECTION C
NOT TO SCALE



ACCESS ROAD PROFILE

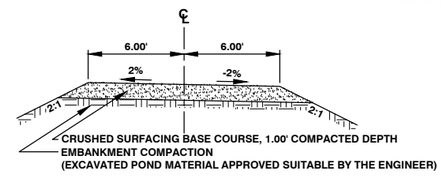


HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



ACCESS ROADWAY SECTION

ACCESS ROAD STA 0+17.00 TO ACCESS ROAD STA 0+46.75
NOT TO SCALE



ACCESS ROADWAY SECTION

ACCESS ROAD STA 0+46.75 TO ACCESS ROAD STA 3+45.57
NOT TO SCALE

DITCH DETAIL

ACCESS ROAD STA 0+46.75 TO
ACCESS ROAD STA 1+48.69 RIGHT
NOT TO SCALE

POND IN SLOPE DETAIL

ACCESS ROAD STA 1+48.69 TO
ACCESS ROAD STA 3+45.57 RIGHT
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER TREATMENT/DETENTION POND 1

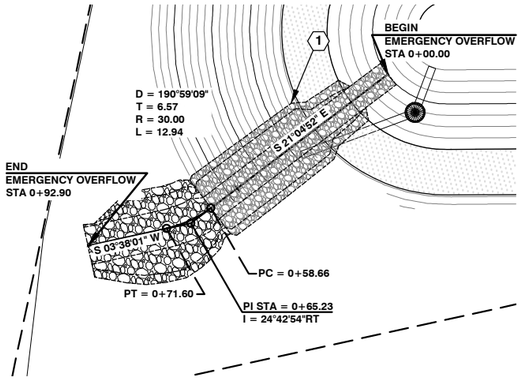
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



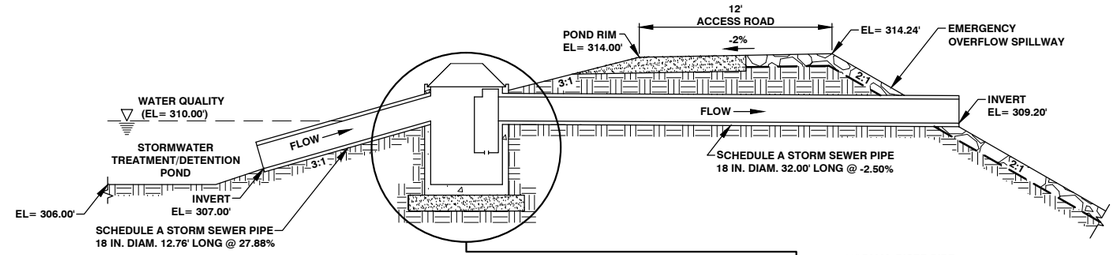
EMERGENCY OVERFLOW SPILLWAY
PLAN VIEW

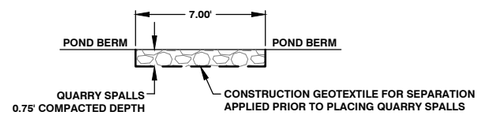
CONSTRUCTION NOTES

1. CONSTRUCT EMERGENCY OVERFLOW SPILLWAY
105.00 C.Y. CHANNEL EXCAVATION INCL. HAUL
207.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
37.00 TON QUARRY SPALLS
29.00 TON ROCK FOR EROSION AND SCOUR PROTECTION CLASS A

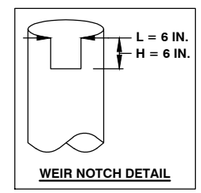
20 0 20

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

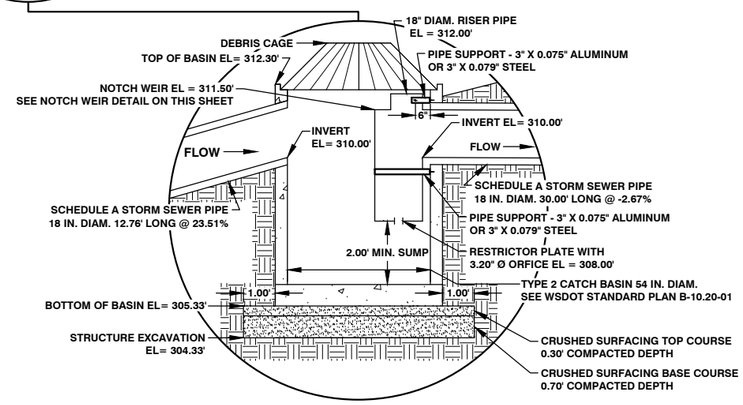


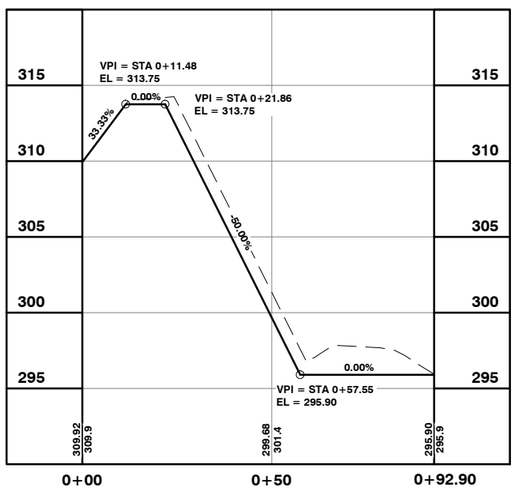


EMERGENCY OVERFLOW TYPICAL SECTION
EMERGENCY OVERFLOW STA 0+00.00 TO EMERGENCY OVERFLOW STA 0+11.50
NOT TO SCALE

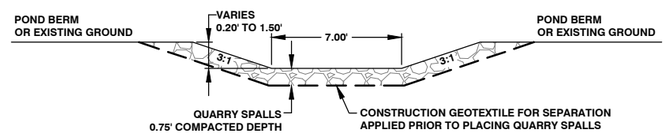


WEIR NOTCH DETAIL

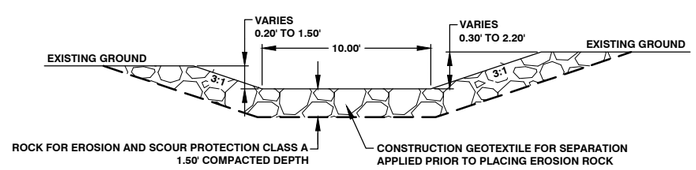




EMERGENCY OVERFLOW SPILLWAY
PROFILE

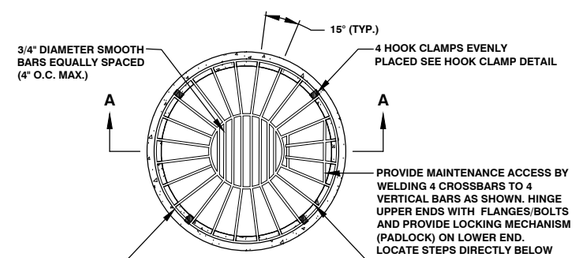


EMERGENCY OVERFLOW TYPICAL SECTION
EMERGENCY OVERFLOW STA 0+11.50 TO EMERGENCY OVERFLOW STA 0+58.70
NOT TO SCALE



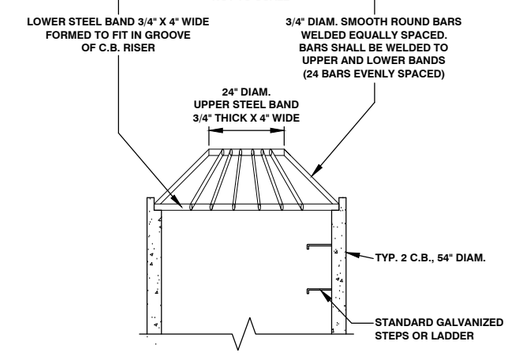
EMERGENCY OVERFLOW TYPICAL SECTION
EMERGENCY OVERFLOW STA 0+58.70 TO EMERGENCY OVERFLOW STA 0+92.90
NOT TO SCALE

EMERGENCY OVERFLOW SPILLWAY DETAIL

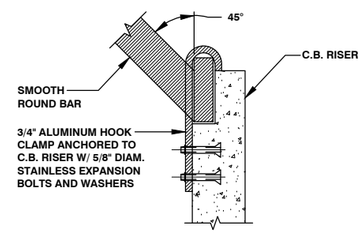


DEBRIS CAGE VIEW
NOT TO SCALE

NOTES:
1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE WALL 2".
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
0.060" ALUMINUM ALLOY FLAT SHEET , IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.

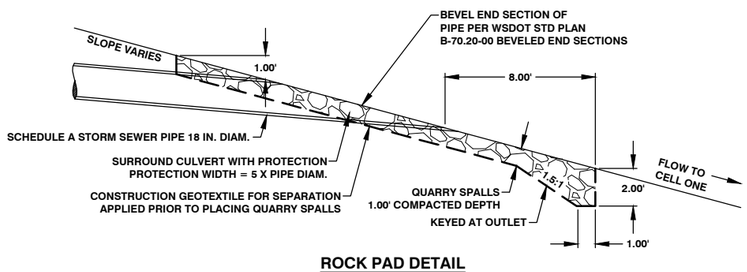


SECTION A-A
NOT TO SCALE



HOOK CLAMP DETAIL
NOT TO SCALE

NOTE:
METAL PARTS MUST BE CORROSION RESISTANT;
STEEL BARS MUST BE GALVANIZED



ROCK PAD DETAIL
NOT TO SCALE

CATCH BASIN TYPE 2 - 54" DIAM.
WITH FLOW RESTRICTOR DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

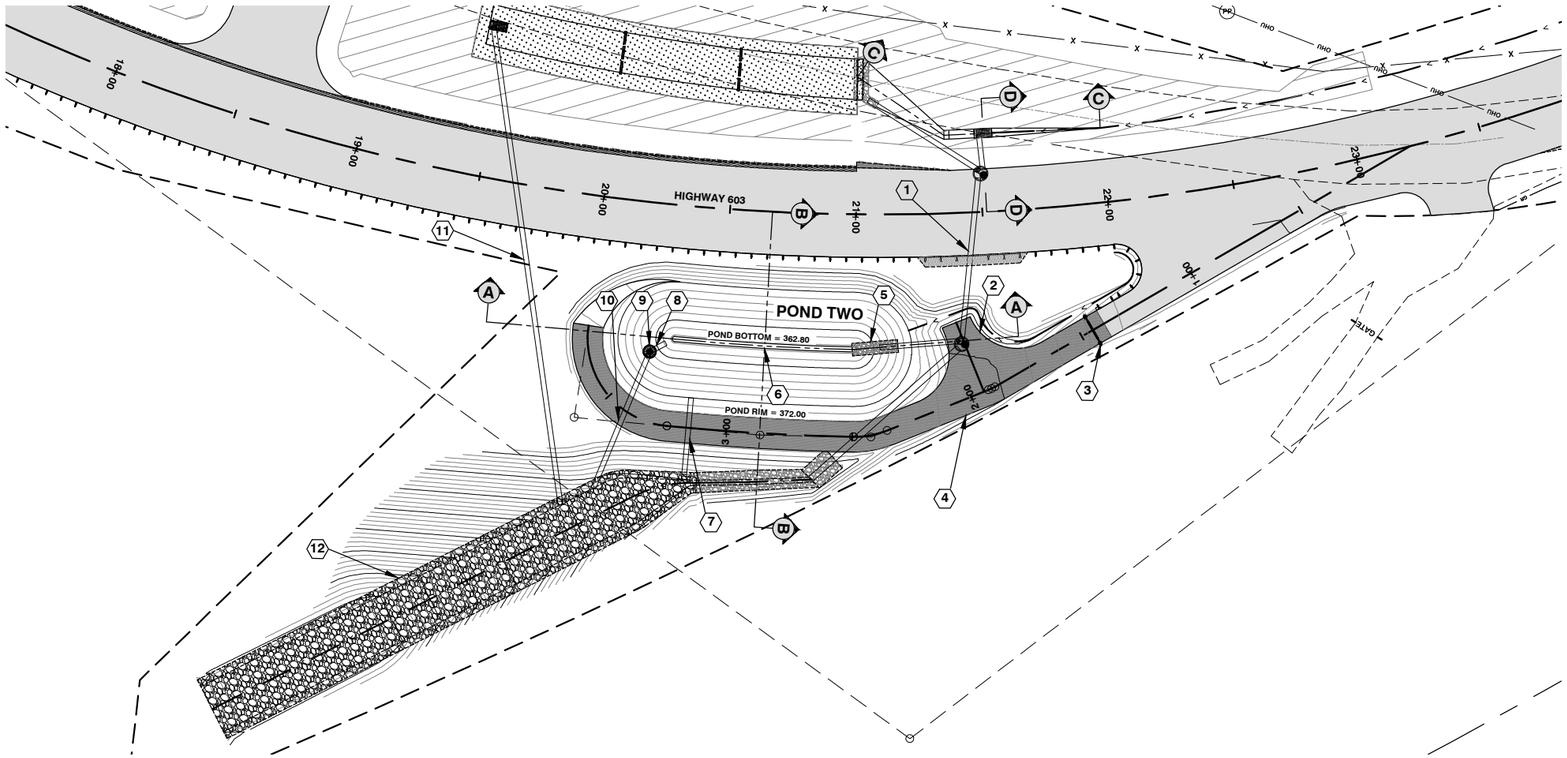
STORMWATER TREATMENT/DETENTION POND 1
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



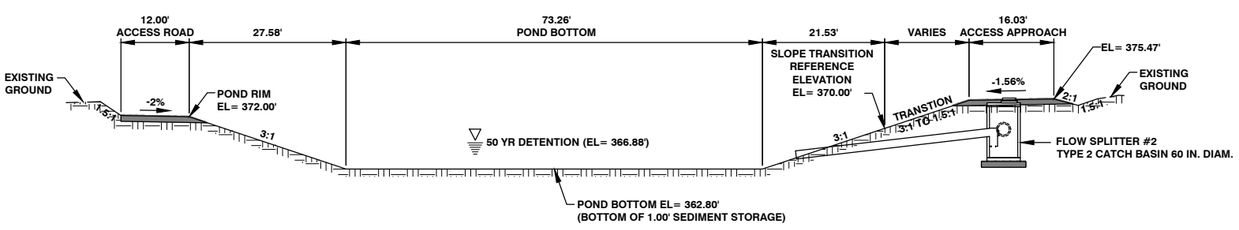
PLAN VIEW

CONSTRUCTION NOTES

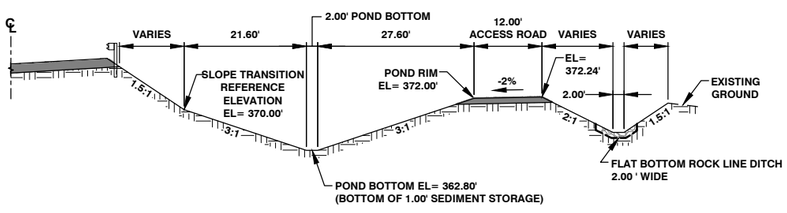
1. CONSTRUCT POND 2 INLET SYSTEM
   SEE SHEET 111 OF 127
2. CONSTRUCT FLOW SPLITTER #2 ACCESS
   SEE SHEET 112 OF 127
3. ACCESS ROAD STA 1+45.00
   CONSTRUCT ACCESS CONTROL GATE
   (11' - 0" WIDE CENTER OF POST TO CENTER OF POST)
   SEE WSDOT STANDARD PLAN
   ACCESS CONTROL GATE L-70.10-01
   1 EACH ACCESS CONTROL GATE
4. CONSTRUCT POND ACCESS ROAD
   SEE SHEET 112 OF 127
5. CONSTRUCT ROCK PAD AT THE OUTLET OF
   12 IN. DIAM. STORM SEWER PIPE
   SEE ROCK PAD DETAIL ON THIS SHEET
   17.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   6.00 TON QUARRY SPALLS
6. AS STAKED IN THE FIELD
   CONSTRUCT STORMWATER DETENTION POND
   2565.00 C.Y. STRUCTURE EXCAVATION INCL. HAUL CLASS B
   465.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   45.00 C.Y. EMBANKMENT COMPACTION
   85.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   (ROCK LINE DITCH 2 FT. WIDE)
   35.00 TON QUARRY SPALLS (ROCK LINE DITCH 2 FT. WIDE)
   385.00 TON CRUSHED SURFACING BASE COURSE
   30.00 TON CRUSHED SURFACING TOP COURSE
   31.00 TON HMA FOR APPROACH CL. 1/2 IN. PG 64-22
7. ACCESS ROAD STA 3+15.00
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 32.88' LONG
   INLET INV. = 370.00 (ACCESS ROAD STA 3+15.00, 12.00' RIGHT)
   OUTLET INV. = 364.92 (ACCESS ROAD STA 3+15.00, 20.49' RIGHT)
8. ACCESS ROAD STA 3+60.00
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 7.00' LONG
   INLET INV. = 363.80 (ACCESS ROAD STA 3+60.00, 30.60' RIGHT)
   @ OUTLET STRUCTURE INV. = 363.80 (ACCESS ROAD STA 3+58.55, 23.42' RIGHT)
9. ACCESS ROAD STA 3+58.55 23.42' RIGHT
   (DISTANCE MEASURED TO CENTER OF STRUCTURE)
   CONSTRUCT CATCH BASIN TYPE 2 - 54 IN. DIAM WITH FLOW RESTRICTOR
   SEE DETAIL CATCH BASIN TYPE 2 - 54 IN. DIAM WITH FLOW RESTRICTOR ON
   SHEET 113 OF 127
10. ACCESS ROAD STA 3+41.00
    CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 57.25' LONG
    @ OUTLET STRUCTURE INV. = 363.80 (ACCESS ROAD STA 3+56.19, 22.43' RIGHT)
    OUTLET INV. = 362.87 (ACCESS ROAD STA 3+37.67, 32.77' LEFT)
11. CONSTRUCT BIOFILTRATION SWALE OUTLET SYSTEM
    SEE BIOFILTRATION SWALE OUTLET SYSTEM DETAIL ON
    SHEET 113 OF 127
12. ACCESS ROAD STA 3+10.00 LEFT
    CONSTRUCT BY PASS SPILLWAY
    SEE SHEET 114 OF 127

30 0 30 60 90

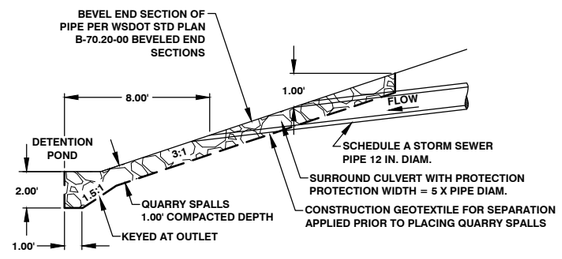
HORIZONTAL: 1" = 30'
SCALE IS FOR FULL SIZE SHEETS



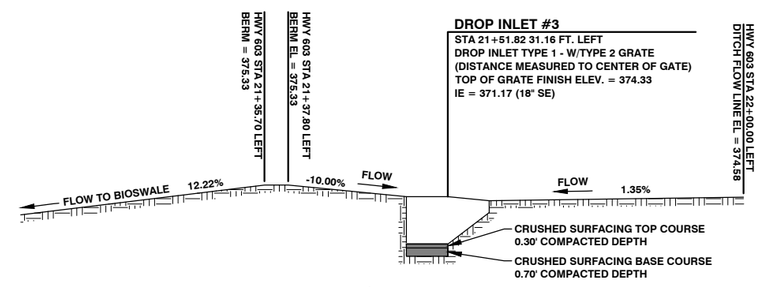
A SECTION A
NOT TO SCALE



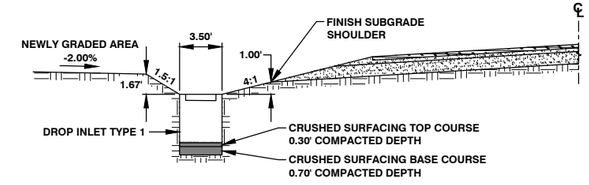
B SECTION B
NOT TO SCALE



ROCK PAD DETAIL
NOT TO SCALE



C SECTION C
NOT TO SCALE



D SECTION D
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

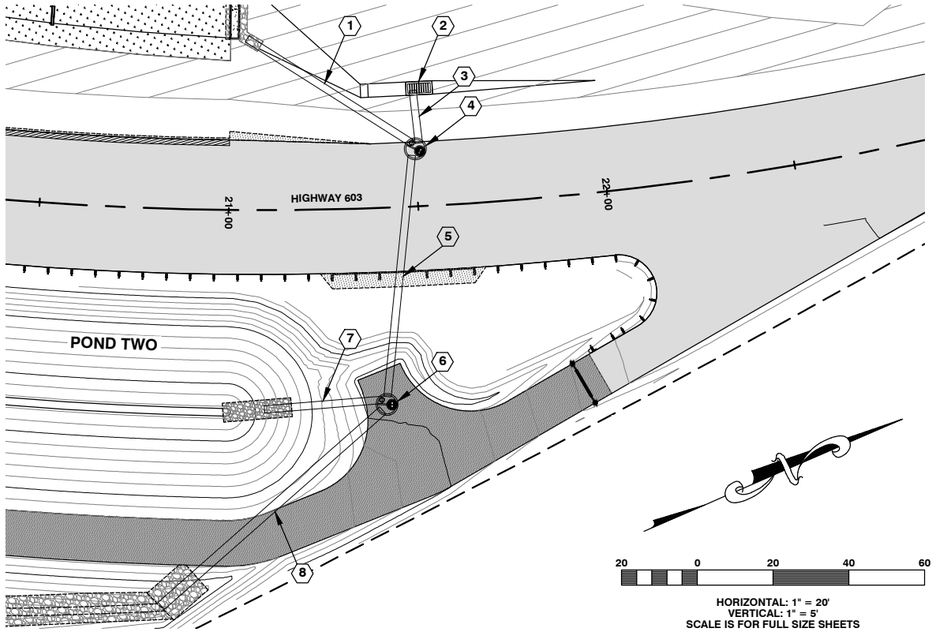
STORMWATER DETENTION POND 2

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



PLAN VIEW

CONSTRUCTION NOTES

1. STA 21+25.00 LEFT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 12" DIAM., 51.52' LONG
   OUTLET INV. = 370.80 (STA 21+04.58, 45.24' LEFT)
   @ FLOW SPLITTER INV. = 371.10 (STA 21+49.16, 16.73' LEFT)

2. STA 21+51.82 31.41' LEFT TOP OF GRATE FINISH ELEV. = 374.33 (DROP INLET 3)
   (DISTANCE MEASURED TO CENTER OF INLET)
   CONSTRUCT DROP INLET TYPE 1, WITH TYPE 2 GRATE
   SEE WSDOT STANDARD PLAN DROP INLET TYPE 1 B-45.20-00
   AND GRATES FOR DROP INLET (TYPE 2) B-50.20-00
   SEE TYPE 2 GRATE PLACEMENT DETAIL THIS SHEET

3. STA 21+50.50 LEFT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 14.00' LONG
   @ DROP INLET INV. = 371.17 (STA 21+50.03, 30.64' LEFT)
   @ FLOW SPLITTER #1 INV. = 371.10 (STA 21+50.98, 16.67' LEFT)

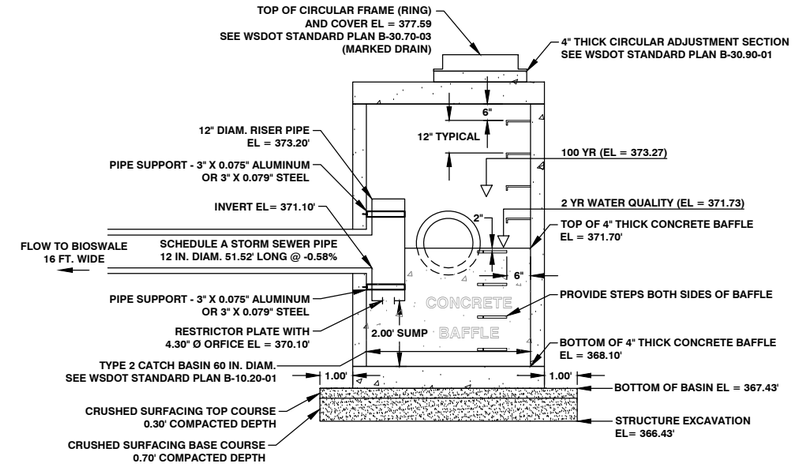
4. STA 21+50.00 15.15' LEFT (FLOW SPLITTER #1)
   (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT FLOW SPLITTER STRUCTURE
   CATCH BASIN TYPE 2 60 IN. DIAM., WITH FLOW RESTRICTOR AND CONCRETE BAFFLE
   STA 21+51.20 14.50' LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 377.59
   SEE FLOW SPLITTER #1 PLAN VIEW DETAIL ON THIS SHEET

5. STA 21+44.00
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 64.00' LONG
   @ FLOW SPLITTER #1 INV. = 371.10 (STA 21+48.93, 13.52' LEFT)
   @ FLOW SPLITTER #2 INV. = 368.80 (STA 21+40.05, 49.83' RIGHT)

6. STA 21+39.84 51.94' RIGHT (FLOW SPLITTER #2)
   (DISTANCE MEASURED TO CENTER OF BASIN)
   CONSTRUCT FLOW SPLITTER STRUCTURE
   CATCH BASIN TYPE 2 60 IN. DIAM., WITH FLOW RESTRICTOR AND CONCRETE BAFFLE
   STA 21+41.11 52.06' RIGHT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 375.30
   SEE FLOW SPLITTER #2 PLAN VIEW DETAIL ON THIS SHEET

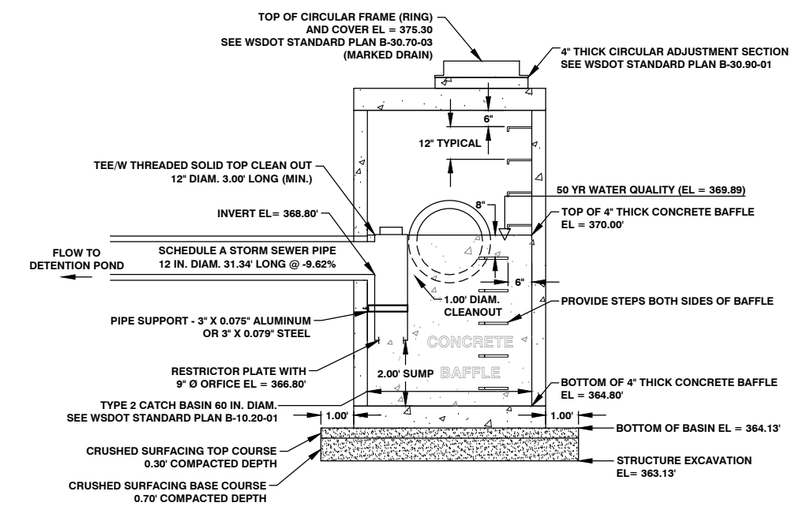
7. STA 21+24.00 RIGHT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 12" DIAM., 31.34' LONG
   @ FLOW SPLITTER INV. = 368.80 (STA 21+38.65, 50.68' RIGHT)
   OUTLET INV. = 365.80 (STA 21+09.33, 52.60' RIGHT)

8. STA 21+11.00 RIGHT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 24" DIAM., 78.00' LONG
   @ FLOW SPLITTER INV. = 368.80 (STA 21+38.70, 53.40' RIGHT)
   OUTLET INV. = 367.10 (STA 20+85.14, 104.88' RIGHT)
   CONSTRUCT OUTLET SLOPE PROTECTION
   SEE FLOW DISPERSAL PAD AND ROCK PROTECTION DETAIL ON SHEET 52 OF 127
   7.00 TON QUARRY SPALLS



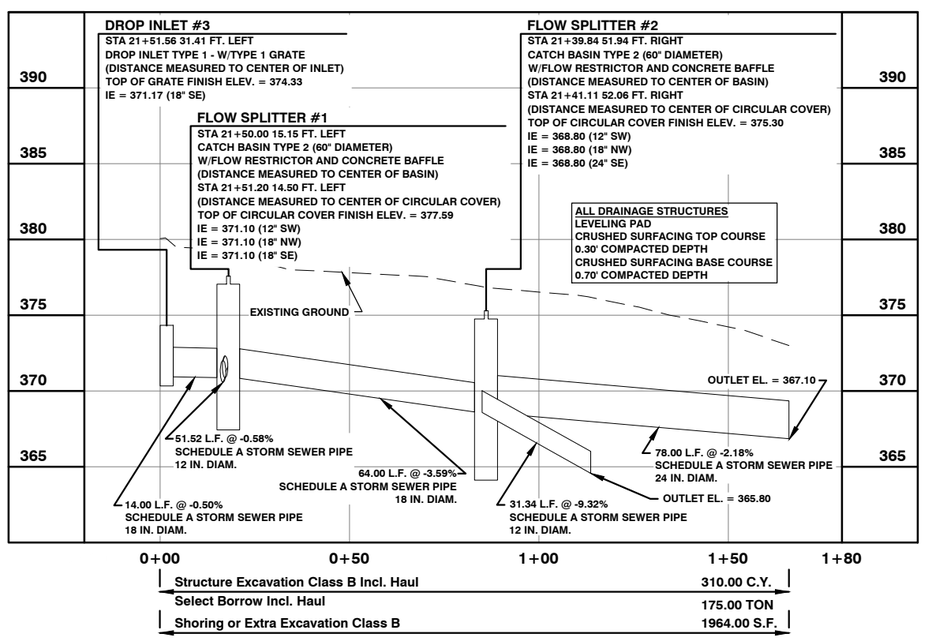
FLOW SPLITTER #1 DETAIL
CATCH BASIN TYPE 2 - 60" DIAM.
WITH FLOW RESTRICTOR AND CONCRETE BAFFLE

NOT TO SCALE



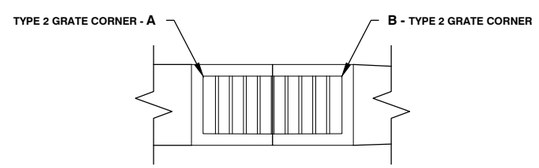
FLOW SPLITTER #2 DETAIL
CATCH BASIN TYPE 2 - 60" DIAM.
WITH FLOW RESTRICTOR AND CONCRETE BAFFLE

NOT TO SCALE



Structure Excavation Class B Incl. Haul	310.00 C.Y.
Select Borrow Incl. Haul	175.00 TON
Shoring or Extra Excavation Class B	1964.00 S.F.

PROFILE VIEW

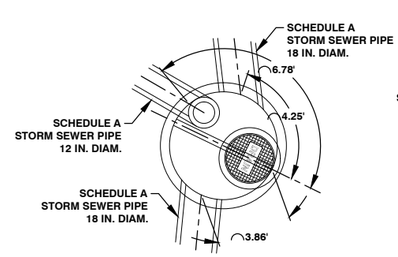


TYPE 2 GRATE PLACEMENT DETAIL

NOT TO SCALE

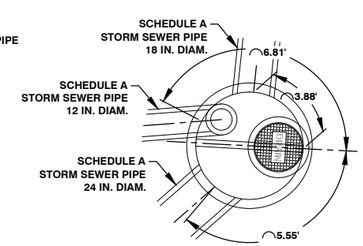
TYPE 2 GRATE PLACEMENT TABLE

DROP INLET#	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
3	21+48.70	32.41', LEFT		1	374.33
	21+54.94		32.40', LEFT		



FLOW SPLITTER #1 PLAN VIEW

NOT TO SCALE



FLOW SPLITTER #2 PLAN VIEW

NOT TO SCALE

NOTES:

1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE.
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" ALUMINUM ALLOY FLAT SHEET , IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

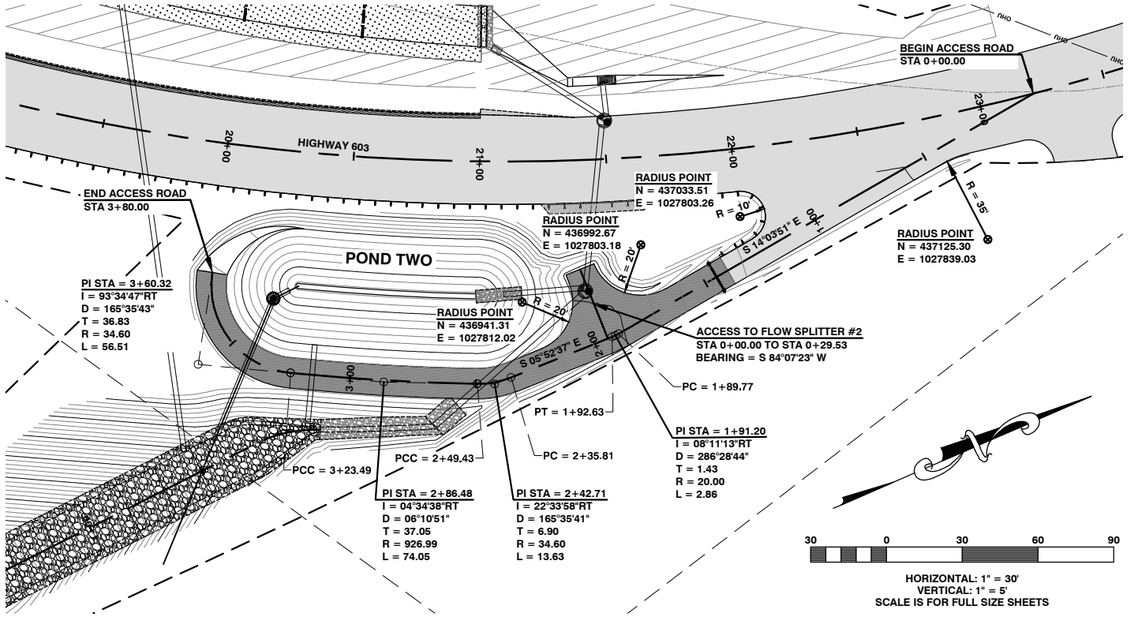
STORMWATER DETENTION POND 2
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

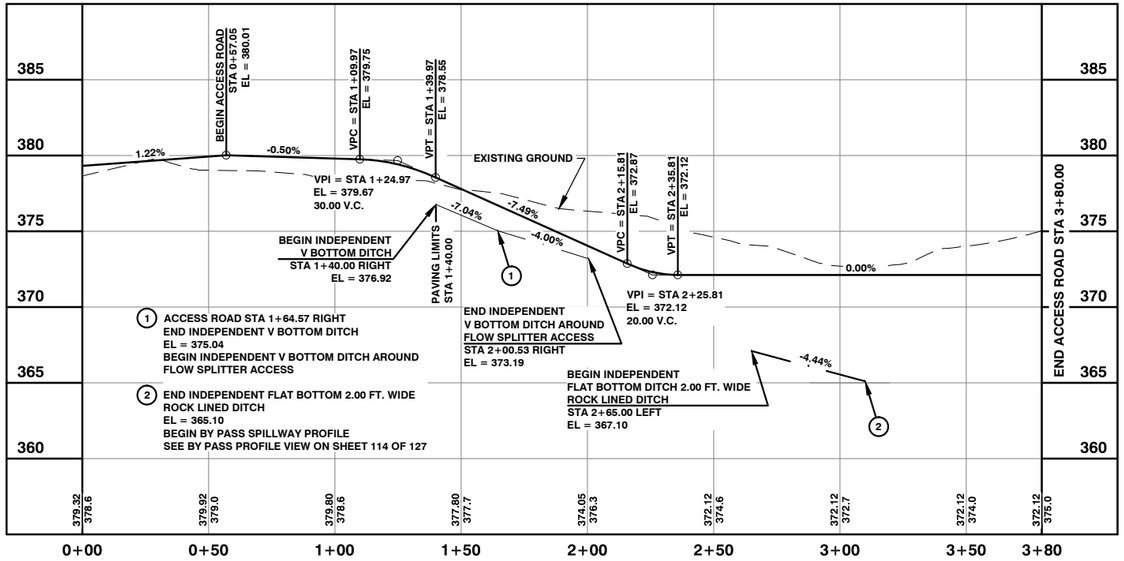
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

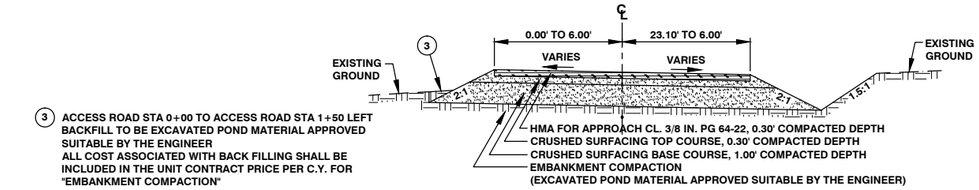
TWP. 12N. RGE. 2W. W.M.



ACCESS ROAD PLAN VIEW



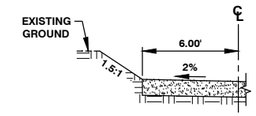
ACCESS ROAD PROFILE VIEW



3 ACCESS ROAD STA 0+00 TO ACCESS ROAD STA 1+50 LEFT
BACKFILL TO BE EXCAVATED POND MATERIAL APPROVED
SUITABLE BY THE ENGINEER
ALL COST ASSOCIATED WITH BACK FILLING SHALL BE
INCLUDED IN THE UNIT CONTRACT PRICE PER C.Y. FOR
"EMBANKMENT COMPACTION"

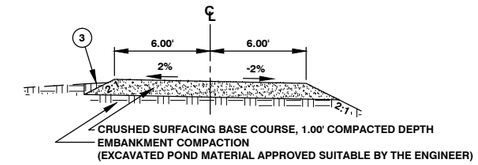
ACCESS ROADWAY SECTION

ACCESS ROAD STA 0+34.07 LEFT TO ACCESS ROAD STA 1+40.00
NOT TO SCALE



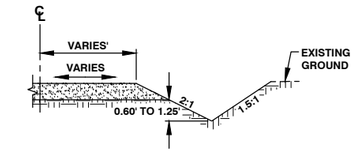
ACCESS ROAD IN CUT SECTION

ACCESS ROAD STA 1+50.00 LEFT TO 2+35.00 LEFT
TAPER TO INDEPENDENT FLAT BOTTOM DITCH
ACCESS ROAD STA 2+35.00 LEFT TO STA 2+65.00 LEFT
NOT TO SCALE



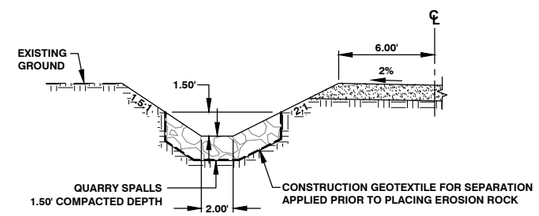
ACCESS ROADWAY SECTION

ACCESS ROAD STA 1+40.00 LEFT TO ACCESS ROAD STA 3+80.00
NOT TO SCALE



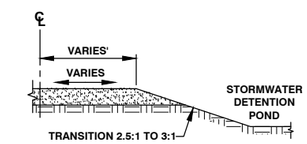
DITCH DETAIL

ACCESS ROAD STA 1+40.00 RIGHT TO STA 1+64.57 RIGHT
AROUND FLOW SPLITTER # 2 ACCESS
BEGIN ACCESS ROAD STA 1+64.57 RIGHT
END ACCESS ROAD STA 2+00.53 RIGHT
NOT TO SCALE



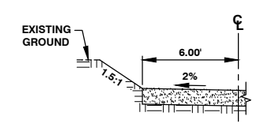
DITCH DETAIL

ACCESS ROAD STA 2+65.00 LEFT TO STA 3+10.00 LEFT
NOT TO SCALE



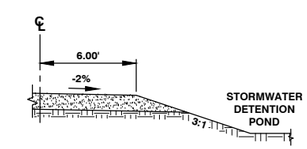
POND IN SLOPE DETAIL

ACCESS ROAD STA 2+00.53 RIGHT TO STA 2+35.80 RIGHT
NOT TO SCALE



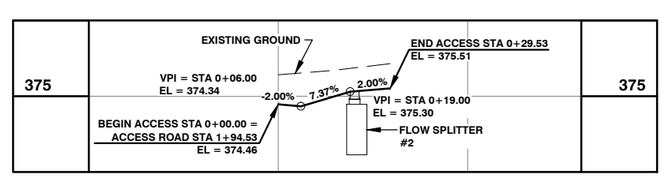
ACCESS ROAD IN CUT SECTION

ACCESS ROAD STA 3+10.00 LEFT TO 3+80.00 LEFT
NOT TO SCALE



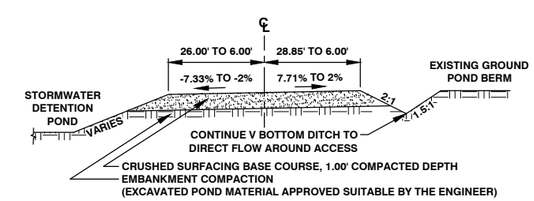
POND IN SLOPE DETAIL

ACCESS ROAD STA 2+35.80 RIGHT TO STA 3+80.00 RIGHT
NOT TO SCALE



ACCESS TO FLOW SPLITTER #2 PROFILE

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



ACCESS TO FLOW SPLITTER #2 ROADWAY SECTION

NOT TO SCALE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

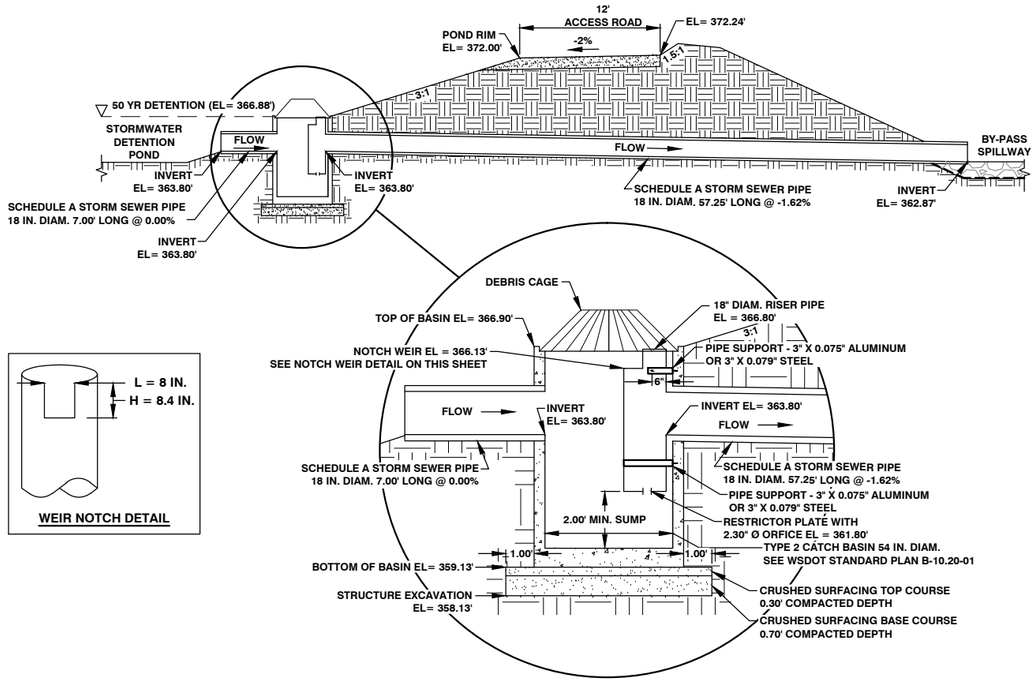
STORMWATER DETENTION
POND 2
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

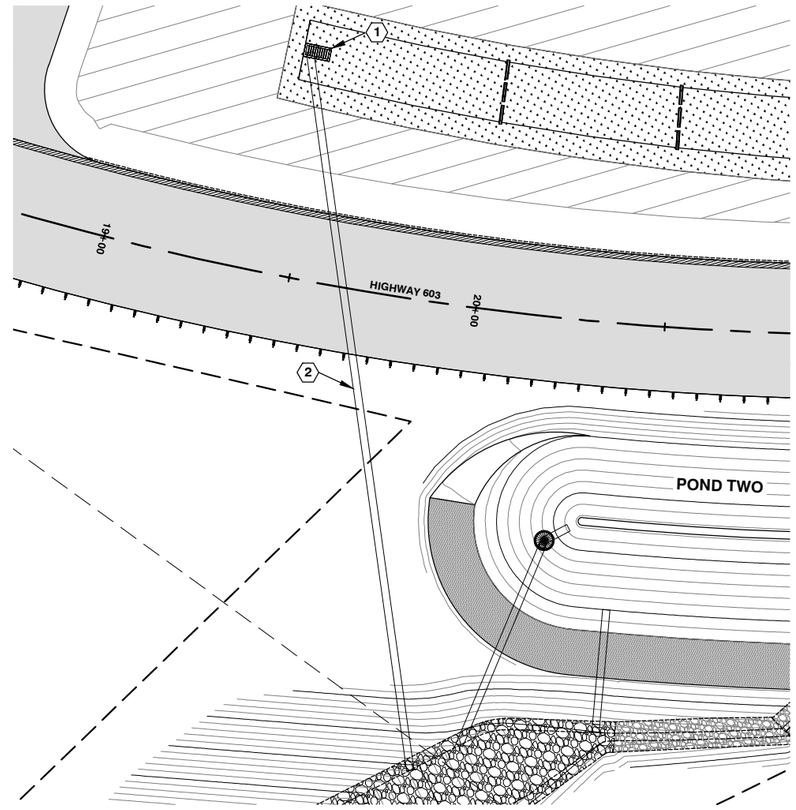
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



WEIR NOTCH DETAIL

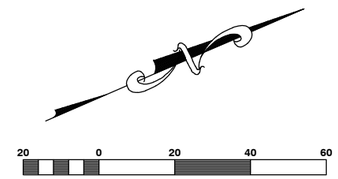


BIOFILTRATION SWALE OUTLET SYSTEM
PLAN VIEW

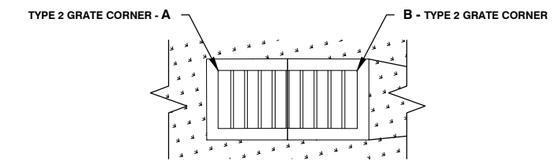
CONSTRUCTION NOTES

1. STA 19+45.77 59.81' LEFT (DROP INLET 2) (DISTANCE MEASURED TO CENTER OF INLET)
   CONSTRUCT DROP INLET TYPE 1, WITH TYPE 2 GRATE
   SEE WSDOT STANDARD PLAN DROP INLET TYPE 1 B-45.20-00
   AND GRATES FOR DROP INLET (TYPE 2) B-50.20-00

2. STA 19+65.00
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 191.40' LONG
   @ DROP INLET INV. = 365.03 (STA 19+43.68, 59.45' LEFT)
   OUTLET INV. = 359.20 (STA 19+98.79, 123.20' RIGHT)



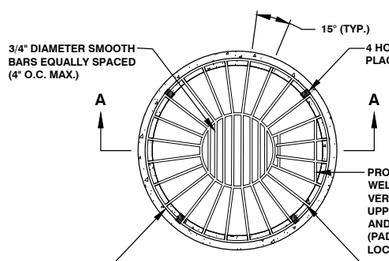
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



TYPE 2 GRATE PLACEMENT DETAIL
NOT TO SCALE

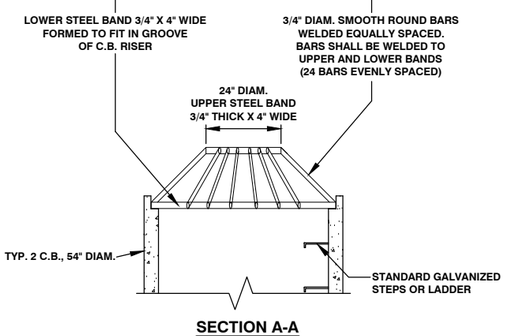
TYPE 2 GRATE PLACEMENT TABLE

DROP INLET#	STATION	POINT A OFFSET	POINT B OFFSET	TYPE	TOP OF GRATE FINISH ELEV.
2	19+42.54	61.07', LEFT		1	368.40
	19+49.01		61.05', LEFT		

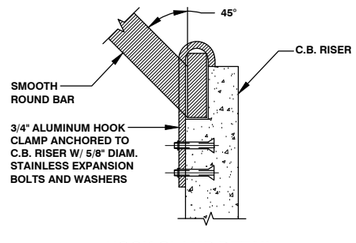


DEBRIS CAGE VIEW
NOT TO SCALE

NOTES:
1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE.
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" ALUMINUM ALLOY FLAT SHEET, IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.



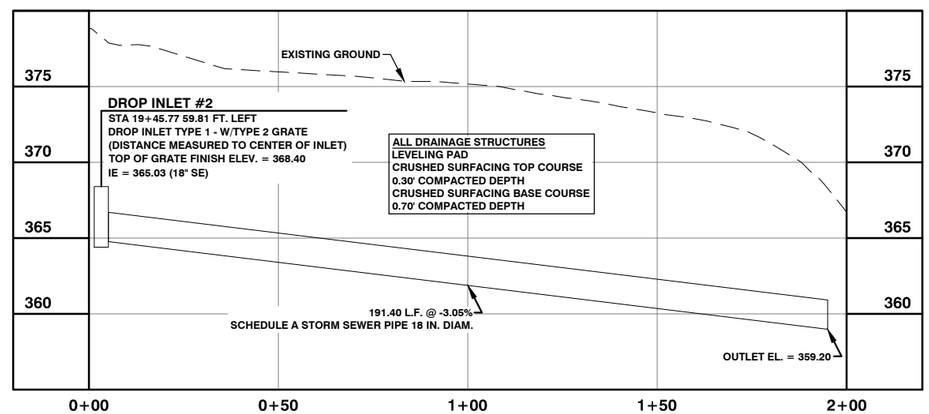
SECTION A-A
NOT TO SCALE



HOOK CLAMP DETAIL
NOT TO SCALE

NOTE:
METAL PARTS MUST BE CORROSION RESISTANT;
STEEL BARS MUST BE GALVANIZED

CATCH BASIN TYPE 2 - 54" DIAM.
WITH FLOW RESTRICTOR DETAIL
NOT TO SCALE



Structure Excavation Class B Incl. Haul	310.00 C.Y.
Select Borrow Incl. Haul	405.00 TON
Shoring or Extra Excavation Class B	2180.00 S.F.

BIOFILTRATION SWALE OUTLET SYSTEM
PROFILE VIEW

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

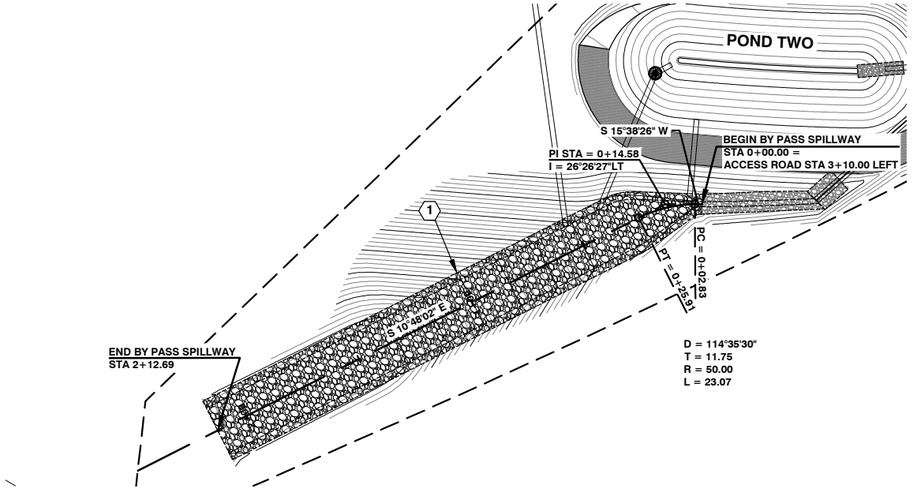
STORMWATER DETENTION
POND 2
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

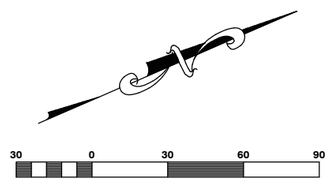
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



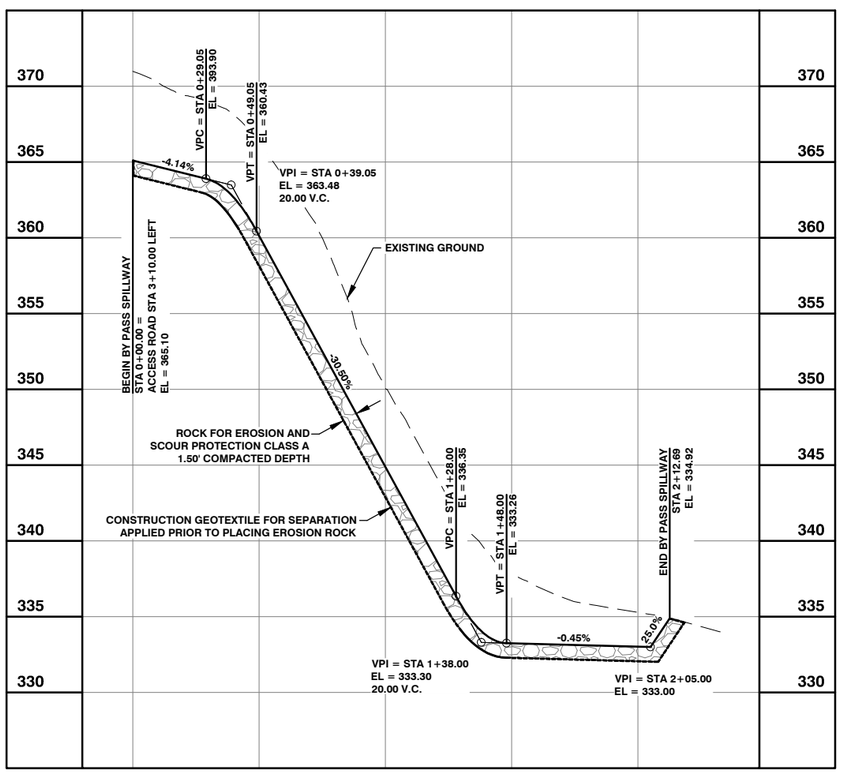
CONSTRUCTION NOTES

(1) CONSTRUCT BY PASS SPILLWAY
1780.00 C.Y. CHANNEL EXCAVATION INCL. HAUL
680.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
450.00 TON ROCK FOR EROSION AND SCOUR PROTECTION CLASS A

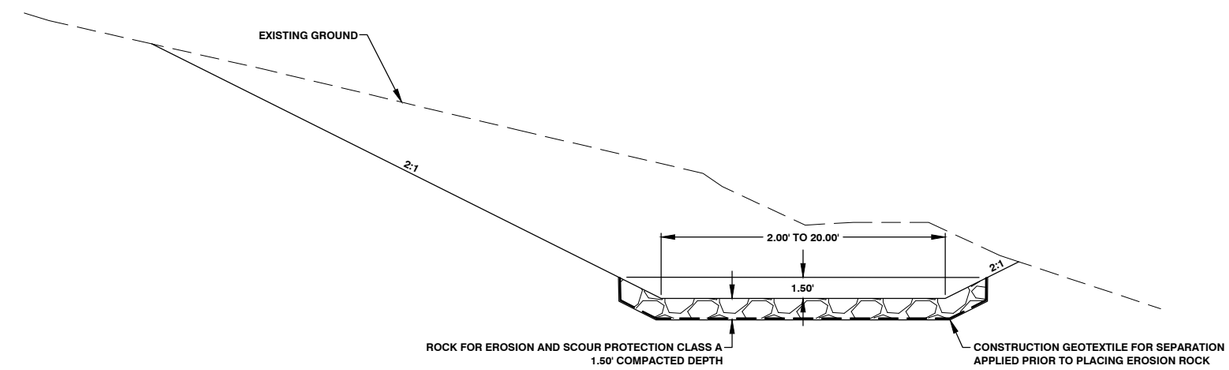


HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

BY PASS SPILLWAY
PLAN VIEW



BY PASS SPILLWAY
PROFILE VIEW



BY PASS SPILLWAY TYPICAL SECTION
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

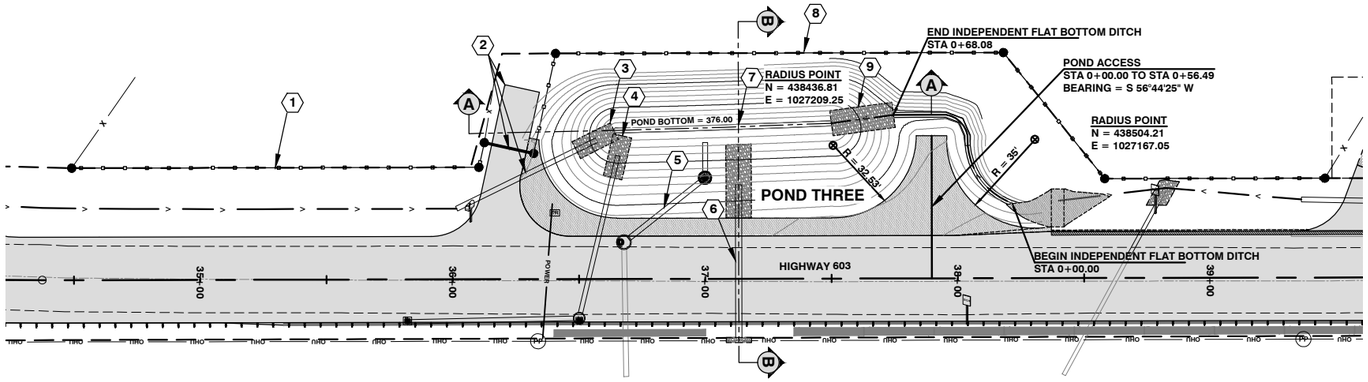
BY PASS SPILLWAY
CONSTRUCTION DETAIL

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

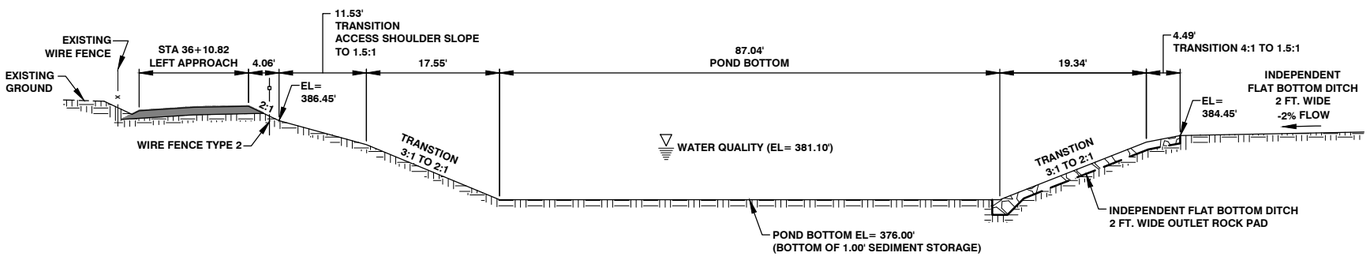
Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

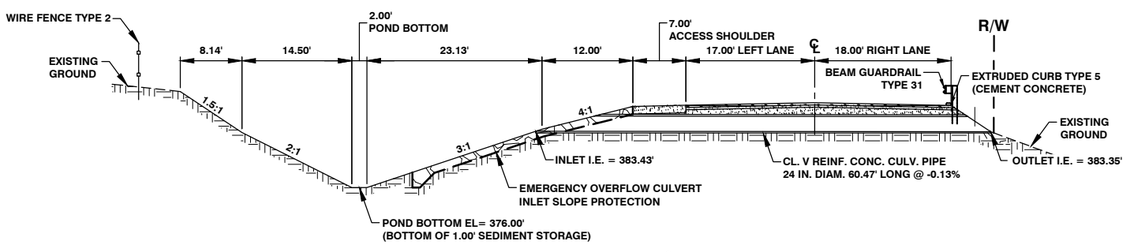
TWP. 12N. RGE. 2W. W.M.



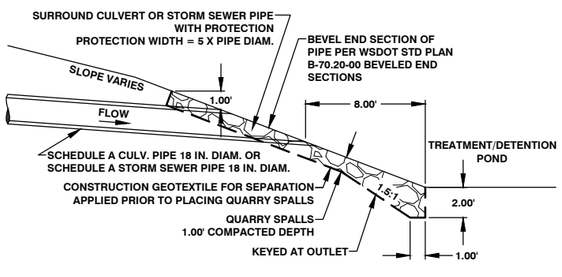
PLAN VIEW



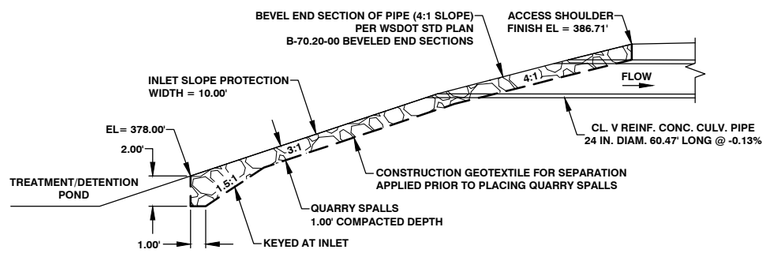
SECTION A
NOT TO SCALE



SECTION B
NOT TO SCALE



ROCK PAD DETAIL
NOT TO SCALE



INLET SLOPE PROTECTION AND OUTLET DISPERSAL PAD DETAIL
NOT TO SCALE

CONSTRUCTION NOTES

1. STA 34+49.17 TO 36+12.56 LEFT
   CONSTRUCT FENCE (WIRE FENCE TYPE 2) PER
   WSDOT STANDARD PLAN WIRE FENCES TYPES 1 & 2
   AND WIRE GATES L-10.10.02
   SEE FENCELINE TABLE ON SHEET 116 OF 127
   172.00 L.F. WIRE FENCE TYPE 2

2. STA 36+10.82 LEFT
   CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 61.86' LONG
   INLET INV. = 383.43 (STA 36+01.52, 27.96' LEFT)
   OUTLET INV. = 379.00 (STA 36+57.00, 54.97' LEFT)
   35.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   158.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   19.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT DOUBLE WIRE GATE 20 FT. WIDE PER
   WSDOT STANDARD PLAN WIRE FENCES TYPES 1 & 2
   AND WIRE GATES L-10.10.02
   1 EACH DOUBLE WIRE GATE 20 FT. WIDE
   CONSTRUCT APPROACH
   SEE APPROACH DETAIL ON SHEET 81 OF 127

3. CONSTRUCT ROCK PAD AT THE OUTLET OF
   SCHEDULE A CULV. PIPE 18 IN. DIAM.
   SEE ROCK PAD DETAIL ON THIS SHEET
   24.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   10.00 TON QUARRY SPALLS

4. CONSTRUCT ROCK PAD AT THE OUTLET OF
   18 IN. DIAM. STORM SEWER PIPE
   SEE ROCK PAD DETAIL ON THIS SHEET
   24.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   10.00 TON QUARRY SPALLS

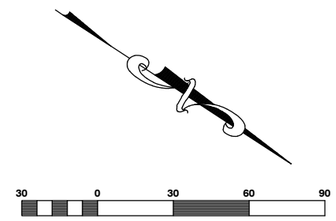
5. CONSTRUCT POND OUTLET DRAINAGE SYSTEM
   SEE SHEET 116 OF 127

6. STA 37+13.20
   CONSTRUCT CL. V. REINF. CONC. CULV. PIPE 24" DIAM., 60.47' LONG
   INLET INV. = 383.43 (STA 37+13.20, 37.25' LEFT)
   OUTLET INV. = 383.35 (STA 37+13.20, 23.22' RIGHT)
   21.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   CONSTRUCT INLET SLOPE PROTECTION WITH OUTLET FLOW DISPERSAL PAD.
   SEE INLET SLOPE PROTECTION PAD DETAIL ON THIS SHEET
   53.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   21.00 TON QUARRY SPALLS

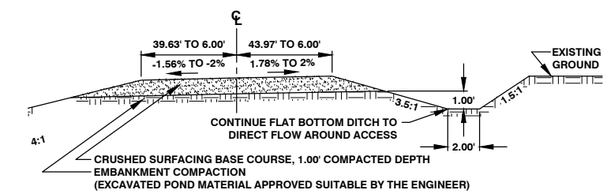
7. AS STAKED IN THE FIELD
   CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   1675.00 C.Y. STRUCTURE EXCAVATION INCL. HAUL CLASS B
   170.00 C.Y. EMBANKMENT COMPACTION
   200.00 TON CRUSHED SURFACING BASE COURSE (POND ACCESS & SHOULDER)

8. STA 36+32.08 TO STA 39+45.38 LEFT
   CONSTRUCT FENCE (WIRE FENCE TYPE 2) PER
   WSDOT STANDARD PLAN WIRE FENCES TYPES 1 & 2
   AND WIRE GATES L-10.10.02
   SEE FENCELINE TABLE ON SHEET 116 OF 127
   370.00 L.F. WIRE FENCE TYPE 2

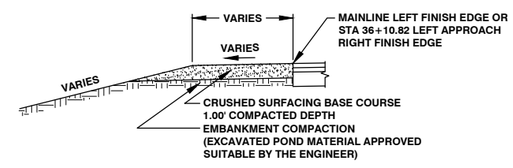
9. CONSTRUCT DITCH OUTLET SLOPE PROTECTION
   SEE DITCH OUTLET SLOPE PROTECTION DETAIL ON THIS SHEET
   42.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   17.00 TON QUARRY SPALLS



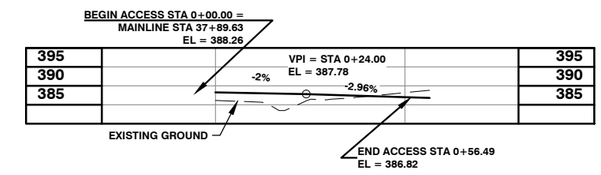
HORIZONTAL: 1" = 30'
SCALE IS FOR FULL SIZE SHEETS



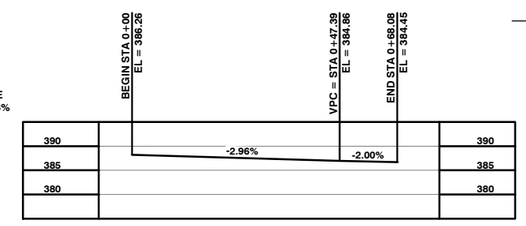
POND ACCESS TYPICAL SECTION
NOT TO SCALE



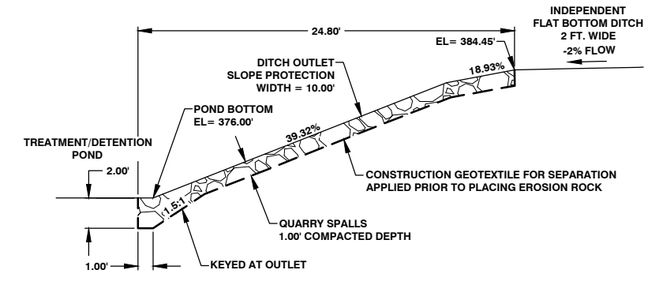
POND ACCESS SHOULDER TYPICAL SECTION
NOT TO SCALE



POND ACCESS
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 1'
SCALE IS FOR FULL SIZE SHEETS



INDEPENDENT FLAT BOTTOM DITCH PROFILE
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 1'
SCALE IS FOR FULL SIZE SHEETS



DITCH OUTLET SLOPE PROTECTION DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

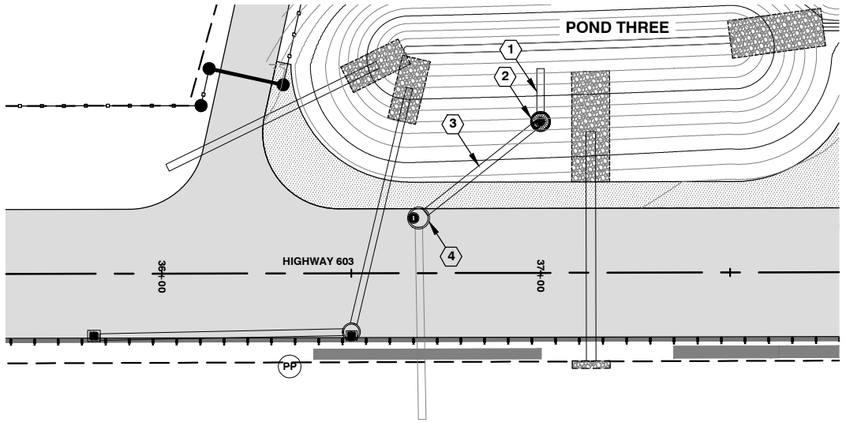
STORMWATER TREATMENT/DETENTION POND 3

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



POND OUTLET DRAINAGE SYSTEM
PLAN VIEW

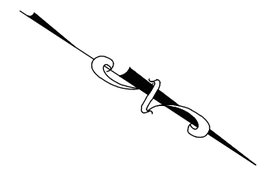
CONSTRUCTION NOTES

1. STA 37+00.00 LEFT
CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 14.00' LONG
INLET INV. = 377.60 (STA 37+00.00, 53.92' LEFT)
@ OUTLET STRUCTURE INV. = 381.10 (STA 37+00.00, 39.93' LEFT)

2. STA 37+00.00 39.93' LEFT
(DISTANCE MEASURED TO CENTER OF STRUCTURE)
CONSTRUCT OUTLET STRUCTURE
CATCH BASIN TYPE 2 54 IN. DIAM., WITH FLOW RESTRICTOR
SEE CATCH BASIN TYPE 2 - 54" DIAM. DETAIL ON THIS SHEET

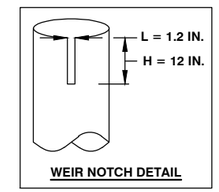
3. STA 36+84.00 LEFT
CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 41.04' LONG
@ OUTLET STRUCTURE INV. = 381.10 (STA 37+00.00, 39.93' LEFT)
@ CATCH BASIN INV. = 380.90 (STA 36+67.78, 14.50' LEFT)

4. STA 36+67.78 14.50' LEFT (CB #52) (DISTANCE MEASURED TO CENTER OF BASIN)
CONSTRUCT CATCH BASIN TYPE 2 60 IN. DIAM.
SEE WSDOT STANDARD PLAN CATCH BASIN TYPE 2 B-10.20-01
STA 36+66.43 14.50' LEFT (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
TOP OF CIRCULAR COVER FINISH EL. = 386.49
NEW BASIN TIES TO EXISTING 18" CROSS CULVERT

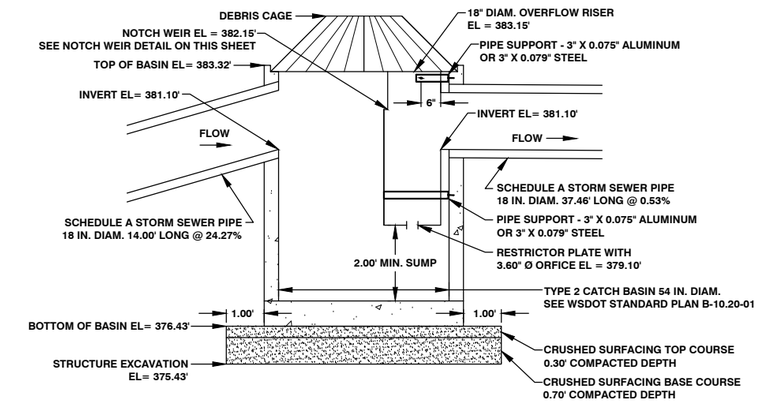


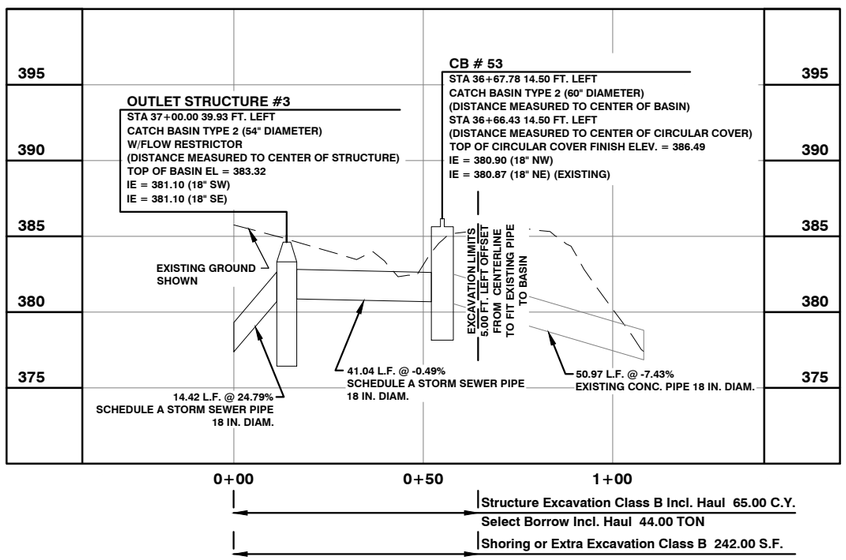
20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



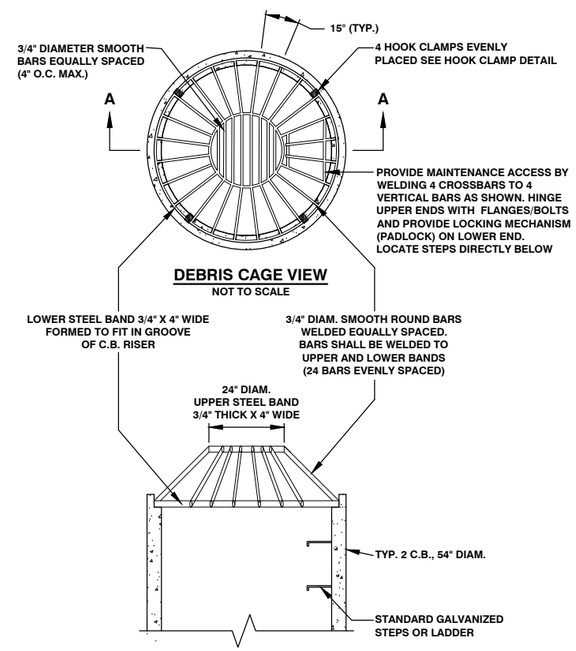
WEIR NOTCH DETAIL





POND OUTLET DRAINAGE SYSTEM
PROFILE VIEW

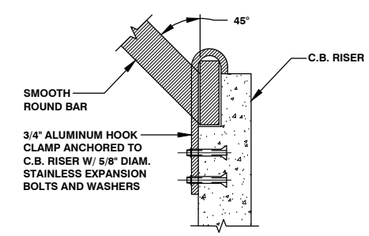
ALL DRAINAGE STRUCTURES
LEVELING PAD
CRUSHED SURFACING TOP COURSE
0.30' COMPACTED DEPTH
CRUSHED SURFACING BASE COURSE
0.70' COMPACTED DEPTH



DEBRIS CAGE VIEW
NOT TO SCALE

SECTION A-A
NOT TO SCALE

NOTES:
1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE.
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" ALUMINUM ALLOY FLAT SHEET , IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.



HOOK CLAMP DETAIL
NOT TO SCALE

NOTE:
METAL PARTS MUST BE CORROSION RESISTANT;
STEEL BARS MUST BE GALVANIZED

CATCH BASIN TYPE 2 - 54" DIAM.
WITH FLOW RESTRICTOR DETAIL
NOT TO SCALE

FENCELINE				
STATION	OFFSET	TYPE	NORTHING	EASTING
34+49.17	44.33' LEFT	END	438190.98	1027385.03
36+10.40	44.33' LEFT	CORNER	438325.80	1027296.61
36+12.56	54.10' LEFT	GATE	438322.26	1027287.26
36+32.08	49.78' LEFT	GATE	438340.96	1027280.16
36+40.84	89.33' LEFT	CORNER	438326.58	1027242.28
38+18.17	89.33' LEFT	CORNER	438474.86	1027145.03
38+58.17	39.33' LEFT	CORNER	438535.73	1027164.90
39+45.38	39.33 LEFT	END	438608.66	1027117.07

NOTE: CONNECT EXISTING FENCE TO POST

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

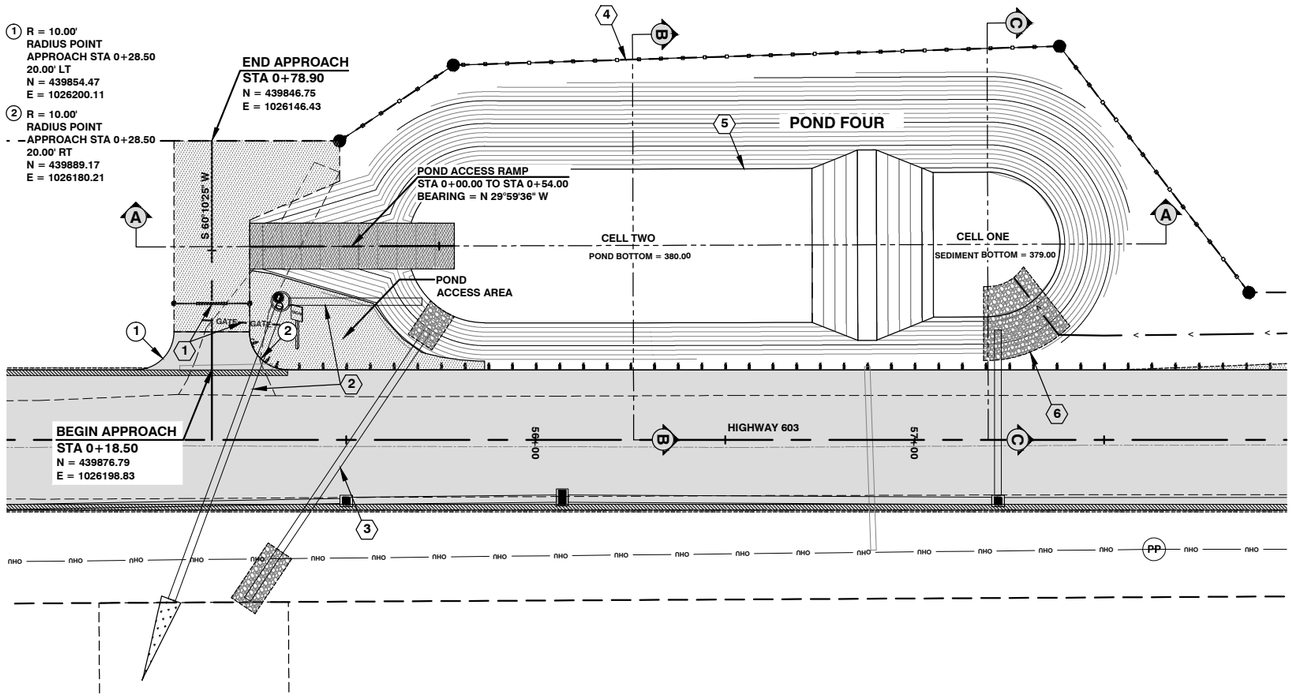
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER TREATMENT/DETENTION POND 3
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16
KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



PLAN VIEW

CONSTRUCTION NOTES

1. STA 55+14.50 35.80' LEFT
   CONSTRUCT ACCESS CONTROL GATE
   (21' - 0" WIDE CENTER OF POST TO CENTER OF POST)
   SEE WSDOT STANDARD PLAN ACCESS CONTROL GATE L-70.10-01
   1 EACH ACCESS CONTROL GATE
   REMOVE EXISTING CABLE GATE
   EXISTING GATE REMOVED SHALL BE RETURNED TO PROPERTY OWNER AND BE INCLUDED IN THE UNIT CONTRACT PRICE PER EACH FOR "ACCESS CONTROL GATE"

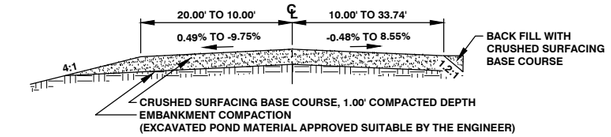
2. CONSTRUCT POND DRAINAGE OUTLET SYSTEM
   SEE SHEET 118 OF 127

3. STA 55+52.00
   CONSTRUCT SCHEDULE A CULV. PIPE 18 IN. DIAM., 85.00' LONG
   OUTLET INV. = 385.42 (STA 55+23.91, 42.06' RIGHT)
   INLET INV. = 385.84 (STA 55+71.28, 28.51' LEFT)
   41.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   173.00 S.F. SHORING EXTRA EXCAVATION CLASS B
   73.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET AND OUTLET SLOPE PROTECTION WITH OUTLET FLOW DISPERSAL PAD.
   SEE DETAIL ON THIS SHEET
   40.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   14.00 TON QUARRY SPALLS

4. STA 55+48.24 TO 57+88.24 LEFT
   CONSTRUCT FENCE (WIRE FENCE TYPE 2) PER WSDOT STANDARD PLAN WIRE FENCES TYPES 1 & 2
   SEE FENCELINE TABLE ON SHEET 118 OF 127
   279.00 L.F. WIRE FENCE TYPE 2

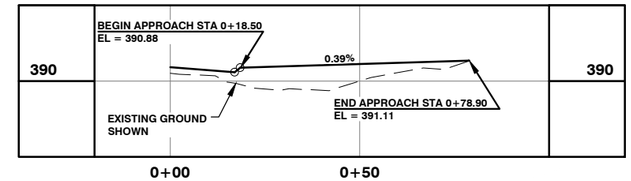
5. AS STAKED IN THE FIELD
   CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   5190.00 C.Y. STRUCTURE EXCAVATION INCL. HAUL CLASS B
   20.00 C.Y. EMBANKMENT COMPACTION (POND & APPROACH)
   260.00 TON CRUSHED SURFACING BASE COURSE
   (APPROACH, ACCESS RAMP & AREA)

6. CONSTRUCT STORM SEWER/DITCH OUTLET SLOPE PROTECTION
   SEE STORM SEWER/DITCH OUTLET PROTECTION DETAIL SHEET 118 OF 127
   65.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   30.00 TON QUARRY SPALLS

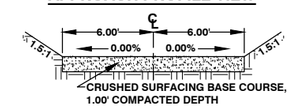


APPROACH TYPICAL SECTION

NOT TO SCALE

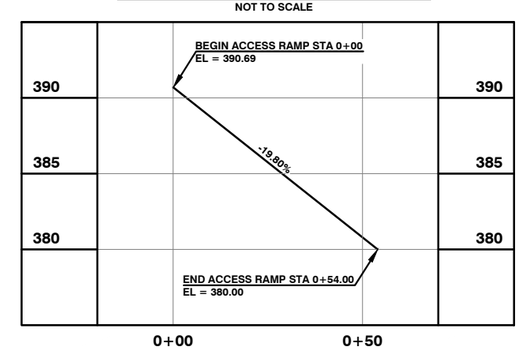


APPROACH PROFILE VIEW

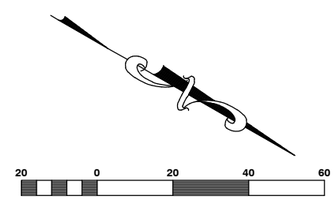


POND ACCESS RAMP TYPICAL SECTION

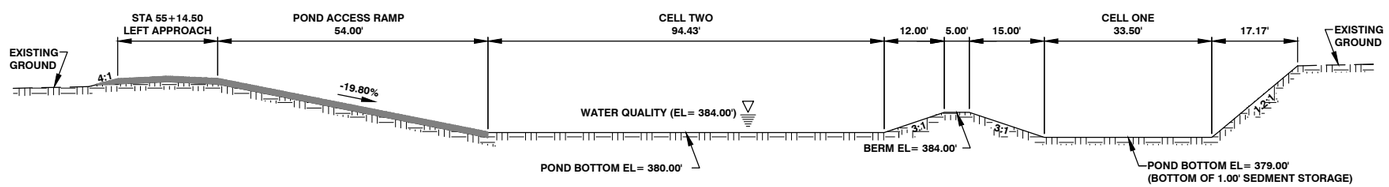
NOT TO SCALE



POND ACCESS RAMP PROFILE VIEW

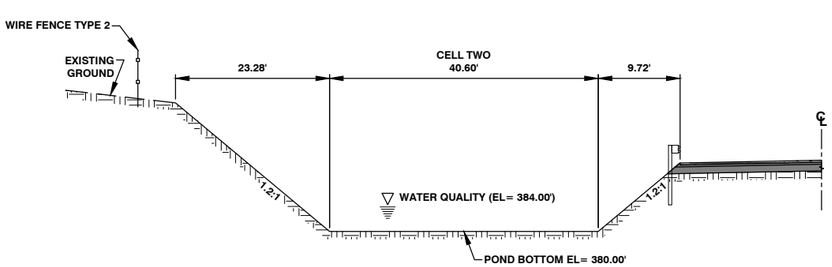


HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



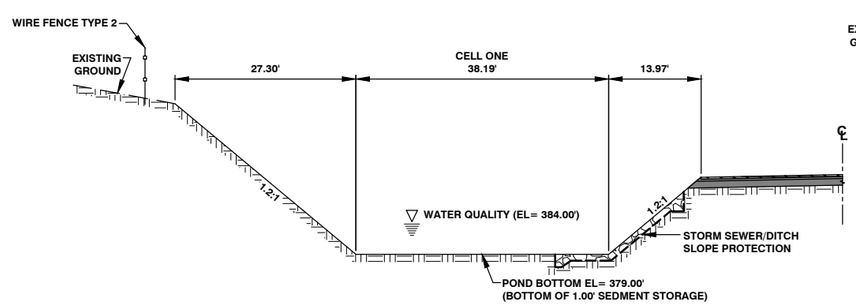
SECTION A

NOT TO SCALE



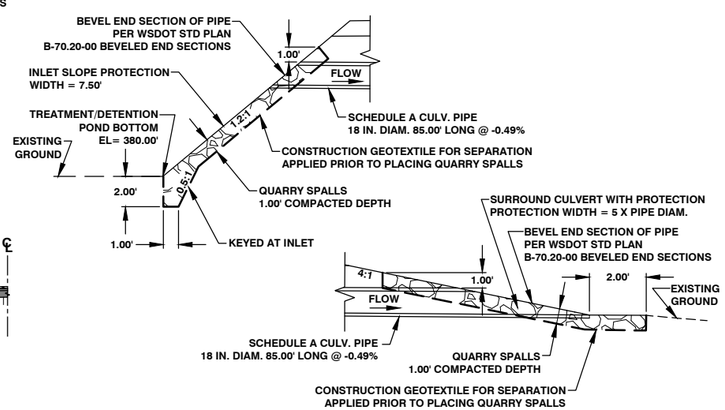
SECTION B

NOT TO SCALE



SECTION C

NOT TO SCALE



INLET AND OUTLET SLOPE PROTECTION DETAIL

NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STORMWATER TREATMENT/DETENTION POND 4

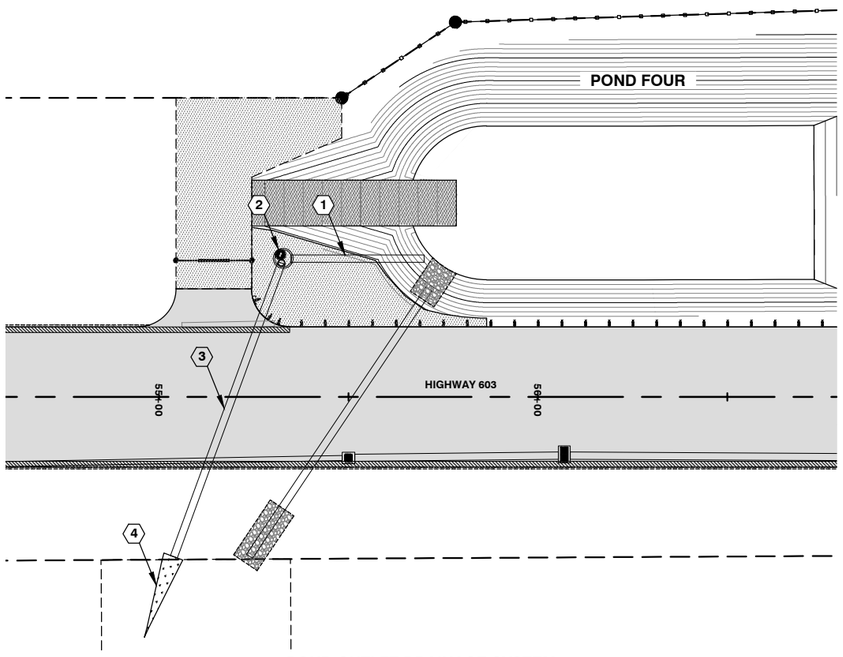
SHEET 117 OF 127

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



POND OUTLET DRAINAGE SYSTEM
PLAN VIEW

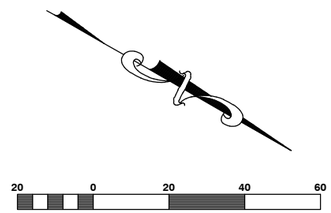
CONSTRUCTION NOTES

1. STA 55+52.40 LEFT
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 37.20' LONG
   INLET INV. = 381.50 (STA 55+70.00, 36.51' LEFT)
   @ OUTLET STRUCTURE INV. = 384.00 (STA 55+32.80, 36.50' LEFT)

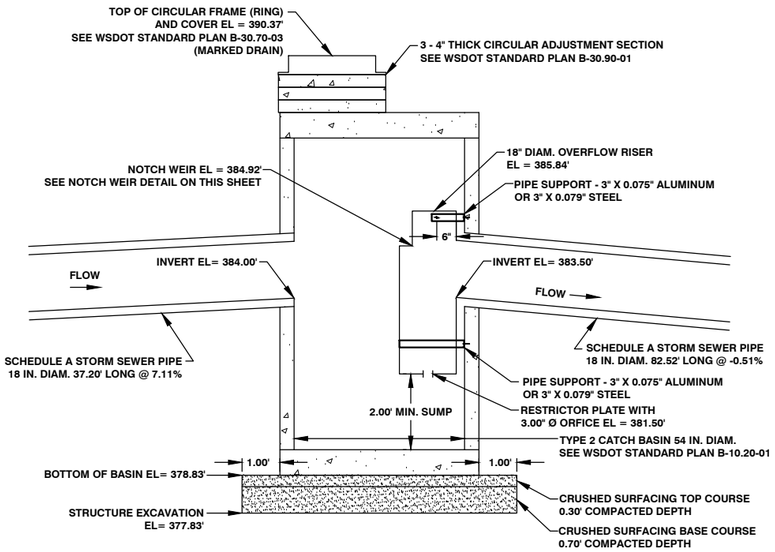
2. STA 55+32.80 36.50' LEFT
   (DISTANCE MEASURED TO CENTER OF STRUCTURE)
   CONSTRUCT OUTLET STRUCTURE
   CATCH BASIN TYPE 2 54 IN. DIAM., WITH FLOW RESTRICTOR
   STA 55+32.09 37.53' LEFT
   (DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
   TOP OF CIRCULAR COVER FINISH EL. = 390.37
   SEE CATCH BASIN TYPE 2 - 54" DIAM. DETAIL ON THIS SHEET

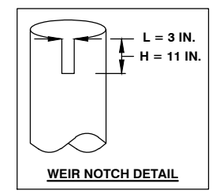
3. STA 55+19.50
   CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 83.80' LONG
   @ OUTLET STRUCTURE INV. = 383.50 (STA 55+32.80, 36.50' LEFT)
   OUTFALL INV. = 383.58 (STA 55+03.93, 42.17' RIGHT)

4. STA 55+03.93 TO 54+96.14 RIGHT
   CONSTRUCT V BOTTOM DITCH



HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





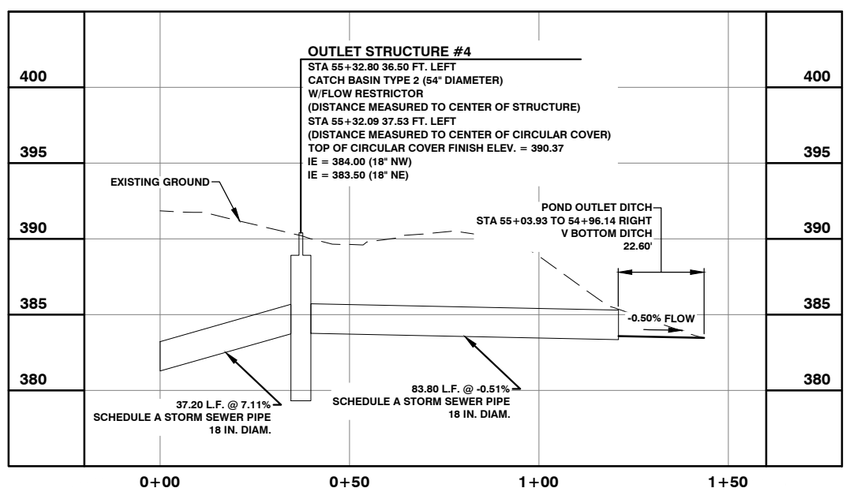
WEIR NOTCH DETAIL

NOTES:

1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE.
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" ALUMINUM ALLOY FLAT SHEET , IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.

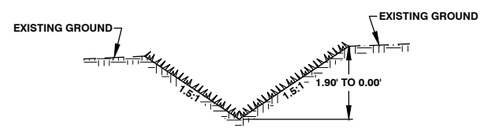
CATCH BASIN TYPE 2 - 54" DIAM.
WITH FLOW RESTRICTOR DETAIL
NOT TO SCALE

FENCELINE				
STATION	OFFSET	TYPE	NORTHING	EASTING
55+48.24	78.90' LEFT	END	439876.02	1026129.65
55+78.24	98.90' LEFT	CORNER	439892.10	1026097.38
57+38.24	103.90' LEFT	CORNER	440028.41	1026013.46
57+88.24	38.90' LEFT	END	440104.12	1026044.99



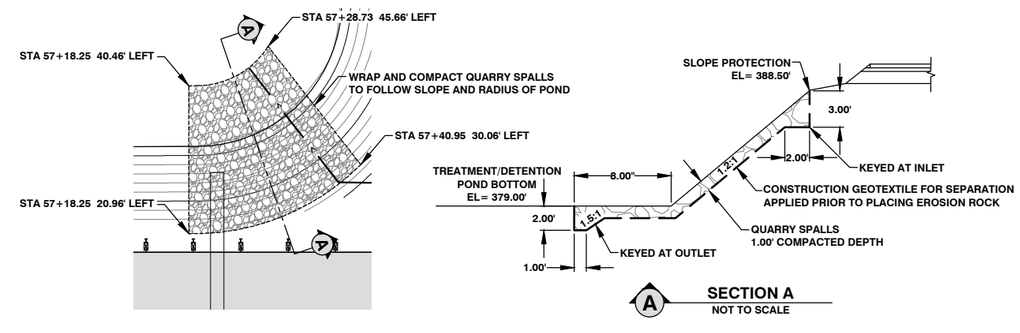
Structure Excavation Class B Incl. Haul	120.00 C.Y.
Select Borrow Incl. Haul	105.00 TON
Shoring or Extra Excavation Class B	731.00 S.F.
Ditch Excavation Incl. Haul	13.00 C.Y.

POND OUTLET DRAINAGE SYSTEM
PROFILE VIEW



POND OUTLET DITCH TYPICAL
STA 55+03.93 TO STA 54+96.14 RIGHT
NOT TOSCALE

ALL DRAINAGE STRUCTURES
LEVELING PAD
CRUSHED SURFACING TOP COURSE
0.30' COMPACTED DEPTH
CRUSHED SURFACING BASE COURSE
0.70' COMPACTED DEPTH



STORM SEWER/DITCH OUTLET SLOPE PROTECTION DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

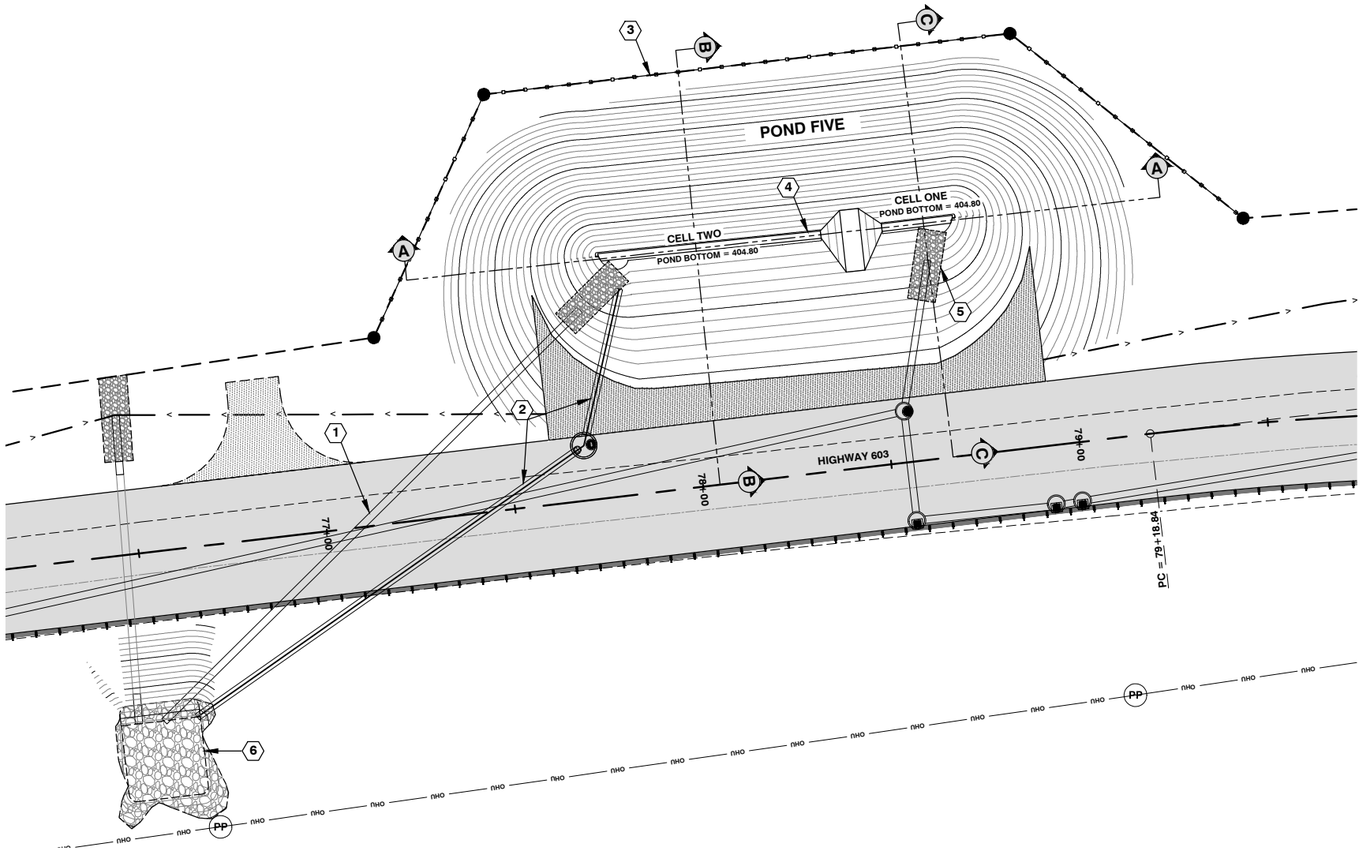
STORMWATER TREATMENT/DETENTION
POND 4
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



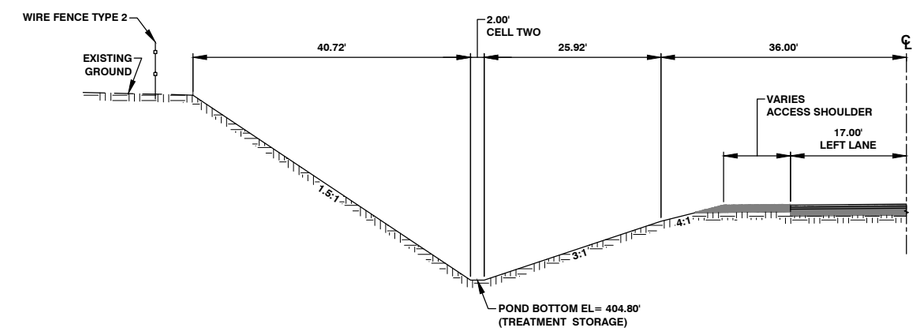
PLAN VIEW

CONSTRUCTION NOTES

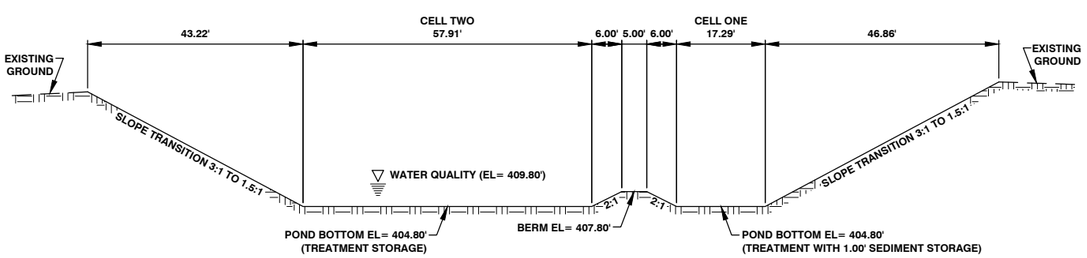
1. STA 77+09.00
   CONSTRUCT SCHEDULE A CULV. PIPE 18" DIAM., 154.80' LONG
   OUTLET INV. = 398.70 (STA 76+51.47, 44.77' RIGHT)
   INLET INV. = 411.24 (STA 77+73.06, 50.20' LEFT)
   200.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
   1379.00 S.F. SHORING OR EXTRA EXCAVATION CLASS B
   240.00 TON SELECT BORROW INCL. HAUL
   CONSTRUCT INLET SLOPE PROTECTION
   SEE INLET SLOPE PROTECTION DETAIL ON SHEET 120 OF 127
   22.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   11.00 TON QUARRY SPALLS
2. CONSTRUCT POND DRAINAGE OUTLET SYSTEM
   SEE SHEET 120 OF 127
3. STA 77+18.28 TO 79+47.97 LEFT
   CONSTRUCT FENCE (WIRE FENCE TYPE 2) PER
   WSDOT STANDARD PLAN WIRE FENCES TYPES 1 & 2
   SEE FENCELINE TABLE ON THIS SHEET
   289.00 L.F. WIRE FENCE TYPE 2
4. AS STAKED IN THE FIELD
   CONSTRUCT STORMWATER TREATMENT/DETENTION POND
   5000.00 C.Y. STRUCTURE EXCAVATION INCL. HAUL CLASS B
   135.00 TON CRUSHED SURFACING BASE COURSE (ACCESS SHOULDER)
5. CONSTRUCT ROCK PAD AT THE OUTLET OF
   18 IN. DIAM. STORM SEWER PIPE
   SEE ROCK PAD DETAIL ON SHEET 120 OF 127
   25.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   10.00 TON QUARRY SPALLS
6. CONSTRUCT OUTLET ROCK DISPERSAL PAD
   SEE SHEET 120 OF 124
   25.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
   10.00 TON QUARRY SPALLS

20 0 20 40 60

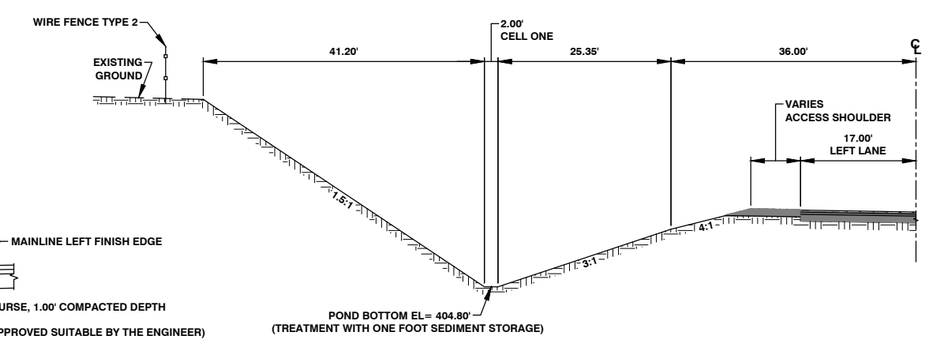
HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS



SECTION B
NOT TO SCALE

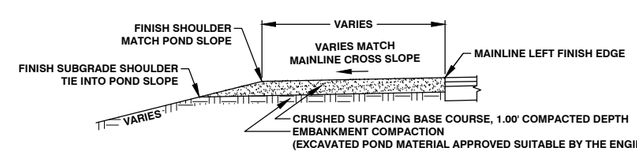


SECTION A
NOT TO SCALE



SECTION C
NOT TO SCALE

FENCELINE				
STATION	OFFSET	TYPE	NORTHING	EASTING
77+18.28	49.30' LEFT	END	441808.82	1025132.90
77+54.66	109.61' LEFT	CORNER	441836.12	1025067.97
78+94.47	109.26' LEFT	CORNER	441974.51	1025048.13
79+47.97	54.14' LEFT	END	442037.36	1025095.21



POND ACCESS SHOULDER TYPICAL SECTION
NOT TO SCALE

Lewis County Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

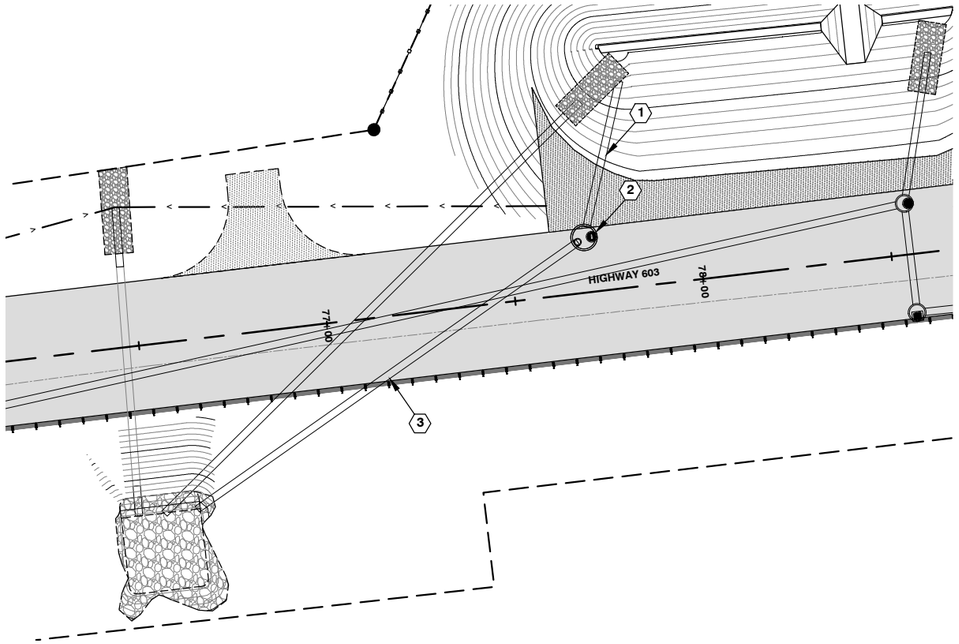
STORMWATER TREATMENT/DETENTION POND 5

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



CONSTRUCTION NOTES

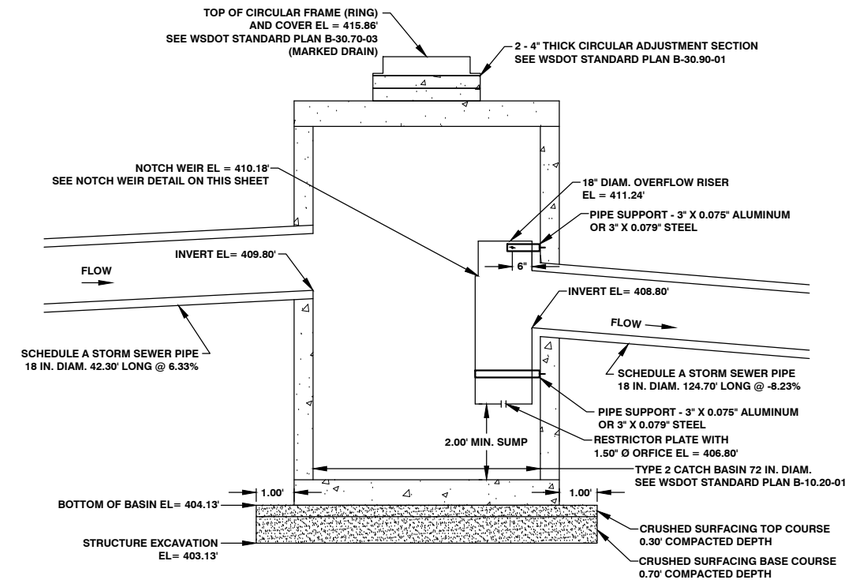
1. STA 77+77.00 LEFT
CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 42.38' LONG
INLET INV. = 407.30 (STA 77+84.03, 54.41' LEFT)
@ OUTLET STRUCTURE INV. = 409.80 (STA 77+70.00, 14.50' LEFT)

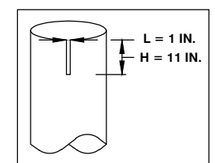
2. STA 77+70.00 14.50' LEFT
(DISTANCE MEASURED TO CENTER OF STRUCTURE)
CONSTRUCT OUTLET STRUCTURE
CATCH BASIN TYPE 2 72 IN. DIAM., WITH FLOW RESTRICTOR
STA 77+72.00 14.50' LEFT
(DISTANCE MEASURED TO CENTER OF CIRCULAR COVER)
TOP OF CIRCULAR COVER FINISH EL. = 415.86
SEE DETAIL CATCH BASIN TYPE 2 - 72" DIAM ON THIS SHEET

3. STA 77+15.00 RIGHT
CONSTRUCT SCHEDULE A STORM SEWER PIPE 18" DIAM., 125.11' LONG
@ OUTLET STRUCTURE INV. = 408.80 (STA 77+70.00, 14.50' LEFT)
OUTLET INV. = 398.70 (STA 76+60.22, 44.65' RIGHT)

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS





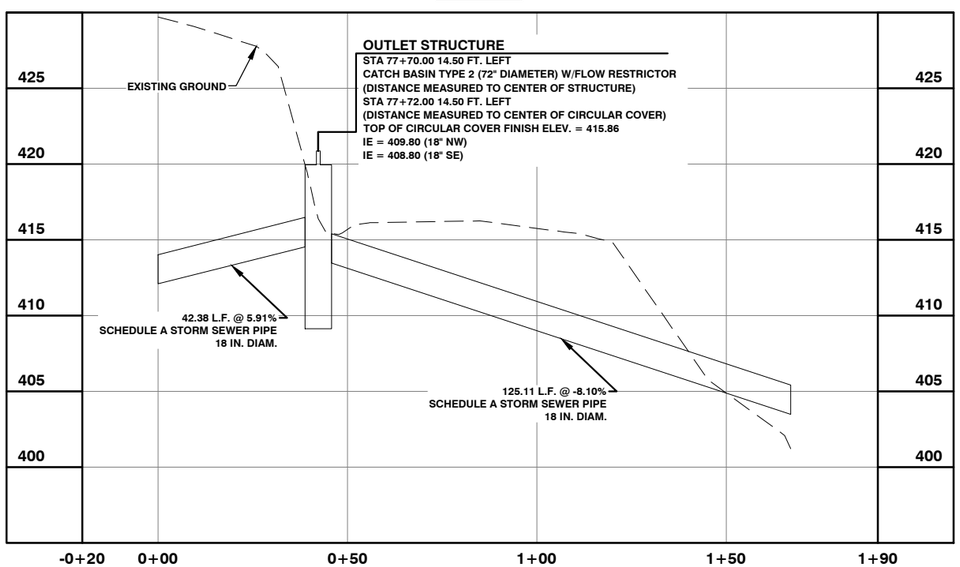
WEIR NOTCH DETAIL

NOTES:

1. THE PIPE SUPPORTS SHALL BE ANCHORED AT A MAXIMUM SPACING OF 36". ATTACH THE PIPE SUPPORTS TO THE MANHOLE WITH 5/8" STAINLESS STEEL EXPANSION BOLTS OR EMBED THE SUPPORTS INTO THE MANHOLE.
2. THE FLOW RESTRICTOR SHALL BE FABRICATED FROM ONE OF THE FOLLOWING MATERIALS:
   0.060" CORRUGATED ALUMINUM ALLOY DRAIN PIPE
   0.064" CORRUGATED GALVANIZED STEEL DRAIN PIPE WITH TREATMENT 1
   0.064" CORRUGATED ALUMINIZED STEEL DRAIN PIPE
   0.060" ALUMINUM ALLOY FLAT SHEET , IN ACCORDANCE WITH ASTM B 209, 5052 H32 OR EPS HIGH DENSITY POLYETHYLENE STORM SEWER PIPE
3. THE FRAME AND LADDER OR STEPS ARE TO BE OFFSET SO THAT THE CLIMB-DOWN SPACE IS CLEAR OF THE RISER.
4. THE RESTRICTOR PLATE WITH ORIFICE SHALL BE CUT ROUND AND SMOOTH.

CATCH BASIN TYPE 2 - 72" DIAM.
WITH FLOW RESTRICTOR DETAIL
NOT TO SCALE

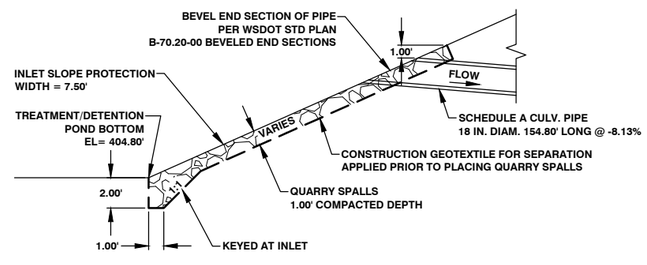
POND OUTLET DRAINAGE SYSTEM
PLAN VIEW



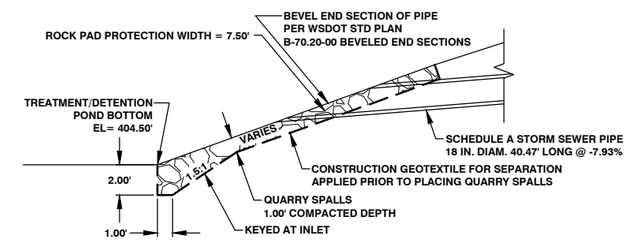
Structure Excavation Class B Incl. Haul	215.00 C.Y.
Select Borrow Incl. Haul	230.00 TON
Shoring or Extra Excavation Class B	1355.00 S.F.

POND OUTLET DRAINAGE SYSTEM
PROFILE VIEW

ALL DRAINAGE STRUCTURES
LEVELING PAD
CRUSHED SURFACING TOP COURSE
0.30' COMPACTED DEPTH
CRUSHED SURFACING BASE COURSE
0.70' COMPACTED DEPTH



INLET SLOPE PROTECTION DETAIL
NOT TO SCALE



OUTLET ROCK DISPERSAL PAD DETAIL
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

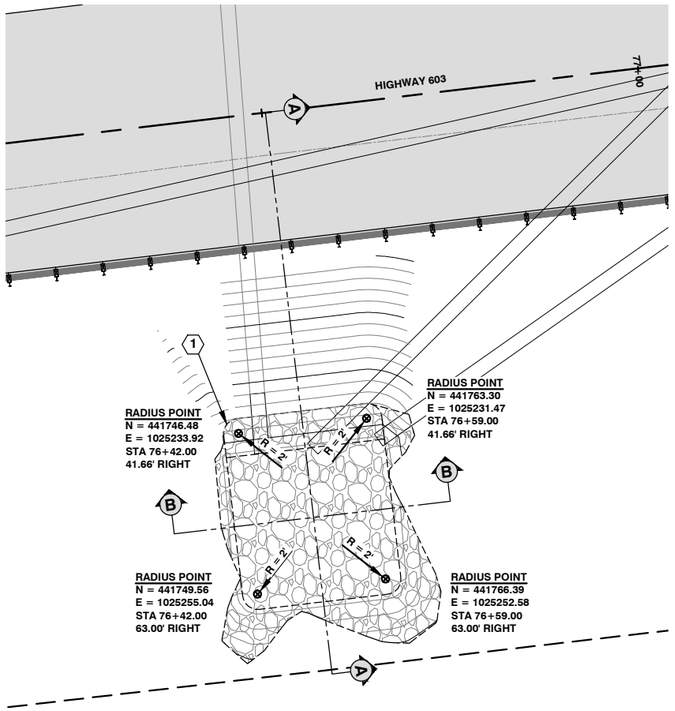
STORMWATER TREATMENT/DETENTION
POND 5
CONSTRUCTION DETAILS

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

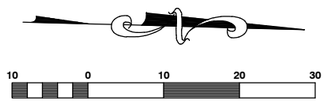
TWP. 12N. RGE. 2W. W.M.



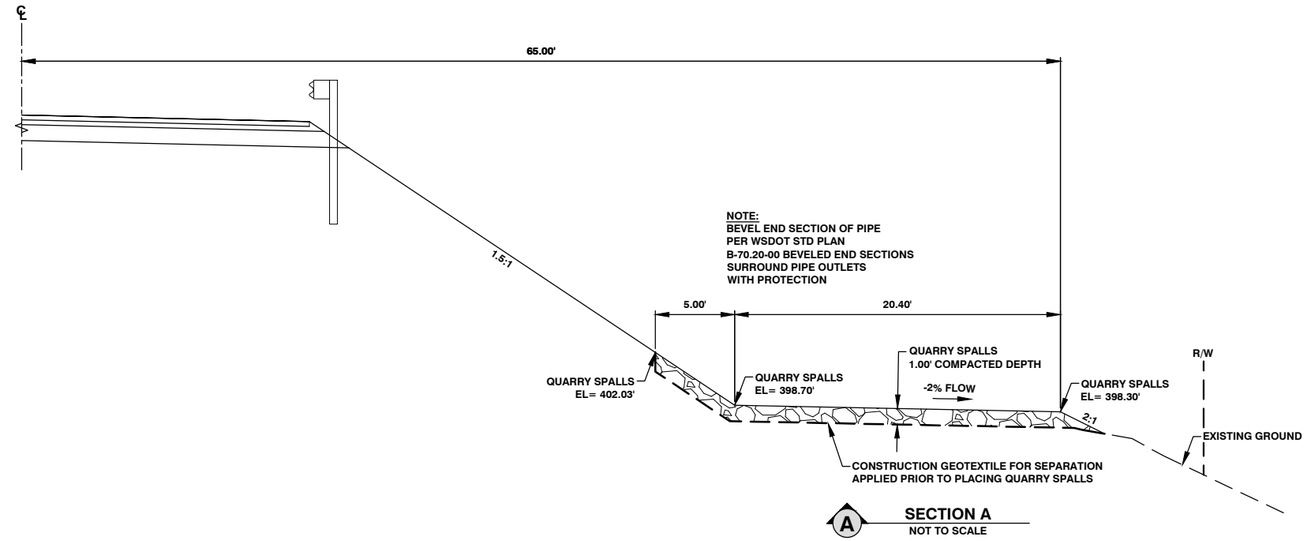
PLAN VIEW

CONSTRUCTION NOTES

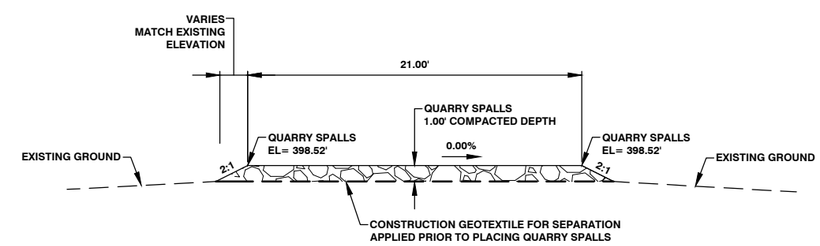
1. STA 76+50.50 LEFT
CONSTRUCT QUARRY SPALLS OUTLET DISPERSAL PAD
55.00 C.Y. STRUCTURE EXCAVATION CLASS B INCL. HAUL
100.00 S.Y. CONSTRUCTION GEOTEXTILE FOR SEPARATION
35.00 TON QUARRY SPALLS



HORIZONTAL: 1" = 10'
SCALE IS FOR FULL SIZE SHEETS



A SECTION A
NOT TO SCALE



B SECTION B
NOT TO SCALE

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : GJK
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

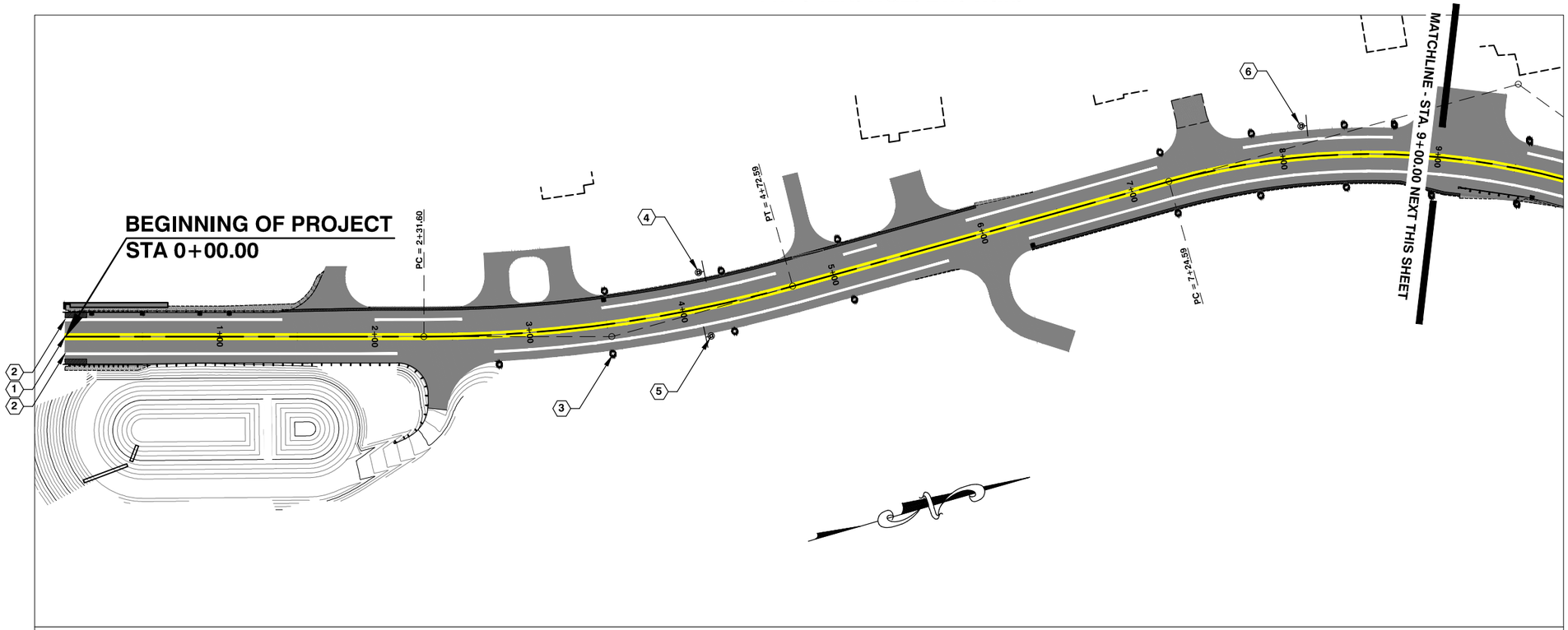
STA 76+50.50 LEFT
OUTLET ROCK PAD DETAIL

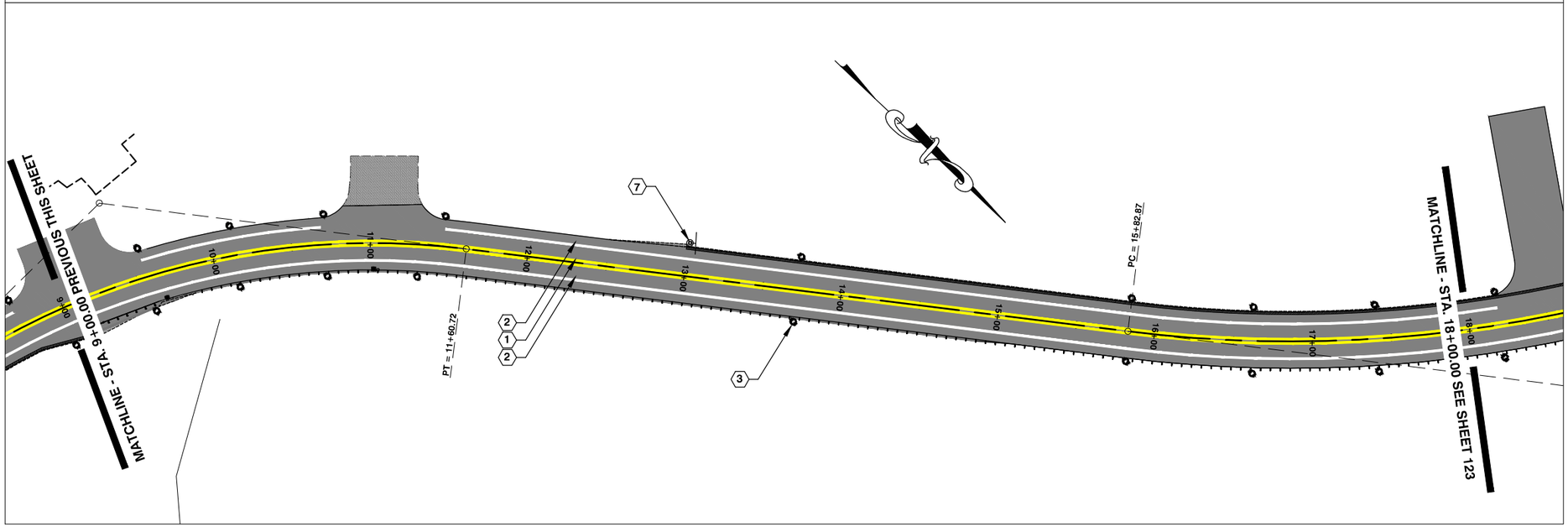
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.





CONSTRUCTION NOTES

1. DOUBLE YELLOW CENTER LINE PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
2. EDGE LINE WHITE PER WSDOT STD PLAN M-20.10-02 15,787 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
3. PLACE FLEXIBLE GUIDEPOSTS PER WSDOT STD PLAN M-40.10-02 AND M-40.30-00 130 TOTAL FOR PROJECT AS STAKED BY THE ENGINEER
4. STA 4+15.00 LT PLACE SPEED LIMIT SIGN R2-1 25 MPH 36"X30" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
5. STA 4+15.00 RT PLACE SPEED LIMIT SIGN R2-1 35 MPH 36"X30" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
6. STA 8+15.00 LT PLACE SPEED REDUCTION SIGN W3-5 25 MPH 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
7. STA 13+00.00 LT PLACE SCHOOL BUS STOP AHEAD SIGN S3-1 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

LEGEND

- DOUBLE YELLOW CENTER LINE
- EDGE LINE WHITE
- NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW
- SKIP CENTER LINE YELLOW
- FLEXIBLE GUIDEPOSTS
- SIGN

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

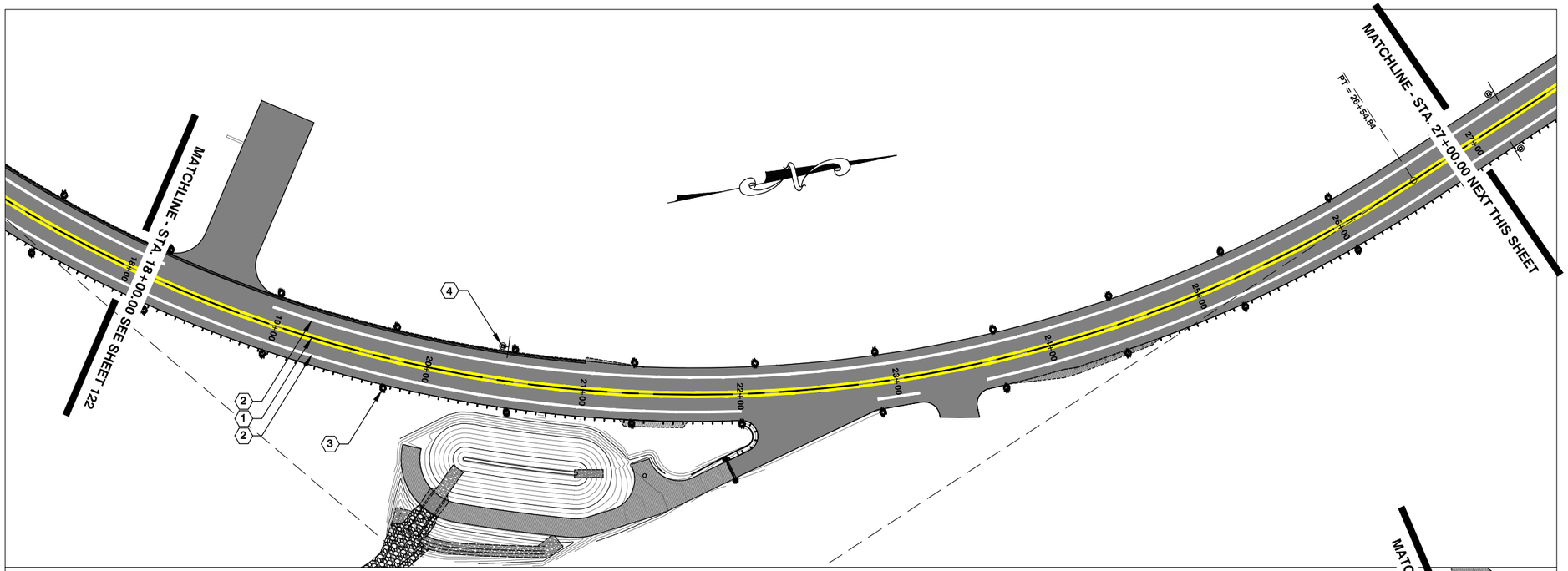
STRIPING PLAN
STA 0+00.00 TO STA 18+00.00

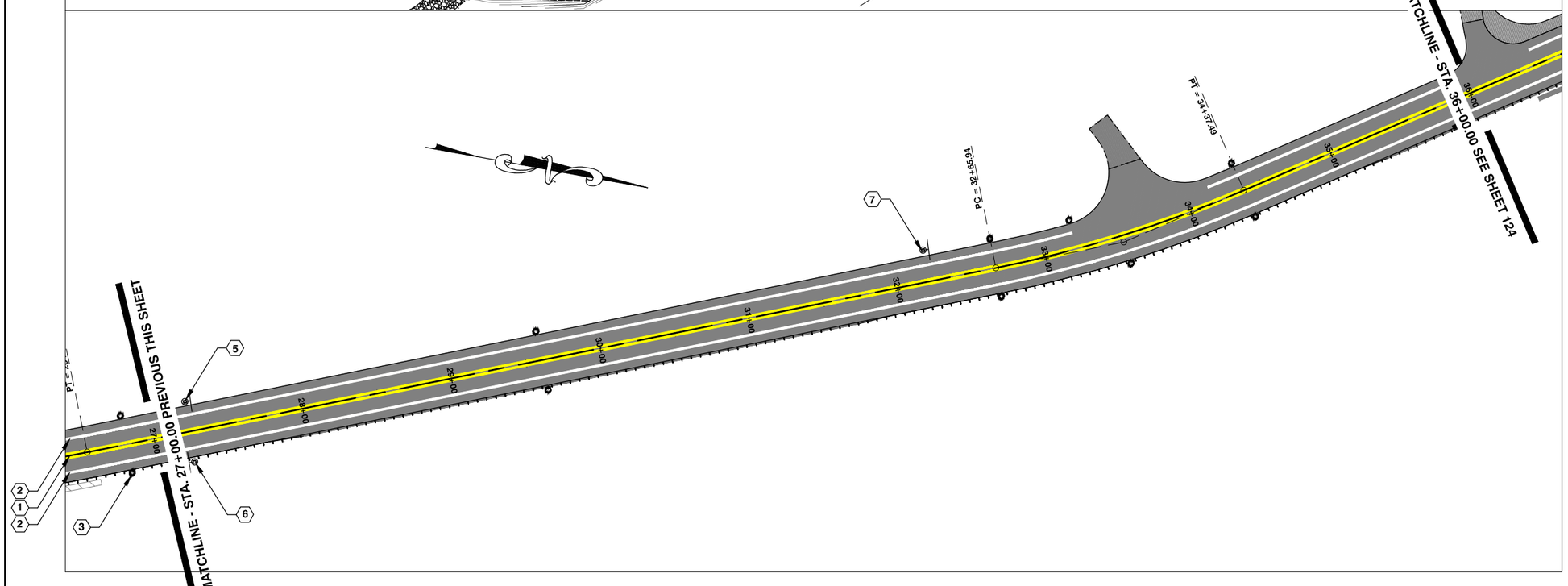
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.





CONSTRUCTION NOTES

1. DOUBLE YELLOW CENTER LINE PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
2. EDGE LINE WHITE PER WSDOT STD PLAN M-20.10-02 15,787 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
3. PLACE FLEXIBLE GUIDEPOSTS PER WSDOT STD PLAN M-40.10-02 AND M-40.30-00 130 TOTAL FOR PROJECT AS STAKED BY THE ENGINEER
4. STA 20+45.00 LT PLACE MILE 13 SIGN D10-1 PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
5. STA 27+25.00 LT PLACE SPEED LIMIT SIGN R2-1 35 MPH 36"X30" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
6. STA 27+25.00 RT PLACE SPEED SIGN R2-1 50 MPH 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
7. STA 32+25.00 LT PLACE SPEED REDUCTION SIGN W3-5 35 MPH 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

LEGEND

- DOUBLE YELLOW CENTER LINE
- EDGE LINE WHITE
- NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW
- SKIP CENTER LINE YELLOW
- FLEXIBLE GUIDEPOSTS
- SIGN

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRIPING PLAN
STA 18+00.00 TO STA 36+00.00

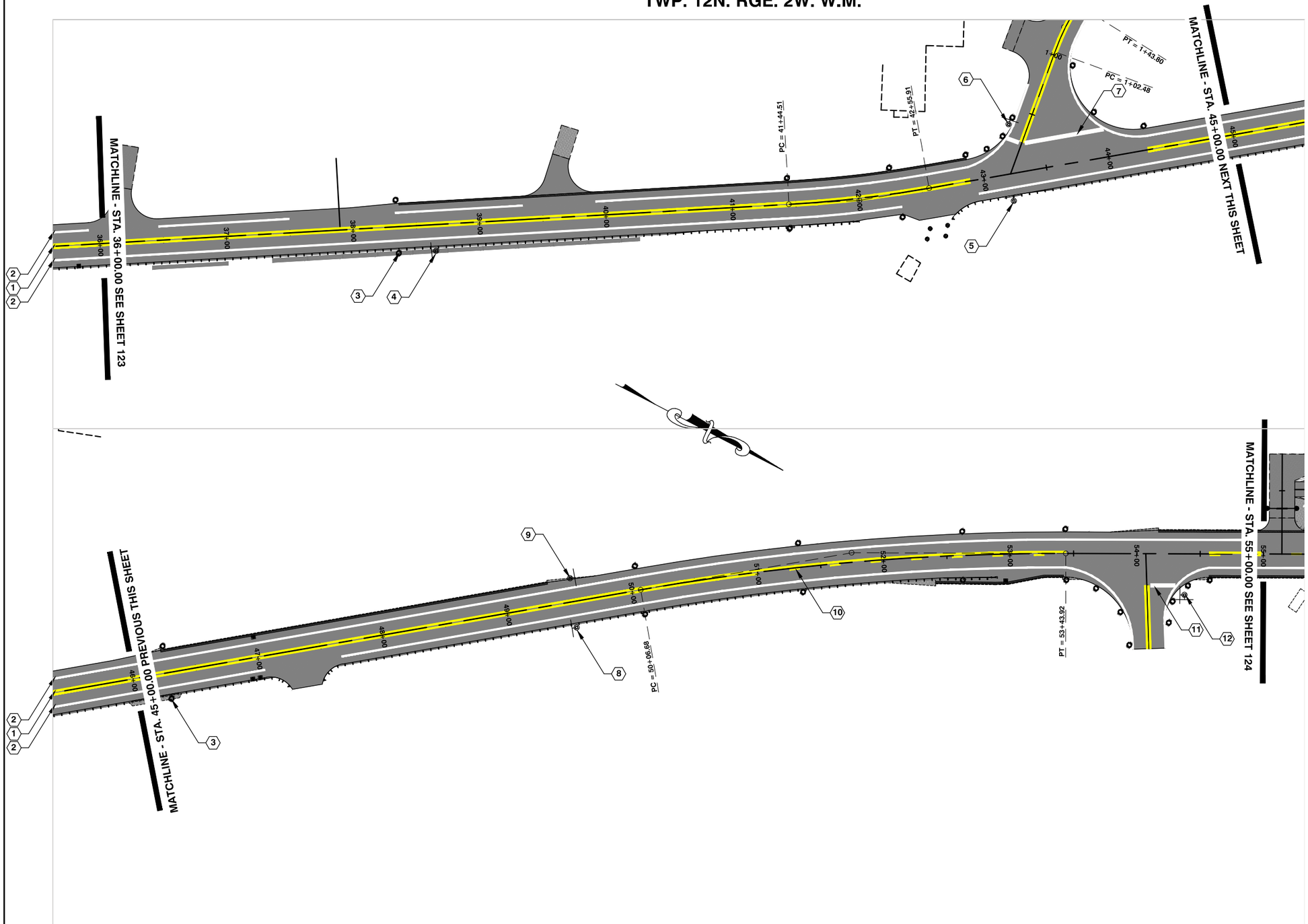
CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

TWP. 12N. RGE. 2W. W.M.



CONSTRUCTION NOTES

1. CENTER LINE DOUBLE YELLOW PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
2. EDGE LINE WHITE PER WSDOT STD PLAN M-20.10-02 15,787 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
3. PLACE FLEXIBLE GUIDEPOSTS PER WSDOT STD PLAN M-40.10-02 AND M-40.30-00 130 TOTAL FOR PROJECT AS STAKED BY THE ENGINEER
4. STA 38+50.00 RT PLACE STREET NAME SIGN D3-102 12" (YELLOW AND BLACK) AND SIDE ROAD SYMBOL SIGN W2-2 35 (YELLOW AND BLACK) 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
5. STA 43+25.00 RT PLACE TWO STREET NAME SIGNS D3-102 12" (GREEN AND WHITE) AND LARGE ARROW (TWO HEADS) W1-7 48" X 24" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
6. STA 00+35.00 LT (NELSON RD ALIGNMENT) PLACE STOP SIGN R1-1 36" PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
7. STA 00+25.00 (NELSON RD ALIGNMENT) PLACE STOP LINE 75' PER WSDOT STD PLAN M-24.60-03 60 L.F. (MUST BE THERMO PLASTIC)
8. STA 49+50.00 RT PLACE STREET NAME SIGN W10-3 36" AND SIDE ROAD SYMBOL SIGN W2-2 35 (YELLOW AND BLACK) PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
9. STA 49+50.00 LT PLACE STREET NAME SIGN D3-102 12" (YELLOW AND BLACK) AND SIDE ROAD SYMBOL SIGN W2-2 35 (YELLOW AND BLACK) PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
10. NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW PER WSDOT STD PLAN M-20.10-02 1136 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
11. STA 00+25.00 (HAWKINS RD ALIGNMENT) PLACE STOP LINE 20' PER WSDOT STD PLAN M-24.60-03 60 L.F. (MUST BE THERMO PLASTIC)
12. STA 00+30.00 LT (NELSON RD ALIGNMENT) PLACE STOP SIGN R1-1 36" AND TWO STREET NAME SIGNS D3-102 12" (GREEN AND WHITE)PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.

PART OF THE SW 1/4, SE 1/4 SECTION 21
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

LEGEND

- DOUBLE YELLOW CENTER LINE
- EDGE LINE WHITE
- NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW
- SKIP CENTER LINE YELLOW
- FLEXIBLE GUIDEPOSTS
- SIGN

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

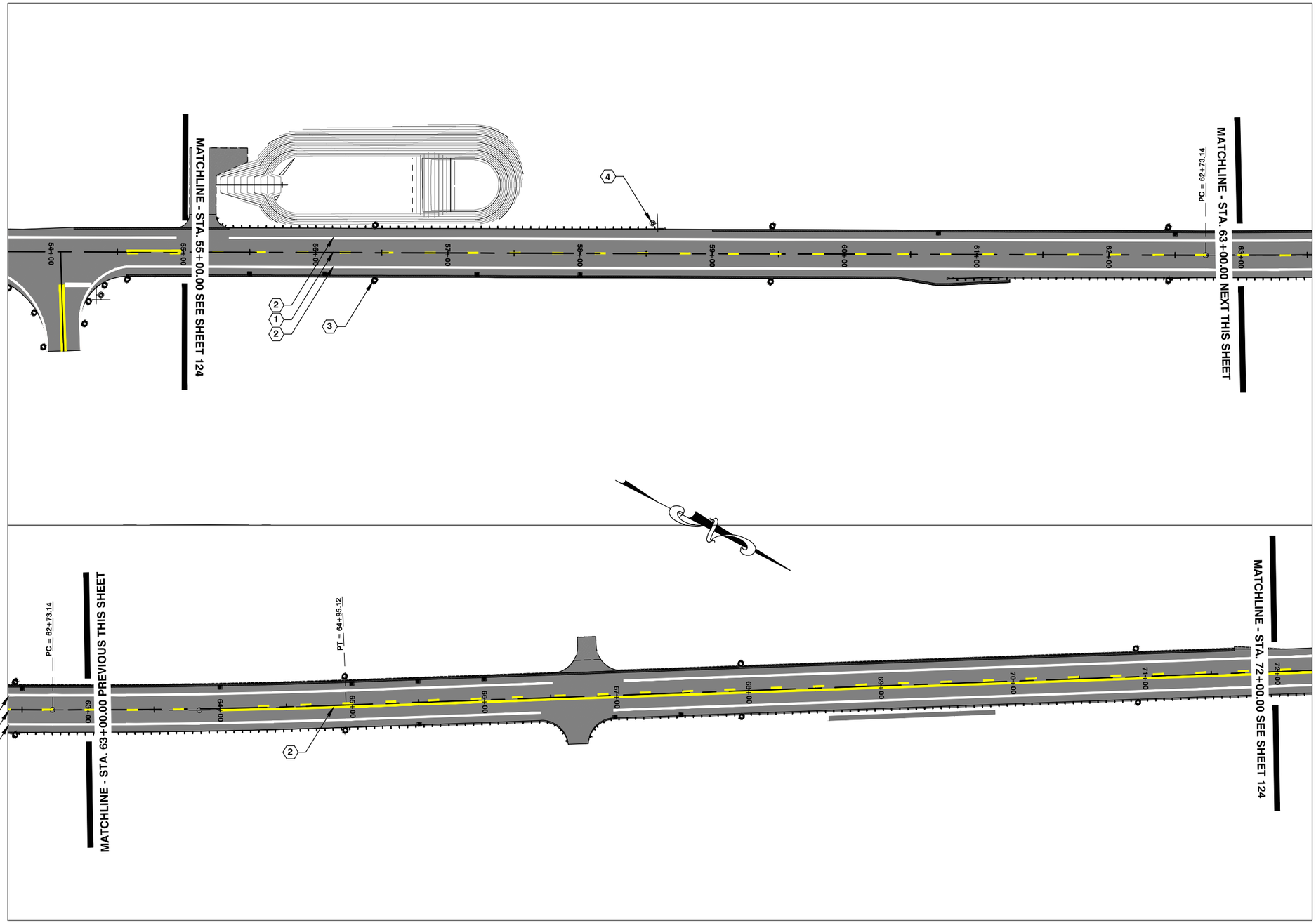
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

STRIPING PLAN
STA 36+00.00 TO STA 55+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER



CONSTRUCTION NOTES

1. SKIP CENTER LINE YELLOW PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
2. EDGE LINE WHITE PER WSDOT STD PLAN M-20.10-02 15,787 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
3. PLACE FLEXIBLE GUIDEPOSTS PER WSDOT STD PLAN M-40.10-02 AND M-40.30-00 130 TOTAL FOR PROJECT AS STAKED BY THE ENGINEER
4. STA 58+50.00 LT PLACE STREET NAME SIGN W10-3 36" AND SIDE ROAD SYMBOL SIGN W2-2 35 (YELLOW AND BLACK) PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.
5. NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW PER WSDOT STD PLAN M-20.10-02 1136 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

LEGEND

- DOUBLE YELLOW CENTER LINE
- EDGE LINE WHITE
- NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW
- SKIP CENTER LINE YELLOW
- FLEXIBLE GUIDEPOSTS
- SIGN

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

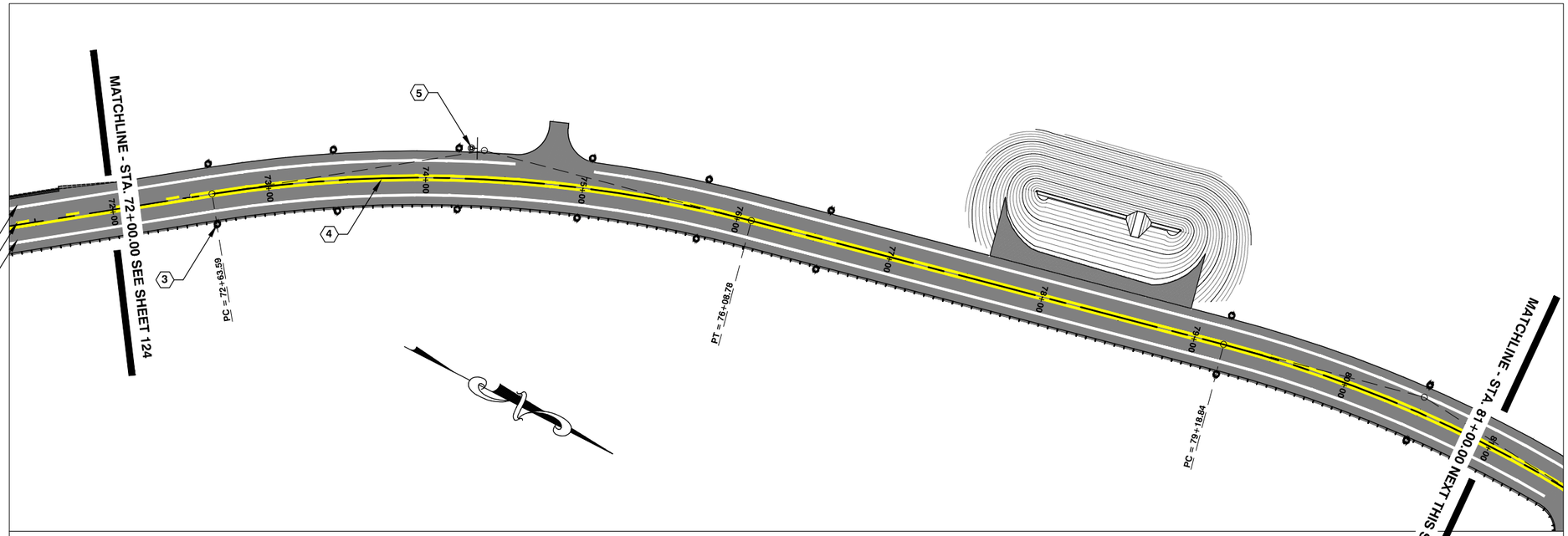
RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

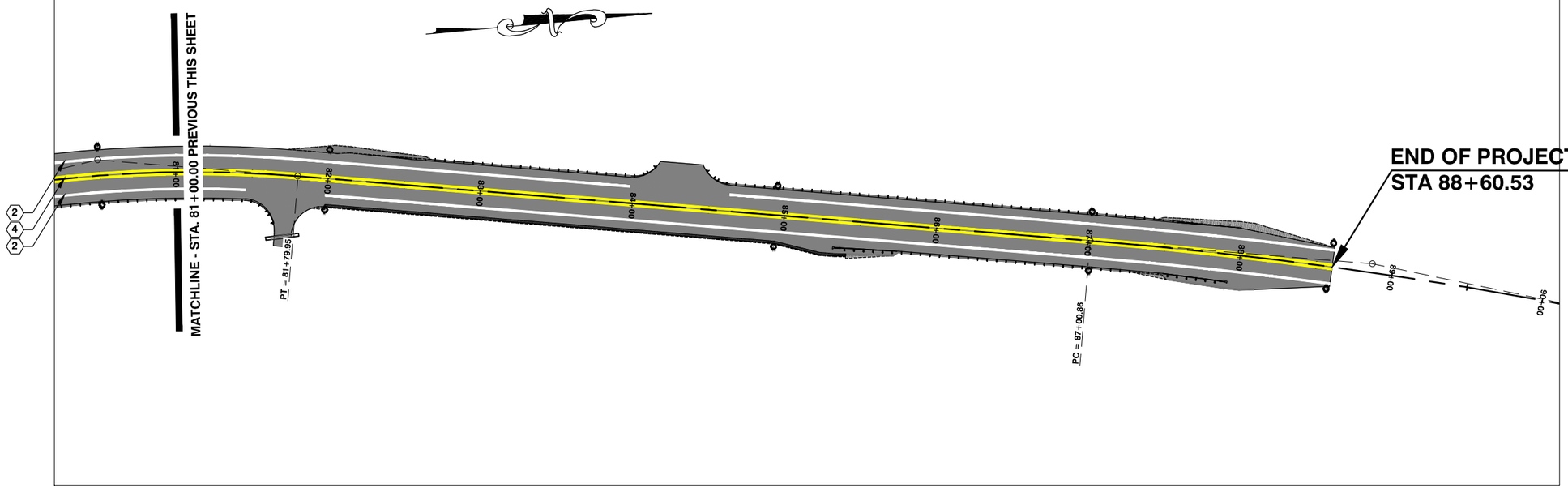
STRIPING PLAN
STA 55+00.00 TO STA 72+00.00

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER





CONSTRUCTION NOTES

1. NO PASS LINE & TWO-WAY LEFT TURN CENTER LINE YELLOW PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
2. EDGE LINE WHITE PER WSDOT STD PLAN M-20.10-02 15,787 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
3. PLACE FLEXIBLE GUIDEPOSTS PER WSDOT STD PLAN M-40.10-02 AND M-40.30-00 130 TOTAL FOR PROJECT AS STAKED BY THE ENGINEER
4. DOUBLE YELLOW CENTER LINE PER WSDOT STD PLAN M-20.10-02 6815 L.F. TOTAL FOR PROJECT INTERMITTENT AS STAKED BY THE ENGINEER
5. STA 74+27.00 LT PLACE MILE 12 SIGN D10-1 PER WSDOT SIGN MANUAL. USE STEEL SIGN SUPPORT PER WSDOT PLAN G-24.50-02. USE 2 1/2" PSST WITH 2 1/4" INSERT. SEE WSDOT STANDARD PLAN G-20.10-00 FOR PLACEMENT.

PART OF THE NW 1/4, NE 1/4 SECTION 28
TWP. 12N. RGE. 2W. W.M.

20 0 20 40 60

HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'
SCALE IS FOR FULL SIZE SHEETS

LEGEND

- DOUBLE YELLOW CENTER LINE
- EDGE LINE WHITE
- NO PASS LINE & TWO WAY LEFT TURN CENTER LINE YELLOW
- SKIP CENTER LINE YELLOW
- FLEXIBLE GUIDEPOSTS
- SIGN

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

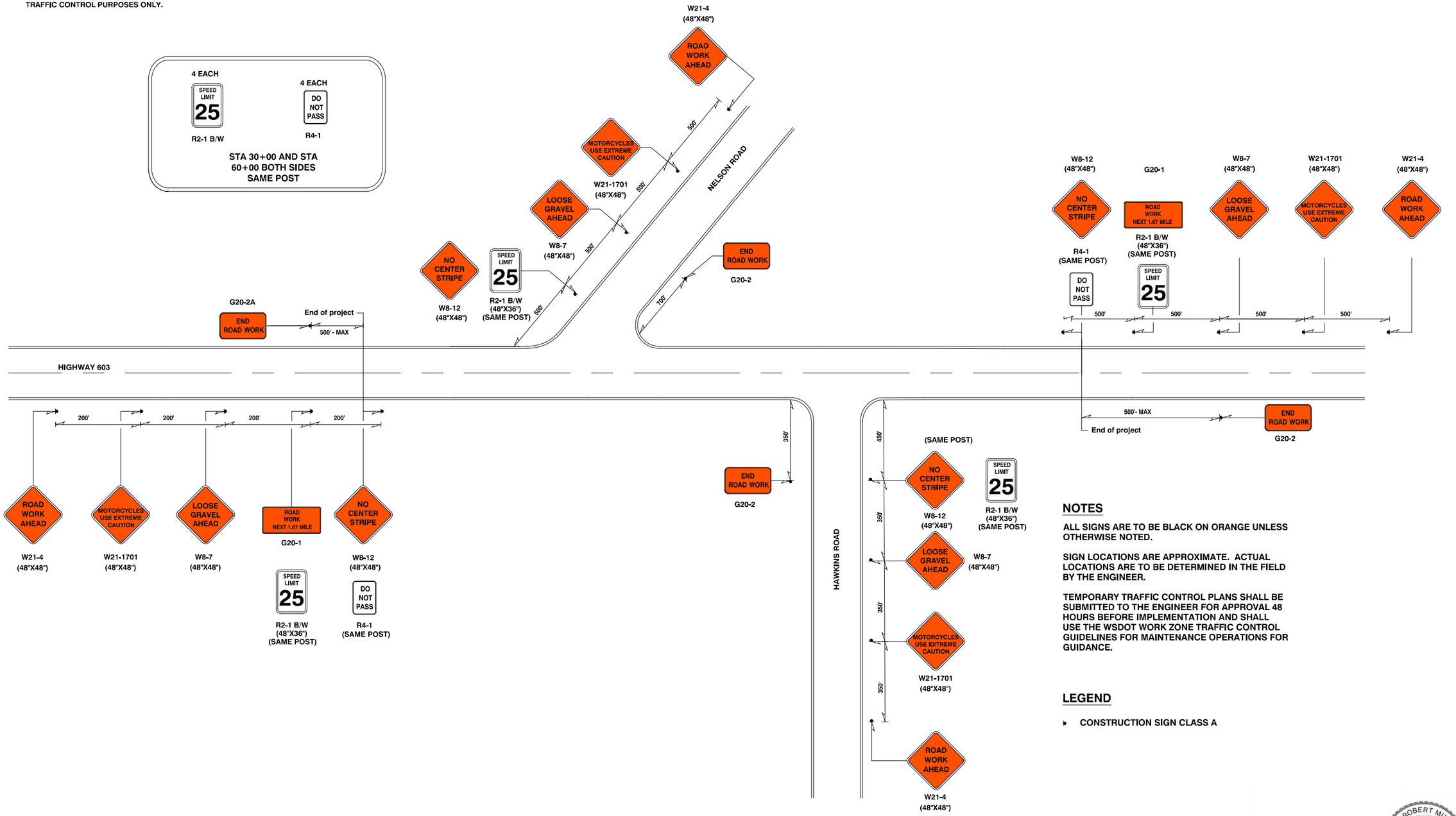
STRIPING PLAN
STA 72+00.00 TO STA 88+60.53

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design
Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED PROFESSIONAL ENGINEER

THIS DRAWING IS ACCURATE FOR
TRAFFIC CONTROL PURPOSES ONLY.



NOTES

ALL SIGNS ARE TO BE BLACK ON ORANGE UNLESS OTHERWISE NOTED.

SIGN LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS ARE TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

TEMPORARY TRAFFIC CONTROL PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL 48 HOURS BEFORE IMPLEMENTATION AND SHALL USE THE WSDOT WORK ZONE TRAFFIC CONTROL GUIDELINES FOR MAINTENANCE OPERATIONS FOR GUIDANCE.

LEGEND

- CONSTRUCTION SIGN CLASS A

Lewis County
Department of Public Works
2025 N. E. KRESKY AVE.
CHEHALIS WA 98532
PHONE # (360) 740-1123
FAX # (360) 740-2719

DESIGNED BY : KRM
DRAWN BY : KRM
CHECKED BY :
DATE :

NO.	DATE	REVISION	BY	APP.

HIGHWAY 603 STABILIZATION PROJECT

RAP PROJECT NO: 2108-01
COUNTY ROAD PROJECT NO: 2144

TEMPORARY
TRAFFIC CONTROL PLAN

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
Utilities Underground Location Center

Keith Robert Muggoch, P.E.
Senior Engineer
Design

Date: 3/14/16

KEITH ROBERT MUGGOCH
STATE OF WASHINGTON
#36208
REGISTERED
PROFESSIONAL ENGINEER