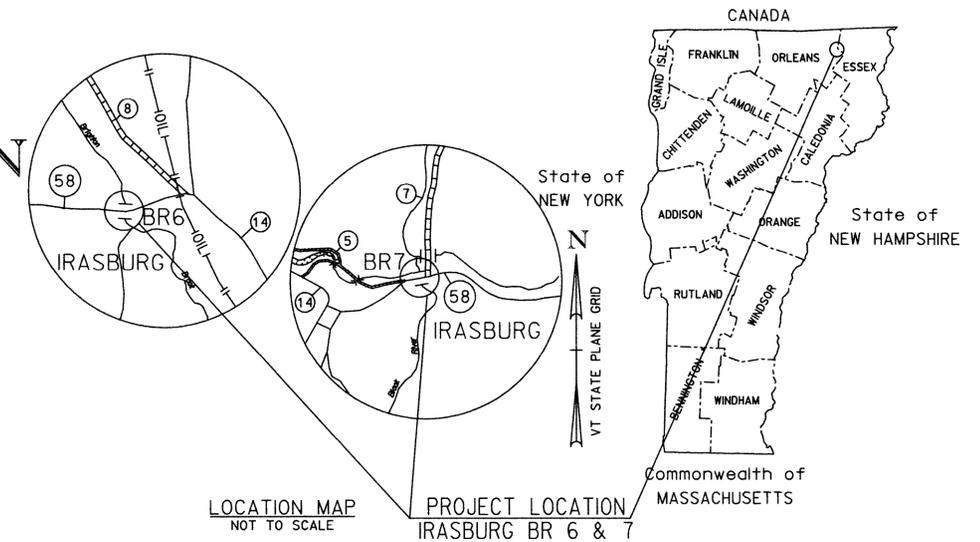


STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT TOWN OF IRASBURG COUNTY OF ORLEANS VT ROUTE 58 (MAJOR COLLECTOR) BRIDGE NUMBERS 6 AND 7



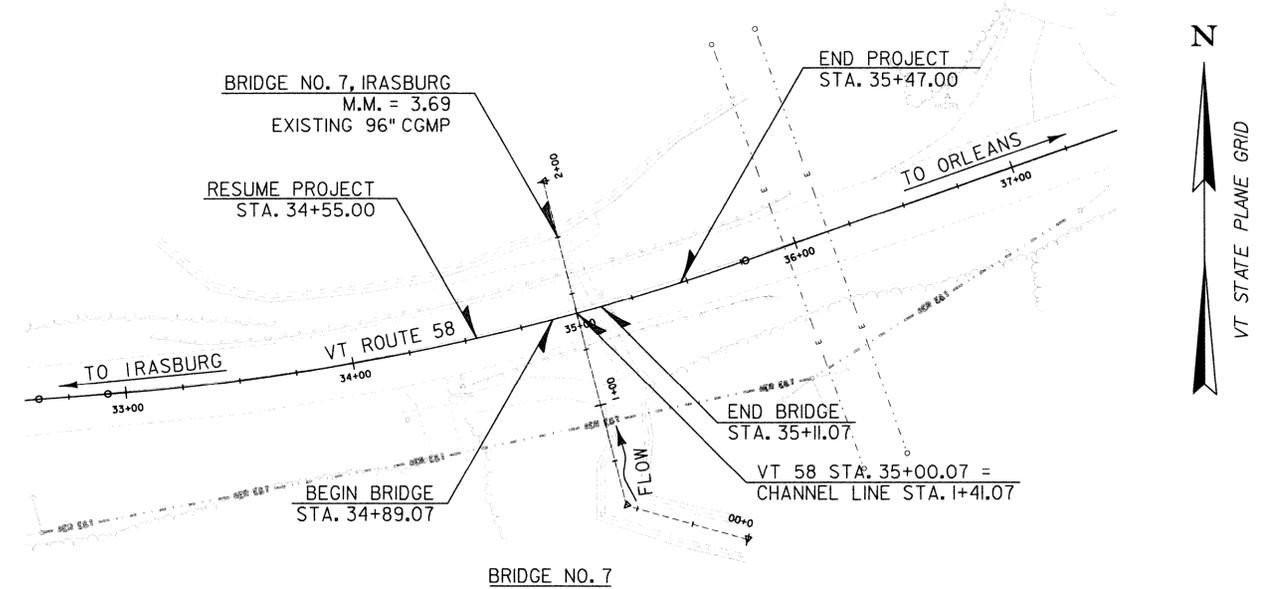
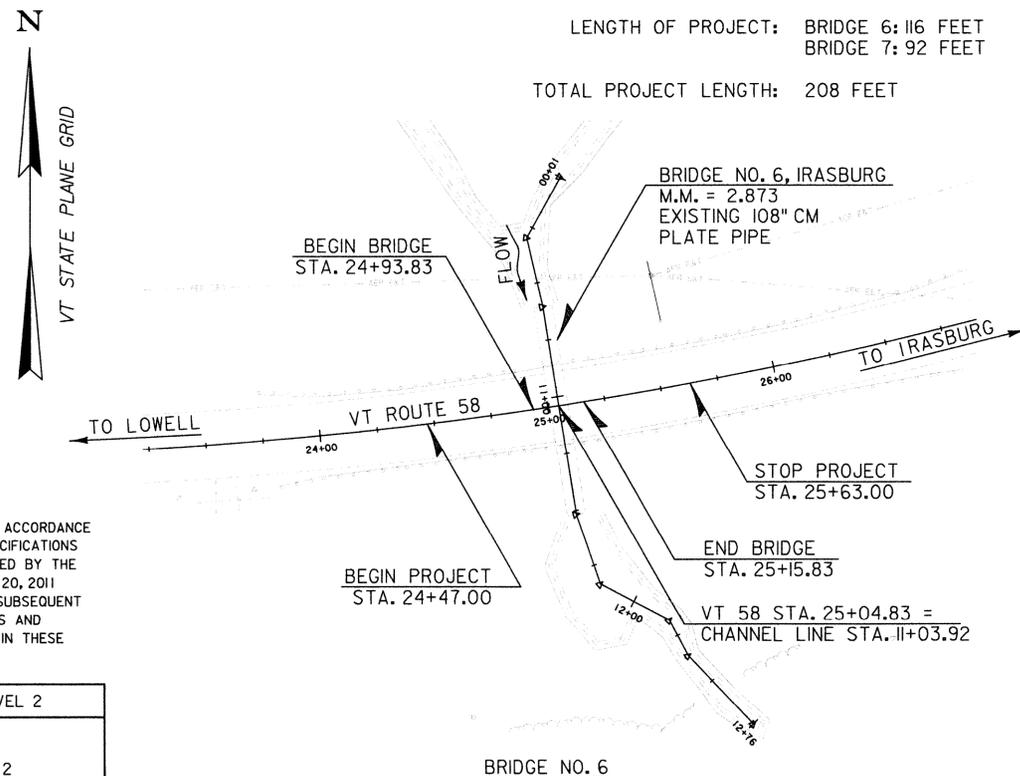
PROJECT LOCATION: BRIDGE NO. 6 IS LOCATED ON VERMONT ROUTE 58, 0.3 MILES WEST OF THE JUNCTION WITH VERMONT ROUTE 14.

BRIDGE NO. 7 IS LOCATED ON VERMONT ROUTE 58, 0.5 MILES EAST OF THE JUNCTION WITH VERMONT ROUTE 14.

PROJECT DESCRIPTION: REPLACEMENT OF EXISTING CORRUGATED STEEL CULVERTS WITH PRECAST CONCRETE STRUCTURES ALONG WITH RELATED ROADWAY AND CHANNEL WORK.

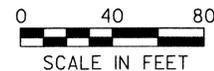
LENGTH OF PROJECT: BRIDGE 6: 116 FEET
BRIDGE 7: 92 FEET

TOTAL PROJECT LENGTH: 208 FEET



CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	VTRANS
SURVEYED DATE :	FEBRUARY 2012
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (07)



Stantec

Stantec Consulting Services Inc.

55 Green Mountain Drive
South Burlington VT U.S.A. 05403
Phone: (802) 864-0223
Fax: (802) 864-0165
www.stantec.com

DIRECTOR OF PROJECT DELIVERY	
APPROVED _____	DATE _____
PROJECT MANAGER : MARK SARGENT P. E.	
PROJECT NAME :	IRASBURG
PROJECT NUMBER :	STP CULV (30)
SHEET 1 OF 55 SHEETS	

INDEX OF SHEETS

FINAL HYDRAULIC REPORT - BRIDGE NO. 6

PLAN SHEETS

STANDARDS LIST

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3	PRELIMINARY INFORMATION SHEET I - BR7
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11	CONVENTIONAL SYMBOLOLOGY LEGEND
12	TYPICAL SECTIONS - BR6
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54	ROW DETAIL SHEET SHEET #1
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E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03/16/04
E-171A	TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS	08/09/95
E-172	VEHICLE LOOP DETAILS	08/09/95
E-191	PAVEMENT MARKING DETAILS	02/01/99
E-192	PAVEMENT MARKING DETAILS	10/12/00
E-193	PAVEMENT MARKING DETAILS	08/18/95
G-1	STEEL BEAM GUARDRAIL DETAIL (POST, DELINEATOR, TYPICALS)	02/10/14
G-19	GENERIC PLANS FOR GUARDRAIL END TERMINALS	11/15/02
G-10	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	02/10/14
T-1	TRAFFIC CONTROL GENERAL NOTES	08/06/12
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08/06/12
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T-31	CONSTRUCTION SIGN DETAILS	08/06/12
T-35	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS	08/06/12
T-36	CONSTRUCTION ZONE LONGITUDINAL DROP-OFFS FOR PAVING	08/06/12
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01/02/13

STRUCTURE DETAIL SHEETS

SD-366.00 LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED 01/03/14

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2013	1700	190	51	8.4	190
2023	1800	200	51	10.6	250

10 year ESAL for flexible pavement from 2013 to 2023 : 715,000
 20 year ESAL for flexible pavement from 2013 to 2033 : 1,781,000
 Design Speed : 50 mph

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

HYDROLOGIC DATA

Date: 7 January 2014

DRAINAGE AREA : 3.55 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous; 45% woods, 55% meadow, small ponds
 STREAM CHARACTERISTICS : Perennial, sinuous, moderate slope
 NATURE OF STREAMBED : Silty sand; scour susceptible

PEAK FLOW DATA

Q 2.33 =	160 cfs	Q 50 =	650 cfs
Q 10 =	380 cfs	Q 100 =	790 cfs
Q 25 =	520 cfs	Q 500 =	1110 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 = 13.2 fps
 ICE CONDITIONS : Light
 DEBRIS : Light
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? No
 IF YES, DESCRIBE:

WATERSHED STORAGE : <1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE:

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 8' diameter multi-plate pipe (CGMP)
 YEAR BUILT : 1965
 CLEAR SPAN(NORMAL TO STREAM) : 9.0'
 VERTICAL CLEARANCE ABOVE STREAMBED : 9.0'
 WATERWAY OF FULL OPENING : 63.6 sq. ft.
 DISPOSITION OF STRUCTURE : Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE : See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 =	842.1'	VELOCITY =	8.5 fps
Q10 =	845.2'	"	11.1 fps
Q25 =	847.0'	"	12.4 fps
Q50 =	848.7'	"	13.6 fps
Q100 =	851.2'	"	15.0 fps

LONG TERM STREAMBED CHANGES : None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 855.1'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 2336'
 HIGHWAY #: TH26 STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE:

DOWNSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 360'
 HIGHWAY #: STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: Confluence w/ Stony Hill Brook

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box Culvert
 CLEAR SPAN(NORMAL TO STREAM): 20.0'
 VERTICAL CLEARANCE ABOVE STREAMBED: 6.0'
 WATERWAY OF FULL OPENING: 120 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	839.1'	VELOCITY=	4.8 fps
Q10 =	840.8'	"	6.8 fps
Q25 =	841.7'	"	7.8 fps
Q50 =	842.4'	"	8.6 fps
Q100 =	843.2'	"	9.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 855.1'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 842.6'
 VERTICAL CLEARANCE: @ Q50 = 0.2'

SCOUR: Replacement structure is a box culvert so scour is not a concern.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 7.5 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 4.0 cfs Depth = 0.5'
 ORDINARY HIGH WATER: 110 cfs Depth = 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Temporary Bridge not Required
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC.
2. TRAFFIC SIGNALS ARE NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. DESIGN SPAN	L: 20.0 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : ---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : 3.5 KSI
11. CONCRETE, CLASS C	f' _c : ---
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : ---
14. SOIL UNIT WEIGHT	γ: 0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : 4.3 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L _p : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S _s : ---

PROJECT NAME: IRASBURG

PROJECT NUMBER: STP CULV(30)

FILE NAME: z_irasburg_br6_pi.xls PLOT DATE: 3/25/2014
 PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
 DESIGNED BY: A. LACHANCE CHECKED BY: J. HUNGERFORD
 PRELIMINARY INFORMATION SHEET - BR6 SHEET 2 OF 55

INDEX OF SHEETS

FINAL HYDRAULIC REPORT - BRIDGE NO. 7

PLAN SHEETS

STANDARDS LIST

HYDROLOGIC DATA

Date: 7 January 2014

DRAINAGE AREA : 2.03 sq. mi.
 CHARACTER OF TERRAIN : Hilly to mountainous; forested with some clearings; small pond
 STREAM CHARACTERISTICS : Moderate slope, perennial, sinuous
 NATURE OF STREAMBED : Gravelly sand; scour susceptible

PEAK FLOW DATA

Q 2.33 = 100 cfs Q 50 = 380 cfs
 Q 10 = 230 cfs Q 100 = 450 cfs
 Q 25 = 300 Q 500 = 675 cfs

DATE OF FLOOD OF RECORD : Unknown
 ESTIMATED DISCHARGE : Unknown
 WATER SURFACE ELEV. : Unknown
 NATURAL STREAM VELOCITY : @ Q50 (without tailwater) = 8.0 cfs
 ICE CONDITIONS : Light
 DEBRIS : Moderate
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
 IS ORDINARY RISE RAPID? No
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
 IF YES, DESCRIBE : The tailwater of the adjacent downstream Black River creates an outlet control condition in the subject culvert.

WATERSHED STORAGE : <1% HEADWATERS :
 UNIFORM : X
 IMMEDIATELY ABOVE SITE :

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE : 8' diameter multi-plate pipe (CGMP)
 YEAR BUILT : 1923
 CLEAR SPAN(NORMAL TO STREAM): 8.0'
 VERTICAL CLEARANCE ABOVE STREAMBED: 8.0'
 WATERWAY OF FULL OPENING: 50.2 sq. ft.
 DISPOSITION OF STRUCTURE: Remove and replace
 TYPE OF MATERIAL UNDER SUBSTRUCTURE: See borings

WATER SURFACE ELEVATIONS AT:

Q2.33 = 797.4' VELOCITY = 12.4 fps
 Q10 = 799.8' " 15.2 fps
 Q25 = 800.9' " 16.1 fps
 Q50 = 802.2' " 17.0 fps
 Q100 = 803.2' " 17.7 fps

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 803.7'
 DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 6800'
 HIGHWAY # : TH 4 STRUCTURE #: BR 12
 CLEAR SPAN: 3.0' CLEAR HEIGHT: 3.0'
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: (2) 3' Dia. pipes

DOWNSTREAM STRUCTURE

TOWN: Irasburg DISTANCE: 100'
 HIGHWAY # : STRUCTURE #:
 CLEAR SPAN: CLEAR HEIGHT:
 YEAR BUILT: FULL WATERWAY:
 STRUCTURE TYPE: Confluence w/ Black River

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A STR.	4A STR.	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY							
POSTING							
OPERATING							
COMMENTS:							

AS BUILT "REBAR" DETAIL		
LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

* SEE GEOTECHNICAL REPORT

PROPOSED STRUCTURE

STRUCTURE TYPE: Precast Concrete Box Culvert
 CLEAR SPAN(NORMAL TO STREAM): 20.0'
 VERTICAL CLEARANCE ABOVE STREAMBED: 7.0'
 WATERWAY OF FULL OPENING: 140 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 = 797.0' VELOCITY= 6.5 fps
 Q10 = 797.1' " 9.0 fps
 Q25 = 797.1' " 10.0 fps
 Q50 = 797.2' " 11.0 fps
 Q100 = 797.4' " 11.7 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
 FREQUENCY: N/A
 RELIEF ELEVATION: 803.9'
 DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 798.70'
 VERTICAL CLEARANCE: @ Q50 = 1.5'

SCOUR: Replacement structure is a box culvert so scour is not a concern.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW: 4.0 cfs DEPTH OR ELEVATION:
 ORDINARY LOW WATER: 2.0 cfs Depth = 0.5'
 ORDINARY HIGH WATER: 60 cfs Depth = 1.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Temporary Bridge not Required
 CLEAR SPAN (NORMAL TO STREAM): N/A
 VERTICAL CLEARANCE ABOVE STREAMBED: N/A
 WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

The Black River tailwater was considered in the hydraulic analyses of the ex./prop. structures by applying a tailwater at elevation 797.0 for all storm events to determine headwater elevations; this represents flood stage elevation for the Black River based on nearby USGS gauging stage information. Normal tailwater depth of flow was used to determine stream velocities.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN ONE-WAY TRAFFIC.
2. TRAFFIC SIGNALS ARE NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _p : 3.0 INCH
3. DESIGN SPAN	L: 20.0 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: ---
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f _y : ---
6. PRESTRESSED CONCRETE STRENGTH	f' _c : ---
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : ---
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f' _c : ---
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _c : ---
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _c : 3.5 KSI
11. CONCRETE, CLASS C	f' _c : ---
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : ---
14. SOIL UNIT WEIGHT	γ: *0.140 KCF
15. NOMINAL BEARING RESISTANCE OF SOIL	q _n : 3.3 KSF
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
17. NOMINAL BEARING RESISTANCE OF ROCK	q _n : ---
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: ---
19. NOMINAL AXIAL PILE RESISTANCE	q _p : ---
20. PILE YIELD STRENGTH ASTM A572	f _y : ---
21. PILE SIZE	---
22. EST. PILE LENGTH	L _p : ---
23. PILE RESISTANCE FACTOR	φ: ---
24. LATERAL PILE DEFLECTION	Δ: ---
25. BASIC WIND SPEED	V _{3s} : ---
26. MINIMUM GROUND SNOW LOAD	p _g : ---
27. SEISMIC DATA	PGA: --- S _s : --- S ₁ : ---

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV (30)

FILE NAME: z_irasburg_br7_pl.xls PLOT DATE: 3/25/2014
 PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
 DESIGNED BY: A. LACHANCE CHECKED BY: J. HUNGERFORD
 PRELIMINARY INFORMATION SHEET - BR7 SHEET 3 OF 55

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	ESAL
2013	2400	270	52	9.7	250	708,000
2023	2500	280	52	11.7	330	1,541,000

10 year ESAL for flexible pavement from 2013 to 2023 : 708,000
 20 year ESAL for flexible pavement from 2013 to 2033 : 1,541,000
 Design Speed : 30 mph

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION AND ITS LATEST REVISIONS AND THE 6TH EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND ITS LATEST REVISIONS.
2. THE CONTRACTOR SHALL ENSURE ACCESS TO ALL DRIVES AND SIDE ROADS AT ALL TIMES DURING CONSTRUCTION.
3. ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68°F.
4. IN-STREAM CONSTRUCTION SHALL OCCUR ONLY WITHIN THE TIMEFRAME SPECIFIED IN THE PROJECT PERMITS INCLUDED IN THE CONTRACT DOCUMENTS. IF THE CONTRACTOR PROPOSES TO PERFORM IN STREAM WORK OUTSIDE OF THESE TIMEFRAMES, THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE APPROPRIATE REGULATING ENTITIES PRIOR TO PERFORMING THE WORK.

PRECAST CONCRETE BOX CULVERTS AND WINGWALLS

1. THE BOX CULVERT INCLUDING SILLS, HEADWALLS, CUT-OFF WALLS, AND WINGWALLS WILL BE PAID FOR UNDER THE APPROPRIATE SECTION 540 CONTRACT ITEM.
2. THE BOX CULVERT INCLUDING THE SILLS, HEADWALLS AND WINGWALL STEMS SHALL BE PRECAST. THE CUT-OFF-WALL AND WINGWALL FOOTINGS MAY BE EITHER PRECAST OR CAST IN PLACE. THE DESIGN OF THESE CULVERTS SHALL BE THE RESPONSIBILITY OF THE FABRICATOR. CULVERT SHALL BE DESIGNED FOR AN HL-93 LIVE LOAD. CAST-IN-PLACE CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 501 FOR CONCRETE, HIGH PERFORMANCE CLASS B.
3. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR THE BOX CULVERTS AND ALL ASSOCIATED DETAILS IN ACCORDANCE WITH SUBSECTION 105.03.
4. THE BOX CULVERT TYPICAL SECTIONS SHOWN IN THE DRAWINGS ARE FOR SCHEMATIC PURPOSES ONLY. THE ACTUAL SHAPE OF THE BOX CULVERT AND ITS COMPONENTS WILL BE DEPENDENT ON THE FABRICATOR.
5. ALL BOX CULVERT JOINTS SHALL BE STRENGTHENED WITH PERMANENT CLOSURE HARDWARE. ALL HARDWARE COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.
6. ALL REINFORCING TO BE LEVEL 1 (UNCOATED).
7. AFTER BOX CULVERT SECTIONS HAVE BEEN SET IN THEIR FINAL POSITION, THE EXTERIOR (TOP AND SIDES) AND INTERIOR (SIDES AND BOTTOM) OF ALL BOX CULVERT JOINTS, AND ALL LIFTING HOLES, SHALL BE GROUTED WITH MORTAR, TYPE IV. PRIOR TO THE APPLICATION OF ANY WATERPROOFING, ALL MORTAR SHALL BE WET CURED A MINIMUM OF 12 HOURS OR UNTIL THE COMPRESSIVE STRENGTH HAS REACHED 2000 psi. APPROVED CURING COMPOUNDS MAY BE USED ON INTERIOR SURFACES IN LIEU OF WET CURING.
8. A TWO FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING SHALL BE APPLIED AT EACH SIDE JOINT IN ACCORDANCE WITH SUBSECTION 540.10. THE MEMBRANE SHALL BE CENTERED ON THE JOINT AND SHALL RUN THE ENTIRE HEIGHT OF THE JOINT. THE ENTIRE TOP OF THE BOX CULVERT SHALL THEN BE COVERED WITH TORCH APPLIED MEMBRANE. TORCH APPLIED MEMBRANE WILL BE PAID SEPARATELY UNDER CONTRACT ITEM 519.20. THE MEMBRANE SHEETS SHALL OVERLAP THE EDGES OF THE CULVERT BY ONE FOOT ON EACH SIDE AS SHOWN IN THE PLANS.
9. WATER REPELLENT IN ACCORDANCE WITH ITEM 514.10 SHALL BE APPLIED TO ALL EXPOSED SURFACES EXCEPT THE INSIDE OF THE BOX.

SIMULATED STREAM BED

1. BED MATERIAL TO BE PLACED IN THE RECONSTRUCTED CHANNEL AND BOX CULVERT IS INTENDED TO MIMIC THE NATIVE CHANNEL. THE MATERIAL SHALL BE STONE FILL TYPE II SUPPLEMENTED WITH THE TAILINGS OF A TOPSOIL SCREENING OPERATION WITH GRADATION ADJUSTED TO CONFORM TO THE FOLLOWING TABLE:

STONE/SIEVE SIZE	% FINER, BY WEIGHT
36"	100
12"	30-85
#4	4-30
#200	4-12

2. INSTALLATION OF THE BED MATERIAL MAY REQUIRE INDIVIDUAL PLACEMENT OF LARGE STONES AT SPECIFIC LOCATIONS, AS DIRECTED BY THE ENGINEER. THE BED MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND THE AGENCY OF NATURAL RESOURCES STREAM ALTERATION ENGINEER, AND WILL BE IN ACCORDANCE WITH ITEM 900.608, SPECIAL PROVISION (STONE FILL, CULVERT LINING).

UTILITY COORDINATION

1. SEE THE LAYOUT SHEETS AND UTILITY SPECIAL PROVISIONS FOR INFORMATION AND REQUIREMENTS RELATED TO UTILITY COORDINATION.

TRAFFIC CONTROL

1. THE TRAFFIC CONTROL PLANS ARE SCHEMATIC ONLY AND SHOULD BE USED AS A REFERENCE. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ONE LANE CLOSURES PER THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL ALLOW THE ENGINEER 14 CALENDAR DAYS TO REVIEW AND ACCEPT THE PROPOSED PLANS BEFORE THEY ARE TO BE IMPLEMENTED. NO WORK SHALL COMMENCE UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. DEVELOPMENT AND IMPLEMENTATION OF TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH TRAFFIC CONTROL SECTION 900.
2. SIGNS SHALL BE INSTALLED SO AS NOT TO OBSTRUCT EXISTING SIGNS OR CORNER SIGHT DISTANCE FROM HIGHWAYS OR DRIVES.
3. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).
4. ORANGE SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) D 4956 TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.
5. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM D 4956 TYPE VI.
6. SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
7. FIXED SIGNS SHALL BE IN COMPLIANCE WITH VAOT CONSTRUCTION STANDARD E-121.
8. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF ROADWAY AT A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL.
9. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED, STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.
10. THE NUMBER OF CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED IS TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).
11. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE USED AT THE DISCRETION OF THE ENGINEER AND IN ACCORDANCE WITH SECTION 6F.60 OF THE MUTCD.
12. TRAVEL LANES SHALL BE A MINIMUM OF 12 FEET WIDE WITH 1 FOOT MINIMUM WIDTH SHOULDERS.
13. THE CONTRACTOR SHALL SHIFT TRAFFIC IN ACCORDANCE WITH AN APPROVED TRAFFIC CONTROL PLAN. ALL EQUIPMENT SHALL BE MOVED TO A LOCATION OUTSIDE OF THE CONSTRUCTION CLEAR ZONE (15') DURING NON-WORK PERIODS IF POSSIBLE. IF NOT POSSIBLE, EQUIPMENT SHALL BE OFF ROADWAY AND MARKED WITH CHANNELIZING DEVICES.

TEMPORARY TRAFFIC SIGNALS:

1. TEMPORARY TRAFFIC SIGNAL SYSTEM SHALL BE PAID AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL ALL-INCLUSIVE)
2. DESIGN OF THE SIGNAL SUPPORTS AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR.
3. SIGNAL PHASING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED WITHIN A 48 HOUR PERIOD.
4. SIGNAL FACES SHALL BE LED AND CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
5. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16.5 FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO ENSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
6. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER FACES.
7. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. HOWEVER, THE USE OF PORTABLE SIGNALS IS ENCOURAGED. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE OF NO GREATER THAN 14.5 FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE CURRENT EDITION OF THE MUTCD FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
8. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
9. THE SIGNAL SYSTEM SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES, FLASHING BEACONS, ASSOCIATED PAVEMENT MARKINGS, AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. IT ALSO INCLUDES PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
10. INSTALL WIRING BETWEEN SIGNAL POLES TO PROVIDE FOR A SAFE INSTALLATION. ATTACHMENT TO UTILITY POLES TO BE COORDINATED BY THE CONTRACTOR WITH THE UTILITY COMPANY.
11. PLACE TEMPORARY POLES BEHIND GUARDRAIL OR OUTSIDE OF THE CLEAR ZONE.
12. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELING PUBLIC.
13. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR REMOVAL INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
14. A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30 FEET ABOVE ROADWAY CENTERLINE. THE INTENT IS TO ILLUMINATE THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
15. SEE STD. E-121 FOR SIGN PLACEMENT. SEE STDS. E-171A AND E-172 FOR ADDITIONAL INFORMATION ON SIGNALS.
16. ALL ELECTRICAL WORK SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
17. ALL STOP SIGNS AND ANY TRAFFIC SIGNS MADE IRRELEVANT DUE TO THE TEMPORARY SIGNAL SHALL BE COMPLETELY COVERED DURING OPERATION OF THE TEMPORARY SIGNAL OR AT THE DISCRETION OF THE ENGINEER.
18. CONSTRUCTION APPROACH SIGNS SHALL BE PROVIDED ON EACH APPROACH PER THE "TRAFFIC CONTROL APPROACH SIGN PACKAGE" SHOWN ON THE TRAFFIC CONTROL PLAN SHEETS. ADDITIONAL CONSTRUCTION APPROACH SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARDS T-1, T-10 AND T-17.
19. THE SIGNAL SYSTEM SHALL UTILIZE VEHICLE DETECTION AND BE PROGRAMMED TO DWELL ON RED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SIGNAL PHASING AND TIMING. THE CONTRACTOR SHALL SUBMIT A PHASING DIAGRAM TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL MAKE SIGNALS OPERATIONAL ONLY AFTER RECEIVING APPROVAL OF THE PHASING DIAGRAM BY THE ENGINEER.

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266frm.dgn PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
PROJECT NOTES SHEET 4 OF 55



QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	EROSION CONTROL	BRIDGE NO. 6	BRIDGE NO. 7	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS (VT 58 - BRIDGE NO. 6)	201.10				
						1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS (VT 58 - BRIDGE NO. 7)	201.10				
						1260					1260		CY	COMMON EXCAVATION	203.15				
								600	540		1140		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
						1					1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
								1620	960		2580		CY	STRUCTURE EXCAVATION	204.25				
								870	330		1200		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
									1		1		LS	COFFERDAM (OUTLET, STA. 1+85.00)	208.40				
						680					680		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
						940					940		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
						1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
								5	5		10		GAL	WATER REPELLENT, SILANE	514.10				
								220	200		420		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
									1		1		EACH	REMOVAL OF STRUCTURE (96" X 65' CGMP)	529.15				
								1			1		EACH	REMOVAL OF STRUCTURE (96" X 90' CGMP)	529.15				
									1		1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 10'-0" X 56'-0" BOX)	540.10				
								1			1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 8'-0" X 66'-6" BOX)	540.10				
						1					1		MGAL	DUST CONTROL WITH WATER	609.10				
						1					1		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
								100	410		510		CY	STONE FILL, TYPE III	613.12				
									210		210		CY	RIPRAP, HEAVY TYPE	613.15				
						263					263		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20				
						638					638		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205				
						150					150		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21				
						50					50		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED	621.216				
						8					8		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
						1063					1063		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
								170	230		400		TON	CRUSHED STONE BEDDING	629.54				
						20					20		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
						100					100		HR	FLAGGERS	630.15				
										1	1		LS	FIELD OFFICE, ENGINEERS	631.10				
										1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
						1					1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						1230					1230		LF	DURABLE 4 INCH WHITE LINE	646.400				
						1230					1230		LF	DURABLE 4 INCH YELLOWLINE	646.410				
								310	440		750		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				
								100	570		670		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								60			60		SY	GEOTEXTILE FOR SILT FENCE	649.51				

NOTE: FOR DETAILED BREAKDOWN OF QUANTITIES BETWEEN BR6 AND BR7 SEE BR6 AND BR7 QUANTITY SHEETS

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
QUANTITY SHEET 1

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 5 OF 55



QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
						ROADWAY	EROSION CONTROL	BRIDGE NO. 6	BRIDGE NO. 7	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						40					40		LB	SEED	651.15				
						270					270		LB	FERTILIZER	651.18				
						2					2		TON	AGRICULTURAL LIMESTONE	651.20				
						2					2		TON	HAY MULCH	651.25				
						180					180		CY	TOPSOIL	651.35				
						610					610		SY	GRUBBING MATERIAL	651.40				
							1				1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 6)	652.10				
							1				1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 7)	652.10				
							80				80		HR	MONITORING EPSC PLAN	652.20				
							1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 6)	652.30				
							1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 7)	652.30				
							2310				2310		SY	TEMPORARY EROSION MATTING	653.20				
							20				20		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
							60				60		CY	VEHICLE TRACKING PAD	653.35				
							4				4		EACH	FILTER BAG	653.45				
							1660				1660		LF	PROJECT DEMARCATION FENCE	653.55				
							2				2		SF	TRAFFIC SIGNS, TYPE A	675.20				
							75				75		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							1				1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
								200	300		500		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
								1			1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 6)	900.645				
									1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 7)	900.645				
											1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 6)	900.645				
											1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 7)	900.645				
							2				2		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
							2				2		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							810				810		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
							15				15		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

NOTE: FOR DETAILED BREAKDOWN OF QUANTITIES BETWEEN BR6 AND BR7 SEE BR6 AND BR7 QUANTITY SHEETS

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)
 FILE NAME: zllc266 frm.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 QUANTITY SHEET 2
 PLOT DATE: 9/26/2014
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 6 OF 55



BR6 QUANTITY SHEET I

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE NO. 6	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS (VT 58 - BRIDGE NO. 6)	201.10				
							680				680		CY	COMMON EXCAVATION	203.15				
									600		600		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27				
							0.5				0.5		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				
									1620		1620		CY	STRUCTURE EXCAVATION	204.25				
									870		870		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30				
							340				340		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10				
							500				500		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35				
							0.5				0.5		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
								5			5		GAL	WATER REPELLENT, SILANE	514.10				
								220			220		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20				
								1			1		EACH	REMOVAL OF STRUCTURE (96" X 90" CGMP)	529.15				
								1			1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 8'-0" X 66'-6" BOX)	540.10				
							0.5				0.5		MGAL	DUST CONTROL WITH WATER	609.10				
							0.5				0.5		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15				
									100		100		CY	STONE FILL, TYPE III	613.12				
							638				638		LF	STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS	621.205				
							4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60				
							625				625		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80				
									170		170		TON	CRUSHED STONE BEDDING	629.54				
							10				10		HR	UNIFORMED TRAFFIC OFFICERS	630.10				
							50				50		HR	FLAGGERS	630.15				
										0.5	0.5		LS	FIELD OFFICE, ENGINEERS	631.10				
										0.5	0.5		LS	TESTING EQUIPMENT, BITUMINOUS	631.17				
										1500	1500		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26				
							0.5				0.5		LS	MOBILIZATION/DEMOBILIZATION	635.11				
							640				640		LF	DURABLE 4 INCH WHITE LINE	646.400				
							640				640		LF	DURABLE 4 INCH YELLOW LINE	646.410				
									310		310		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11				
									100		100		SY	GEOTEXTILE UNDER STONE FILL	649.31				
								30			30		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							30				30		LB	SEED	651.15				
							200				200		LB	FERTILIZER	651.18				
							1				1		TON	AGRICULTURAL LIMESTONE	651.20				
							1				1		TON	HAY MULCH	651.25				
							130				130		CY	TOPSOIL	651.35				
							100				100		SY	GRUBBING MATERIAL	651.40				
								1			1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 6)	652.10				
								40			40		HR	MONITORING EPSC PLAN	652.20				
								1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 6)	652.30				

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: zllc266frm.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
BR6 QUANTITY SHEET I	SHEET 7 OF 55



BR6 QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE NO. 6	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								1940			1940		SY	TEMPORARY EROSION MATTING	653.20				
								10			10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
								30			30		CY	VEHICLE TRACKING PAD	653.35				
								2			2		EACH	FILTER BAG	653.45				
								910			910		LF	PROJECT DEMARCATION FENCE	653.55				
							1				1		SF	TRAFFIC SIGNS, TYPE A	675.20				
							30				30		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							0.5				0.5		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
									200		200		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
									1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)(VT 58 - BRIDGE NO. 6)	900.645				
										1	1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT 58 - BRIDGE NO. 6)	900.645				
										1	1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
										1	1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							430				430		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
										8	8		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: zllc266frm.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
BR6 QUANTITY SHEET 2	SHEET 8 OF 55



BR7 QUANTITY SHEET I

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES				
							ROADWAY	EROSION CONTROL ITEMS -	BRIDGE NO. 7	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS	
							1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS (VT 58 - BRIDGE NO. 7)	201.10					
							580				580		CY	COMMON EXCAVATION	203.15					
									540		540		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27					
							0.5				0.5		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22					
									960		960		CY	STRUCTURE EXCAVATION	204.25					
									330		330		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30					
									1		1		LS	COFFERDAM (OUTLET, STA. 1+85.00)	208.40					
							340				340		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10					
							440				440		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35					
							0.5				0.5		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50					
									5		5		GAL	WATER REPELLENT, SILANE	514.10					
									200		200		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20					
									1		1		EACH	REMOVAL OF STRUCTURE (96" X 65' CGMP)	529.15					
									1		1		LS	PRECAST CONCRETE STRUCTURE (20'-0" X 10'-0" X 56'-0" BOX)	540.10					
							0.5				0.5		MGAL	DUST CONTROL WITH WATER	609.10					
							0.5				0.5		TON	DUST AND ICE CONTROL WITH CALCIUM CHLORIDE	609.15					
									410		410		CY	STONE FILL, TYPE III	613.12					
									210		210		CY	RIPRAP, HEAVY TYPE	613.15					
							263				263		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20					
							150				150		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21					
							50				50		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED	621.216					
							4				4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60					
							438				438		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80					
									230		230		TON	CRUSHED STONE BEDDING	629.54					
							10				10		HR	UNIFORMED TRAFFIC OFFICERS	630.10					
							50				50		HR	FLAGGERS	630.15					
										0.5	0.5		LS	FIELD OFFICE, ENGINEERS	631.10					
										0.5	0.5		LS	TESTING EQUIPMENT, BITUMINOUS	631.17					
										1500	1500		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26					
							0.5				0.5		LS	MOBILIZATION/DEMOBILIZATION	635.11					
							590				590		LF	DURABLE 4 INCH WHITE LINE	646.400					
							590				590		LF	DURABLE 4 INCH YELLOW LINE	646.410					
									440		440		SY	GEOTEXTILE FOR ROADBED SEPARATOR	649.11					
									570		570		SY	GEOTEXTILE UNDER STONE FILL	649.31					
								30			30		SY	GEOTEXTILE FOR SILT FENCE	649.51					
							10				10		LB	SEED	651.15					
							70				70		LB	FERTILIZER	651.18					
							1				1		TON	AGRICULTURAL LIMESTONE	651.20					
							1				1		TON	HAY MULCH	651.25					
							50				50		CY	TOPSOIL	651.35					

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266 frm.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BR7 QUANTITY SHEET I

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 9 OF 55



BR7 QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL ITEMS -	BRIDGE NO. 7	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							510				510		SY	GRUBBING MATERIAL	651.40				
								1			1		LS	EPSC PLAN (VT 58 - BRIDGE NO. 7)	652.10				
								40			40		HR	MONITORING EPSC PLAN	652.20				
								1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.) (VT 58 - BRIDGE NO. 7)	652.30				
								370			370		SY	TEMPORARY EROSION MATTING	653.20				
								10			10		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
								30			30		CY	VEHICLE TRACKING PAD	653.35				
								2			2		EACH	FILTER BAG	653.45				
								750			750		LF	PROJECT DEMARCATION FENCE	653.55				
							1				1		SF	TRAFFIC SIGNS, TYPE A	675.20				
							45				45		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
							2				2		EACH	REMOVING SIGNS	675.50				
							2				2		EACH	ERECTING SALVAGED SIGNS	675.60				
							0.5				0.5		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
									300		300		CY	SPECIAL PROVISION (STONE FILL, CULVERT LINING)	900.608				
									1		1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) (VT 58 - BRIDGE NO. 7)	900.645				
										1	1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE) (VT-58 - BRIDGE NO. 7)	900.645				
										1	1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650				
										1	1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
							380				380		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				
							7				7		CWT	SPECIAL PROVISION (EMULSIFIED ASPHALT)(RS-1H OR CRS-1H)	900.683				

PROJECT NAME: IRASBURG	PLOT DATE: 9/26/2014
PROJECT NUMBER: STP CULV(30)	DRAWN BY: L. BUXTON
FILE NAME: zllc266frm.dgn	CHECKED BY: M. CHENETTE
PROJECT LEADER: M. CHENETTE	SHEET 10 OF 55
DESIGNED BY: J. HUNGERFORD	
BR7 QUANTITY SHEET 2	



GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R. O. W. ABBREVIATIONS (CODES) & SYMBOLS

POINT CODE	DESCRIPTION
CH	CHANNEL EASEMENT
CONST	CONSTRUCTION EASEMENT
CUL	CULVERT EASEMENT
D&C	DISCONNECT & CONNECT
DIT	DITCH EASEMENT
DR	DRAINAGE EASEMENT
DRIVE	DRIVEWAY EASEMENT
EC	EROSION CONTROL
HWY	HIGHWAY EASEMENT
I&M	INSTALL & MAINTAIN EASEMENT
LAND	LANDSCAPE EASEMENT
R&RES	REMOVE & RESET
R&REP	REMOVE & REPLACE
SR	SLOPE RIGHT
UE	UTILITY EASEMENT
(P)	PERMANENT EASEMENT
(T)	TEMPORARY EASEMENT
■	BNDNS BOUND SET
□	BNDNS BOUND TO BE SET
●	IPNS IRON PIN SET
⊙	IPNS IRON PIN TO BE SET
⊠	CALC EXISTING ROW POINT
○	PROW PROPOSED ROW POINT
[LENGTH]	LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT CODE	DESCRIPTION
⊕	APL BOUND APPARENT LOCATION
□	BM BENCHMARK
□	BND BOUND
⊕	CB CATCH BASIN
⊕	COMB COMBINATION POLE
⊕	DITHR DROP INLET THROATED DNC
⊕	EL ELECTRIC POWER POLE
○	FPOLE FLAGPOLE
○	GASFIL GAS FILLER
○	GP GUIDE POST
×	GSO GAS SHUT OFF
○	GUY GUY POLE
○	GUYW GUY WIRE
×	GV GATE VALUE
⊕	H TREE HARDWOOD
△	HCTRL CONTROL HORIZONTAL
△	HVCTRL CONTROL HORIZ. & VERTICAL
⊕	HYD HYDRANT
○	IP IRON PIN
○	IPIPE IRON PIPE
⊕	LI LIGHT - STREET OR YARD
⊕	MB MAILBOX
○	MH MANHOLE (MH)
□	MM MILE MARKER
○	PM PARKING METER
□	PMK PROJECT MARKER
POST	POST STONE/WOOD
RRSIG	RAILROAD SIGNAL
RRSL	RAILROAD SWITCH LEVER
S	TREE SOFTWOOD
SAT	SATELLITE DISH
⊕	SHRUB SHRUB
⊕	SIGN SIGN
⊕	STUMP STUMP
⊕	TEL TELEPHONE POLE
○	TIE TIE
⊕	TSIGN SIGN W/DOUBLE POST
⊕	VCTRL CONTROL VERTICAL
○	WELL WELL
×	WSO WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

— UGU —	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

— AGU —	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
—	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— CZ —	CLEAR ZONE
—	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

—	TOP OF CUT SLOPE
—	TOE OF FILL SLOPE
—	STONE FILL
—	BOTTOM OF DITCH
—	CULVERT PROPOSED
—	STRUCTURE SUBSURFACE
PDF	PROJECT DEMARCATION FENCE
BF	BARRIER FENCE
—	TREE PROTECTION ZONE (TPZ)
—	STRIPING LINE REMOVAL
—	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

—	TOWN BOUNDARY LINE
—	COUNTY BOUNDARY LINE
—	STATE BOUNDARY LINE
—	PROPOSED STATE R.O.W. (LIMITED ACCESS)
—	PROPOSED STATE R.O.W.
—	STATE ROW (LIMITED ACCESS)
—	STATE ROW
—	TOWN ROW
—	PERMANENT EASEMENT LINE (P)
—	TEMPORARY EASEMENT LINE (T)
—	SURVEY LINE
P	PROPERTY LINE (P/L)
SR	SLOPE RIGHTS
6f	6F PROPERTY BOUNDARY
4f	4F PROPERTY BOUNDARY
HAZ	HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

—	FILTER CURTAIN
—	SILT FENCE
—	SILT FENCE WOVEN WIRE
—	CHECK DAM
—	DISTURBED AREAS REQUIRING RE-VEGETATION
—	EROSION MATTING

ENVIRONMENTAL RESOURCES

—	WETLAND BOUNDARY
—	RIPARIAN BUFFER ZONE
—	WETLAND BUFFER ZONE
—	SOIL TYPE BOUNDARY
T&E	THREATENED & ENDANGERED SPECIES
HAZ	HAZARDOUS WASTE AREA
AG	AGRICULTURAL LAND
HABITAT	FISH & WILDLIFE HABITAT
FLOOD PLAIN	FLOOD PLAIN
OHW	ORDINARY HIGH WATER (OHW)
—	STORM WATER
—	USDA FOREST SERVICE LANDS
—	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
⊕	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

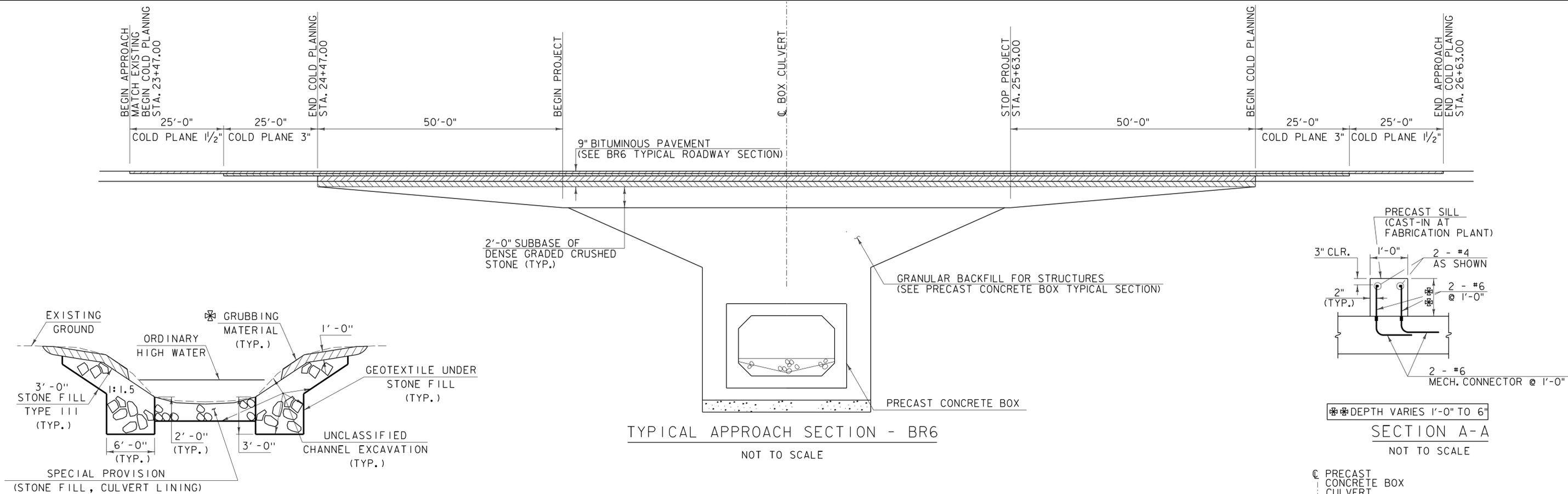
—	ROAD EDGE PAVEMENT
—	ROAD EDGE GRAVEL
—	DRIVEWAY EDGE
—	DITCH
—	FOUNDATION
—	FENCE (EXISTING)
—	FENCE WOOD POST
—	FENCE STEEL POST
—	GARDEN
—	ROAD GUARDRAIL
—	RAILROAD TRACKS
—	CULVERT (EXISTING)
—	STONE WALL
—	WALL
—	WOOD LINE
—	BRUSH LINE
—	HEDGE
—	BODY OF WATER EDGE
—	LEDGE EXPOSED

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266legend.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VTRANS
CONVENTIONAL SYMBOLGY LEGEND

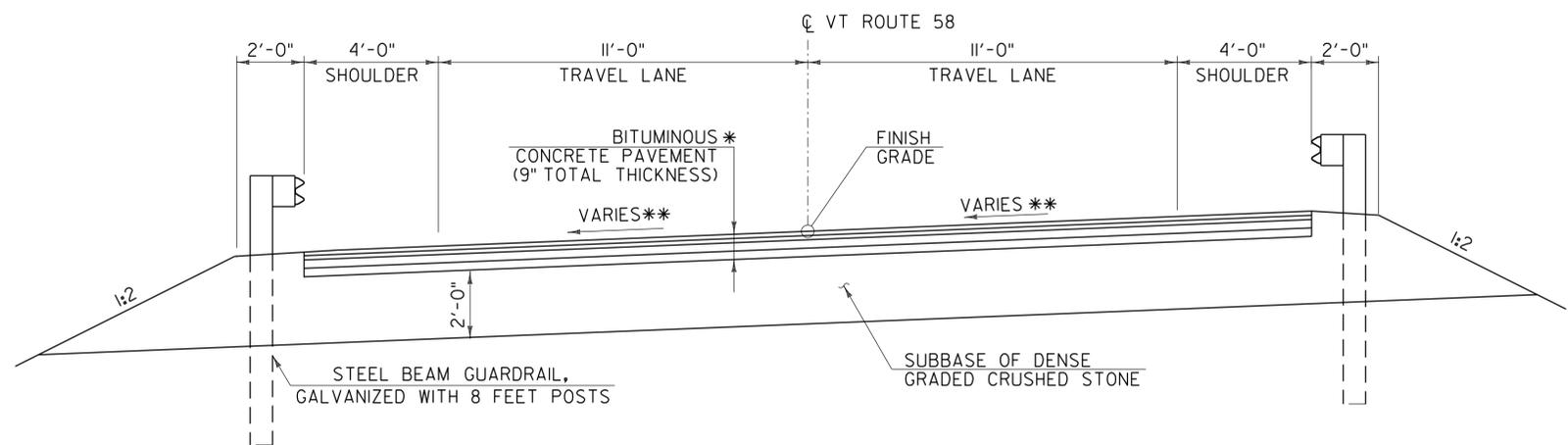
PLOT DATE: 9/26/2014
DRAWN BY: VTRANS
CHECKED BY: VTRANS
SHEET II OF 55





CHANNEL TYPICAL SECTION
NOT TO SCALE

✱ WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.



* **BITUMINOUS CONCRETE PAVEMENT:**
1/2" TYPE IVS OVER
1/2" TYPE IVS OVER
3" TYPE IIS OVER
3" TYPE IIS

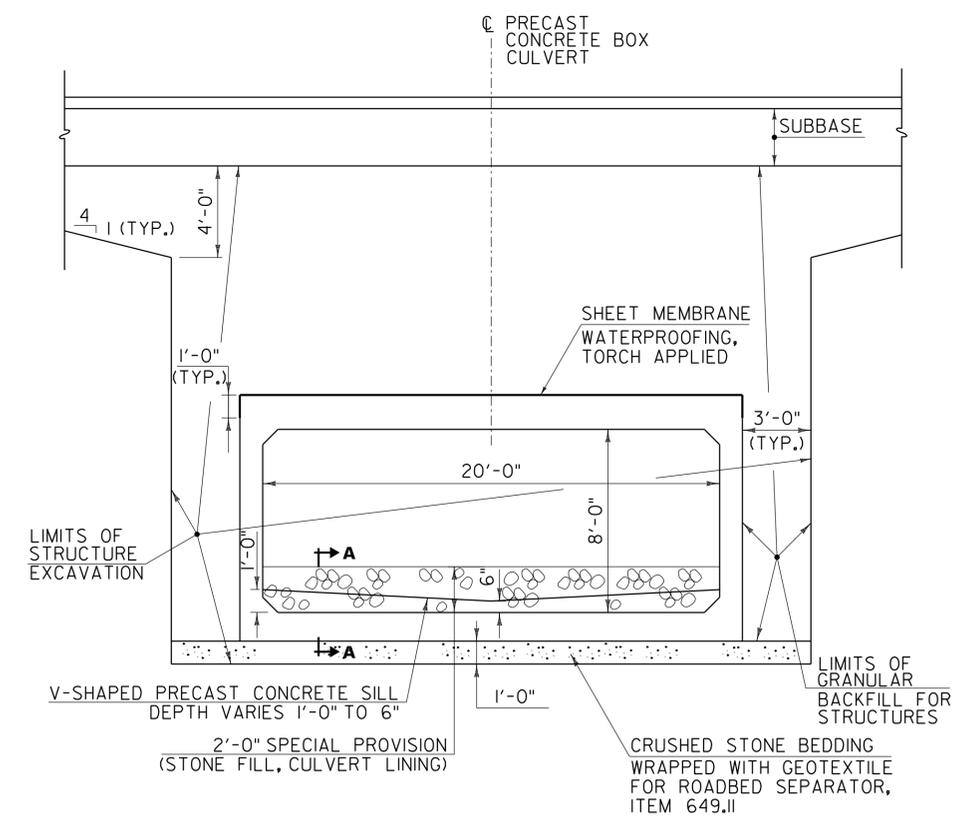
BR6 TYPICAL ROADWAY SECTION

SCALE 3/8" = 1'-0"

** SEE BANKING DIAGRAM ON SHEET 15,
MATCH EXISTING CROSS SLOPE ON APPROACHES.

**MATERIAL TOLERANCES
(IF USED ON PROJECT)**

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COARSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"



PRECAST CONCRETE BOX TYPICAL SECTION - BR6

SCALE: 1/4" = 1'-0"

PROJECT NAME:	IRASBURG	FILE NAME:	zllc266typsec.dgn	PLOT DATE:	9/26/2014
PROJECT NUMBER:	STP CULV(30)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	J. HUNGERFORD	CHECKED BY:	M. CHENETTE
		TYPICAL SECTIONS - BR6			SHEET 12 OF 55



GEODETTIC CONTROL

Geodetic control was established from a static GPS survey on temporary marks. No descriptions are available. Horizontal values were derived from a network adjustment tied to the following Continuously Operating Reference Stations (CORS):

- VTHA Hardwick
- VTIP Brighton
- VTD9 Derby

And the following Cooperative Base Network Control Station (CBN):

ASBESTOS

Elevations were computed from a network adjustment using GEOID 09 and local ties to the following benchmarks:

ASBESTOS

D 55

P 55

TRAVERSE TIES

HVCTRL #1	
NORTH = 843735.292	
EAST = 1690354.252	
ELEV. = 870.078	
VW AZ MK	
NOT TIED	

HVCTRL #2	
NORTH = 843646.397	
EAST = 1691661.171	
ELEV. = 855.406	
VW	

HVCTRL #3	
NORTH = 843765.768	
EAST = 1692036.143	
ELEV. = 855.340	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

* MAIN TRAVERSE COMPLETED 2/7/2012 BY R. GILMAN P.C. & P. WINTERS

ALIGNMENT TIES

PI, STA. 24+34.76	
NORTH = 843673.050	
EAST = 1691719.844	
ELEV. =	

VT58, STA. 25+04.83	
NORTH = 843682.925	
EAST = 1691793.960	
ELEV. =	

PT, STA. 27+99.01	
NORTH = 843749.780	
EAST = 1692308.6131	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

NORTH =	
EAST =	
ELEV. =	

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83(07)
ADJUSTMENT	COMPASS
ZONE	Vermont 4400
GEOID	GEOID09 (Conus)

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: zllc266tie_br6.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
SURVEY CONTROL AND TIES - BR6	SHEET 13 OF 55



621.205 - STEEL BEAM GUARDRAIL, GALVANIZED W/8 FEET POSTS.
 STA. 23+70.18, LT. TO 26+94.55, LT.
 STA. 23.77.40, RT. TO 26+84.27, RT.

621.60 - ANCHOR FOR STEEL BEAM RAIL.
 STA. 23+70.18, LT.
 STA. 23.77.40, RT.
 STA. 26+84.27, RT.
 STA. 26+94.55, LT.

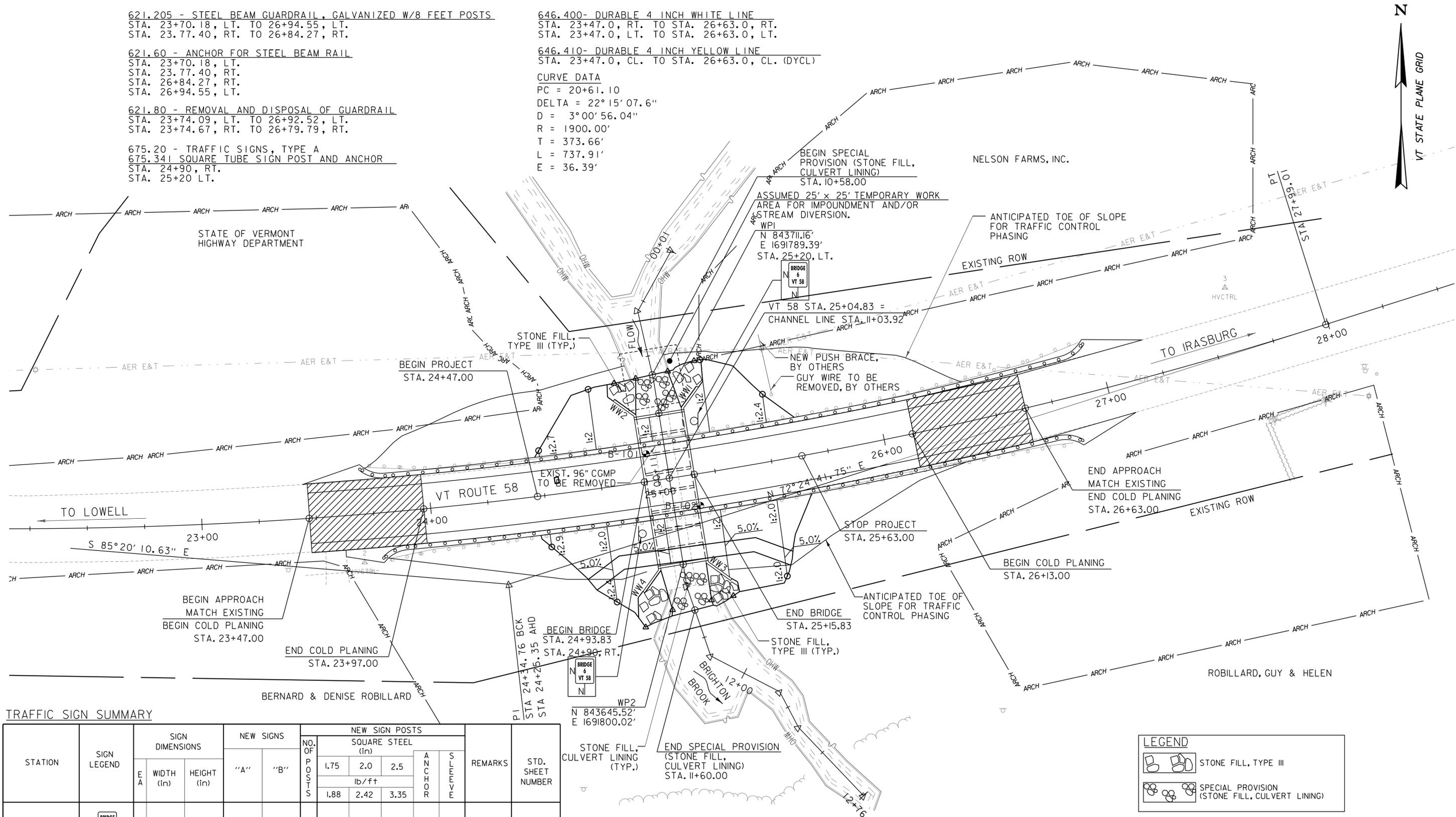
621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL.
 STA. 23+74.09, LT. TO 26+92.52, LT.
 STA. 23+74.67, RT. TO 26+79.79, RT.

675.20 - TRAFFIC SIGNS, TYPE A
 675.341 SQUARE TUBE SIGN POST AND ANCHOR
 STA. 24+90, RT.
 STA. 25+20 LT.

646.400- DURABLE 4 INCH WHITE LINE
 STA. 23+47.0, RT. TO STA. 26+63.0, RT.
 STA. 23+47.0, LT. TO STA. 26+63.0, LT.

646.410- DURABLE 4 INCH YELLOW LINE
 STA. 23+47.0, CL. TO STA. 26+63.0, CL. (DYCL)

CURVE DATA
 PC = 20+61.10
 DELTA = 22° 15' 07.6"
 D = 3° 00' 56.04"
 R = 1900.00'
 T = 373.66'
 L = 737.91'
 E = 36.39'



TRAFFIC SIGN SUMMARY

STATION	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGNS		NO. OF POSTS	NEW SIGN POSTS SQUARE STEEL (in)			REMARKS	STD. SHEET NUMBER	
		E A	WIDTH (in)	HEIGHT (in)	"A"		"B"	lb/ft				
								1.75	2.0			2.5
24+90, RT	BRIDGE 6 VT 58	1	6	8	0.33	1	X		X	VR-701	E-134	
25+20, LT	BRIDGE 6 VT 58	1	6	8	0.33	1	X		X	VR-701	E-134	
TOTALS				SF	SF		FT					
				0.66			30					

FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."



LEGEND

	STONE FILL, TYPE III
	SPECIAL PROVISION (STONE FILL, CULVERT LINING)

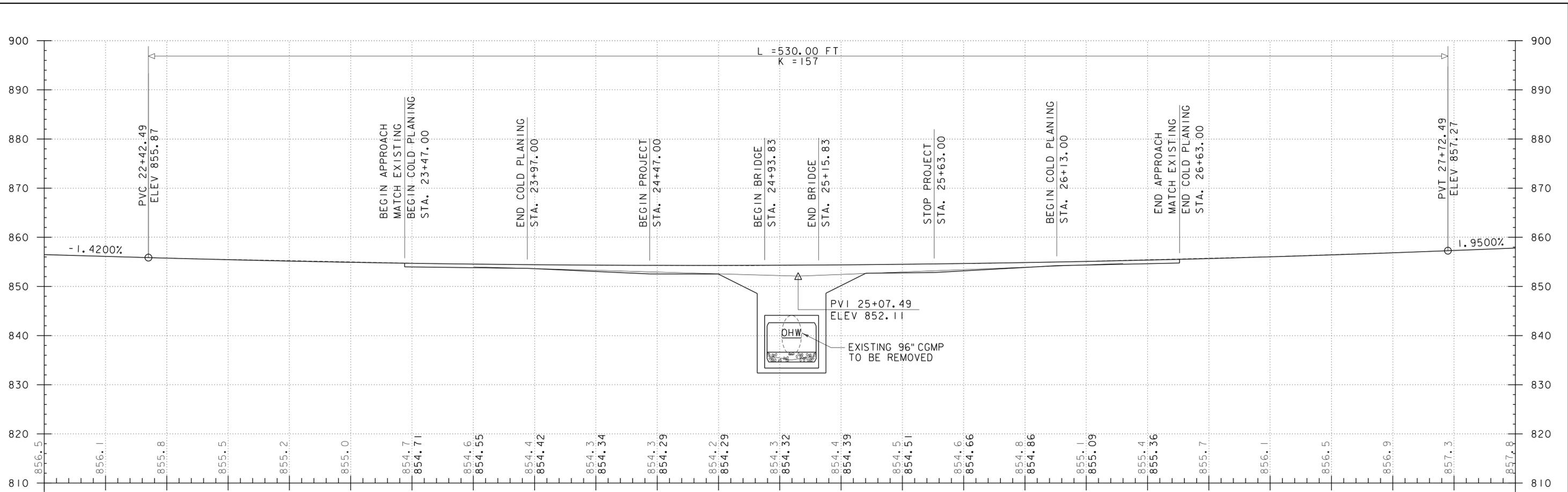
NOTES:
 1. GRADE IN ACCORDANCE WITH TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS UNLESS NOTED OTHERWISE.

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266bdr_br6.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 PLAN LAYOUT SHEET - BR6

PLOT DATE: 9/26/2014
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 14 OF 55





PROFILE ALONG VT ROUTE 58

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: 1" = 10'

NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

STA. 23+97.00
MATCH EXISTING
CROSS SLOPE
LT e = -4.5%
RT e = 5.1%

STA. 24+12.00
LT e = -5.3%
RT e = 5.3%

STA. 25+89.00
LT e = -5.3%
RT e = 5.3%

STA. 26+13.00
MATCH EXISTING
CROSS SLOPE
LT e = -5.6%
RT e = 4.1%

+0.060 |
+0.040 |
+0.020 |
LEVEL |
-0.020 |
-0.040 |
-0.060 |

| +0.060
| +0.040
| +0.020
LEVEL
| -0.020
| -0.040
| -0.060

BANKING DIAGRAM

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: N. T. S.

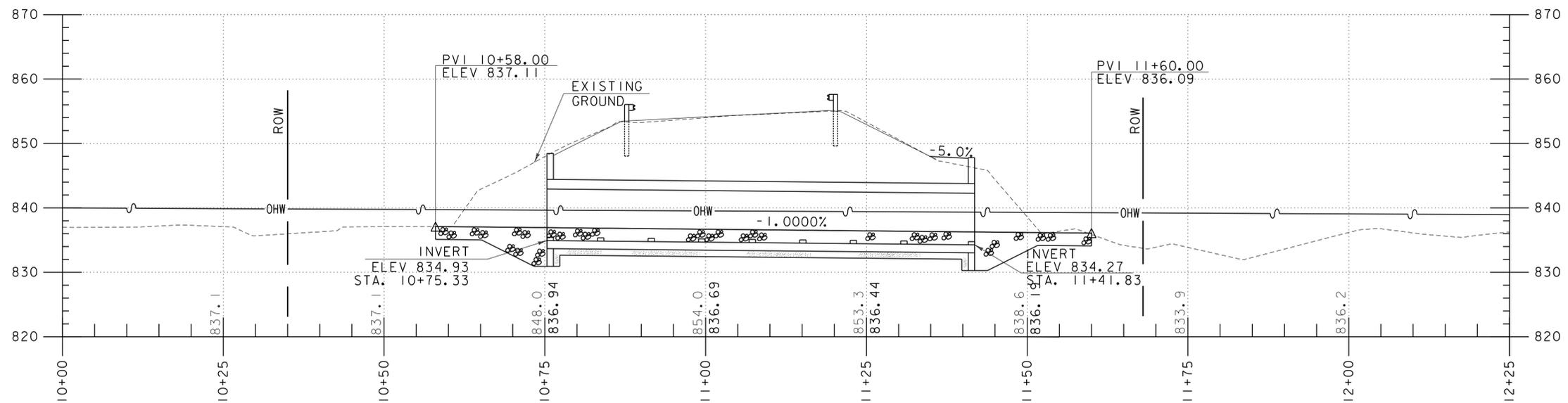
NOTE:
STATIONING IN FEET AND
SUPERELEVATIONS IN PERCENTAGES

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

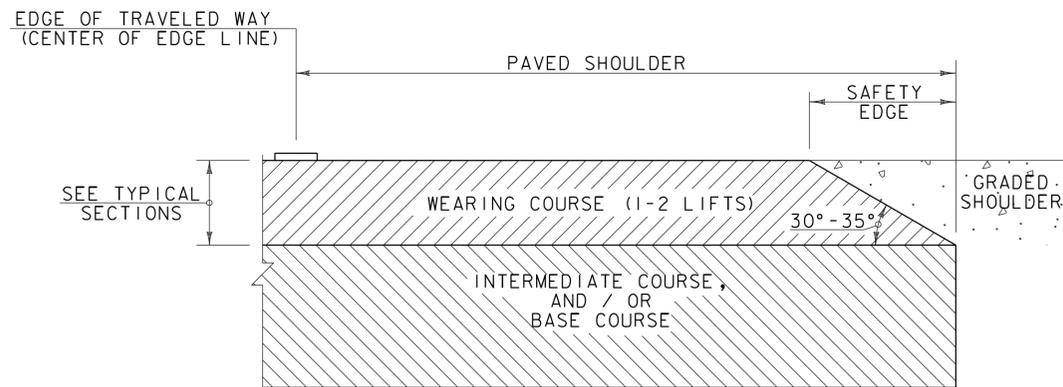
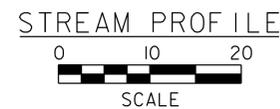
FILE NAME: zllc266pro.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY PROFILE - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 15 OF 55





NOTE:
 ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
 ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

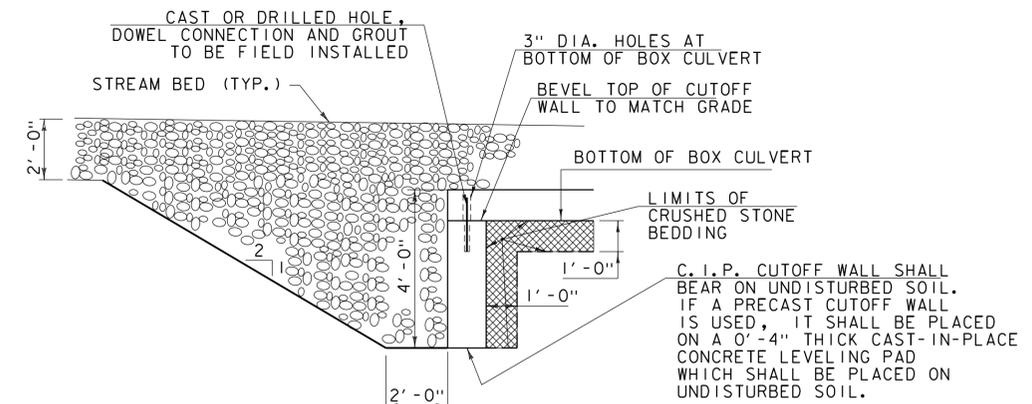


SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



CUTOFF WALL DETAIL

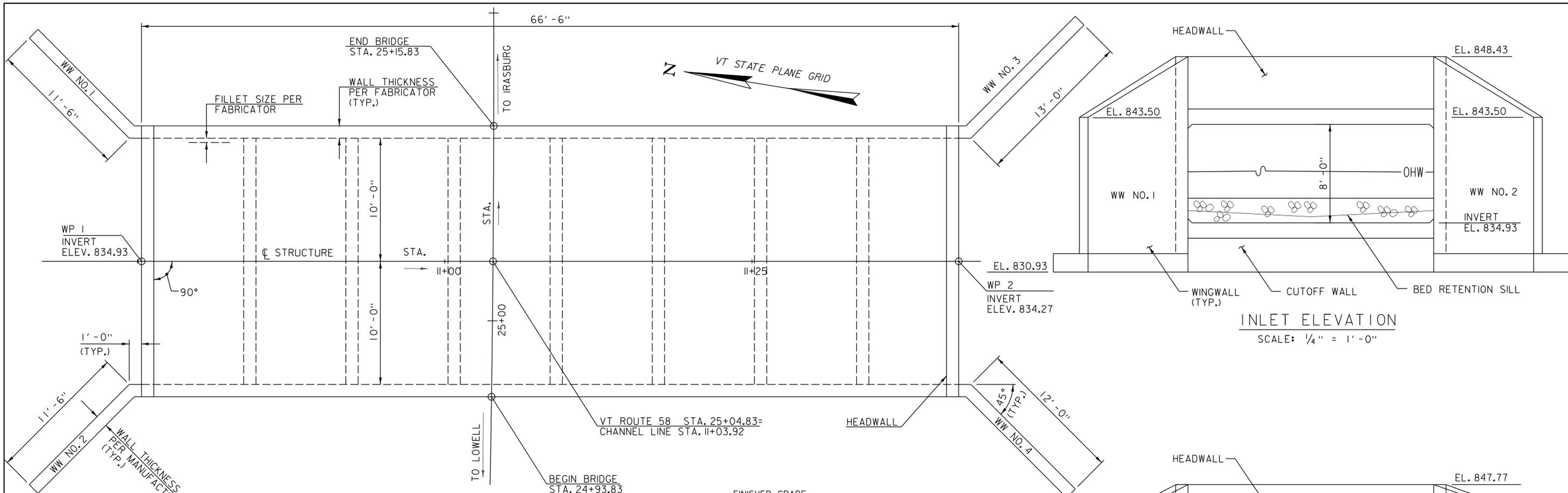
NOT TO SCALE

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

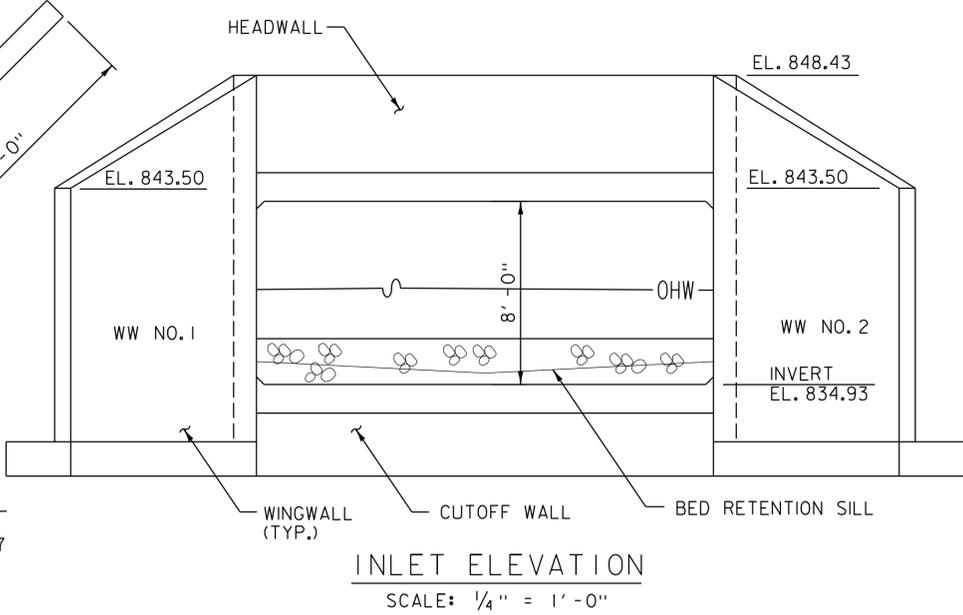
FILE NAME: zllc266strm.pro.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 STREAM PROFILE - BR6

PLOT DATE: 9/26/2014
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 16 OF 55

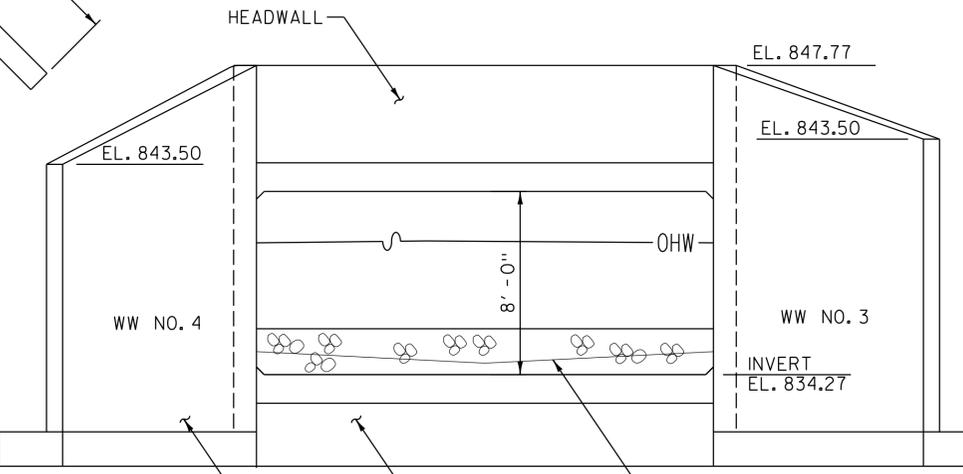




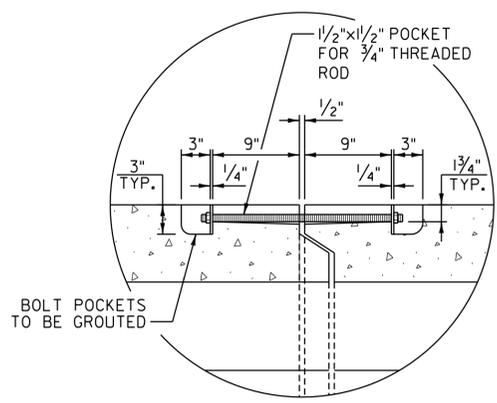
PRECAST CONCRETE STRUCTURE PLAN
SCALE: 1/4" = 1'-0"



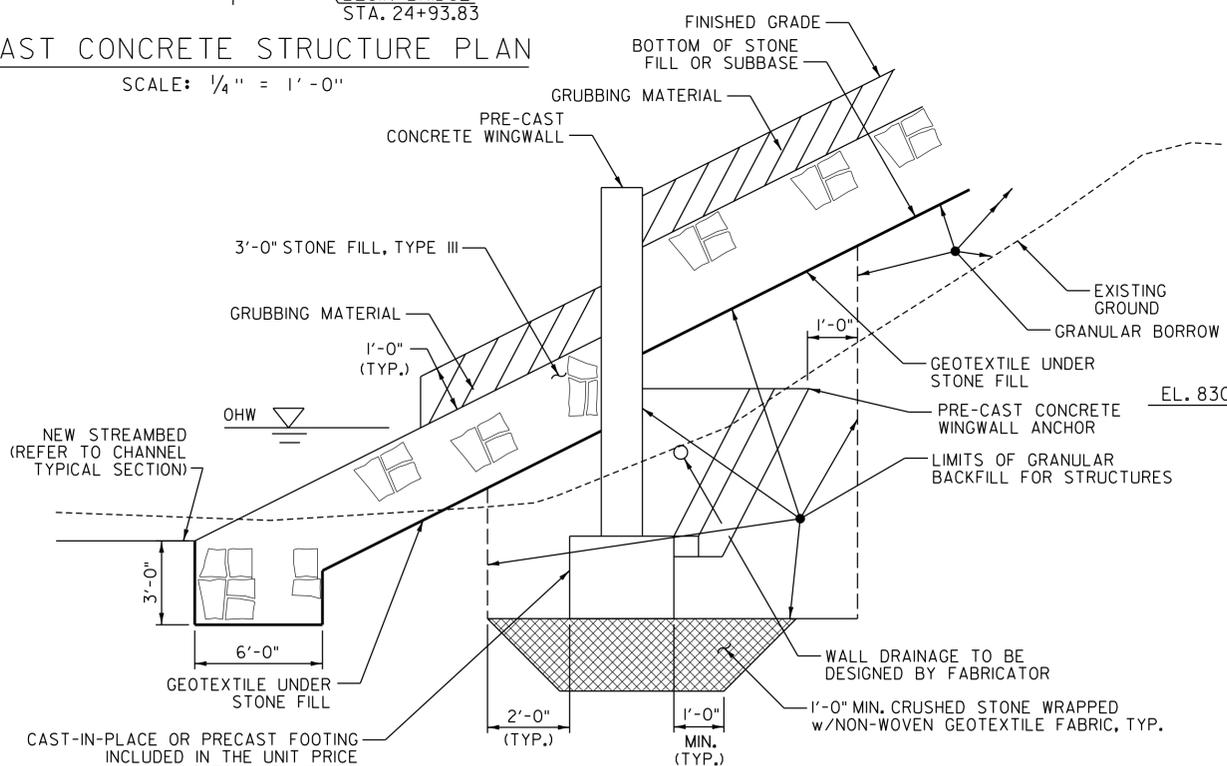
INLET ELEVATION
SCALE: 1/4" = 1'-0"



OUTLET ELEVATION
SCALE: 1/4" = 1'-0"



PERMANENT CLOSURE DETAIL
NOT TO SCALE

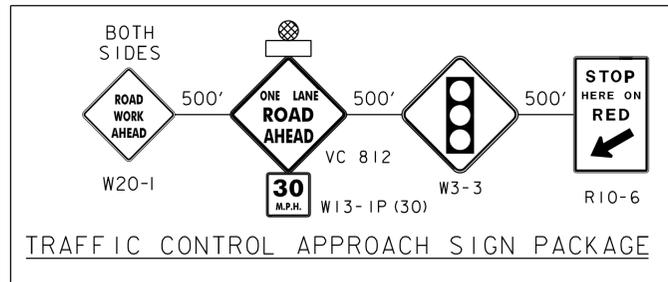


- NOTES:**
- ANCHOR TYPE WALLS SHOWN, OTHER APPROVED WALL SYSTEM MAY BE USED, SEE SPECIAL PROVISIONS.
 - FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS HAVE BEEN ASSUMED AS SHOWN ABOVE, ONLY THE EXCAVATION INCLUDED WITHIN THESE LIMITS SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE CONTRACTOR SHALL DETERMINE THE ACTUAL LIMITS OF STRUCTURE EXCAVATION, PER PRECAST WINGWALL DESIGN.

WINGWALL EARTHWORK SECTION
NOT TO SCALE

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: zllc266strpl_br6.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
STRUCTURAL PLAN AND DETAILS - BR6	
SHEET 17 OF 55	



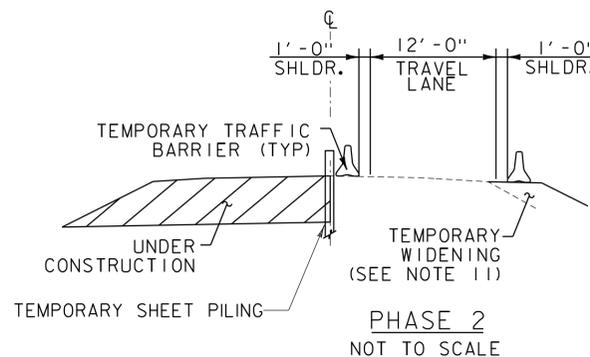
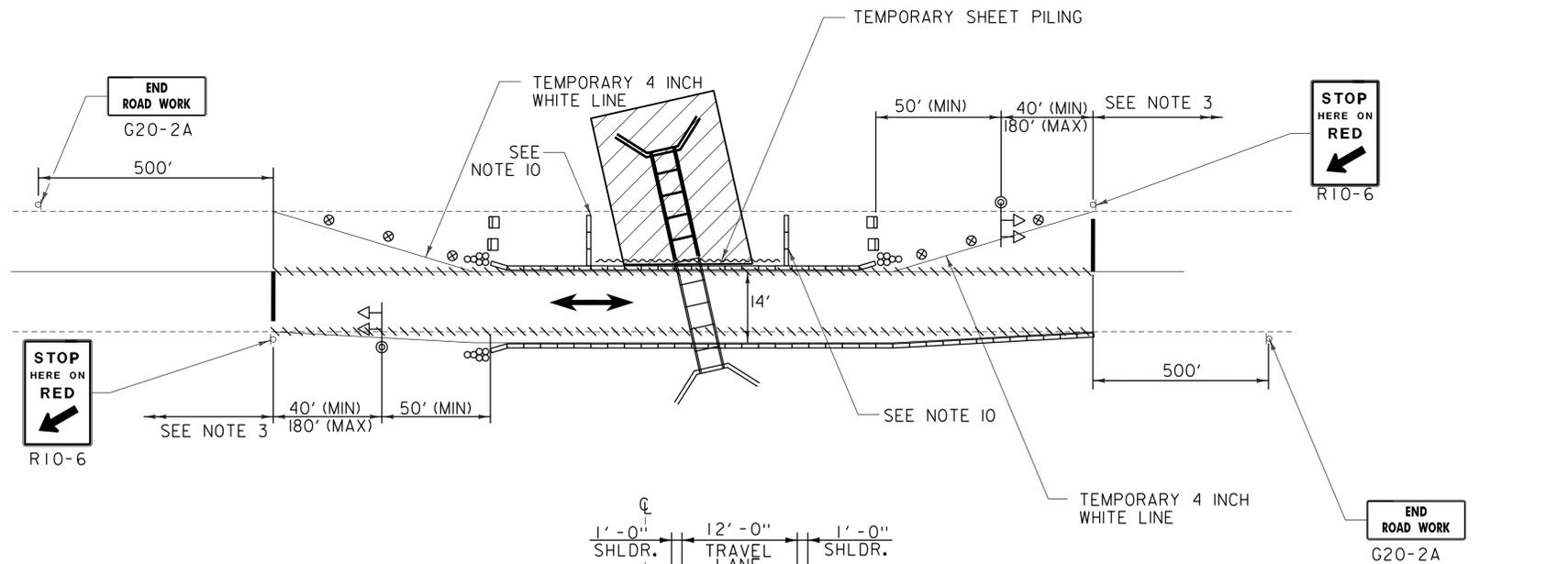
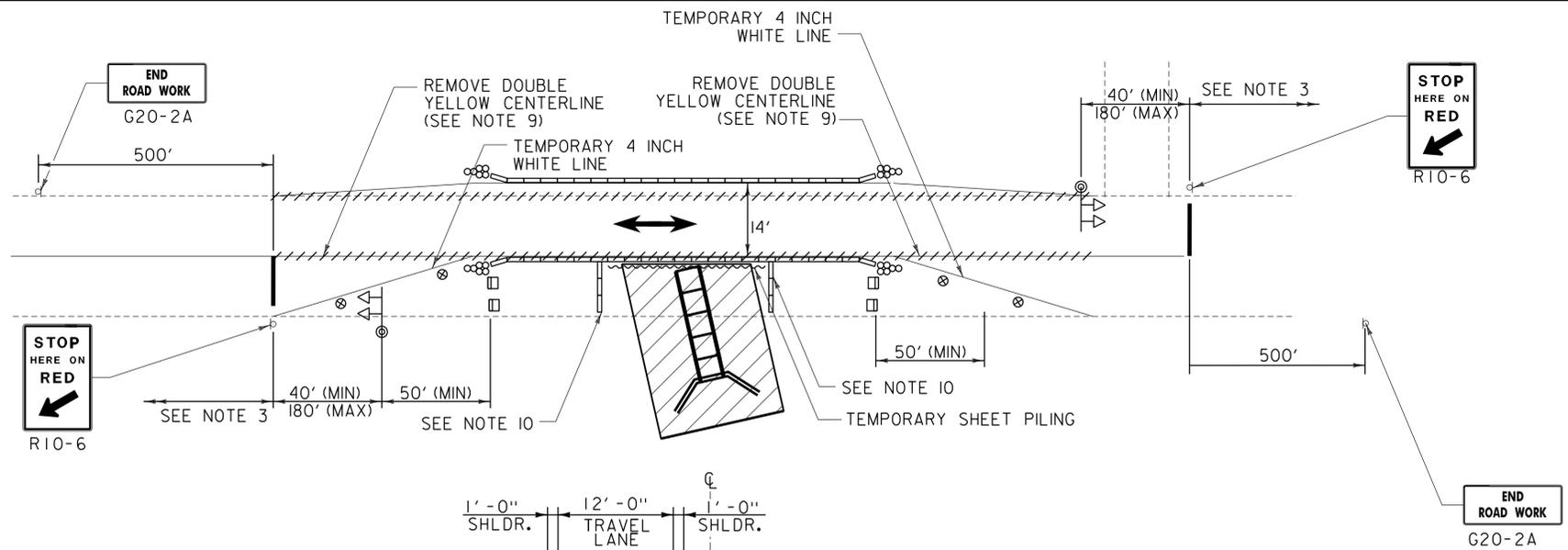


NOTES:

1. SEE SHEET 4 FOR GENERAL TRAFFIC CONTROL NOTES.
2. REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
3. REFER TO "TRAFFIC CONTROL APPROACH SIGN PACKAGE" DETAIL THIS SHEET.
4. CHANNELIZING DEVICE SPACING
TANGENT SECTIONS: 60 FT. (2X DESIGN SPEED LIMIT)
TAPER SECTIONS: 30 FT. (1X DESIGN SPEED LIMIT)
DESIGN SPEED THROUGH CONSTRUCTION ZONE = 30MPH
5. ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
6. TRAFFIC CONTROL SHALL ALLOW FOR A WB-67 DESIGN VEHICLE.
7. ATTENUATORS SHALL MEET THE POSTED SPEED OF 50 MPH.
8. CHANNELIZING DEVICES LEFT OVERNIGHT SHALL BE DRUMS.
9. REMOVED CENTERLINE TO BE REPLACED WITH DURABLE 4 INCH YELLOW LINE.
10. TEMPORARY TRAFFIC BARRIER TO BE IN PLACE WHILE EXCAVATION IS OPEN AND WORK IS NOT ACTIVE OR AT THE DISCRETION OF THE ENGINEER.
11. TEMPORARY WIDENING TO BE PAID FOR AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)

LEGEND

- UNDER CONSTRUCTION
- ALTERNATING ONE WAY TRAFFIC
- TEMPORARY TRAFFIC BARRIER
- CHANNELIZING DEVICE
- ENERGY ABSORPTION ATTENUATOR
- TYPE III BARRIER
- CONSTRUCTION SIGN
- TEMPORARY TRAFFIC SIGNAL
- FLASHING BEACON
- REMOVE OR MASK PAVEMENT MARKINGS



PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266tc.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: I. MAYNARD
TRAFFIC CONTROL PLAN - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 18 OF 55



SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊕ Rod Sounding
- ⊕ Sample
- N Standard Penetration Test
- Blow Count Per Foot For:
- 2" O.D. Sampler
- 1 3/8" I.D. Sampler
- Hammer Weight Of 140 Lbs.
- Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 5/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- SI Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB To Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- 1/2 Rec. Percent Recovery
- RQD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)

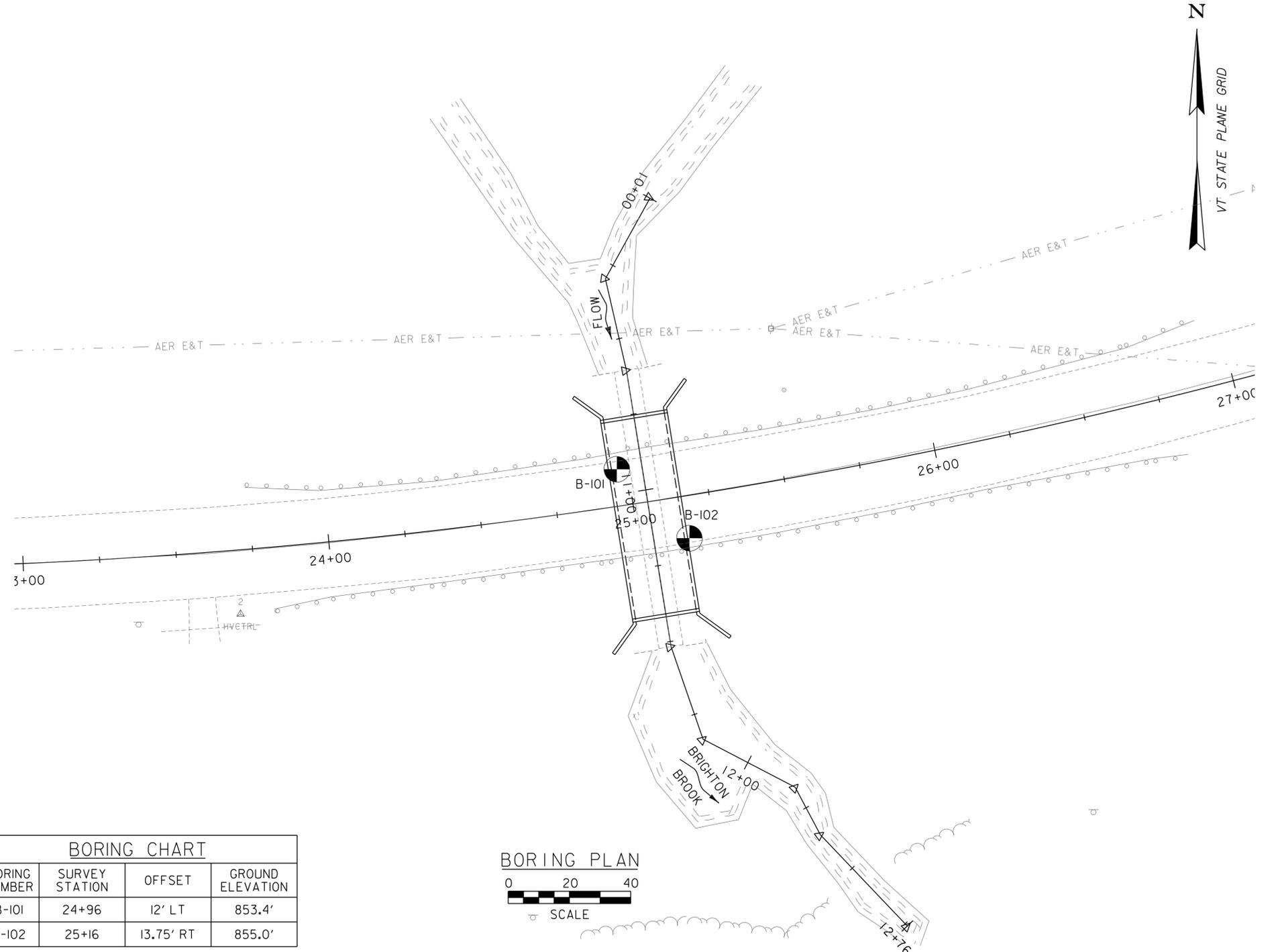
COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.075" (#10 sieve).
- SAND** - Particles of rock < 0.075" (#10 sieve) and > 0.0029" (#200 sieve).
- SILT** - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.

BORING CHART			
BORING NUMBER	SURVEY STATION	OFFSET	GROUND ELEVATION
B-101	24+96	12' LT	853.4'
B-102	25+16	13.75' RT	855.0'



BORING PLAN



GENERAL NOTES

- The subsurface explorations shown herein were made on Oct. 25, 2012 by N.H. Boring.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

LEGEND:



PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266bdr_bor_pl.br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BORING PLAN - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: J. HUNGERFORD
SHEET 19 OF 55



STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-101						
		IRASBURG STP CULV(30) VT-58 BR-6&7		Page No.: 1 of 1						
				Pin No.: 11C266						
				Checked By: LAR						
Boring Crew: GARROW, JUDKINS		Casing	Sampler	Groundwater Observations						
Date Started: 10/11/12	Date Finished: 10/11/12	Type: WB	SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 843693.56 ft E 1691783.85 ft		I.D.: 4 in	1.5 in	10/11/12	15.0	Bedstream Bottom				
Station: 24+96	Offset: 12' LT	Hammer Wt: N.A.	140 lb.							
Ground Elevation: 853.4		Hammer Fall: N.A.	30 in.							
		Hammer/Rod Type: Auto/AWJ								
		Rig: CME 45C SKID	CE = 1.33							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0.0 - 0.8	Asphalt Pavement	Asphalt Pavement, 0.0 ft - 0.8 ft								
1.0	A-4, SiSa, brn, Moist, Rec. = 1.0 ft	A-4, SiSa, brn, Moist, Rec. = 1.0 ft		7-3-3-3 (6)	15.4	12.4	44.2	43.4		
10	Visual Description: SiGrSa, brn, Moist, Rec. = 0.8 ft	Visual Description: SiGrSa, brn, Moist, Rec. = 0.8 ft		22-13-13-7 (26)						
20	Visual Description: GrSa, brn, Moist, Rec. = 0.8 ft	Visual Description: GrSa, brn, Moist, Rec. = 0.8 ft		3-2-5-4 (7)						
20	Field Note: No Recovery, Stone in sampler.	Field Note: No Recovery, Stone in sampler.		7-6-4-2 (10)						
20	A-2-4, SiSa, Dk/brn, MTW, Rec. = 0.9 ft	A-2-4, SiSa, Dk/brn, MTW, Rec. = 0.9 ft		4-2-1-1 (3)	42.1	0.5	64.7	34.8		
20	Visual Description: SiSa, Dk/brn, MTW, Rec. = 1.5 ft	Visual Description: SiSa, Dk/brn, MTW, Rec. = 1.5 ft		1-2-1-2 (3)						
20	Visual Description: SiSa, yellow, MTW, Rec. = 0.1 ft	Visual Description: SiSa, yellow, MTW, Rec. = 0.1 ft		7-5-8-8 (13)						
20	Field Note: No Recovery	Field Note: No Recovery		11-8-8-8 (16)						
20	A-4, Si, gry, Wet, Rec. = 0.9 ft	A-4, Si, gry, Wet, Rec. = 0.9 ft		7-5-3-4 (8)	26.5		17.3	82.7		
30	Visual Description: Si, gry, MTW, Rec. = 1.4 ft	Visual Description: Si, gry, MTW, Rec. = 1.4 ft		2-3-2-2 (5)						
30	A-4, Si, gry, MTW, Rec. = 1.4 ft	A-4, Si, gry, MTW, Rec. = 1.4 ft		2-3-5-5 (8)	26.0		17.0	83.0		
30	Visual Description: Si, gry, MTW, Rec. = 1.2 ft	Visual Description: Si, gry, MTW, Rec. = 1.2 ft		2-3-4-6 (7)						
30	A-4, Si, gry, MTW, Rec. = 1.5 ft	A-4, Si, gry, MTW, Rec. = 1.5 ft		3-3-4-5 (7)	24.7	1.6	98.4	23	6	
30	Visual Description: Si with little clay, gry, MTW, Rec. = 1.6 ft	Visual Description: Si with little clay, gry, MTW, Rec. = 1.6 ft		3-3-3-4 (6)						
40	Field Note: No Recovery in Shelby Tube	Field Note: No Recovery in Shelby Tube								
40	Visual Description: SiCl, gry, Moist, Rec. = 1.8 ft	Visual Description: SiCl, gry, Moist, Rec. = 1.8 ft		3-3-4-6 (7)						
40	A-6, SiCl, gry, MTW, Rec. = 1.5 ft	A-6, SiCl, gry, MTW, Rec. = 1.5 ft		4-5-7-6 (12)	26.5	0.8	99.2	29	11	
40	Visual Description: SiCl, gry, MTW, Rec. = 1.8 ft	Visual Description: SiCl, gry, MTW, Rec. = 1.8 ft		3-4-6-6 (10)						
40	Visual Description: SiCl, gry, MTW, Rec. = 1.6 ft	Visual Description: SiCl, gry, MTW, Rec. = 1.6 ft		5-4-4-6 (8)						
50	Hole stopped @ 50.0 ft									
Remarks: 15.0 feet to bed of stream.										

BOTTOM OF CULVERT
APPROX. EL. 833.9

BORING LOG 2 IRASBURG STP CULV(30) GPJ VERMONT AOT.GDT 1/28/13

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-102						
		IRASBURG STP CULV(30) VT-58 BR-6&7		Page No.: 1 of 1						
				Pin No.: 11C266						
				Checked By: LAR						
Boring Crew: GARROW, JUDKINS		Casing	Sampler	Groundwater Observations						
Date Started: 10/12/12	Date Finished: 10/12/12	Type: WB	SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 843671.01 ft E 1691807.52 ft		I.D.: 4 in	1.5 in							
Station: 25+16	Offset: 13.75' RT	Hammer Wt: N.A.	140 lb.							
Ground Elevation: 855.0		Hammer Fall: N.A.	30 in.							
		Hammer/Rod Type: Auto/AWJ								
		Rig: CME 45C SKID	CE = 1.33							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)		Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0.0 - 0.8	Asphalt Pavement	Asphalt Pavement, 0.0 ft - 0.8 ft								
0.6	Visual Description: SaGr, brn, Moist, Rec. = 0.6 ft	Visual Description: SaGr, brn, Moist, Rec. = 0.6 ft		8-8-8-7 (16)						
10	Visual Description: Broken Rock pieces, gry, Moist, Rec. = 0.1 ft	Visual Description: Broken Rock pieces, gry, Moist, Rec. = 0.1 ft		14-R@6.0"						
10	Field Note: Boulder	Field Note: Boulder								
20	Visual Description: GrSa, brn, MTW, Rec. = 0.4 ft	Visual Description: GrSa, brn, MTW, Rec. = 0.4 ft		4-4-3-3 (7)						
20	Field Note: No Recovery, Stone in sampler.	Field Note: No Recovery, Stone in sampler.		4-3-2-4 (5)						
20	Visual Description: One stone with little sand, gry, Moist, Rec. = 0.1 ft	Visual Description: One stone with little sand, gry, Moist, Rec. = 0.1 ft		3-4-3-4 (7)						
20	A-2-4, GrSiSa, Dk/gry, MTW, Rec. = 0.7 ft	A-2-4, GrSiSa, Dk/gry, MTW, Rec. = 0.7 ft		4-6-5-2 (11)	17.6	26.1	40.2	33.7		
20	Visual Description: GrSiSa, gry, MTW, Rec. = 0.8 ft	Visual Description: GrSiSa, gry, MTW, Rec. = 0.8 ft		4-4-4-3 (8)						
20	A-4, SaSi, gry, Wet, Rec. = 1.1 ft	A-4, SaSi, gry, Wet, Rec. = 1.1 ft		2-2-4-4 (6)	26.5	0.4	43.7	55.9		
20	Visual Description: SiSa, gry, Wet, Rec. = 1.5 ft	Visual Description: SiSa, gry, Wet, Rec. = 1.5 ft		2-4-4-4 (8)						
30	A-4, Cisi, gry, Moist, Rec. = 1.7 ft	A-4, Cisi, gry, Moist, Rec. = 1.7 ft		4-5-5-5 (10)	22.9		3.2	96.8	25	8
30	Visual Description: Cisi, gry, MTW, Rec. = 1.3 ft	Visual Description: Cisi, gry, MTW, Rec. = 1.3 ft		2-5-4-6 (9)						
30	A-6, SiCl, gry, MTW, Rec. = 1.8 ft	A-6, SiCl, gry, MTW, Rec. = 1.8 ft		2-4-3-3 (7)	26.3		1.0	99.0	30	11
30	Visual Description: Cisi, gry, MTW, Rec. = 1.4 ft	Visual Description: Cisi, gry, MTW, Rec. = 1.4 ft		2-4-5-5 (9)						
30	A-4, Cisi, gry, MTW, Rec. = 1.4 ft	A-4, Cisi, gry, MTW, Rec. = 1.4 ft		3-3-6-6 (9)	24.4		16.6	83.4	23	8
30	Visual Description: Cisi, gry, MTW, Rec. = 1.4 ft	Visual Description: Cisi, gry, MTW, Rec. = 1.4 ft		2-4-6-5 (10)						
30	A-4, Cisi, gry, MTW, Rec. = 1.6 ft	A-4, Cisi, gry, MTW, Rec. = 1.6 ft		4-5-6-4 (11)	23.1		13.3	86.7	24	10
30	Visual Description: SiCl, gry, MTW, Rec. = 1.4 ft	Visual Description: SiCl, gry, MTW, Rec. = 1.4 ft		3-6-9-12 (15)						
30	A-6, SiCl, gry, MTW, Rec. = 1.6 ft	A-6, SiCl, gry, MTW, Rec. = 1.6 ft		4-8-10-12 (18)	24.1		5.5	94.5	34	14
30	Visual Description: SiCl, gry, MTW, Rec. = 1.6 ft	Visual Description: SiCl, gry, MTW, Rec. = 1.6 ft		4-8-12-16 (20)						
50	Hole stopped @ 50.0 ft									
Remarks: 15.0 feet to bed of stream.										

BOTTOM OF CULVERT
APPROX. EL. 833.6

BORING LOG 2 IRASBURG STP CULV(30) GPJ VERMONT AOT.GDT 1/28/13

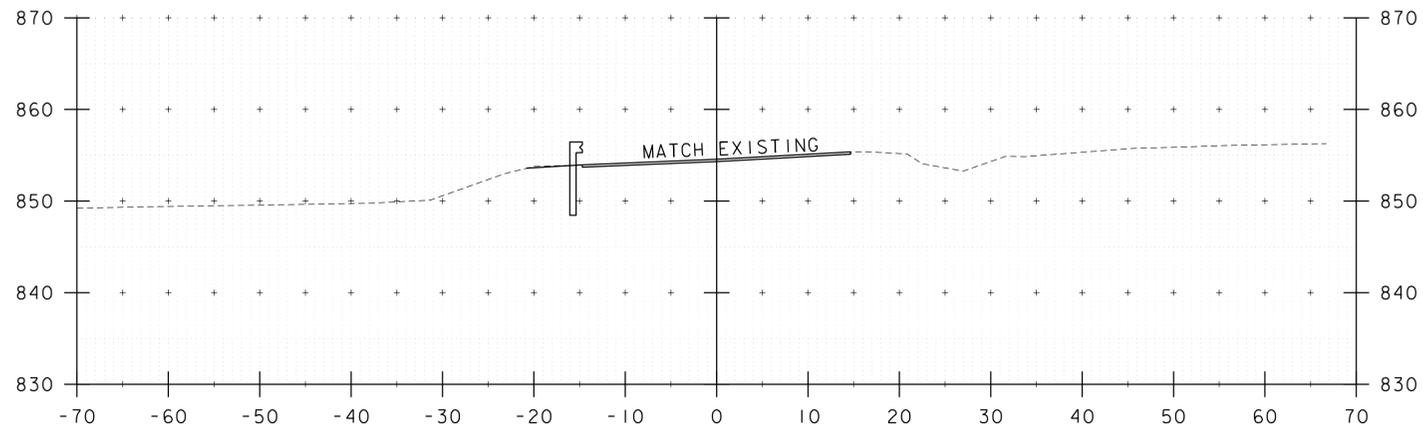
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

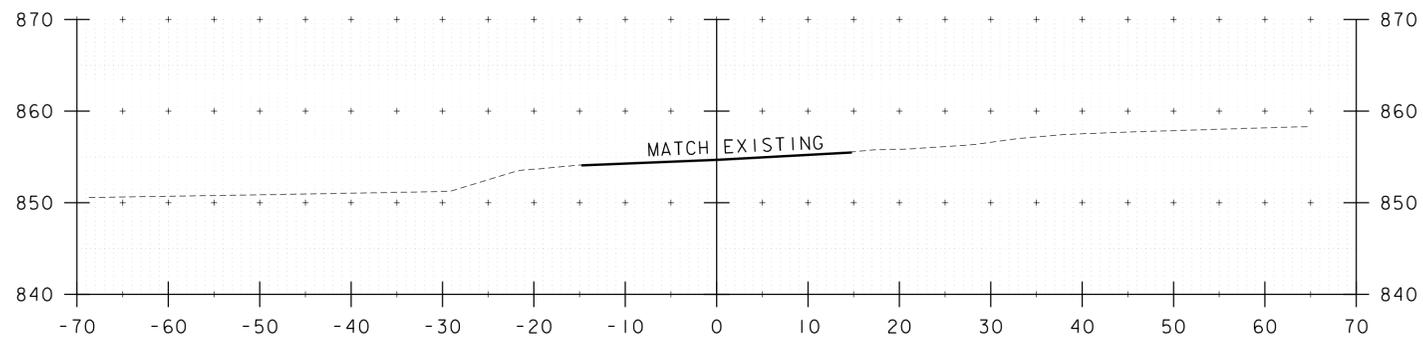
FILE NAME: zllc266bor_log_br6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VTRANS
BORING LOG - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: VTRANS
SHEET 20 OF 55



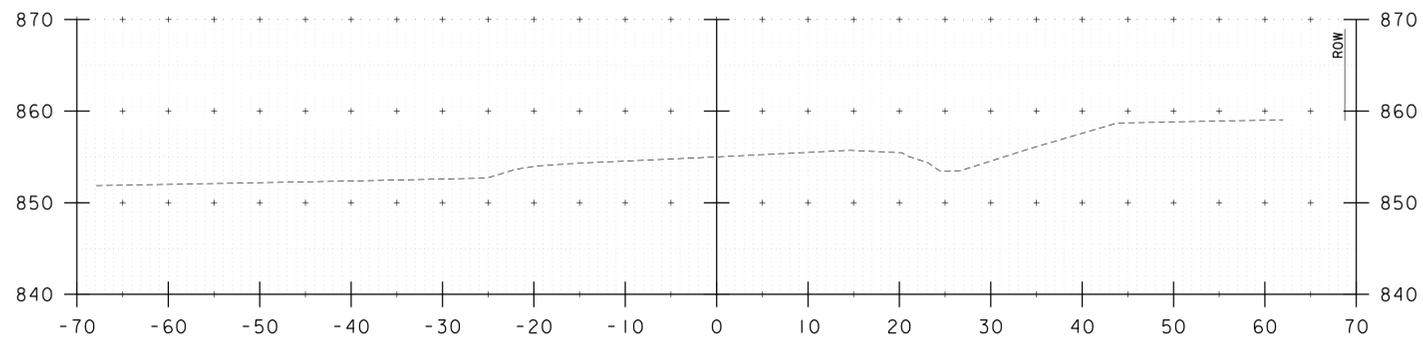


23+75

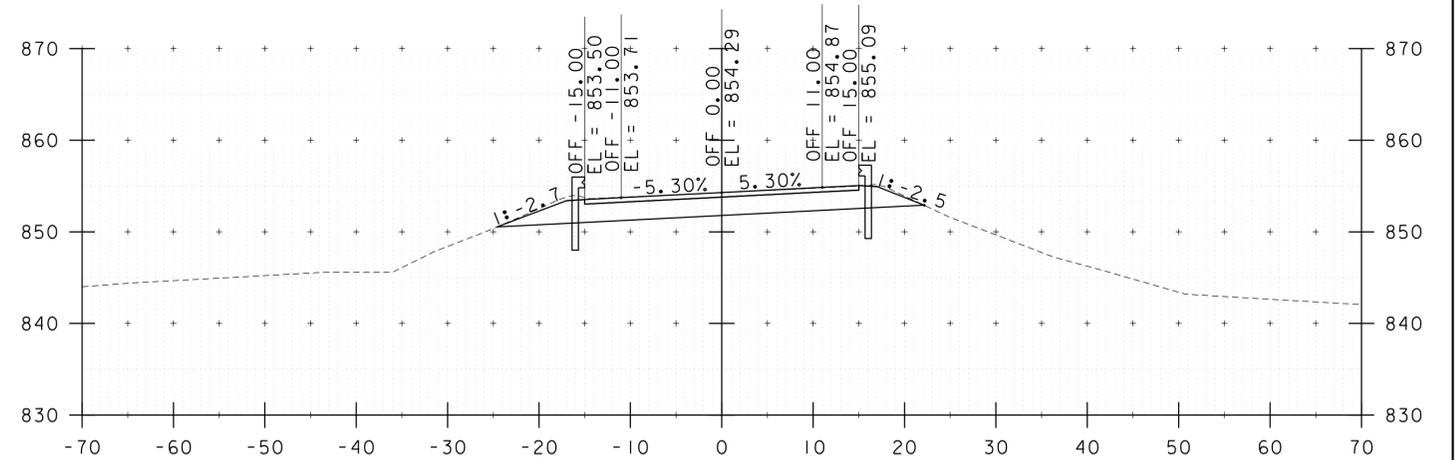


23+50

23+47
BEGIN APPROACH

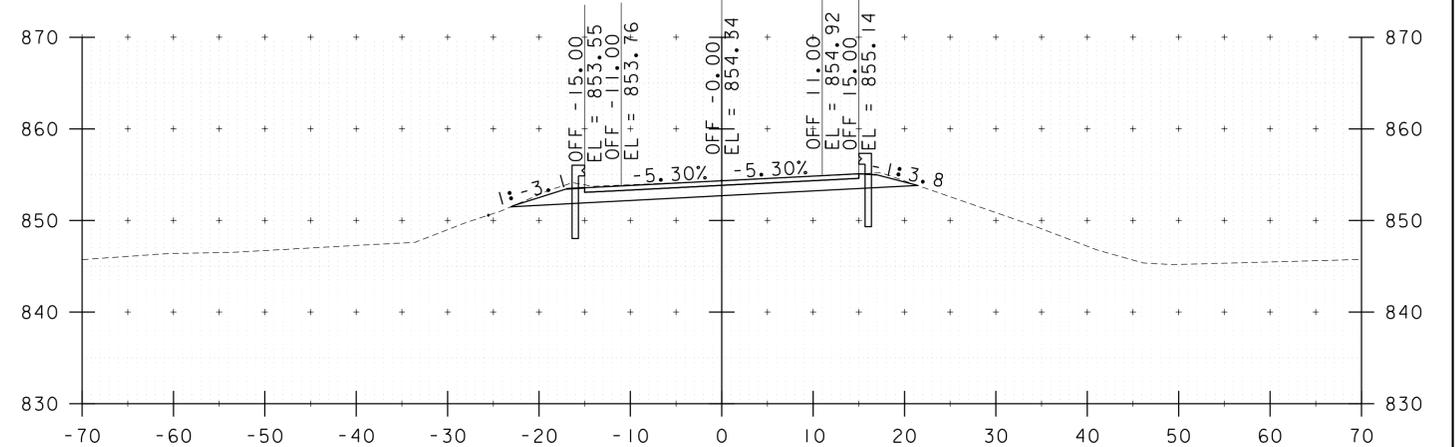


23+25

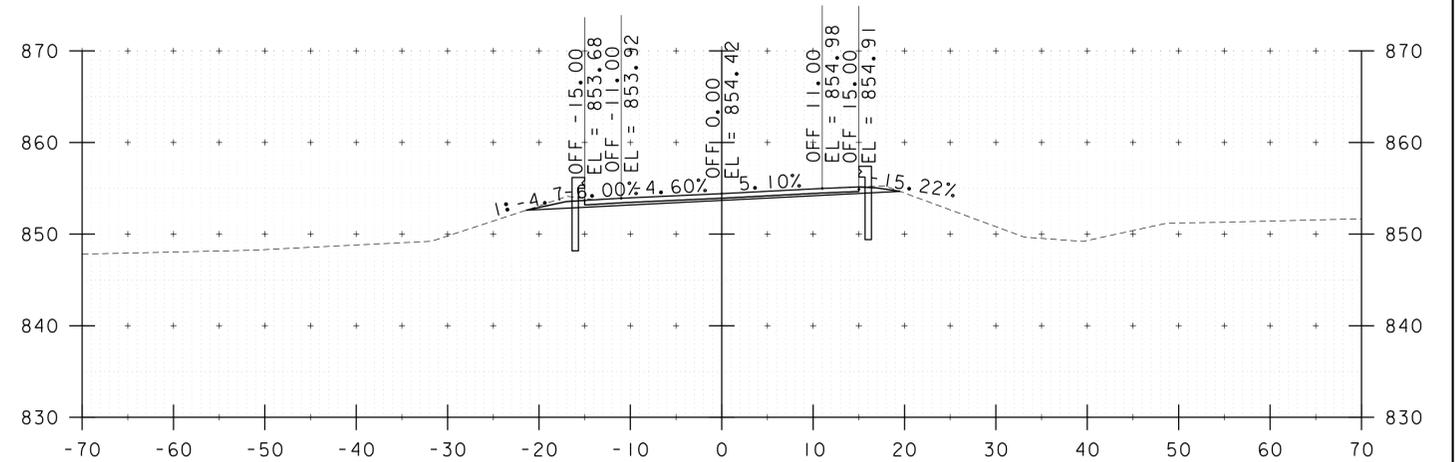


24+47
BEGIN PROJECT

24+50



24+25



24+00

STA. 23+25 TO STA. 24+50

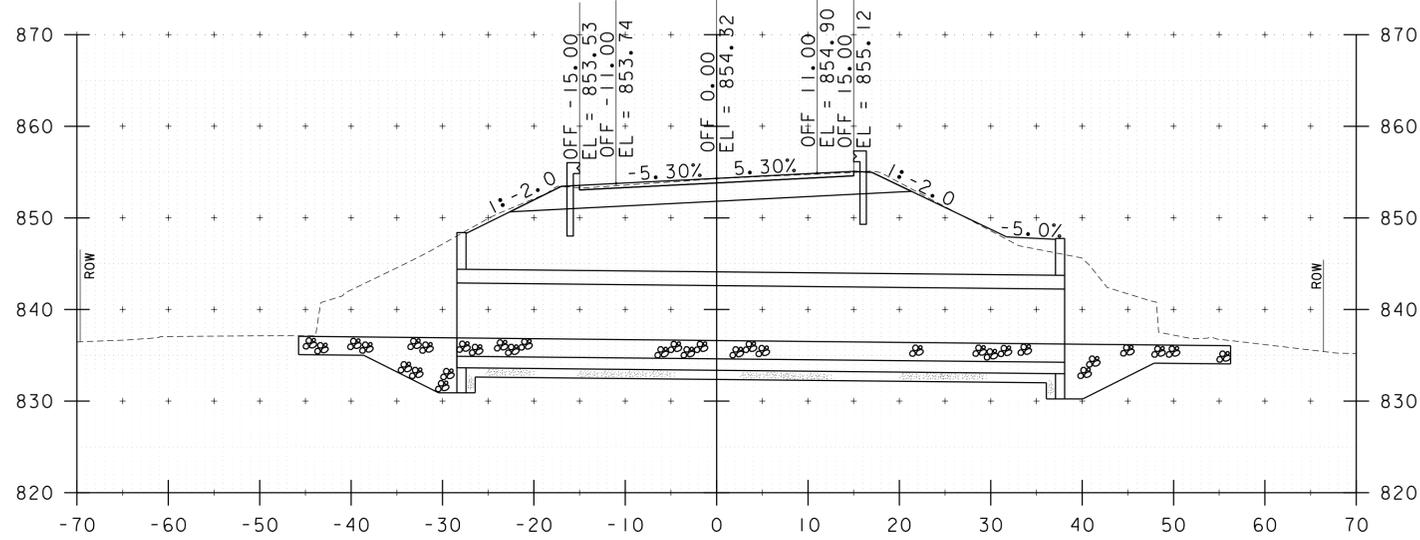
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXSI - BR6

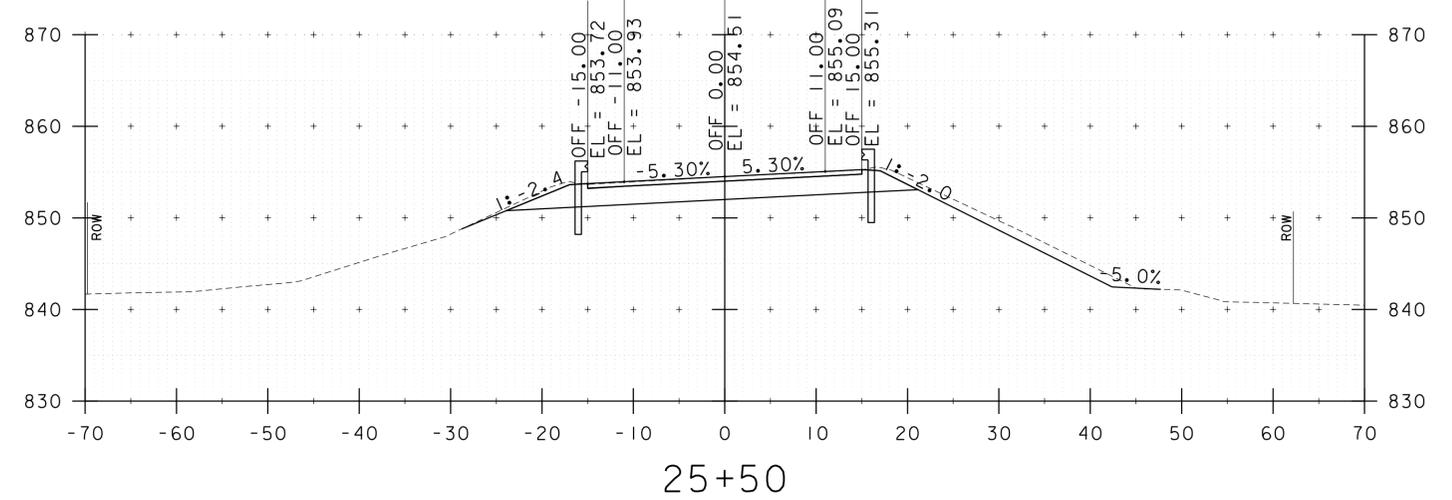
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 21 OF 55



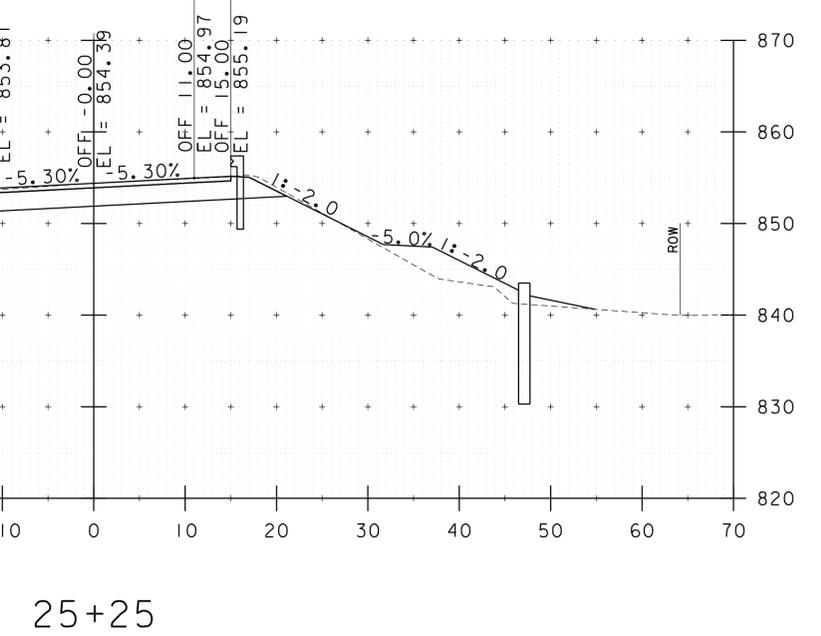
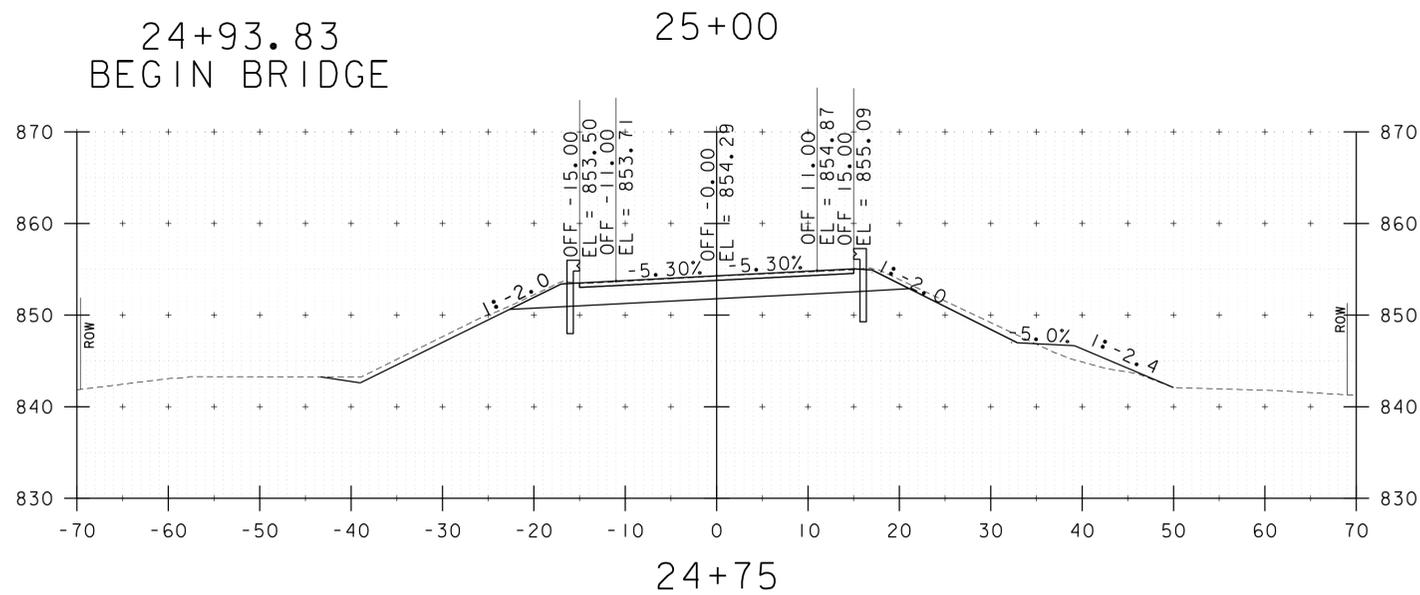
25+15.83
END BRIDGE



25+63
END PROJECT



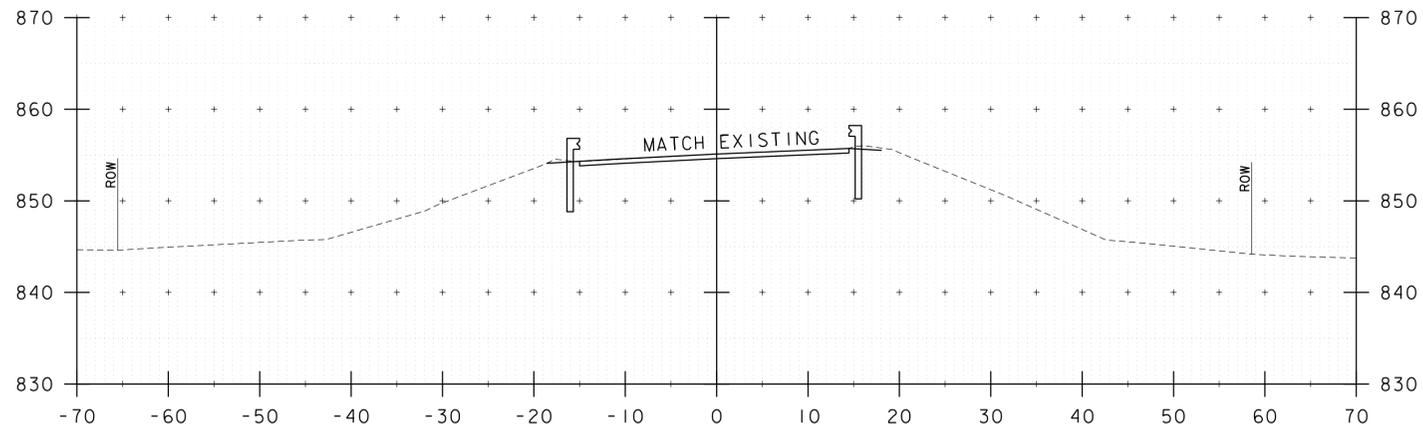
24+93.83
BEGIN BRIDGE



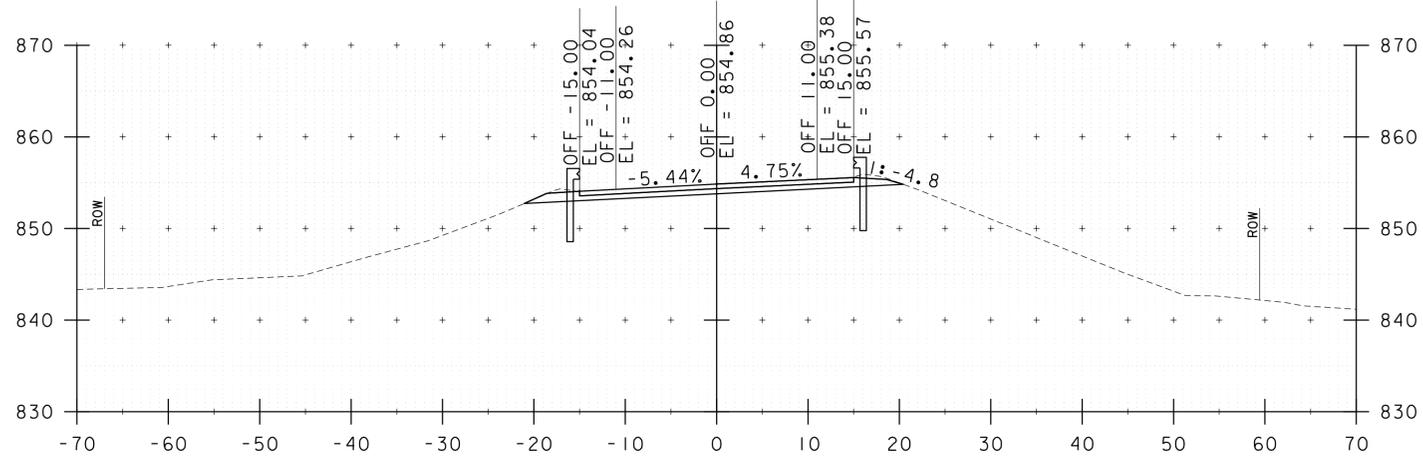
STA. 24+75 TO STA. 25+63

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME:	zllc266xs.dgn
PROJECT LEADER:	M. CHENETTE
DESIGNED BY:	J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS2 - BR6	
PLOT DATE:	9/26/2014
DRAWN BY:	L. BUXTON
CHECKED BY:	M. CHENETTE
SHEET	22 OF 55

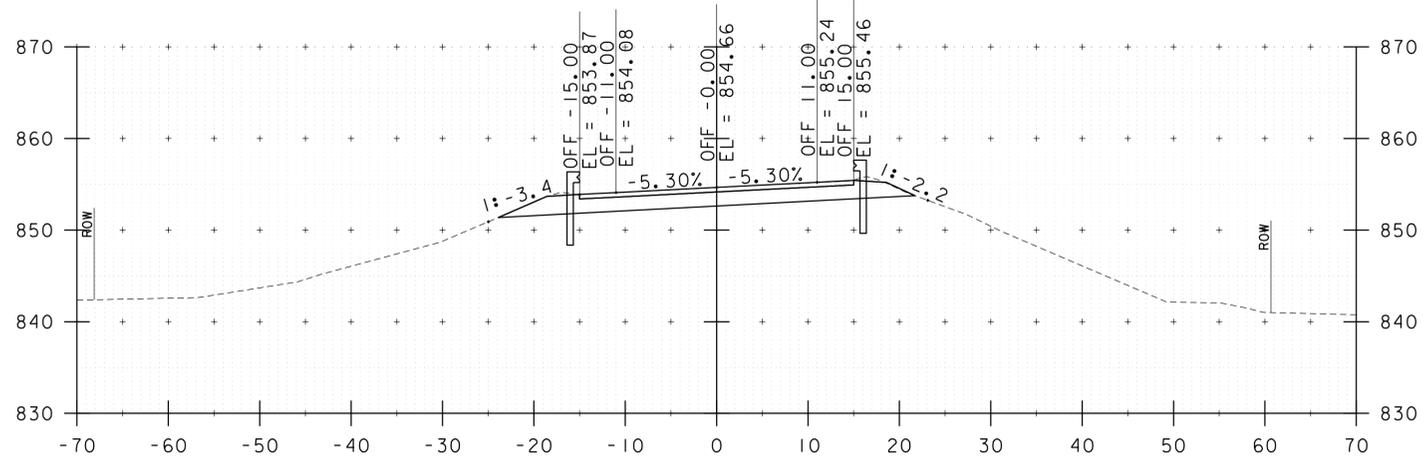




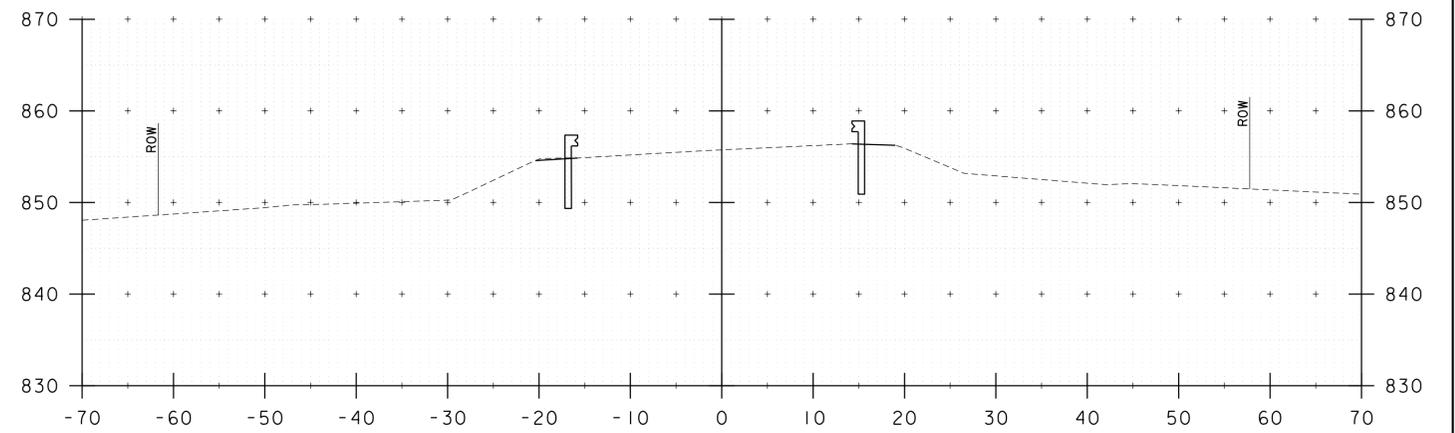
26+25



26+00

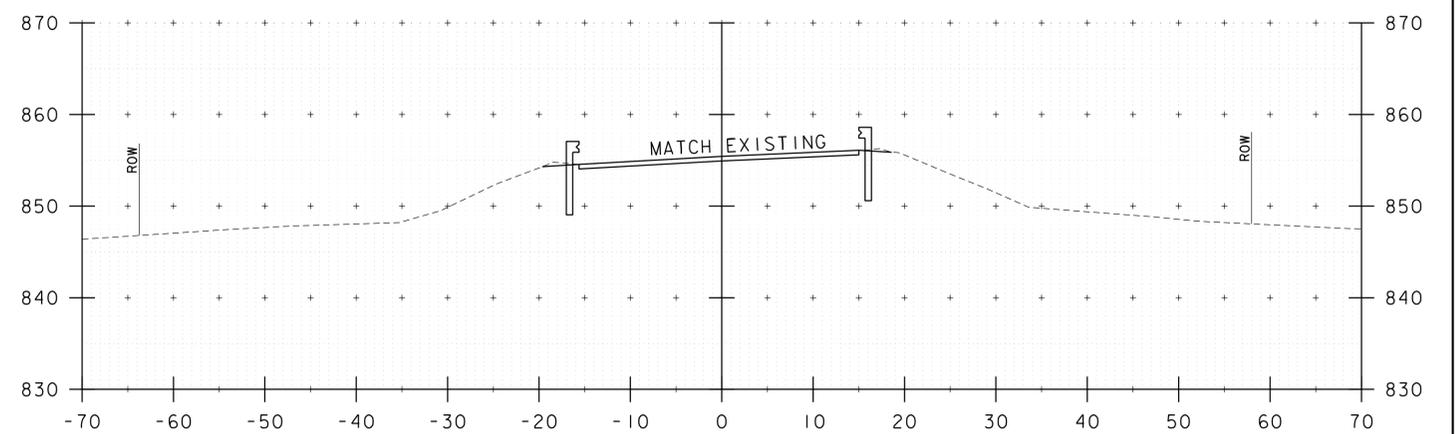


25+75



26+63
END APPROACH

26+75



26+50

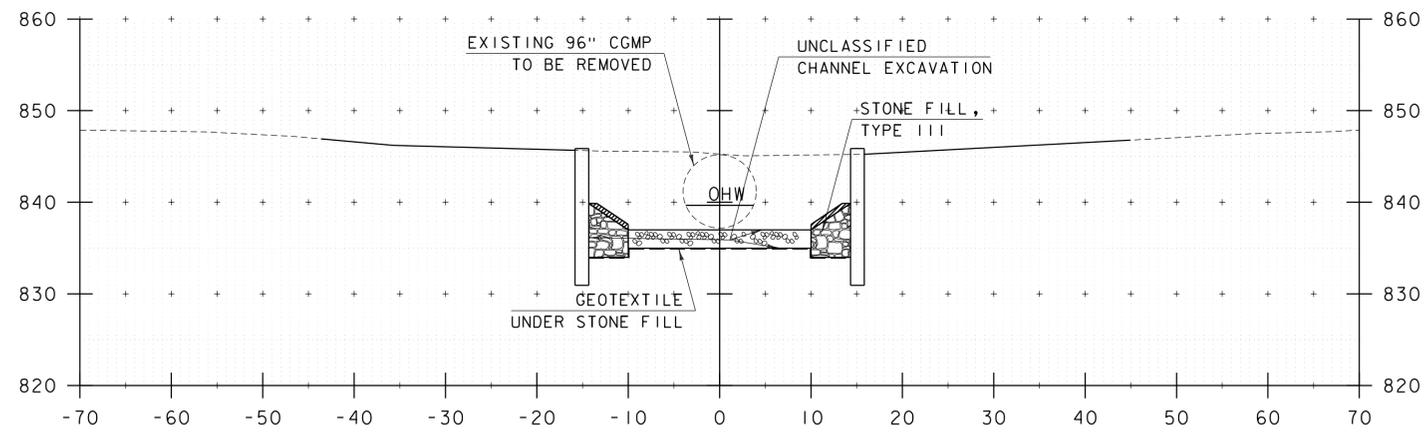
STA. 25+75 TO STA. 26+75

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

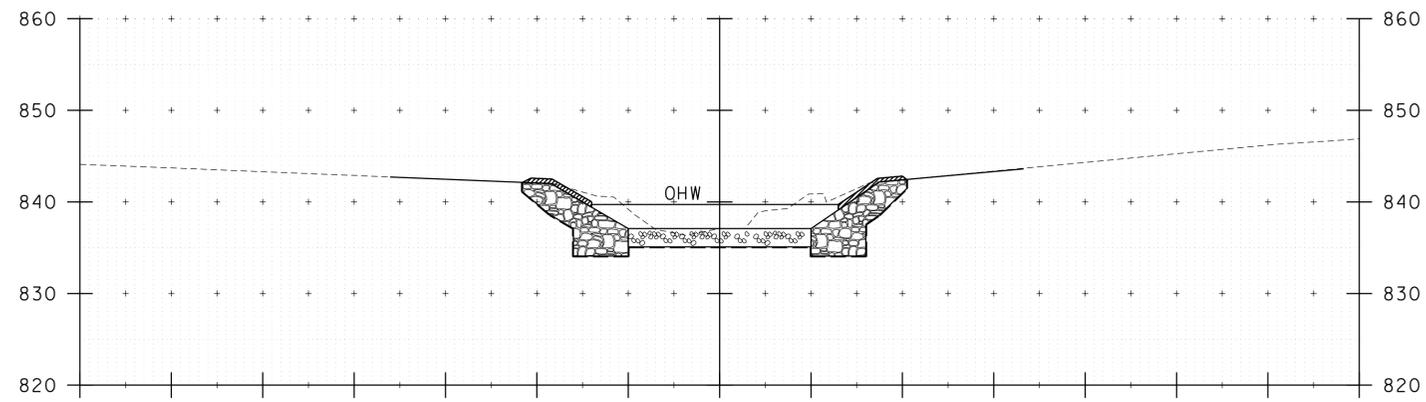
FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS3 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 23 OF 55



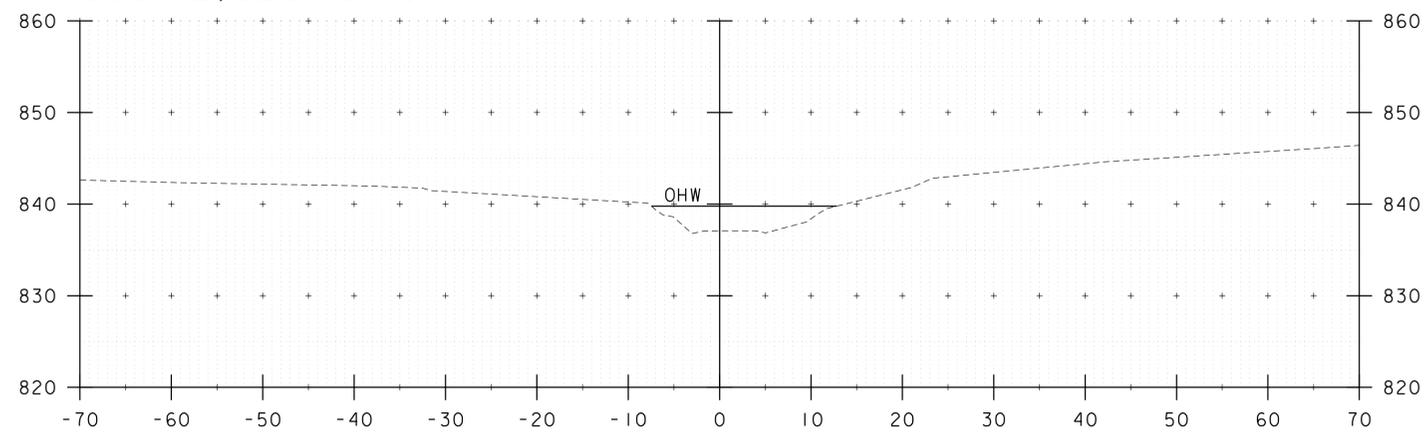


10+70

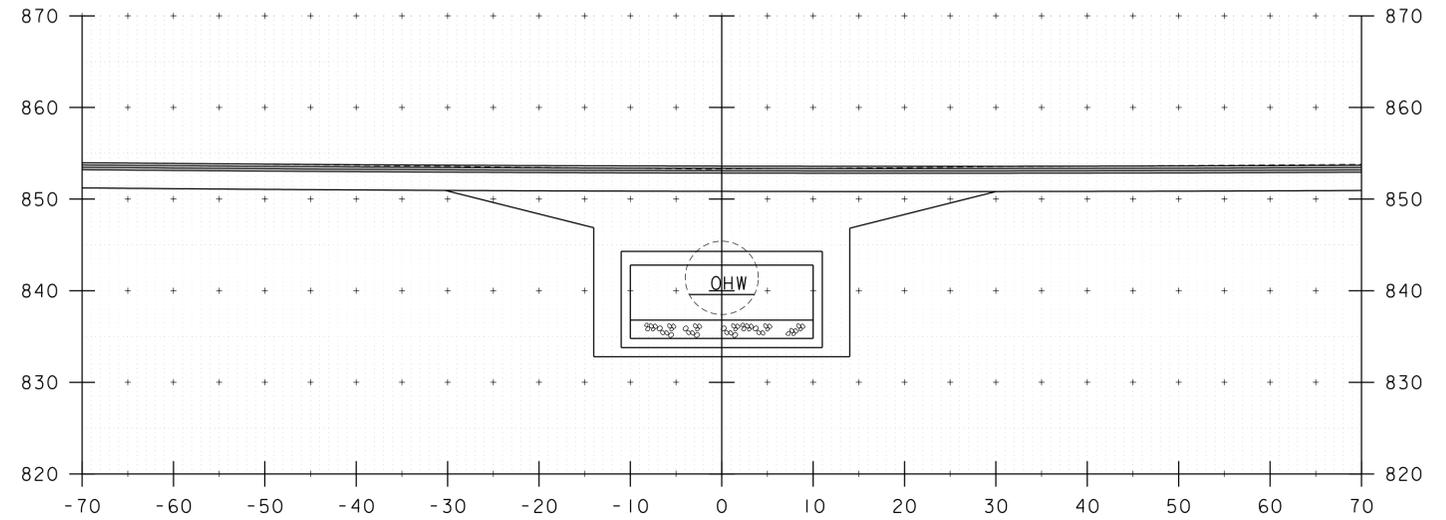


10+60

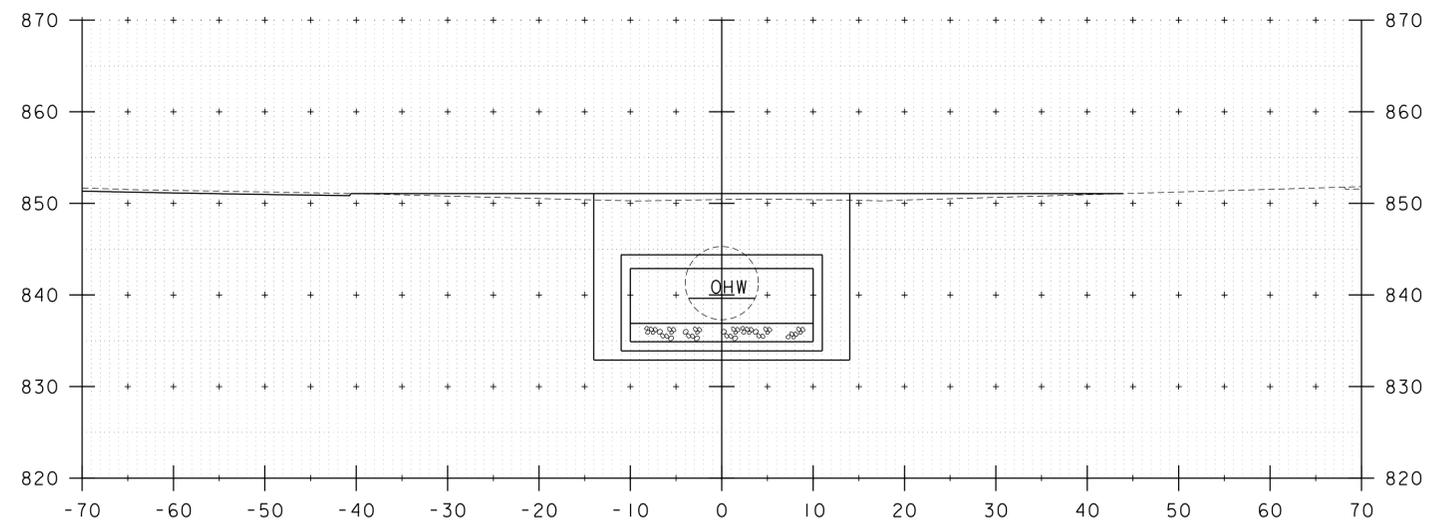
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BEGIN UNCLASSIFIED CHANNEL EXCAVATION	BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL	GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III	STONE FILL, TYPE III
GRUBBING MATERIAL	GRUBBING MATERIAL
STA. 10+58 LT	BEGIN SPECIAL PROVISION
BEGIN SPECIAL PROVISION	(STONE FILL, CULVERT LINING)
(STONE FILL, CULVERT LINING)	



10+50



10+90



10+80

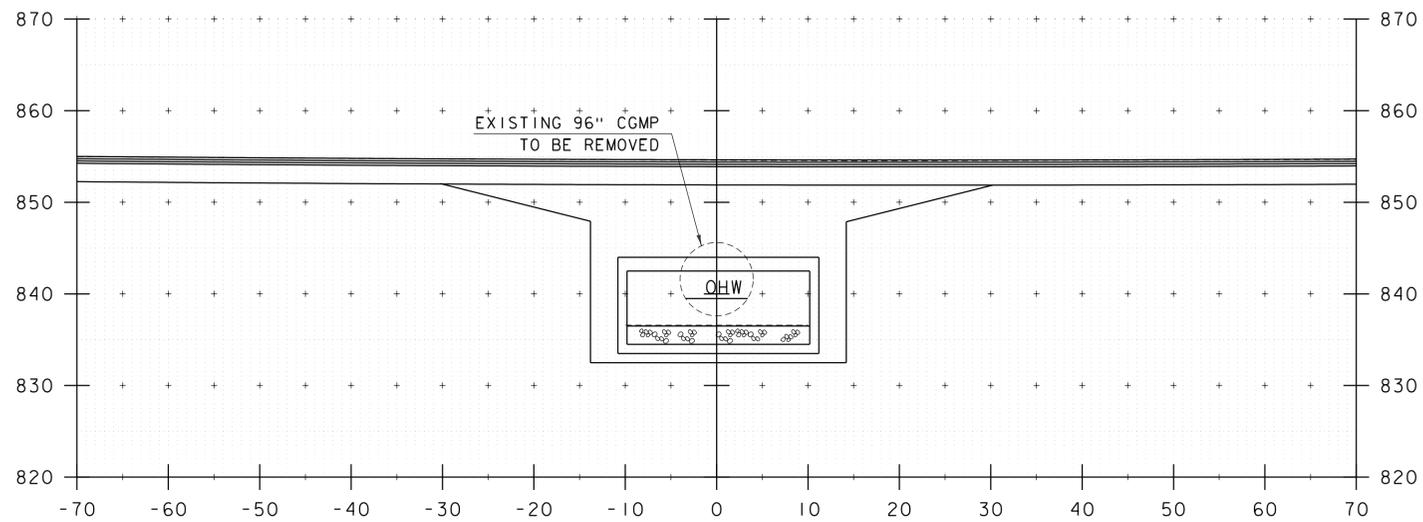
STA. 10+75.33 LT	STA. 10+75.33 RT
STOP UNCLASSIFIED CHANNEL EXCAVATION	STOP UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL	GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE III	STONE FILL, TYPE III
GRUBBING MATERIAL	GRUBBING MATERIAL

STA. 10+50 TO STA. 10+90

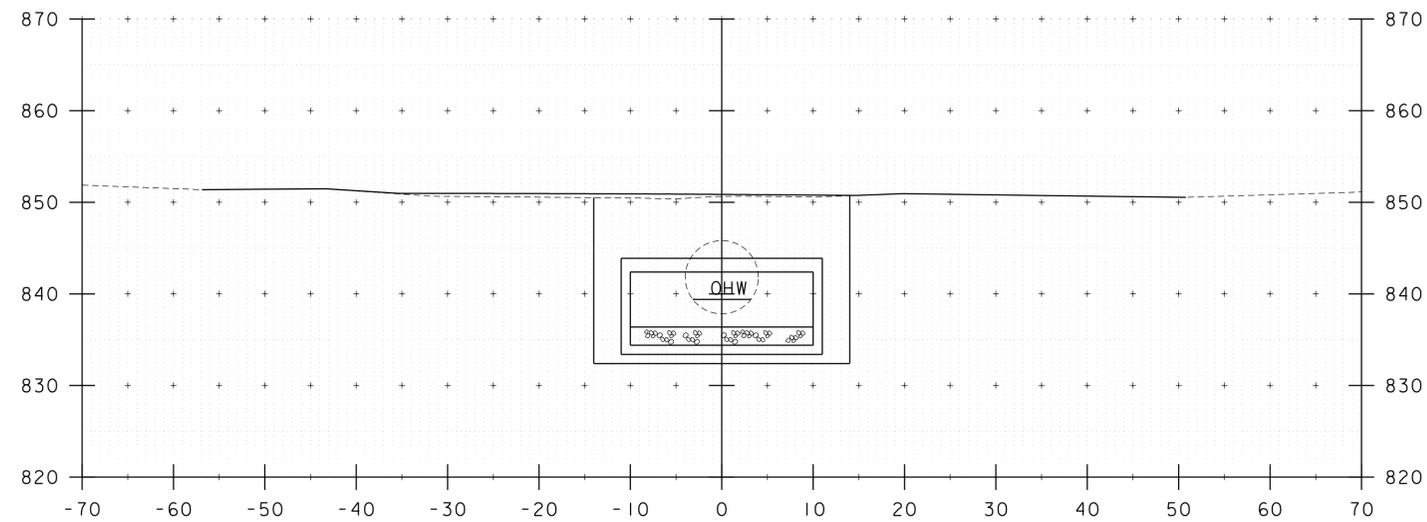
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
CHANNEL CROSS SECTIONS - CXSI - BR6	SHEET 24 OF 55

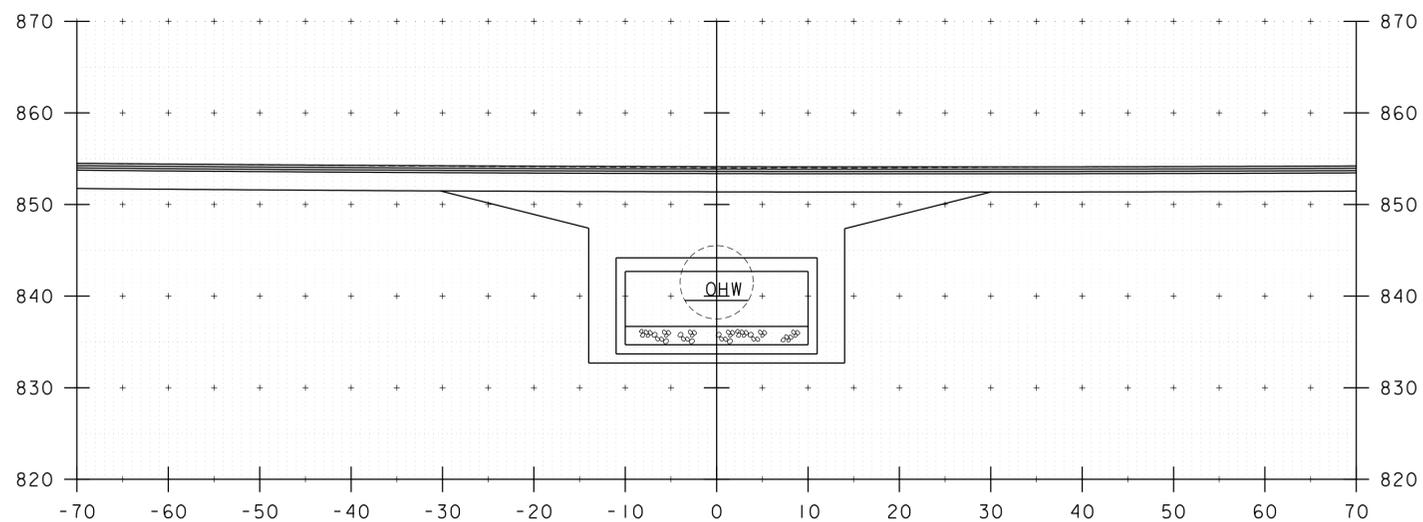




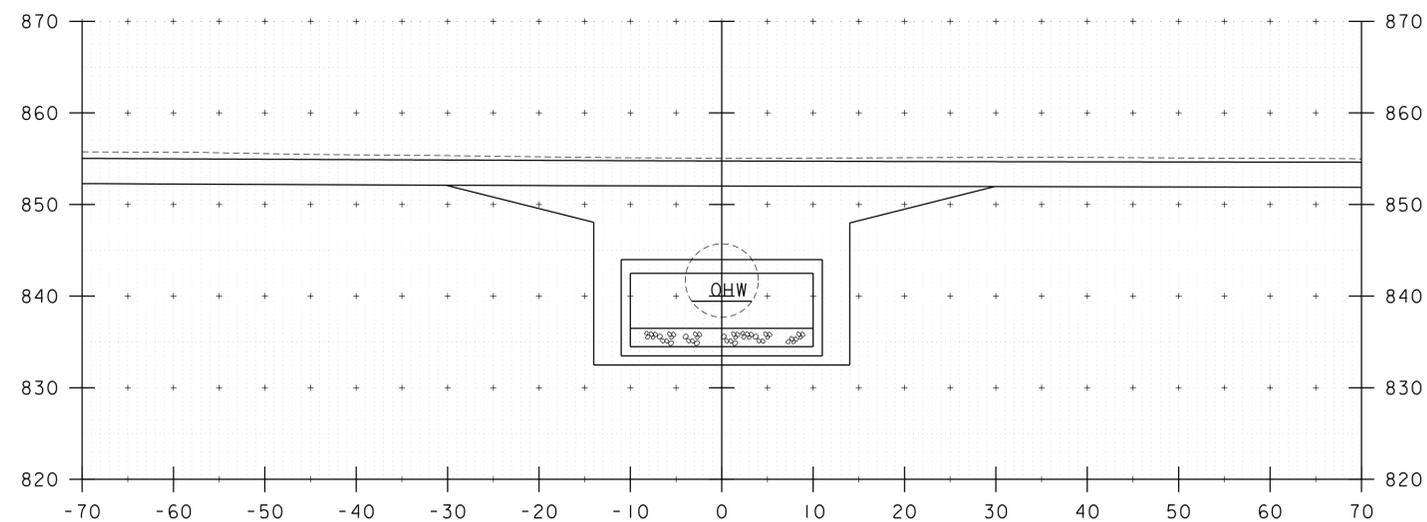
11+10



11+30



11+00



11+20

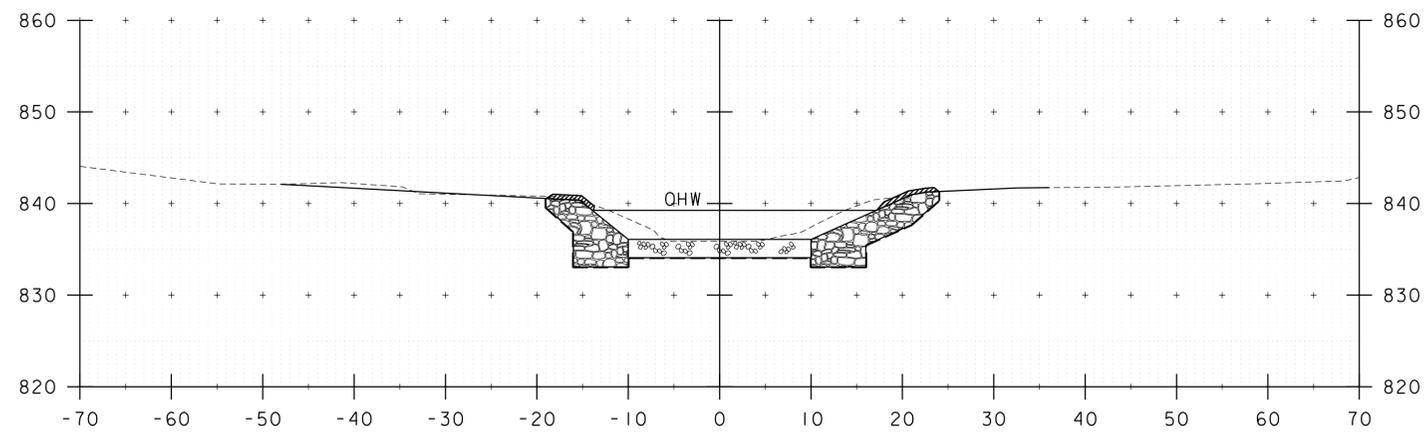
STA. 11+00 TO STA. 11+30

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS2 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 25 OF 55

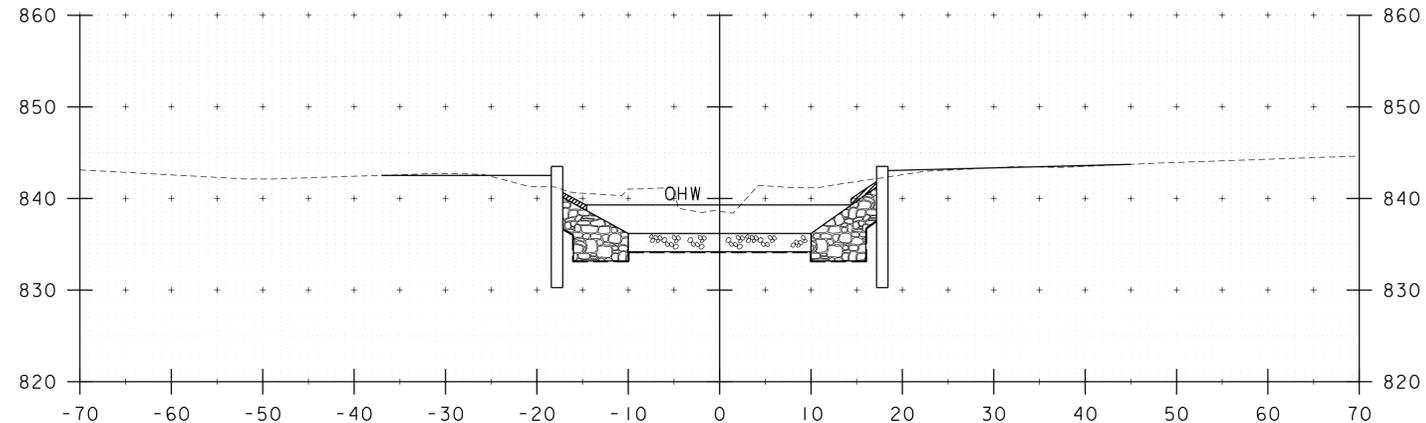




STA. 11+60 LT
 END UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL
 END SPECIAL PROVISION
 (STONE FILL, CULVERT LINING)

11+60

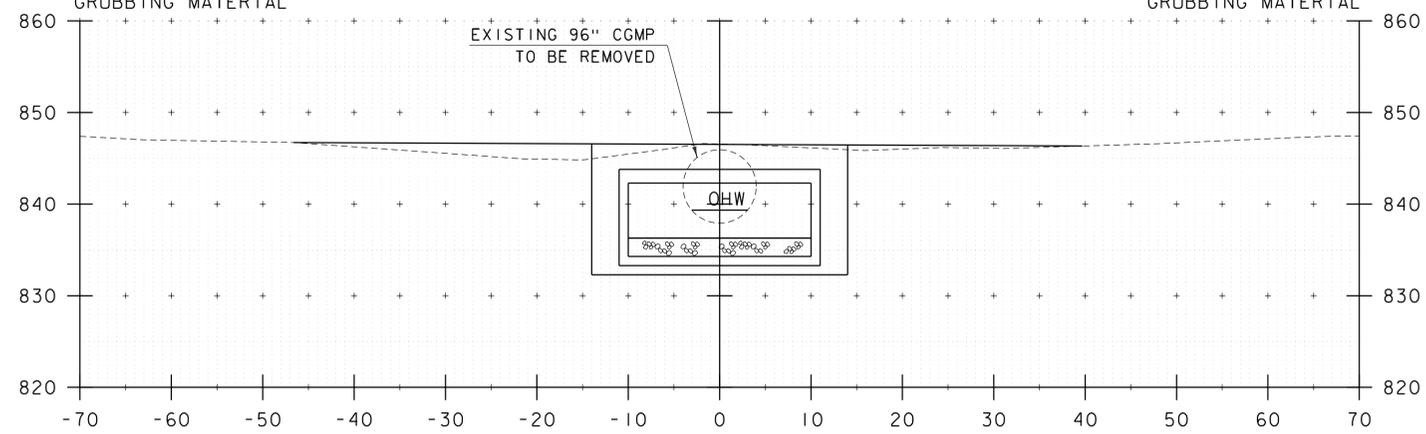
STA. 11+60 RT
 END SPECIAL PROVISION
 (STONE FILL, CULVERT LINING)



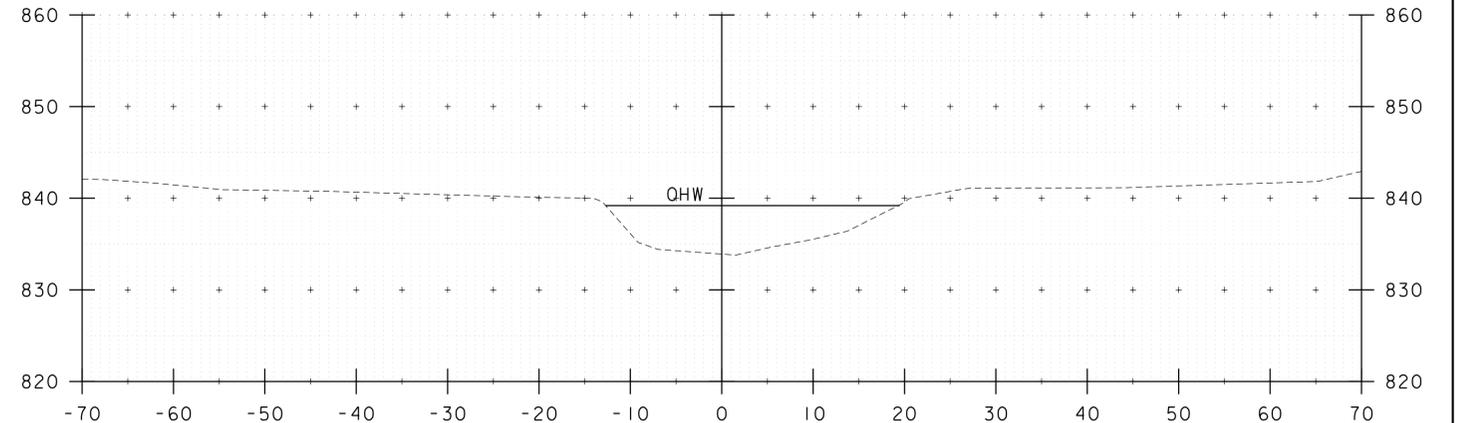
STA. 11+41.83 LT
 RESUME UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL

11+50

STA. 11+41.83 RT
 RESUME UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL



11+40



STA. 11+62 RT
 END UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL

11+70

STA. 11+40 TO STA. 11+70

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME:	zllc266xs.dgn
PROJECT LEADER:	M. CHENETTE
DESIGNED BY:	J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXS3 - BR6	
PLOT DATE:	9/26/2014
DRAWN BY:	L. BUXTON
CHECKED BY:	M. CHENETTE
SHEET	26 OF 55



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #6, RELATED CHANNEL WORK AND INCIDENTALS. BRIDGE #6 IS AN EXISTING 96" CORRUGATED STEEL CULVERT, WHICH WILL BE REPLACED WITH A 20' SPAN PRECAST CONCRETE BOX CULVERT TO CONVEY THE BRIGHTON BROOK BENEATH VT ROUTE 58. BRIDGE #6 IS LOCATED IN THE TOWN OF IRASBURG ON VT ROUTE 58, 0.3 MILES WEST OF THE JUNCTION WITH VERMONT ROUTE 14.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.69 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT SITE IS A LOW LYING WETLAND / MARSHY AREA WITH GRASSY UNDERGROWTH. VT ROUTE 58 IS WITHIN THE PROJECT SITE. THERE IS AN ADJACENT HOUSE AND FARM TO THE SITE WITH AGRICULTURAL FARMLAND. GRASS AND UNDERGROWTH BUFFERS THE AGRICULTURAL FARMLAND FROM THE PROJECT SITE. THERE ARE OVERHEAD UTILITIES THAT SHOULD NOT BE IMPACTED BY THE PROJECT. THERE IS A GUY WIRE ON THE NORTH SIDE OF THE PROJECT THAT WILL BE REPLACED WITH A PUSH BRACE PRIOR TO THE START OF THE PROJECT.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE WATER SOURCE ON THE PROJECT SITE IS THE BRIGHTON BROOK. THE PROJECT IS IN THE LAKE MEMPHREMOG DRAINAGE BASIN. THE TOTAL CONTRIBUTING DRAINAGE AREA IS 3.55 SQ. MI. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF FROM THE SURROUNDING SLOPES, ROADWAY DITCHES AND THE ROADWAY OVER TOP OF CULVERT. THERE ARE CLASS II WETLANDS ON THE NORTH AND SOUTH SIDES OF THE PROJECT AT THE INLET AND OUTLET. SEE THE PROJECT IMPACTS PLANS.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF OPEN GRASSED AREAS, AND UNDERGROWTH ON THE BANKS OF THE BROOK. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS RELATED TO THE EXCAVATION REQUIRED FOR THE INSTALLATION OF THE CULVERT, HEADWALLS, WINGWALLS, STONE FILL, AND TEMPORARY ACCESS. UPON PROJECT COMPLETION, THE CHANNEL AND DISTURBED AREAS WITH SLOPES GREATER THAN 2:1 WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ORLEANS, VERMONT. SOILS ON THE PROJECT SITE ARE LAMOINE SILT LOAM, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL

0.24-0.36 = MODERATE EROSION POTENTIAL

0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO

HISTORICAL OR ARCHEOLOGICAL AREAS: ARCHEOLOGICALLY SENSITIVE AREAS IN ALL FOUR QUADRANTS AS SHOWN ON THE PLANS

PRIME AGRICULTURAL LAND: NO

THREATENED AND ENDANGERED SPECIES: NO

WATER RESOURCE: BRIGHTON BROOK

WETLANDS: THERE ARE WETLANDS AT THE INLET AND OUTLET OF THE STRUCTURE. SEE THE PROJECT IMPACTS PLANS.

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING AN EPSC PLAN IN ACCORDANCE WITH SECTION 652 OF THE SPECIAL PROVISIONS.

IN ADDITION, THE CONTRACTOR SHALL DESIGN AND IMPLEMENT A TEMPORARY STREAM DIVERSION, INCLUDING EPSC MEASURES IN ACCORDANCE WITH ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THEREFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS NEEDED AND AS DIRECTED BY THE ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED WITH THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

SEDIMENT CONTAINMENT BAGS (FILTER BAGS) FOR HEADWALL WORK SHALL BE USED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SEE SHEET 30 FOR DETAIL.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 OFF-SITE ACTIVITIES

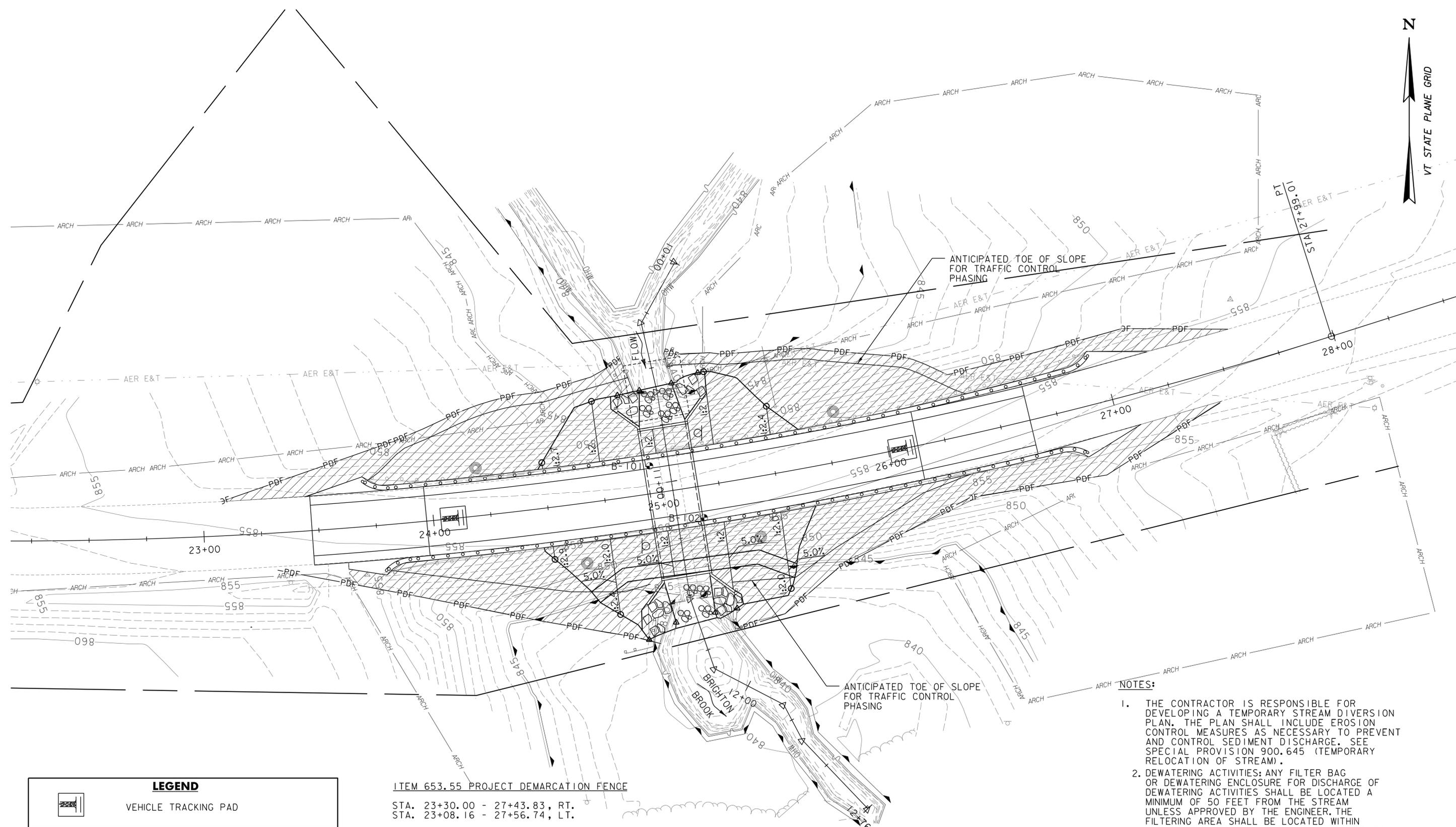
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.



PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266ero_narr_BR6.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EPSC NARRATIVE - ECN 1 - BR6

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 27 OF 55



LEGEND

 VEHICLE TRACKING PAD

ITEM 653.55 PROJECT DEMARCATION FENCE
 STA. 23+30.00 - 27+43.83, RT.
 STA. 23+08.16 - 27+56.74, LT.

ITEM 649.51 GEOTEXTILE FOR SILT FENCE
 SEE LOCATIONS, THIS SHEET.

PLAN

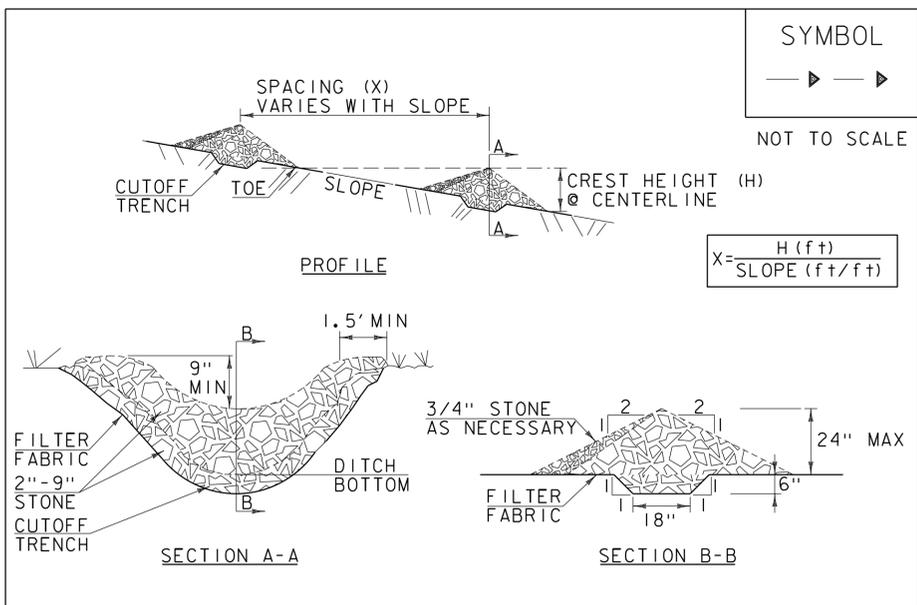
SCALE: 1" = 20'-0"



- NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A TEMPORARY STREAM DIVERSION PLAN. THE PLAN SHALL INCLUDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT AND CONTROL SEDIMENT DISCHARGE. SEE SPECIAL PROVISION 900.645 (TEMPORARY RELOCATION OF STREAM).
 2. DEWATERING ACTIVITIES: ANY FILTER BAG OR DEWATERING ENCLOSURE FOR DISCHARGE OF DEWATERING ACTIVITIES SHALL BE LOCATED A MINIMUM OF 50 FEET FROM THE STREAM UNLESS APPROVED BY THE ENGINEER. THE FILTERING AREA SHALL BE LOCATED WITHIN THE EXISTING RIGHT-OF-WAY AND IF NECESSARY MAY BE LOCATED WITHIN A CLOSED PORTION OF THE EXISTING ROADWAY AND/OR SHOULDER.

PROJECT NAME:	IRASBURG	PLOT DATE:	9/26/2014
PROJECT NUMBER:	STP CULV(30)	DRAWN BY:	L. BUXTON
FILE NAME:	zllc266bdr_EPSC-br6.dgn	DESIGNED BY:	J. HUNGERFORD
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	M. CHENETTE
EPSC CONST. SITE PLAN - ECPI - BR6			SHEET 28 OF 55





SYMBOL

 NOT TO SCALE

$$X = \frac{H(f+t)}{\text{SLOPE}(f+t/f+t)}$$

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

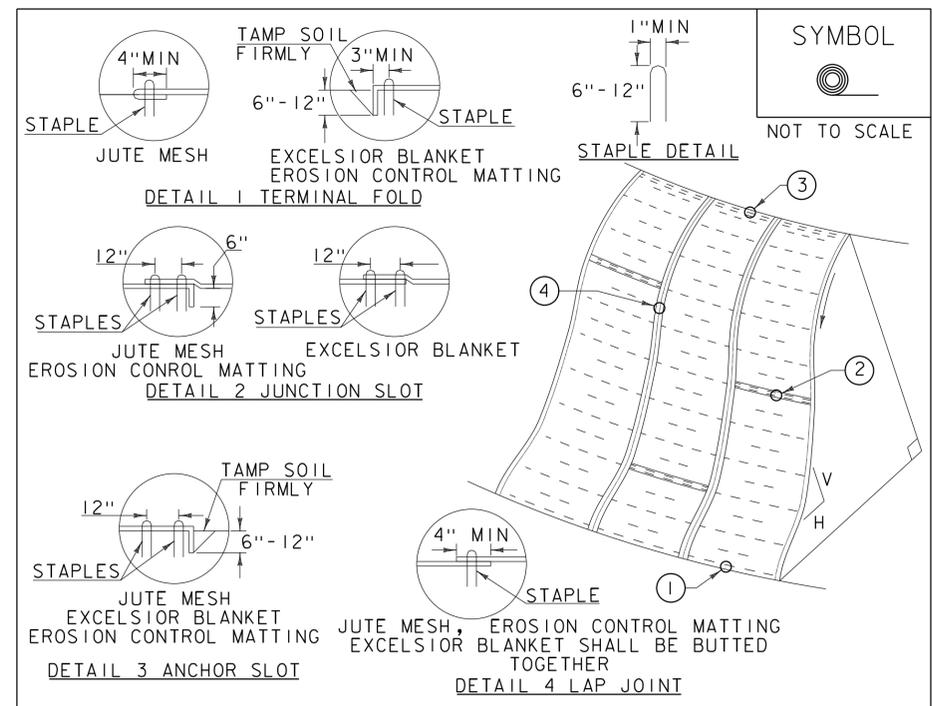
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

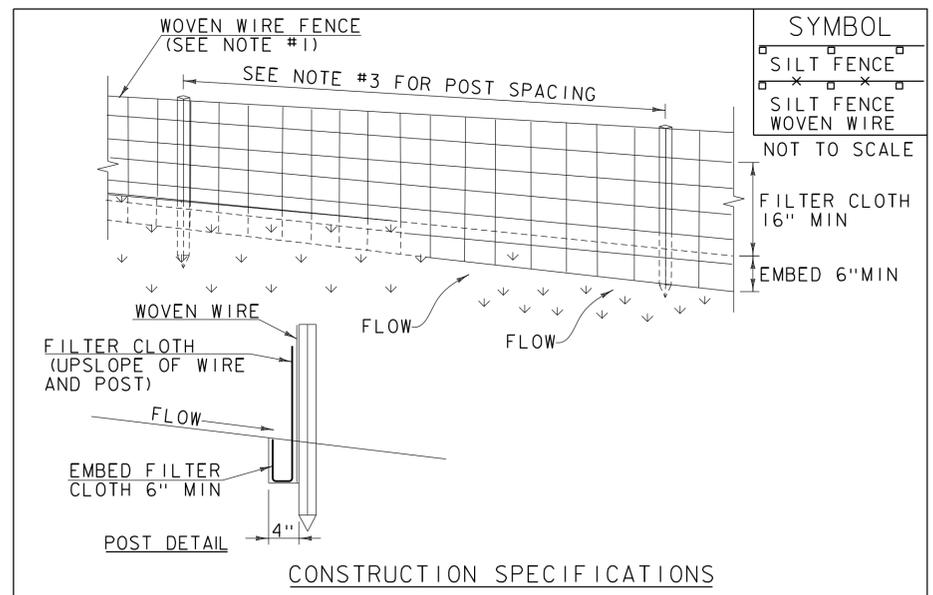
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br6.dgn PLOT DATE: 9/26/2014
 PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
 DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
 EROSION CONTROL DETAILS - ECD 1 - BR6 SHEET 29 OF 55



VAOT RURAL AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	FOLLOW	PELLETIZED	FOLLOW
500 LBS/AC	MANUFACTURER	2 TONS/AC	MANUFACTURER

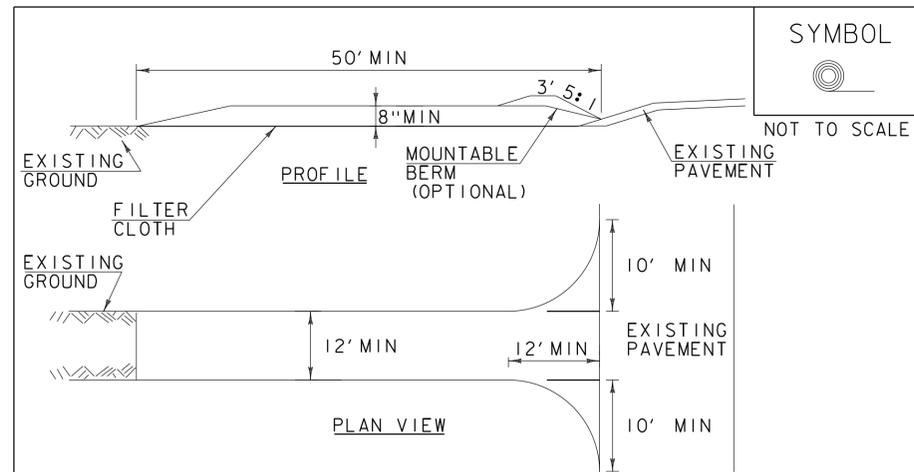
CONSTRUCTION GUIDANCE

- RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
- TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF



CONSTRUCTION SPECIFICATIONS

- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- THICKNESS- NOT LESS THAN 8".
- WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
- GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

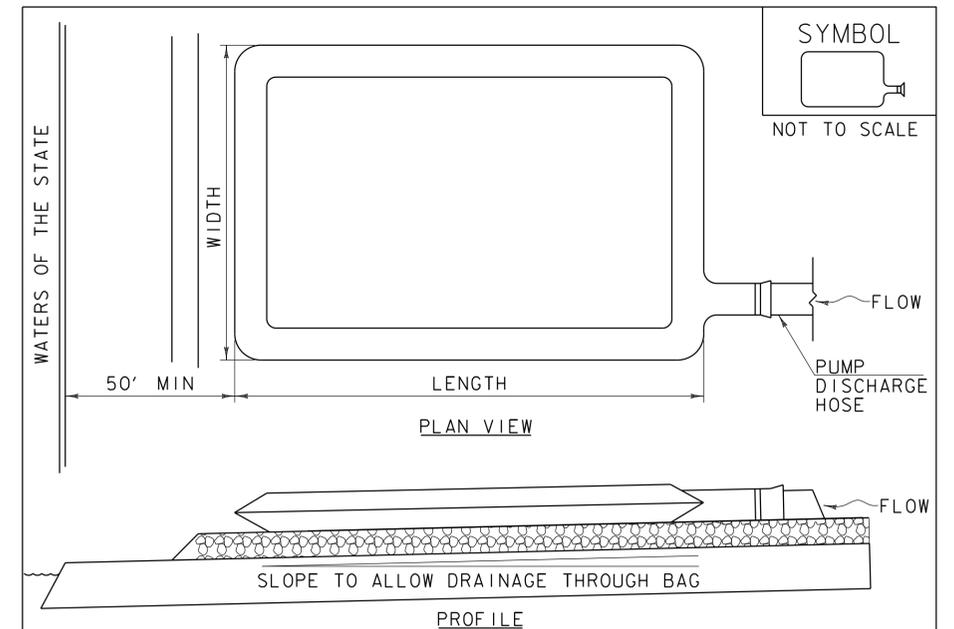
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

- THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
- FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
- FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
- FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
- A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
- FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

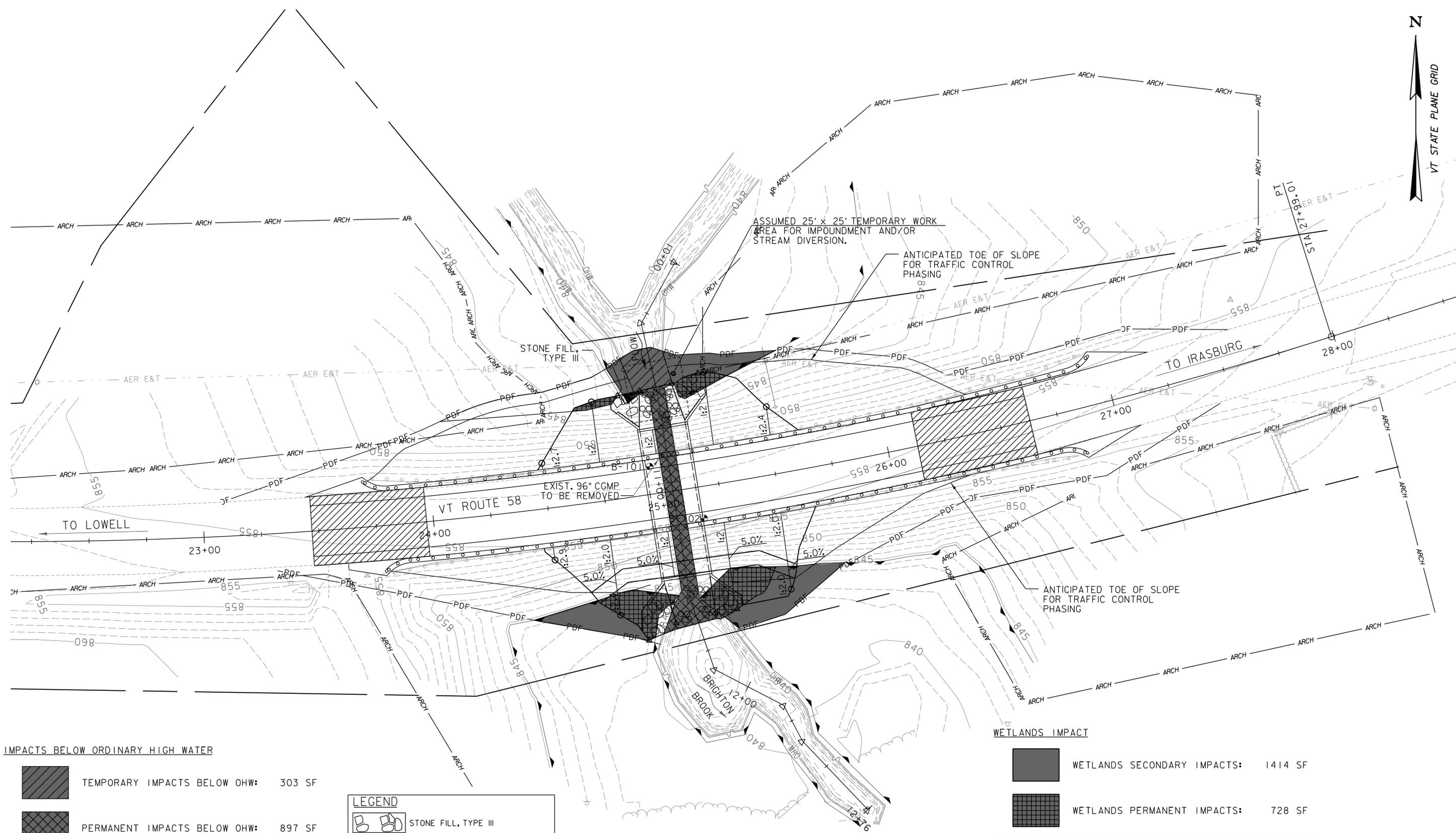
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br6.dgn PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
EROSION CONTROL DETAILS - ECD 2 - BR6 SHEET 30 OF 55





IMPACTS BELOW ORDINARY HIGH WATER

	TEMPORARY IMPACTS BELOW OHW:	303 SF
	PERMANENT IMPACTS BELOW OHW:	897 SF
TOTAL IMPACTS:		1200 SF

LEGEND

	STONE FILL, TYPE III
	SPECIAL PROVISION (STONE FILL, CULVERT LINING)

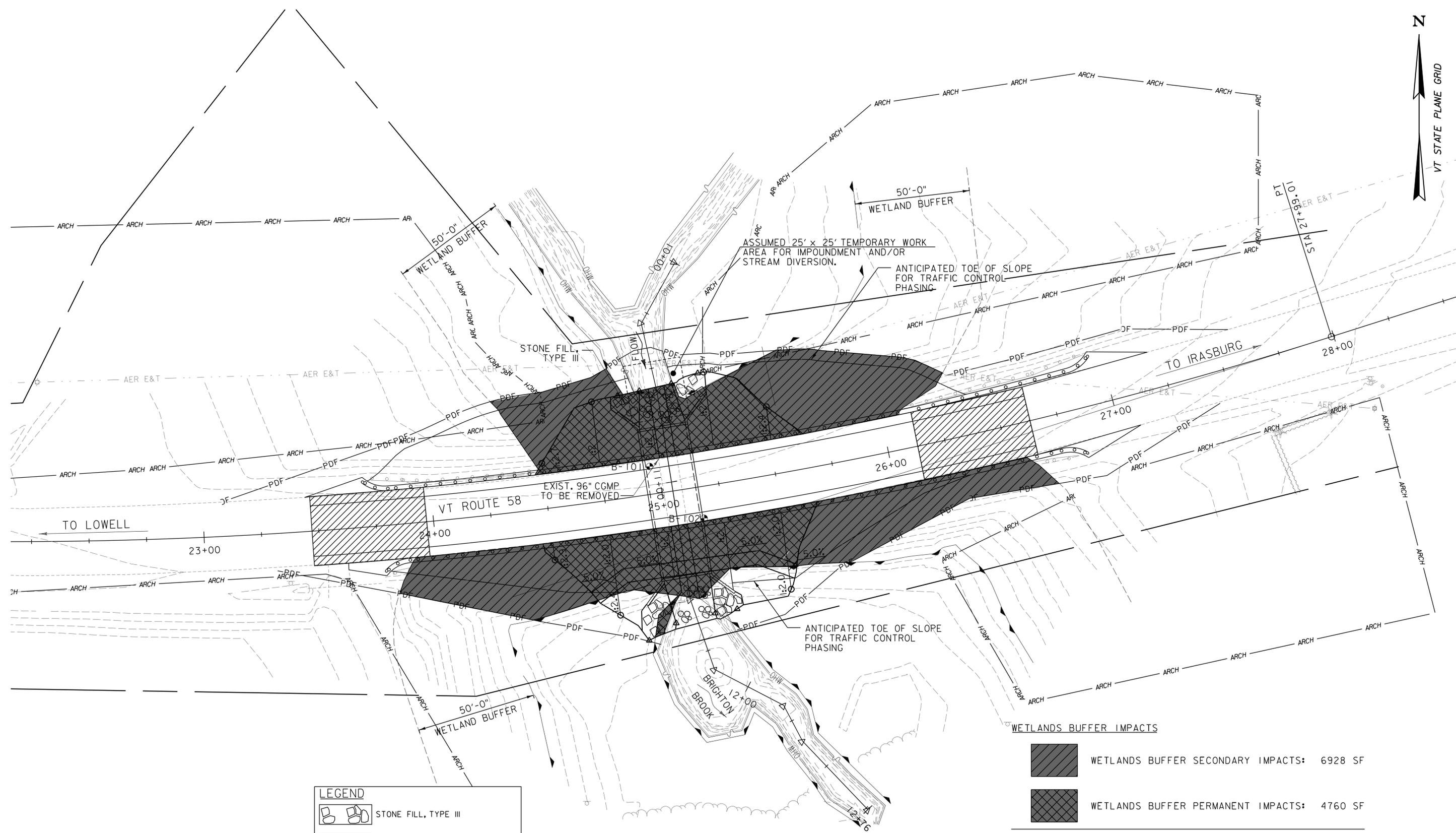


WETLANDS IMPACT

	WETLANDS SECONDARY IMPACTS:	1414 SF
	WETLANDS PERMANENT IMPACTS:	728 SF
TOTAL IMPACTS:		2142 SF

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME:	zllc266bdr_impact_br6.l.dgn
PROJECT LEADER:	M. CHENETTE
DESIGNED BY:	J. HUNGERFORD
PROJECT IMPACTS PLAN I- BR6	
PLOT DATE:	9/26/2014
DRAWN BY:	L. BUXTON
CHECKED BY:	M. CHENETTE
SHEET	31 OF 55





LEGEND

STONE FILL, TYPE III

SPECIAL PROVISION (STONE FILL, CULVERT LINING)

PLAN
 SCALE: 1" = 20'-0"
 0 20 40

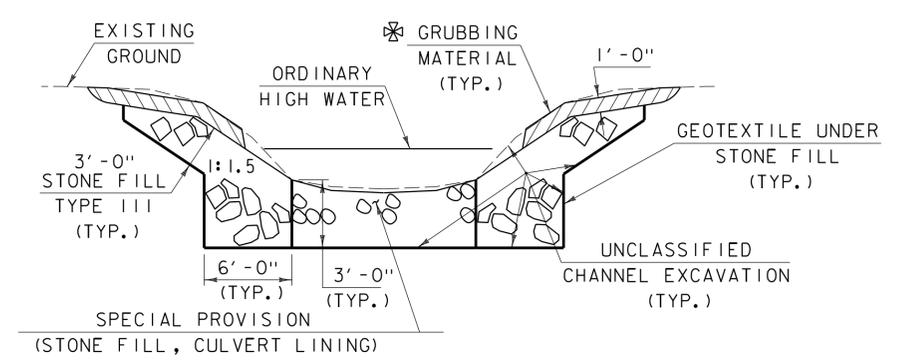
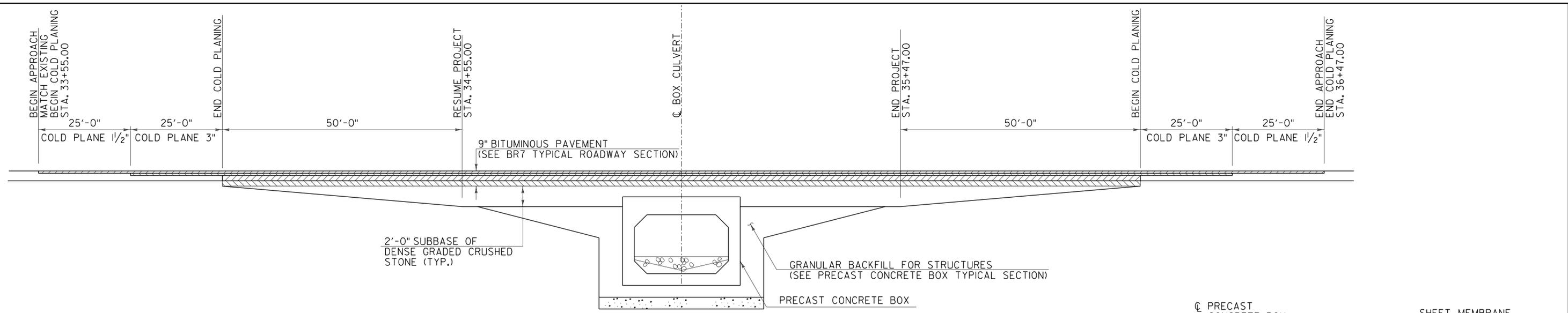
WETLANDS BUFFER IMPACTS

	WETLANDS BUFFER SECONDARY IMPACTS: 6928 SF
	WETLANDS BUFFER PERMANENT IMPACTS: 4760 SF

TOTAL IMPACTS: 11,688 SF

PROJECT NAME: IRASBURG	PLOT DATE: 9/26/2014
PROJECT NUMBER: STP CULV(30)	DRAWN BY: L. BUXTON
FILE NAME: zllc266bdr_impacts_br6.2.dgn	DESIGNED BY: J. HUNGERFORD
PROJECT LEADER: M. CHENETTE	CHECKED BY: M. CHENETTE
PROJECT IMPACTS PLAN 2 - BR6	SHEET 32 OF 55

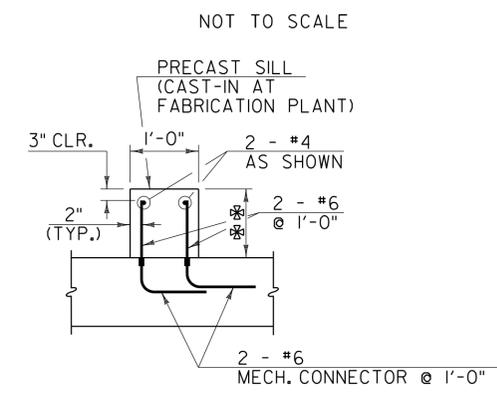




CHANNEL TYPICAL SECTION
NOT TO SCALE

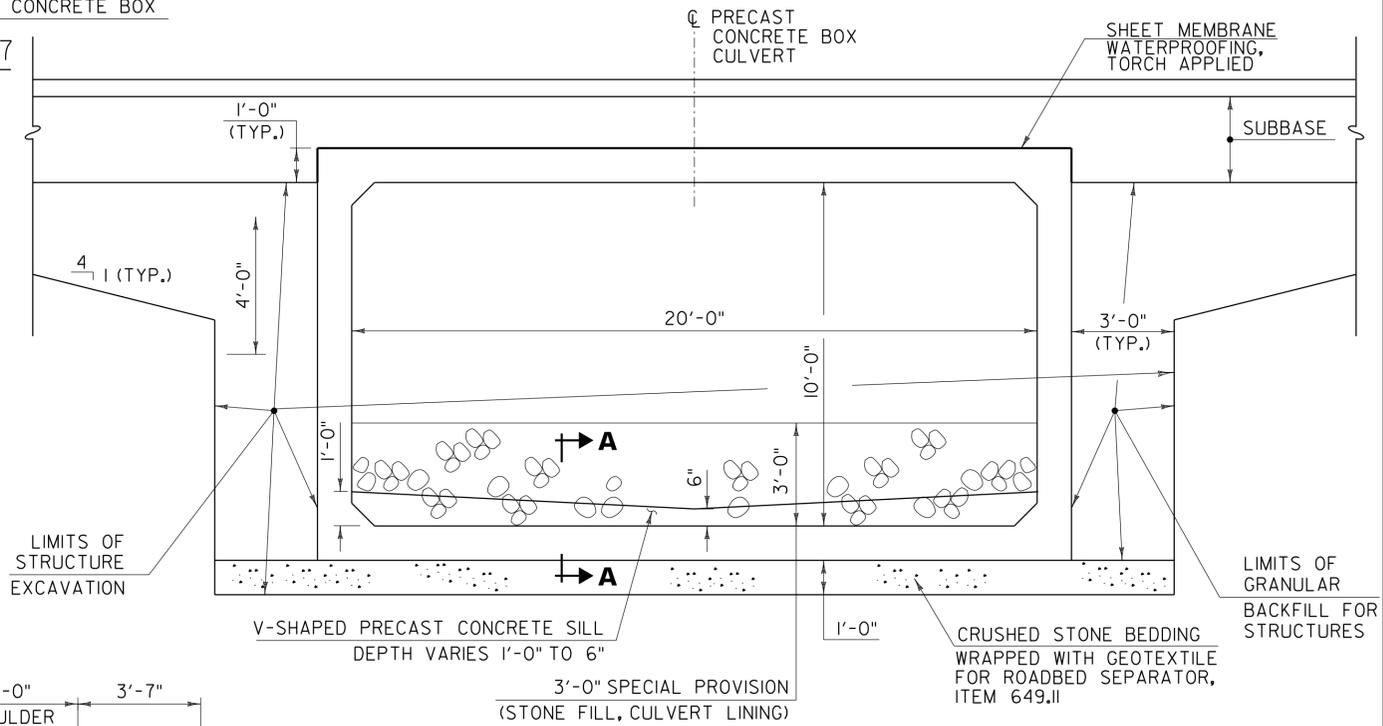
✱ WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

TYPICAL APPROACH SECTION - BR7



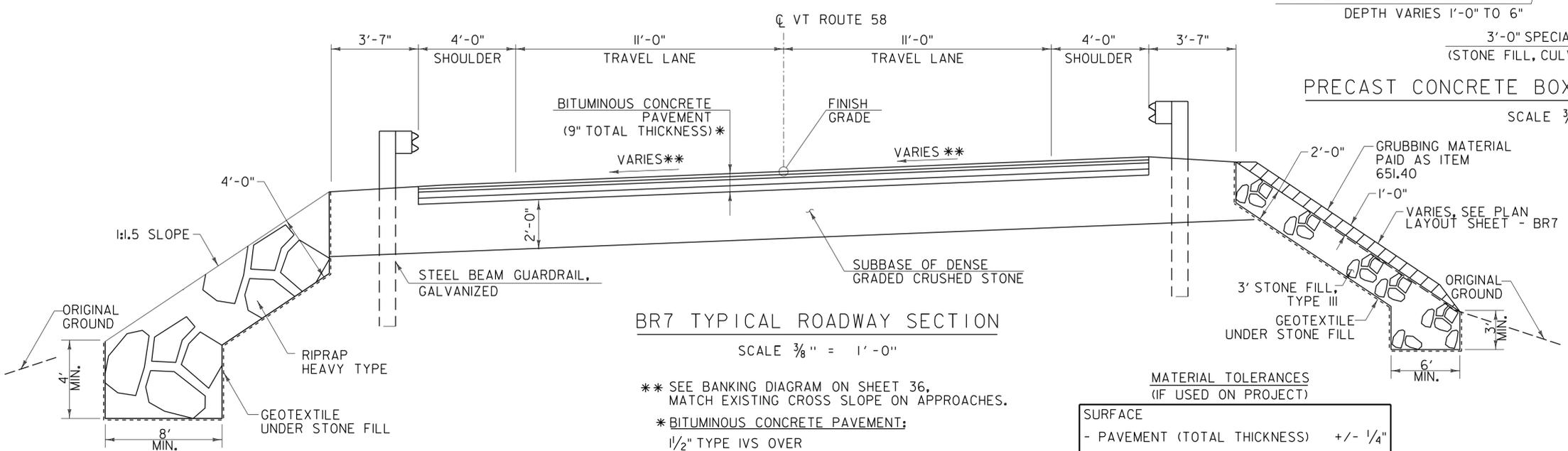
✱ DEPTH VARIES 1'-0" TO 6"

SECTION A-A
NOT TO SCALE



PRECAST CONCRETE BOX TYPICAL SECTION - BR7

SCALE 3/8" = 1'-0"



BR7 TYPICAL ROADWAY SECTION

SCALE 3/8" = 1'-0"

- ** SEE BANKING DIAGRAM ON SHEET 36, MATCH EXISTING CROSS SLOPE ON APPROACHES.
- * BITUMINOUS CONCRETE PAVEMENT:
 - 1/2" TYPE IVS OVER
 - 1/2" TYPE IVS OVER
 - 3" TYPE IIS OVER
 - 3" TYPE IIS

MATERIAL TOLERANCES
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COARSE	+/- 1/2"
SUBBASE	
- SAND BORROW	+/- 1"



PROJECT NAME:	IRASBURG	PLOT DATE:	9/26/2014
PROJECT NUMBER:	STP CULV(30)	DRAWN BY:	L. BUXTON
FILE NAME:	zllc266typsec.dgn	DESIGNED BY:	J. HUNGERFORD
PROJECT LEADER:	M. CHENETTE	CHECKED BY:	M. CHENETTE
TYPICAL SECTIONS - BR7			SHEET 33 OF 55

GPS CONTROL POINTS

COORDINATES WERE DERIVED FROM STATIC NETWORK OBSERVATIONS WITH A LEAST SQUARES ADJUSTMENT. THE FOLLOWING CONTINUOUSLY OPERATING GPS REFERENCE STATIONS [CORS] WERE USED.

HARDWICK CORS ARP
 DERBY CORS ARP
 ISLAND POND CORS ARP

TRAVERSE TIES

HVCTRL #10
NORTH = 841405.296
EAST = 1700175.568
ELEV. = 798.361
TH7 AZ MK
NOT TIED

HVCTRL #11
NORTH = 840439.846
EAST = 1700076.501
ELEV. = 807.926
TH7

HVCTRL #12
NORTH = 840314.357
EAST = 1699864.898
ELEV. = 802.783

HVCTRL #13
NORTH = 840319.444
EAST = 1699590.596
ELEV. = 815.134

NORTH =
EAST =
ELEV. =

* MAIN TRAVERSE COMPLETED 2/8/2012 BY R. GILMAN P.C. & P. WINTERS

ALIGNMENT TIES

PI, STA. 34+35.36
NORTH = 840330.896
EAST = 1699851.046
ELEV. =

VT58, STA. 35+0.07
NORTH = 840346.133
EAST = 1699914.750
ELEV. =

PT, STA. 35+77.03
NORTH = 840368.838
EAST = 1699988.272
ELEV. =

NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

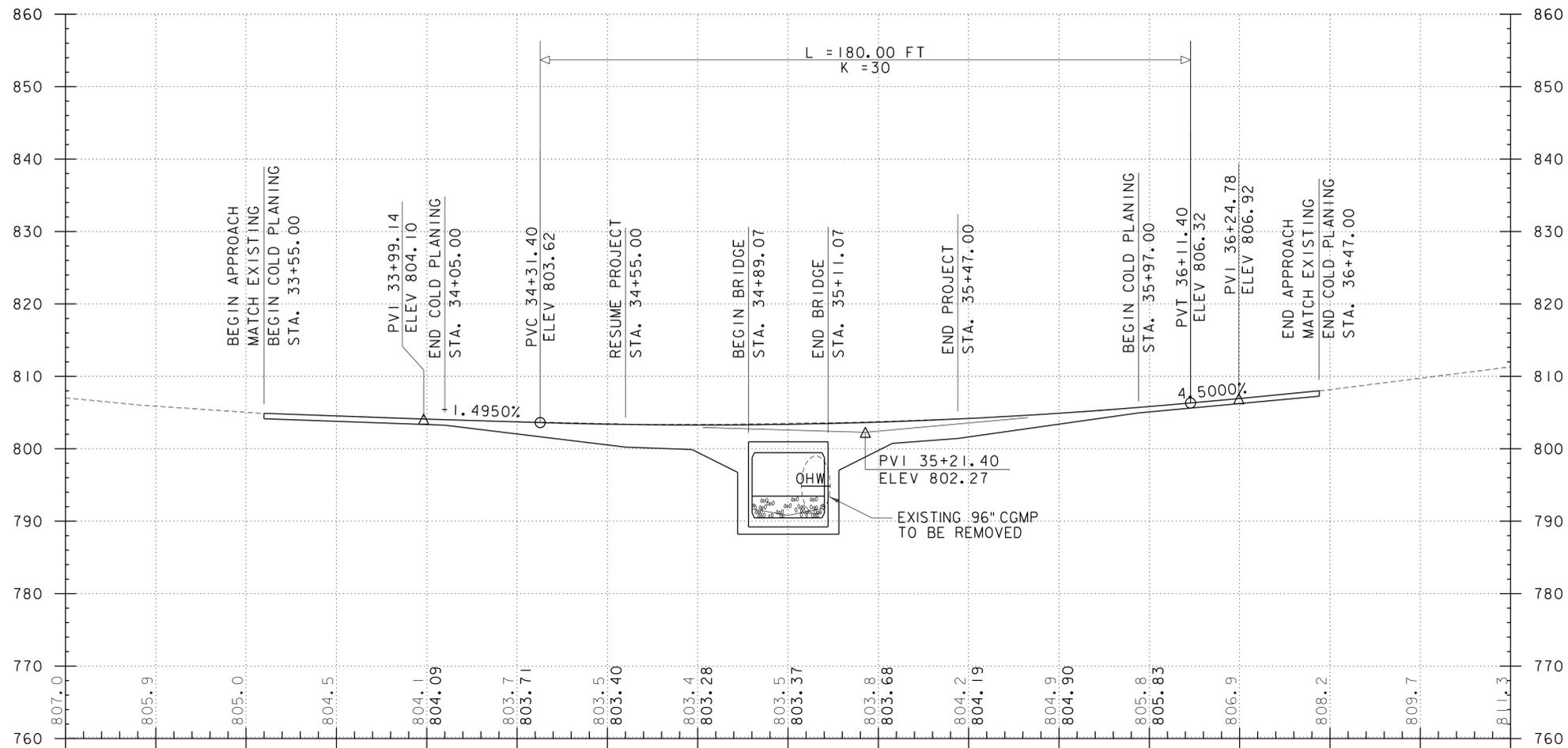
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83(07)
ADJUSTMENT	COMPASS
ZONE	Vermont 4400
GEOID	GEOID09 (Conus)

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266+ie.br7.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 SURVEY CONTROL AND TIES - BR7

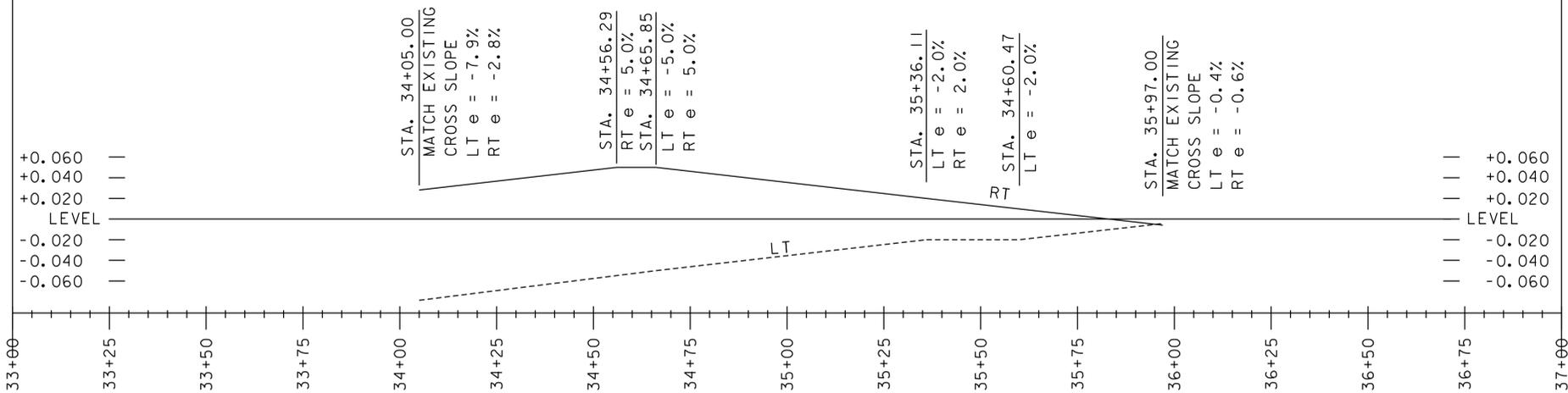
PLOT DATE: 9/26/2014
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 34 OF 55





PROFILE ALONG VT ROUTE 58

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: 1" = 10'



BANKING DIAGRAM

HORIZONTAL SCALE: 1' = 20' VERTICAL SCALE: N. T. S.

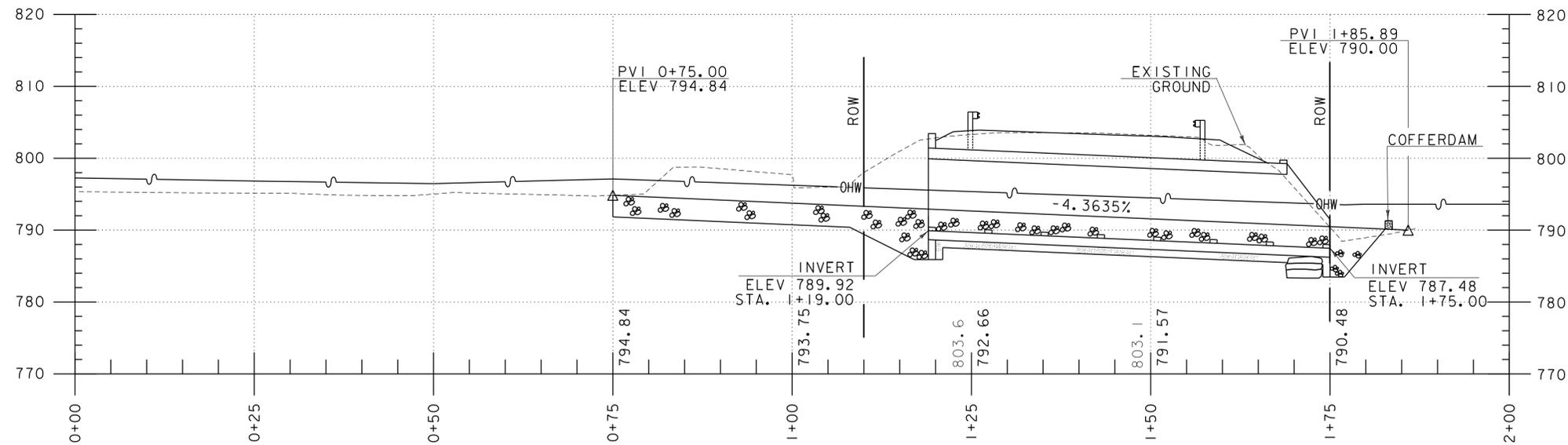
NOTE:
STATIONING IN FEET AND
SUPERELEVATIONS IN PERCENTAGES

NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.
ELEVATIONS SHOW TO THE NEAREST HUNDREDTH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266pro.dgn PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
ROADWAY PROFILE - BR7 SHEET 36 OF 55



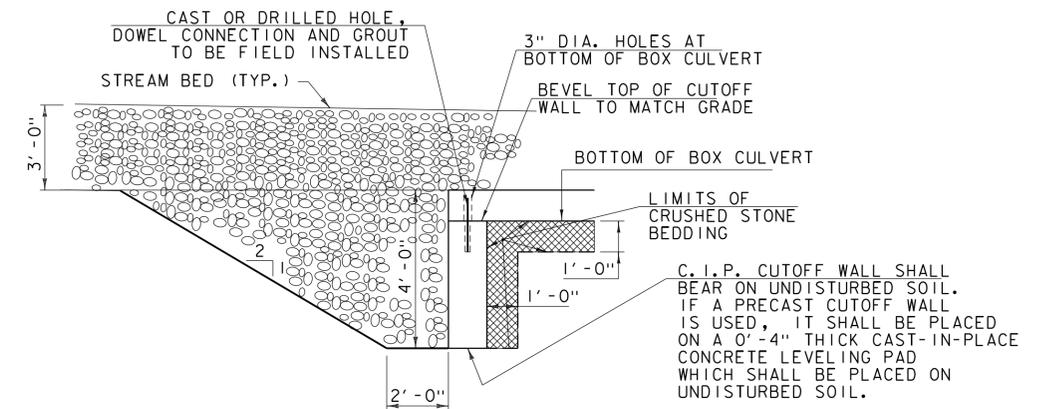


STREAM PROFILE



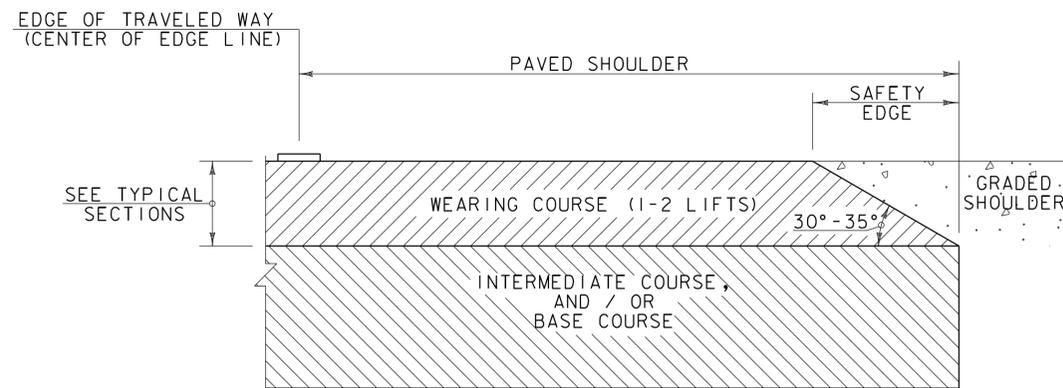
NOTE:
ELEVATIONS SHOWN TO THE NEAREST TENTH ARE EXISTING GROUND ALONG PROPOSED CENTERLINE.

ELEVATIONS SHOW TO THE NEAREST HUNDRETH ARE FINISHED GRADE ALONG PROPOSED CENTERLINE.



INLET CUTOFF WALL DETAIL

NOT TO SCALE

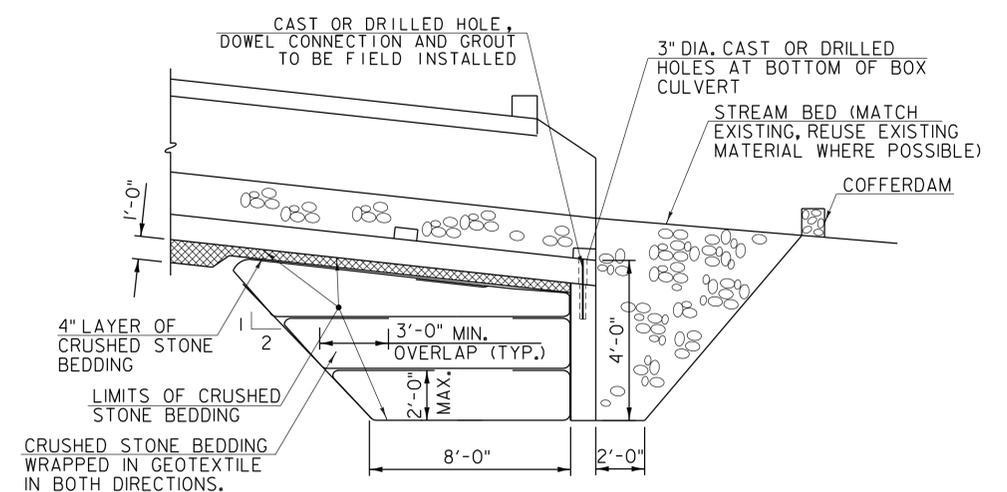


SAFETY EDGE DETAIL

NOT TO SCALE

NOTES:

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



OUTLET CUTOFF WALL DETAIL

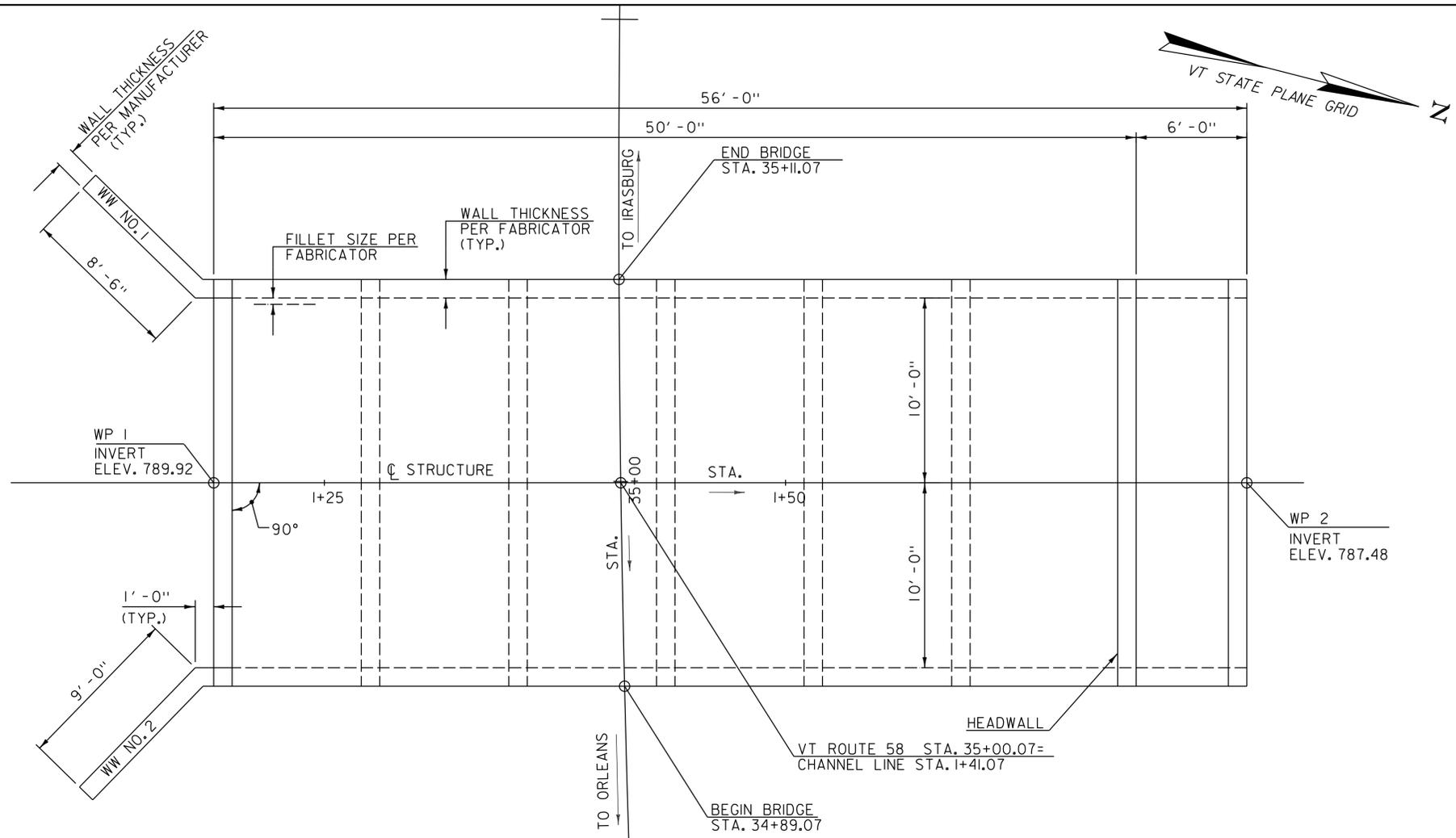
NOT TO SCALE

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

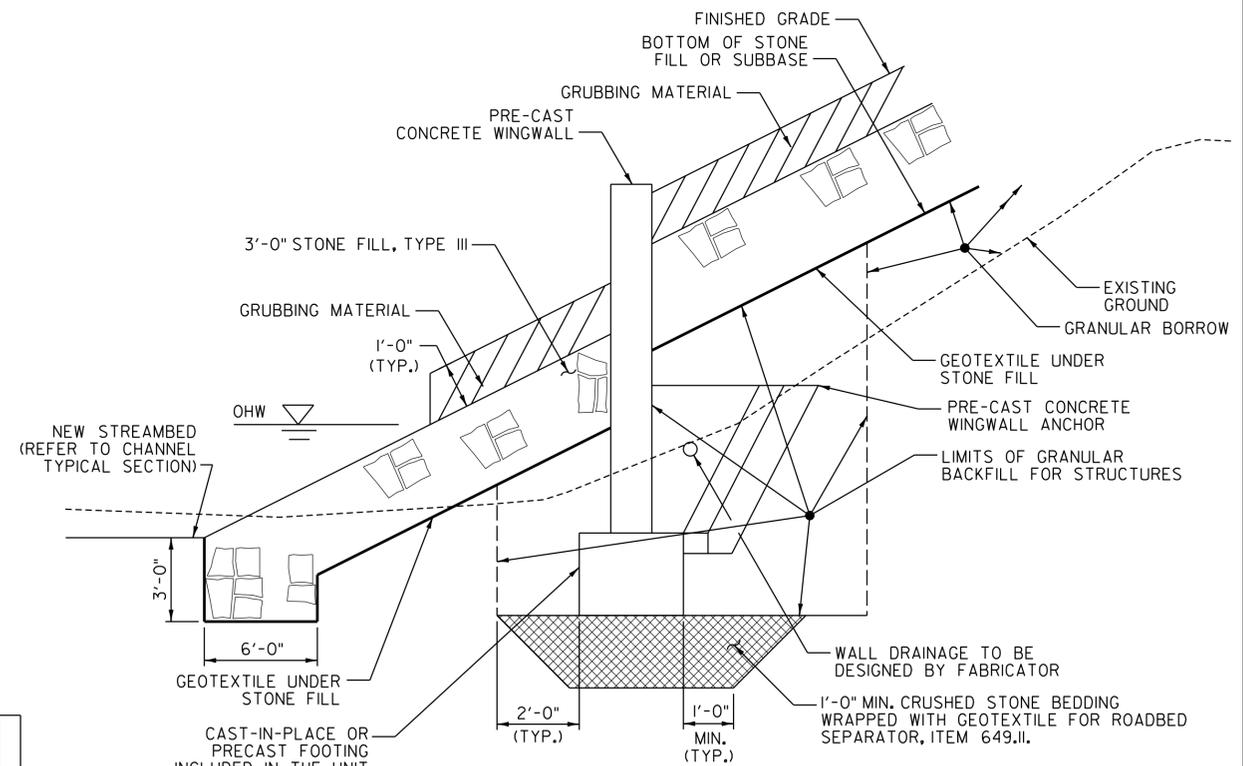
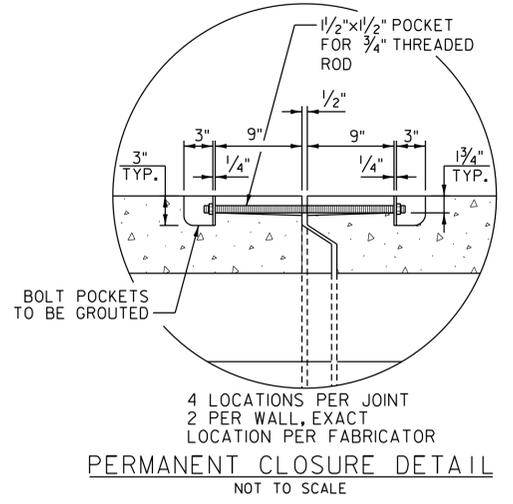
FILE NAME: zllc266strm_pro.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
STREAM PROFILE - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 37 OF 55



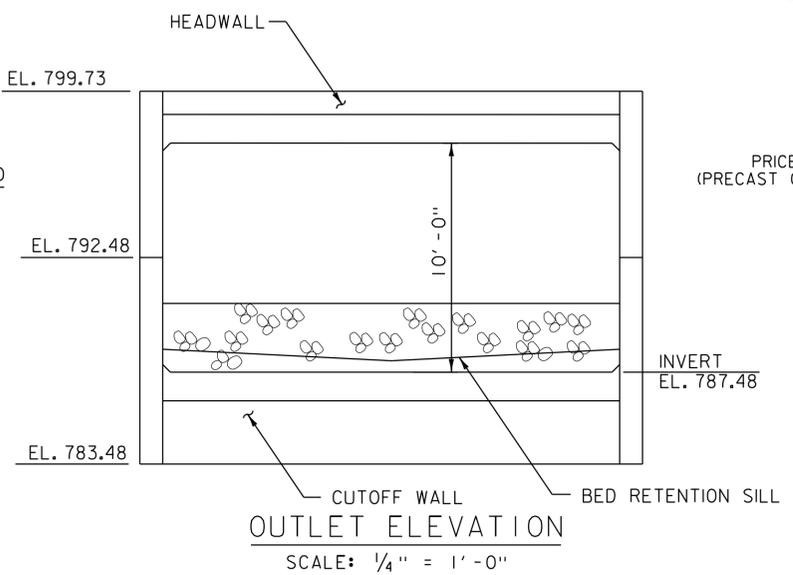
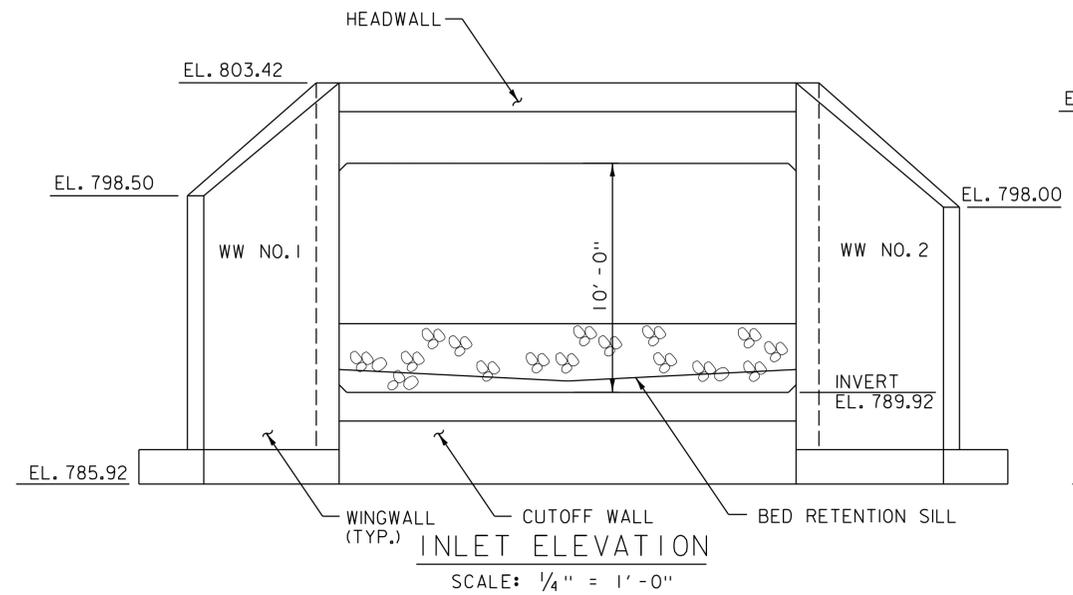


PRECAST CONCRETE STRUCTURE PLAN
SCALE: 1/4" = 1'-0"



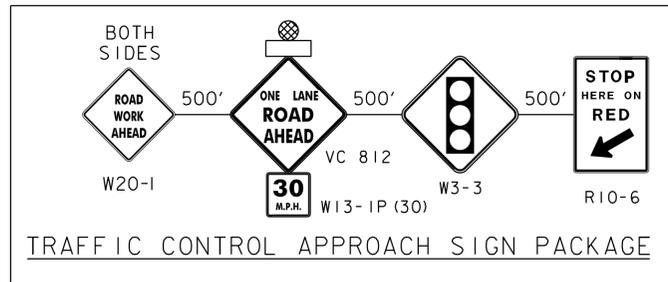
- NOTES:
- ANCHOR TYPE WALLS SHOWN, OTHER APPROVED WALL SYSTEM MAY BE USED, SEE SPECIAL PROVISIONS.
 - FOR PURPOSES OF ESTIMATING EARTHWORK QUANTITIES, THE LIMITS HAVE BEEN SHOWN ABOVE. ONLY THE EXCAVATION INCLUDED WITHIN THESE LIMITS SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION". THE CONTRACTOR SHALL DETERMINE THE ACTUAL LIMITS OF STRUCTURE EXCAVATION, PER PRECAST WINGWALL DESIGN.

WINGWALL EARTHWORK SECTION
NOT TO SCALE



PROJECT NAME:	IRASBURG	FILE NAME:	zllc266strrp.br7.dgn	PLOT DATE:	9/26/2014
PROJECT NUMBER:	STP CULV(30)	PROJECT LEADER:	M. CHENETTE	DRAWN BY:	L. BUXTON
		DESIGNED BY:	J. HUNGERFORD	CHECKED BY:	M. CHENETTE
		STRUCTURAL PLAN AND DETAILS - BR7			SHEET 38 OF 55



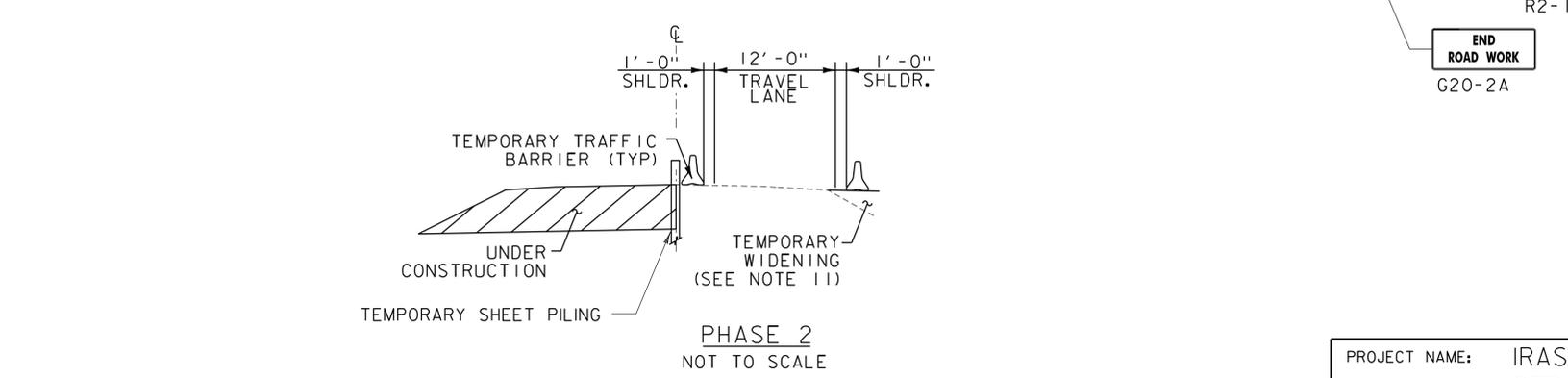
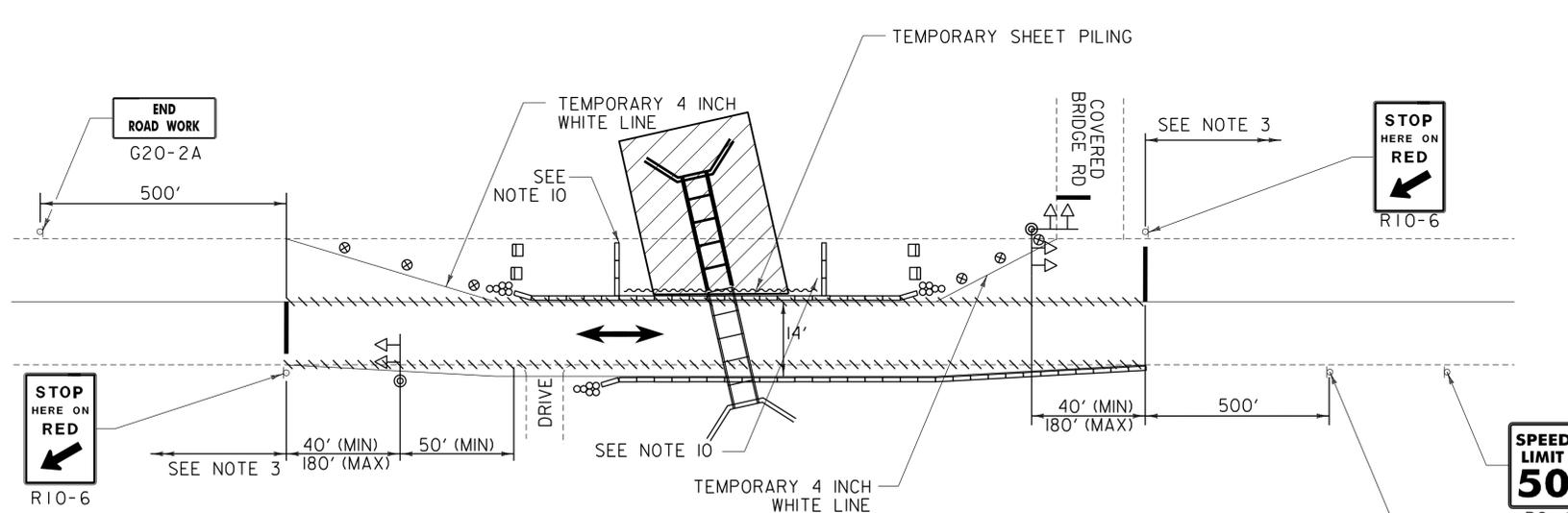
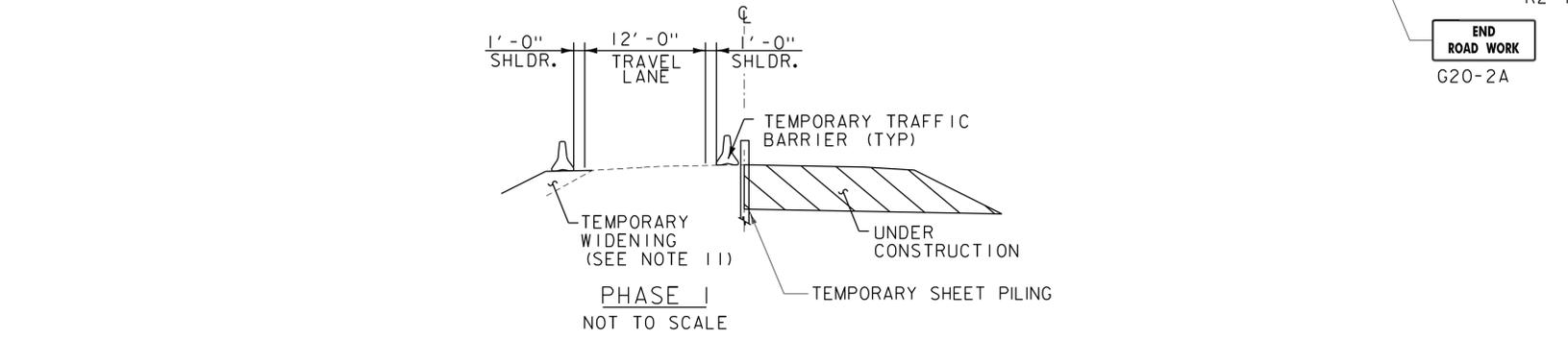
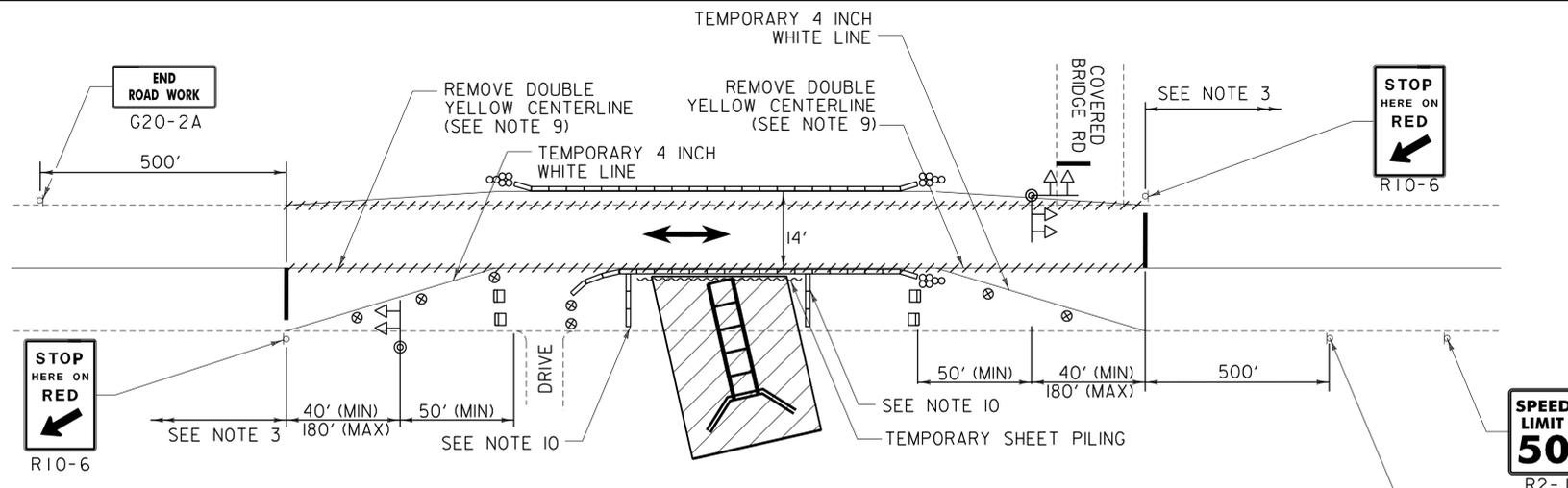


NOTES:

- SEE SHEET 4 FOR GENERAL TRAFFIC CONTROL NOTES.
- REFER TO STANDARD T-10 FOR CONSTRUCTION APPROACH SIGNS CRITERIA.
- REFER TO "TRAFFIC CONTROL APPROACH SIGN PACKAGE" DETAIL THIS SHEET.
- CHANNELIZING DEVICE SPACING
TANGENT SECTIONS: 60 FT. (2X DESIGN SPEED LIMIT)
TAPER SECTIONS: 30 FT. (1X DESIGN SPEED LIMIT)
DESIGN SPEED THROUGH CONSTRUCTION ZONE = 30MPH
- ACCESS TO ALL EXISTING SIDE ROADS, DRIVES, AND PARKING AREAS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- TRAFFIC CONTROL SHALL ALLOW FOR A WB-67 DESIGN VEHICLE.
- ATTENUATORS SHALL MEET THE POSTED SPEED OF 50 MPH.
- CHANNELIZING DEVICES LEFT OVERNIGHT SHALL BE DRUMS.
- REMOVED CENTERLINE TO BE REPLACED WITH DURABLE 4 INCH YELLOW LINE.
- TEMPORARY TRAFFIC BARRIER TO BE IN PLACE WHILE EXCAVATION IS OPEN AND WORK IS NOT ACTIVE OR AT THE DISCRETION OF THE ENGINEER.
- TEMPORARY WIDENING TO BE PAID FOR AS PART OF ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)

LEGEND

- UNDER CONSTRUCTION
- ALTERNATING ONE WAY TRAFFIC
- TEMPORARY TRAFFIC BARRIER
- CHANNELIZING DEVICE
- ENERGY ABSORPTION ATTENUATOR
- TYPE III BARRIER
- CONSTRUCTION SIGN
- TEMPORARY TRAFFIC SIGNAL
- FLASHING BEACON
- REMOVE OR MASK PAVEMENT MARKINGS



PROJECT NAME:	IRASBURG	PLOT DATE:	9/26/2014	
PROJECT NUMBER:	STP CULV(30)	DRAWN BY:	L. BUXTON	
FILE NAME:	zllc266+c.dgn	DESIGNED BY:	I. MAYNARD	
PROJECT LEADER:	M. CHENETTE	TRAFFIC CONTROL PLAN - BR7	CHECKED BY:	M. CHENETTE
			SHEET	39 OF 55



SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.O.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

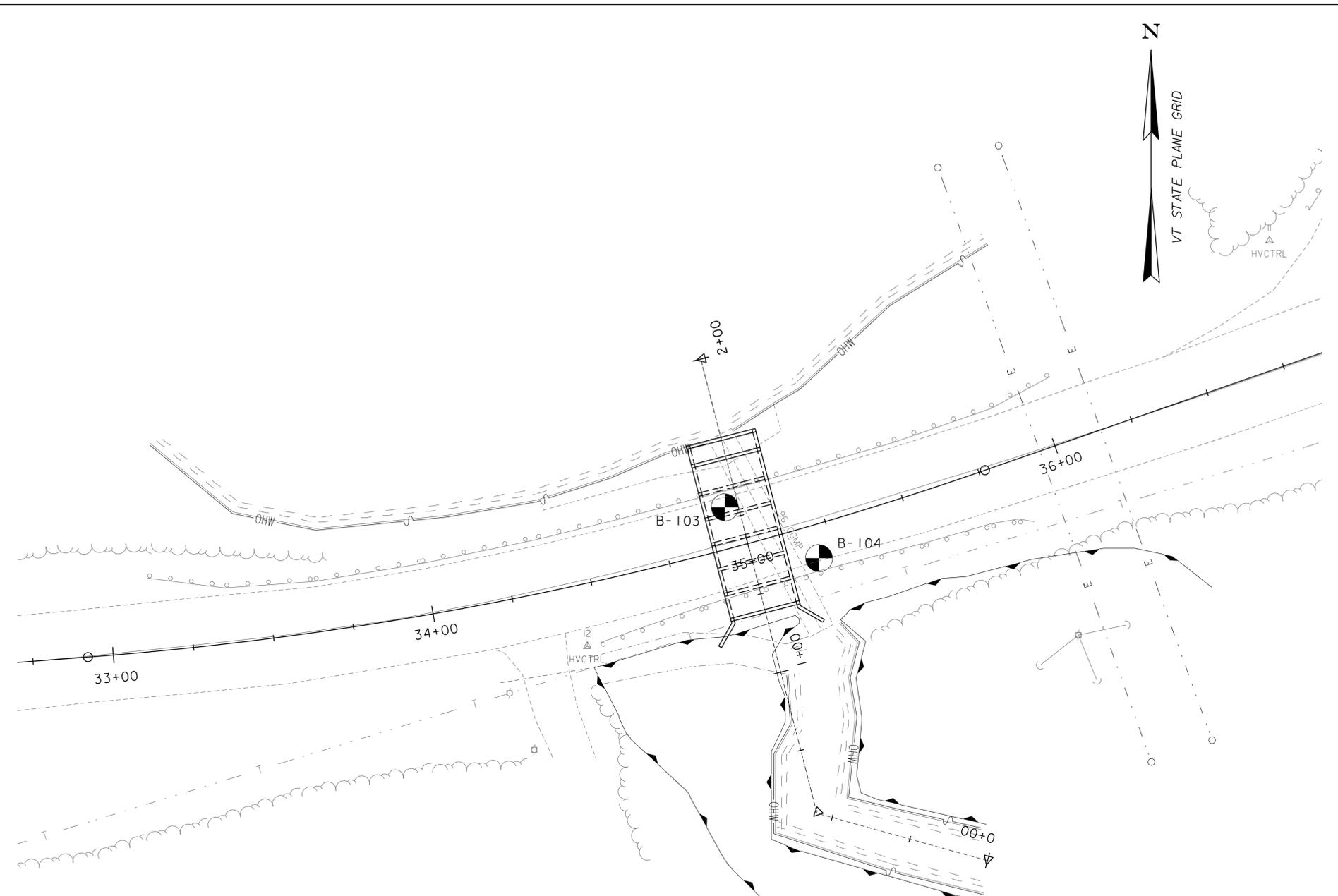
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COMMONLY USED SYMBOLS

- ▼ Water Elevation
- ⊕ Standard Penetration Boring
- ⊕ Auger Boring
- ⊕ Rod Sounding
- ⊕ Sample
- N Standard Penetration Test
- Blow Count Per Foot For:
- 2" O.D. Sampler
- 1 3/8" I.D. Sampler
- Hammer Weight Of 140 Lbs.
- Hammer Fall Of 30"
- VS Field Vane Shear Test
- US Undisturbed Soil Sample
- B Blast
- DC Diamond Core
- MD Mud Drill
- WA Wash Ahead
- HSA Hollow Stem Auger
- AX Core Size 1 1/8"
- BX Core Size 1 5/8"
- NX Core Size 2 1/8"
- M Double Tube Core Barrel Used
- LL Liquid Limit
- PL Plastic Limit
- PI Plasticity Index
- NP Non Plastic
- w Moisture Content (Dry Wgt. Basis)
- D Dry
- M Moist
- MTW Moist To Wet
- W Wet
- Sat Saturated
- Bo Boulder
- Gr Gravel
- Sa Sand
- SI Silt
- Cl Clay
- HP Hardpan
- Le Ledge
- NLTD No Ledge To Depth
- CNPF Can Not Penetrate Further
- TLOB To Ledge Or Boulder
- NR No Recovery
- Rec. Recovery
- 1/2 Rec. Percent Recovery
- RQD Rock Quality Designation
- CBR California Bearing Ratio
- < Less Than
- > Greater Than
- R Refusal (N > 100)

COLOR			
blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		



BORING CHART

BORING NUMBER	SURVEY STATION	OFFSET	GROUND ELEVATION
B-103	34+96	12.75' LT	803.0'
B-104	35+20	10.25' RT	803.5'

BORING PLAN



DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - Rock in its native location of indefinite thickness.
- BOULDER** - A rock fragment with an average dimension > 12 inches.
- COBBLE** - Rock fragments with an average dimension between 3 and 12 inches.
- GRAVEL** - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).
- SAND** - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).
- SILT** - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
- CLAY** - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.
- VARVED** - Alternate layers of silt and clay.
- HARDPAN** - Extremely dense soil, cemented layer, not softened when wet.
- MUCK** - Soft organic soil (containing > 10% organic material).
- MOISTURE CONTENT** - Weight of water divided by dry weight of soil.
- FLOWING SAND** - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
- STRIKE** - Angle from magnetic north to line of intersection of bed with a horizontal plane.
- DIP** - Inclination of bed with a horizontal plane.

GENERAL NOTES

- The subsurface explorations shown herein were made on Oct. 25, 2012 by N.H. Boring.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.

LEGEND:



PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266bdr_bor_pl.br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
BORING PLAN - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: J. HUNGERFORD
SHEET 40 OF 55



STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-103					
		IRASBURG STP CULV(30) VT-58 BR-6&7		Page No.: 1 of 1					
				Pin No.: 11C266					
				Checked By: LAR					
Boring Crew: GARROW, JUDKINS		Casing Sampler		Groundwater Observations					
Date Started: 10/10/12 Date Finished: 10/10/12		Type: WB SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 840357.40 ft E 1699907.54 ft		I.D.: 4 in 1.5 in							
Station: 34+96 Offset: 12.75' LT		Hammer Wt: N.A. 140 lb.							
Ground Elevation: 803.0		Hammer Fall: N.A. 30 in.							
		Hammer/Rod Type: Auto/AWJ							
		Rig: CME 45C SKID CE = 1.33							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0.0 - 0.6		Asphalt Pavement, 0.0 ft - 0.6 ft							
0.6 - 10.0		Visual Description: Sa with little Gravel, gry, Moist, Rec. = 0.6 ft	5-4-4-4 (8)						
10.0 - 16.0		Field Note: Boulders & Cobbles							
16.0 - 19.0		Field Note: No Recovery, gry, Moist, Appears to be Silt.	2-1-2-2 (3)						
19.0 - 21.0		A-6, SiCl, gry, MTW, Rec. = 1.5 ft	(WH)	35.1	0.6	3.0	96.4	33	11
21.0 - 22.0		CiSi Shelby Tube, gry, MTW, Rec. = 0.8 ft, 19.0 ft - 21.0 ft							
22.0 - 23.0		A-4, CiSi, gry, MTW, Rec. = 1.7 ft	(6)	24.2	1.4	16.5	82.1	26	8
23.0 - 24.0		A-4, Si, gry, MTW, Rec. = 1.1 ft	(2)	22.4		12.9	87.1	20	5
24.0 - 25.0		Visual Description: GrSaSi, gry, Wet, Rec. = 0.2 ft	(2)						
25.0 - 26.0		A-6, SiCl, gry, Wet, Rec. = 0.3 ft	(2)	19.1				34	18
26.0 - 27.0		Visual Description: CiSi, gry, Wet, Rec. = 0.7 ft	(WH)						
27.0 - 28.0		A-4, SaCiSi, gry, Wet, Rec. = 1.7 ft	(WH)	31.5		20.0	80.0	23	9
28.0 - 29.0		Visual Description: SaCiSi, gry, Wet, Rec. = 0.6 ft	1-3-5-5 (8)						
29.0 - 30.0		A-2-4, Sa, gry, MTW, Rec. = 1.7 ft	4-3-3-4 (6)	16.9	5.3	77.5	17.2		
30.0 - 31.0		A-1-b, GrSa, gry, MTW, Rec. = 0.6 ft	8-4-5-6 (9)						
31.0 - 32.0		A-1-b, GrSa, gry, MTW, Rec. = 0.5 ft	8-7-9-11 (16)	10.1	21.8	69.7	8.5		
32.0 - 33.0		Visual Description: Sa, gry, MTW, Rec. = 1.1 ft	14-11-11-11 (22)						
33.0 - 34.0		A-2-4, Sa, gry, MTW, Rec. = 1.1 ft	6-6-10-10 (16)	13.5	7.9	78.3	13.8		
34.0 - 45.0		Hole stopped @ 45.0 ft							
45.0 - 50.0		Remarks: Top of river bed is 16.0 feet below ground surface.							
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.									

BOTTOM OF CULVERT
APPROX. EL. 787.5

BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

BOTTOM OF CULVERT
APPROX. EL. 788.5

STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		BORING LOG		Boring No.: B-104					
		IRASBURG STP CULV(30) VT-58 BR-6&7		Page No.: 1 of 1					
				Pin No.: 11C266					
				Checked By: LAR					
Boring Crew: GARROW, WHITLOCK		Casing Sampler		Groundwater Observations					
Date Started: 10/09/12 Date Finished: 10/09/12		Type: WB SS	Date	Depth (ft)	Notes				
VTSPG NAD83: N 840341.66 ft E 1699936.75 ft		I.D.: 4 in 1.5 in							
Station: 35+20 Offset: 10.25' RT		Hammer Wt: N.A. 140 lb.							
Ground Elevation: 803.5		Hammer Fall: N.A. 30 in.							
		Hammer/Rod Type: Auto/AWJ							
		Rig: CME 45C SKID CE = 1.33							
Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0.0 - 5.0		Field Note: Asphalt Pavement							
5.0 - 10.0		Visual Description: SiSaGr, brn, Wet, Rec. = 0.5 ft	8-5-5-4 (10)						
10.0 - 12.0		Field Note: Boulder							
12.0 - 15.0		Visual Description: SiGrSa, brn, Moist, Rec. = 1.2 ft	7-4-5-7 (9)						
15.0 - 16.0		Field Note: No Recovery, Appears to be Sandy Silt.	2-1-2-2 (3)						
16.0 - 17.0		A-4, CiSi, gry, Moist, Rec. = 1.1 ft	1-2-2-2 (4)	31.2	11.2	12.3	76.5	31	10
17.0 - 18.0		A-4, CiSi, gry, Moist, Rec. = 1.0 ft	1-1-2-3 (3)	26.1	4.2	8.2	87.6	29	10
18.0 - 19.0		SaSi Shelby Tube, gry, Moist, Rec. = 1.1 ft, 21.0 ft - 23.0 ft, Tested Non-Plastic		15.3					
19.0 - 20.0		A-4, SaCiSi, gry, Moist, Rec. = 1.8 ft	(2)	22.6	11.6	21.4	67.0	22	8
20.0 - 21.0		A-4, SaGrSi with some Clay, gry, Wet, Rec. = 1.5 ft	(WH)	19.3	27.4	21.5	51.1	24	9
21.0 - 22.0		A-4, CiSi, gry, Wet, Rec. = 1.4 ft	(2)	21.5	2.6	11.6	85.8	20	7
22.0 - 23.0		A-4, SaSi, gry, MTW, Rec. = 1.4 ft	6-5-7-11 (12)	14.1	2.4	41.1	56.5		
23.0 - 24.0		Visual Description: GrSaSi, gry, MTW, Rec. = 1.0 ft	8-7-7-10 (14)						
24.0 - 25.0		Visual Description: SiSa, gry, Wet, Rec. = 1.3 ft	2-3-5-7 (8)						
25.0 - 26.0		A-4, SiSa, gry, Moist, Rec. = 1.4 ft	17-26-26-30 (52)	13.0		59.2	40.8		
26.0 - 27.0		Visual Description: SiSa, gry, Moist, Rec. = 1.5 ft	18-30-39-R (69)						
27.0 - 28.0		A-4, SiSa, gry, Moist, Rec. = 0.9 ft	32-R (R)	13.3		55.0	45.0		
28.0 - 29.0		A-4, SiSa, gry, Moist, Rec. = 1.7 ft	13-32-37-R (69)			60.1	39.9		
29.0 - 30.0		Visual Description: SiSa, gry, Moist, Rec. = 1.3 ft	31-36-R (R)						
30.0 - 45.0		Hole stopped @ 44.4 ft							
Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual. 2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor. 3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.									

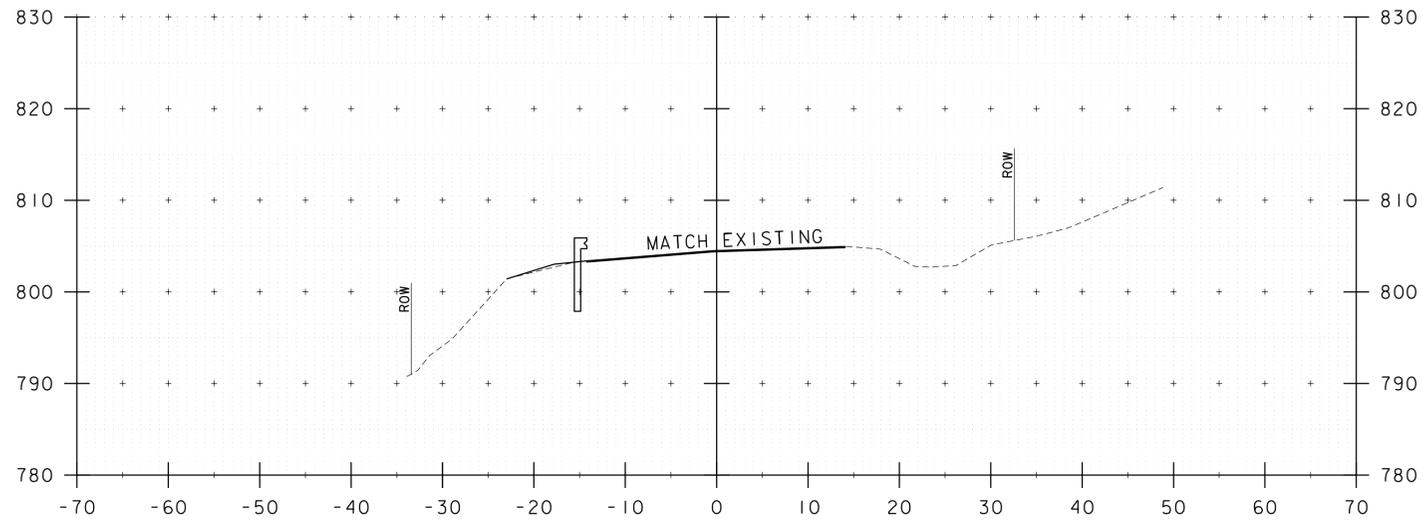
BORING LOG 2 IRASBURG STP CULV(30).GPJ VERMONT AOT.GDT 1/28/13

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266bor_log_br7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: VTRANS
BORING LOG - BR7

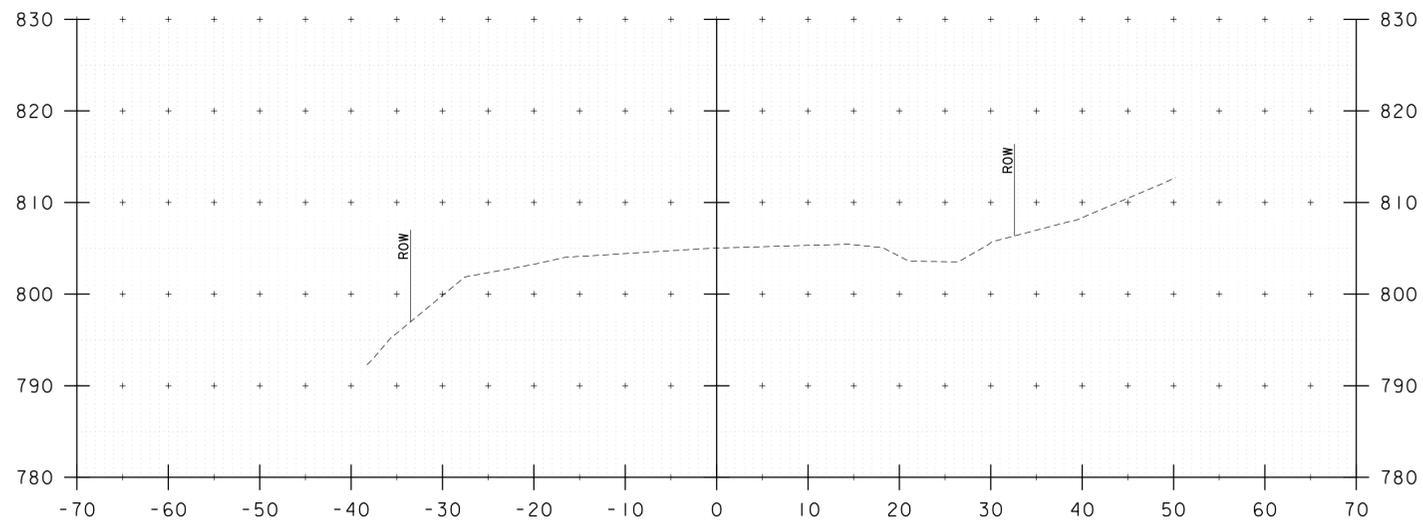
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: VTRANS
SHEET 41 OF 55



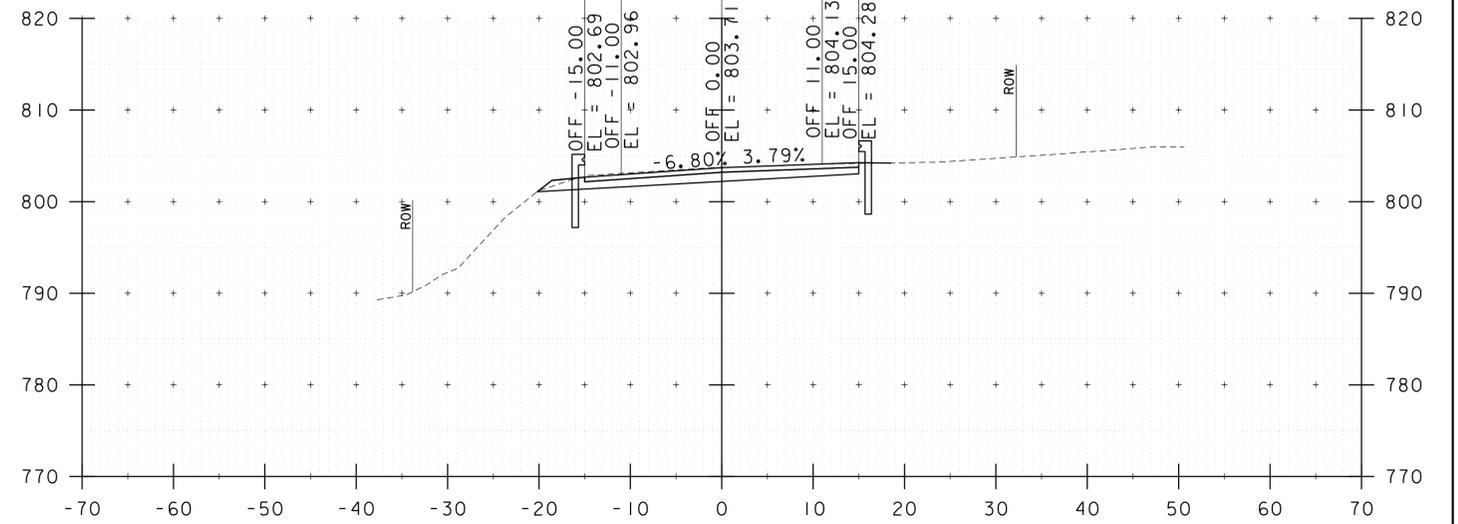


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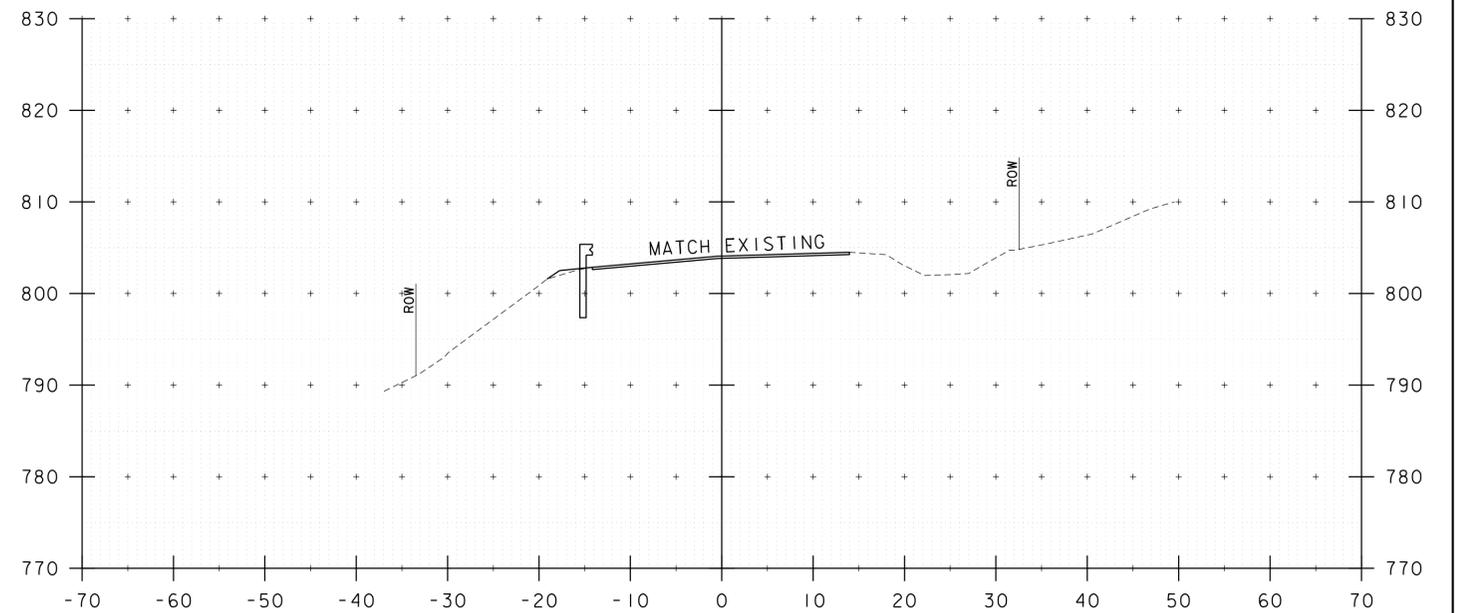
33+75



33+50



34+25



34+00

STA. 33+50 TO STA. 34+25

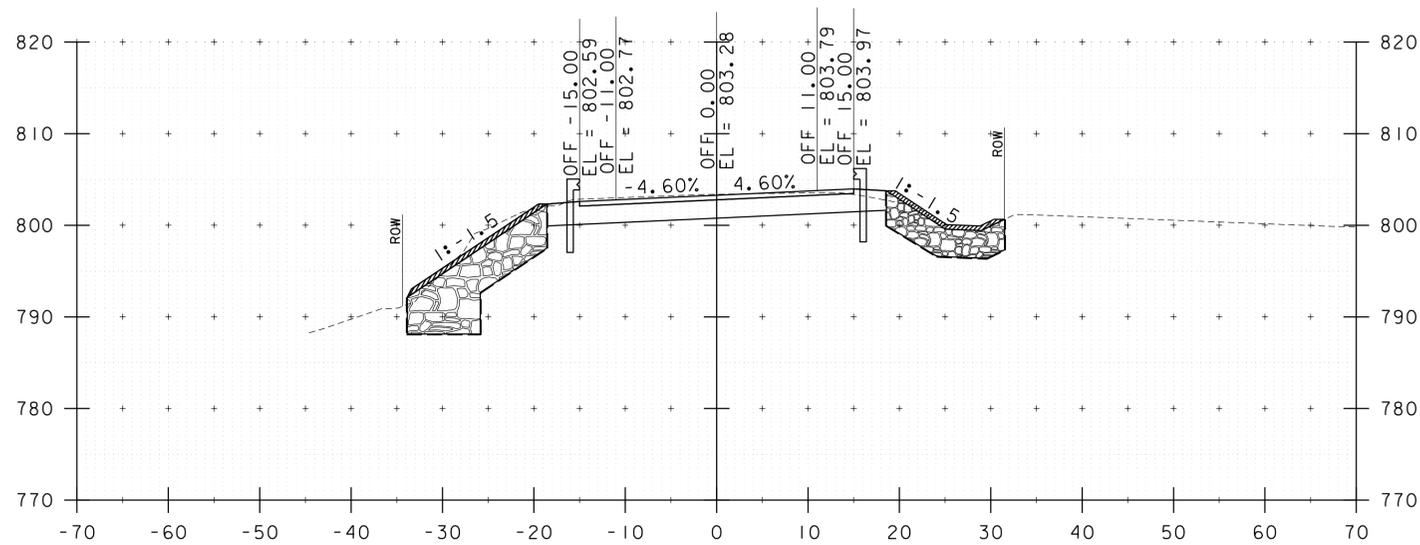
PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXSI - BR7

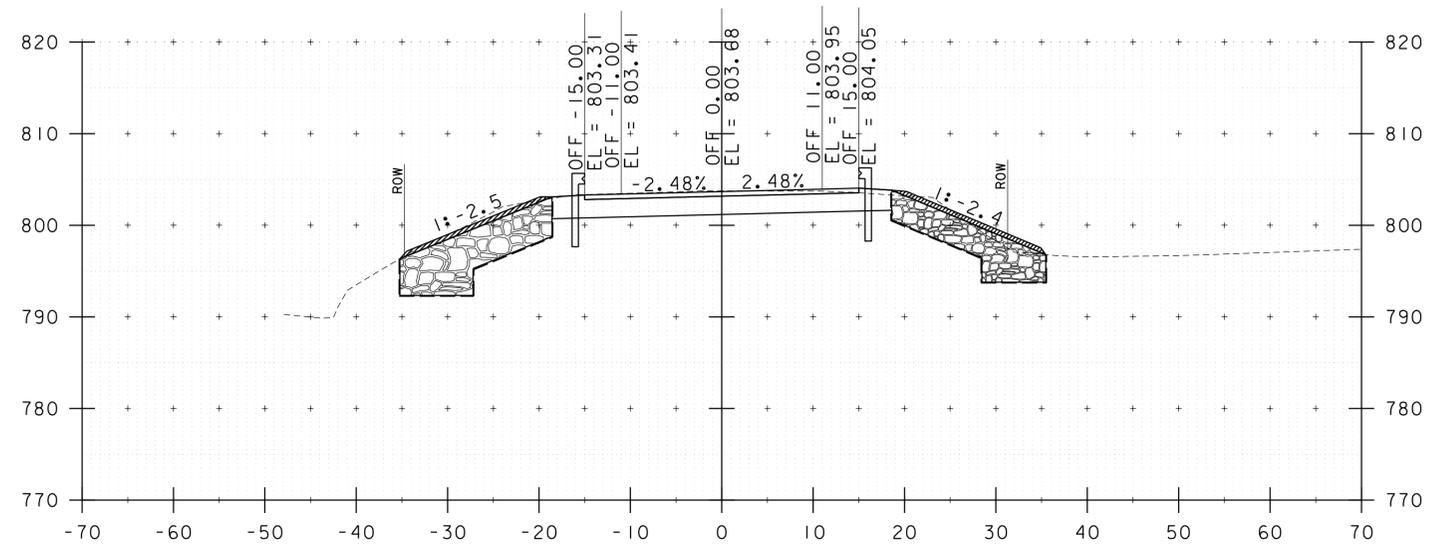
PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 42 OF 55



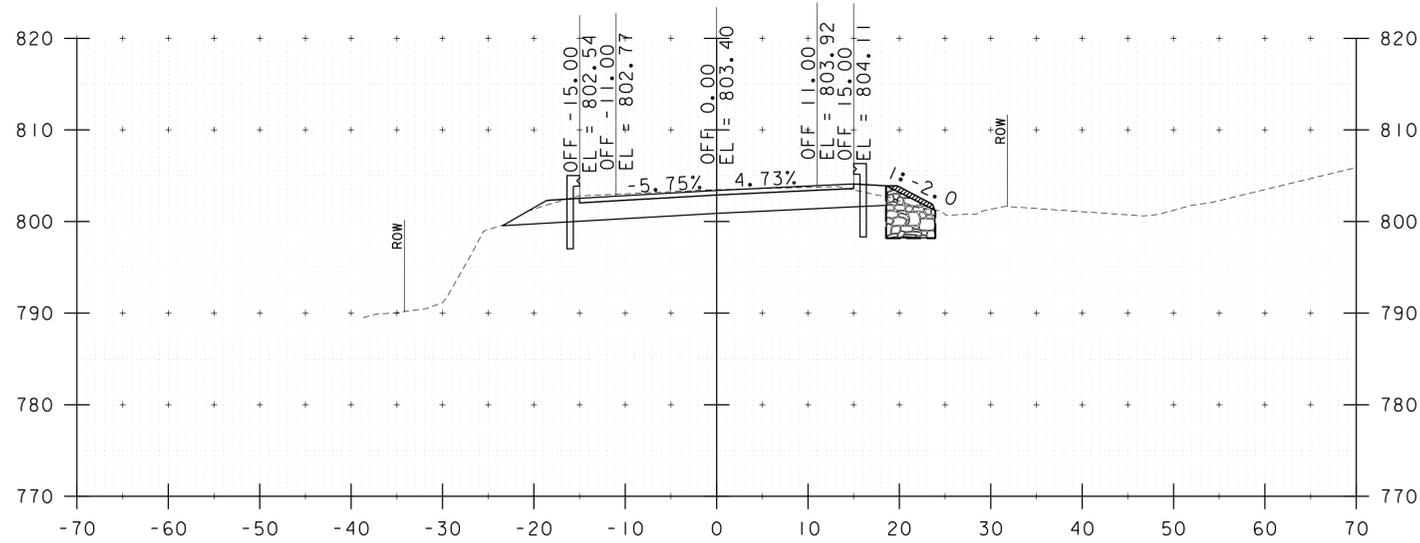
34+89.07
BEGIN BRIDGE



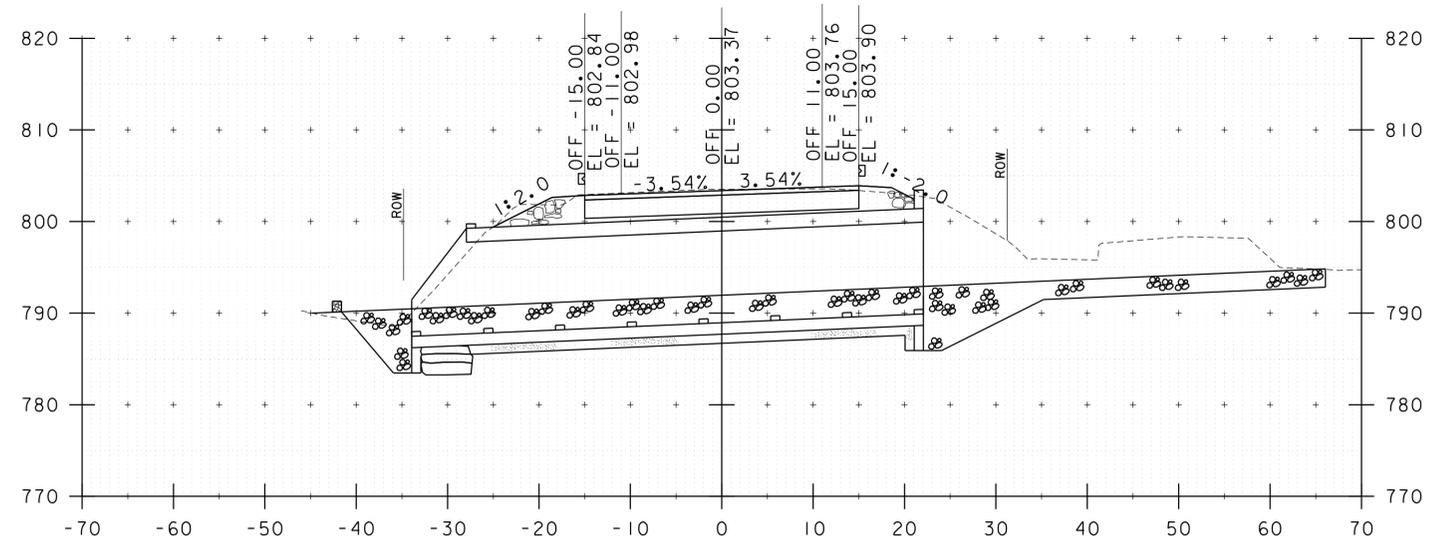
35+47
END PROJECT



34+55
RESUME PROJECT



35+11.07
END BRIDGE



34+50

35+00

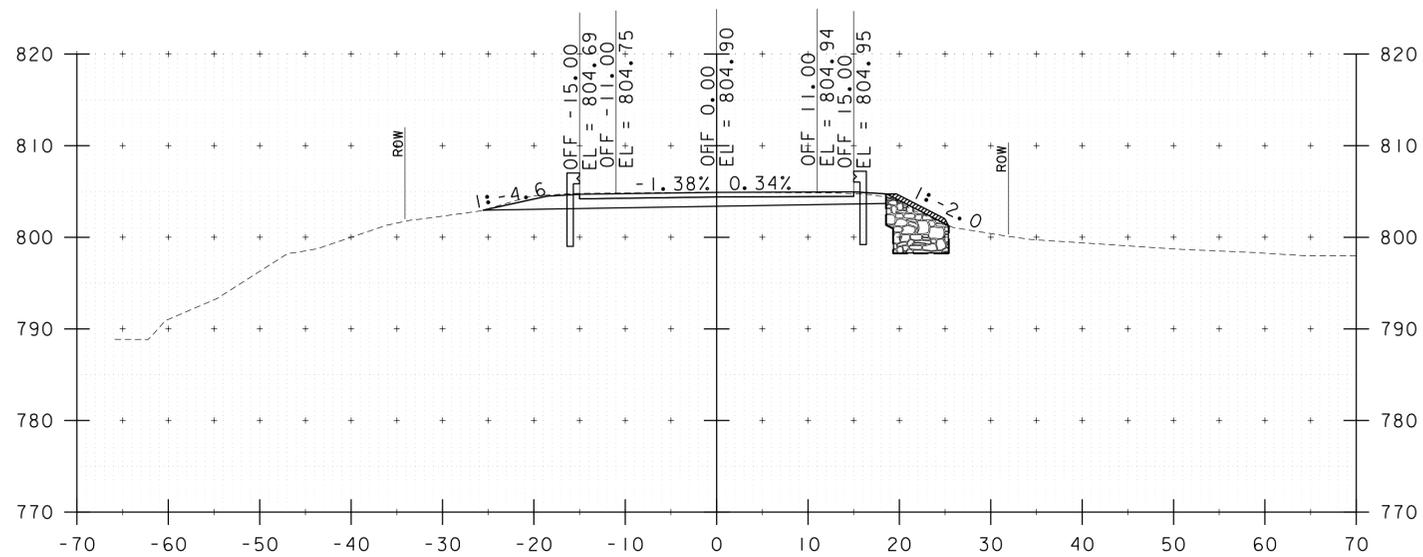
STA. 34+50 TO STA. 35+47

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

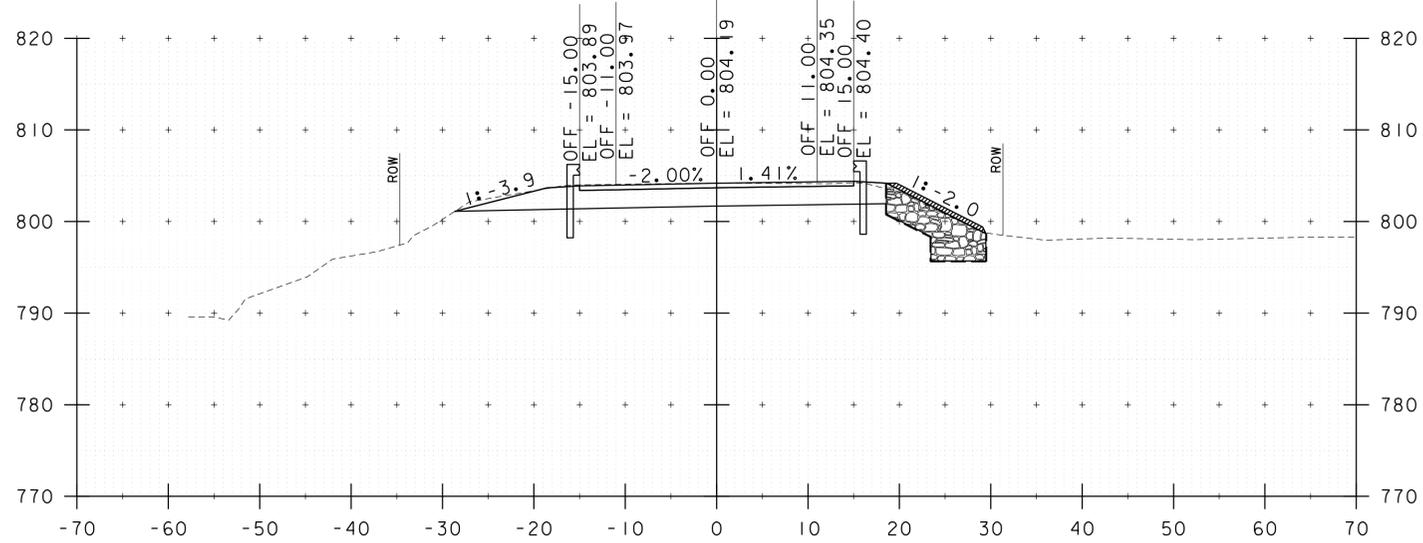
FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS2 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 43 OF 55



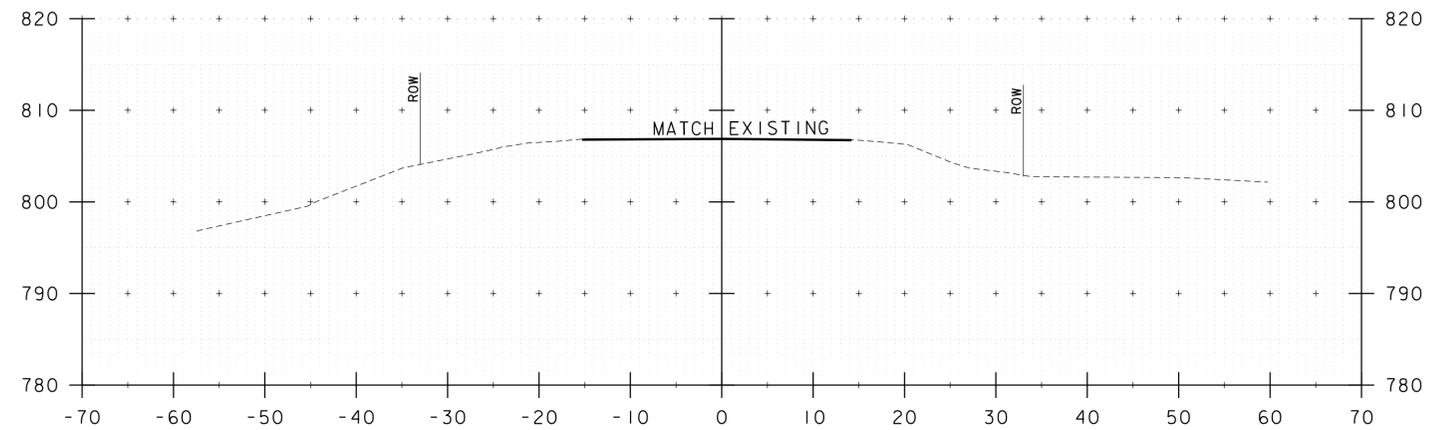


35+75

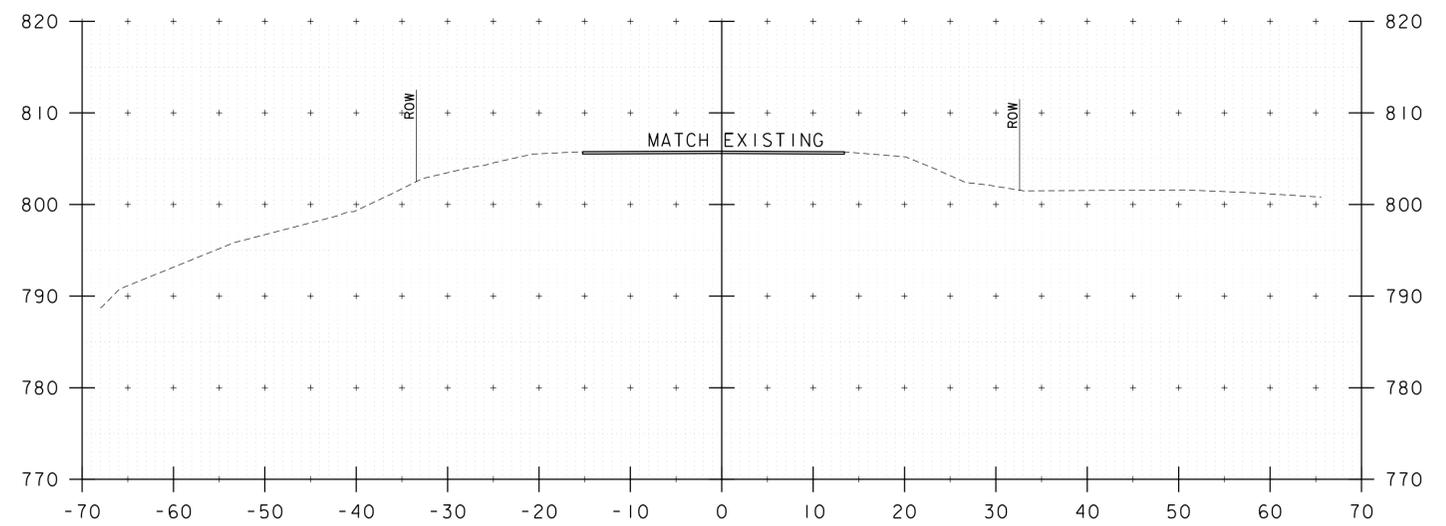


35+50

36+47
END APPROACH



36+25



36+00

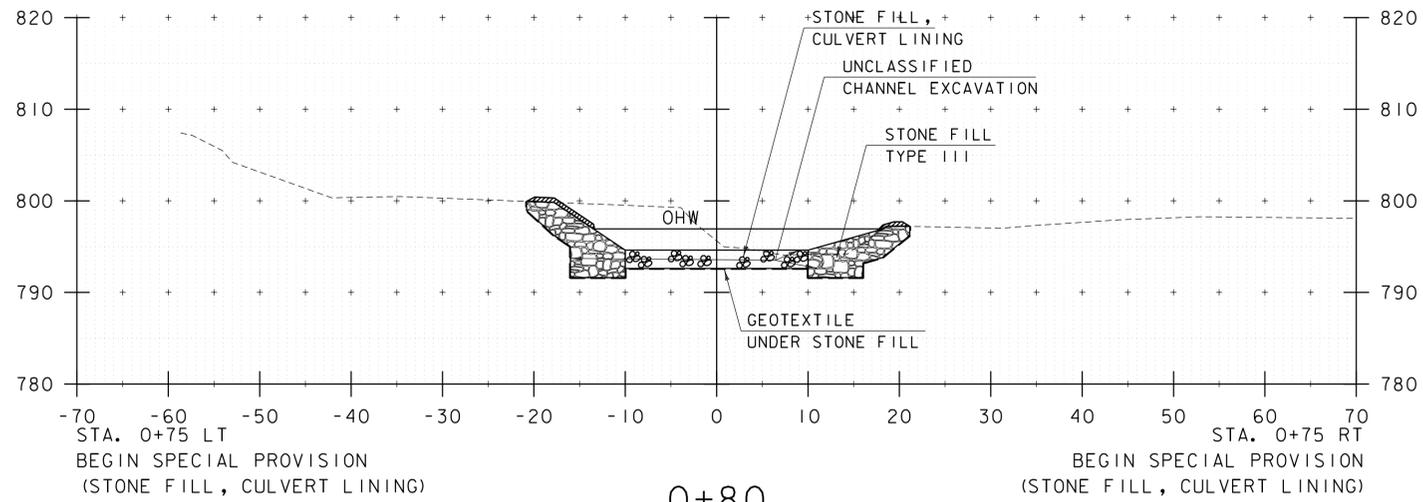
STA. 35+50 TO STA. 36+47

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

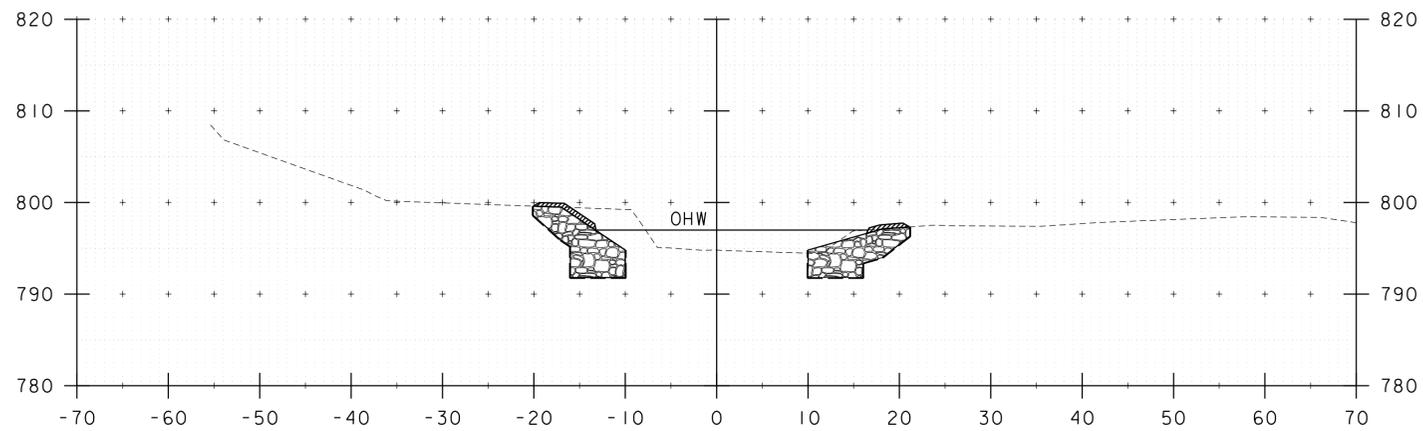
FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
ROADWAY CROSS SECTIONS - RXS3 - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 44 OF 55

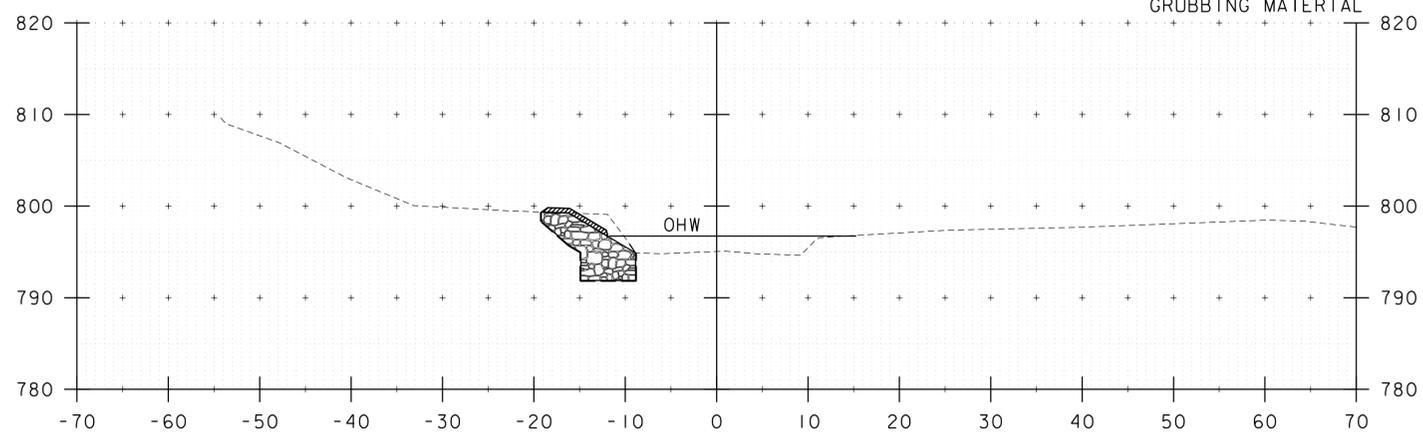




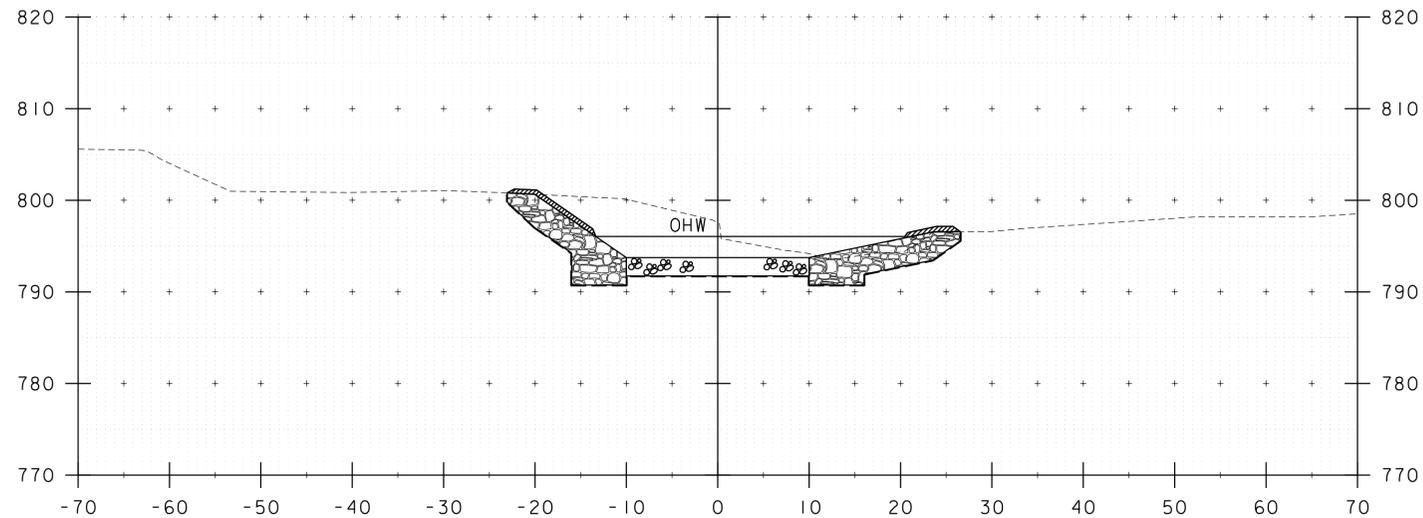
0+80



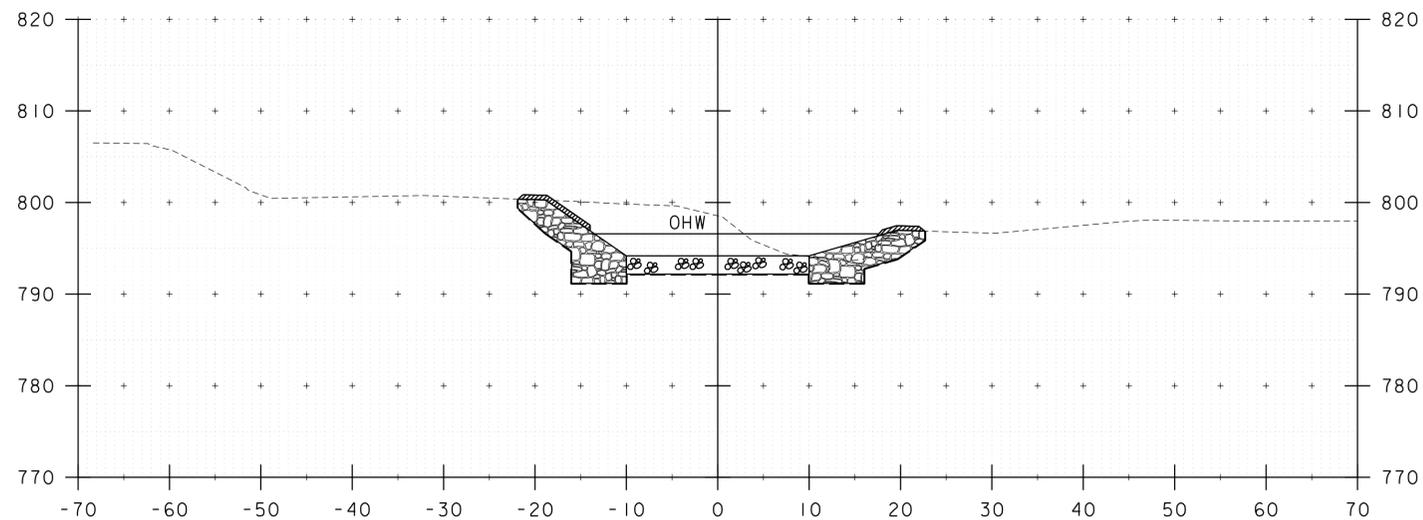
0+70



0+60



1+00



0+90

STA. 0+60 TO STA. 1+00

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

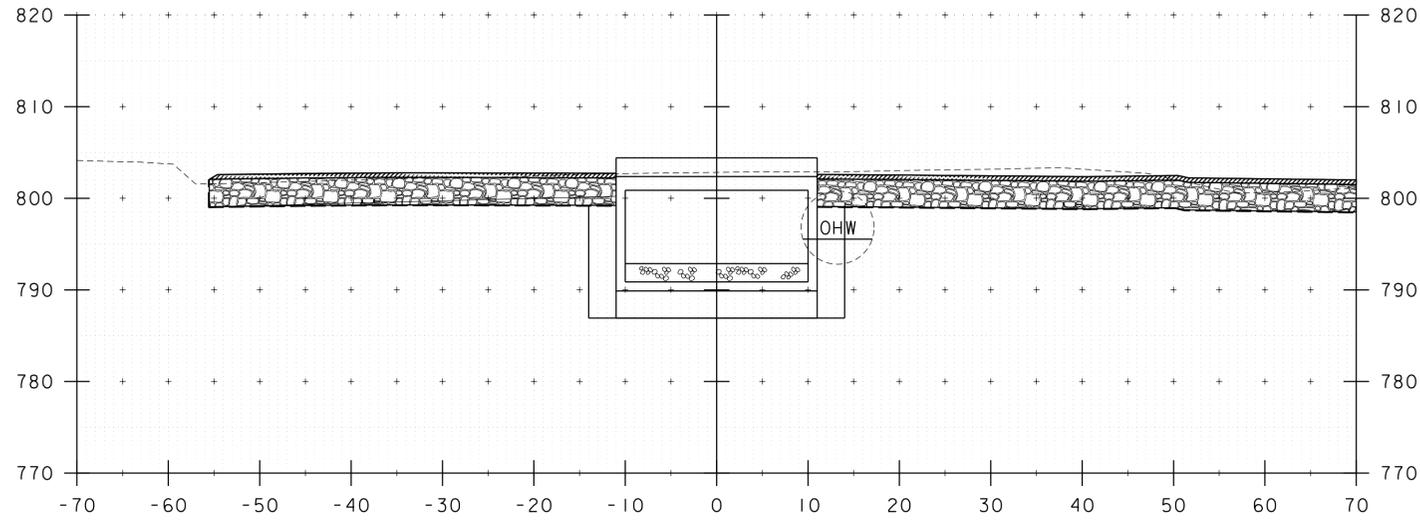
FILE NAME: zllc266xs.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
CHANNEL CROSS SECTIONS - CXSI - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 45 OF 55

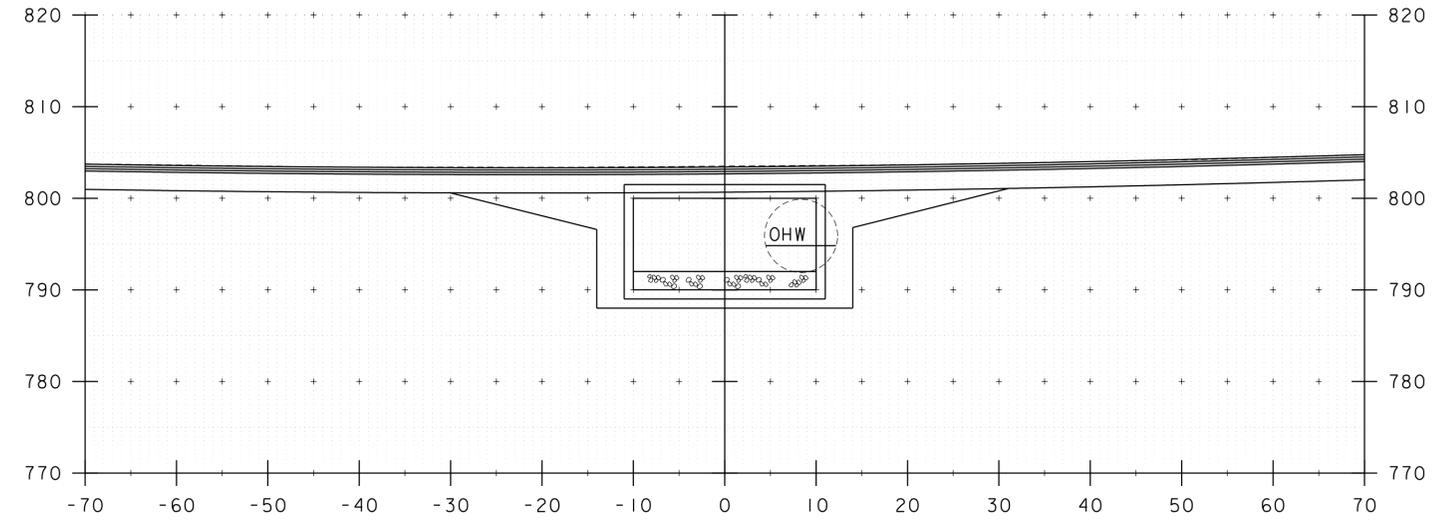


STA. 1+23.44 LT
 END UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL

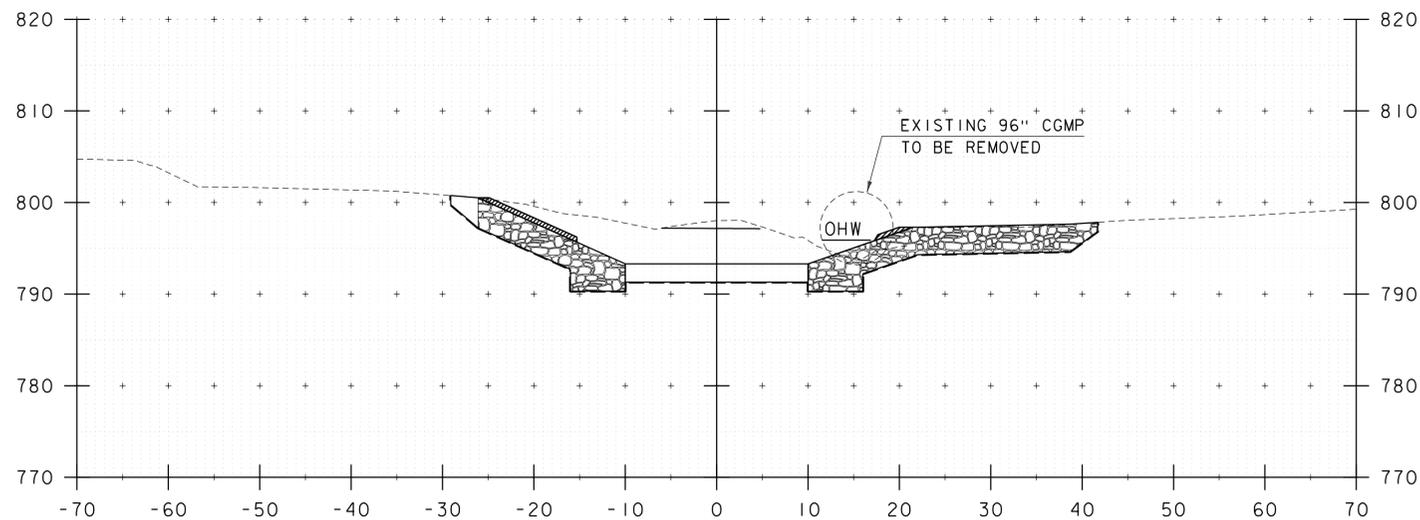
STA. 1+23.44 RT
 END UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 STONE FILL, TYPE III
 GRUBBING MATERIAL



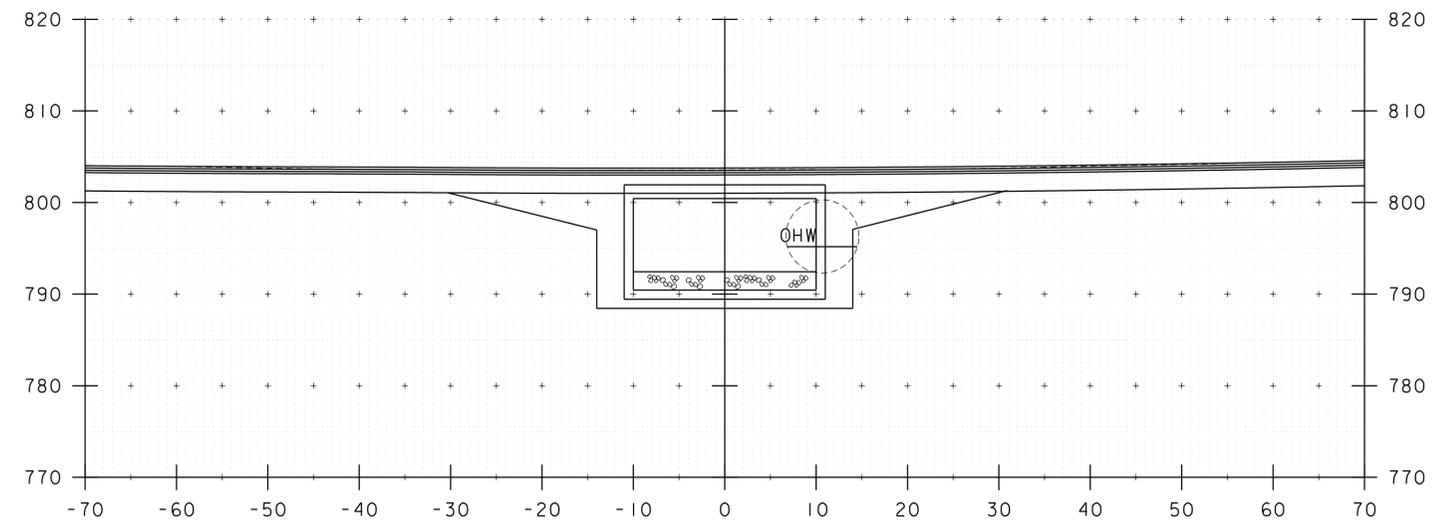
1+20



1+40



1+10



1+30

STA. 1+10 TO STA. 1+40

PROJECT NAME: IRASBURG	
PROJECT NUMBER: STP CULV(30)	
FILE NAME: zllc266xs.dgn	PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE	DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD	CHECKED BY: M. CHENETTE
CHANNEL CROSS SECTIONS - CXS2 - BR7	SHEET 46 OF 55

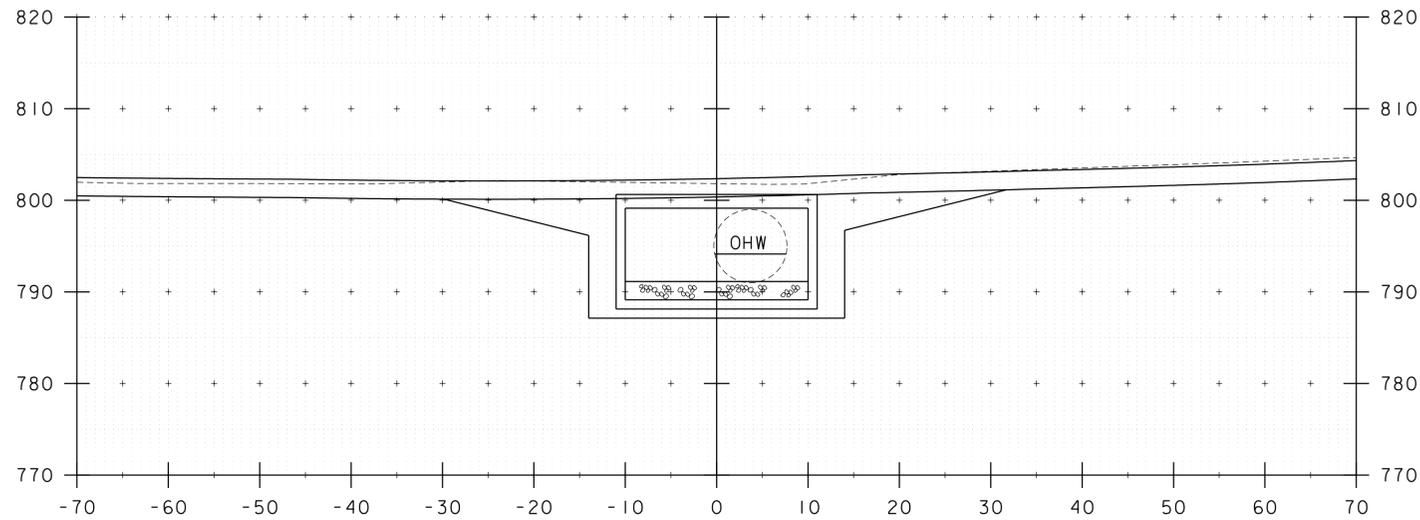


STA. 1+60.65 LT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 RIP RAP, HEAVY TYPE

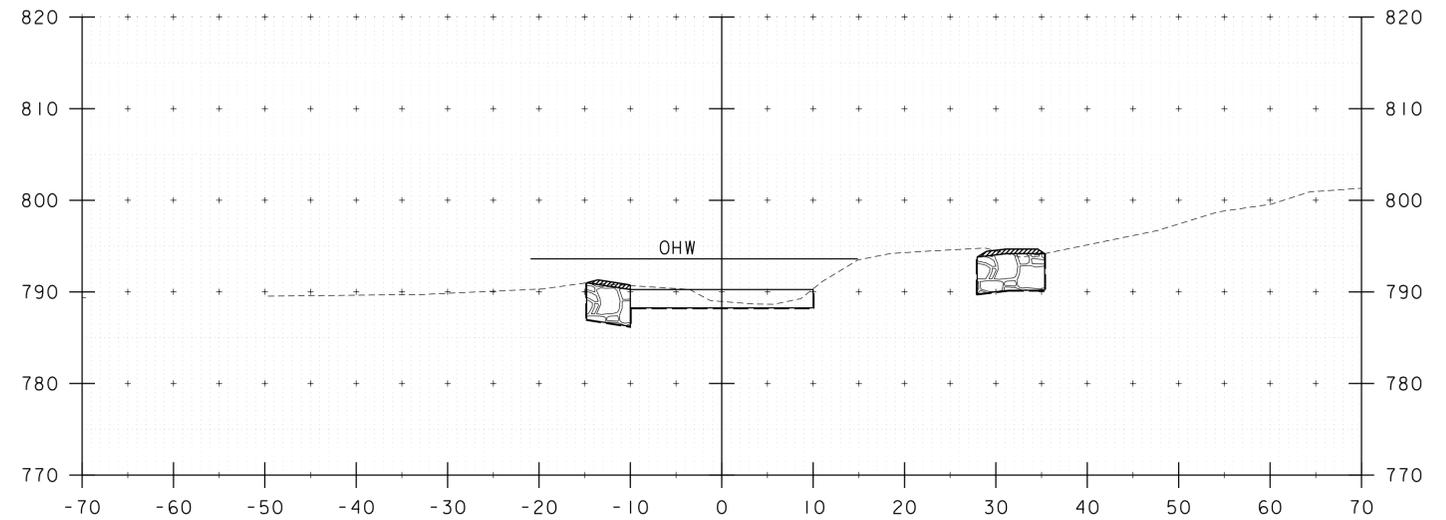
STA. 1+60.65 RT
 BEGIN UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 RIP RAP, HEAVY TYPE

STA. 1+86 LT
 END UNCLASSIFIED CHANNEL EXCAVATION
 SPECIAL PROVISION (STONE FILL, CULVERT LINING)

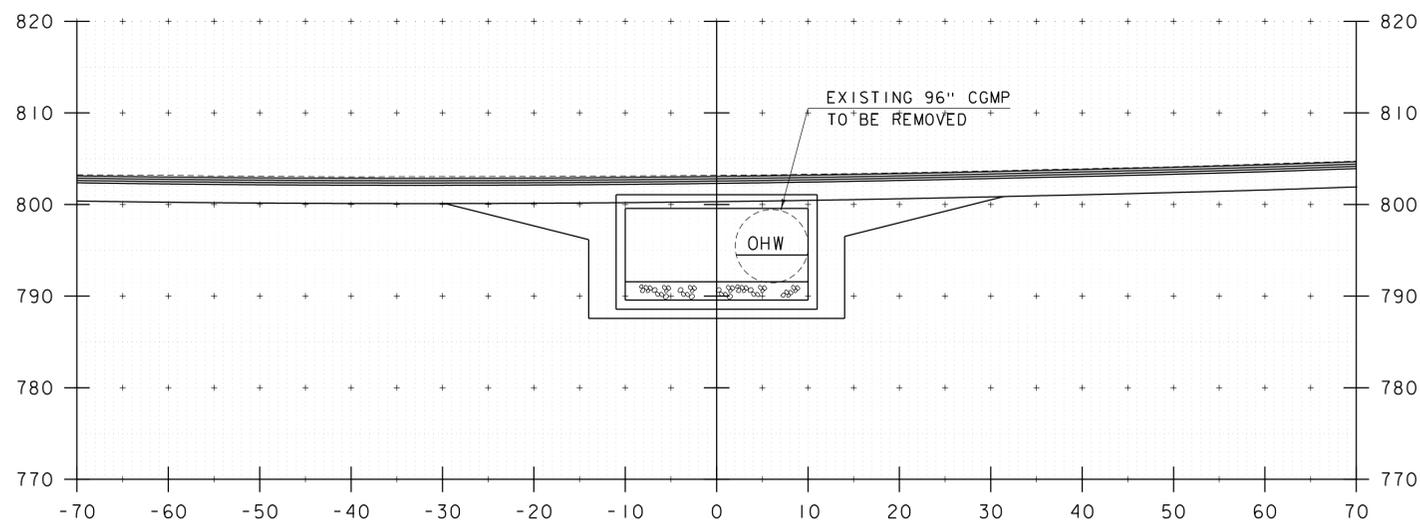
STA. 1+86 RT
 END UNCLASSIFIED CHANNEL EXCAVATION
 GEOTEXTILE UNDER STONE FILL
 RIP RAP, HEAVY TYPE
 SPECIAL PROVISION (STONE FILL, CULVERT LINING)



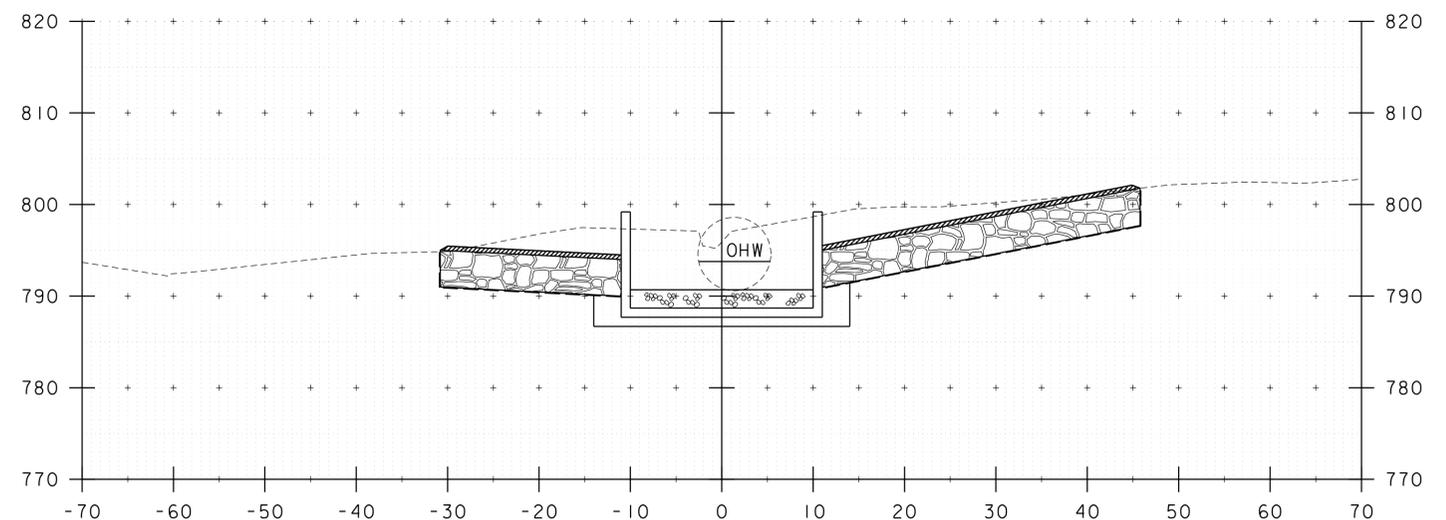
1+60



1+80



1+50



1+70

STA. 1+50 TO STA. 1+80

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266xs.dgn
 PROJECT LEADER: M. CHENETTE
 DESIGNED BY: J. HUNGERFORD
 CHANNEL CROSS SECTIONS - CXS3 - BR7

PLOT DATE: 9/26/2014
 DRAWN BY: L. BUXTON
 CHECKED BY: M. CHENETTE
 SHEET 47 OF 55



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE #7, RELATED CHANNEL WORK AND INCIDENTALS. BRIDGE #7 IS AN EXISTING 96" CORRUGATED STEEL CULVERT, WHICH WILL BE REPLACED WITH A 20' SPAN PRECAST CONCRETE BOX CULVERT TO CONVEY AN UNNAMED TRIBUTARY BENEATH VT ROUTE 58 TO THE BLACK RIVER. BRIDGE #7 IS LOCATED IN THE TOWN OF IRASBURG ON VT ROUTE 58, 0.5 MILES EAST OF THE JUNCTION WITH VERMONT ROUTE 14.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.55 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS WELL ESTABLISHED FOREST WITH MODERATE SLOPES AT THE INLET AND THE BLACK RIVER DIRECTLY AT THE OUTLET. THERE ARE TREES ON THE BANKS OF THE STREAM. VT ROUTE 58 IS WITHIN THE PROJECT SITE. THERE ARE OVERHEAD UTILITIES THAT HAVE BEEN RELOCATED TO NOT IMPACT THE PROJECT.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE WATER SOURCE ON THE PROJECT IS AN UNNAMED TRIBUTARY TO THE BLACK RIVER. THE PROJECT IS IN THE LAKE MEMPHRETAGOG DRAINAGE BASIN. THE TOTAL CONTRIBUTING DRAINAGE AREA IS 2.03 SQ. MI. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF FROM THE SURROUNDING SLOPES, ROADWAY DITCHES, AND THE ROADWAY OVER TOP OF CULVERT. THERE ARE CLASS II WETLANDS ON THE SOUTH SIDE OF THE PROJECT AT THE INLET. SEE THE PROJECT IMPACTS PLANS.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF FOREST LAND WITH SMALL TREES AND BRUSH ON THE BANKS OF THE STREAM. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS RELATED TO THE EXCAVATION REQUIRED FOR THE INSTALLATION OF THE CULVERT, HEADWALLS, WINGWALLS, STONE FILL, AND TEMPORARY ACCESS. UPON PROJECT COMPLETION, THE CHANNEL AND DISTURBED AREAS WITH SLOPES GREATER THAN 2:1 WILL BE ARMORED WITH STONE FILL TYPE II AT THE INLET AND HEAVY RIP RAP AT THE OUTLET AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF ORLEANS, VERMONT. SOILS ON THE PROJECT SITE ARE MOOSILAUKE VERY FINE SANDY LOAM, "K FACTOR" = 0.32. THE SOIL IS CONSIDERED MODERATELY ERODIBLE DUE TO K-VALUE.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: UNNAMED TRIBUTARY TO THE BLACK RIVER
WETLANDS: THERE ARE WETLANDS AT THE INLET OF THE STRUCTURE. SEE THE PROJECT IMPACTS PLANS.

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING AN EPSC PLAN IN ACCORDANCE WITH SECTION 652 OF THE SPECIAL PROVISIONS.

IN ADDITION, THE CONTRACTOR SHALL DESIGN AND IMPLEMENT A TEMPORARY STREAM DIVERSION, INCLUDING EPSC MEASURES IN ACCORDANCE WITH ITEM 900.645, SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM).

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

THE PROJECT AREA IS RELATIVELY FLAT WITH MINIMAL OFF-SITE RUNOFF FLOWING THROUGH THE SITE. THEREFORE DIVERSION MEASURES WILL NOT BE NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS NEEDED AND AS DIRECTED BY THE ENGINEER.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THERE ARE NO PERMANENT STORMWATER TREATMENT DEVICES TO BE INSTALLED WITH THIS PROJECT.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

SEDIMENT CONTAINMENT BAGS (FILTER BAGS) FOR HEADWALL WORK SHALL BE USED AS NECESSARY AND AS DIRECTED BY THE ENGINEER. SEE SHEET 51 FOR DETAIL.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 OFF-SITE ACTIVITIES

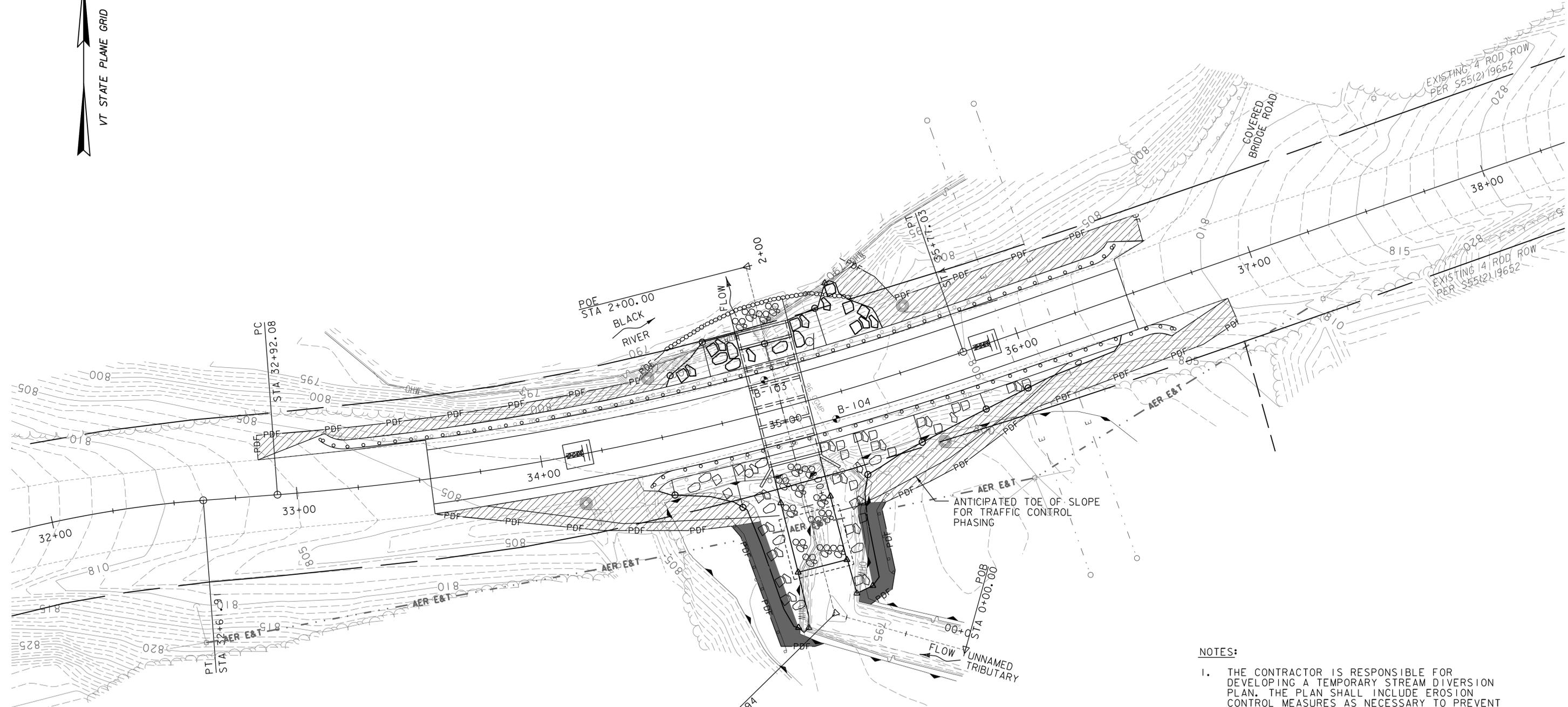
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTIONS 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266ero.narr_BR7.dgn
PROJECT LEADER: M. CHENETTE
DESIGNED BY: J. HUNGERFORD
EPSC NARRATIVE - ECN I - BR7

PLOT DATE: 9/26/2014
DRAWN BY: L. BUXTON
CHECKED BY: M. CHENETTE
SHEET 48 OF 55





LEGEND

	VEHICLE TRACKING PAD
	DISTURBED AREAS REQUIRING VEGETATION

ITEM 653.55 PROJECT DEMARCATION FENCE
 STA. 33+55.17 - 36+85.43, RT.
 STA. 32+85.26 - 36+60.49, LT.

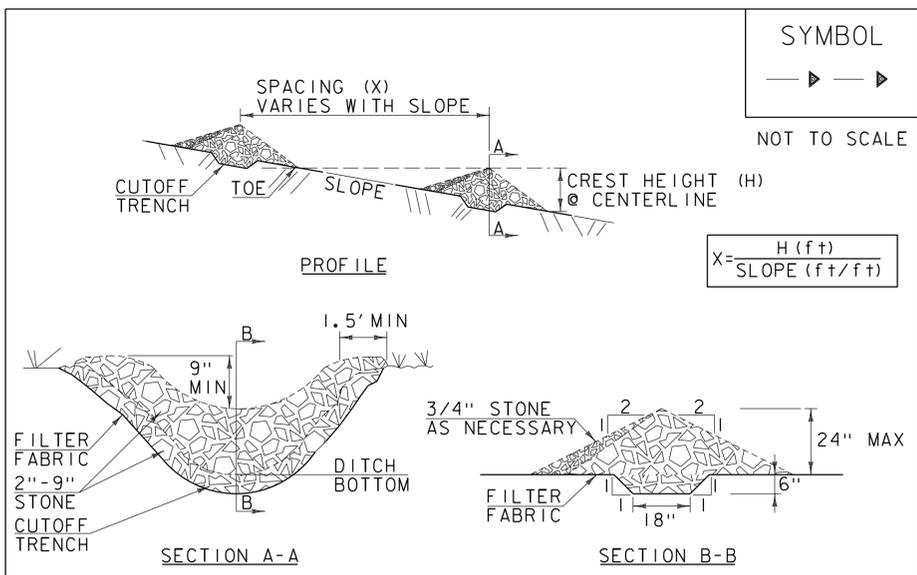
ITEM 649.51 GEOTEXTILE FOR SILT FENCE
 SEE LOCATIONS, THIS SHEET.



- NOTES:**
1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A TEMPORARY STREAM DIVERSION PLAN. THE PLAN SHALL INCLUDE EROSION CONTROL MEASURES AS NECESSARY TO PREVENT AND CONTROL SEDIMENT DISCHARGE. SEE SPECIAL PROVISION 900.645 (TEMPORARY RELOCATION OF STREAM).
 2. DEWATERING ACTIVITIES: ANY FILTER BAG OR DEWATERING ENCLOSURE FOR DISCHARGE OF DEWATERING ACTIVITIES SHALL BE LOCATED A MINIMUM OF 50 FEET FROM THE STREAM UNLESS APPROVED BY THE ENGINEER. THE FILTERING AREA SHALL BE LOCATED WITHIN THE EXISTING RIGHT-OF-WAY AND IF NECESSARY MAY BE LOCATED WITHIN A CLOSED PORTION OF THE EXISTING ROADWAY AND/OR SHOULDER.

PROJECT NAME:	IRASBURG
PROJECT NUMBER:	STP CULV(30)
FILE NAME:	zllc266bdr_EPSC-br7.dgn
PROJECT LEADER:	M. CHENETTE
DESIGNED BY:	J. HUNGERFORD
EPSC CONST. SITE PLAN - ECPI - BR7	
PLOT DATE:	9/26/2014
DRAWN BY:	L. BUXTON
CHECKED BY:	M. CHENETTE
SHEET	49 OF 55





SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
7. MAXIMUM DRAINAGE AREA 2 ACRES.

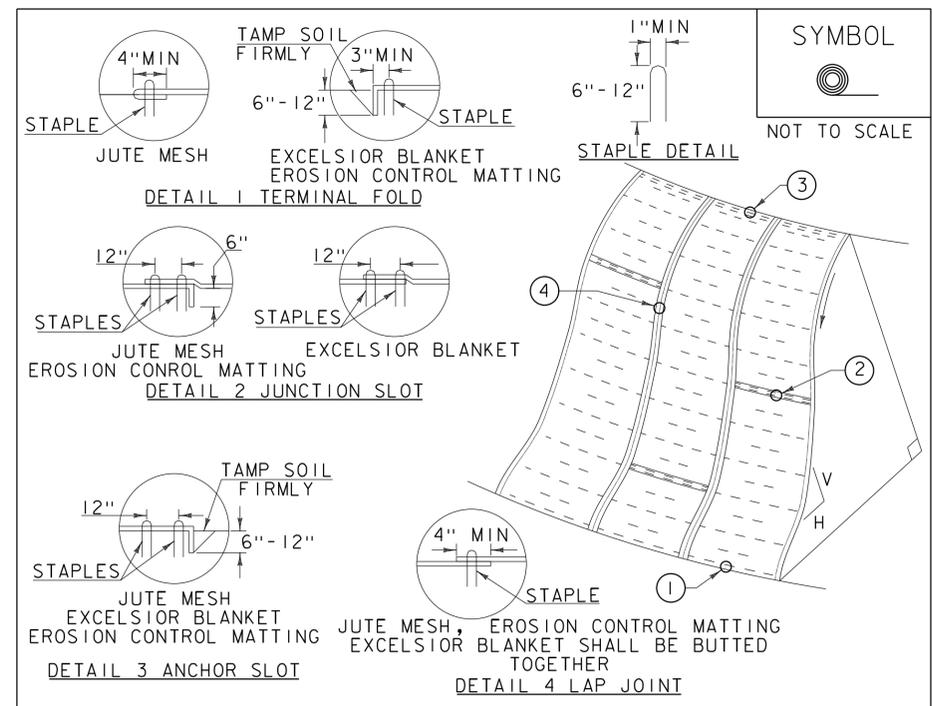
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

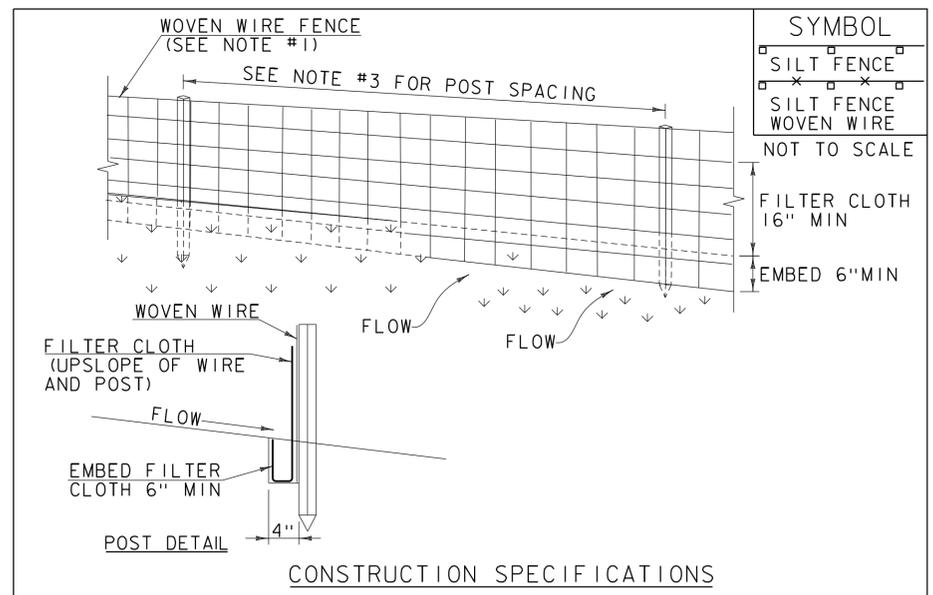
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
 THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



SYMBOL

 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
 ORIGINALLY DEVELOPED BY USDA-NRCS
 VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SILT FENCE

NOTES:
 REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: IRASBURG
 PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br7.dgn PLOT DATE: 9/26/2014
 PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
 DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
 EROSION CONTROL DETAILS - ECD 1 - BR7 SHEET 50 OF 55



VAOT RURAL AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
37.5%	22.5	45	CREeping RED FESCUE	85%	98%
37.5%	22.5	45	TALL FESCUE	90%	95%
5.0%	3	6	RED TOP	90%	95%
15.0%	9	18	BIRDSFOOT TREFOIL	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	85%	95%
100%	60	120			

VAOT URBAN AREA MIX					
% WEIGHT	LBS/AC		NAME	GERM %	PURITY %
	BROADCAST	HYDROSEED			
42.5%	34	68	CREeping RED FESCUE	85%	98%
10.0%	8	16	PERENNIAL RYE GRASS	90%	95%
42.5%	34	68	KENTUCKY BLUE GRASS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	85%	95%
100%	80	160			

SOIL AMENDMENT GUIDANCE			
FERTILIZER		LIME	
BROADCAST	HYDROSEED	BROADCAST	HYDROSEED
10-20-10	FOLLOW	PELLETIZED	FOLLOW
500 LBS/AC	MANUFACTURER	2 TONS/AC	MANUFACTURER

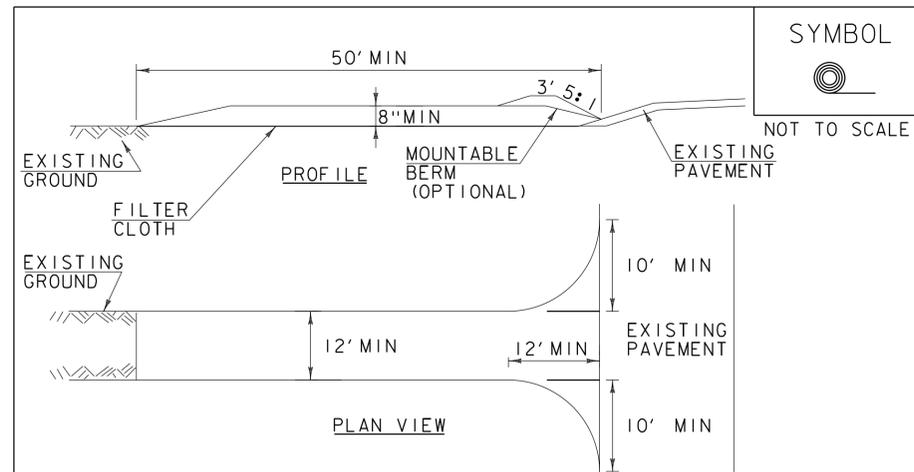
CONSTRUCTION GUIDANCE

- RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
- URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
- ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
- FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED
- TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

REVISIONS	
JUNE 23, 2009	WHF
JANUARY 15, 2010	WHF
FEBRUARY 16, 2011	WHF



CONSTRUCTION SPECIFICATIONS

- STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
- THICKNESS- NOT LESS THAN 8".
- WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
- GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
- SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

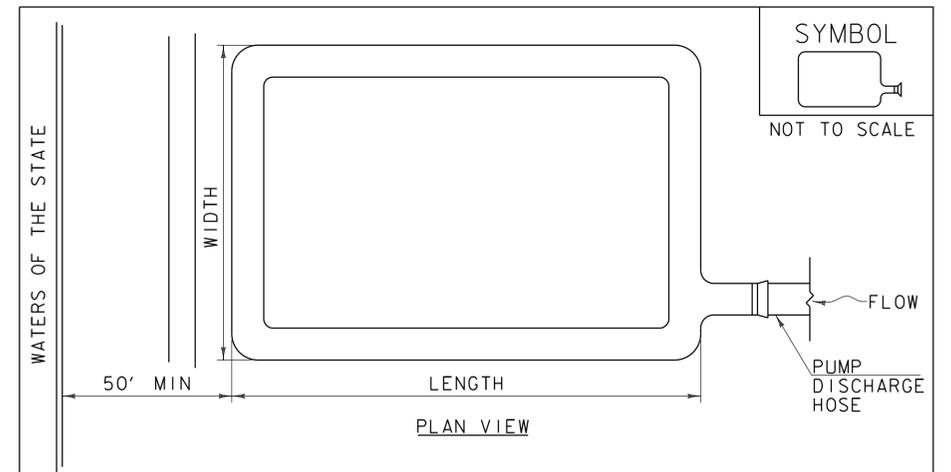
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

- THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
- FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
- FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
- FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
- A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
- FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

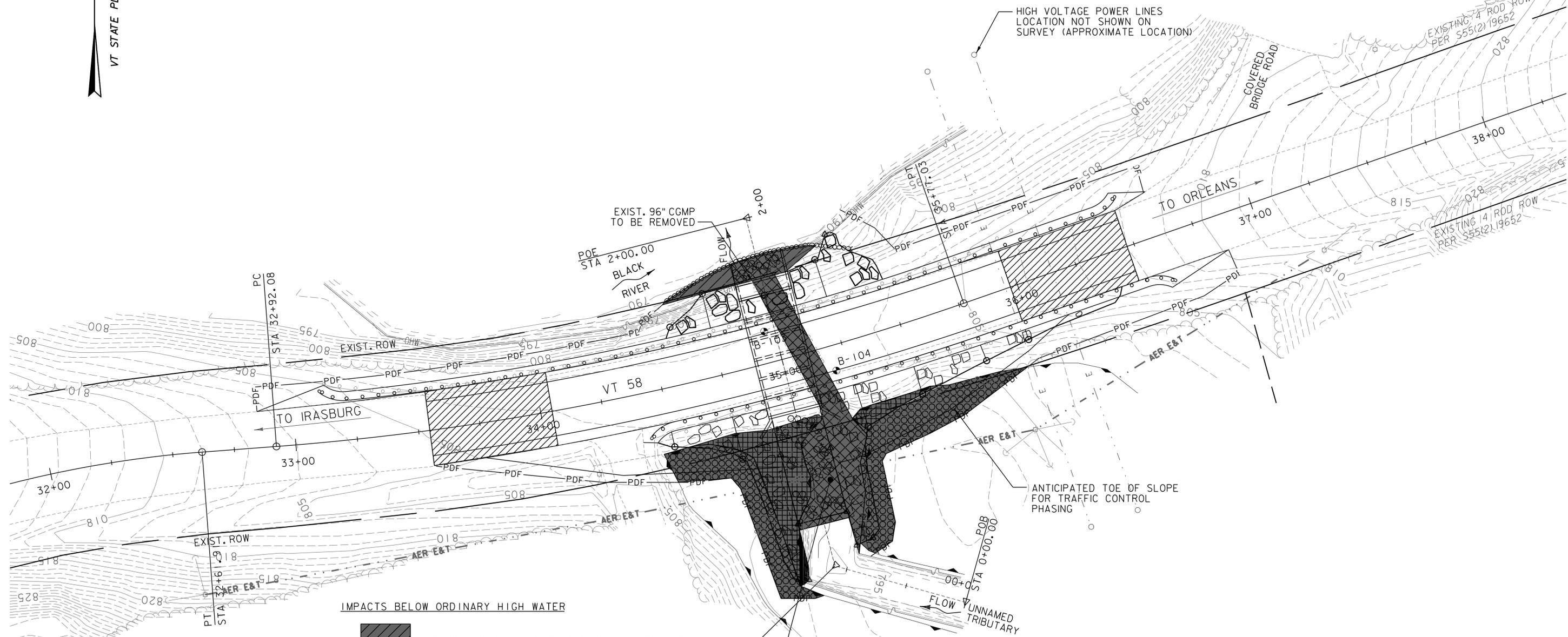
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: IRASBURG
PROJECT NUMBER: STP CULV(30)

FILE NAME: zllc266epsc det_br7.dgn PLOT DATE: 9/26/2014
PROJECT LEADER: M. CHENETTE DRAWN BY: L. BUXTON
DESIGNED BY: J. HUNGERFORD CHECKED BY: M. CHENETTE
EROSION CONTROL DETAILS - ECD 2 - BR7 SHEET 51 OF 55





LEGEND	
	RIPRAP, HEAVY TYPE
	STONE FILL, TYPE III
	SPECIAL PROVISION (STONE FILL, CULVERT LINING)

IMPACTS BELOW ORDINARY HIGH WATER		
	TEMPORARY IMPACTS BELOW OHW:	224 SF
	PERMANENT IMPACTS BELOW OHW:	1778 SF
TOTAL IMPACTS:		2002 SF

WETLANDS IMPACT		
	WETLANDS SECONDARY IMPACTS:	2096 SF
	WETLANDS PERMANENT IMPACTS:	1087 SF
TOTAL IMPACTS:		3183 SF



PROJECT NAME:	IRASBURG	PLOT DATE:	9/26/2014
PROJECT NUMBER:	STP CULV(30)	DRAWN BY:	L. BUXTON
FILE NAME:	zllc266bdr_impacts_br7.l.dgn	CHECKED BY:	M. CHENETTE
PROJECT LEADER:	M. CHENETTE	SHEET	52 OF 55
DESIGNED BY:	J. HUNGERFORD		
PROJECT IMPACTS PLAN I - BR7			



RIGHT - OF - WAY DETAIL SHEET

TABLE OF PROPERTY ACQUISITION

PARCEL NO.	PROPERTY OWNER	ROW LAYOUT NO.	BEGINNING STATION	ENDING STATION	TAKE	REMAINDER	RIGHT			RECORDING DATA				REMARKS	
					AREA±	AREA±	TYPE	T / P	AREA ±	TITLE	DATE	TOWN / CITY	BOOK		PAGE
1	NELSON FARMS, INC.	1	34+57.98 LT 35+36 LT	35+42.23 LT 35+55 LT			HIGHWAY CONSTRUCTION	P T	290 SF 155 SF						INCL. PDF & EC
2	MAGOON, ALAN & BOBBI JO	1	34+43 RT 34+59 RT 34+79 RT 35+18 RT	35+96 RT 34+80 RT 35+37 RT 35+80 RT			CONSTRUCTION DETOUR CHANNEL DETOUR	T T P T	1,186 SF 33 SF 2,308 SF 418 SF						INCL. PDF & EC INCL. STONE FILL
3	TELEPHONE OPERATING COMPANY OF VERMONT LLC		34+43	35+96											UTILITY
4	VERMONT ELECTRIC POWER COMPANY, INC.		34+43	35+96											UTILITY
5	VERMONT ELECTRIC COOPERATIVE, INC.		34+43	35+96											UTILITY
6	COMCAST OF CONNECTICUT/GEORGIA/ MASSACHUSETTS/NEW HAMPSHIRE/ NEW YORK/NORTH CAROLINA/ VERMONT, LLC		34+43	35+96											UTILITY

TABLE OF REVISIONS

REVISION NO.	ROW SET SHEET #	DESCRIPTION	DATE
1	3	NAME CORRECTED TO TELEPHONE OPERATING COMPANY OF VERMONT LLC AND ADD PARCEL NUMBERS FOR UTILITIES. MADE BY: MT C.O. 9899 APPR: RC	06/12/14
2	3, 4	PARCEL 1, NELSON FARMS - ADD PROPERTY LINE & INDICATE AREA OWNED BY STATE OF VERMONT; REVISE TAKE LINE TO AGREE WITH PROPERTY LINE. MADE BY: MT C.O. 9900 APPR: RC	06/17/14
3	3, 4	PARCEL 2, MAGOON - CHANGE SR(T) TO DETOUR (T); REVISE CH(P) TO FOLLOW PROPOSED STONE FILL. MADE BY: MT C.O. 9901 APPR: RC	06/17/14
4	3	PARCEL 1, NELSON FARMS - CHANGE FEE TAKING TO EASEMENT PER PROPERTY OWNER REQUEST. MADE BY: MT C.O. 9921 APPR: RC	07/30/14
5	4	PARCEL 1, NELSON FARMS - ADD HWY (P) TO PLANS. MADE BY: MT C.O. 9924 APPR: RC	08/04/14

APPROVED: RYAN CLOUTIER DATE: 05-09-14
CHIEF, PLANS & TITLES

PROJECT NAME: **IRASBURG**
PROJECT NUMBER: **STP CULV(30)**
FILE NAME: **r11c266detail.xls** PLOT DATE: **04-AUG-2014**
PROJECT LEADER: **M. SARGENT** DRAWN BY: **M. TROTTIER**
DESIGNED BY: **A. EGIZI** CHECKED BY: **R. CLOUTIER**
ROW DETAIL SHEET #1 SHEET 54 OF 55

621.20 - STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 33+11.03, LT. TO STA. 34+50.00, LT.
 STA. 34+41.44, RT. TO STA. 34+50.00, RT.
 STA. 35+50.00, LT. TO STA. 36+49.20, LT.
 STA. 35+50.00, RT. TO STA. 36+61.45, RT.

621.21 - HD STEEL BEAM GUARDRAIL, GALVANIZED
 STA. 34+50.0, LT. TO STA. 34+87.5, LT.
 STA. 34+50.0, RT. TO STA. 34+87.5, RT.
 STA. 35+12.5, LT. TO STA. 35+50.0, LT.
 STA. 35+12.5, RT. TO STA. 35+50.0, RT.

621.216 - HD STEEL BEAM GUARDRAIL, GALVANIZED/NESTED
 STA. 34+87.5, LT. TO STA. 35+12.5, LT.
 STA. 34+87.5, RT. TO STA. 35+12.5, RT.

621.60 - ANCHOR FOR STEEL BEAM GUADRAIL
 STA. 33+11.03, LT.
 STA. 34+41.44, RT.
 STA. 36+49.20, LT.
 STA. 36+61.45, RT.

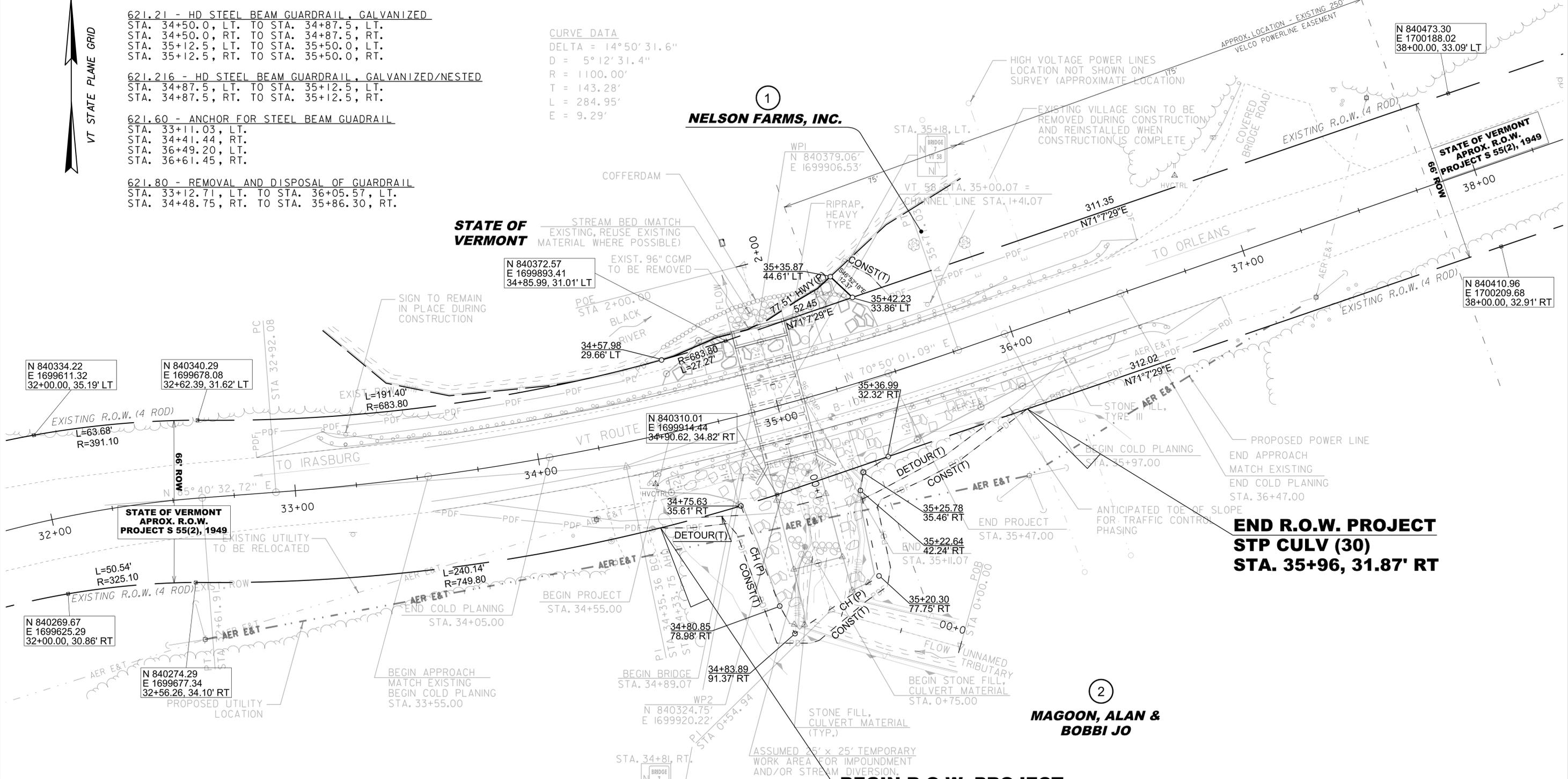
621.80 - REMOVAL AND DISPOSAL OF GUARDRAIL
 STA. 33+12.71, LT. TO STA. 36+05.57, LT.
 STA. 34+48.75, RT. TO STA. 35+86.30, RT.

646.400- DURABLE 4 INCH WHITE LINE
 STA. 33+55.00, RT. TO STA. 36+47.00, RT.
 STA. 33+55.00, LT. TO STA. 36+47.00, LT.

646.410- DURABLE 4 INCH YELLOW LINE
 STA. 33+55.00, CL. TO STA. 36+47.00, CL. (DYEL)

CURVE DATA

DELTA = 14°50'31.6"
 D = 5°12'31.4"
 R = 1100.00'
 T = 143.28'
 L = 284.95'
 E = 9.29'



N 840334.22
 E 1699611.32
 32+00.00, 35.19' LT

N 840340.29
 E 1699678.08
 32+62.39, 31.62' LT

N 840372.57
 E 1699893.41
 34+85.99, 31.01' LT

N 840310.01
 E 1699914.44
 34+90.62, 34.82' RT

N 840269.67
 E 1699625.29
 32+00.00, 30.86' RT

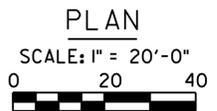
N 840274.29
 E 1699677.34
 32+56.26, 34.10' RT

N 840473.30
 E 1700188.02
 38+00.00, 33.09' LT

N 840410.96
 E 1700209.68
 38+00.00, 32.91' RT

NOTES:
 1. GRADE IN ACCORDANCE WITH TYPICAL ROADWAY SECTION AND ROADWAY CROSS SECTIONS UNLESS NOTED OTHERWISE.

LEGEND	
	RIPRAP, HEAVY TYPE
	STONE FILL, TYPE III
	STONE FILL, CULVERT LINING



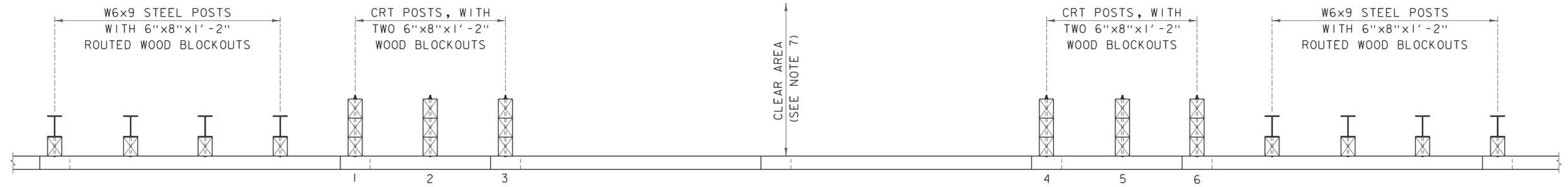
**BEGIN R.O.W. PROJECT
 STP CULV (30)
 STA. 34+43, 36.95' RT**

**END R.O.W. PROJECT
 STP CULV (30)
 STA. 35+96, 31.87' RT**

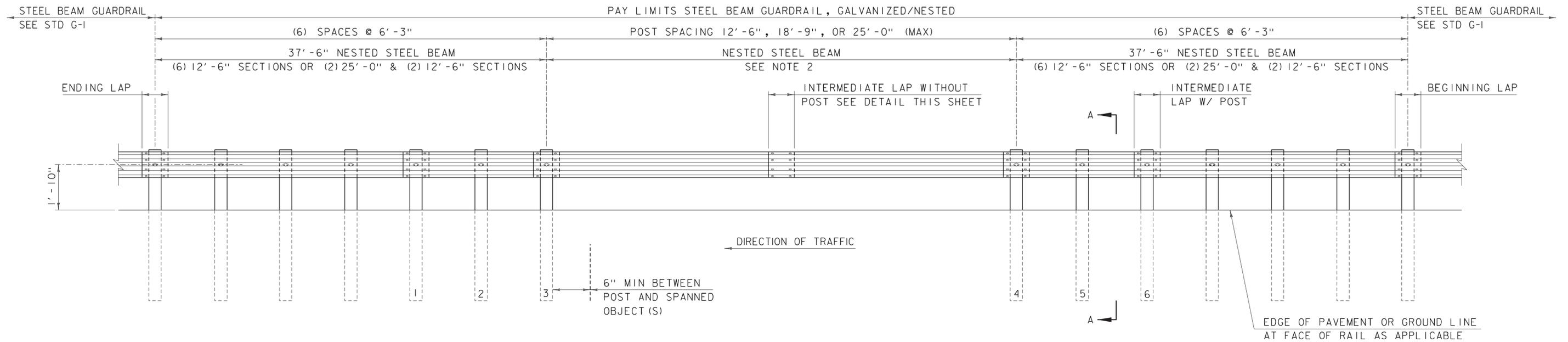
**FOR R.O.W.
 USE ONLY**

LINES SHOWN ON THIS PLAN AS EXISTING PROPERTY LINES P/L ARE BELIEVED TO BE ACCURATE BUT SHOULD NOT BE RELIED UPON FOR PURPOSES UNRELATED TO THE STATE OF VERMONT'S ACQUISITION OF LAND AND RIGHTS FOR THIS PROJECT.

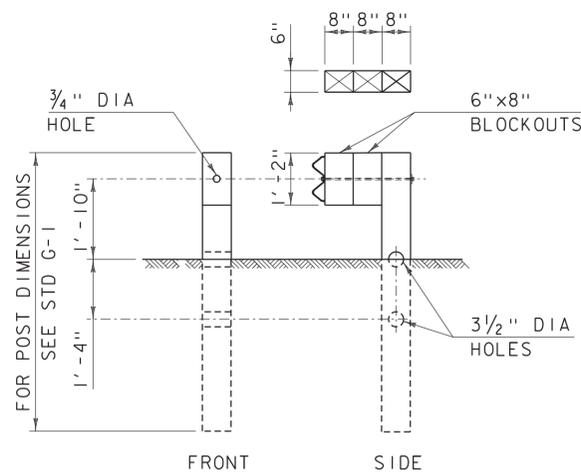
PROJECT NAME: IRASBURG	PLOT DATE: 04-AUG-2014
PROJECT NUMBER: STP CULV(30)	DRAWN BY: E. PIERCE
FILE NAME: r1lc266lay_br7.dgn	CHECKED BY: R. CLOUTIER
PROJECT LEADER: M. SARGENT	SHEET 55 OF 55
DESIGNED BY: STANTEC	
R.O.W. LAYOUT - BR7	



LONGSPAN STEEL BEAM GUARDRAIL PLAN

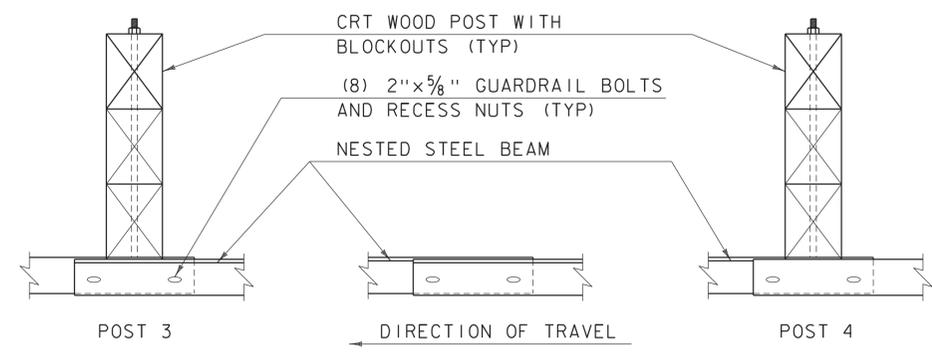


LONGSPAN STEEL BEAM GUARDRAIL ELEVATION



SECTION A-A

SECTION A-A TYPICAL FOR POST 1-6. SEE NOTES 3 AND 4



INTERMEDIATE LAP WITHOUT POST

NOTES:

1. RAIL MEETS TEST LEVEL 3 REQUIREMENTS OF NCHRP REPORT 350.
2. THERE SHALL BE NO MORE THAN ONE SPLICE IN THE LONGSPAN LOCATION.
3. POSTS 1 THRU 6 ARE BREAKAWAY CONTROLLED RELEASING TERMINAL (CRT) POSTS.
4. POSTS 1 THRU 6 HAVE TWO 6"x8" BLOCKOUTS.
5. ON POSTS 1 THRU 6, GUARDRAIL BOLT "D", AS SHOWN ON STD G1, SHALL BE 26" LONG.
6. ON ALL POSTS WHERE THE RAIL IS NESTED GUARDRAIL BOLT "A", AS SHOWN ON STD G1, SHALL BE 2" LONG.
7. CLEAR AREA BEHIND BACK OF RAIL SHALL BE: 5'-0" MINIMUM FOR OBSTRUCTIONS LESS THAN OR EQUAL TO THE HEIGHT OF RAIL. 6'-0" FOR OBSTRUCTIONS TALLER THAN THE TOP OF RAIL.
8. W6x9 STEEL POST MAY BE REPLACED WITH CRT WOOD POST WITH THE APPROVAL OF THE ENGINEER.
9. ALL MATERIALS NECESSARY FOR THE ASSEMBLY OF THE RAIL MUST MEET THE REQUIREMENTS OF STD G-1 UNLESS OTHERWISE NOTED.
10. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.

REVISIONS	
NOVEMBER 25, 2013	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JANUARY 3, 2014	APPROVED FOR USE BY VAOT STRUCTURES SECTION

LONGSPAN
STEEL BEAM GUARDRAIL,
GALVANIZED



STRUCTURES
DETAIL

SD-366.00