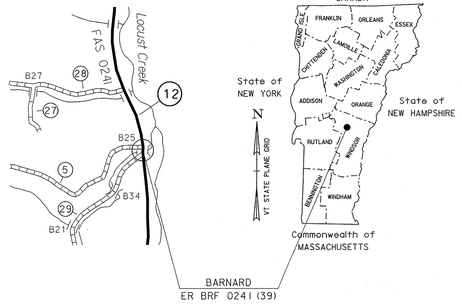
STATE OF VERMONT
AGENCY OF TRANSPORTATION



RECORD PLANS

CONTRACTOR: MILLER CONSTRUCTION, INC – WINDSOR, VT

RESIDENT ENGINEER: PETE HODGSON

CONSTRUCTION BEGAN: JUNE 20, 2014

CONSTRUCTION COMPLETE: JULY 25, 2014

RECORD PLANS BY: PETE HODGSON & C. PIERCE

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE 3/17/16

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

PROPOSED IMPROVEMENT
BRIDGE PROJECT

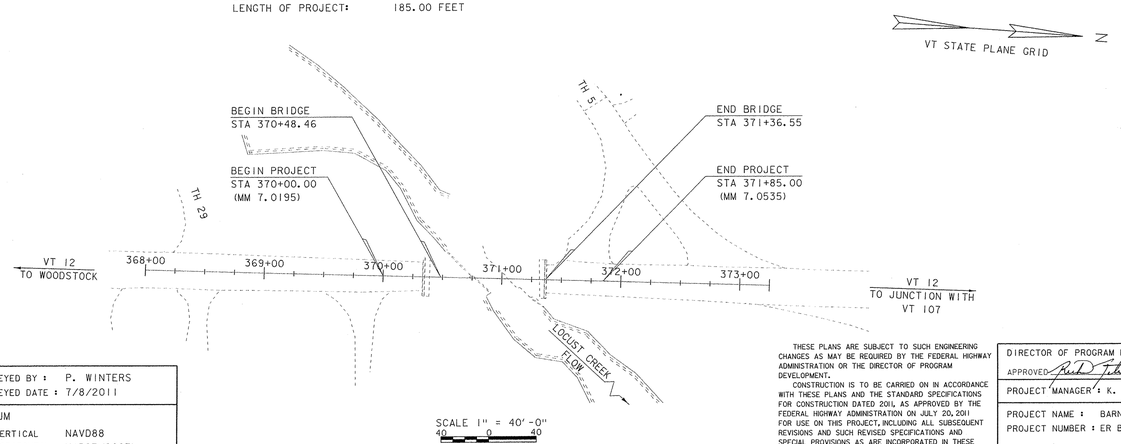
TOWN OF BARNARD
COUNTY OF WINDSOR

VT ROUTE 12, MAJOR COLLECTOR BRIDGE NO : 25

PROJECT LOCATION: BEGINNING AT MILE POST 7.0195 (STA 370+00) ON VT 12 IN BARNARD, CROSSING LOCUST CREEK AND ENDING AT MILE POST 7.0535 (STA 371+85).

PROJECT DESCRIPTION: REPLACEMENT OF BRIDGE 25 WITH MINOR CHANNEL AND APPROACH WORK.

LENGTH OF STRUCTURE: 88.09 FEET
LENGTH OF ROADWAY: 96.91 FEET
LENGTH OF PROJECT: 185.00 FEET



QUALITY ASSURANCE PROGRAM: LEVEL 2

CONVENTIONAL SYMBOLS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

SURVEYED BY : P. WINTERS
SURVEYED DATE : 7/8/2011

DATUM
VERTICAL NAVD88
HORIZONTAL NAD83 (2007)

SCALE 1" = 40'-0"
40 0 40

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT.

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.

PLOTTED 27-AUG-2013

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED _____ DATE 8-28-13

PROJECT MANAGER : K. M. HIGGINS, P.E.

PROJECT NAME : BARNARD
PROJECT NUMBER : ER BRF 0241 (39)

SHEET 1 OF 39 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 09.02.03

LRFD

INDEX OF SHEETS

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STANDARDS LIST

E-100	CONSTRUCTION APPROACH SIGNS	01-02-2004
E-101	CONSTRUCTION SIGN DETAILS	05-30-2003
E-102	CONSTRUCTION SIGN DETAILS	06-30-2003
E-102A	CONSTRUCTION SIGN DETAILS	05-01-2004
E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	06-08-2009
E-134	BRIDGE NUMBER PLAQUE	08-08-1995
E-164	SQUARE STEEL SIGN POST	06-08-2009
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1B	BOX BEAM GUARD RAIL	06-01-1994
G-4	PLANK RAIL, GUIDE POSTS, MARKER POSTS	06-01-1994
S-364A	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364B	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012

STRUCTURES DETAILS

SD-501.00	CONCRETE DETAILS AND NOTES	4/7/2010
SD-502.00	CONCRETE DETAILS AND NOTES	5/4/2010
SD-516.10	BRIDGE JOINT ASPHALTIC PLUG	4/7/2010

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE:	TYPE:	TYPE:
GRADE:	GRADE:	GRADE:

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	1000	140	54	7.3	120
2034	1100	150	54	10.8	190

20 year ESAL for flexible pavement from 2014 to 2034 : 416000

40 year ESAL for flexible pavement from 2014 to 2054 : 978000

Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: January 2013

DRAINAGE AREA : 11.6 sq. mi.
CHARACTER OF TERRAIN : Hilly to mountainous, mostly forested
STREAM CHARACTERISTICS : Semi-alluvial, sinuous, flood damaged
NATURE OF STREAMBED : Mostly gravel and cobbles with some boulders and ledge

PEAK FLOW DATA

Q 2.33 =	550 cfs	Q 50 =	2000 cfs
Q 10 =	1200 cfs	Q 100 =	2400 cfs
Q 25 =	1600 cfs	Q 500 =	3350 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 12.9 fps
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? Yes
IS ORDINARY RISE RAPID? Yes
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: Single span concrete T-beam bridge
YEAR BUILT: 1930
CLEAR SPAN(NORMAL TO STREAM): 24'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 280 sq. ft.
DISPOSITION OF STRUCTURE: This structure has been removed*
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	874.3'	VELOCITY =	9.2 fps
Q10 =	876.3'	"	12.7 fps
Q25 =	878.3'	"	15.3 fps
Q50 =	879.6'	"	16.9 fps
Q100 =	880.8'	"	18.3 fps

LONG TERM STREAMBED CHANGES: No information available on long term changes.
The 2011 flood and post-flood channel work significantly changed the streambed and banks.

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 884.9'
DISCHARGE OVER ROAD @Q100: None

UPSTREAM STRUCTURE

TOWN: Barnard — DISTANCE: 1900'
HIGHWAY # : TH 29 — STRUCTURE #: 34
CLEAR SPAN: 30' — CLEAR HEIGHT: 9'
YEAR BUILT: 1974 — FULL WATERWAY: Unknown
STRUCTURE TYPE: Bridge

DOWNSTREAM STRUCTURE

TOWN: Not applicable - confluence — DISTANCE:
HIGHWAY # : — STRUCTURE #:
CLEAR SPAN: — CLEAR HEIGHT:
YEAR BUILT: — FULL WATERWAY:
STRUCTURE TYPE:

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.48	1.57					
POSTING							
OPERATING	3.34	2.12	2.52	1.65	2.33	2.08	2.18
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — Rndr: SEE GEN. NOTES
2. PILE TEST RESISTANCE FACTOR — ϕ: SEE GEN. NOTES
3. MAXIMUM PILE TIP ELEVATION — SEE GEN. NOTES
4. SEE GENERAL NOTES

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span precast concrete beam bridge

CLEAR SPAN(NORMAL TO STREAM): 56'
VERTICAL CLEARANCE ABOVE STREAMBED: 11'
WATERWAY OF FULL OPENING: 430 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	874.2'	VELOCITY=	8.7 fps
Q10 =	876.0'	"	10.7 fps
Q25 =	876.8'	"	13.4 fps
Q50 =	877.6'	"	14.6 fps
Q100 =	878.2'	"	15.5 fps

IS THE ROADWAY OVERTOPPED BELOW Q100: No
FREQUENCY: Above Q100
RELIEF ELEVATION: 885.4'
DISCHARGE OVER ROAD @Q100: None

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 881.8'
VERTICAL CLEARANCE: @ Q50 = 4.2'

SCOUR: Contraction scour = 2' at Q100 and Q500, or to ledge if it is higher.

REQUIRED CHANNEL PROTECTION: Stone fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW:	25 cfs	
ORDINARY LOW WATER:	10 cfs	DEPTH OR ELEVATION:
ORDINARY HIGH WATER:	240 cfs	Depth = 0.5'
		Depth = 3.0'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: No temporary bridge required. Road will be closed & traffic detoured.
CLEAR SPAN (NORMAL TO STREAM):
VERTICAL CLEARANCE ABOVE STREAMBED:
WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

* The previous existing bridge was damaged in the August 2011 flood and has been removed. There is now a temporary bridge in place. Existing bridge information listed in this report is for the bridge that was removed in 2011.

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TRAFFIC ON AN OFF SITE DETOUR.
2. TRAFFIC SIGNALS ARE NOT NECESSARY.
3. SIDEWALKS ARE NOT NECESSARY

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_P:	0.0 INCH
3. DESIGN SPAN	L:	85.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	1.50 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	10.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	8.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	- - -
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	- - -
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	- - -
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:	SEE GEN. NOTES
16. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
17. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	10.0 KSF
18. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
19. NOMINAL AXIAL PILE RESISTANCE	q_p:	SEE GEN. NOTES
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		SEE GEN. NOTES
22. EST. PILE LENGTH	L_p:	SEE BORING LOGS
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: **BARNARD**
PROJECT NUMBER: **ER BRF 0241(39)**

FILE NAME: **s10c410pi.dgn**
PROJECT LEADER: **K. M. HIGGINS**
DESIGNED BY: **W. LAMMER**
PRELIMINARY INFORMATION SHEET

PLOT DATE: **16-SEP-2013**
DRAWN BY: **J. SALVATORI**
CHECKED BY: **W. LAMMER**

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY 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. SYMBOLOGY 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
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	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	CALCULATED ROW POINT
[DISTANCE]		DISTANCE CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
	APL	BOUND APPARENT LOCATION
	BM	BENCH MARK
	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 SYMBOLOGY

UNDERGROUND UTILITIES

- 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)

- 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 SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- 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 SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE 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/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6f — 6F PROPERTY BOUNDARY
- 4f — 4F PROPERTY BOUNDARY
- HAZ — HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

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 — 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
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

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: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s86e060Legend.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
LEGEND SHEET

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 3 OF 39

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE VERMONT AGENCY OF TRANSPORTATION 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2012 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, AND THEIR LATEST REVISIONS.

2. ON-SITE WORK SHALL NOT OCCUR DURING THE PERIOD FROM DECEMBER 1st to APRIL 15th. THE BRIDGE SHALL NOT BE CLOSED TO TRAFFIC PRIOR TO JUNE 20, AS PER THE PROJECT SPECIAL PROVISIONS.

3. ALL PRECAST CONCRETE ELEMENTS TO BE FABRICATED TO THE SPECIFIED DIMENSIONS WITHIN THE TOLERANCES DICTATED IN THE PRECAST/PRESTRESSED CONCRETE INSTITUTE TOLERANCE MANUAL FOR PRECAST AND PRESTRESSED CONCRETE CONSTRUCTION, MNL 135-00, AND ITS LATEST REVISIONS.

4. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE.

5. NO ADJUSTMENTS TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT BEAMS.

6. NO SUBSTITUTION FOR PRECAST CONCRETE WILL BE PERMITTED.

TRAFFIC CONTROL

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE SITE SPECIFIC TRAFFIC CONTROL PACKAGE IDENTIFYING CONSTRUCTION ACTIVITIES BEFORE, DURING, AND AFTER THE BRIDGE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC CONTROL PLAN TO THE RESIDENT ENGINEER FOR ALL STAGES OF CONSTRUCTION, FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE SPECIAL PROVISIONS.

8. ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE E SERIES OF THE STANDARDS.

9. ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE BID PRICE FOR ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE).

EARTHWORK

10. PORTIONS OF THE ABUTMENTS FROM THE EXISTING, FAILED STRUCTURE SHALL BE REMOVED UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING ABUTMENTS THAT FALL OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION OR UNCLASSIFIED CHANNEL EXCAVATION.

11. BEDROCK IS PRESENT AT SHALLOW DEPTHS AT ABUTMENT 2, PARTICULARLY WW 3. ANY BEDROCK ENCOUNTERED WITHIN 1 FT OF THE BOTTOM OF THE ABUTMENT 2 SUBSTRUCTURE UNITS, INCLUDING THE WINGWALLS, SHALL BE REMOVED. THIS SHALL BE PAID FOR UNDER ITEM 203.16, 'SOLID ROCK EXCAVATION".

12. REMOVAL OF THE CMP AT STATION 370+82.00 – 371+25 LT SHALL BE PAID FOR UNDER ITEM 204.20, "TRENCH EXCAVATION OF EARTH".

13. THE "STONE FILL, TYPE IV" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.

CONCRETE

14. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514. SILANE SHALL BE SHOP APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST NEXT BEAMS BETWEEN THE DRIP NOTCHES. PAYMENT FOR SILANE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE PRECAST ITEM.

15. ALL CONCRETE PLACED INTEGRALLY WITH THE SUPERSTRUCTURE SHALL BE ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)". ALL PRECAST SUBSTRUCTURE AND APPROACH SLAB CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 – PRECAST CONCRETE.

16. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".

17. ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF ITEM 507.12, "REINFORCING STEEL, LEVEL II".

18. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALLS AGAINST EARTH	2 INCH
ALONG TOP SURFACE OF DECK SLAB:	2 INCH
ALONG BOTTOM SURFACE OF DECK SLAB:	1.75 INCH
ELSEWHERE UNLESS OTHERWISE INDICATED:	3 INCH

PRECAST ABUTMENTS AND POST-TENSIONING

19. THE UNIT PRICE FOR EACH PRECAST ABUTMENT SHALL INCLUDE THE ASSOCIATED WINGWALLS, AND ALL LABOR AND MATERIALS TO CONNECT WINGWALLS TO THE PILE CAPS. THIS WORK SHALL BE PAID FOR UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND/OR "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE.

20. IF VERTICAL CONSTRUCTION JOINTS ARE REQUIRED BY THE CONTRACTOR FOR SHIPMENT OF THE ABUTMENTS, THEN THE SECTIONS SHALL BE KEYED AND MATCH CAST. A JOINT DETAIL SHALL BE SHOWN ON THE FABRICATION DRAWINGS.

21. POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PILE CAP IS CONSTRUCTED OF MORE THAN ONE UNIT. ANY POST-TENSIONING STRANDS AND CONDUIT SHALL ADHERE TO THE REQUIREMENTS OF SECTION 510 – PRESTRESSED CONCRETE. GALVANIZED ANCHOR ASSEMBLIES, CONDUIT, AND POST-TENSIONING STRANDS SHALL BE INCLUDED UNDER ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1) AND/OR "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)" AS APPROPRIATE. POST-TENSIONING STRANDS SHALL BE COVERED WITH SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF THE STRAND, EXCEPT AT ANCHORAGE LOCATIONS.

22. GALVANIZE ANCHOR ASSEMBLIES AFTER FABRICATION ACCORDING TO AASHTO M232M/M 232.

23. DESIGN VALUES
    a. CONCRETE COMPRESSIVE STRENGTH: f'c= 5000 PSI.
    b. POST-TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    c. ASSUMED MODULUS OF ELASTICITY IS 28,500 KSI.
    d. THERE SHALL BE 2 STRANDS PER CONDUIT.
    e. THE JACKING FORCE PER STRAND = 32 KIPS

24. THE CONCRETE FOR THE ABUTMENT # 1 AND ABUTMENT #2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET).

25. THE CORRUGATED STEEL PIPE SHALL MEET THE REQUIREMENTS OF SUBSECTION 711.01. ALL COSTS ASSOCIATED WITH PLACING THE CORRUGATED STEEL PIPE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #1)" AND ITEM 540.10, "PRECAST CONCRETE STRUCTURE (ABUTMENT #2)".

26. PROPOSED SEQUENCE OF CONSTRUCTION:
    a. PREPARE AND GRADE FOUNDATION TO REQUIRED ELEVATION.
    b. DRIVE PILES.
    c. PLACE PRECAST ABUTMENTS AND INSTALL TRANSVERSE STRANDS (IF MORE THAN ONE UNIT).
    d. APPLY EPOXY TO MATCH CAST FACES OF VERTICAL CONSTRUCTION JOINT.
    e. USE A CALIBRATED JACK TO TENSION TO 3 KIPS TO REMOVE SAG IN STRANDS.
    f. CHECK ALIGNMENT OF PILE CAP ELEMENTS.
    g. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL WHO HAVE PREVIOUS EXPERIENCE IN POST-TENSIONING.
    h. FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".
    i. PLACE PRECAST WINGWALLS AND GROUT SPLICE CONNECTORS.
    j. BACKFILL MAY BE COMPLETED AFTER SPLICE CONNECTOR GROUT HAS REACHED 85% OF 5,000 PSI.

27. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

NEXT D BEAMS

28. NEXT D BEAMS ARE A NON-PROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT http://www.pcine.org.

29. DESIGN VALUES
    a. CONCRETE COMPRESSIVE STRENGTH: f'c= 10,000 PSI.
    b. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'ci = 8,000 PSI
    c. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRANDS
    d. ASSUMED MODULUS OF ELASTICITY = 28,500 KSI.
    E. PRESTRESSING STRANDS SHALL EACH BE PULLED TO A NET TENSION OF 44.0 KIPS AFTER ACCOUNTING FOR CHUCK SLIPPAGE.
    f. SERVICE LOADS

MEMBER MOMENT	1,470 K-FT
SUPERIMPOSED DEAD LOAD MOMENT	508 K-FT
LIVE LOAD AND IMPACT MOMENT	1,520 K-FT
DEAD LOAD REACTION/END	98 KIPS
LIVE LOAD AND IMPACT REACTION/END	108 KIPS
TOTAL REACTION/END	206 KIPS
CAMBER AT RELEASE	1 11/16 INCHES
FINAL CAMBER	1 7/16 INCHES

30. FORMING FOR ENDS OF FLANGES ALONG LONGITUDINAL CLOSURE POURS MAY BE TREATED WITH CONCRETE SURFACE RETARDER, OR SIMILAR, TO PROVIDE A ROUGHENED SURFACE; AND SHALL BE POWER WASHED WITH WATER PRIOR TO ERECTION OF THE BEAMS.

31. FILL THE FLANGE TO FLANGE CONNECTION WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)".

32. METHOD OF FORMING FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT BE ATTACHED TO ANY PREFABRICATED SUPERSTRUCTURE ELEMENT BY DRILLING OR SIMILAR MEANS.

33. THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. THIS ALTERATION SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF VERMONT, TO MEET THE SPECIFIED CRITERIA, AND SHALL BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

34. PROPOSED SEQUENCE OF CONSTRUCTION
    a. LAY OUT WORKING LINES THE ENTIRE WIDTH OF THE BRIDGE ALONG CENTERLINE OF BEARING, MEASURED FROM A SINGLE WORKING POINT. THE WORKING LINES SHALL BE BASED ON THE NOMINAL BEAM WIDTHS.
    b. VERIFY THE BEAM SEAT ELEVATIONS AND TAKE CORRECTIVE ACTION IF NECESSARY.
    c. INSTALL BEARINGS
    d. ERECT THE BEAMS TO FIT WITHIN THE WORKING LINES.
    e. ADJUST FASCIA BEAM TO FIT SNUG AGAINST ½" CORK ON INTERIOR OF CHEEK WALL.
    f. CONSTRUCT FORMS FOR THE FLANGE AND CURTAIN WALL CONNECTION POURS.
    g. GROUT CONNECTIONS BETWEEN BEAM FLANGES AND CURE.
    h. BACKFILL AND PREPARE GRADE FOR APPROACH SLABS.
    i. COMPLETE BEAM-END CLOSURE POUR TO BOTTOM OF DECK ALLOWING FOR APPROACH SLAB BRACKET.
    j. COMPLETE PLACEMENT OF BACKFILL AND PLACE APPROACH SLAB.
    k. GROUT REBAR DOWELS IN APPROACH SLAB.
    l. COMPLETE LONGITUDINAL CLOSURE POURS OF APPROACH SLAB.
    m. COMPLETE BEAM-END CLOSURE POUR TO TOP OF DECK AND APPROACH SLABS.

35. ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED TO THE VTRANS PROJECT MANAGER FOR APPROVAL.

H-PILES

36. THE PILES SHALL BE HP 12 X 74 AT ABUTMENT 1 AND HP 10 X 57 AT ABUTMENT 2.

37. TO PREVENT DAMAGE TO THE PILES, PILE SHOES ARE REQUIRED FOR DRIVEN PILES AND SHALL CONFORM TO SUBSECTION 505.04 (f).

38. THE PILES AT ABUTMENT 1 SHALL BE DRIVEN TO A NOMINAL AXIAL PILE DRIVING RESISTANCE (RNDR) OF 402 KIPS OR REFUSAL, PROVIDED A MINIMUM PENETRATION OF 20 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.

39. THE PILE LOCATIONS AT ABUTMENT 2 SHALL BE PRE-EXCAVATED THREE (3) FEET INTO COMPETENT BEDROCK. THE MINIMUM REQUIRED PILE LENGTH IS 10 FEET. IF COMPETENT BEDROCK IS ENCOUNTERED SHALLOWER THAN 7 FEET BELOW THE PILE CAP, PRE-EXCAVATION TO A MINIMUM DEPTH OF 10 FEET BELOW THE PILE CAP IS REQUIRED. PRE-EXCAVATED HOLES SHALL BE 20 INCHES IN DIAMETER AT ABUTMENT 2.

40. A MINIMUM OF TWO DYNAMIC PILE TEST SHALL BE CONDUCTED ON PILES AT ABUTMENT 1. THIS SHALL BE PAID FOR UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST". NO LOAD TESTING IS REQUIRED AT ABUTMENT 2.

41. THE TOPS OF THE PILES AFTER DRIVING OR PLACEMENT SHALL NOT VARY FROM THE POSITION SHOWN ON THE PLANS BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCES WILL BE MET TO THE SATISFACTION OF THE ENGINEER. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.

42. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL IN PLACE LENGTHS MAY VARY.

43. PAYMENT FOR PRE-EXCAVATION SHALL BE MADE UNDER ITEM 900.640, "SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, EARTH)" OR ITEM 900.640, 'SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENTS PILES, ROCK)". THE ENTIRE PRE-EXCAVATED HOLE SHALL BE BACKFILLED WITH SAND AFTER THE PILE IS SET. SAND SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 703.03. REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

MISCELLANEOUS

44. A TEMPORARY BRIDGE IS IN PLACE. REMOVAL OF THIS TEMPORARY BRIDGE SHALL BE PAID FOR UNDER SPECIAL PROVISION ITEM 900.645 (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES). THE TEMPORARY BRIDGE IS THE PROPERTY OF VTRANS AND SHALL BE RETURNED TO THE VTRANS MAINTENANCE FACILITY IN SPRINGFIELD, VT. CONTACT HOBERT GATES AT (802) 524-5926 TO MAKE NECESSARY ARRANGEMENTS AS PER THE SPECIAL PROVISIONS.

45. SIX TO TWELVE (6-12) STONES, MEETING THE REQUIREMENTS OF SUBSECTION 706.04(D), SHALL BE PROVIDED FOR PLACEMENT IN THE RIVER UPSTREAM AND DOWNSTREAM OF THE BRIDGE. THEY SHALL BE EMBEDDED APPROXIMATELY TWO-FEET (2-FT.) INTO THE STREAMBED AS DIRECTED BY THE RESIDENT ENGINEER. THIS WORK SHALL BE PAID FOR UNDER ITEM 613.13, "STONE FILL, TYPE IV".

46. AN EXISTING CONDITIONS LAYOUT HAS BEEN ADDED TO THE PLAN SET FOR THE USE OF THE CONTRACTOR IN PREPARING SUBMITTALS.

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 024I(39)

FILE NAME: sl0c410gen.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
GENERAL NOTES

PLOT DATE: 11-SEP-2013
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
1				1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
570				570		CY	COMMON EXCAVATION	203.15	
		12		12		CY	SOLID ROCK EXCAVATION	203.16	
		875		875		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
40				40		CY	TRENCH EXCAVATION OF EARTH	204.20	
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
		220		220		CY	STRUCTURE EXCAVATION	204.25	
		90		90		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
320				320		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
560				560		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
30				30		CY	AGGREGATE SHOULDERS, IN PLACE	402.10	
4				4		CWT	EMULSIFIED ASPHALT	404.65	
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	
		1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10	
		60		60		LF	STEEL PILING, HP 10 X 57	505.12	
		120		120		LF	STEEL PILING, HP 12 X 74	505.16	
		2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	
		3900		3900		LB	REINFORCING STEEL, LEVEL II	507.12	
		70		70		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
		310		310		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	
		70		70		LF	JOINT SEALER, HOT POURED	524.11	
		185		185		LF	BRIDGE RAILING, GALVANIZED 3 RAIL BOX BEAM	525.335	
		1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	
		16		16		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17	
		1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #1)	540.10	
		1		1		LS	PRECAST CONCRETE STRUCTURE (ABUTMENT #2)	540.10	
		1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #1)	540.10	
		1		1		LS	PRECAST CONCRETE STRUCTURE (APPROACH SLAB #2)	540.10	
	1			1		MGAL	DUST CONTROL WITH WATER	609.10	
		660		660		CY	STONE FILL, TYPE IV	613.13	
2				2		EACH	YIELDING MARKER POSTS	619.17	
165.16				165.16		LF	BOX BEAM GUARDRAIL	621.30	
2				2		EACH	MANUFACTURED TERMINAL SECTION, TANGENT	621.51	
4				4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	621.725	
40				40		HR	UNIFORMED TRAFFIC OFFICERS	630.10	
400				400		HR	FLAGGERS	630.15	
			1	1		LS	FIELD OFFICE, ENGINEERS	631.10	
			1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	
			1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	
			3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORK SUMMARY
570.0	CY	COMMON EXCAVATION (570*1.0)
652.5	CY	UNCLASSIFIED CHANNEL EXCAVATION (870*0.75)
232.5	CY	STRUCTURE EXCAVATION (310*0.75)
1455	CY	SUB TOTAL
45	CY	ROUNDING
1500	CY	TOTAL FILL AVAILABLE
0	CY	TOTAL FILL REQUIRED
1500	CY	TOTAL WASTE
		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANITIY)
35	TON	TYPE IIS
160	TON	TYPE IVS
195	TON	TOTAL SUPERPAVE

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
QUANTITY SHEET 1

PLOT DATE: 29-AUG-2013
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI
SHEET 5 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

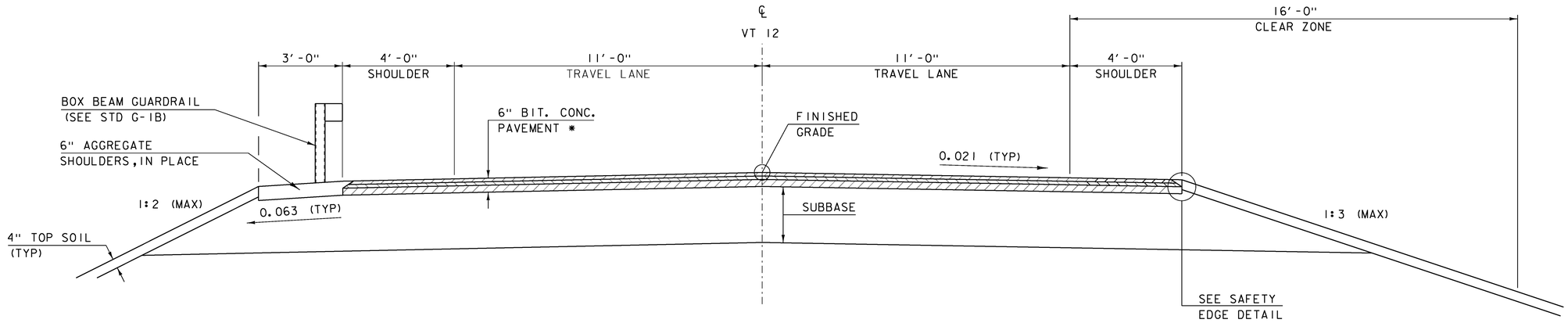
SUMMARY OF ESTIMATED QUANTITIES									TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
						580				580		LF	4 INCH WHITE LINE	646.20				
						73040				73040		LF	4 INCH YELLOW LINE	646.21				
								720		720		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							170			170		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							130			130		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							5			5		LB	SEED	651.15				
							5			5		LB	SEED, WINTER RYE	651.17				
							40			40		LB	FERTILIZER	651.18				
							1			1		TON	AGRICULTURAL LIMESTONE	651.20				
							1			1		TON	HAY MULCH	651.25				
							30			30		CY	TOPSOIL	651.35				
								20		20		SY	GRUBBING MATERIAL	651.40				
							1			1		LS	EPSC PLAN	652.10				
							40			40		HR	MONITORING EPSC PLAN	652.20				
							1			1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							110			110		SY	TEMPORARY EROSION MATTING	653.20				
							2			2		CY	TEMPORARY STONE CHECK DAM, TYPE I	653.25				
							60			60		CY	VEHICLE TRACKING PAD	653.35				
							600			600		LF	PROJECT DEMARCATION FENCE	653.55				
						174.91				174.91		SF	TRAFFIC SIGNS, TYPE A	675.20				
						451				451		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341				
						26				26		EACH	REMOVING SIGNS	675.50				
						2				2		EACH	SETTING SALVAGED POSTS	675.61				
								38		38		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
								30		30		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, EARTH)	900.640				
								25		25		LF	SPECIAL PROVISION (PRE-EXCAVATION OF INTEGRAL ABUTMENT PILES, ROCK)	900.640				
								344		344		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE, NEXT D BEAMS)(NEXT 36D)	900.640				
						1				1		LS	SPECIAL PROVISION (CPM SCHEDULE)	900.645				
								1		1		LS	SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)	900.645				
						1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)	900.645				
						1				1		LU	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE)(N.A.B.I.)	900.650				
						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				
						195				195		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANITITY)	900.680				

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410qs.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
QUANTITY SHEET 2

PLOT DATE: 17-SEP-2013
DRAWN BY: W. LAMMER
CHECKED BY: J. SALVATORI
SHEET 6 OF 39

* 1 ½"	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
1 ½"	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
3"	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IIS
VARIES	SUBBASE OF DENSE GRADED CRUSHED STONE SEE MATERIAL TRANSITION ON MAINLINE PROFILE SHEET

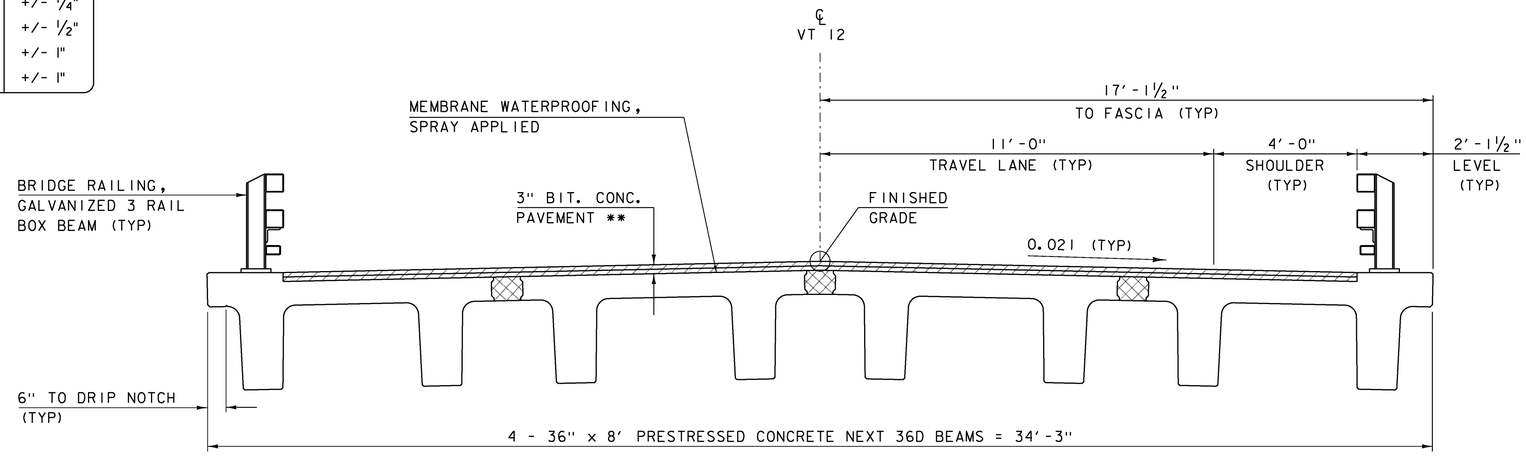


ROADWAY TYPICAL SECTION

SCALE ½" = 1'-0"

MATERIAL TOLERANCES
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

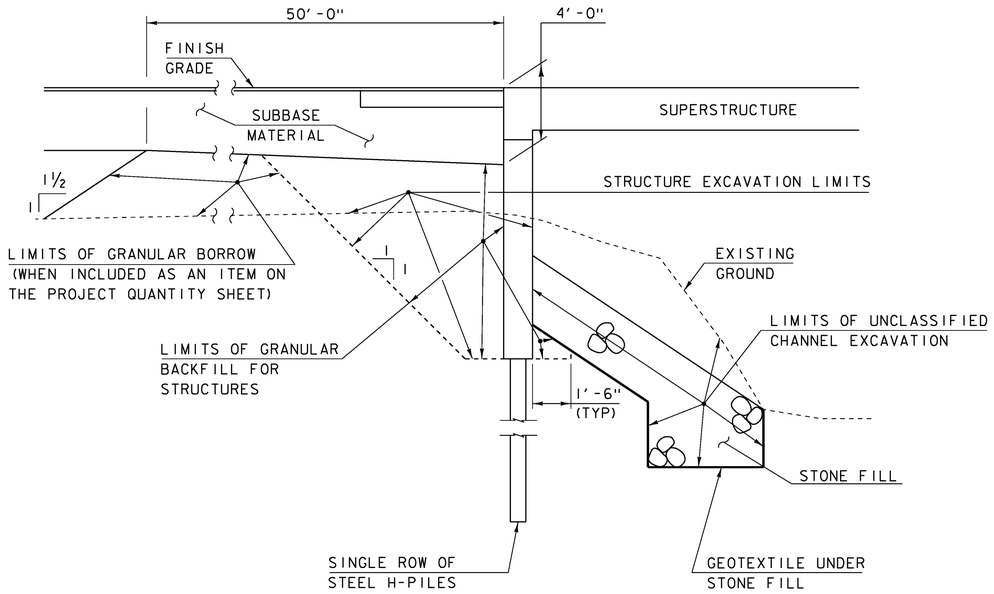


BRIDGE TYPICAL SECTION

SCALE ½" = 1'-0"

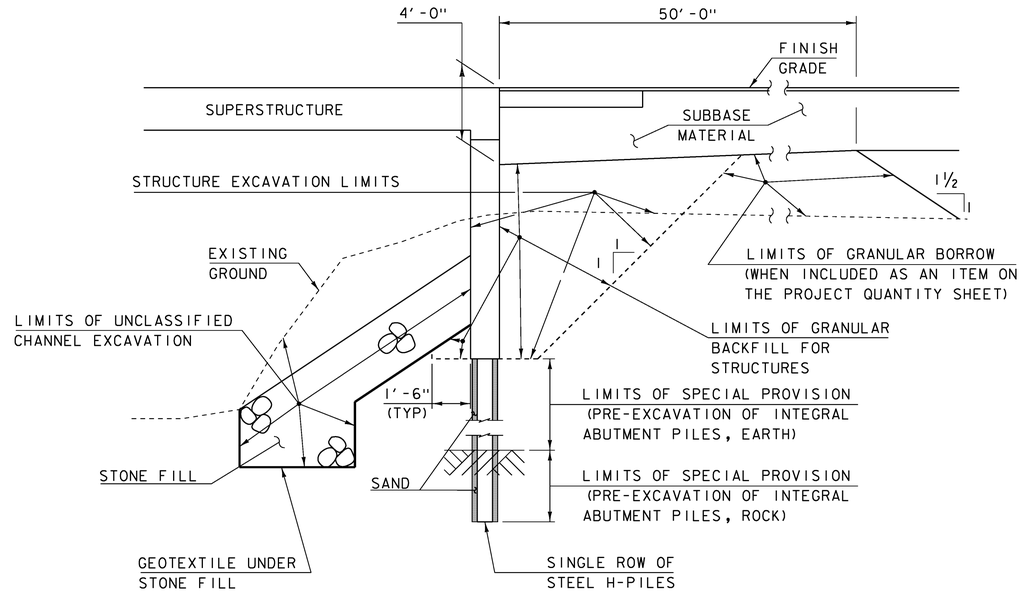
** 1 ½"	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS
1 ½"	SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, TYPE IVS

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: 10c410typ.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K.HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
TYPICAL SECTIONS 1	SHEET 7 OF 39



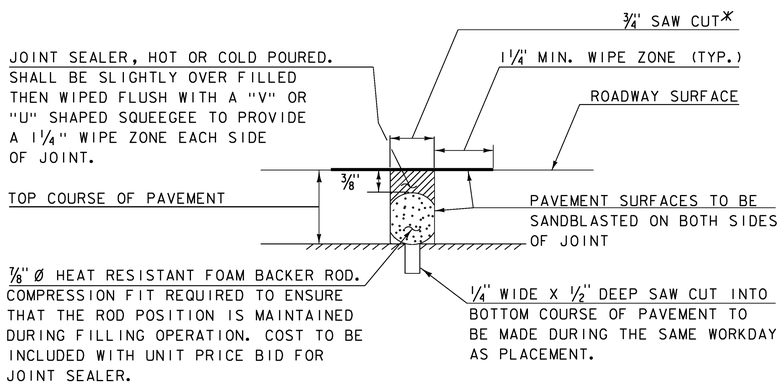
EARTHWORK SECTION (ABUTMENT #1)

NOT TO SCALE



EARTHWORK SECTION (ABUTMENT #2)

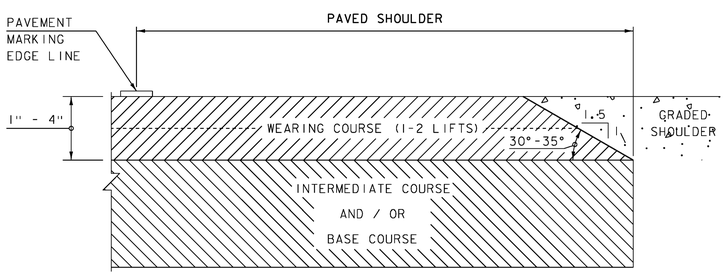
NOT TO SCALE



SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

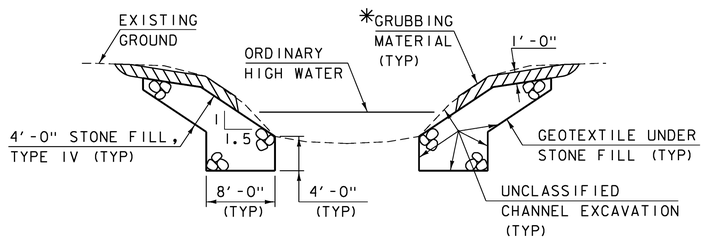
*JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER.



SAFETY EDGE DETAIL

NOT TO SCALE

NOTE: LEVELING COURSE MAY INCLUDE THE "SAFETY EDGE" AT THE CONTRACTOR'S CHOICE.



TYPICAL CHANNEL SECTION

(NOT TO SCALE)

*GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE. WHENEVER CHANNEL SLOPE INTERSECTS ROADWAY SUBBASE, GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE.

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: 10c410typ.dgn	PLOT DATE: 17-SEP-2013
PROJECT LEADER: K.HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: J. SALVATORI	CHECKED BY: W. LAMMER
TYPICAL SECTIONS 2	SHEET 8 OF 39

GPS CONTROL POINTS

HVCTRL #1

BARNARD AZ MK
NORTH = 464622.900
EAST = 1604346.803
ELEV. = 825.803

GENERAL LOCATION, BARNARD, VT.
TO REACH FROM THE INTERSECTION OF US ROUTE 4 AND VT ROUTE 12 NORTH IN THE VILLAGE OF WOODSTOCK, GO NORTH ALONG VT ROUTE 12 FOR 10.2 MI (16.4 KM) TO THE INTERSECTION OF STAGE ROAD RIGHT, NORTH ROAD STRAIGHT AND VT ROUTE 12 LEFT IN THE VILLAGE OF BARNARD. TURN LEFT AND CONTINUE NORTH ALONG VT ROUTE 12 FOR 3.5 MI (5.6 KM) TO THE SITE OF THE MARK ON THE LEFT. TO REACH FROM THE INTERSECTION OF VT ROUTE 107 AND VT ROUTE 12 SOUTH JUST SOUTHWEST OF BETHEL VILLAGE, GO SOUTH ALONG VT ROUTE 12 FOR 2.7 MI (4.3 KM) TO THE SITE OF THE MARK. IT IS ABOUT 70 M (229.7 FT) SOUTH OF THE CENTERLINE OF THE DRIVEWAY LEADING TO HOUSE NO 9671.
THE MARK IS SET 10 CM (4 INCHES) BELOW GROUND SURFACE IN THE TOP OF A 30 CM (12 INCH) DIAMETER CONCRETE MONUMENT POURED 1.5 M (4.9 FT) DEEP. IT IS 7.3 M (24.0 FT) WEST OF AND ABOUT 0.2 M (0.7 FT) LOWER THAN THE CENTERLINE OF VT ROUTE 12, 34.4 M (112.9 FT) NORTH-NORTHEAST OF POLE NO 58/317, 67.2 M (220.5 FT) NORTH OF MILE MARKER 0120/1403/0820, 47.8 M (156.8 FT) SOUTH-SOUTHWEST OF POLE NO 57/318, 42.1 M (138.1 FT) SOUTH OF THE MOST SOUTHERLY GATE POST IN A WOODEN RAIL FENCE, 25.2 M (82.7 FT) NORTHEAST OF THE NORTHEAST CORNER OF A TIMOTHY NEWTON GRANITE HISTORICAL MARKER, 1.3 M (4.3 FT) EAST OF A WOODEN RAIL FENCE AND A FIBERGLASS WITNESS POST.

HVCTRL #2

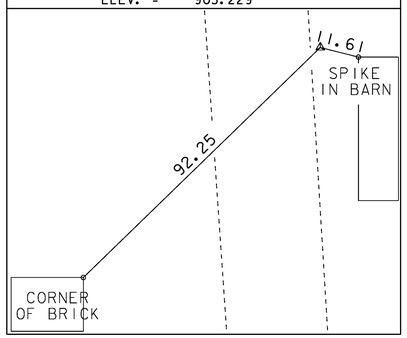
BARNARD
NORTH = 462804.611
EAST = 1604264.953
ELEV. = 848.138

GENERAL LOCATION, BARNARD, VT. OWNERSHIP, LILLIAN GILMAN, 9273 ROUTE 12, BARNARD, VT 05032.
TO REACH FROM THE INTERSECTION OF VT ROUTE 107 AND VT ROUTE 12 SOUTH IN BETHEL, GO SOUTH ALONG VT ROUTE 12 FOR 3.0 MI (4.8 KM) TO THE SITE OF THE MARK ON THE RIGHT MARK ON THE LEFT, IN A SMALL FIELD ACROSS THE ROAD FROM HOUSE NO 9273. TO REACH FROM THE INTERSECTION OF US ROUTE 4 AND VT ROUTE 12 NORTH IN WOODSTOCK, GO NORTH ALONG VT ROUTE 12 FOR 10.2 MI (16.4 KM) TO THE INTERSECTION OF STAGE ROAD RIGHT, NORTH ROAD STRAIGHT AND VT ROUTE 12 LEFT. TURN LEFT AND GO NORTH ALONG VT ROUTE 12 FOR 3.2 MI (5.1 KM) TO THE SITE OF THE MARK ON THE RIGHT.
THE MARK IS SET 10 CM (4 INCHES) BELOW GROUND SURFACE IN THE TOP OF A CAST ALUMINUM MONUMENT. THE MARK IS 9.1 M (29.9 FT) EAST OF AND ABOUT 0.5 M (1.6 FT) HIGHER THAN THE CENTERLINE OF VT ROUTE 12, 40.6 M (133.2 FT) NORTHEAST OF THE SOUTHEAST CORNER OF A ONE STORY WOOD AND BRICK HOUSE, 54.3 M (178.1 FT) SOUTHEAST OF THE SOUTHEAST CORNER OF A MILK HOUSE ATTACHED TO A BARN AND 57.6 M (189.0 FT) NORTHEAST OF THE CENTER OF THE SOUTHEAST (OUTLET) END OF A 2.0 M (6.6 FT) DIAMETER CONCRETE CULVERT.

TRAVERSE TIES

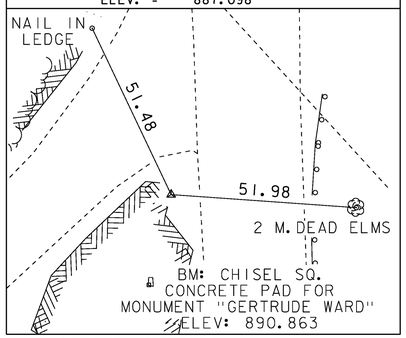
HVCTRL #8

NORTH = 457721.747
EAST = 1605175.274
ELEV. = 905.229



HVCTRL #9

NORTH = 458561.973
EAST = 1605091.597
ELEV. = 887.098



NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

* MAIN TRAVERSE COMPLETED 7/8/2011 BY P.WINTERS P.C. & C.CYR

ALIGNMENT TIES

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

NORTH = / EAST = / ELEV. =

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83 (07)
ADJUSTMENT COMPASS

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: survey\x10c410ti.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
TIE SHEET

PLOT DATE: 29-AUG-2013
DRAWN BY: R. BULLOCK
CHECKED BY: W. LAMMER
SHEET 9 OF 39

14B HINCKLEY SANDY LOAM
WITH 0% TO 8% SLOPES
"K FACTOR" = .17

20E GLOVER-VERSHIRE COMPLEX
WITH 35% TO 60% SLOPES
"K FACTOR" = .37 - .28

8B AGAWAM FINE SANDY LOAM
WITH 3% TO 8% SLOPES
"K FACTOR" = .28

N
VT STATE PLANE GRID

BENCHMARK
RR SPIKE IN POLE
EL 886.60

BENCHMARK
CHISELLED SQUARE
EL 890.86

LOCUST CREEK
FLOW

TH 29

POLE
287/89

MAILBOX (2)

POLE
288/88

HVCTRL
#102

HVCTRL
#103

POLE
289/87

HEADWALL

POLE
290/89

HVCTRL
#99

HVCTRL
#100

HVCTRL
#104

HVCTRL
#101

MARBLE POST

SAT DISH

HEDGE

POLE
287/01

M. APPLE

M. ELM

TB. COMP

SINGLE FAMILY
DWELLING

EXISTING ROW (TYP)

RIPARIAN BUFFER

RIPARIAN BUFFER

VT 12
TO WOODSTOCK

VT 12
TO JUNCTION WITH
VT 107

368+00 369+00 370+00 371+00 372+00 373+00 373+25

52+00 51+00 50+00

EXISTING CONDITIONS

SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410epsc.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
EXISTING CONDITIONS	SHEET 10 OF 39

4 INCH WHITE LINE
STA 369+50.00 - 371+58.50 LT
STA 371+84.14 - 372+35.00 LT
STA 369+50.00 - 372+35.00 RT

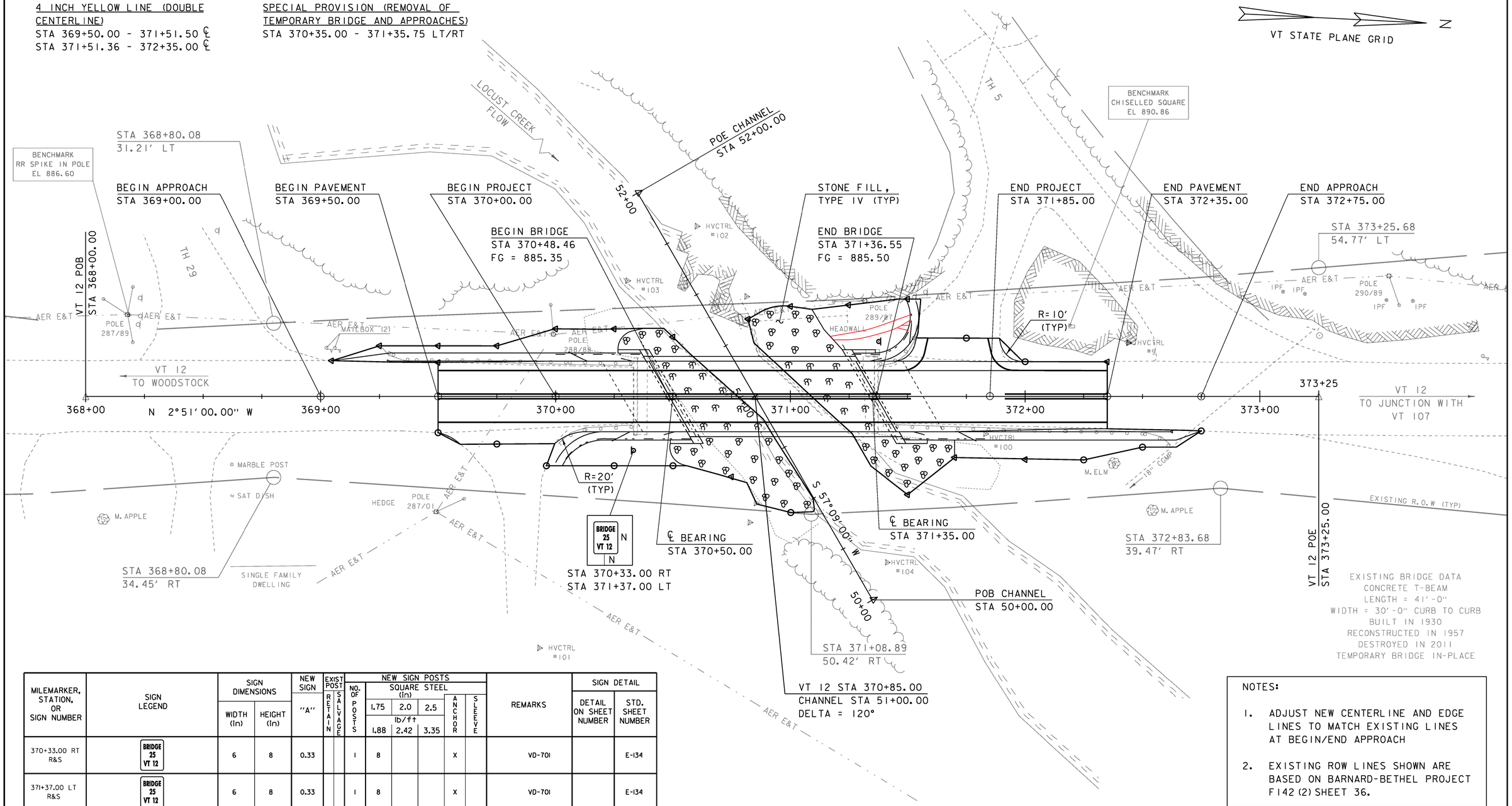
4 INCH YELLOW LINE (DOUBLE CENTERLINE)
STA 369+50.00 - 371+51.50 ℄
STA 371+51.36 - 372+35.00 ℄

CONSTRUCT 5'-0" PAVED APRON
STA 369+54.25 - 370+04.50 RT

CONSTRUCT 10'-0" PAVED APRON
STA 371+46.75 - 371+95.25 LT

SPECIAL PROVISION (REMOVAL OF TEMPORARY BRIDGE AND APPROACHES)
STA 370+35.00 - 371+35.75 LT/RT

CONSTRUCT ~~GRADED SWALE~~ STONE LINED DITCH
371+12.00 - 371+25.00 LT



EXISTING BRIDGE DATA
CONCRETE T-BEAM
LENGTH = 41'-0"
WIDTH = 30'-0" CURB TO CURB
BUILT IN 1930
RECONSTRUCTED IN 1957
DESTROYED IN 2011
TEMPORARY BRIDGE IN-PLACE

MILEMARKER, STATION, OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS WIDTH (in)	SIGN DIMENSIONS HEIGHT (in)	NEW SIGN "A"	EXIST POST RETAIN	EXIST POST SALVAGE	NEW SIGN POSTS NO. OF POSTS	SQUARE STEEL (in) 1.75 lb/ft 1.88	2.0 lb/ft 2.42	2.5 lb/ft 3.35	ANCHOR	SLEEVE	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	SIGN DETAIL STD. SHEET NUMBER
370+33.00 RT R&S	BRIDGE 25 VT 12	6	8	0.33			1	8			X		VD-701		E-134
371+37.00 LT R&S	BRIDGE 25 VT 12	6	8	0.33			1	8			X		VD-701		E-134
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."								FT 16	FT	FT		EA			
	TOTALS			SF 0.66				FT 16					N = NEW SHS = STANDARD HIGHWAY SIGNS (MUTCD)		

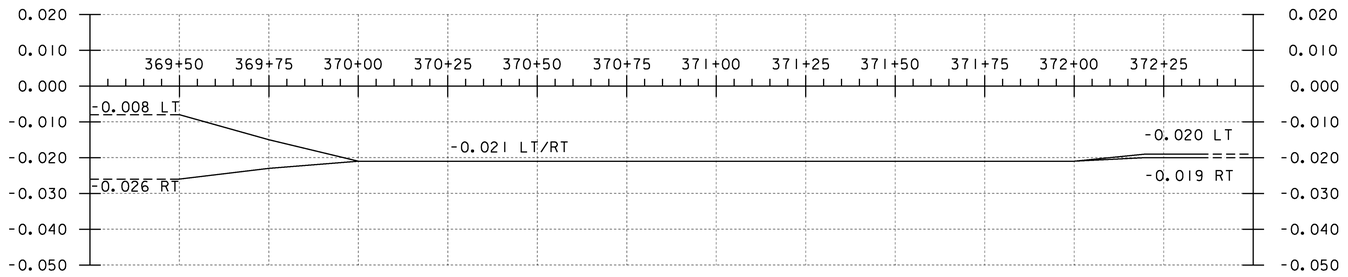
NOTES:

1. ADJUST NEW CENTERLINE AND EDGE LINES TO MATCH EXISTING LINES AT BEGIN/END APPROACH
2. EXISTING ROW LINES SHOWN ARE BASED ON BARNARD-BETHEL PROJECT F142(2) SHEET 36.

LAYOUT SHEET
SCALE 1" = 20'-0"
20 0 20

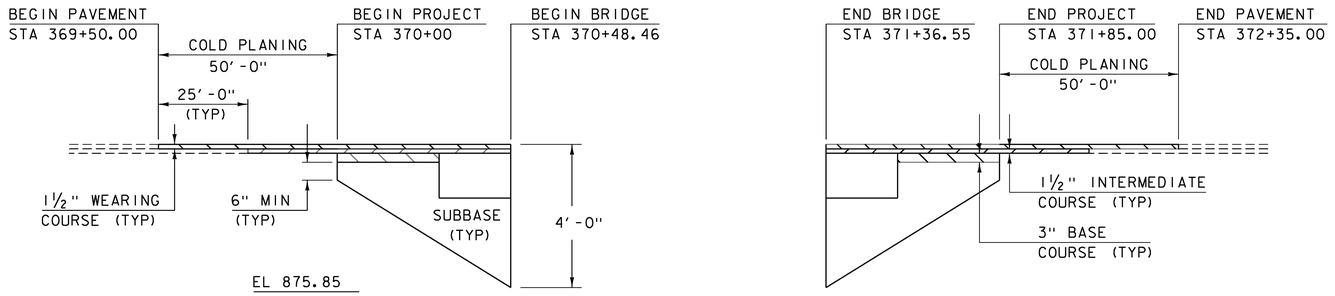
PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410bdr.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
LAYOUT SHEET
PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 11 OF 39



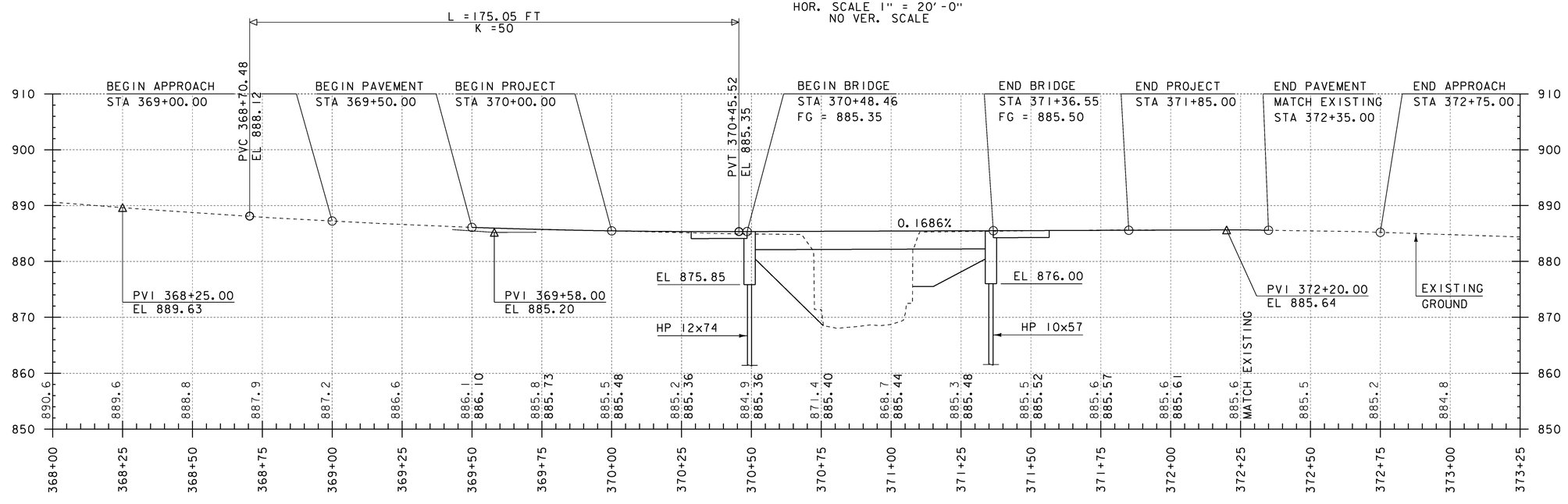
BANKING DIAGRAM

HOR. SCALE 1" = 20'-0"
NO VER. SCALE



MATERIAL TRANSITION

HOR. SCALE 1" = 20'-0"
NO VER. SCALE



MAINLINE PROFILE

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

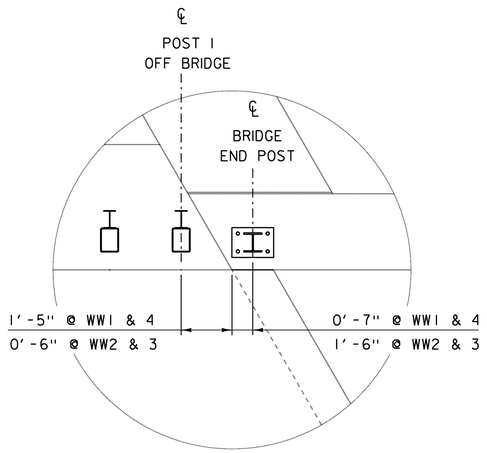
THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND ELEVATIONS ALONG THE PROPOSED ALIGNMENT.

THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE FINISH GRADES ALONG THE PROPOSED ALIGNMENT.

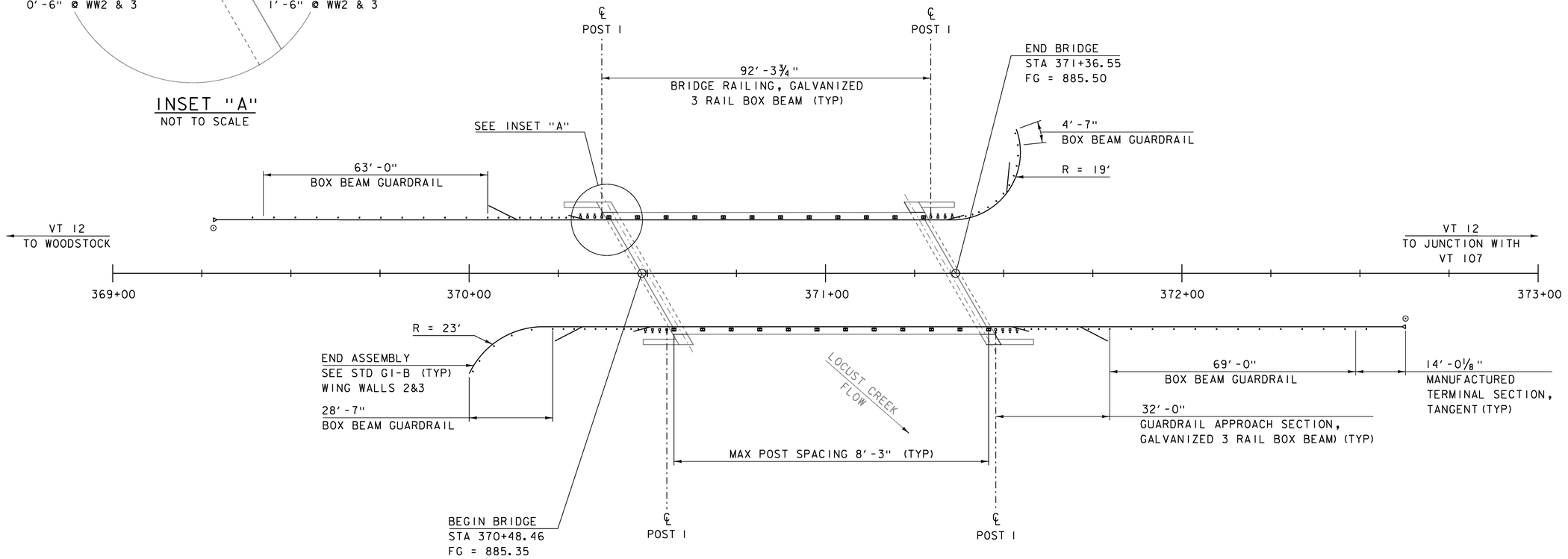
PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410pro.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
MAINLINE PROFILE

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: W. LAMMER
SHEET 12 OF 39



INSET "A"
NOT TO SCALE



RAIL LAYOUT SHEET

SCALE 1" = 15'-0"

NOTES:

1. SEE STANDARDS G-1B, S-364A, S-364B, S-364C AND S-364D FOR FURTHER DETAILS.

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410rail.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
RAIL LAYOUT SHEET	SHEET 13 OF 39

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.Q.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

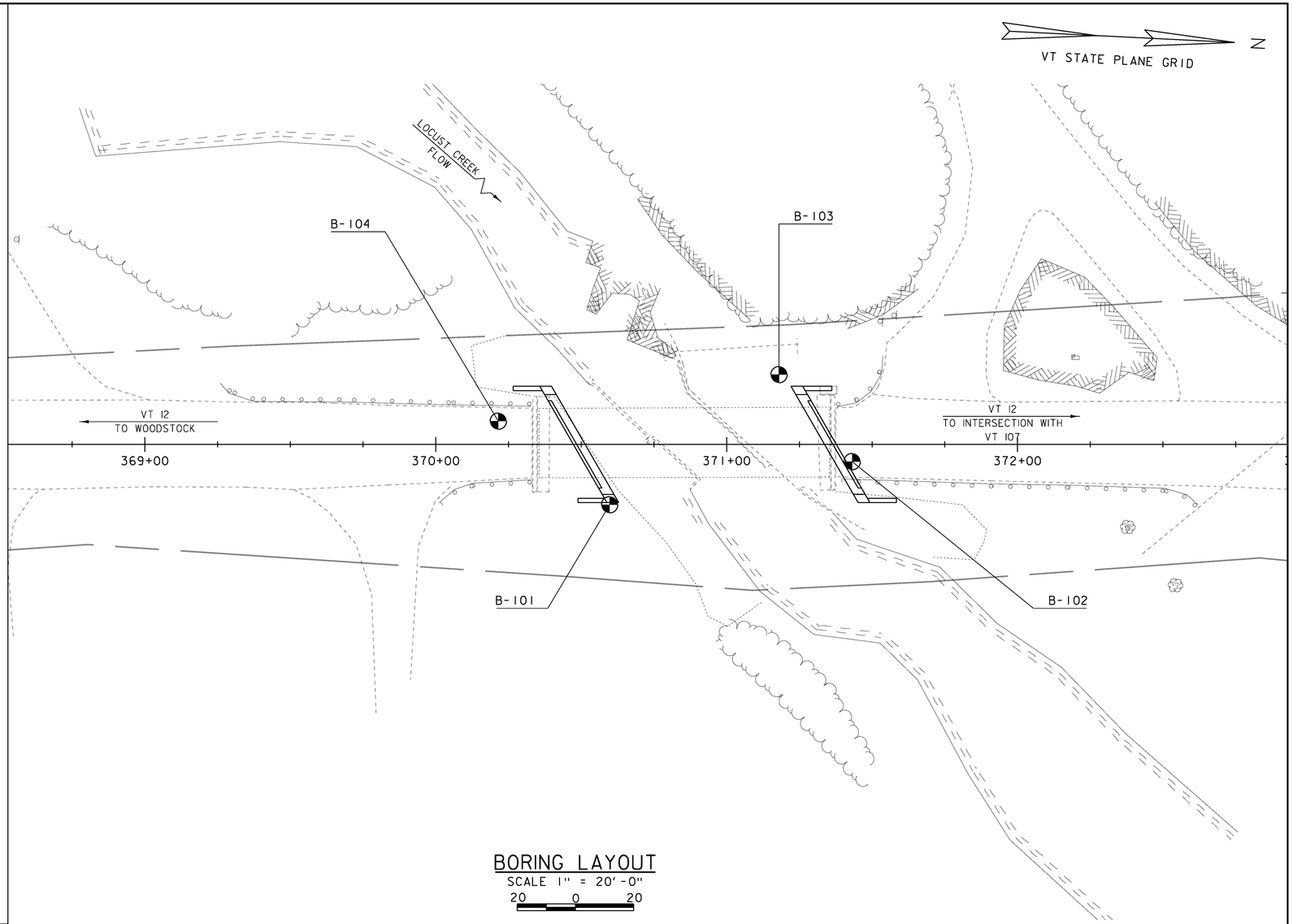
CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

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
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1⅜" 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	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

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 LAYOUT

SCALE 1" = 20'-0"

20 0 20

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.
B-101	370+59	20.7' RT	881.12'
B-102	371+43	5.9' RT	885.82'
B-103	371+18	24.0' LT	884.37'
B-104	370+21.5	8.0' LT	882.35'

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.

The subsurface explorations shown herein were made between 5/3/12 and 5/16/12 by the Agency.

Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency 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.

GENERAL NOTES

4. Engineering judgment 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 judgment by the Contractor.

5. 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.

6. 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.

7. Northing and Easting coordinates are shown in Vermont State Plane Grid North American Datum 1983 in meters and survey feet.

PROJECT NAME: BARNARD

PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BORING LAYOUT SHEET

PLOT DATE: 29-AUG-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 14 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BARNARD
BHF 0241(39)
VT-12 BR-25

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 10C410
Checked By: NSM

Boring Crew: SALISBURY, GARROW, DAVISON
Date Started: 5/04/12 Date Finished: 5/14/12
VTSPG NAD83: N 458380.14 ft E 1605144.36 ft
Station: 370+59 Offset: 20.70
Ground Elevation: 881.12 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	C_E = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
05/14/12	11.0	AM

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, SiGrSa, brn, Moist, Rec. = 1.4 ft				4-3-6-5 (9)	13.5	35.7	41.1	23.2
		A-1-b, SiGrSa, brn, Moist, Rec. = 1.1 ft, NXDC				8-6-6-3 (12)	9.9	38.3	40.1	21.6
BOTTOM OF PILE CAP EL 875.85		A-2-4, SiSa, brn, Moist, Rec. = 0.8 ft				5-2-3-3 (5)	15.8	17.6	56.9	25.5
		A-1-b, GrGr, brn, Moist, Rec. = 0.9 ft				3-2-4-10 (6)	14.6	36.4	45.0	18.6
		Field Note:, NXDC, Cobbles								
		A-4, SiSa, brn, Wet, Rec. = 1.1 ft				8-8-8-11 (16)	23.6	0.2	62.3	37.5
		A-2-4, Sa, brn, Wet, Rec. = 1.4 ft				4-7-8-10 (15)	21.3	7.5	75.5	17.0
		A-2-4, SiGrSa, brn, Moist, Rec. = 1.0 ft, NXDC				7-25-35-R@2.5" (60)	10.8	32.7	40.2	27.1
		A-2-4, SiSaGr, brn, Moist, Rec. = 1.0 ft, NXDC				2-11-32-55 (43)	9.9	38.0	36.0	26.0
		Visual Description:, Broken Rock, gry, Moist, Rec. = 0.3 ft				R@3.5"	9.1			
		Field Note:, NXDC, Cobbles & Gravel								
		A-1-b, SiSaGr, gry, Moist, Rec. = 0.5 ft, NXDC				5-17-R@2.5"	11.2	43.5	35.4	21.1
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft				9-R@6.0"	15.2	25.7	58.3	16.0
		Field Note:, NXDC, Broken Rock								
PILE TIP EL 847.12		Field Note:, Possible Bedrock33.0 ft				Top of Bedrock @ 33.0 ft				
		34.0 ft - 39.0 ft, Light-pale-green chloritic ankeritic Greenstone, with amphibolite and hornblende. Moderately hard, Slightly weathered, Fair rock, NXMDC, Stained near vertical joint from 35.5-39.0 feet. RMR = 52	1 (85)	88 (0)	6 4 3 3 3					
		39.0 ft - 44.0 ft, Light-pale-green chloritic ankeritic Greenstone, with amphibolite and hornblende. Moderately hard, Slightly weathered, Fair rock, NXMDC, RMR = 52	2 (85)	100 (10)	4 3 4 4 5					
		Hole stopped @ 44.0 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. C_E 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 BARNARD BHF 0241(39).GPJ VERMONT AOT.GDT 8/20/12

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BARNARD
BHF 0241(39)
VT-12 BR-25

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 10C410
Checked By: NSM

Boring Crew: SALISBURY, GARROW
Date Started: 5/03/12 Date Finished: 5/03/12
VTSPG NAD83: N 458462.67 ft E 1605125.39 ft
Station: 371+43 Offset: 5.90
Ground Elevation: 885.82 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	C_E = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		Collapsed at 14.0 ft.
		Drilled same day.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.8 ft								
		A-1-b, SaGr, brn, Moist, Rec. = 1.3 ft				10-10-10-10 (20)	7.5	47.6	36.6	15.8
		A-1-b, SaGr, brn, Moist, Rec. = 0.9 ft, NXDC				10-7-11-10 (18)	9.4	53.8	31.9	14.3
		A-1-b, SaGr, brn, Moist, Rec. = 0.5 ft, NXDC				6-7-8-6 (15)	8.3	52.4	28.9	18.7
		Visual Description:, Broken Rock with Sand, brn-gry, Moist, Rec. = 0.3 ft, Stone in end of sampler. Insufficient sample for testing. NXDC				10-14-15-7 (29)				
BOTTOM OF PILE CAP EL 876.00		Field Note:, No Recovery				5-4-4-4 (8)				
		A-2-4, SiSa, brn, Moist, Rec. = 0.8 ft				2-2-1-R@3.5" (3)	17.5	19.9	56.2	23.9
		Field Note:, NXDC, Cobbles								
		A-2-4, SiGrSa, brn, Moist, Rec. = 1.0 ft, NXDC				5-9-15-25 (24)	12.2	30.1	41.6	28.3
		A-4, GrSaSi, brn, Moist, Rec. = 0.4 ft, NXDC				R@5.0"	17.9	28.3	32.0	39.7
		17.5 ft - 22.5 ft, Light gray, To pale-green schist and feldspathic biotite quartzite Hard, Unweathered to slightly weathered, Fair rock, NXMDC, RMR = 57	1 (85)	96 (48)	3 3 2 3 3	Top of Bedrock @ 17.5 ft				
PILE TIP EL 865.0		22.5 ft - 27.5 ft, Light gray, To pale-green schist and feldspathic biotite quartzite Hard, Unweathered, Good rock, NXMDC, RMR = 69	2 (85)	100 (90)	3 4 3 5 3					
		Hole stopped @ 27.5 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. C_E 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 BARNARD BHF 0241(39).GPJ VERMONT AOT.GDT 8/20/12

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BORING LOGS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 15 OF 39

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BARNARD
BHF 0241(39)
VT-12 BR-25

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 10C410
Checked By: NSM

Boring Crew: SALISBURY, GARROW
Date Started: 5/03/12 Date Finished: 5/03/12
VTSPG NAD83: N 458436.07 ft E 1605096.79 ft
Station: 371+18 Offset: -24.00
Ground Elevation: 884.37 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	C_E = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		Drilled same day.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, GrSiSa, brn, Moist, Rec. = 1.5 ft				4-4-7-4 (11)	13.6	23.4	48.7	27.9
2.5		A-2-4, SiSa, brn, Moist, Rec. = 1.2 ft				3-3-2-2 (5)	17.5	18.5	52.1	29.4
5.0		A-2-4, SiGrSa, brn, Moist, Rec. = 0.8 ft				3-2-2-2 (4)	19.3	29.0	46.8	24.2
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.5 ft				2-2-12-R@3.5" (14)	18.4	37.0	41.7	21.3
7.5		Visual Description:, Broken Rock with Silty Sand, Rec. = 0.3 ft					3.4			
BOTTOM OF PILE CAP EL 876.00		7.8 ft - 9.0 ft, NXDC, Weathered Rock. Very poor rock								Top of Bedrock @ 7.8 ft
10.0		9.0 ft - 14.0 ft, Light gray, To pale-green schist and feldspathic biotite quartzite Hard, Unweathered to slightly weathered, Good rock, NXMDC, RMR = 62	1 (30)	88 (58)	4 4 4 4 3					
12.5										
15.0		14.0 ft - 19.0 ft, Light gray, To pale-green schist and feldspathic biotite quartzite Hard, Unweathered to slightly weathered, Good rock, NXMDC, RMR = 62	2 (30)	100 (70)	3 3 3 3 3					
PILE TIP EL 866.0										
17.5		Hole stopped @ 19.0 ft								
20.0										
22.5										

Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E 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 BARNARD BHF 0241(39).GPJ VERMONT ACT.GDT 6/20/12

STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

BARNARD
BHF 0241(39)
VT-12 BR-25

Boring No.: **B-104**
Page No.: 1 of 1
Pin No.: 10C410
Checked By: NSM

Boring Crew: SALISBURY, GARROW
Date Started: 5/16/12 Date Finished: 5/16/12
VTSPG NAD83: N 458462.67 ft E 1605125.39 ft
Station: 370+21.5 Offset: -8.00
Ground Elevation: 882.35 ft

	Casing	Sampler
Type:	WB	SS
I.D.:	4 in	1.5 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig:	CME 45C TRACK	C_E = 1.34

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.6 ft								
		A-1-a, SaGr, brn, Moist, Rec. = 1.2 ft				7-9-12-16 (21)	6.2	63.7	24.9	11.4
5		Field Note:, NXDC, Gravel A-1-b, SaGr, brn, Moist, Rec. = 0.6 ft, Lab Note: Lots of Broken Rock was within sample.				5-4-4-5 (8)	10.8	52.4	31.8	15.8
BOTTOM OF PILE CAP EL 875.85										
		Field Note:, NXDC, Gravel Visual Description:, Very Weathered Rock, grn, Moist, Rec. = 0.6 ft				18-R@3.5"	10.5			
10		Field Note:, NXDC, Cobbles								
15		A-1-b, SiGrSa, brn, Moist, Rec. = 1.5 ft				22-33-40-50 (73)	9.7	38.7	38.8	22.5
20		Visual Description:, Weathered & Broken Rock, gry, Moist, Rec. = 0.4 ft				R@6.0"	9.7			
		Field Class:, NXDC, Cobbles								
25		A-2-4, GrSiSa, brn, Moist, Rec. = 1.6 ft				20-28-24-40 (52)	12.5	22.3	49.6	28.1
PILE TIP EL 855.85										
		Field Note:, Soft Weathered Rock								Top of Bedrock @ 26.5 ft
30		28.0 ft - 33.0 ft, Light gray, To pale-green schist and feldspathic biotite quartzite and amphibolite. Hard, Unweathered to slightly weathered, Good rock, NXMDC, RMR = 62	1 (85)	100 (50)	3 3 3 3 3					
35		33.0 ft - 38.0 ft, Light gray, To pale-green schist and feldspathic biotite quartzite Hard, Unweathered to slightly weathered, Good rock, NXMDC, RMR = 66	2 (85)	100 (84)	3 3 2 2 2					
		Hole stopped @ 38.0 ft								

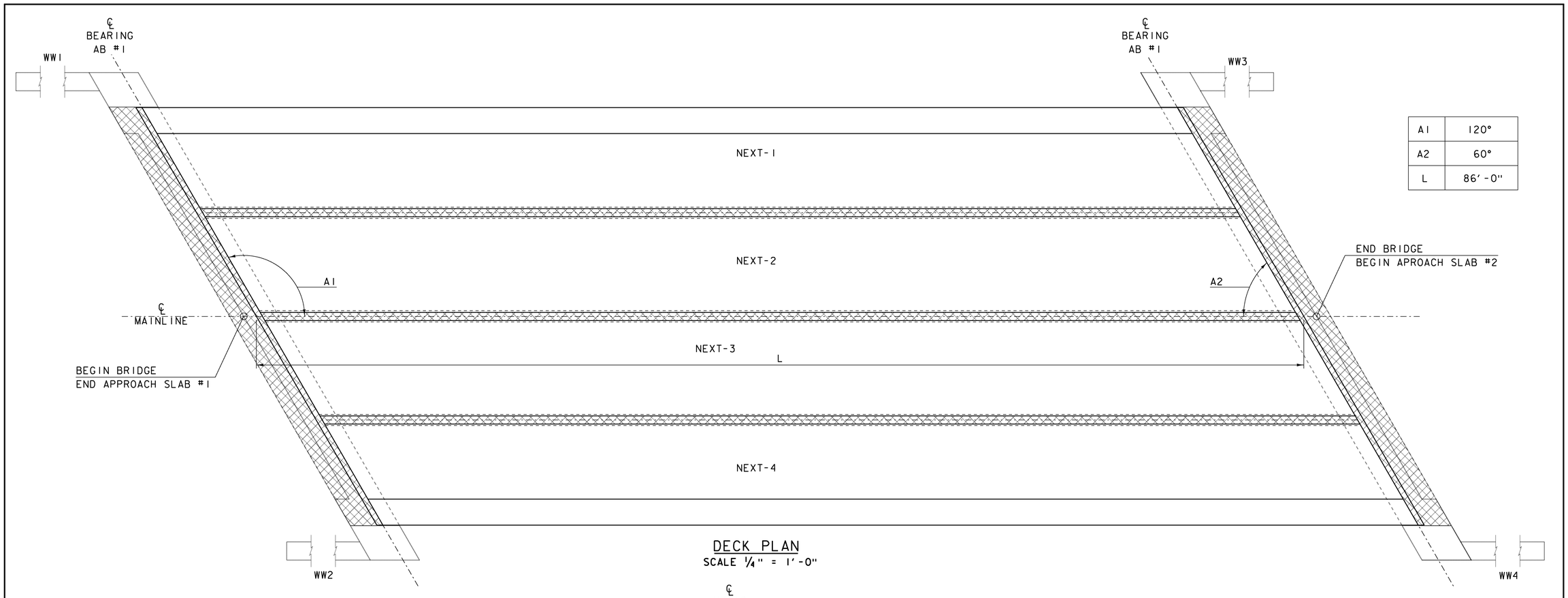
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

BORING LOG 2 BARNARD BHF 0241(39).GPJ VERMONT ACT.GDT 6/20/12

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

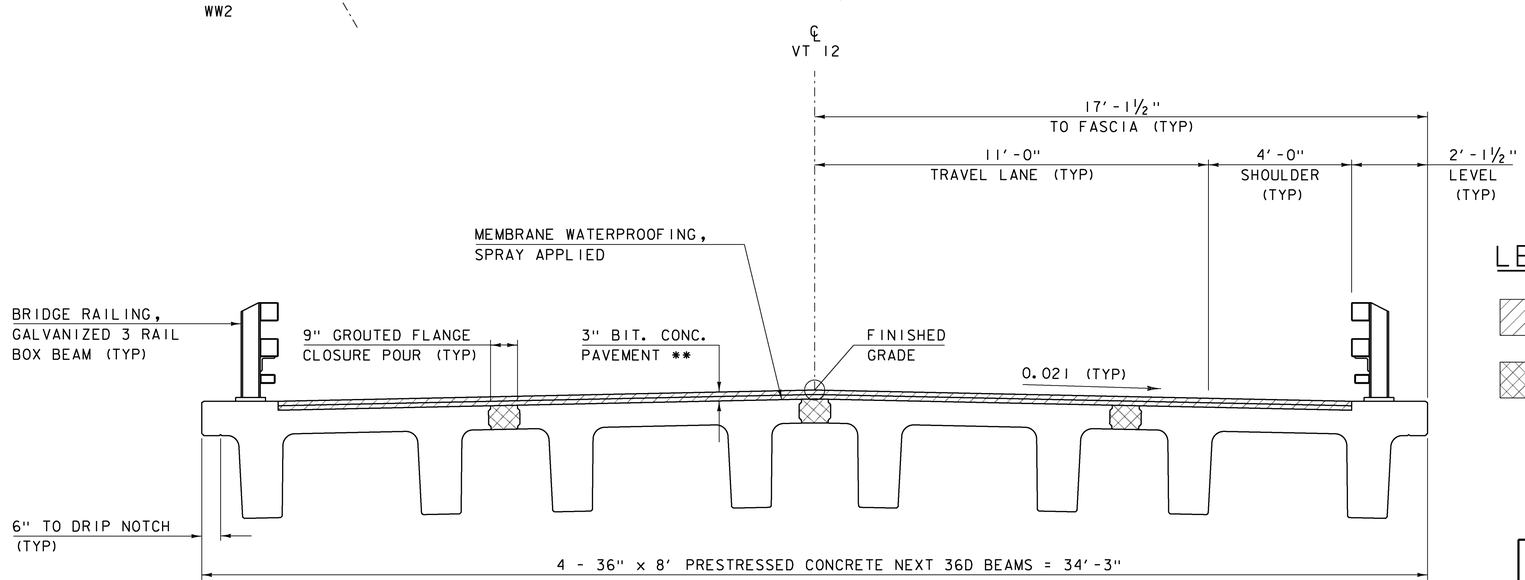
FILE NAME: s10c410bor.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
BORING LOGS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 16 OF 39



A1	120°
A2	60°
L	86′-0″

DECK PLAN
SCALE 1/4″ = 1′-0″



BRIDGE TYPICAL SECTION
SCALE 1/2″ = 1′-0″

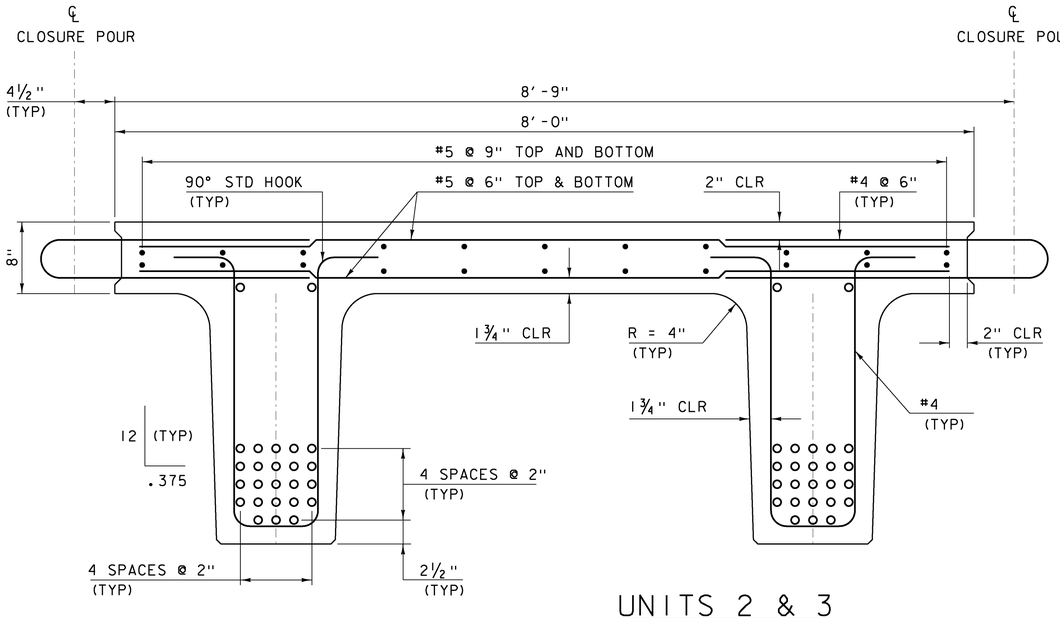
LEGEND

SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)

HPC = SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

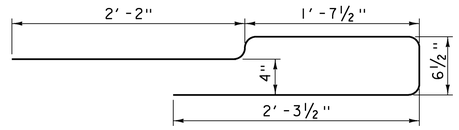
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)

FILE NAME: s10c410sup.dgn	PLOT DATE: 10-SEP-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
FRAMING PLAN	SHEET 17 OF 39



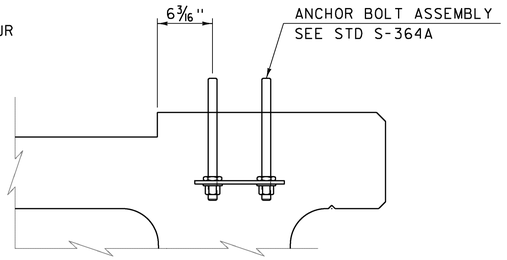
UNITS 2 & 3

SCALE: 1 ½" = 1'-0"



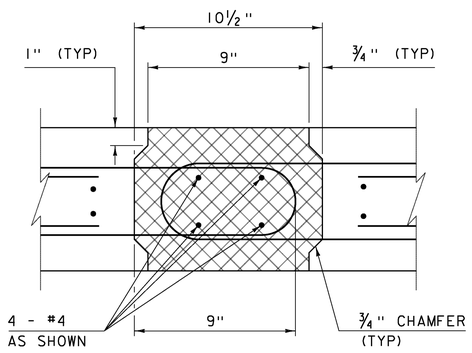
CURB BAR

SCALE: 1 ½" = 1'-0"



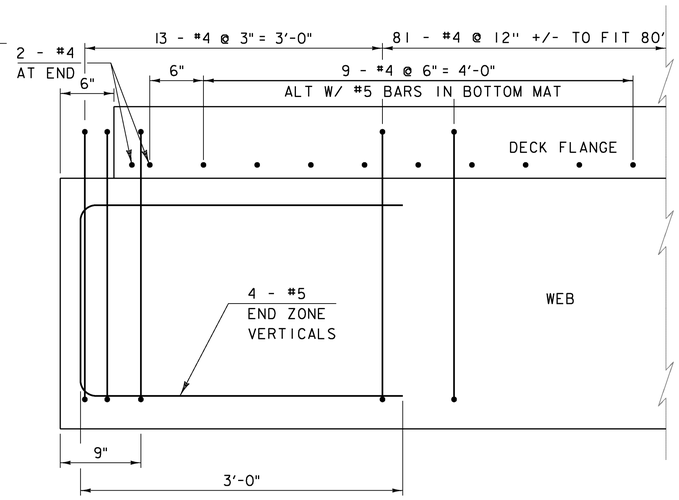
END SECTION

SCALE: 1 ½" = 1'-0"



CONNECTION DETAIL SECTION

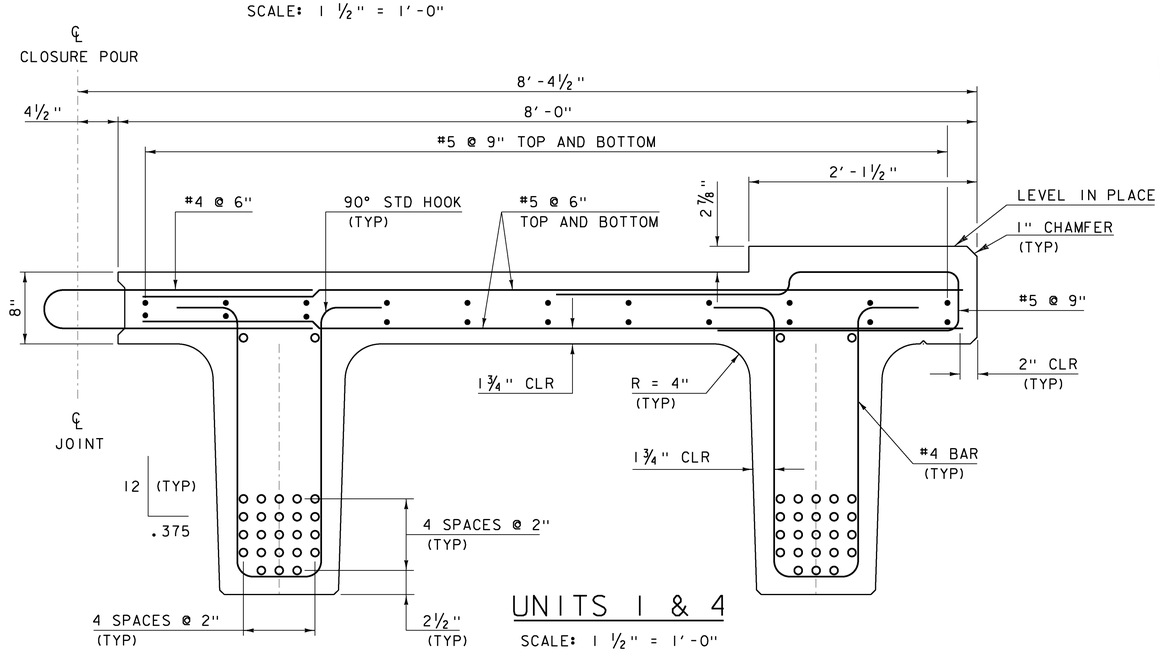
SCALE = 3" = 1'-0"



ADDITIONAL END BEAM REINFORCING LONGITUDINAL SECTION

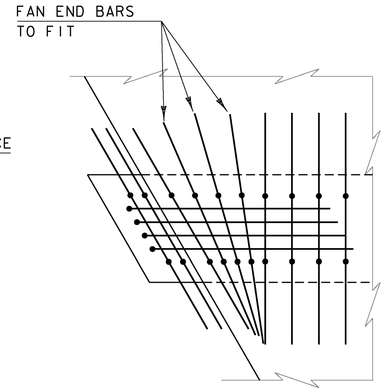
SCALE: 1 ½" = 1'-0"

•BARS IN DECK FLANGE OMITTED FOR CLARITY



UNITS 1 & 4

SCALE: 1 ½" = 1'-0"

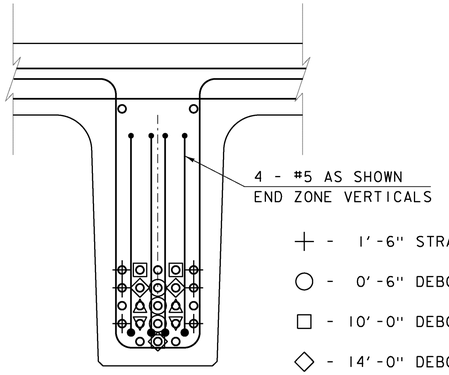


SKEWED END DETAIL

SCALE: 1 ½" = 1'-0"

NOTE:

1. BARS IN DECK FLANGE OMITTED FOR CLARITY.
2. TRANSVERSE REINFORCING IN THE DECK SHALL BE PLACED PARALLEL TO THE SKEW.

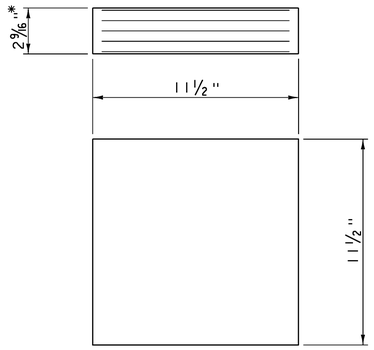


BEAM SECTION

SCALE: 1 ½" = 1'-0"

- + - 1'-6" STRAND CUT LONG
- ○ - 0'-6" DEBOND EACH END
- □ - 10'-0" DEBOND EACH END
- ◇ - 14'-0" DEBOND EACH END
- △ - 16'-0" DEBOND EACH END
- ▽ - 18'-0" DEBOND EACH END
- ⬡ - 20'-0" DEBOND EACH END

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410next.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
NEXT BEAM TYPICAL SECTIONS	SHEET 18 OF 39



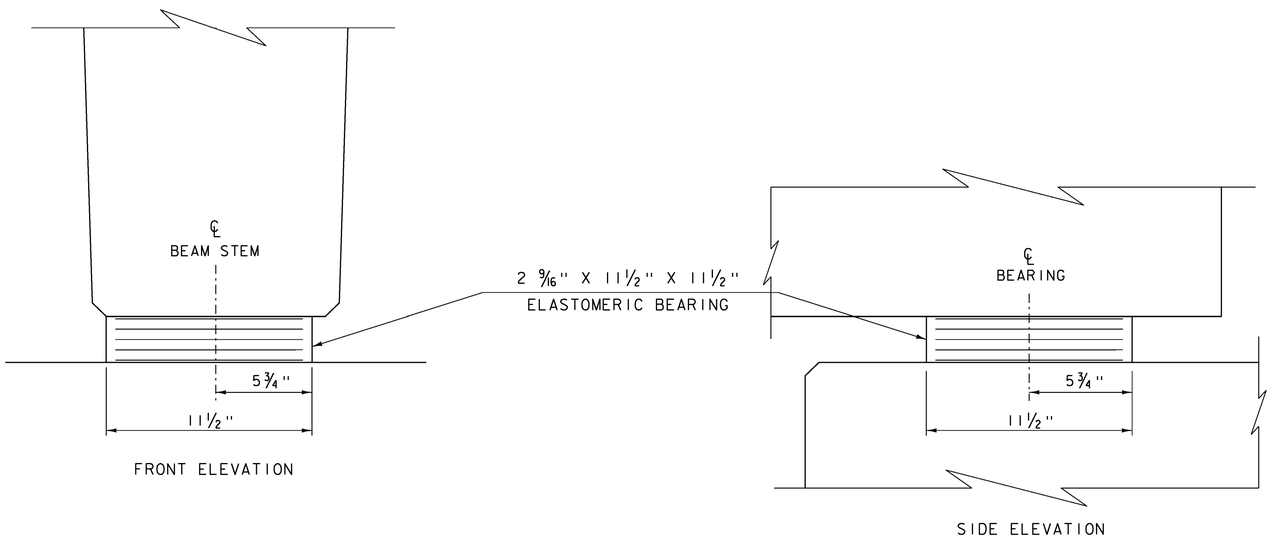
ELASTOMERIC BEARING DETAIL

SCALE 3" = 1'-0"

* 2 - 1/8" EXTERIOR LAYERS OF ELASTOMER
4 - 1/2" INTERIOR LAYERS OF ELASTOMER
5- 1/16" STEEL REINFORCING PLATES

BEARING NOTES

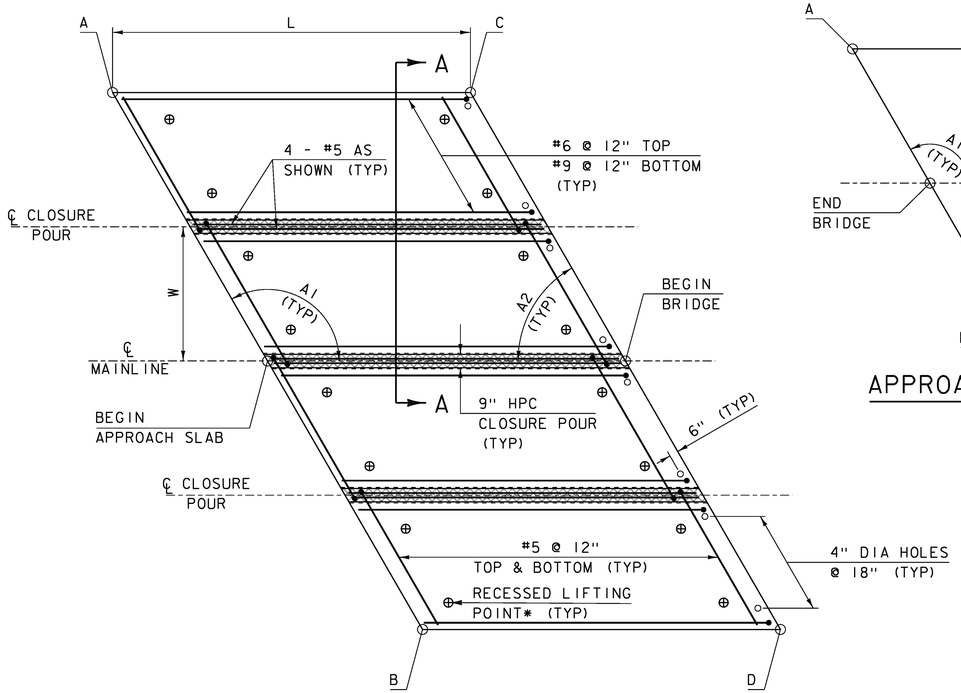
1. BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731.
2. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMER SHALL BE STEEL MEETING THE REQUIREMENTS OF SUBSECTION 714.02. ALL INTERNAL STEEL PLATES SHALL BE SAND BLASTED AND FREE OF COATINGS, RUST AND MILL SCALE. THE PLATES SHALL BE FREE OF SHARP EDGES AND BURRS.
3. STEEL REINFORCED ELASTOMERIC BEARINGS SHALL HAVE A MINIMUM 1/8" EDGE SEAL OF ELASTOMER INTEGRAL WITH BEARING OVER ALL INTERNAL PLATES.
4. THE ELASTOMER WAS DESIGNED WITH A SHEAR MODULUS OF 100 PSI +/- 15%
5. THE CONCRETE UNDER THE BEARING DEVICE SHALL BE LEVEL.
6. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 24 - 1/4"x12 1/2"x12 1/2" GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON THE SETTING OF THE SUPERSTRUCTURE UNITS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.17,"BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".



ELASTOMERIC BEARING DETAILS

SCALE 3" = 1'-0"

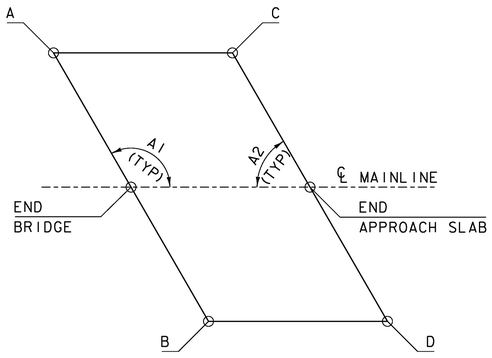
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410brg.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
BEARING DETAILS	SHEET 19 OF 39



APPROACH SLAB #1 PLAN VIEW

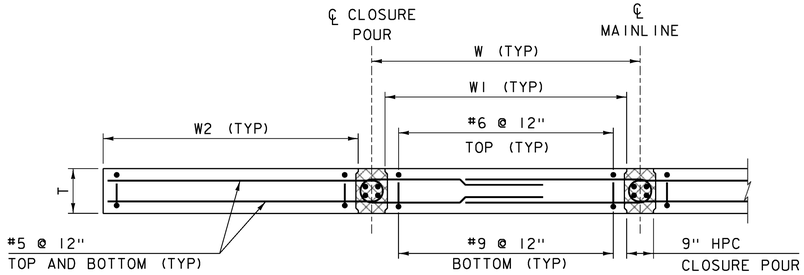
SCALE 1/4" = 1'-0"

NOTE:
1. FABRICATOR TO DESIGN LIFTING POINTS AND INCLUDE CALCULATIONS WITH SUBMITTAL.



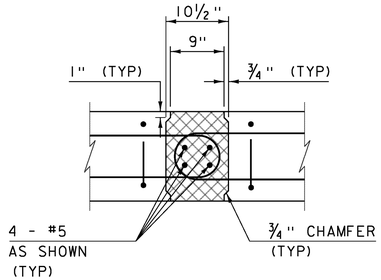
APPROACH SLAB #2 PLAN VIEW

NOT TO SCALE



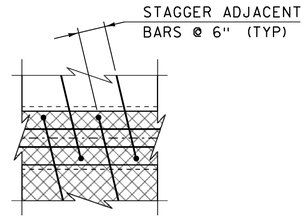
SECTION A-A

SCALE 1/2" = 1'-0"



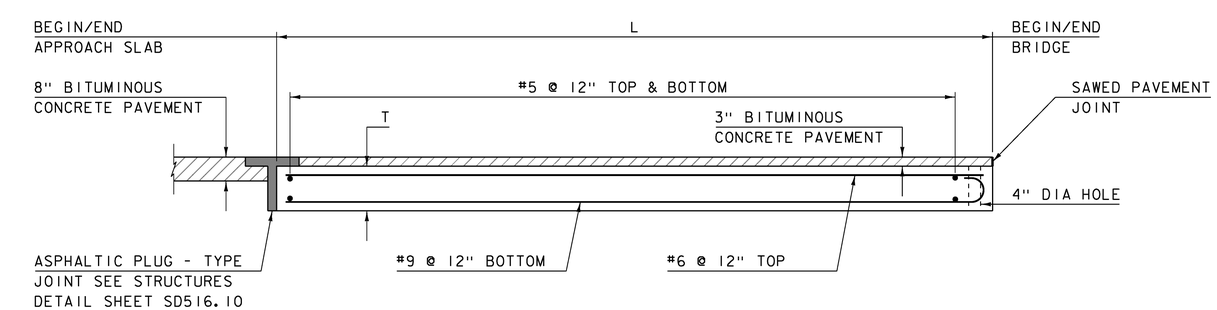
JOINT DETAIL SECTION

SCALE 1" = 1'-0"



JOINT DETAIL PLAN

SCALE 1" = 1'-0"



APPROACH SLAB ELEVATION VIEW

SCALE 1/2" = 1'-0"

T	1'-3"
L	20'-0"
W	7'-6"
W1	6'-9"
W2	7'-1 1/2"

APPROACH SLAB #1	A1	120°
	A2	60°
APPROACH SLAB #2	A1	120°
	A2	60°

APPROACH SLAB DIMENSIONS

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

	STATION	OFFSET	ELEVATION
1A	370+19.80	-15.00	884.81
BEGIN AS #1	370+28.46	℄	885.10
1B	370.37.12	15.00	884.78
1C	370+39.80	-15.00	884.78
END AS #1	370+48.46	℄	885.10
1D	370+57.12	15.00	884.81
2A	371+27.89	-15.00	884.93
BEGIN AS #2	371+36.55	℄	885.25
2B	371+45.21	15.00	884.96
2C	371+47.89	-15.00	884.96
END AS #2	371+56.55	℄	885.28
2D	371+65.21	15.00	884.99

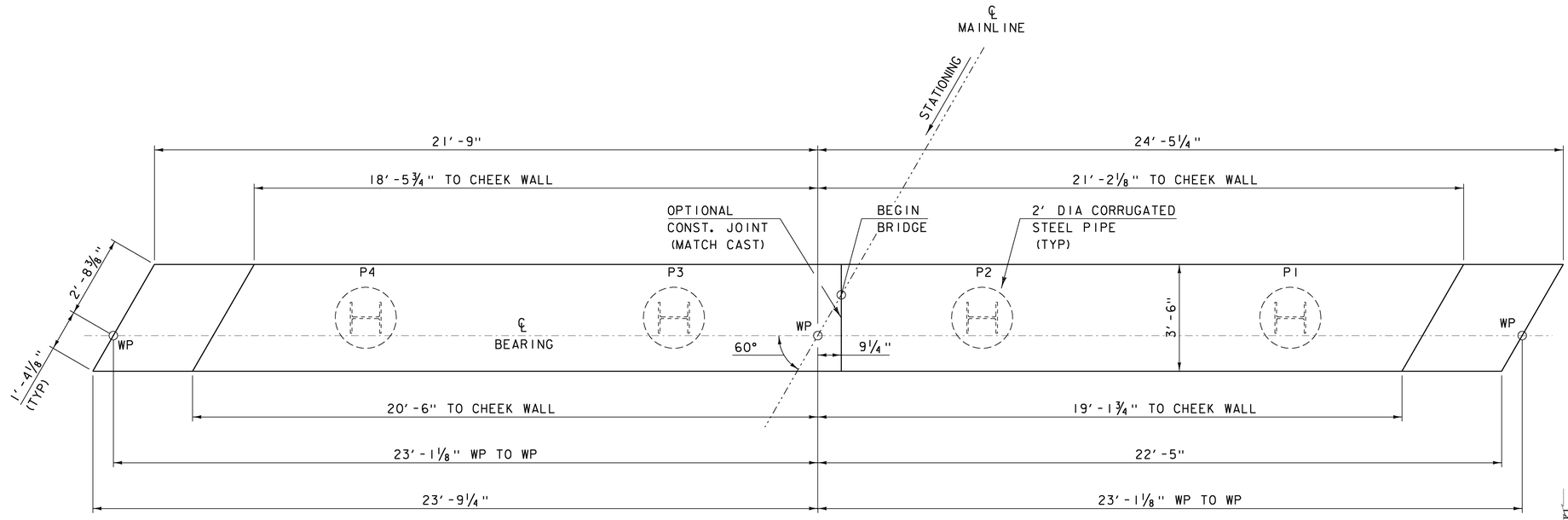
APPROACH SLAB ELEVATIONS

ALL ELEVATIONS ARE TOP OF SLAB

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

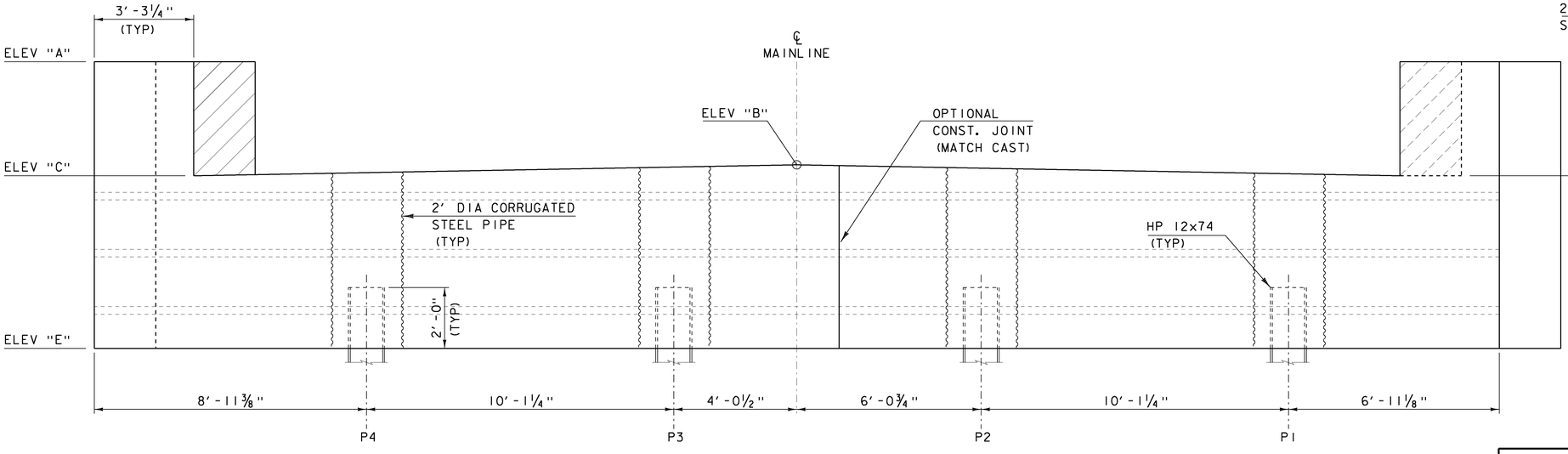
FILE NAME: sl0c410apslab.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
APPROACH SLAB DETAILS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 20 OF 39



ABUTMENT 1 PLAN (PCU 1)

SCALE ½" = 1'-0

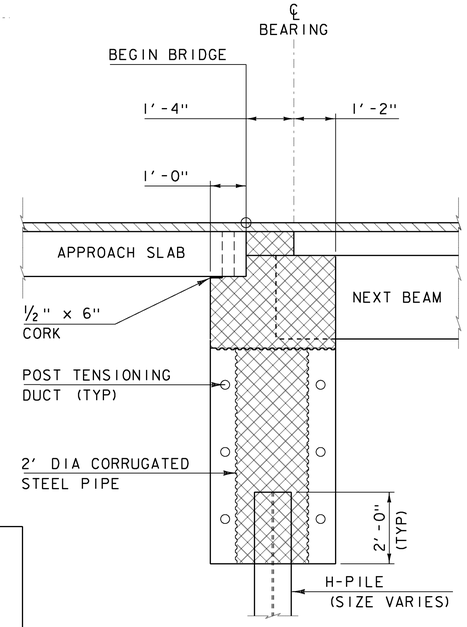


ABUTMENT 1 ELEVATION (PCU 1)

SCALE ½" = 1'-0

PCU 1 ELEVATIONS

	ABI
ELEV "A"	885.35
ELEV "B"	881.89
ELEV "C"	881.51
ELEV "D"	881.51
ELEV "E"	875.85

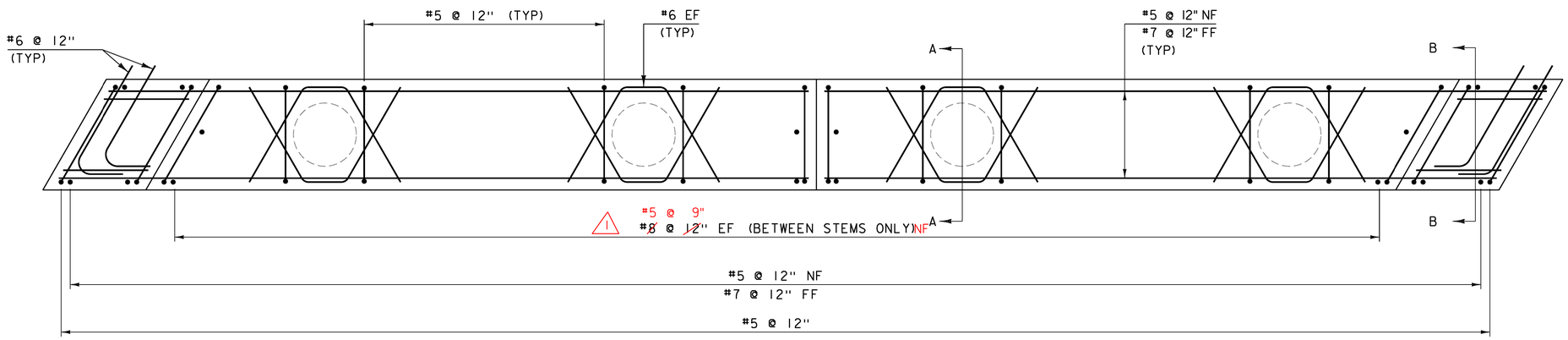


ABUTMENT TYPICAL

SCALE ½" = 1'-0

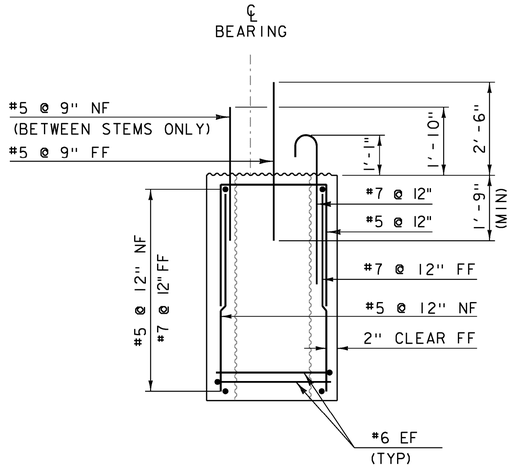
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)

FILE NAME: s10c410sub.dgn	PLOT DATE: 16-SEP-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
ABUTMENT 1 PLAN	SHEET 21 OF 39



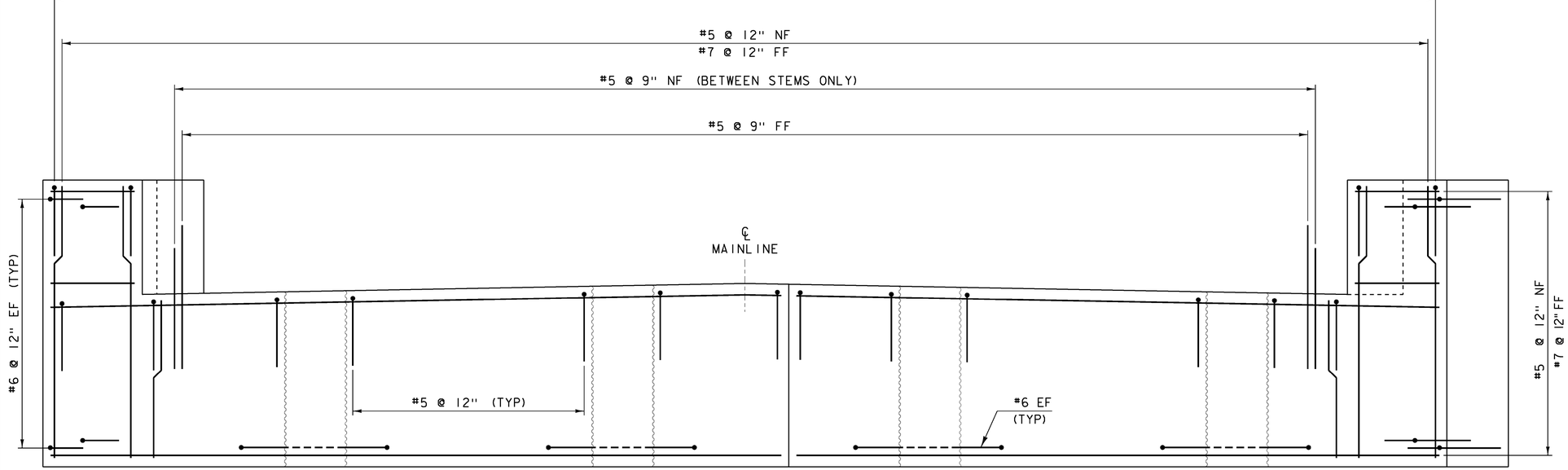
ABUTMENT 1 REINFORCING PLAN (PCU 1)

SCALE ½" = 1'-0



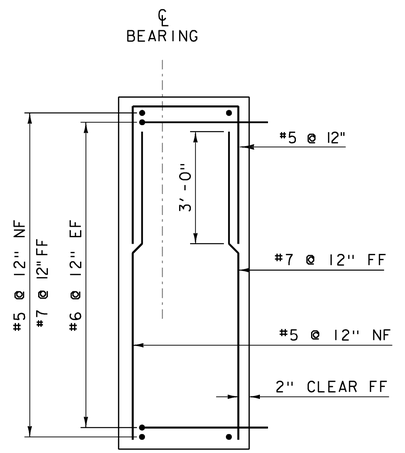
SECTION A-A

SCALE ½" = 1'-0



ABUTMENT 1 REINFORCING ELEVATION (PCU 1)

SCALE ½" = 1'-0



SECTION B-B

SCALE ½" = 1'-0

NOTE:

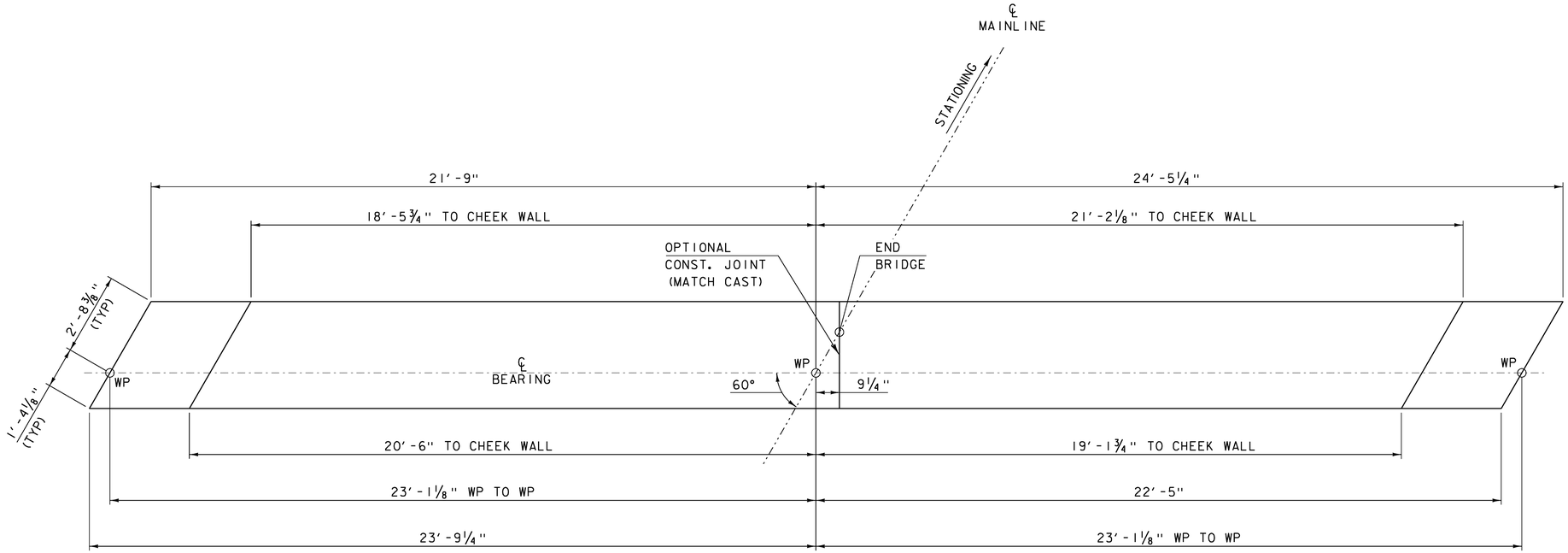
1. REINFORCING STEEL FOR PCU 1 SHOWN, PCU 2 SIMILAR.

1 REVISED 12-9-13

NOTE:

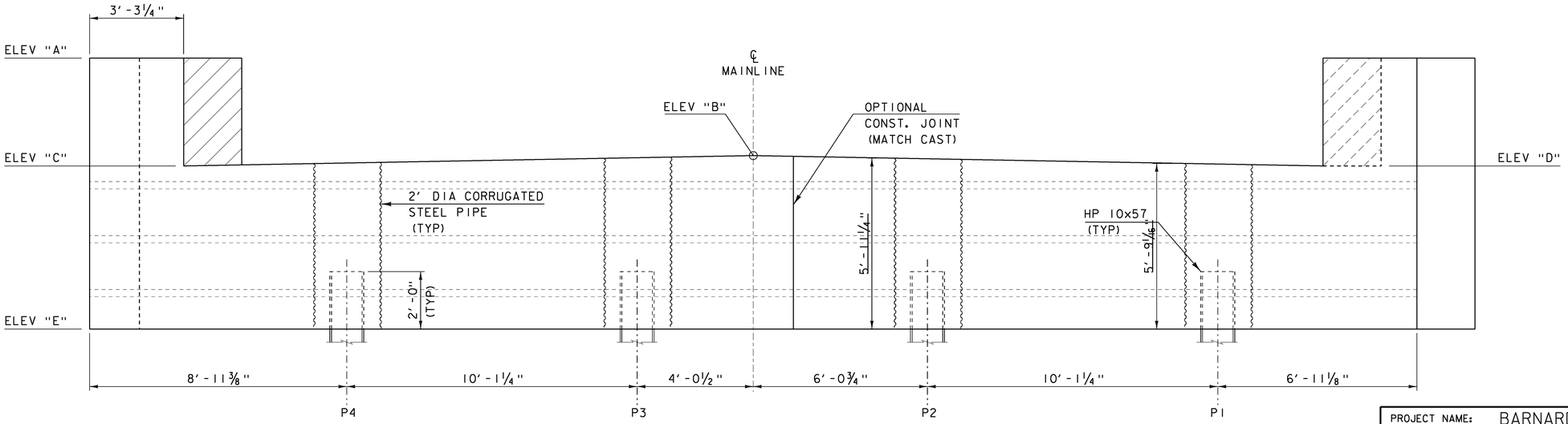
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410sub.dgn	PLOT DATE: 17-SEP-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
ABUTMENT 1 REINFORCING	SHEET 22 OF 39



ABUTMENT 2 PLAN (PCU 2)

SCALE ½" = 1′-0



ABUTMENT 2 ELEVATION (PCU 2)

SCALE ½" = 1′-0

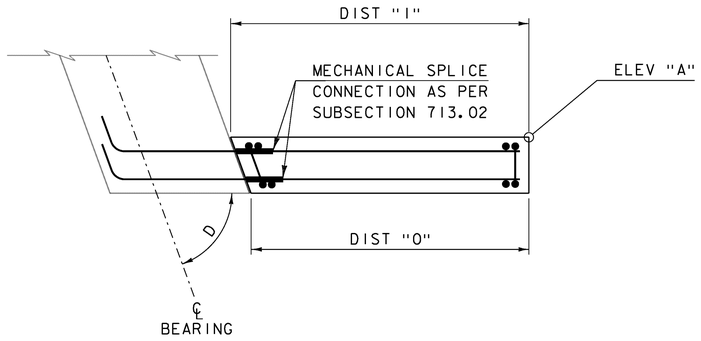
PCU 3 ELEVATIONS

	AB2
ELEV "A"	885.50
ELEV "B"	882.03
ELEV "C"	881.65
ELEV "D"	881.65
ELEV "E"	876.00

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410sub.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
ABUTMENT 2 PLAN

PLOT DATE: 29-AUG-2013
DRAWN BY: J. SALVATORI
CHECKED BY: W. LAMMER
SHEET 23 OF 39

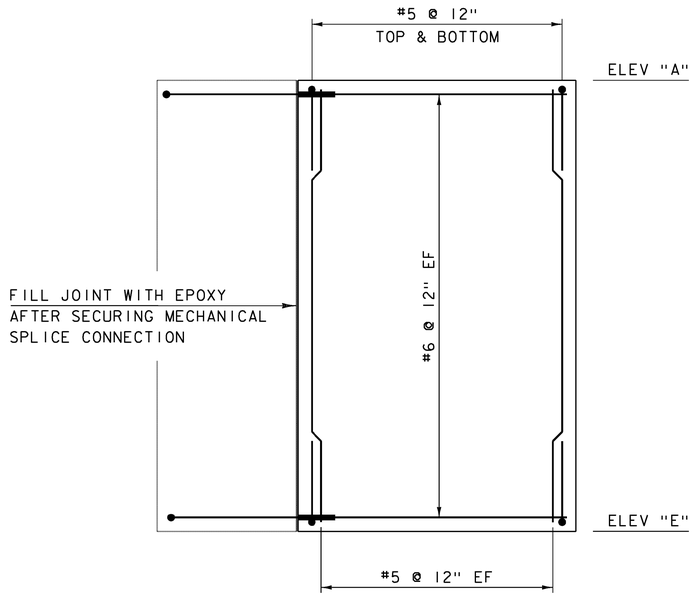


WW1 PLAN (PCU 3)

NOT TO SCALE

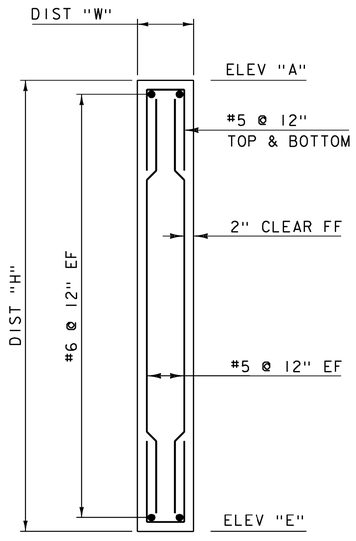
PCU 3-6 ELEVATIONS

	WW1 (PCU 3)	WW2 (PCU 4)	WW3 (PCU 5)	WW4 (PCU 6)
ELEV "A"	885.35	885.35	885.50	885.50
ELEV "E"	875.85	875.85	876.00	876.00
DIST "H"	9'-6"	9'-6"	9'-6"	9'-6"
DIST "W"	1'-6"	1'-6"	1'-6"	1'-6"
DIST "I"	10'-0"	9'-1½"	9'-1½"	10'-0"
DIST "O"	9'-1½"	10'-0"	10'-0"	9'-1½"
ANGLE "D"	60°	120°	120°	60°



WW1 ELEVATION (PCU 3)

NOT TO SCALE



WW1 TYPICAL (PCU 3)

NOT TO SCALE

NOTE:

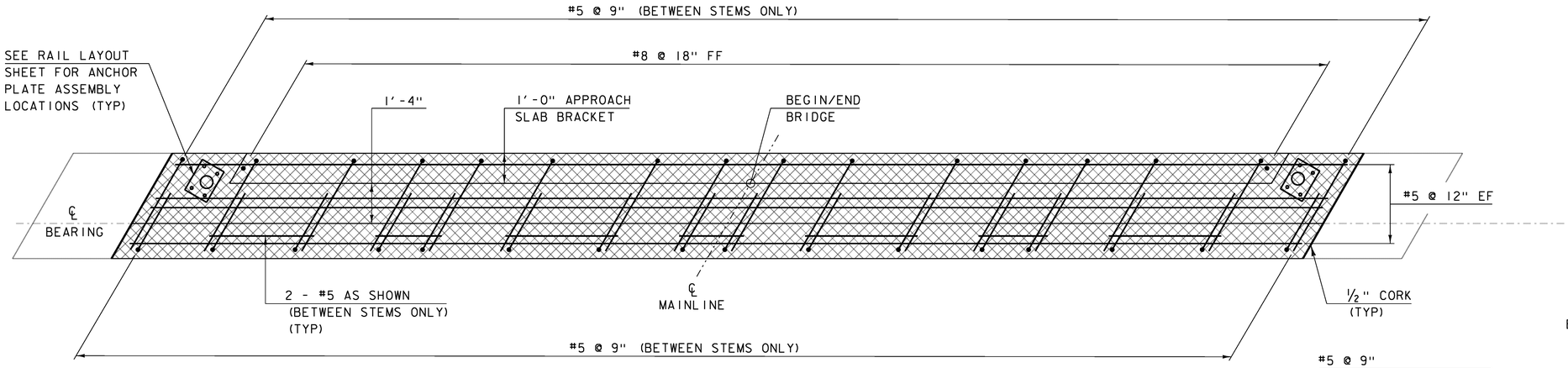
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES:

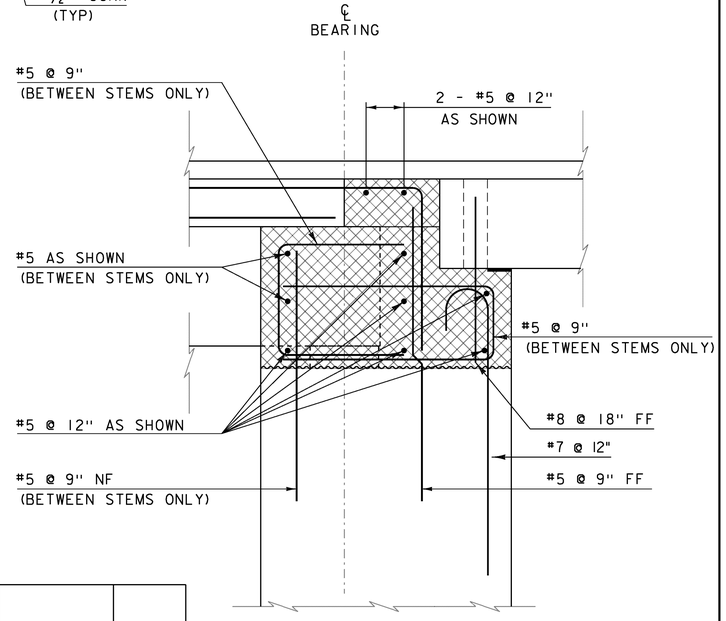
1. EPOXY GROUT SHALL BE INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE".
2. ~~ALL REBAR AND MECHANICAL CONNECTORS IN WINGWALLS SHALL BE LEVEL II EPOXY COATED.~~ ALL REINFORCING STEEL IN WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507. FOR LEVEL II REINFORCING. ALL MECHANICAL CONNECTORS IN WINGWALLS SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL I (EPOXY COATED) REINFORCING. (SPEC. PROV. #81)
3. THE BRIDGE PLAQUE FURNISHED BY THE AGENCY SHALL BE CAST INTO WINGWALL 2. ALL WORK TO INSTALL THE PLAQUE SHALL BE INCIDENTAL TO THE PRECAST CONCRETE STRUCTURE ITEM. SEE SD-502.00 FOR FURTHER DETAILS.
4. WW1 SHOWN, OTHERS SHALL BE SIMILAR.

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410sub.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
WINGWALL DETAILS	SHEET 24 OF 39

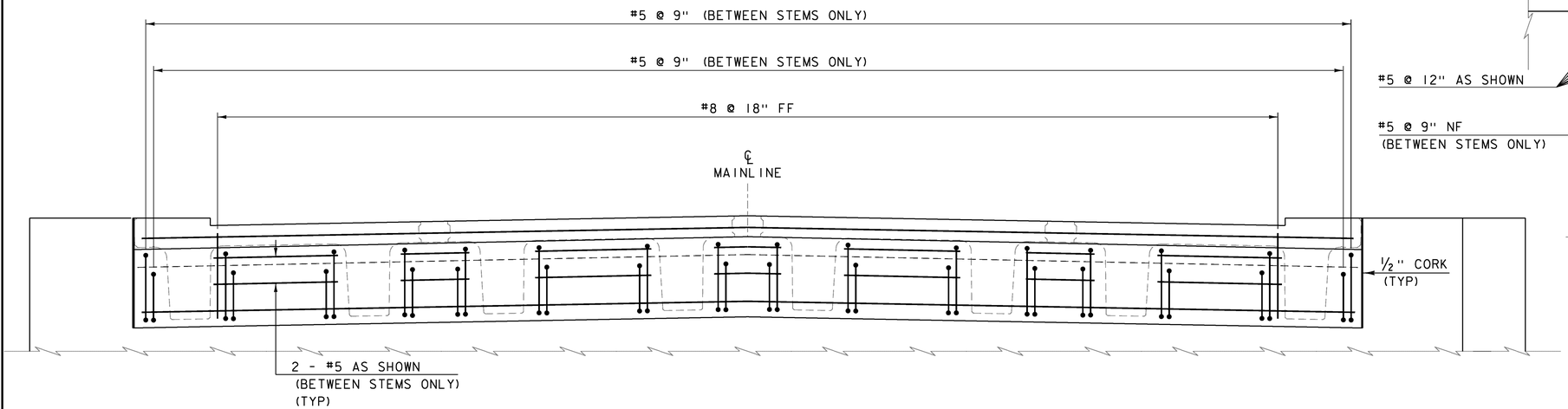
NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-7" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.



DECK CLOSURE POUR REINFORCING PLAN
SCALE ½" = 1'-0

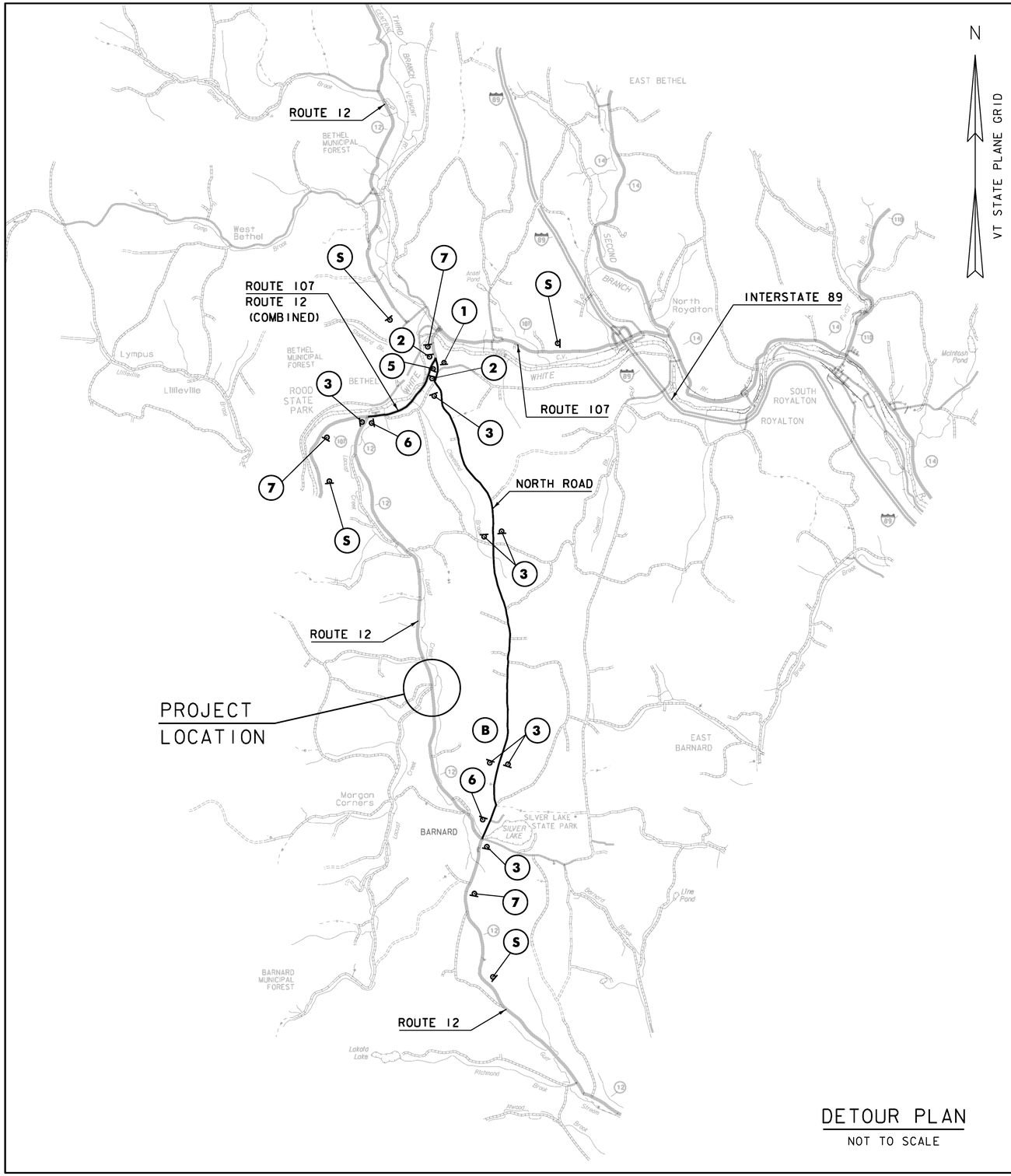


REINFORCING TYPICAL
SCALE 1" = 1'-0



DECK CLOSURE POUR REINFORCING ELEVATION
SCALE ½" = 1'-0

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410sub.dgn	PLOT DATE: 17-SEP-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. SALVATORI
DESIGNED BY: W. LAMMER	CHECKED BY: W. LAMMER
DECK CLOSURE POUR	SHEET 25 OF 39



DETOUR PLAN

NOT TO SCALE

V	T		1	2		
C	L	O	S	E	D	

PORTABLE CHANGEABLE SIGN - PHASE 1

N	O	R	T	H		O F
B	A	R	N	A	R	D

PORTABLE CHANGEABLE SIGN - PHASE 2

*	M	M	M	M		D	D -
*	M	M	M	M		D	D

PORTABLE CHANGEABLE SIGN - PHASE 3

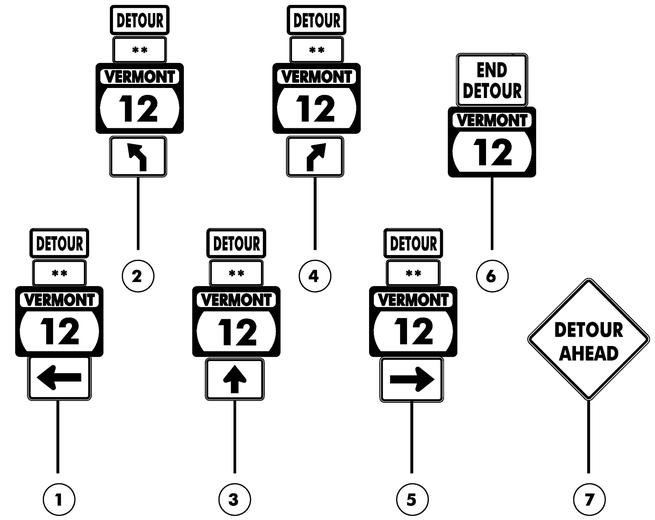
**N = NORTH OR S = SOUTH

* M=MONTH D=DAY

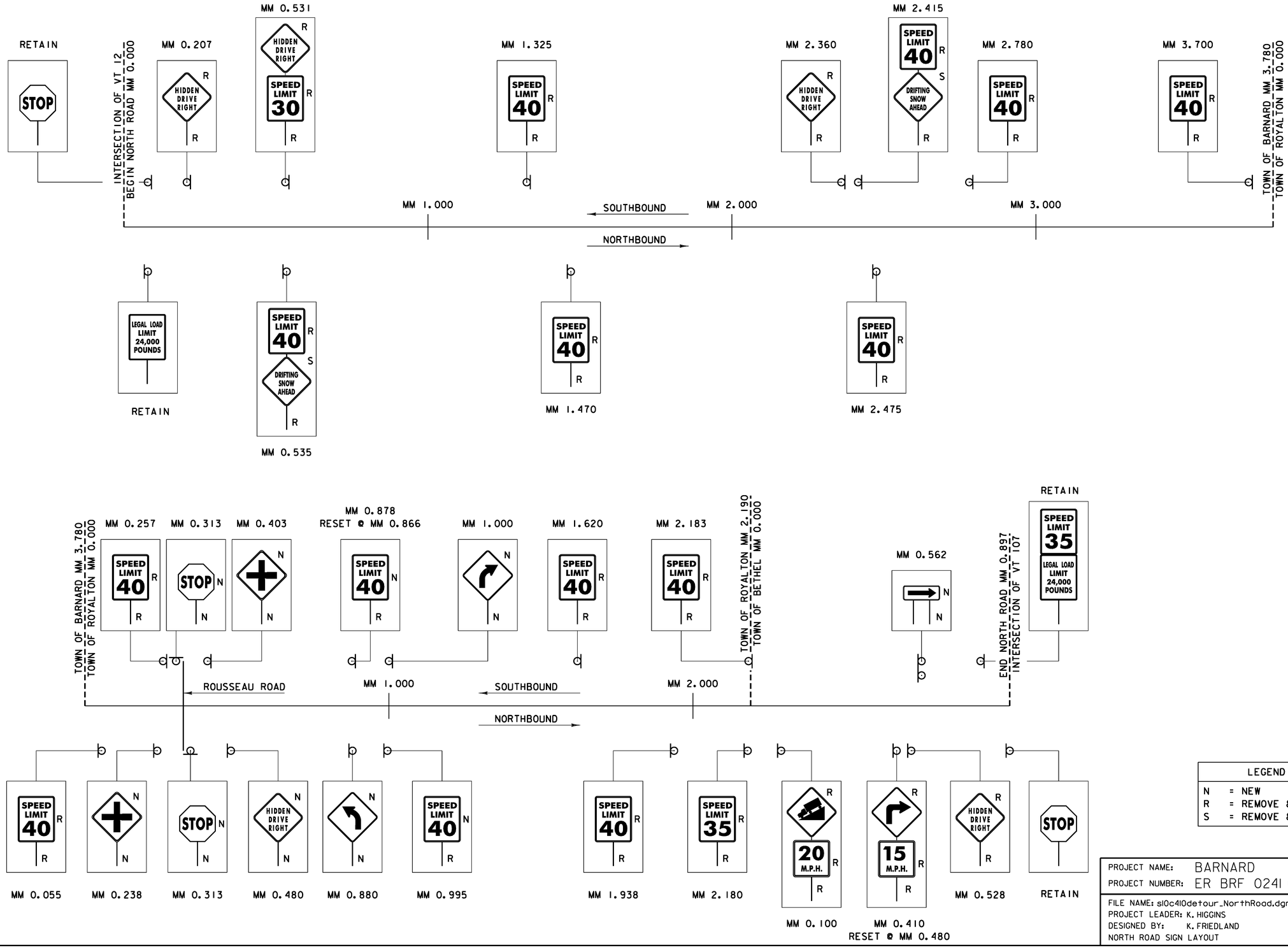
(S)

NOTES:

1. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE FULLY OPERATIONAL A MINIMUM OF TWO WEEKS PRIOR TO THE CLOSURE OF VT 12.
2. DURING ACTUAL CLOSURE, ELIMINATE PHASE 3 ONLY.
3. DETOUR SIGNS SHALL BE LOCATED ADJACENT TO EXISTING INTERSECTION ROUTE MARKER ASSEMBLIES WHERE APPLICABLE.
4. CONFIRMATION ROUTE MARKERS (SIGN 3) SHALL BE INSTALLED IMMEDIATELY FOLLOWING EACH TURN AND AT ALL LOCATIONS ALONG DETOUR WHERE ROUTE MAKERS EXIST FOR THE PARENT ROUTE.
5. DETOUR SIGNING IS THE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES FOR IMPLEMENTING THE DETOUR, INCLUDING BUT NOT LIMITED TO SIGNS, BARRICADES AND MESSAGE BOARDS, WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL - INCLUSIVE).
6. THIS DETOUR PLAN IS A CONCEPTUAL OUTLINE ONLY AND THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN OF EACH INTERSECTION SHOWING DETOUR SIGN LOCATIONS IN RELATION TO EXISTING SIGNS.
7. DURING THE ROAD CLOSURE PERIOD ALL "LEGAL LOAD LIMIT 24,000 POUNDS" SIGNS ALONG THE DETOUR ROUTE SHALL BE COVERED.



PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241 (39)
FILE NAME: s10c410detour_NorthRoad.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: K. FRIEDLAND	CHECKED BY: J. SALVATORI
DETOUR PLAN	SHEET 26 OF 39



PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241 (39)

FILE NAME: sl0c410detour_NorthRoad.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: K. FRIEDLAND
NORTH ROAD SIGN LAYOUT

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 27 OF 39

MILEMARKER OR STATION	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGN	EXIST POST		NEW SIGN POSTS						REMARKS	SIGN DETAIL	
		WIDTH (in)	HEIGHT (in)	"A"	RETAIN	SALVAGE	NO. OF POSTS	SQUARE STEEL (in) lb/ft 1.75 / 1.88	2.0 / 2.42	2.5 / 3.35	ANCHOR	SLEEVE		DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
MM 0.207 LT	HIDDEN DRIVE RIGHT	30	30	6.25			1		15		X		VW-054		E-154
MM 0.531 LT	HIDDEN DRIVE RIGHT	30	30	6.25			1		15		X		VW-054		E-154
	SPEED LIMIT 30	24	30	5.00									R2-1		SHS
MM 0.535 RT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
	DRIFTING SNOW AHEAD												REMOVE & SALVAGE		
MM 1.325 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 1.470 RT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 2.360 LT	HIDDEN DRIVE RIGHT	30	30	6.25			1		15		X		VW-054		E-154
MM 2.415 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
	DRIFTING SNOW AHEAD												REMOVE & SALVAGE		
MM 2.780 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 3.700 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 0.055 RT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 0.238 RT		30	30	6.25			1		15		X		W2-1		SHS
MM 0.257 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 0.313 LT	STOP	30	30	6.25			1		15		X		RI-1		SHS
MM 0.313 RT	STOP	30	30	6.25			1		15		X		RI-1		SHS
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."								FT	FT 210	FT		EA			
	SUB TOTAL			SF 82.50					FT 210.00				SHS = STANDARD HIGHWAY SIGNS (MUTCD)		

MILEMARKER OR STATION	SIGN LEGEND	SIGN DIMENSIONS		NEW SIGN	EXIST POST		NEW SIGN POSTS						REMARKS	SIGN DETAIL	
		WIDTH (in)	HEIGHT (in)	"A"	RETAIN	SALVAGE	NO. OF POSTS	SQUARE STEEL (in) lb/ft 1.75 / 1.88	2.0 / 2.42	2.5 / 3.35	ANCHOR	SLEEVE		DETAIL ON SHEET NUMBER	STD. SHEET NUMBER
MM 0.403 LT		30	30	6.25			1		15		X		W2-1		SHS
MM 0.480 RT	HIDDEN DRIVE RIGHT	30	30	6.25			1		15		X		VW-054		E-154
MM 0.866 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 0.880 RT		30	30	6.25			1		15		X		WI-2		SHS
MM 0.995 RT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 1.000 LT		30	30	6.25			1		15		X		WI-2		SHS
MM 1.620 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 1.938 RT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 2.180 RT	SPEED LIMIT 35	24	30	5.00			1		15		X		R2-1		SHS
MM 2.183 LT	SPEED LIMIT 40	24	30	5.00			1		15		X		R2-1		SHS
MM 0.100 RT		30	30	6.25			1		15		X		W7-1		SHS
	SPEED LIMIT 20	24	30	5.00									R2-1		SHS
MM 0.480 RT		30	30	6.25			1		15		X		WI-2		SHS
	SPEED LIMIT 15	24	30	5.00									R2-1		SHS
MM 0.528 RT	HIDDEN DRIVE RIGHT	30	30	6.25			1		15		X		VW-054		E-154
MM 0.562 LT		48	24	8.00			2		30		X		WI-6		SHS
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."								FT	FT 225	FT		EA			
	SUB TOTAL			SF 91.75					FT 225.00				SHS = STANDARD HIGHWAY SIGNS (MUTCD)		
	TOTAL			SF 174.25					FT 435.00						

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241 (39)

FILE NAME: s10c410detour_NorthRoad.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: K. FRIEDLAND
NORTH ROAD SIGN SUMMARY

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 28 OF 39

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 25 WITH RELATED APPROACH AND CHANNEL WORK. THE PROJECT LOCATION IS IN THE TOWN OF BARNARD, VT ON VERMONT ROUTE 12, BEGINNING AT MILE POST 7.0195 (STA 370+00) AND ENDING AT MILE POST 7.0535 (STA 371+85).

THE NEW STRUCTURE WILL BE APPROXIMATELY 88 FEET IN LENGTH WITH 97 FEET OF ROADWAY WORK.

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 0.52 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 AREA IS RELATIVELY FLAT WITH STEEP BANKS ALONG THE CHANNEL AND ALONGSIDE WING WALLS ONE AND FOUR.

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

LOCUST CREEK IS THE ONLY WATER SOURCE ON THE PROJECT SITE.

THE CREEK IS CLASSIFIED AS SINUOUS, ALLUVIAL, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. THE TRIBUTARY AREA AT THE BRIDGE CROSSING IS 4.6 MILES^2. THERE ARE A NUMBER OF DROP INLETS ON SITE DRAINING FROM THE ROADWAY TO THE BROOK. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV 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 WINDSOR, VERMONT.

14B HINCKLEY SANDY LOAM	0% TO 8% SLOPES	"K" FACTOR = 0.17
20E GLOVER-VERSHIRE COMPLEX	35% TO 60% SLOPES	"K" FACTOR = 0.37 - 0.28
8B AGAWAM FINE SANDY LOAM	3% TO 8% SLOPES	"K" FACTOR = 0.28

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: LOCUST CREEK
WETLANDS: NO

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

THESE 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.

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 AS SHOWN ON THE PLANS.

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 MNIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS 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.

FILTER CURTAIN 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 IMMEDIATE PROJECT AREA IS NOT LIKELY TO BE IMPACTED BY RUNOFF FROM UPSLOPE AREAS. THEREFORE IT IS NOT ANTICIPATED THAT DIVERSION MEASURES WILL BE NECESSARY. CONTRACTOR TO INSTALL DIVERSION MEASURES IF IT IS NECESSARY.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

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

TEMPORARY CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

THERE ARE NO PERMANENT STORM WATER TREATMENT DEVICES ANTICIPATED ON 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.

IT IS NOT ANTICIPATED THAT DEWATERING WILL BE NECESSARY.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

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 CONSTRUCTION SEQUENCE

1.5.2 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:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: sl0c410epsc_nar.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: K. FRIEDLAND
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
EPSC NARRATIVE	SHEET 29 OF 39

14B HINCKLEY SANDY LOAM
WITH 0% TO 8% SLOPES
"K FACTOR" = .17

20E GLOVER-VERSHIRE COMPLEX
WITH 35% TO 60% SLOPES
"K FACTOR" = .37 - .28

8B AGAWAM FINE SANDY LOAM
WITH 3% TO 8% SLOPES
"K FACTOR" = .28

N

VT STATE PLANE GRID

BENCHMARK
RR SPIKE IN POLE
EL 886.60

BENCHMARK
CHISELLED SQUARE
EL 890.86

BEGIN APPROACH
STA 369+00.00

BEGIN PAVEMENT
STA 369+50.00

BEGIN PROJECT
STA 370+00.00

BEGIN BRIDGE
STA 370+48.46
FG = 885.35

STONE FILL,
TYPE IV (TYP)

END BRIDGE
STA 371+36.55
FG = 885.50

END PROJECT
STA 371+85.00

END PAVEMENT
STA 372+35.00

END APPROACH
STA 372+75.00

LOCUST CREEK
FLOW

TH 29

VT 12
TO WOODSTOCK

VT 12
TO JUNCTION WITH
VT 107

368+00 369+00 370+00 371+00 372+00 373+00 373+25

52+00

50+00

HVCTRL #101
HVCTRL #102
HVCTRL #103
HVCTRL #104

POLE 287/89
POLE 287/01
POLE 290/89
POLE 289/87

HEADWALL

MARBLE POST
SAT DISH
HEDGE
M. APPLE
SINGLE FAMILY DWELLING

EXISTING ROAD (TYP)

RIPARIAN BUFFER
RIPARIAN BUFFER

NOTES:

1. FOR CLARITY, AREAS TO BE SEEDED AND MULCHED HAVE NOT BEEN INDICATED; HOWEVER, ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED AS APPLICABLE.

2. EXISTING CONTOURS ARE SHOWN. SEE CROSS SECTIONS FOR FINAL CONTOURS.

EPSC PLAN

SCALE 1" = 20'-0"
20 0 20

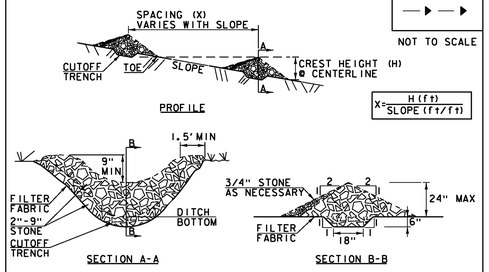
PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410epsc.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
EPSC PLAN

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 30 OF 39

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 OFTHE 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

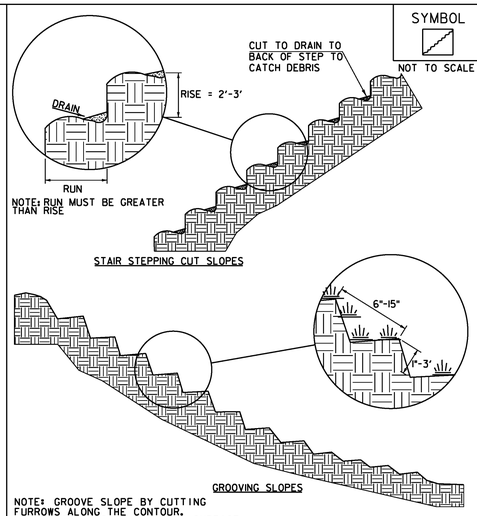
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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



NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

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

SURFACE ROUGHENING

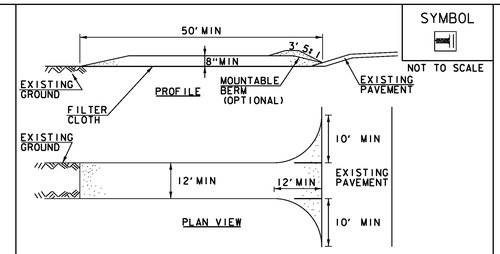
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. 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.
7. 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.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. 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

VAOT RURAL AREA MIX

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
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

	LBS/AC				
% WEIGHT	BROADCAST	HYDROSEED	NAME	GERM %	PURITY %
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*

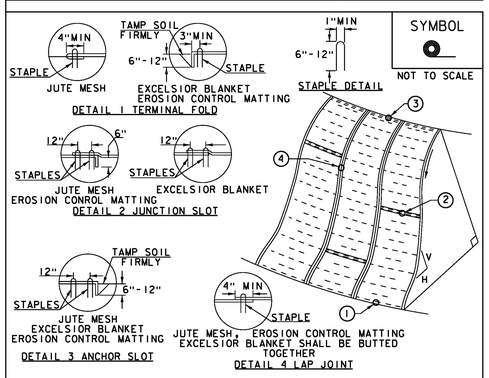
CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER
5. 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.
6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
7. 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
8. 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



SYMBOL

NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

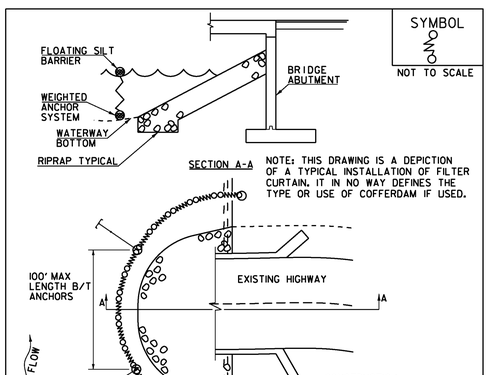
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 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

NOTE: THIS DRAWING IS A DEPICTION OF A TYPICAL INSTALLATION OF FILTER CURTAIN; IT IN NO WAY DEFINES THE TYPE OR USE OF COFFERDAM IF USED.

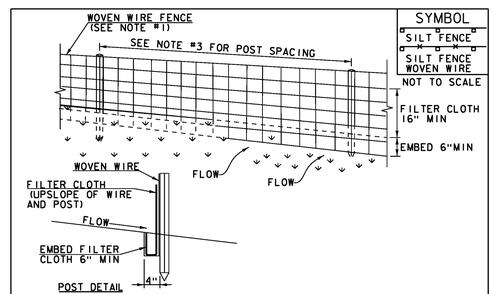
CONSTRUCTION SPECIFICATIONS

1. FILTER CURTAIN SHALL NOT BE PLACED ACROSS A FLOWING WATERWAY, OR IN A WATERWAY WITH STREAM VELOCITIES GREATER THAN 1.5 FEET/SECOND.
2. MAXIMUM 100' LENGTH BETWEEN ANCHORS.
3. LAST SECTION SHALL TERMINATE A MINIMUM OF 10' BEYOND LIMIT OF DISTURBANCE.
4. THE WEIGHTED ANCHOR SYSTEM SHALL BE A TYPE WHICH ALLOWS THE CURTAIN TO CONFORM TO THE BOTTOM OF THE WATERWAY.
5. THE CURTAIN SHALL BE REMOVED BY SLOWLY PULLING TOWARD THE SHORE MINIMIZING THE ESCAPE OF SEDIMENTS INTO WATERWAY.

FILTER CURTAIN

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF
SEPTEMBER 4, 2009	WHF



SYMBOL

SILT FENCE

SILT FENCE WOVEN WIRE

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, MIRAFI100X, 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.

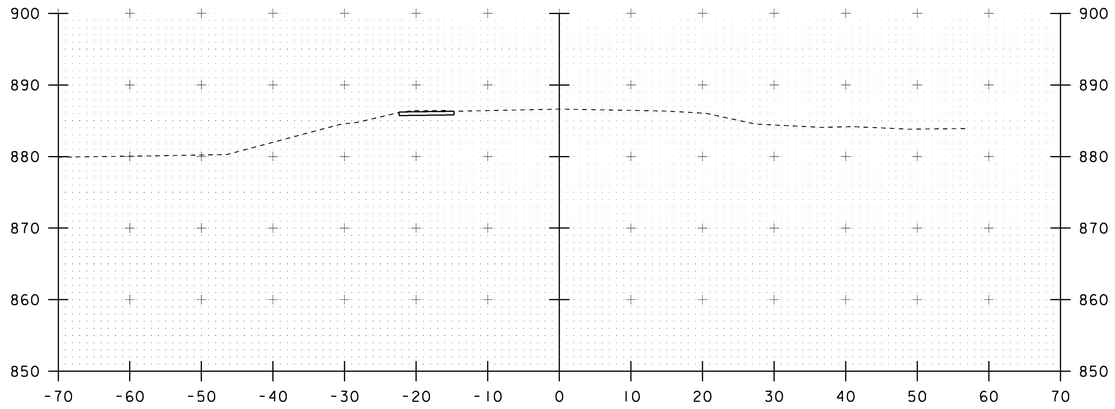
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) ~~OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).~~

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

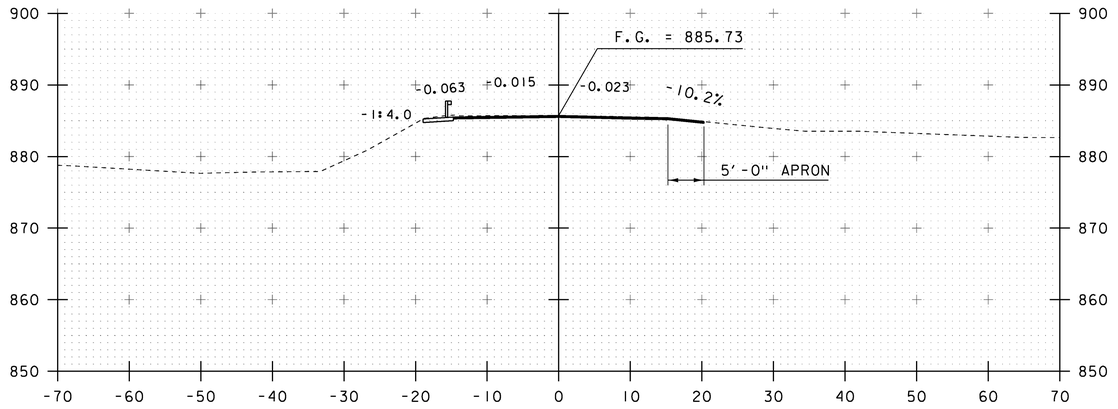
PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410epsc_details.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: J. SALVATORI
EPSC DETAILS

PLOT DATE: 29-AUG-2013
DRAWN BY: K. FRIEDLAND
CHECKED BY: J. SALVATORI
SHEET 31 OF 39



369+25



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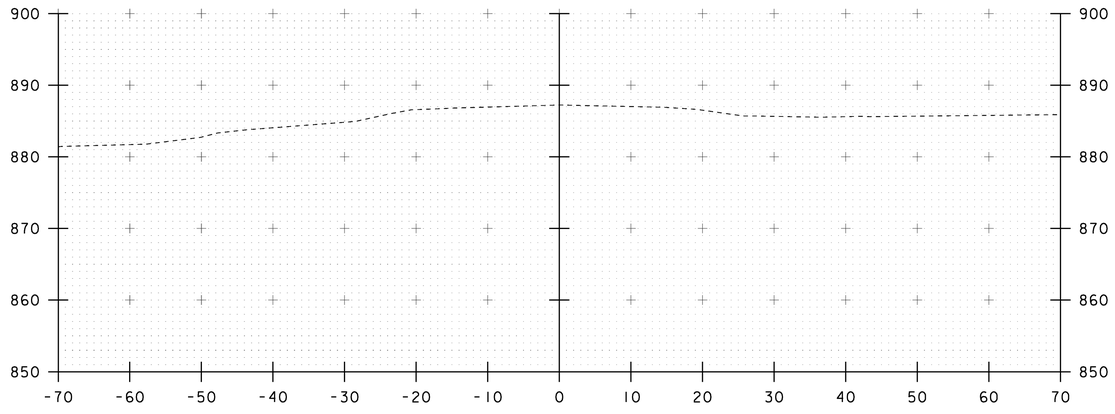

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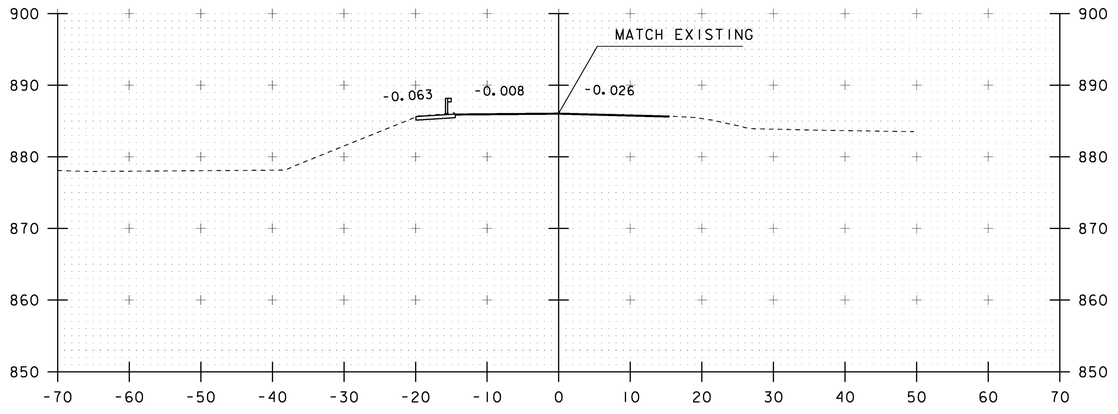


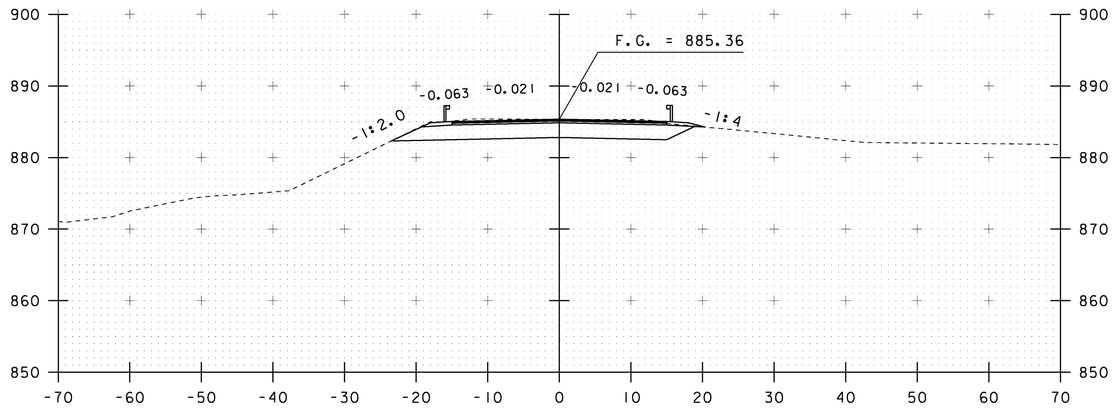
369+50
BEGIN PAVEMENT

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

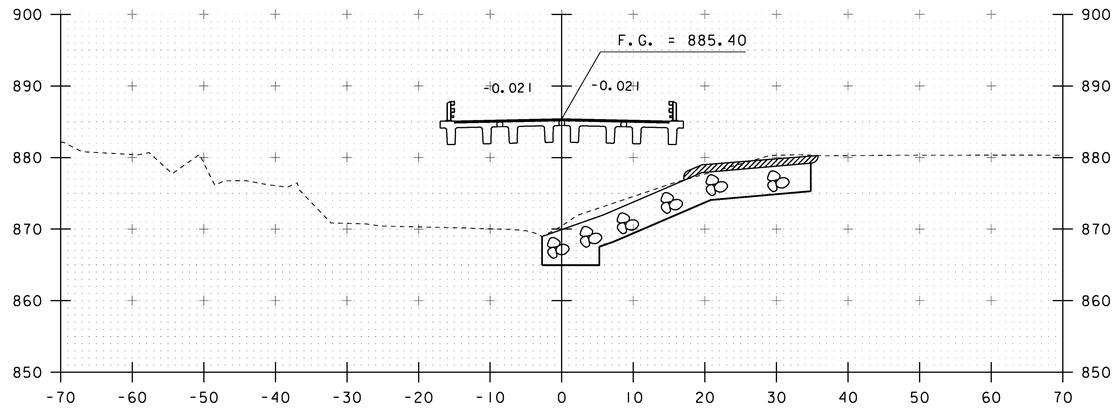
FILE NAME: s10c410xsl.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
MAINLINE SECTIONS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. GRIGAS
CHECKED BY: J. SALVATORI
SHEET 32 OF 39

STA. 369+00 TO STA. 369+75



370+25



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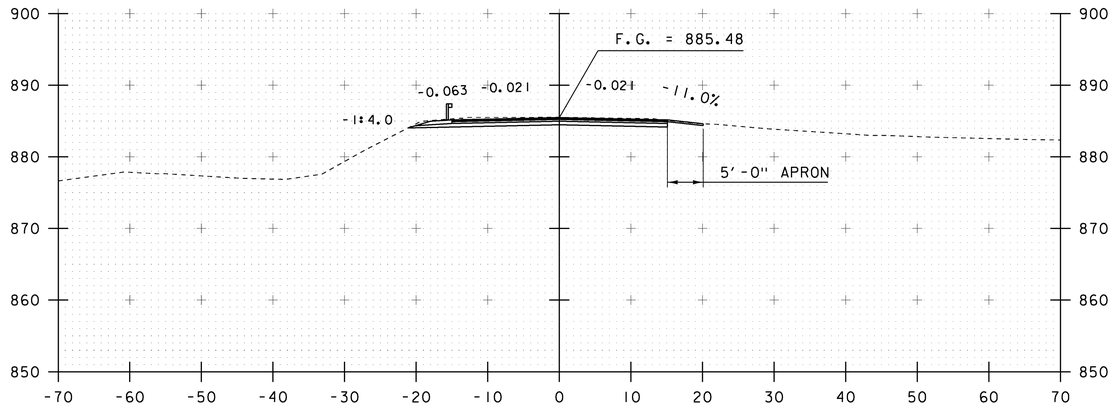
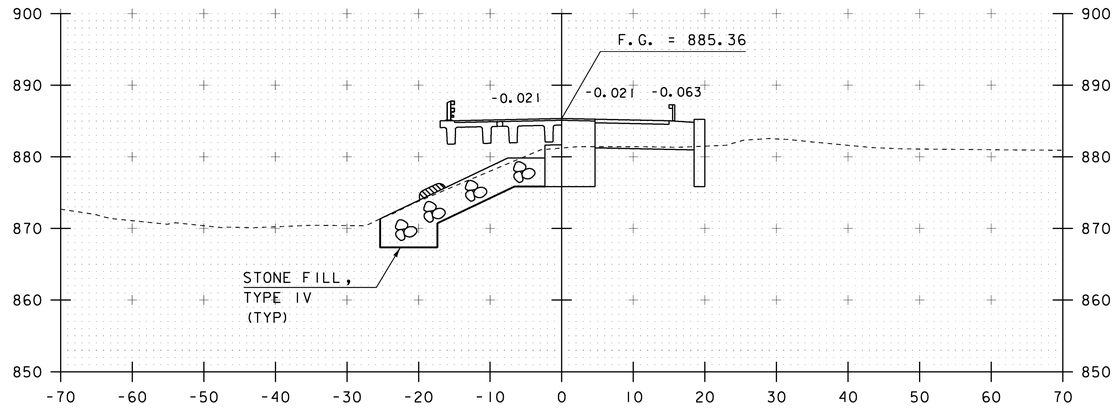


370+00
BEGIN PROJECT

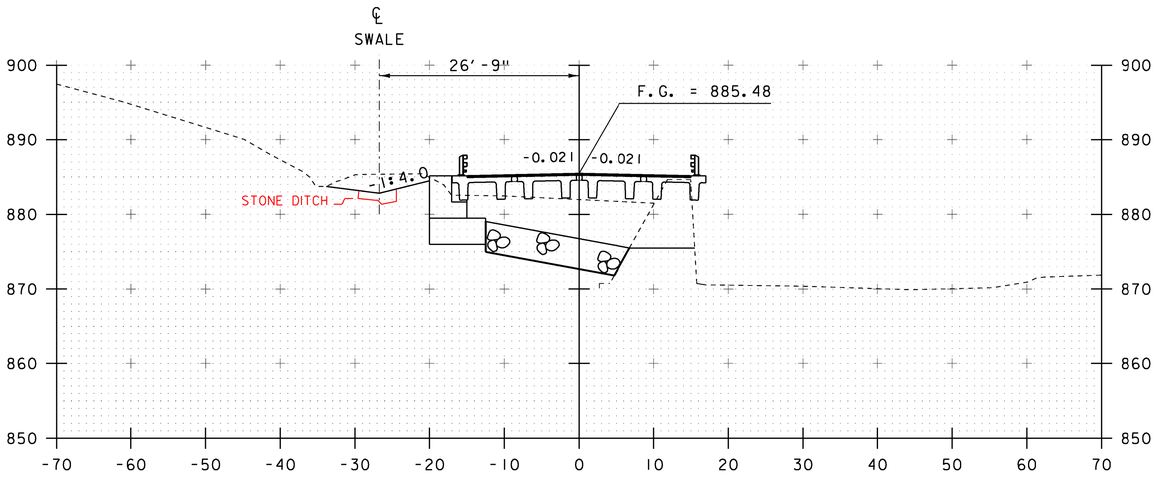


370+50
BEGIN BRIDGE STA 370+48.46

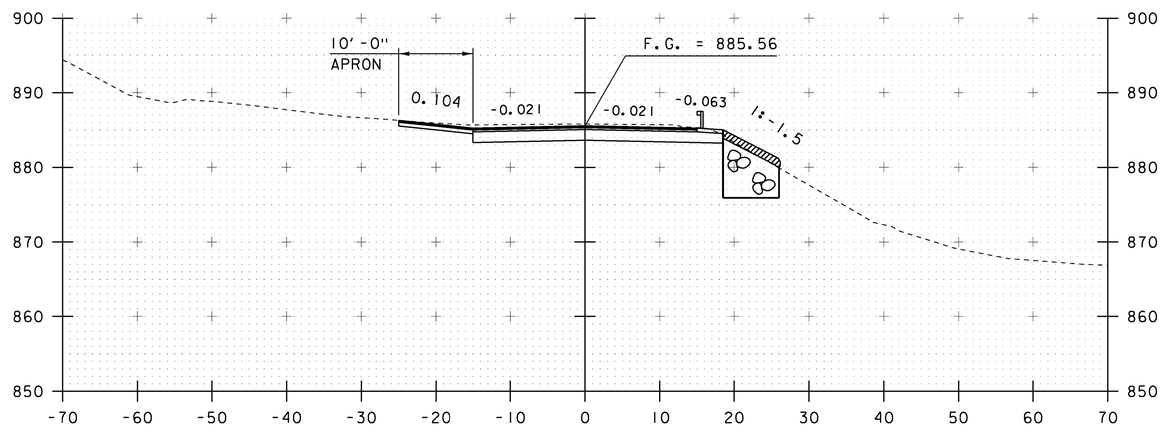
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)

FILE NAME: s10c410xsl.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
MAINLINE SECTIONS	SHEET 33 OF 39

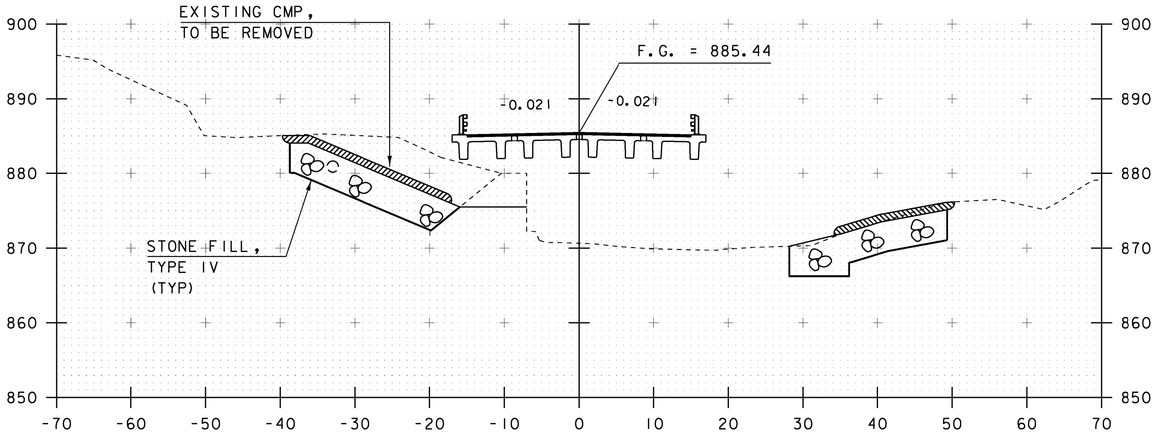
STA. 370+00 TO STA. 370+75



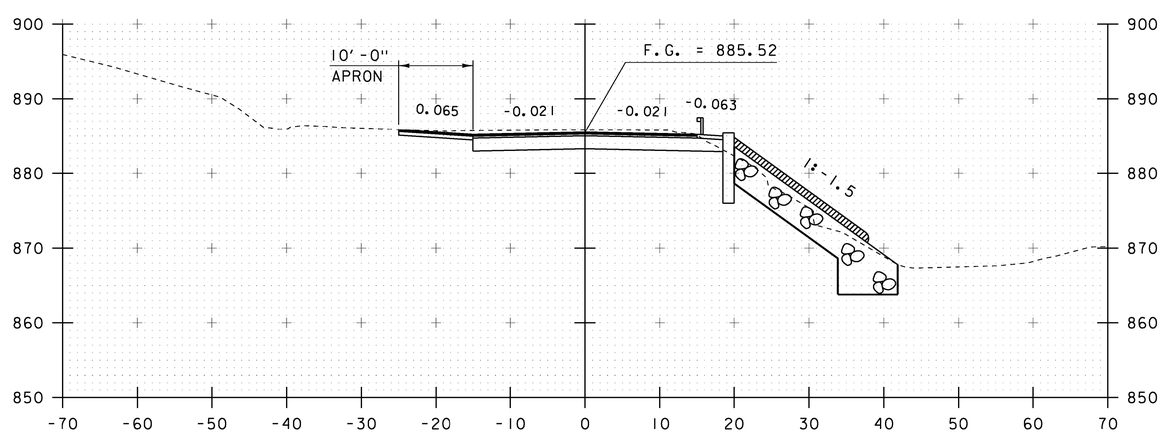
371+25



371+70



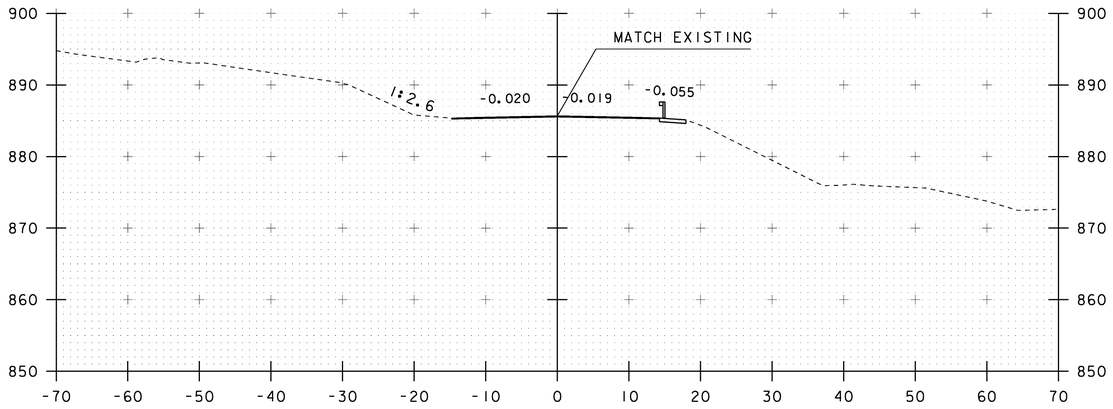
371+00



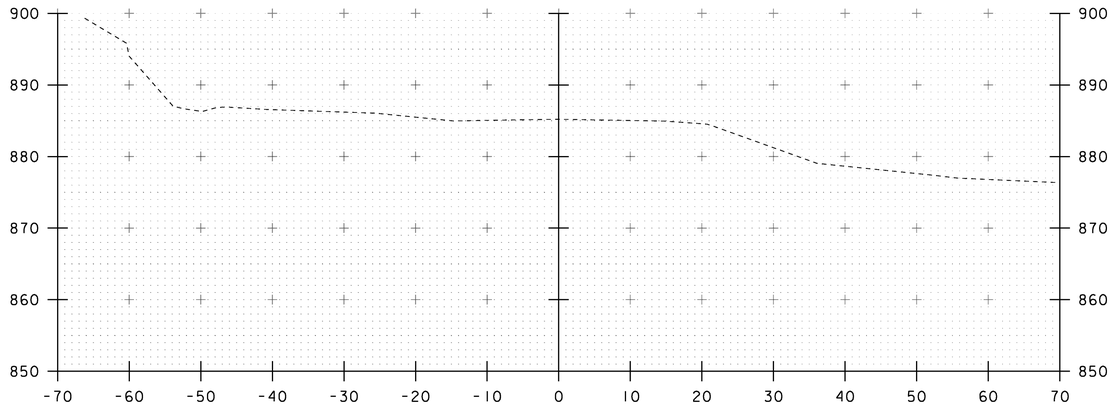
371+50
END BRIDGE STA 371+36.55

STA. 371+00 TO STA. 371+70

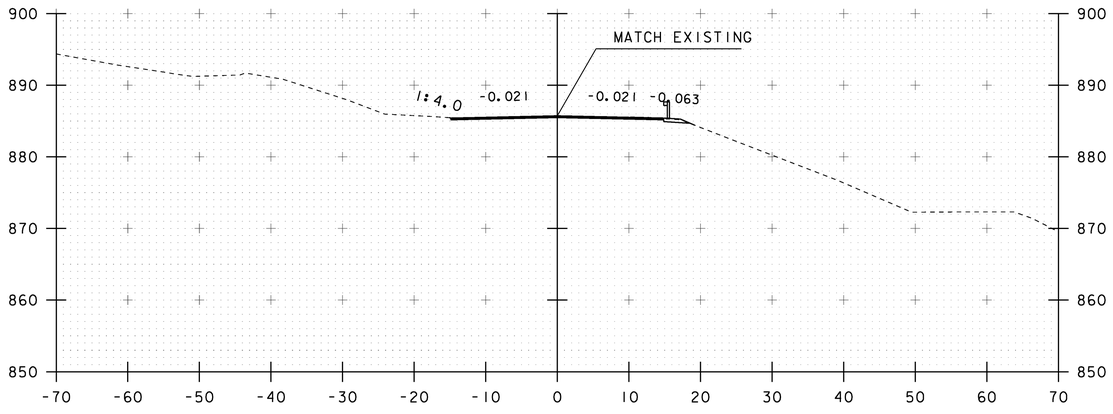
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410xsl.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
MAINLINE SECTIONS	SHEET 34 OF 39



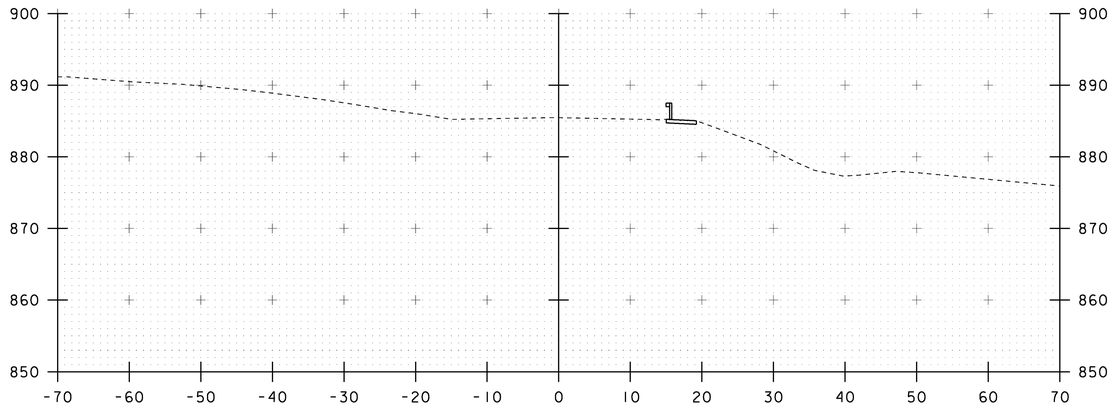
372+20



372+75
END APPROACH



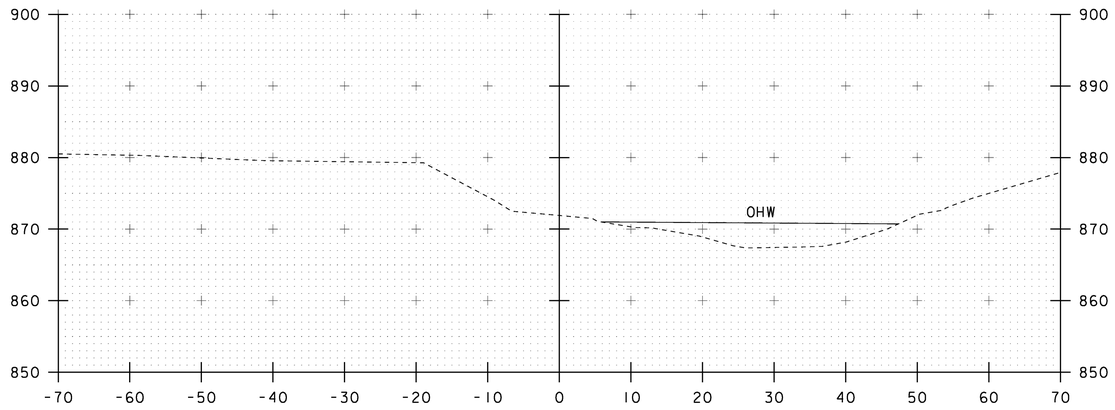
372+00
END PROJECT STA 371+85.00



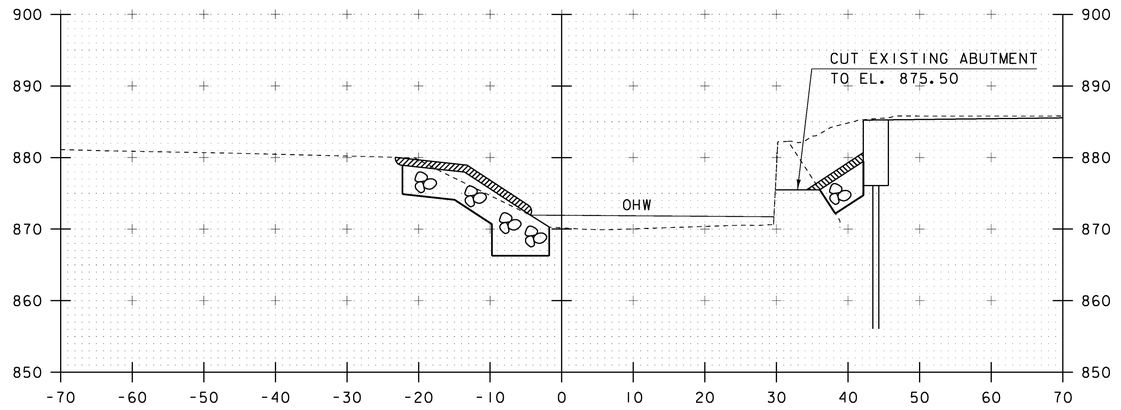
372+50
END PAVEMENT STA 372+35.00

STA. 372+00 TO STA. 372+75

PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410xsl.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J.GRIGAS
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
MAINLINE SECTIONS	SHEET 35 OF 39

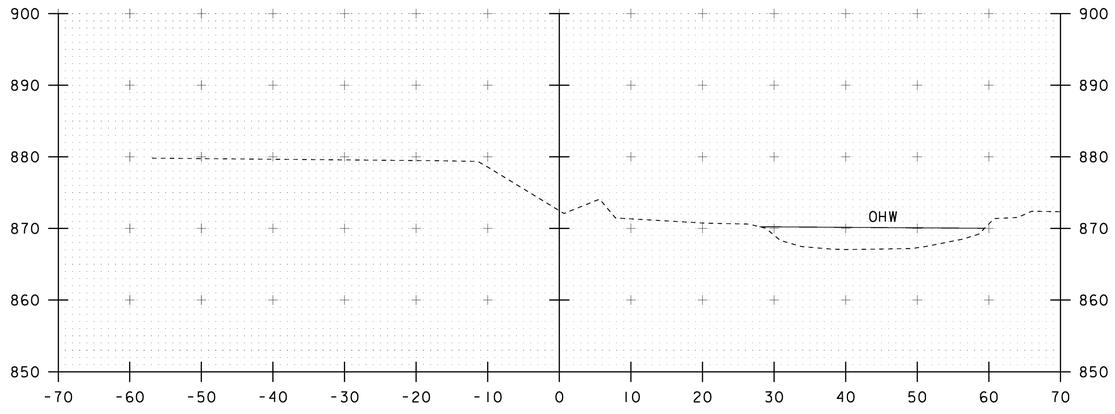


50+25



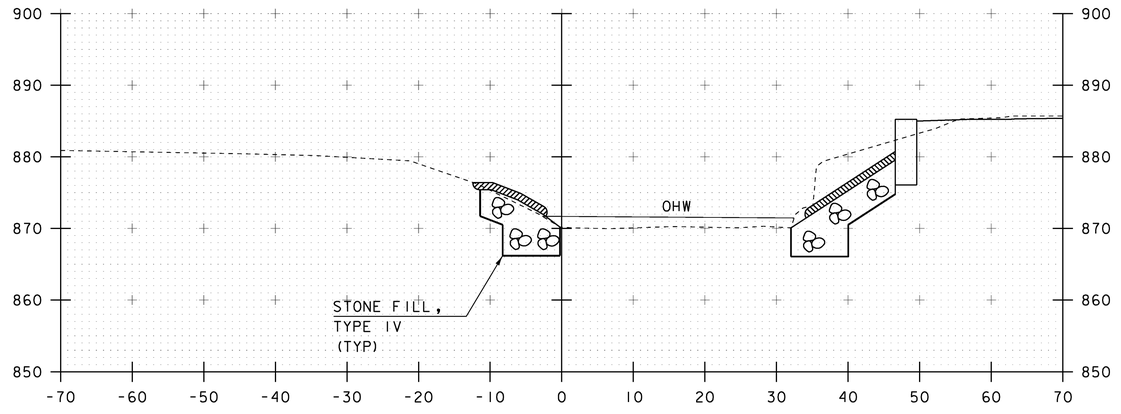
50+60

STA 50+67.50 RT (AB #2)
END GRUBBING MATERIAL



50+00

STA 50+50.00 LT (AB #1)
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONEFILL, TYPE IV
GRUBBING MATERIAL



50+50

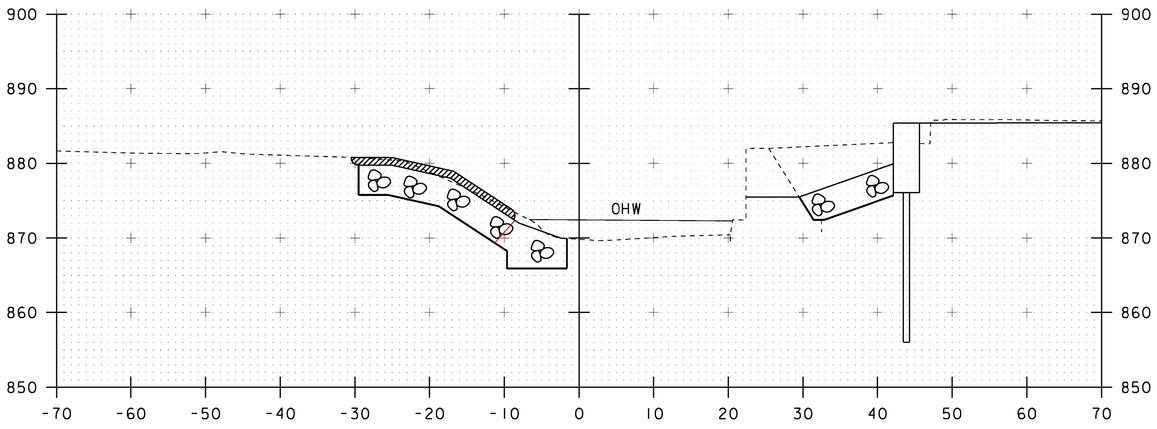
STA 50+31.30 RT (AB #2)
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONEFILL, TYPE IV
GRUBBING MATERIAL

STA. 50+00 TO STA. 50+60

PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

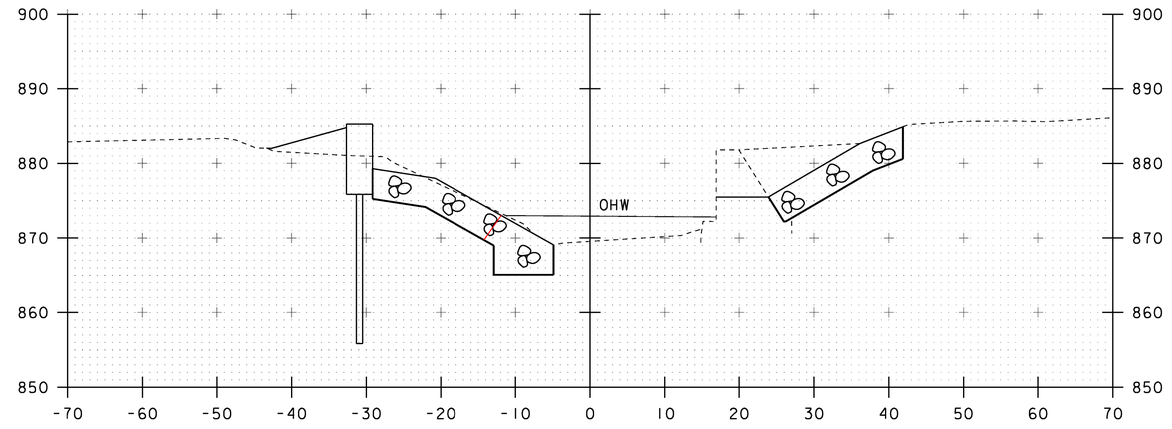
FILE NAME: s10c410xs1.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
CHANNEL SECTIONS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. GRIGAS
CHECKED BY: J. SALVATORI
SHEET 36 OF 39

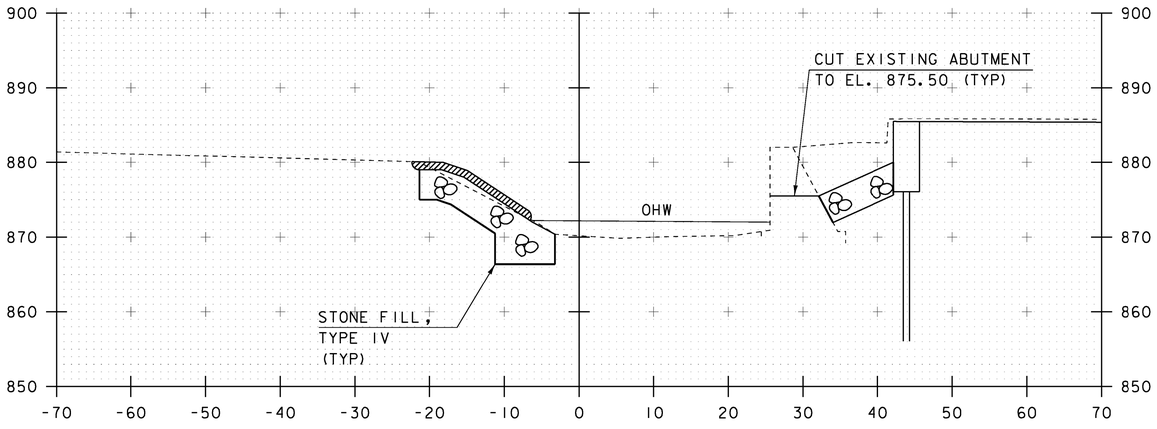


50+80

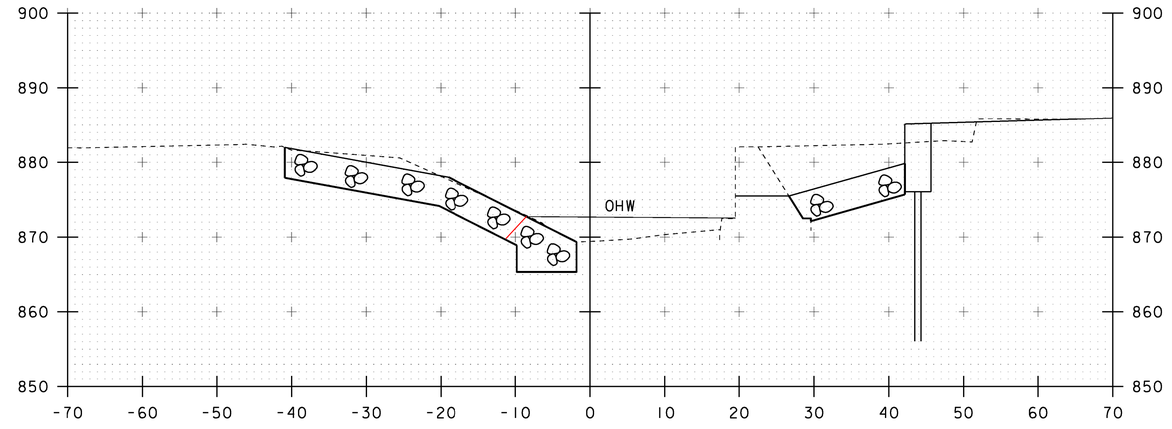
STA 50+80.00 LT (AB #1)
END GRUBBING MATERIAL
BEGIN CONCRETE NOT REMOVED AT TOE



51+00



50+70

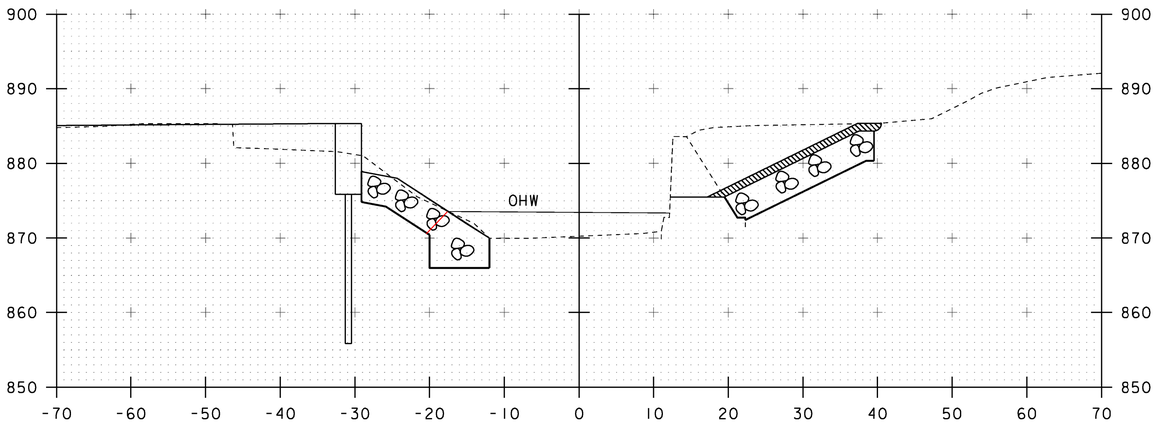


50+90

STA. 50+70 TO STA. 51+00

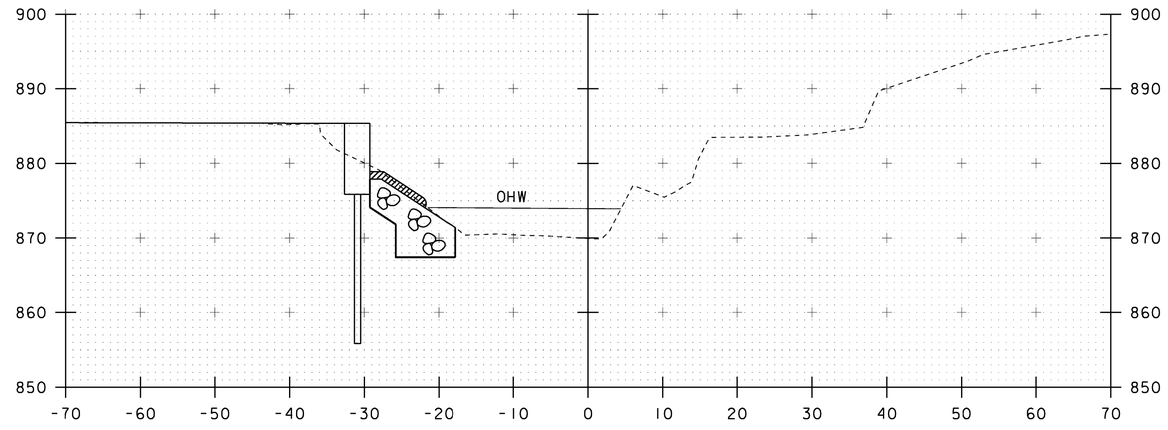
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)

FILE NAME: s10c410xsl.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
CHANNEL SECTIONS	SHEET 37 OF 39



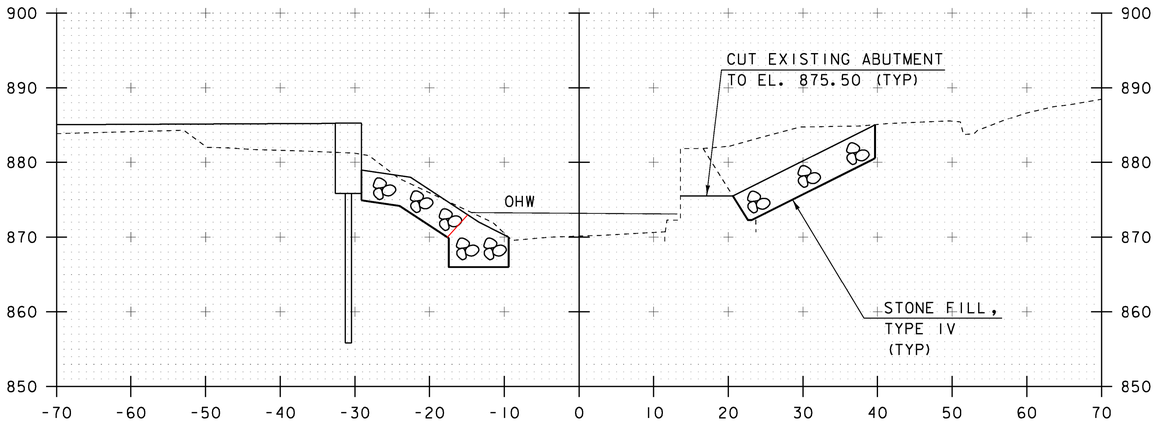
51+20

STA 51+20.00 RT (AB #2)
BEGIN GRUBBING MATERIAL

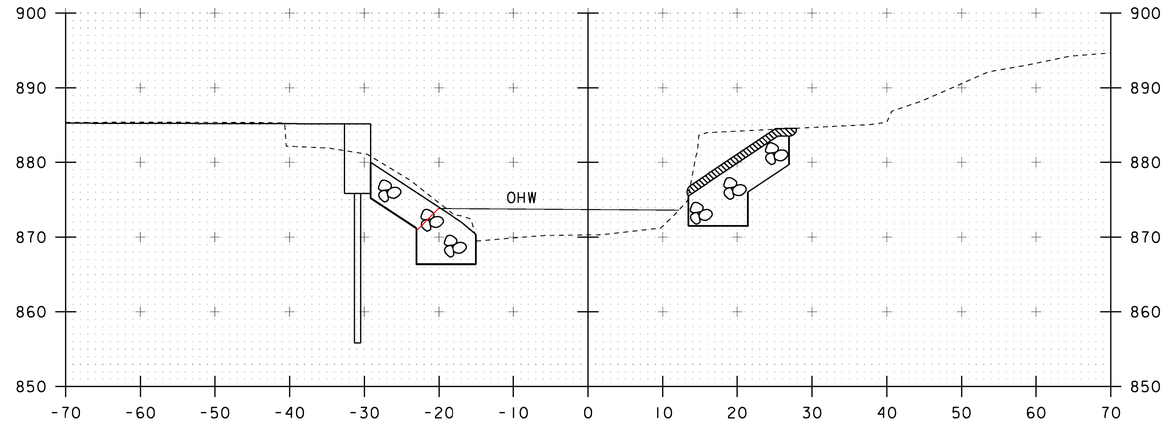


51+40

STA 51+36.00 LT (AB #1)
BEGIN GRUBBING MATERIAL
END CONCRETE NOT REMOVED AT TOE



51+10

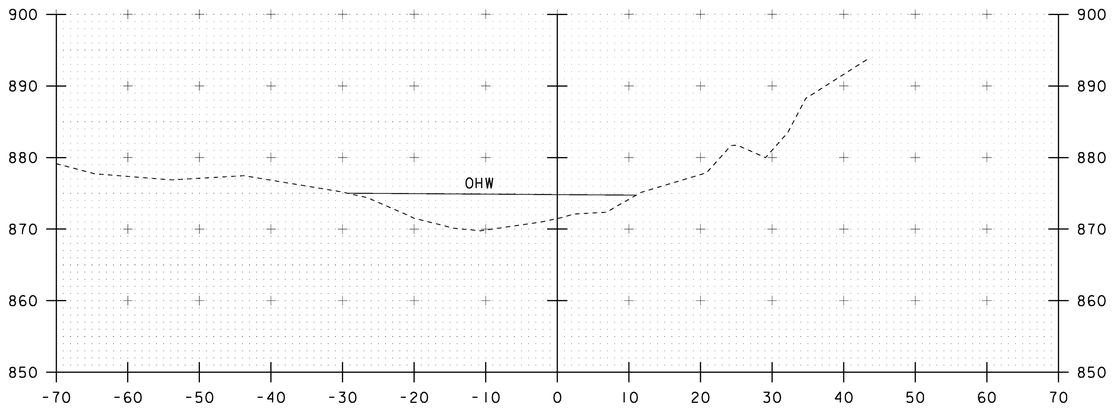


51+30

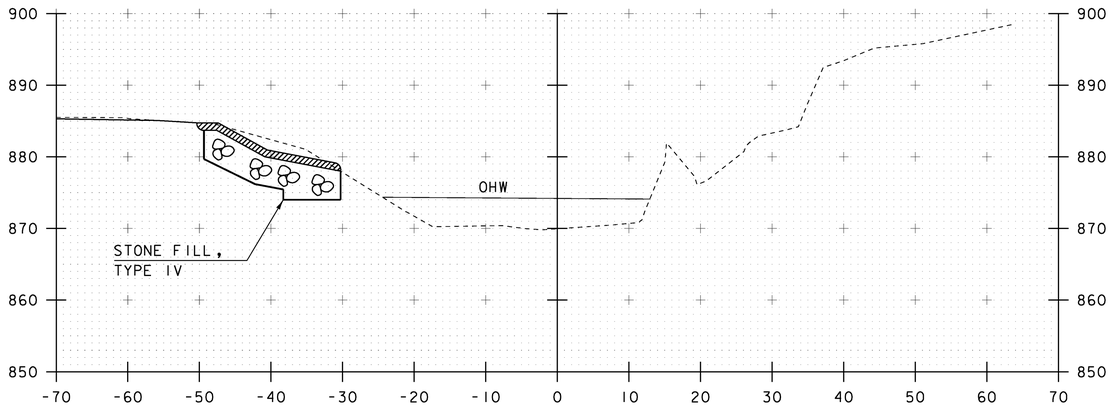
STA 51+30.00 RT (AB #2)
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONEFILL, TYPE IV
GRUBBING MATERIAL

STA. 51+10 TO STA. 51+40

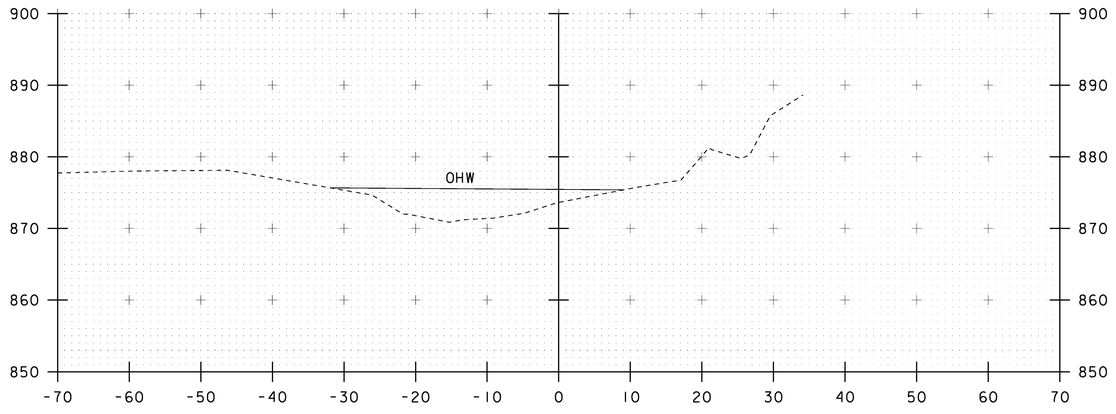
PROJECT NAME:	BARNARD
PROJECT NUMBER:	ER BRF 0241(39)
FILE NAME: s10c410xsl.dgn	PLOT DATE: 29-AUG-2013
PROJECT LEADER: K. HIGGINS	DRAWN BY: J. GRIGAS
DESIGNED BY: W. LAMMER	CHECKED BY: J. SALVATORI
CHANNEL SECTIONS	SHEET 38 OF 39



51+75



51+50



52+00

STA 51+50.00 LT (AB #1)
END UNCLASSIFIED CHANNEL EXCAVATION
GEOTEXTILE UNDER STONE FILL
STONEFILL, TYPE IV
GRUBBING MATERIAL

STA. 51+50 TO STA. 52+00

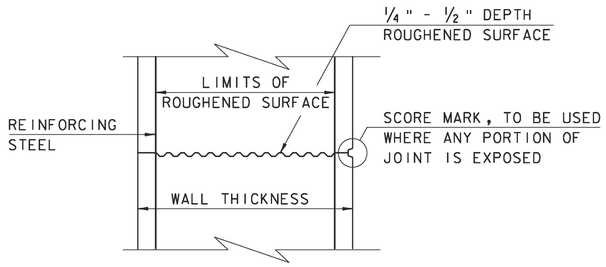
PROJECT NAME: BARNARD
PROJECT NUMBER: ER BRF 0241(39)

FILE NAME: s10c410xs1.dgn
PROJECT LEADER: K. HIGGINS
DESIGNED BY: W. LAMMER
CHANNEL SECTIONS

PLOT DATE: 29-AUG-2013
DRAWN BY: J. GRIGAS
CHECKED BY: J. SALVATORI
SHEET 39 OF 39

CONCRETE GENERAL NOTES

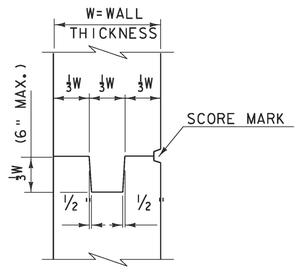
1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"



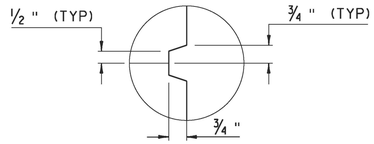
TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.

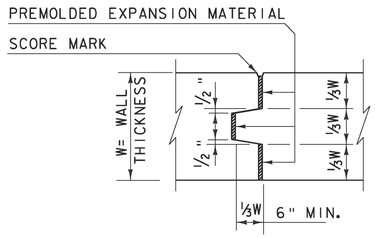
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



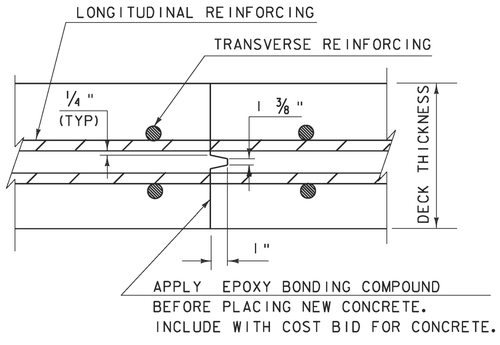
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



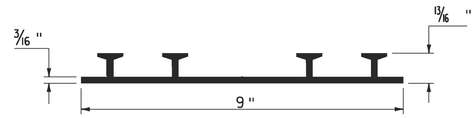
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



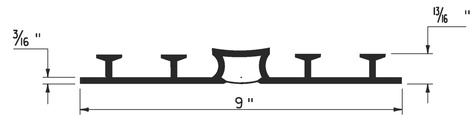
TRANSVERSE BRIDGE SLAB
CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR
CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

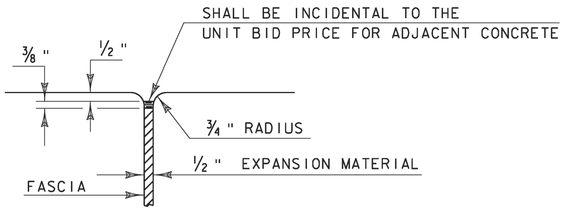
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR
EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



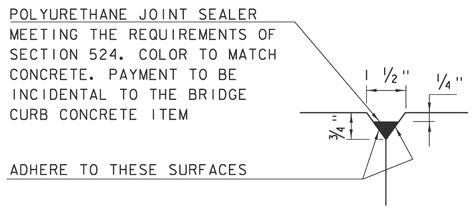
JOINT BETWEEN FASCIA
AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

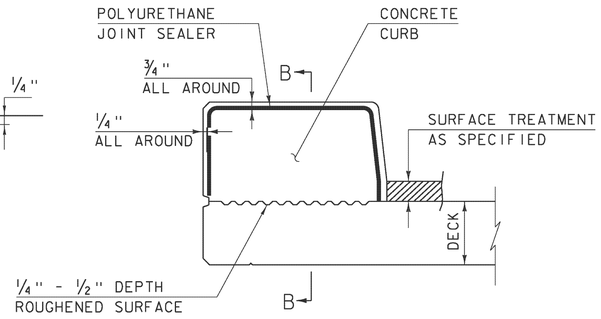
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

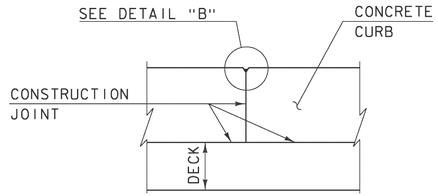
STRUCTURES DETAIL
SD-501.00



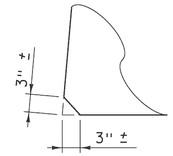
DETAIL "B"
(NOT TO SCALE)



CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

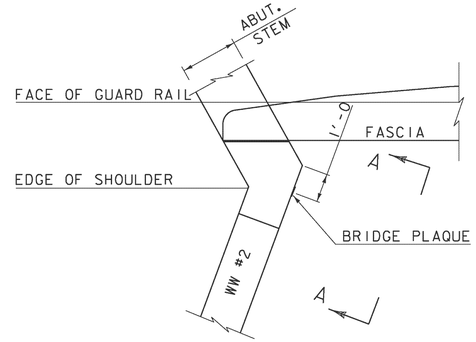


SECTION B - B
(NOT TO SCALE)



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



PLAN

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

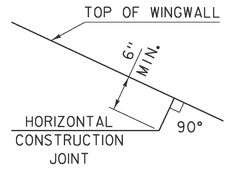
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

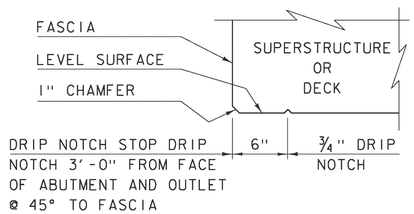
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

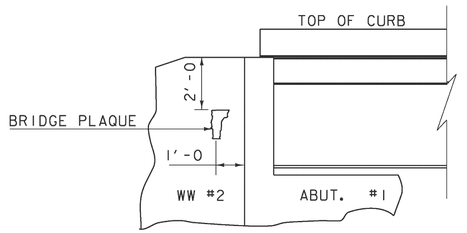
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

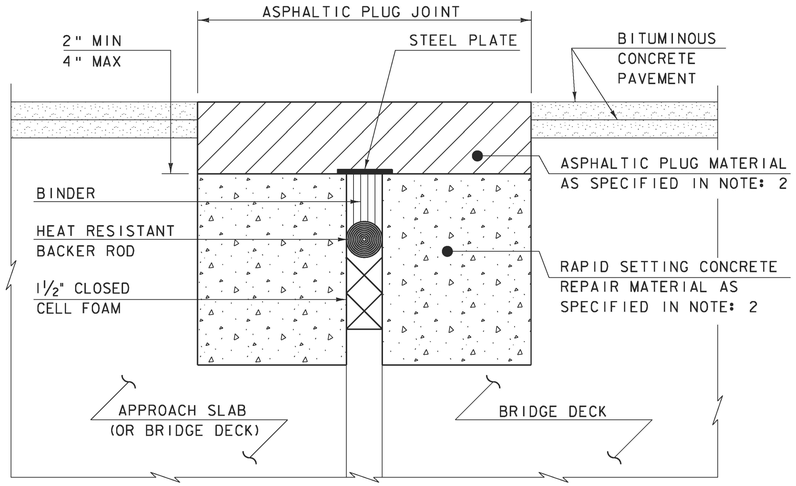
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG-TYPE JOINT DETAIL - REHAB

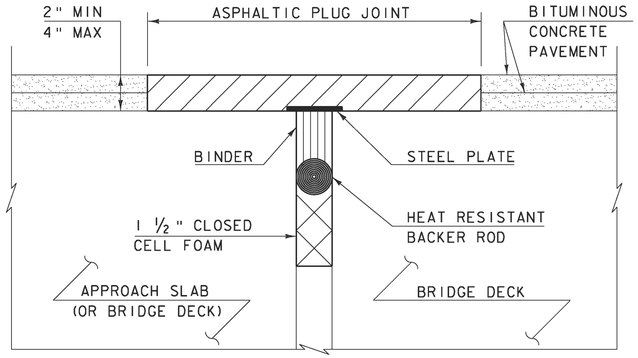
(NOT TO SCALE)

NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COURSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

3. REINFORCING STEEL NOT SHOWN FOR CLARITY.



ASPHALTIC PLUG-TYPE JOINT DETAIL - NEW

(NOT TO SCALE)

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. REPAIR MATERIAL GREATER THAN 4 INCHES FROM FINISHED GRADE WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.
5. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
6. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
7. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.
8. HEAT AND MIX THE BINDER MATERIAL AND AGGREGATE AS RECOMMENDED BY THE MANUFACTURER.
9. INSTALLATION OF MATERIAL, COMPACTION, AND TOP COATING SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
10. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.
11. ONCE THE JOINT REACHES 82 DEG C (180 DEG F) +/-, WATER MAY BE USED TO EXPEDITE THE COOLING PROCESS.
12. PROTECT JOINT FROM TRAFFIC UNTIL THE MATERIAL HAS COOLED TO 51 DEG C (125 DEG F) +/-.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION

BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10

GENERAL NOTES:

1. ALL BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731 OF THE VTAOT STANDARD SPECIFICATIONS.

2. MATERIAL:
   STEEL SHIMS – ASTM A709 GR.36 (GALV.)

   ELASTOMER: 50 DUROMETER GR. 4 NATURAL RUBBER WITH A SHEAR MODULUS OF 100PSI +/–15%

   STEEL LAMINAE: ASTM A36, A1011 GR. 36 OR EQUAL.

3. ALL DIMENSIONS ARE IN INCHES

4. VT.A.O.T. WILL BE NOTIFIED BY QC. (7) DAYS PRIOR TO THE START OF FABRICATION

5. COSMEC REPRESENTATIVE KERRY MARCHAND (508) 455–3290

Vermont Agency of Transportation
RECEIVED
Barnard ER BRF 0241 (39) - Bearing Shop Drawing Approval.pdf
CK'D BY WL OK'D BY JS
December 2, 2013
RESUBMIT NO Approved
BY KH DATE 12-3-2013

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
1					

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BARNARD COUNTY

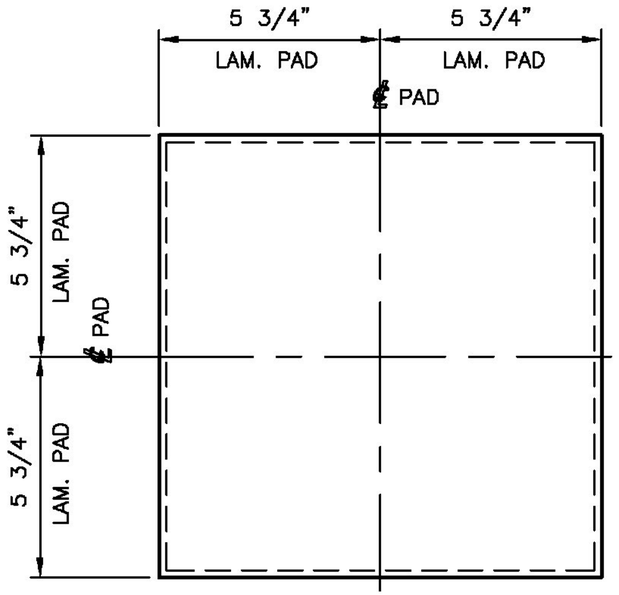
STATE	COUNTY	CONTROL NO.
VT	BARNARD	N/A

PROJ. NO.: ER BRF 0241 (39)

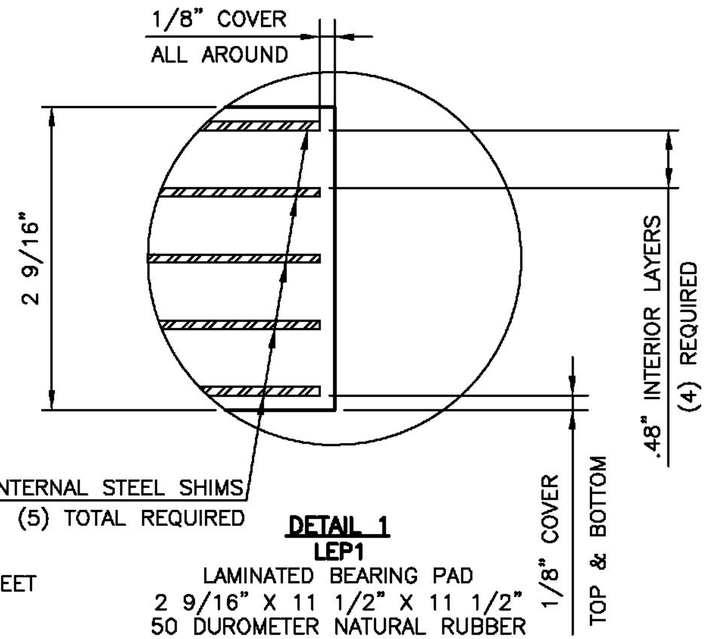
DYNAMIC RUBBER.:
LAM. ELASTOMERIC BEARING PADS

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE	DRAWN BY: SF DATE: 11/19/13	CHECKED BY: SL DATE: 11/25/13
SHEETGN10F 1	JOB NO.: 12256	
CUSTOMER: MILLER CONSTRUCTION INC	DRAWING NUMBER: 12256–GN1	REV. 0



PLAN VIEW

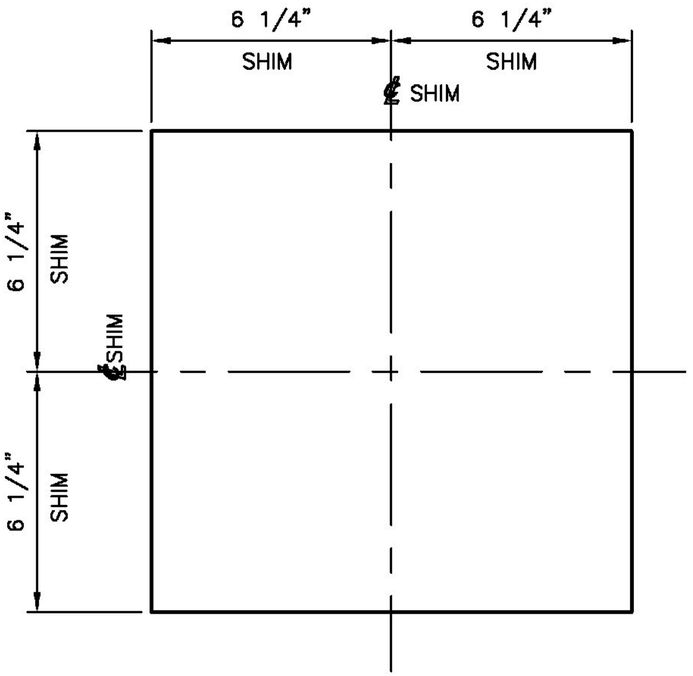


DETAIL 1

LEP1
LAMINATED BEARING PAD
2 9/16" X 11 1/2" X 11 1/2"
50 DUROMETER NATURAL RUBBER
WITH A SHEAR MODULUS OF
100PSI +/- 15%
(16) REQUIRED FOR STRUCTURE

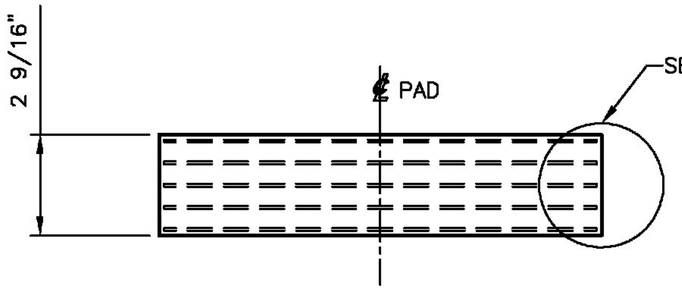
TEST PAD

LEP1
LAMINATED BEARING PAD
2 9/16" X 11 1/2" X 11 1/2"
50 DUROMETER NATURAL RUBBER
WITH A SHEAR MODULUS OF
100PSI +/- 15%
(2) REQUIRED FOR TESTING



STEEL SHIMS

1/4" X 12 1/2" 12 1/2"
ASTM A709 GR.36 (GALV.)
(24) REQUIRED FOR STRUCTURE



ELEVATION VIEW

LAMINATED ELASTOMERIC BEARING PAD
LEP1
(16) REQUIRED FOR STRUCTURE

DESIGN LOAD
TOTAL LOAD = 38.0 KIPS

APPROVER PLEASE PROVIDE
LOAD CRITERIA FOR TESTING

Vermont Agency of Transportation
RECEIVED
CK'D BY WL OK'D BY JS
December 2, 2013
RESUBMIT NO Approved AsNoted
BY KH DATE 12-3-2013

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
0					

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BARNARD COUNTY

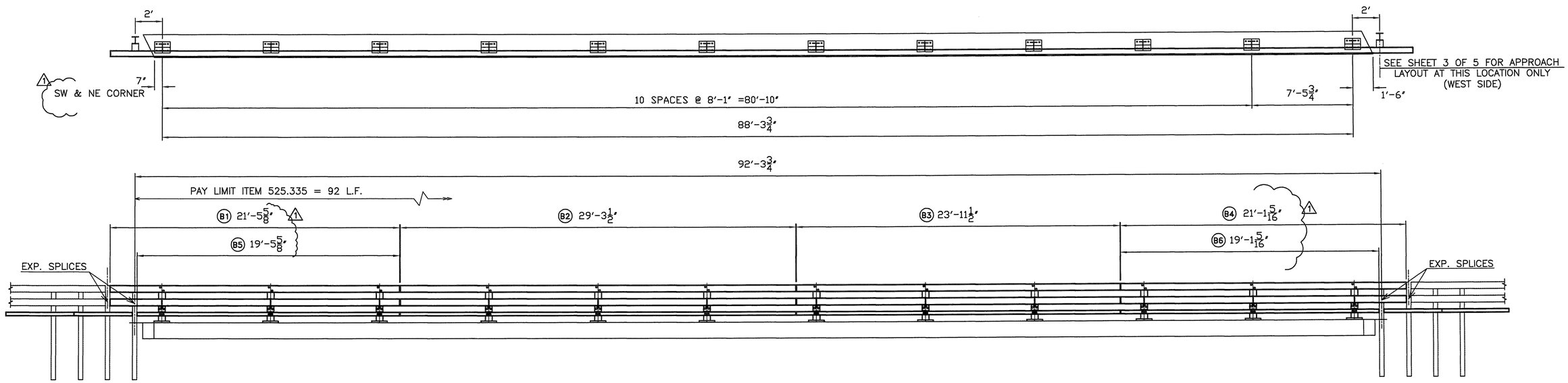
STATE	COUNTY	CONTROL NO.
VT	BARNARD	N/A

PROJ. NO.: ER BRF 0241 (39)

DYNAMIC RUBBER.:
LAM. ELASTOMERIC BEARING PADS

Cosmec
1501 ROCKY RIDGE ROAD
P.O. BOX 2159
ATHENS, TEXAS 75751

SCALE: NONE	DRAWN BY: SF DATE: 11/19/13	CHECKED BY: SL DATE: 11/25/13
SHEET 1 OF 1	JOB NO.: 12256	
CUSTOMER: MILLER CONSTRUCTION INC	DRAWING NUMBER: 12256-D1	REV. 0



BRIDGE NO. 25

WEST RAIL ELEVATION

LOOKING AT FACE OF RAIL FROM CENTER OF ROAD
EAST RAIL ELEVATION SIMILAR LOOKING FROM CENTER OF ROAD
ALL APPROACHES TYPICAL EXCEPT AT NW CORNER (SEE SHEET 3 OF 5)

BILL OF MATERIAL – BRIDGE NO. 25 (EAST & WEST SIDE)

Qty	mk	Description	Spec.	
24		PED POST W6x25 2'-9.000" OAH (GALV) w/ 1.250" x 10" x 14" B.P	A572 gr 50	
12		FIXED SPLICE TUBE (6x6) GALV TS 5x5x5/16 x 2'-3" OAL w/ (3) 1/4" fill plates	A500 gr B	
8		EXP SPLICE TUBE (6x6) GALV TS 5x5x5/16 x 3'-0" OAL w/ (3) 1/4" fill plates	A500 gr B	
6		FIXED SPLICE BAR (5x3) GALV 2.125 x 4.25 x 27.00"	A500 gr B	
4		EXPANSION SPLICE BAR (5x3) GALV 2.125 x 4.25 x 36.00	A500 gr B	2
24		BRIDGE RAIL SHELF ANGLE (GALV) L 5 x 5 x 5/8 x 6" LONG	A572 gr 50	
4	B1	TUBE 6 x 6 x 3/16 x 21 ft - 5.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B	
4	B2	TUBE 6 x 6 x 3/16 x 29 ft - 3.500 in LG (GALV) fixed splice both ends	A500 gr B	
4	B3	TUBE 6 x 6 x 3/16 x 23 ft - 11.500 in LG (GALV) fixed splice both ends	A500 gr B	
4	B4	TUBE 6 x 6 x 3/16 x 21 ft - 8.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B	
2	B5	TUBE 5 x 3 x 1/4 x 19 ft - 5.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B	
2	B2	TUBE 5 x 3 x 1/4 x 29 ft - 3.500 in LG (GALV) fixed splice both ends	A500 gr B	
2	B3	TUBE 5 x 3 x 1/4 x 23 ft - 11.500 in LG (GALV) fixed splice both ends	A500 gr B	
2	B6	TUBE 5 x 3 x 1/4 x 19 ft - 8.750 in LG (GALV) fixed splice 1 end, exp splice 1 end	A500 gr B	
3		LOWER FLAREBACK TUBE 5 x 3 x 1/4 x 9'-4" oal w/welded cap (GALV) mitered w/exp. slots 1 end	A500 gr B	
1		LOWER FLAREBACK TUBE 5 x 3 x 1/4 x 9'-4" oal w/welded cap (GALV) c&w + mitered w/exp. slots 1 end	A500 gr B	
24		ANCHOR PLATE (GALV) PL 3/8" x 10.000" x 14.000"	A36	
24		BEARING PAD 1/8" x 10.000" x 14.000" (80 durometer +/- 10 neoprene)	aashto M251	2
96		THREADED STUD (2 1/4" THREAD EACH SIDE) 1.000-08 x 13.000 HDG A449	A449	
192		NUT HEX HEAVY (2) HI-STRENGTH 1.000-08 GALV	A563 DH	
192		WASHER ROUND SMALL (2) F436 1.000 SAE GALV	F436	
96		JAM NUT (1) 1.000-08 GALV	A563 DH	
112		7/8 x 8 slotted head bolt w/ HN & LW SQW	A449	
24		3/4 x 8 hex bolt w/ HN & LW (A325)	A325	
48		3/4 x 2.5 hex bolt w/ HN & LW (A325)	A325	
40		3/4 x 4.5 hex bolt w/ HN & 2 FW (A325)	A325	
80		3/4 x 7.5 hex bolt w/ HN & 2 FW (A325)	A325	
8		RETROREFLECTIVE DELINEATOR with fastening hardware (provided by others)		2

1

ITEM 525.335 3 RAIL BOX BEAM BRIDGE RAILING(EAST & WEST) = 184 L.F.

No.	Remarks	Date
2	review corrections	01/23/14
1	revised per approver	12/23/13
0	initial submittal	12/5/13

REVISIONS

Vermont Agency of Transportation
RECEIVED
Barnard\BRBF 0241(39) Bridge Rail Approved 1-23-2014.pdf
CK'D BY JS OK'D BY WL
January 23, 2014
RESUBMIT NO Approved
BY KH DATE 1-23-2014

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

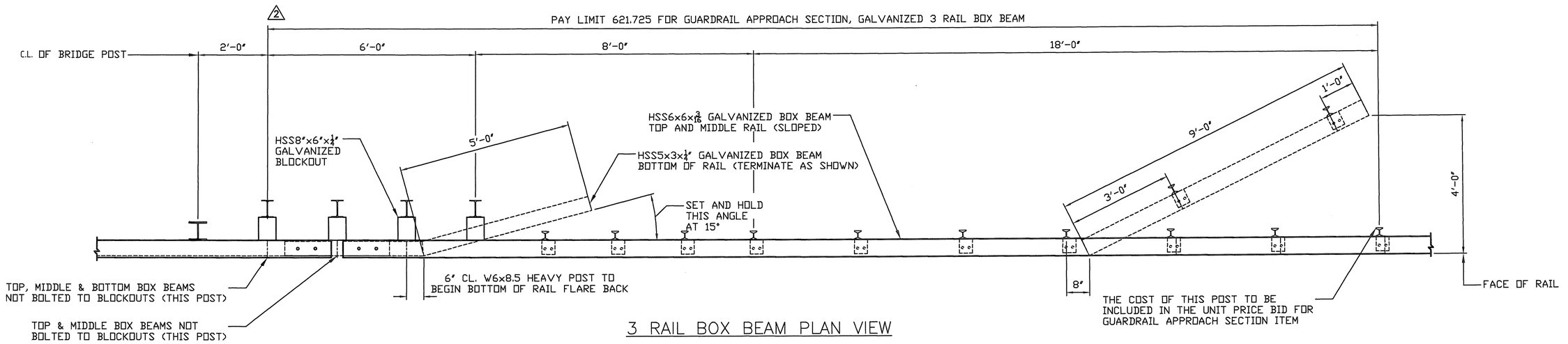
ITEM 525.335 3-RAIL BOX BEAM
TOWN OF BARNARD
COUNTY OF WINDSOR
VT ROUTE 12 – MAJOR COLLECTOR
BRIDGE NO. 25
PROJECT NO. ER BRF 0241(39)

AISC CERTIFIED FABRICATOR

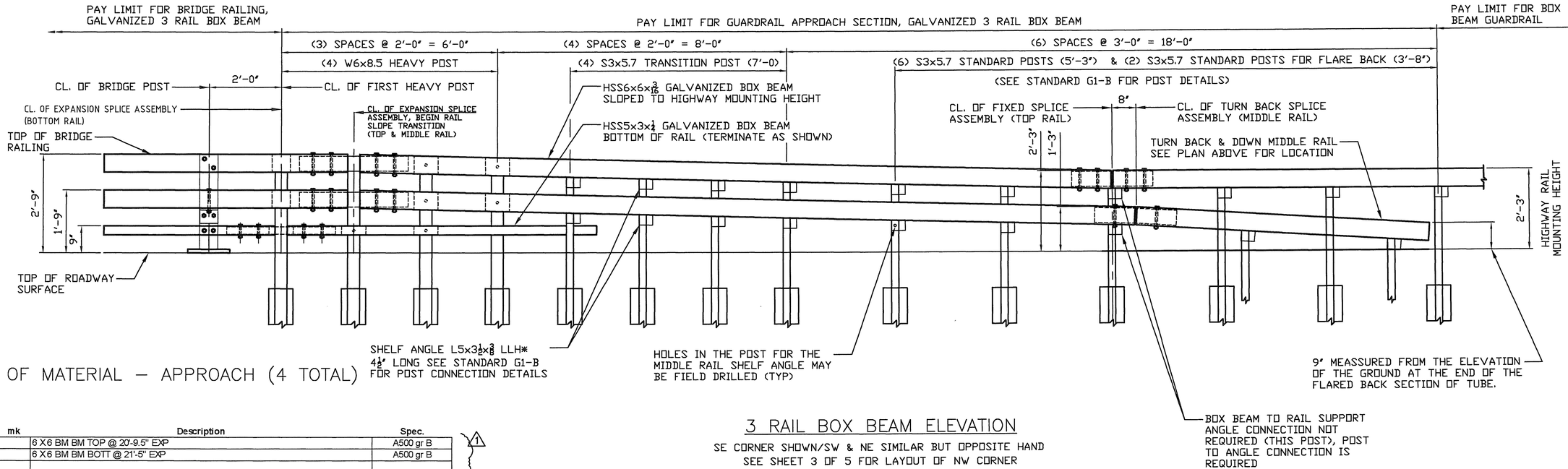
HSC JOB NO. 1966
SHEET NO. 1 of 5

GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
RWL		11-19-13	NONE	D



3 RAIL BOX BEAM PLAN VIEW



3 RAIL BOX BEAM ELEVATION

SE CORNER SHOWN/SW & NE SIMILAR BUT OPPOSITE HAND
SEE SHEET 3 OF 5 FOR LAYOUT OF NW CORNER

BILL OF MATERIAL – APPROACH (4 TOTAL)

Qty	mk	Description	Spec.
4		6 X 6 BM BM TOP @ 20'-9.5" EXP	A500 gr B
4		6 X 6 BM BM BOTT @ 21'-5" EXP	A500 gr B
16		W6 X 8.5 POST @ 7'-0" W/SPADE	A992/A709 GR.50
12		3" I POST @ 7'-0" W/2'-8" SPADE	A36
24		3" I POST @ 5'-3" W/SPADE STD	A36
8		3" I POST @ 3'-11" W/SPADE	A36
32		TUBE BLOCKOUT 6" X 8"-6" LONG	A500 gr B
8		TUBE BLOCKOUT 6" X 8'-3" LONG	A500 gr B
4		9' BX BM TRANS FLAREBACK END	A500 gr B
4		5 X 5 DOUBLE BEND SPLICE TUBE	A500 gr B
4		5 X 5 FIXED TUBE SPLICE 27"	A500 gr B
8		5 X 5 EXP TUBE SPLICE 36"	A500 gr B
68		BOX BEAM CLIP ANGLE STD	A36
4		BOX BEAM END ANGLE STD	A36
32		3/4 X 8 CARR BOLT - N FW LW (2 per heavy post)	A307
4		3/4 X 8 HEX BOLT - N 2FW (1 per 9'-0" flareback)	A307
72		1/2 X 1 1/2 HEX BOLT - N FW (1 per shelf / end angle)	A307
80		1/2 X 1 1/2 HEX BOLT - N 2FW LW (2 per tube block)	A307
72		3/8 X 7 1/2 HEX BOLT - N 2FW (1 per shelf angle)	A307
48		3/4 x 7 1/2 HEX BOLT W/ HN & 2 FW (A325) (4 per 6x6 splice)	A325
8		3/4 x 7 1/2 HEX BOLT W/HN & 2 FW & LW (A325) (2 per angled turnback splice)	A325
4		RETROREFLECTIVE DELINEATOR with fastening hardware (provided by others)	

1

2

ITEM 621.725 GUARDRAIL APPR. SECTION 3 RAIL = 4 EA.

Vermont Agency of Transportation
RECEIVED
Barnard BRF 1241(39) Bridge Rail Approved 1-23-2014.pdf
CK'D BY JS OK'D BY WL
January 23, 2014
RESUBMIT NO Approved
BY KH DATE 1-23-2014

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

ITEM 621.725 APPROACH SECTION
TOWN OF BARNARD
COUNTY OF WINDSOR
VT ROUTE 12 – MAJOR COLLECTOR
BRIDGE NO. 25
PROJECT NO. ER BRF 0241(39)

CERTIFIED FABRICATOR

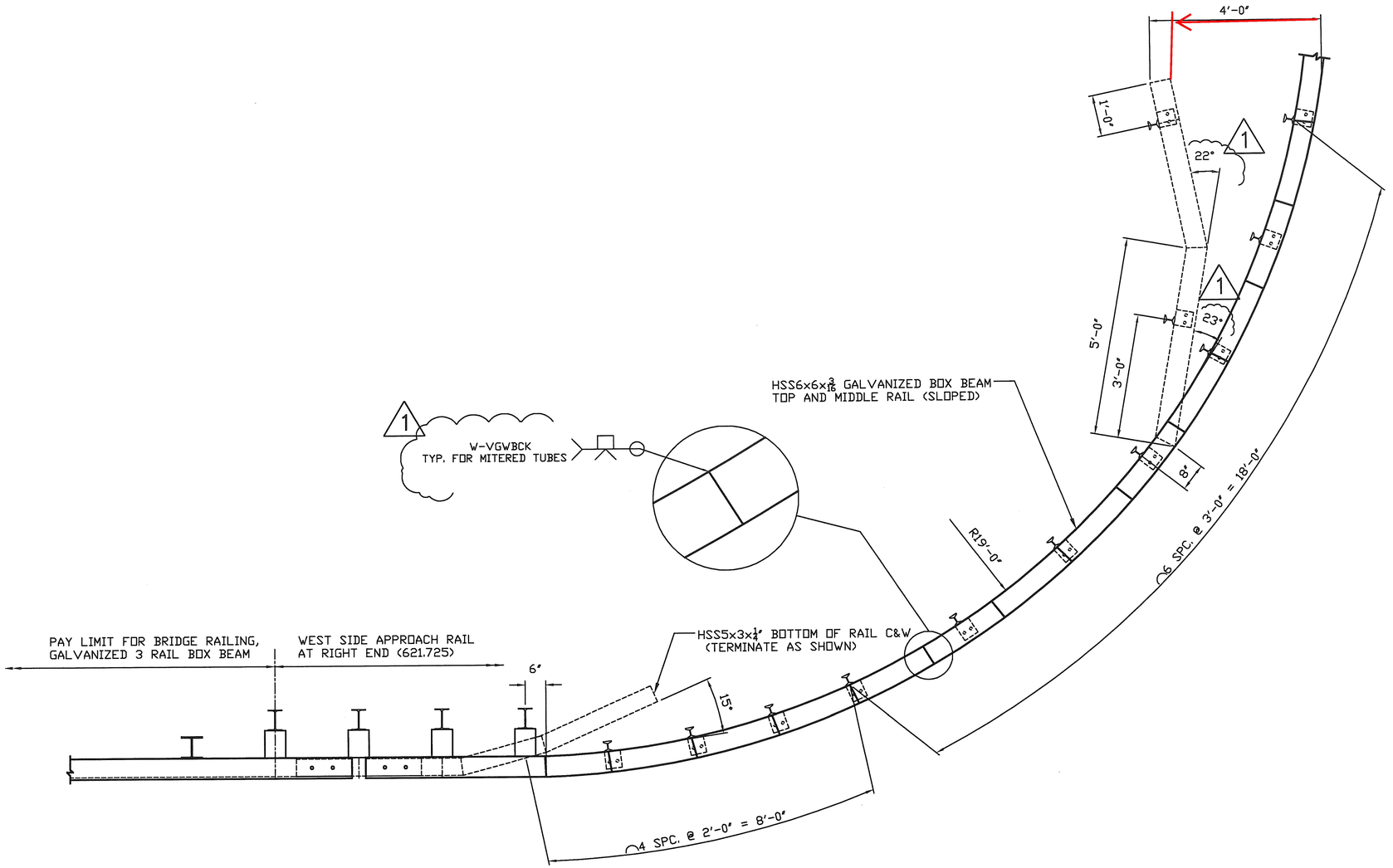
HSC JOB NO. 1966

SHEET NO. 2 of 5

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
RWL		11-20-13	NONE	D



3 RAIL BOX BEAM PLAN

WEST SIDE APPROACH ONLY (1 LOCATION– NW CORNER)

SEE SHEET 2 OF 4 FOR ADDITIONAL INFORMATION

Vermont Agency of Transportation

RECEIVED

Barnard ER BRF 0241(39) Bridge Rail Approved 1-23-2014.pdf

CK'D BY JS OK'D BY WL

January 23, 2014

RESUBMIT NO Approved AsNoted

BY KH DATE 1-23-2014

HIGHWAY SAFETY CORP

GLASTONBURY, CT

860-633-9445

ITEM 621.725 APPROACH SECTION
TOWN OF BARNARD
COUNTY OF WINDSOR
VT ROUTE 12 – MAJOR COLLECTOR
BRIDGE NO. 25
PROJECT NO. ER BRF 0241(39)

AISC CERTIFIED FABRICATOR

HSC JOB NO. 1966

SHEET NO. 3 of 5

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
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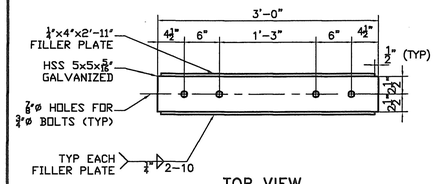
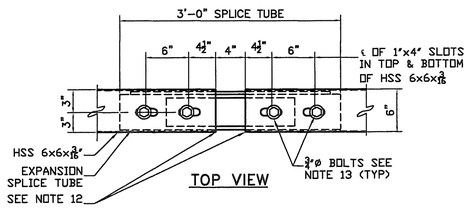
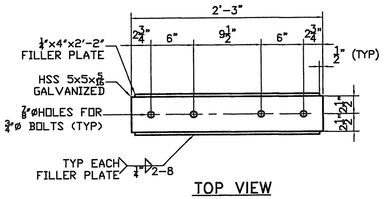


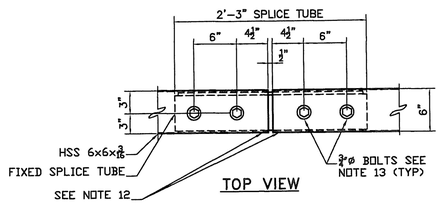
TOP VIEW



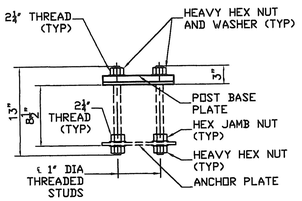
TOP VIEW



TOP VIEW

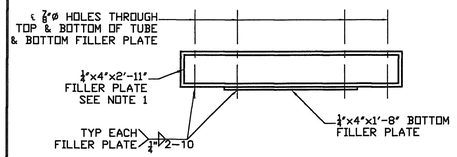


TOP VIEW



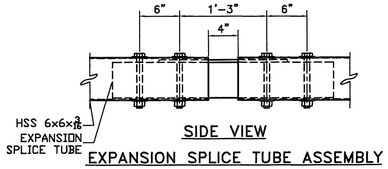
SIDE VIEW

RAILING POST ANCHORAGE



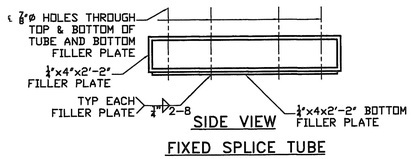
SIDE VIEW

EXPANSION SPLICE TUBE



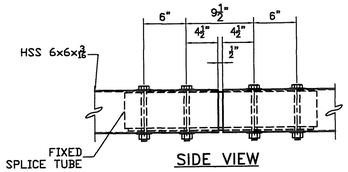
SIDE VIEW

EXPANSION SPLICE TUBE ASSEMBLY



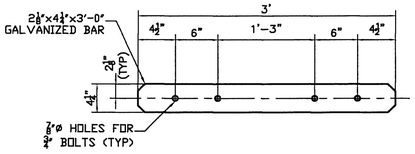
SIDE VIEW

FIXED SPLICE TUBE

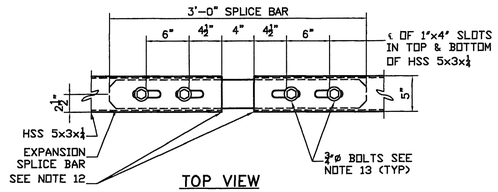


SIDE VIEW

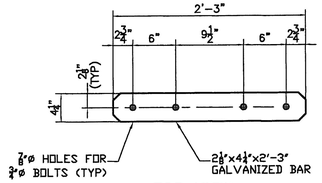
FIXED SPLICE ASSEMBLY



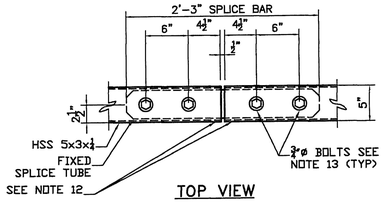
TOP VIEW



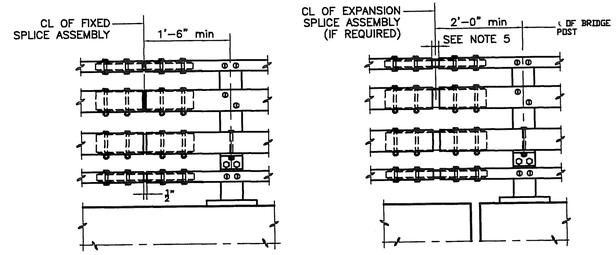
TOP VIEW



TOP VIEW



TOP VIEW

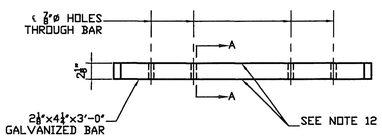


FIXED SPLICE

EXPANSION SPLICE

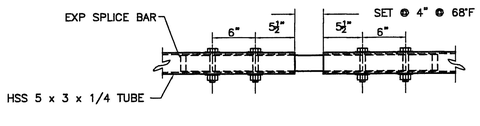
RAILING SPLICE DETAIL ELEVATION

A RAILING EXPANSION SPLICE IS REQUIRED IN ANY POST SPACING THAT CONTAINS A SUPERSTRUCTURE EXPANSION JOINT.



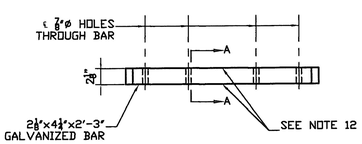
SIDE VIEW

EXPANSION SPLICE BAR



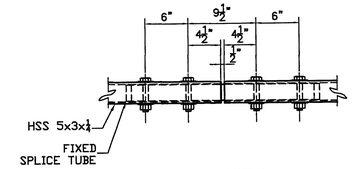
SIDE VIEW

EXPANSION SPLICE ASSEMBLY



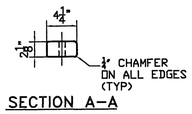
SIDE VIEW

FIXED SPLICE BAR



SIDE VIEW

FIXED SPLICE ASSEMBLY



SECTION A-A

NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TOA MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE. THE MAXIMUM CENTER TO CENTER SPACING OF BRIDGE RAIL POSTS IS 8'-3".
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POST AND PREFERABLY TO AT LEAST 4 POSTS.
5. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" @ 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
6. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
8. SEE STANDARD DRAWING G-1B FOR DETAILS OF DELINEARTORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING FOR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON TEH DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
9. ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT ACCORDING TOA PROCEDURE PROVIDED BY THE FABRICATOR.
10. THE MIMIMUM DISTANCE FROM THE POST TO AN EXPANSION JOINT SHALL BE DETERMINED BY THE MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHORS STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
11. THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

NOTES:

12. PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
13. FOUR (4) ¾" DIAMETER BOLTS, 7½" LONG WITH TWO (2) WASHERS AND HEAVY HEX NUT ON EACH BOLT. NUT TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT TO BE BURRED TO PREVENT DISLODGING. FOUR (4) BOLTS AT EACH SPLICE.

Vermont Agency of Transportation

RECEIVED

Barnard ER(BRF 0241(39). Bridge Rail Approved 1-23-2014.pdf

CK'D BY JS OK'D BY WL

January 23, 2014

RESUBMIT NO Approved

BY KH DATE 1-23-2014

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

BRIDGE RAIL DETAILS 525.335 & 621.725
TOWN OF BARNARD, COUNTY OF WINDSOR
VT ROUTE 12 - MAJOR COLLECTOR
BRIDGE NO. 25
PROJECT NO. ER BRF 0241(39)

AISC CERTIFIED FABRICATOR

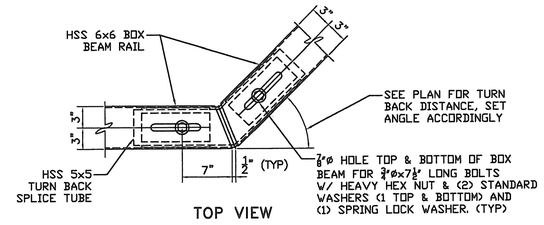
HSC JOB NO. 1966

SHEET NO. 4 of 5

GENERAL CONTRACTOR

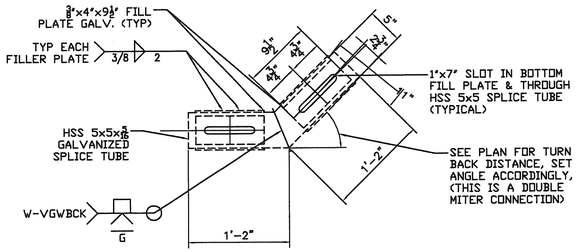
SUB CONTRACTOR LAFAYETTE

DRAWN	CHECKED	DATE	SCALE	SIZE
RWL		11/20/13	NONE	D

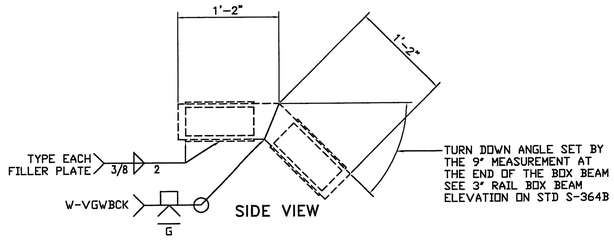


TOP VIEW

TURN BACK SPLICE TUBE ASSEMBLY



TOP VIEW

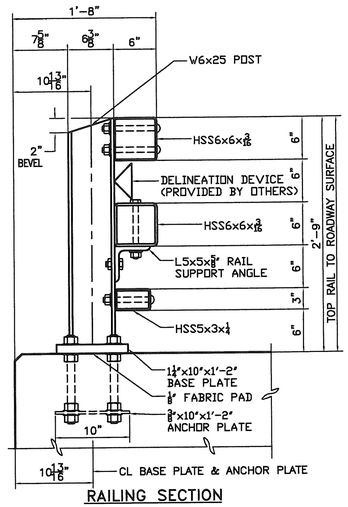


TURN BACK SPLICE TUBE DETAIL

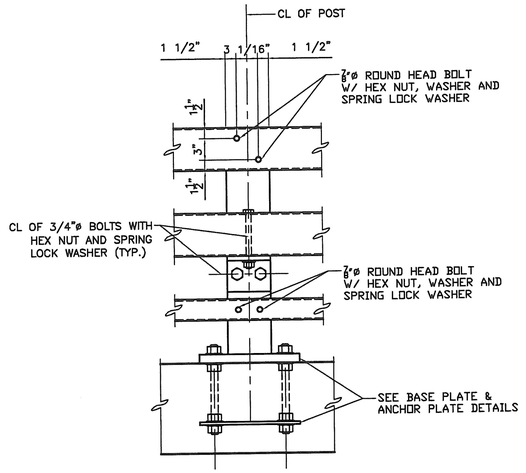
TURN BACK & TURN TUBE JOINT

RAILING ANGLE DETAIL

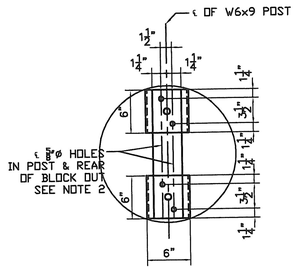
L 5 x 5 x 5/8

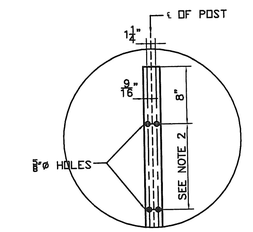


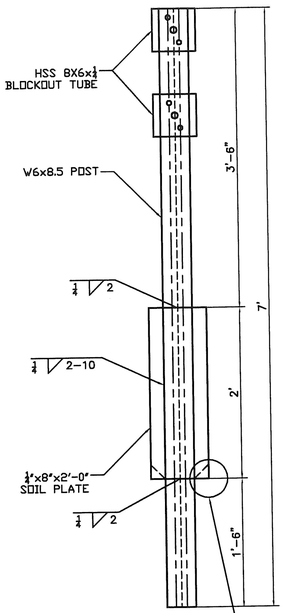
RAILING SECTION



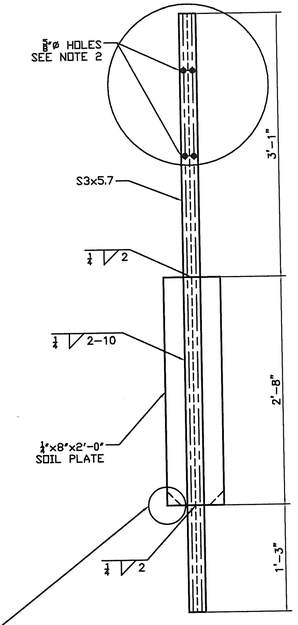
RAILING ELEVATION



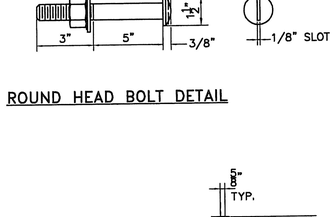




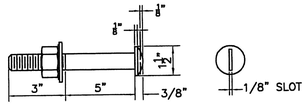
HEAVY POST DETAIL



TRANSITION POST DETAIL 7'-0"



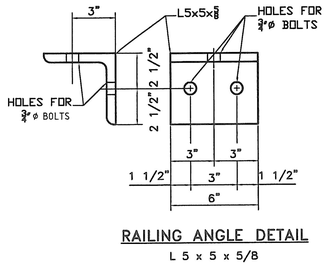
BASE PLATE DETAIL



ROUND HEAD BOLT DETAIL

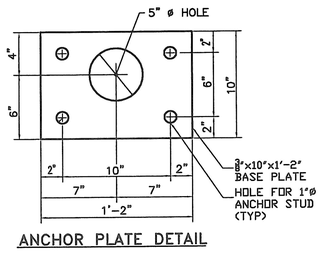
TURN BACK SPLICE TUBE DETAIL

TURN BACK & TURN TUBE JOINT

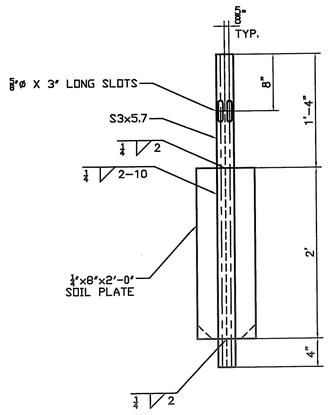


RAILING ANGLE DETAIL

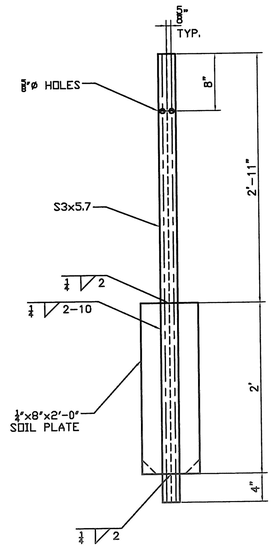
L 5 x 5 x 5/8



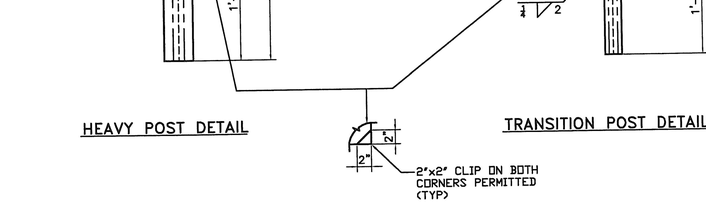
ANCHOR PLATE DETAIL



TRANSITION POST DETAIL 3'-8"



TRANSITION POST DETAIL 5'-3"



SEE ALL NOTES ON SHEET 4 OF 5 FOR ADDITONAL INFORMATION

Vermont Agency of Transportation

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Bernard ERBRF 0241(39) Bridge Rail Approved 1-23-2014.pdf

CK'D BY JS OK'D BY WL

January 23, 2014

RESUBMIT NO Approved

BY KH DATE 1-23-2014

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

BRIDGE RAIL DETAILS 525.335 & 621.725
TOWN OF BARNARD, COUNTY OF WINDSOR
VT ROUTE 12 – MAJOR COLLECTOR
BRIDGE NO. 25
PROJECT NO. ER BRF 0241(39)

AISC CERTIFIED FABRICATOR

HSC JOB NO. 1966

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

SHEET NO. 5 of 5

DRAWN	CHECKED	DATE	SCALE	SIZE
RWL		11/20/13	NONE	D

WELDING PROCEDURE SPECIFICATION (WPS) Yes ■
PREQUALIFIED _____ QUALIFIED BY TESTING _____
or PROCEDURE QUALIFICATION RECORDS (PQR) Yes ☐

Identification # 1
Revision 0 Date 1/20/14 By J. Ouelette
Authorized by P. Holloway Date 1/20/14
Type—Manual ☐ Semiautomatic ☐
Mechanized ☐ Automatic ☐

Company Name Miller Construction, Inc.
Welding Process(es) SMAW
Supporting PQR No.(s) N/A

JOINT DESIGN USED
Type:
Single ■ Double Weld ☐
Backing: Yes ☐ No ■
Backing Material:
Root Opening _____ Root Face Dimension _____
Groove Angle: 45 Radius (J–U) _____
Back Gouging: Yes ☐ No ■ Method _____

BASE METALS
Material Spec. HP 12 X 74
Type or Grade GR 50
Thickness: Groove 0.68 Fillet 0.75
Diameter (Pipe) _____

FILLER METALS
AWS Specification A5.5
AWS Classification E7018

SHIELDING
Flux X Gas _____
Composition _____
Electrode-Flux (Class) _____ Flow Rate _____
_____ Gas Cup Size _____

PREHEAT
Preheat Temp., Min. 70 F
Interpass Temp., Min. N/A Max. N/A

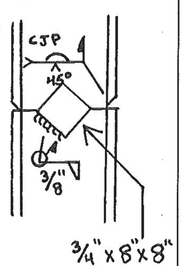
POSITION
Position of Groove: 2G Fillet: 1,2,3,4F
Vertical Progression: Up ■ Down ☐

ELECTRICAL CHARACTERISTICS
E7018
Transfer Mode (GMAW) Short-Circuiting ☐
Globular ☐ Spray ☐
Current: AC ☐ DCEP ■ DCEN ☐ Pulsed ☐
Power Source: CC ☐ CV ☐
Other _____
Tungsten Electrode (GTAW)
Size: N/A
Type: _____

TECHNIQUE
Stringer or Weave Bead: Stringer
Multi-pass or Single Pass (per side) Multi-Pass
Number of Electrodes _____
Electrode Spacing Longitudinal _____
Lateral _____
Angle _____
Contact Tube to Work Distance _____
Peening _____
Interpass Cleaning: _____

POSTWELD HEAT TREATMENT
Temp. N/A
Time _____

WELDING PROCEDURE

Pass or Weld Layer(s)	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diam.	Type & Polarity	Amps or Wire Feed Speed			
3 Layers	SMAW	E7018	1/8	DC	132	22/26	As Req.	

Vermont Agency of Transportation
RECEIVED
Revised EPI RFP 02(439) - File link Submitted 2-24-2014_revised.pdf
CK'D BY _____ OK'D BY JWC
February 24, 2014
RESUBMIT NO Approved _____
BY KMH DATE 2-26-2014

WELDING PROCEDURE SPECIFICATION (WPS) Yes ■
PREQUALIFIED _____ QUALIFIED BY TESTING _____
or PROCEDURE QUALIFICATION RECORDS (PQR) Yes ☐

Identification # 2
Revision 0 Date 1/20/14 By J. Ouelette
Authorized by P. Holloway Date 1/20/14
Type—Manual ☐ Semiautomatic ☐
Mechanized ☐ Automatic ☐

Company Name Miller Construction, Inc.
Welding Process(es) SMAW
Supporting PQR No.(s) N/A

JOINT DESIGN USED
Type:
Single ■ Double Weld ☐
Backing: Yes ☐ No ■
Backing Material:
Root Opening _____ Root Face Dimension _____
Groove Angle: _____ Radius (J–U) _____
Back Gouging: Yes ☐ No ■ Method _____

BASE METALS
Material Spec. HP 12 X 74
Type or Grade GR 50
Thickness: Groove 0.68 Fillet 0.75
Diameter (Pipe) _____

FILLER METALS
AWS Specification A5.5
AWS Classification E7018

SHIELDING
Flux X Gas _____
Composition _____
Electrode-Flux (Class) _____ Flow Rate _____
Gas Cup Size _____

PREHEAT
Preheat Temp., Min. 70 F
Interpass Temp., Min. N/A Max. N/A

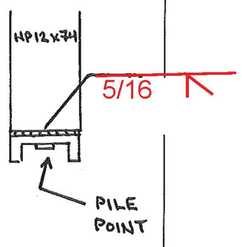
POSITION
Position of Groove: 2G Fillet: _____
Vertical Progression: Up ☐ Down ☐

ELECTRICAL CHARACTERISTICS
Transfer Mode (GMAW) E7018 Short-Circuiting ☐
Globular ☐ Spray ☐
Current: AC ☐ DCEP ■ DCEN ☐ Pulsed ☐
Power Source: CC ☐ CV ☐
Other _____
Tungsten Electrode (GTAW)
Size: N/A
Type: _____

TECHNIQUE
Stringer or Weave Bead: Stringer
Multi-pass or Single Pass (per side) Multi-Pass
Number of Electrodes _____
Electrode Spacing Longitudinal _____
Lateral _____
Angle _____
Contact Tube to Work Distance _____
Peening _____
Interpass Cleaning: _____

POSTWELD HEAT TREATMENT
Temp. N/A
Time _____

WELDING PROCEDURE

Pass or Weld Layer(s)	Process	Filler Metals		Current		Volts	Travel Speed	Joint Details
		Class	Diam.	Type & Polarity	Amps or Wire Feed Speed			
3 Layers	SMAW	E7018	3/16	DC	185	22/26	As Req.	

Vermont Agency of Transportation
RECEIVED
CK'D BY _____ OK'D BY JWC
February 24, 2014
RESUBMIT NO Approved AsNoted
BY KMH DATE 2-26-2014

ABUTMENT & WING WALL GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 3,500 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) OR EPOXY COATED (AS NOTED ON SHOP DRAWINGS).
4. THE TOP OF ABUTMENTS SHALL RECEIVE A RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE (UNLESS NOTED OTHERWISE).
5. THE TOP OF WING WALLS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
6. SHEAR KEY SURFACES SHALL BE BLASTED CLEAN.
7. PRECAST CONCRETE UNITS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. NON-PRESTRESSED UNITS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT 5th POINTS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
8. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX:

   WING WALLS: J.P.C. BRIDGE MIX #4457MSCC

   APPROACH SLABS: J.P.C. BRIDGE MIX #4457MSCC

   ABUTMENTS: J.P.C. BRIDGE MIX #4457MSCC
9. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
10. CURING METHOD: AS SOON AS THE TOP OF PRECAST CONCRETE UNITS ARE FINISHED, A COVER OF RIGID INSULATION AND POLY WILL BE PLACED OVER THE UNIT. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED.
11. ABUTMENT POST-TENSIONING SEQUENCE:
    A. ERECT PRECAST CONCRETE ABUTMENTS, AND POST-TENSION CENTER TENDON TO APPROXIMATELY 5,000 LBS.
    B. GROUT SHEAR KEY.
    C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI; POST-TENSION TENDONS TO 32,000 LBS.
12. ~~SILANE SEALER SHALL BE SHOP APPLIED, BY OTHERS, TO ALL EXPOSED PRECAST CONCRETE WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST NEXT BEAMS BETWEEN DRIP NOTCHES.~~

NEXT BEAM GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 10,000 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 8,000 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED).
4. PRESTRESSING STRANDS SHALL CONFORM TO ASTM A-416 (AASHTO M203) AND SHALL CONSIST OF 0.60"ø x 270 KSI 7-WIRE LOW RELAXATION STRANDS.
5. PRESTRESSING STRANDS SHALL EACH BE PULLED TO HAVE A NET TENSION OF **44.0 K** AFTER ACCOUNTING FOR CHUCK SLIPPAGE. TENSION SHALL BE VERIFIED BY MEASURING STRAND ELONGATION. (SEE EXAMPLE ELONGATION CALCULATION AND TENSIONING PROCEDURE, THIS SHEET.)
6. ENDS OF PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH END OF NEXT BEAM STEMS (UNLESS NOTED OTHERWISE) AND EPOXY PAINTED.
7. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
8. THE TOP OF BEAMS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
9. SHEAR KEY SURFACES SHALL RECEIVE A ROUGHENED SURFACE.
10. BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH OF THE TWO LIFTING LOOPS AT EACH END OF THE BEAM. **THE PINS OF THE SHACKLES SHALL BE PLACED THOUGH THE LIFTING LOOPS. SEE DETAIL, THIS SHEET.** BEAMS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE BEAM ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
11. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

    DESIGN MIX: J.P.C. BRIDGE MIX #4B0M
12. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
13. CURING METHOD: AS SOON AS THE TOP OF BEAM IS FINISHED, A COVER OF INSULATED POLY. THE DESIRED CURING TEMPERATURE RANGE SHALL NOT DROP BELOW 70°F. THE TEMPERATURE SHALL BE RECORDED BY AUTOMATIC SENSOR INSTRUMENTS ON GRAPH CHARTS, SPACED NOT MORE THAN 100' APART AND WILL CONTINUE UNTIL RELEASE STRENGTH IS ACHIEVED. EACH CHART SHALL BE MARKED WITH THE CASTING DATED AND LOCATION OF THE RECORDER. IF NECESSARY TO MAINTAIN CASTING BED TEMPERATURE PRIOR TO CONCRETE PLACEMENT OR TO ACCELERATE EARLY AGE STRENGTH GAIN, EXTERNAL RADIANT HEAT MAY BE EMPLOYED VIA HOT WATER DUCTS BENEATH AND WITHIN THE PERIPHERY OF THE CASTING BED. MAXIMUM CURING TEMPERATURE SHALL NOT EXCEED PCI SPECIFIED LIMITS.
14. OWNER SHALL PROVIDE APPROPRIATE WATERPROOFING TO GROUTED AND/OR EPOXIED SHEAR KEYS. J.P. CARRARA & SONS, INC. SHALL NOT BE HELD LIABLE FOR PROBLEMS ASSOCIATED WITH MOISTURE INFILTRATING GROUTED AND/OR EPOXIED SHEAR KEYS.

EXAMPLE PRESTRESSING STRAND ELONGATION CALC. AND TENSIONING

(NOT TO BE USED FOR CONSTRUCTION)

SIZE & GRADE: 0.60"ø x 270 KSI
AREA: 0.217 IN^2
TENSION: 44,000 LB. EACH STRAND
GRIP-TO-GRIP: 252'-0" = 252.00'
Es = 28,600,000 PSI (ASSUMED FOR THESE CALCULATIONS; VALUE TO BE OBTAINED FOR STRAND SPOOL ACTUALLY USED)

EXAMPLE:

$$\Delta = \frac{PL}{AE} = \frac{(44{,}000 - 3{,}000) \times 252.00 \times 12}{0.217 \times 28{,}600{,}000} = 19.977"$$

THEREFORE: (TOLERANCES ± 5%)
Δ UPPER LIMIT = 1.05 x 19.977" = 20.98" = 21"
Δ LOWER LIMIT = 0.95 x 19.977" = 18.98" = 19"

EXTRA FORCE REQUIRED TO COMPENSATE FOR 1/2" CHUCK SLIPPAGE:

$$\Delta P = \frac{0.5 \times 41{,}000}{19.977} = 1{,}026 \text{ LBS.}$$

TOTAL TENSIONING FORCE = 44,000 + 1,026 = 45,026 LBS.

STRAND TENSIONING PROCEDURE:

1. PULL EACH STRAND INITIALLY TO 3,000# LBS. AND MARK STRAND.
2. THEN PULL EACH STRAND TO A TOTAL TENSION OF 45,026# LBS. AND MEASURE ELONGATION AFTER SEATING. IT MUST BE BETWEEN 19"± AND 21"±.

   # NOTE: FORCES READ ON STRESSING JACK GAUGES MUST BE MADE TO CORRESPOND TO ABOVE VALUES BASED ON CALIBRATION DATA FOR SPECIFIC JACK USED.

DRAWING INDEX

SHT. #	DRAWING TITLE	REV. #	REV. DATE
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F2	ABUTMENT ELEVATIONS		
F3	ABUTMENT DETAILS	1	1-16-14
F4	TRANSVERSE SECTIONS & DETAILS	1	1-16-14
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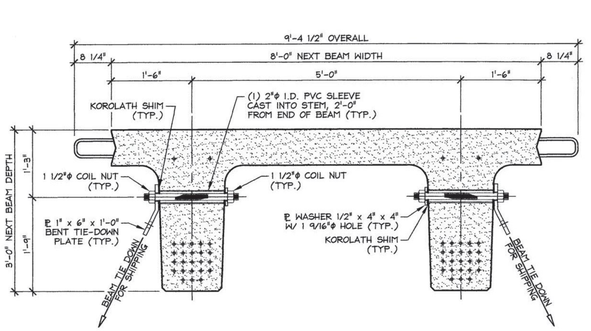
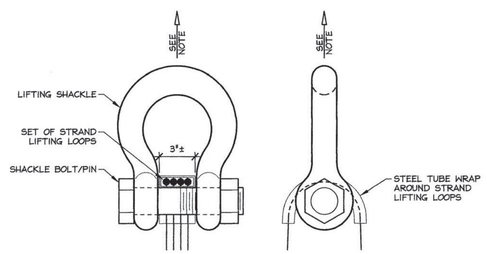
NB2	PRESTRESSED NEXT BEAM DETAILS "W-NB1"	1	1-16-14
NB3	PRESTRESSED NEXT BEAM DETAILS "W-NB3"	1	1-16-14
AS1	PRECAST APPROACH SLAB DETAILS "W-AS1"		
AS2	PRECAST APPROACH SLAB DETAILS "W-AS2" & "W-AS3"		
AB1	PRECAST ABUTMENT PLAN, SECTION & DETAILS	1	1-16-14
AB2	PRECAST ABUTMENT DETAILS "W-AB2"	1	1-16-14
AB3	PRECAST ABUTMENT DETAILS "W-AB1"	1	1-16-14
WW1	PRECAST WING WALL DETAILS "W-WW1" & "W-WW2"	1	1-16-14
M1	MATERIALS LIST	1	1-16-14

DESIGN LIVE LOAD: HL-93



NEXT BEAM 36D HOLD-DOWN DETAIL FOR SHIPPING

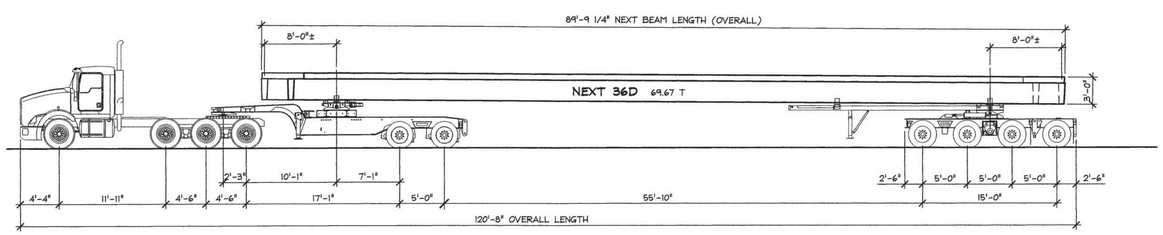
3/4" = 1'-0"



NOTE: BEAMS SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH SET OF LIFTING LOOPS AT EACH END OF THE BEAM. SHACKLE BOLT/PIN SHALL BE PLACED UNDER LIFT LOOPS AS SHOWN. DESIGN AND CONFIGURATION OF RIGGING BY PURCHASER.

LIFTING SHACKLE DETAILS

N.T.S.



SHIPPING ELEVATION

N.T.S.

⚠ 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
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January 27, 2014
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BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

CHKD: - DFTM: B.L.
JOB NO: 23413-013

COVER SHEET

DWG. NO: C1

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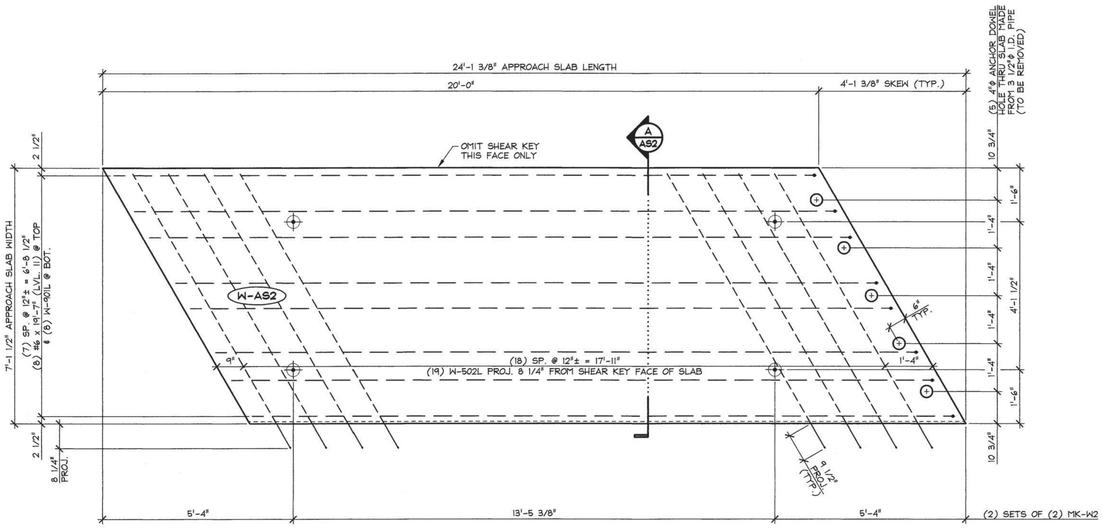
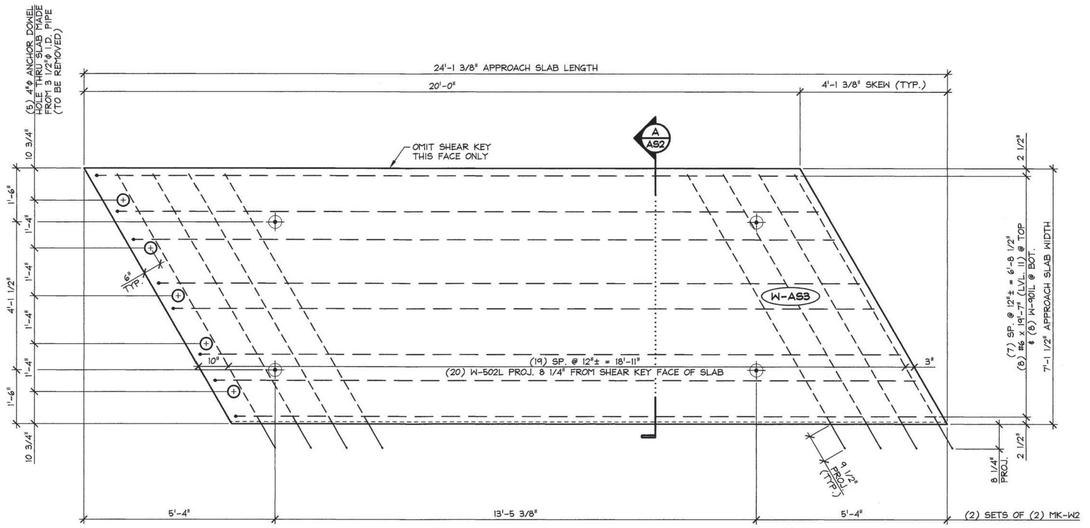
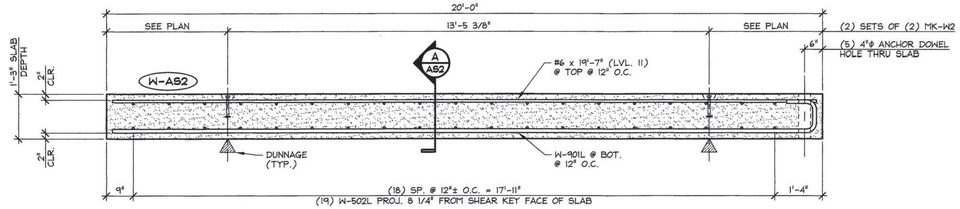


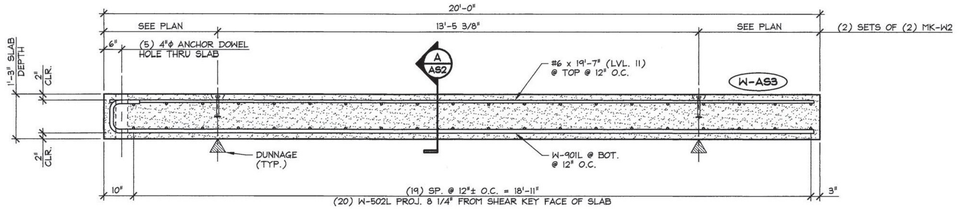
1 / AS2 PLAN VIEW IN FORM
1/2" = 1'-0"



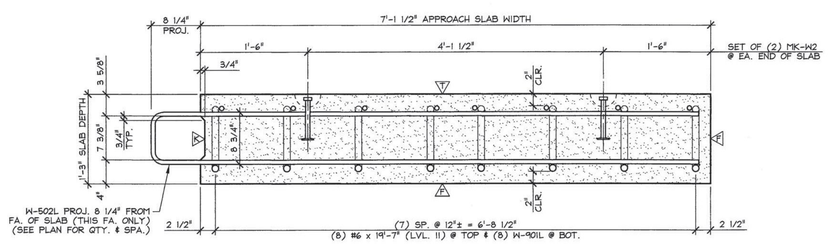
3 / AS2 PLAN VIEW IN FORM
1/2" = 1'-0"



2 / AS2 LONGITUDIAL SECTION
1/2" = 1'-0"



4 / AS2 LONGITUDIAL SECTION
1/2" = 1'-0"



A / AS2 APPROACH SLAB SECTION
1" = 1'-0"

(A) DENOTES FORM FINISH
(A) DENOTES FLOAT FINISH
(A) DENOTES ROUGHENED FINISH

MARK: W-AS2	QTY.: 2	WT.: 13.26 T	VOL.: 6.55 cy
MARK: W-AS3	QTY.: 2	WT.: 13.26 T	VOL.: 6.55 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB W-AS2	QTY./SLAB W-AS3
1	W-502L	#5 BENT BAR (LEVEL II, DUAL COATED)	19	20
2				
3		#6 x 19'-7" (LEVEL II, DUAL COATED)	8	8
4				
5	W-901L	#9 BENT BAR (LEVEL II, DUAL COATED)	8	8
6				
7				
8	MK-W2	4T x 7 1/8" SWIFT LIFT LIFTER	4	4
9				
10				

APPROVAL STAMP:

Vermont Agency of Transportation
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Received:DRAFT 20141205 PrecastSlabs Date Rec'd:1-27-2014_revised1.pdf

CK'D BY JDG/JW OK'D BY WDL
January 27, 2014
RESUBMIT No Approved
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRECAST APPROACH SLAB DETAILS

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013
DWG. NO: AS2

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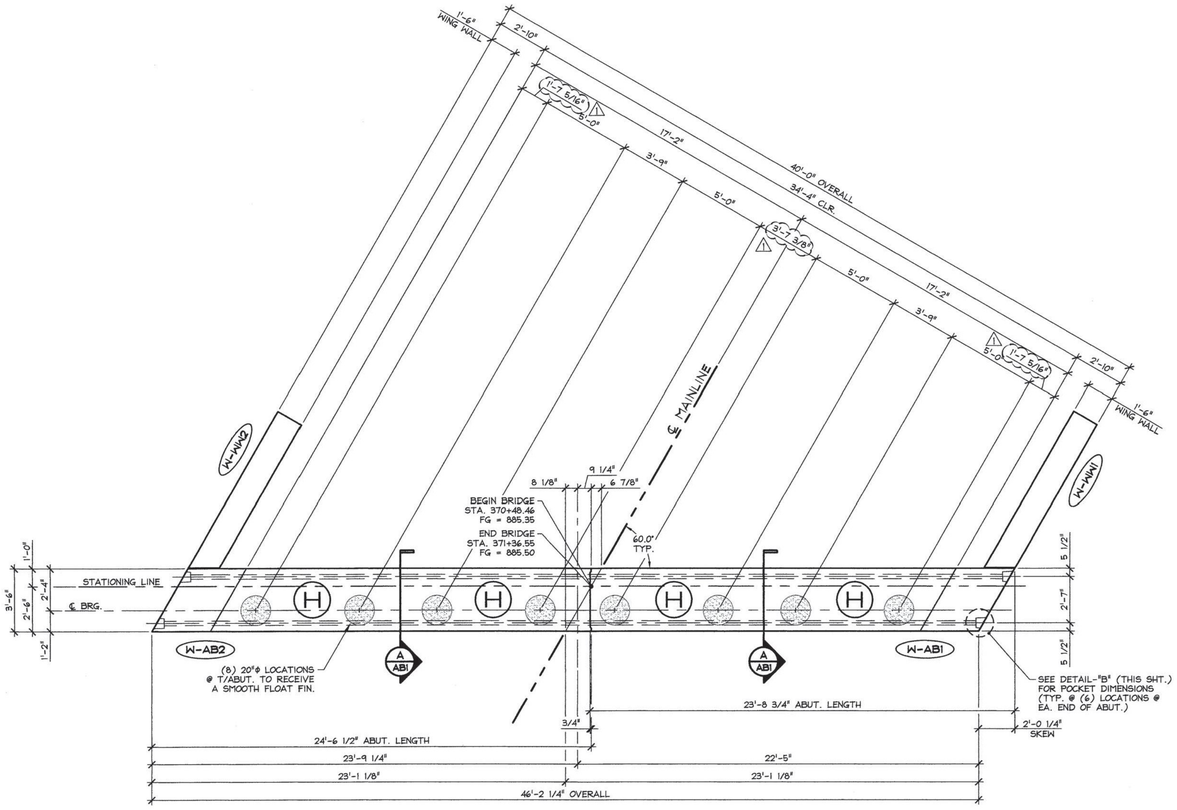
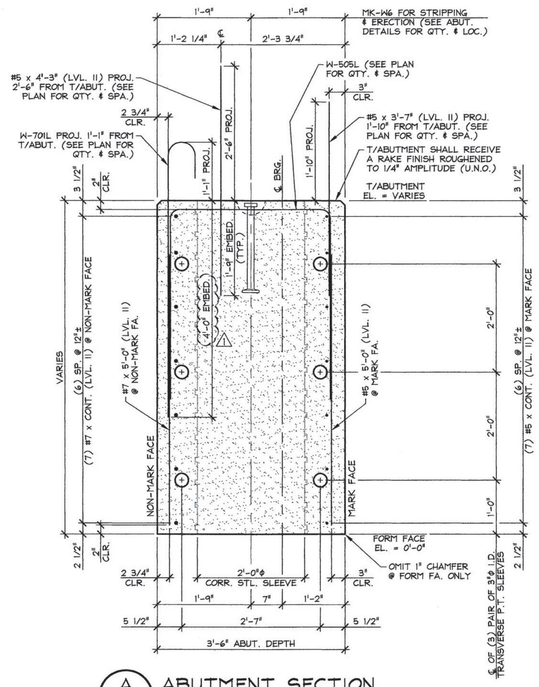
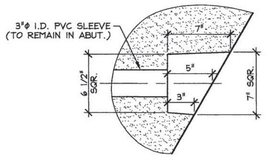


1 / AB1 ABUTMENT ASSEMBLY PLAN
1/4" = 1'-0"



A / AB1 ABUTMENT SECTION
3/4" = 1'-0"

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)



DETAIL - "B"
1 1/2" = 1'-0"

1-16-14 REVISED AS NOTED

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MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRECAST ABUTMENT PLAN, SECTION & DETAILS

DWG. NO: AB1

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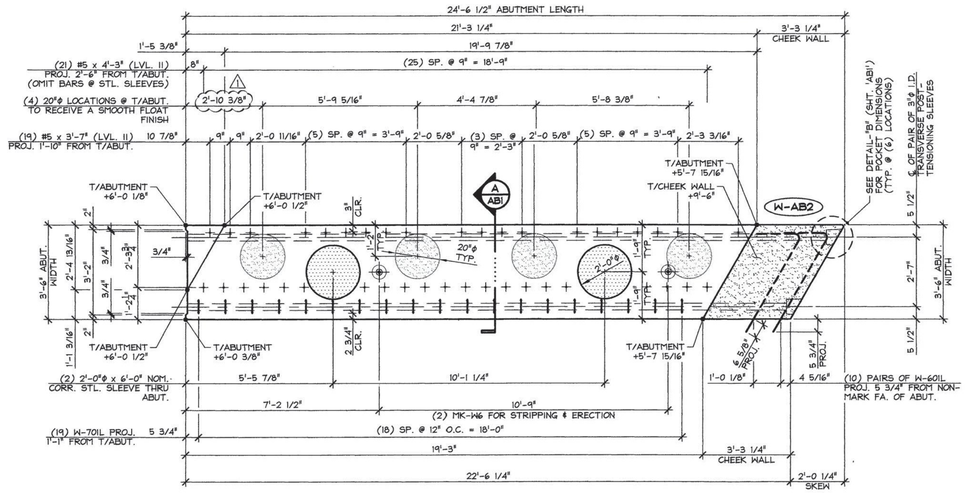
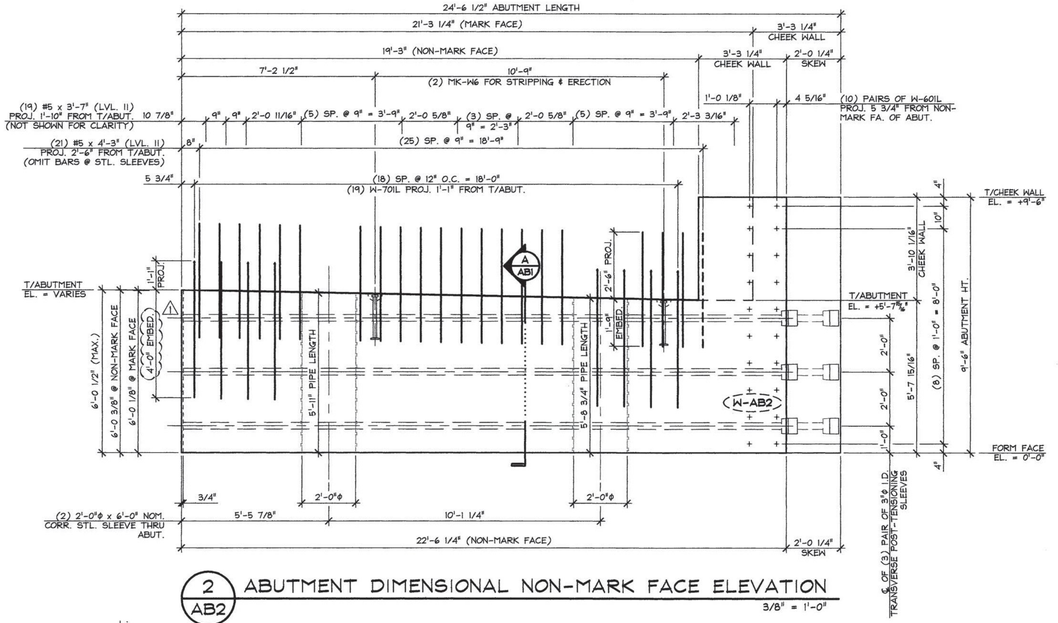


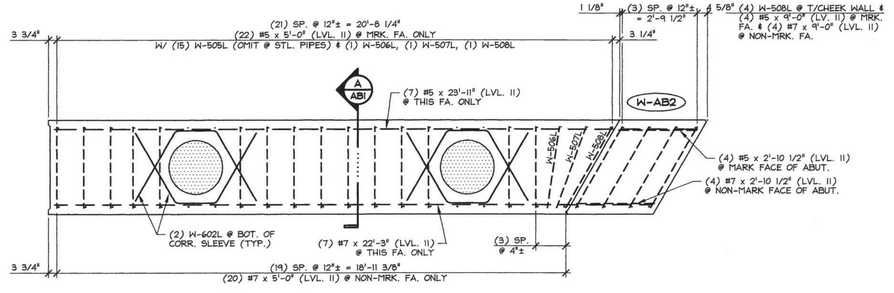
1 AB2 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

3/8" = 1'-0"



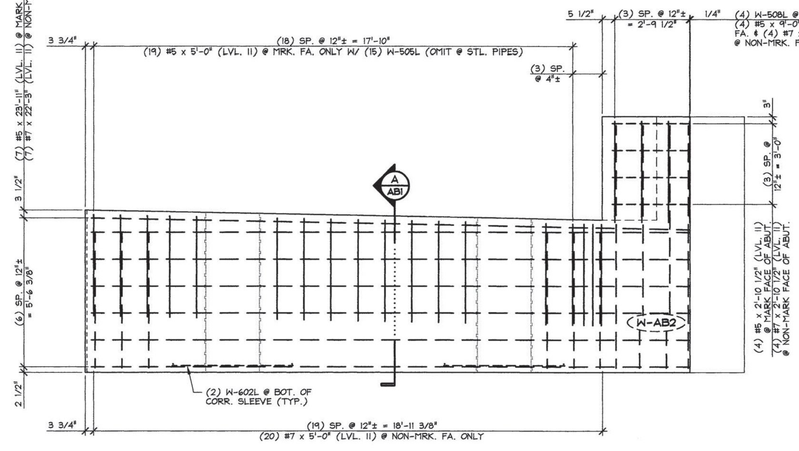
2 AB2 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION

3/8" = 1'-0"



3 AB2 ABUTMENT REINFORCING PLAN VIEW IN FORM

3/8" = 1'-0"



4 AB2 ABUTMENT REINFORCING NON-MARK FACE ELEVATION

3/8" = 1'-0"

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)

MARK: W-AB2	QTY.: 2	WT.: 36.44 T	VOL.: 18.0 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	W-505L	#5 BENT BAR (LEVEL II, DUAL COATED)	15
2	W-506L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
3	W-507L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
4	W-508L	#5 BENT BAR (LEVEL II, DUAL COATED)	5
5		#5 x 3'-7" (LEVEL II, DUAL COATED)	19
6		#5 x 4'-3" (LEVEL II, DUAL COATED)	21
7		#5 x 5'-0" (LEVEL II, DUAL COATED)	22
8		#5 x 9'-0" (LEVEL II, DUAL COATED)	4
9		#5 x 23'-11" (LEVEL II, DUAL COATED)	7
10		#5 x 2'-10 1/2" (LEVEL II, DUAL COATED)	4
11			
12	W-601L	#6 BENT BAR (LEVEL II, DUAL COATED)	20
13	W-602L	#6 BENT BAR (LEVEL II, DUAL COATED)	4
14			
15	W-701L	#7 BENT BAR (LEVEL II, DUAL COATED)	19
16		#7 x 5'-0" (LEVEL II, DUAL COATED)	20
17		#7 x 9'-0" (LEVEL II, DUAL COATED)	4
18		#7 x 22'-3" (LEVEL II, DUAL COATED)	7
19		#7 x 2'-10 1/2" (LEVEL II, DUAL COATED)	4
20			
21		2'-0"ø x 5'-8 3/4" CORRUGATED STEEL PIPE (GALV.)	1
22		2'-0"ø x 5'-11" CORRUGATED STEEL PIPE (GALV.)	1
23	MK-146	20T x 19 3/4" SWIFT LIFT LIFTER	2

⚠ 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
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January 27, 2014
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BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 OXBOW STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRECAST ABUTMENT DETAILS

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013
DWG. NO: AB2

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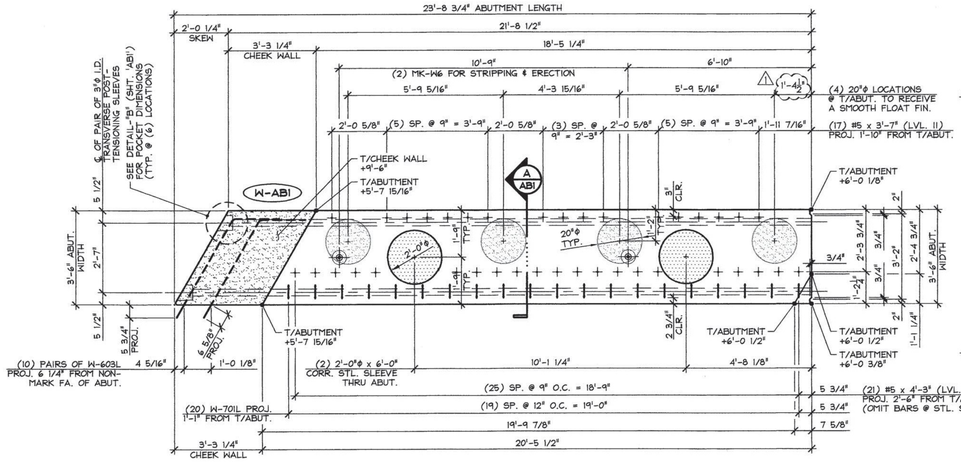
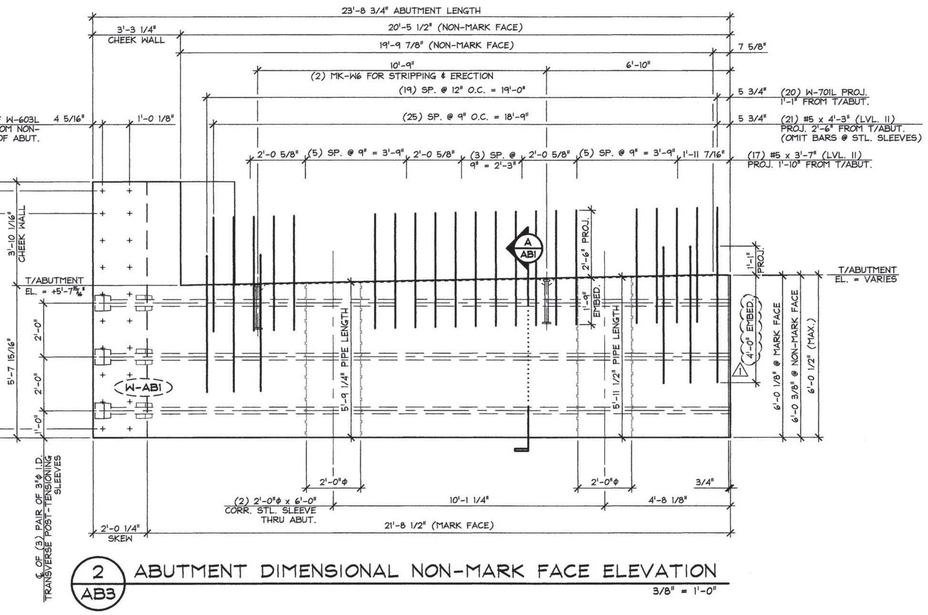


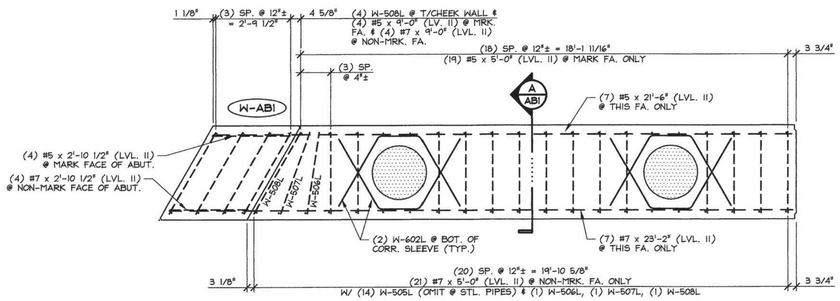
1 AB3 ABUTMENT DIMENSIONAL PLAN VIEW IN FORM

3/8" = 1'-0"



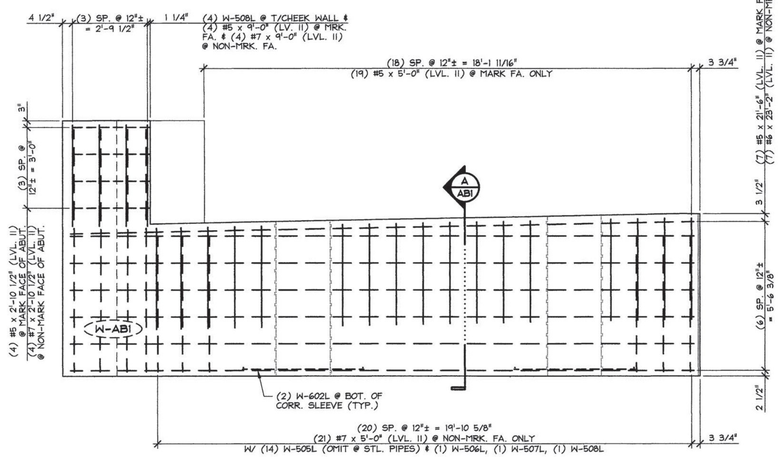
2 AB3 ABUTMENT DIMENSIONAL NON-MARK FACE ELEVATION

3/8" = 1'-0"



3 AB3 ABUTMENT REINFORCING PLAN VIEW IN FORM

3/8" = 1'-0"



4 AB3 ABUTMENT REINFORCING NON-MARK FACE ELEVATION

3/8" = 1'-0"

SHOP NOTE:
ALL EDGES OF ABUTMENT SHALL RECEIVE A 1" CHAMFER (U.N.O.)

MARK: W-ABI	QTY.: 2	WT.: 35.25 T	VOL.: 17.41 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	W-505L	#5 BENT BAR (LEVEL II, DUAL COATED)	14
2	W-506L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
3	W-507L	#5 BENT BAR (LEVEL II, DUAL COATED)	1
4	W-508L	#5 BENT BAR (LEVEL II, DUAL COATED)	5
5		#5 x 2'-10 1/2" (LEVEL II, DUAL COATED)	4
6		#5 x 3'-7" (LEVEL II, DUAL COATED)	17
7		#5 x 4'-3" (LEVEL II, DUAL COATED)	21
8		#5 x 5'-0" (LEVEL II, DUAL COATED)	19
9		#5 x 9'-0" (LEVEL II, DUAL COATED)	4
10		#5 x 21'-6" (LEVEL II, DUAL COATED)	7
11			
12	W-602L	#6 BENT BAR (LEVEL II, DUAL COATED)	4
13	W-603L	#6 BENT BAR (LEVEL II, DUAL COATED)	20
14			
15	W-701L	#7 BENT BAR (LEVEL II, DUAL COATED)	20
16		#7 x 2'-10 1/2" (LEVEL II, DUAL COATED)	4
17		#7 x 5'-0" (LEVEL II, DUAL COATED)	21
18		#7 x 9'-0" (LEVEL II, DUAL COATED)	4
19		#7 x 23'-2" (LEVEL II, DUAL COATED)	7
20			
21		2'-0"ϕ x 5'-9 1/4" CORRUGATED STEEL PIPE (GALV.)	1
22		2'-0"ϕ x 5'-11 1/2" CORRUGATED STEEL PIPE (GALV.)	1
23	MK-W6	20T x 19 3/4" SWIFT LIFT LIFTER	2

⚠ 1-16-14 REVISED AS NOTED

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DATE: DEC. 18, 2013
SCALE: NOTED

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VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

CHKD: - DFTM: B.L.
JOB NO: 23413-013

PRECAST ABUTMENT DETAILS

DWG. NO: AB3

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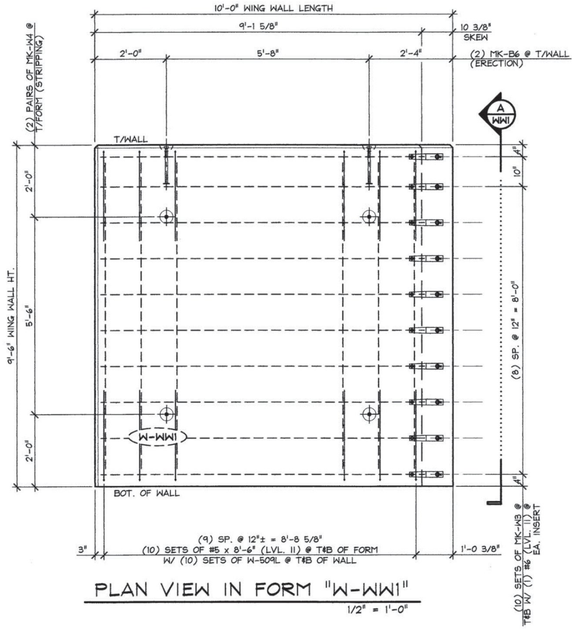
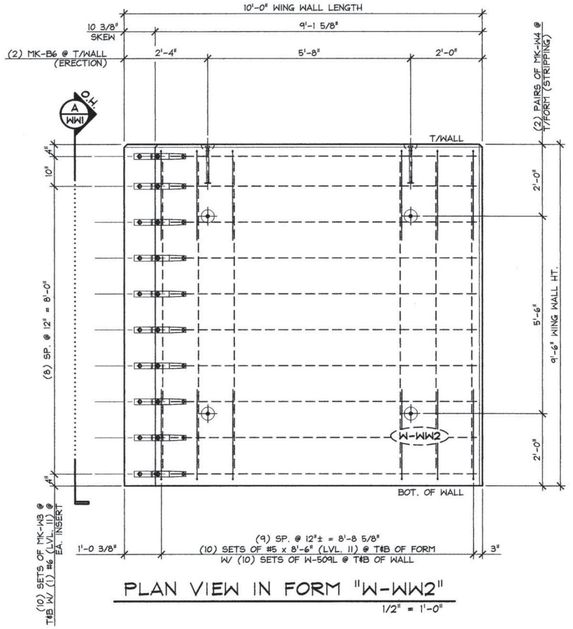


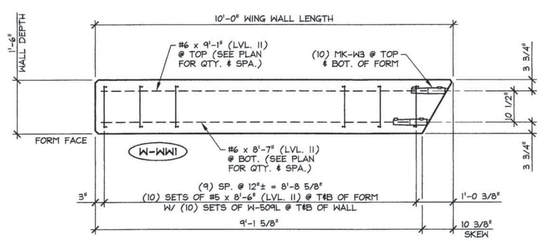
PLAN VIEW IN FORM "W-WW1"

1/2" = 1'-0"



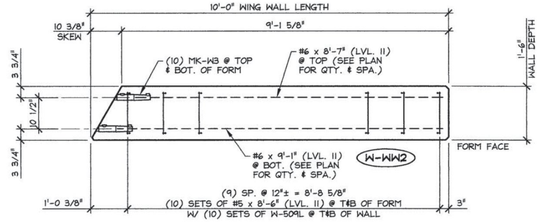
PLAN VIEW IN FORM "W-WW2"

1/2" = 1'-0"



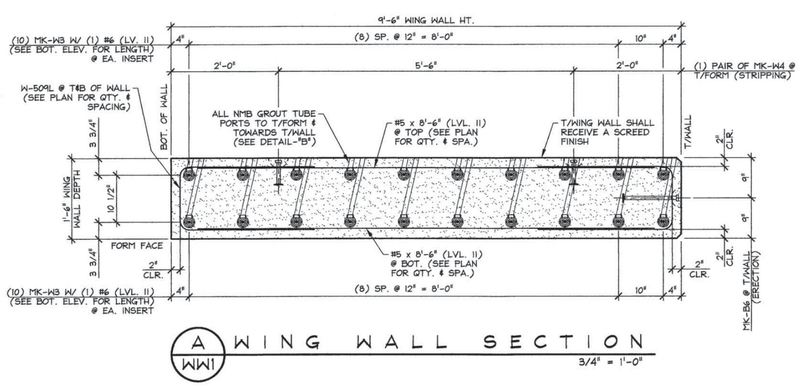
WING WALL BOTTOM ELEVATION

1/2" = 1'-0"



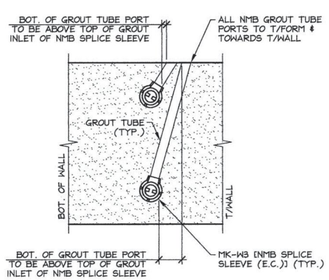
WING WALL BOTTOM ELEVATION

1/2" = 1'-0"



A WW1 WING WALL SECTION

3/4" = 1'-0"



DETAIL - "B"

3/4" = 1'-0"

SHOP NOTE:
ALL EDGES OF WING WALLS, FORM FACE & T/WALL FACE, SHALL RECEIVE A 1" CHAMFER (UNLESS NOTED OTHERWISE)

MARK:	W-WW1	QTY.:	2	WT.:	10.22 T	VOL.:	5.05 cy
MARK:	W-WW2	QTY.:	2	WT.:	10.22 T	VOL.:	5.05 cy

MATERIAL LIST / WING WALL

ITEM	MARK	DESCRIPTION	QTY./WING WALL W-WW1	QTY./WING WALL W-WW2
1	W-509L	#5 BENT BAR (LEVEL II, DUAL COATED)	20	20
2		#5 x 8'-6" (LEVEL II, DUAL COATED)	20	20
3				
4		#6 x 8'-7" (LEVEL II, DUAL COATED)	10	10
5		#6 x 9'-1" (LEVEL II, DUAL COATED) ⚠1	10	10
6				
7	MK-W3	NMB SPLICE SLEEVE 6U-X(PG) (EPOXY COATED)	20	20
8	MK-W4	4T x 5 1/2" SWIFT LIFT LIFTER	4	4
9	MK-W5	8T x 13 3/8" SWIFT LIFT LIFTER	2	2
10				

⚠1 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
RECEIVED
CK'D BY JDG/JW OK'D BY WDL
January 27, 2014
RESUBMIT No Approved
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 OSE STR, MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRECAST WING WALL DETAILS

DWG. NO: WW1

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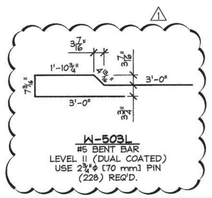
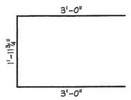
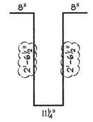


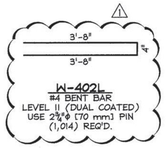
W-503L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(226) REQ'D.



W-504L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(64) REQ'D.

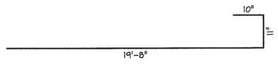


W-401L
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 2"ϕ (50 mm) PIN
(840) REQ'D.

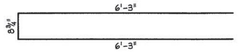


W-402L
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(1,014) REQ'D.

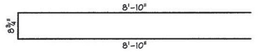
PRESTRESSED NEXT BEAMS



W-901L
#9 BENT BAR
LEVEL II (DUAL COATED)
USE 6"ϕ PIN
(64) REQ'D.

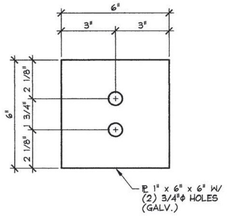


W-501L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(156) REQ'D.

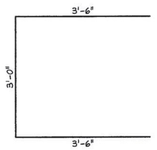


W-502L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(78) REQ'D.

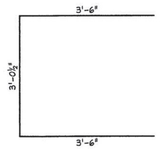
PRECAST APPROACH SLABS



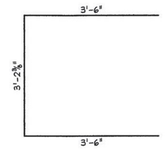
E M - W 1
3" = 1'-0"



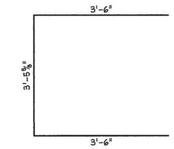
W-505L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(58) REQ'D.



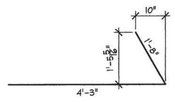
W-506L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(4) REQ'D.



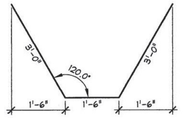
W-507L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(4) REQ'D.



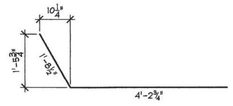
W-508L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(20) REQ'D.



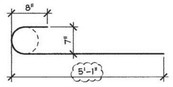
W-601L
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4"ϕ (100 mm) PIN
(40) REQ'D.



W-602L
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4"ϕ (100 mm) PIN
(16) REQ'D.

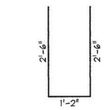


W-603L
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 4"ϕ (100 mm) PIN
(40) REQ'D.



W-701L
#7 BENT BAR
LEVEL II (DUAL COATED)
USE 5"ϕ PIN
(78) REQ'D.

PRECAST ABUTMENTS



W-509L
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ (70 mm) PIN
(80) REQ'D.

PRECAST WING WALLS

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS	
1		88	#4 x 8'-9" (LEVEL II, DUAL COATED)		PRESTRESSED NEXT BEAMS
2					
3		1,360	#5 x 8'-9" (LEVEL II, DUAL COATED)		
4		44	#5 x 92'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)		
5		44	#5 x 84'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)		
6					
7					
8		20	GUARD RAIL ANCHOR PLATE (GALV.)	SUPPLIED BY OTHERS	
9		16	SET OF (4) 0.60"ϕ x 270 KSI STRAND LIFTING LOOPS		
10					
11	MK-W2	32	4T x 7 1/8" SWIFT LIFT LIFTER		PRECAST APPROACH SLABS
12					
13		64	#6 x 19'-7" (LEVEL II, DUAL COATED)		
14					
15					
16					
17					
18					
19					
20					
21		72	#5 x 3'-7" (LEVEL II, DUAL COATED)		PRECAST ABUTMENTS
22		84	#5 x 4'-3" (LEVEL II, DUAL COATED)		
23		82	#5 x 5'-0" (LEVEL II, DUAL COATED)		
24		16	#5 x 9'-0" (LEVEL II, DUAL COATED)		
25		16	#5 x 2'-10 1/2" (LEVEL II, DUAL COATED)		
26		14	#5 x 21'-6" (LEVEL II, DUAL COATED)		
27		14	#5 x 23'-11" (LEVEL II, DUAL COATED)		
28					
29		82	#7 x 5'-0" (LEVEL II, DUAL COATED)		
30		16	#7 x 9'-0" (LEVEL II, DUAL COATED)		
31		16	#7 x 2'-10 1/2" (LEVEL II, DUAL COATED)		
32		14	#7 x 22'-3" (LEVEL II, DUAL COATED)		
33		14	#7 x 23'-2" (LEVEL II, DUAL COATED)		
34					
35		2	2'-0"ϕ x 5'-11 1/2" CORRUGATED STEEL PIPE (GALV.)		
36		2	2'-0"ϕ x 5'-11" CORRUGATED STEEL PIPE (GALV.)		
37		2	2'-0"ϕ x 5'-9 1/4" CORRUGATED STEEL PIPE (GALV.)		
38		2	2'-0"ϕ x 5'-8 3/4" CORRUGATED STEEL PIPE (GALV.)		
39	MK-W6	8	20T x 19 3/4" SWIFT LIFT LIFTER		
40					
41					
42	EM-W1	24	℄ 1" x 6" x 6" W/ (2) 3/4"ϕ HOLES (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	
43		24	1/2"ϕ x 49'-0" POLY-STRAND	FOR ERECTION	
44		48	1/2"ϕ SINGLE USE STRESSING CHUCK	FOR ERECTION	
45		12	COMPRESSIBLE SEALER SELF ADHESIVE	FOR ERECTION	
46		80	#5 x 8'-6" (LEVEL II, DUAL COATED)		PRECAST WING WALLS
47					
48		40	#6 x 8'-7" (LEVEL II, DUAL COATED)		
49		40	#6 x 9'-1" (LEVEL II, DUAL COATED) ⚠		
50					
51	MK-W3	80	NMB SPLICE SLEEVE 7U-X(PG) (EPOXY COATED) W/ GROUT TUBES	GROUT TUBE LENGTH AS REQ'D.	
52	MK-W4	16	4T x 5 1/2" SWIFT LIFT LIFTER		
53	MK-W5	8	8T x 13 3/8" SWIFT LIFT LIFTER		
54					
55					

⚠ 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
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Edward ERNST (EVC)(S) F:\Carrara Sp Crete files\1-17-2014_revised\M1.dgn

CK'D BY JDG/JW OK'D BY WDL

January 27, 2014

RESUBMIT No Approved
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

MATERIALS LIST

DWG. NO: M1

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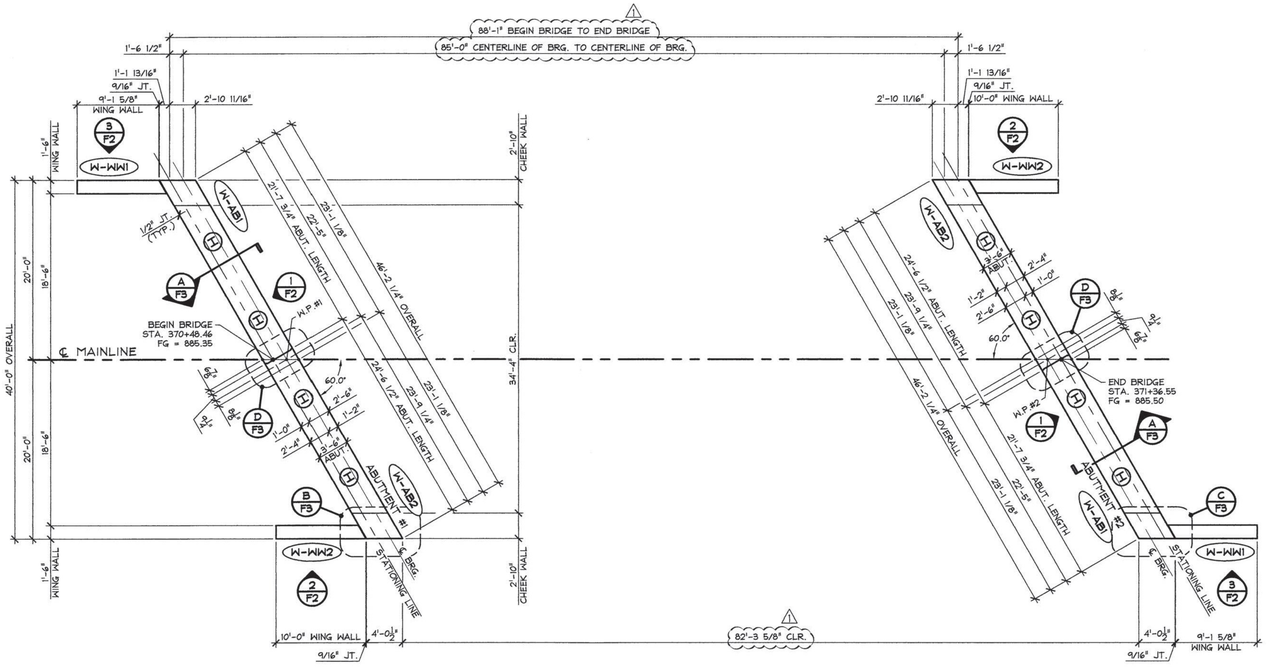

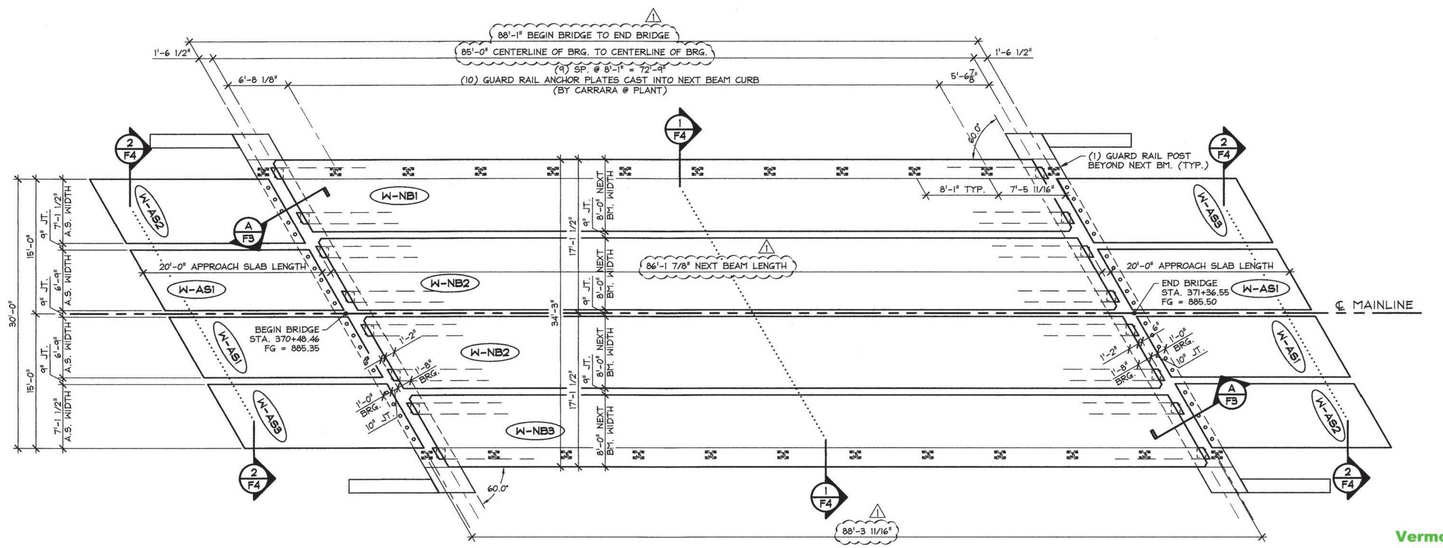

1 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation

RECEIVED

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CK'D BY JDG/JW OK'D BY WDL

January 27, 2014

RESUBMIT No Approved

BY KMH DATE 02/10/2014

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Precast & Prestress Manufacturer
2484 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
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JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

SUPERSTRUCTURE PLANS

DWG. NO: F1

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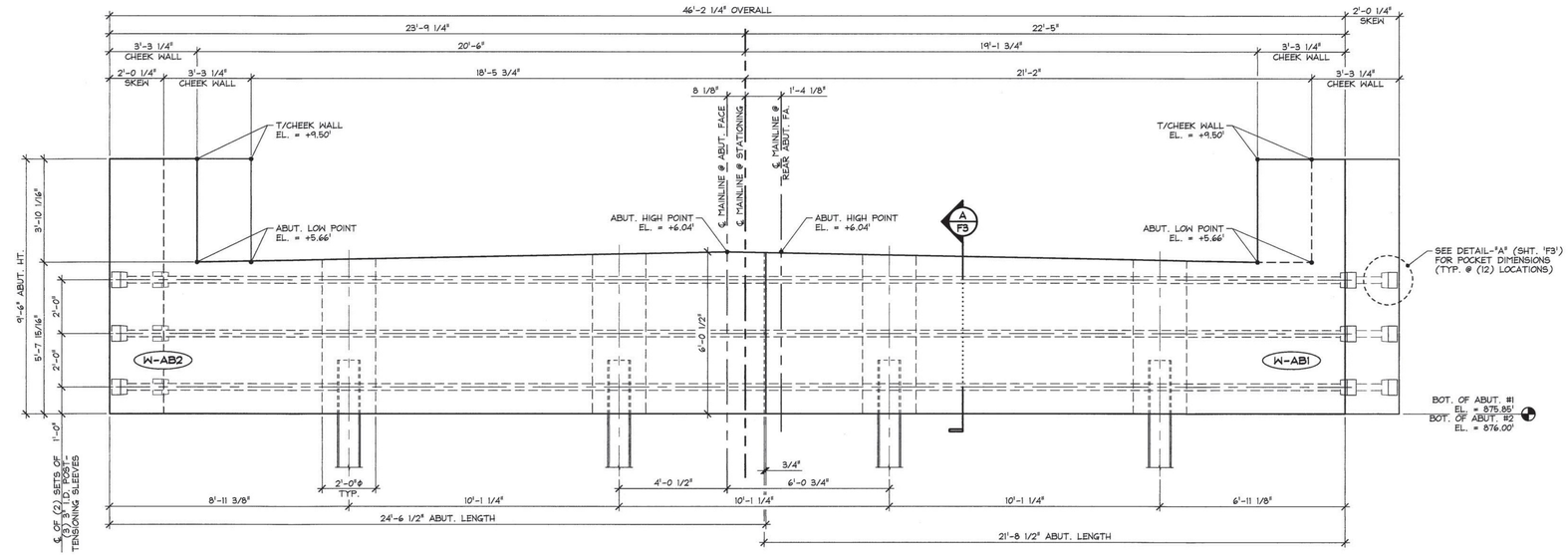
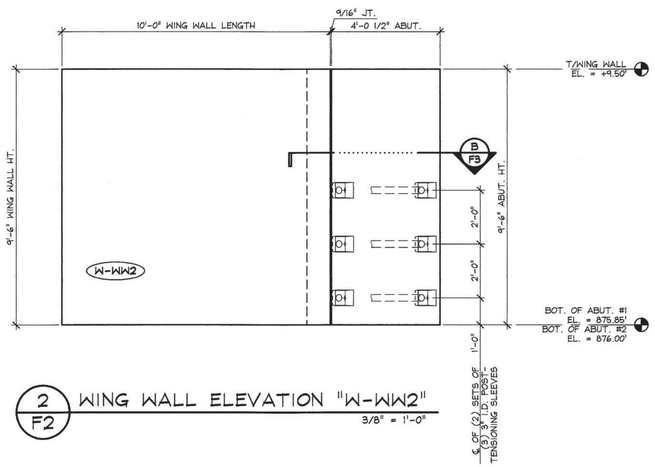


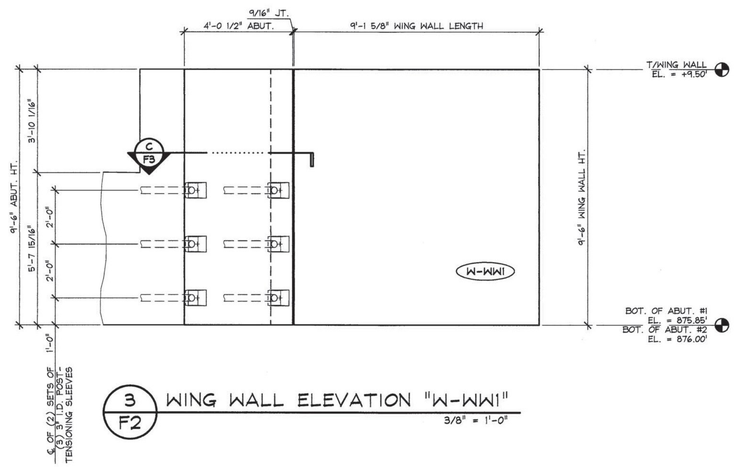
1/F2 ABUTMENT #1 & #2 ELEVATION

3/8" = 1'-0"



2/F2 WING WALL ELEVATION "W-WW2"

3/8" = 1'-0"



3/F2 WING WALL ELEVATION "W-WW1"

3/8" = 1'-0"

APPROVAL STAMP:

Vermont Agency of Transportation

RECEIVED

CK'D BY JDG/JW OK'D BY WDL

January 27, 2014

RESUBMIT No Approved

BY KMH DATE 02/10/2014

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MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

ABUTMENT ELEVATIONS

DWG. NO: F2

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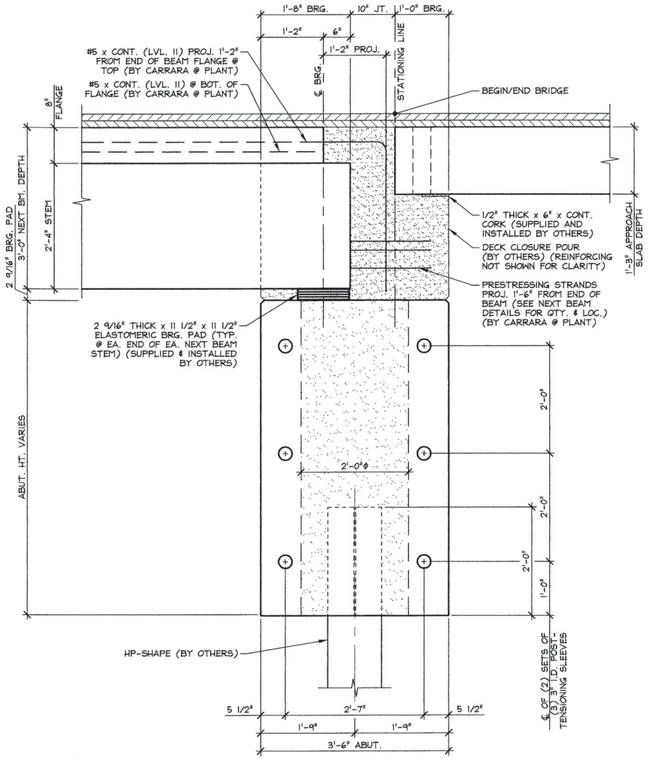
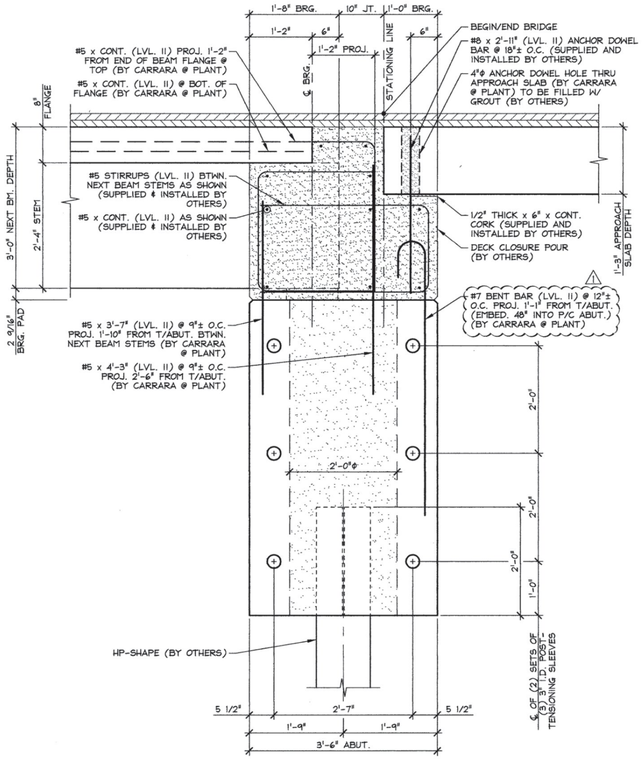
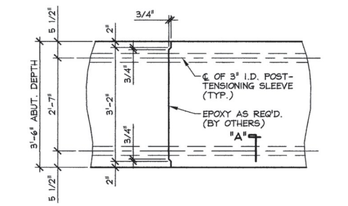


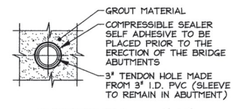
A F3 BEARING SECTION
NEXT BEAM STEM BEARING
3/4" = 1'-0"



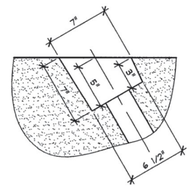
A.1 F3 BEARING SECTION
BETWEEN NEXT BEAM STEM BEARING
3/4" = 1'-0"



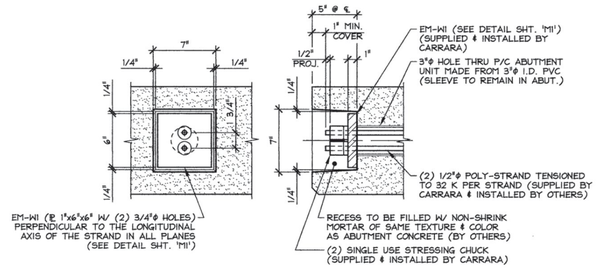
D F3 MATCH CAST SECTION @ P.T. SLEEVE
1/2" = 1'-0"



SECTION - "A"
1 1/2" = 1'-0"

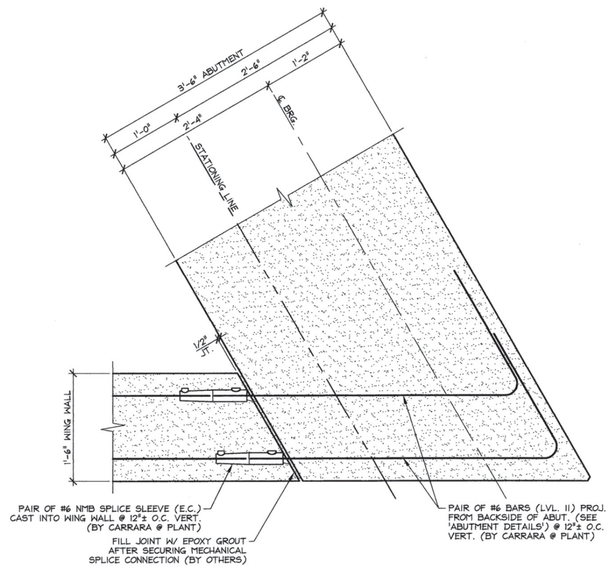


PLAN OF POCKET

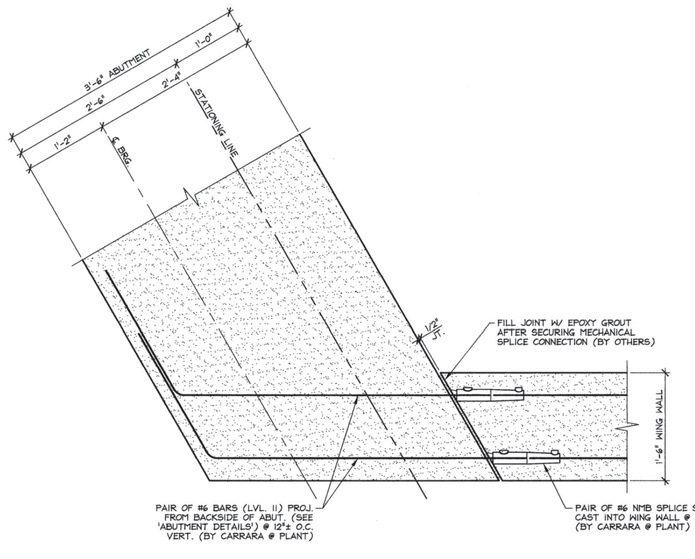


ABUTMENT ELEVATION SECTION AT CENTERLINE

DETAIL - "A"
1 1/2" = 1'-0"



B F3 WING WALL CONNECTION DETAIL
1" = 1'-0"



C F3 WING WALL CONNECTION DETAIL
1" = 1'-0"

1 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
RECEIVED
CK'D BY JDG/JW OK'D BY WDL
January 27, 2014
RESUBMIT No Approved
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

ABUTMENT DETAILS

DWG. NO: F3

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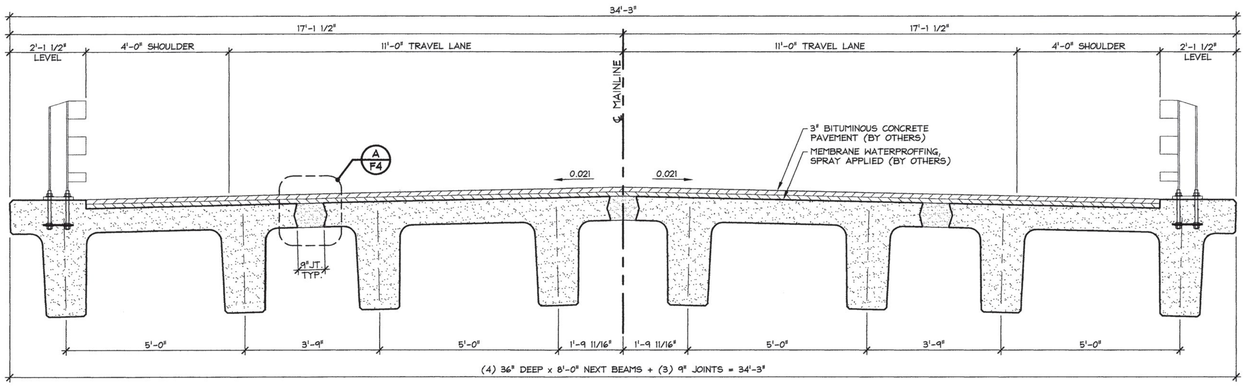
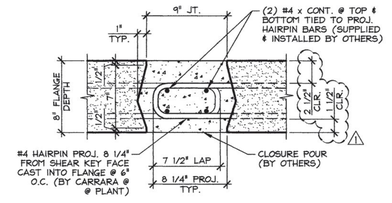


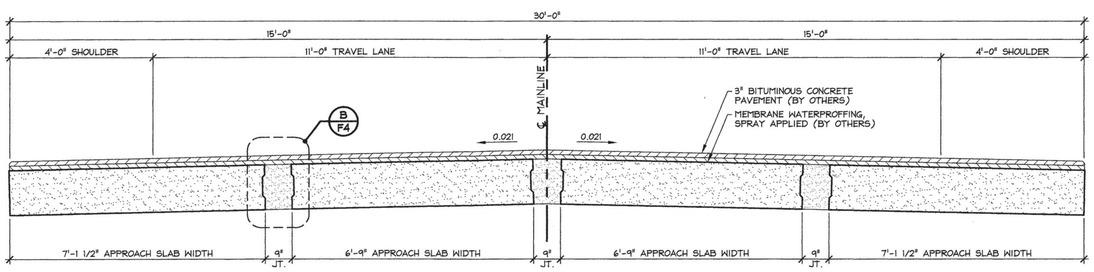
1 / F4 NEXT BEAM TRANSVERSE SECTION

1/2" = 1'-0"



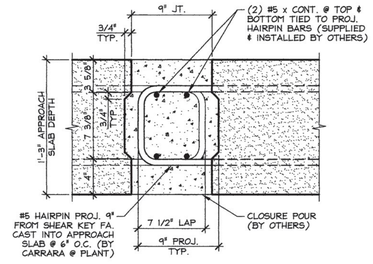
A / F4 NEXT BEAM CLOSURE POUR

1 1/2" = 1'-0"



2 / F4 APPROACH SLAB TRANSVERSE SECTION

1/2" = 1'-0"



B / F4 APPROACH SLAB CLOSURE POUR

1 1/2" = 1'-0"

⚠ 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation

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CK'D BY JDG/JW OK'D BY WDL

January 27, 2014

RESUBMIT No Approved

BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 OSE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

TRANSVERSE SECTION & DETAILS

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013
DWG. NO: F4

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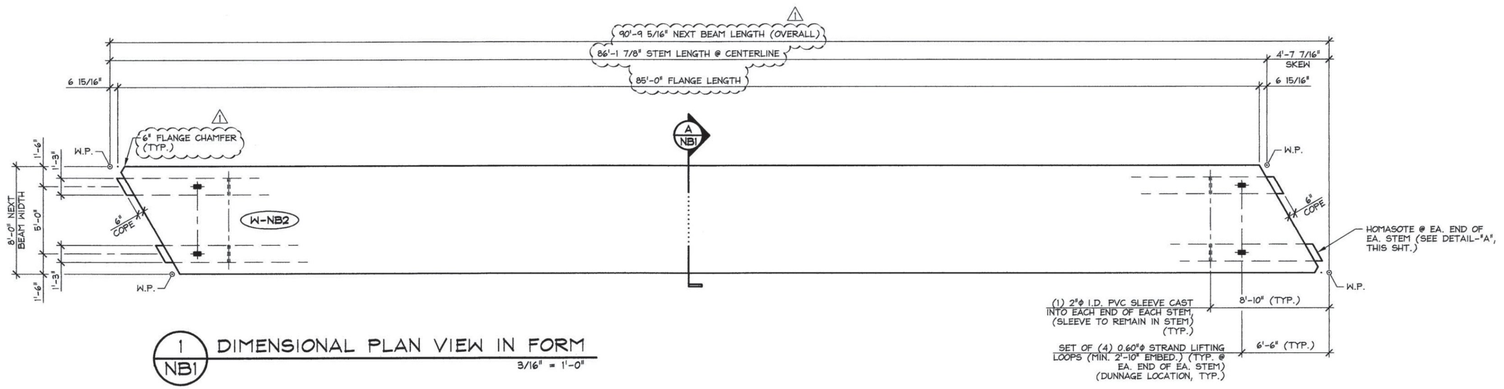
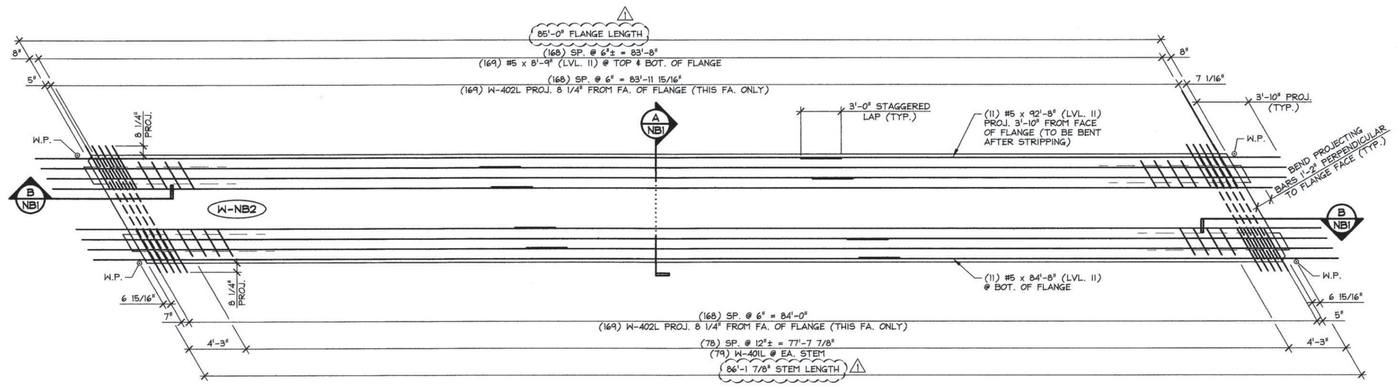
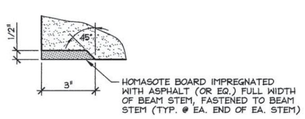


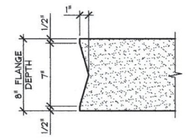
1 NB1 DIMENSIONAL PLAN VIEW IN FORM
3/16" = 1'-0"



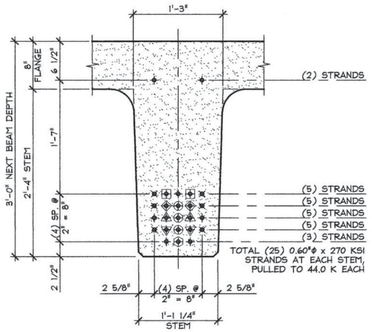
2 NB1 REINFORCING PLAN VIEW IN FORM
ALL DIMENSIONS INDICATED ARE PARALLEL OR PERPENDICULAR TO ℄ OF STEMS (U.N.O.)
3/16" = 1'-0"



DETAIL - "A"
3" = 1'-0"



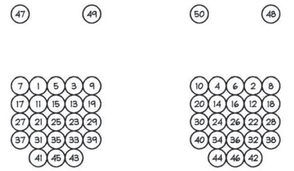
DETAIL - "B"
1 1/2" = 1'-0"



DETAIL - "C" (STEM STRAND PATTERN)
1" = 1'-0"

PRESTRESSING NOTATIONS

- ✦ DENOTES STRAIGHT STRANDS TO BE CUT FLUSH WITH EA. END OF EA. STEM
- ✖ DENOTES STRAIGHT STRANDS TO PROJECT 1'-6" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
- ⊞ DENOTES STRAIGHT STRANDS TO BE DEBONDED 10'-0" FROM EA. END OF EA. STEM
- ⊛ DENOTES STRAIGHT STRANDS TO BE DEBONDED 14'-0" FROM EA. END OF EA. STEM
- ⋔ DENOTES STRAIGHT STRANDS TO BE DEBONDED 16'-0" FROM EA. END OF EA. STEM
- ⋎ DENOTES STRAIGHT STRANDS TO BE DEBONDED 18'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 20'-0" FROM EA. END OF EA. STEM

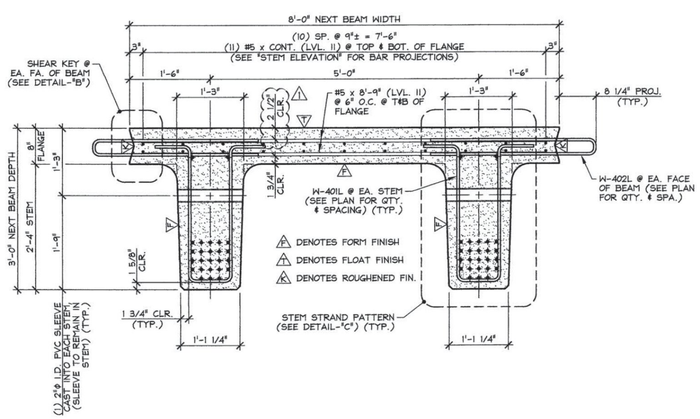


DETENSIONING SCHEDULE
N.T.S.

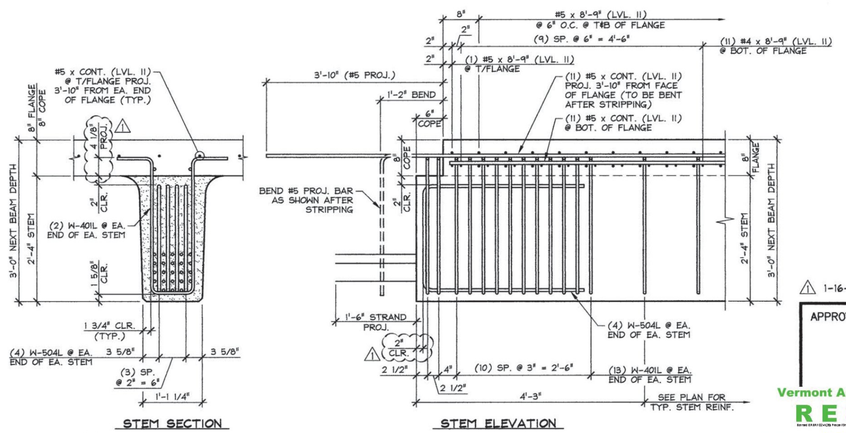
MARK: W-NB2	QTY.: 2	WT.: 69.67 T	VOL.: 34.41 cy

MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	W-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	210
2	W-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	338
3		#4 x 8'-9" (LEVEL II, DUAL COATED)	22
4			
5	W-504L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
6		#5 x 8'-9" (LEVEL II, DUAL COATED)	340
7		#5 x 92'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
8		#5 x 84'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
9			
10			
11			
12			
13			
14		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	4
15			



A NBI DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"



B NBI END BLOCK STEM REINFORCING DETAILS
3/4" = 1'-0"

⚠1 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
RECEIVED
CK'D BY JDG/JW OK'D BY WDL
January 27, 2014
RESUBMIT No Approved
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRESTRESSED NEXT BEAM DETAILS

DWG. NO: NB1

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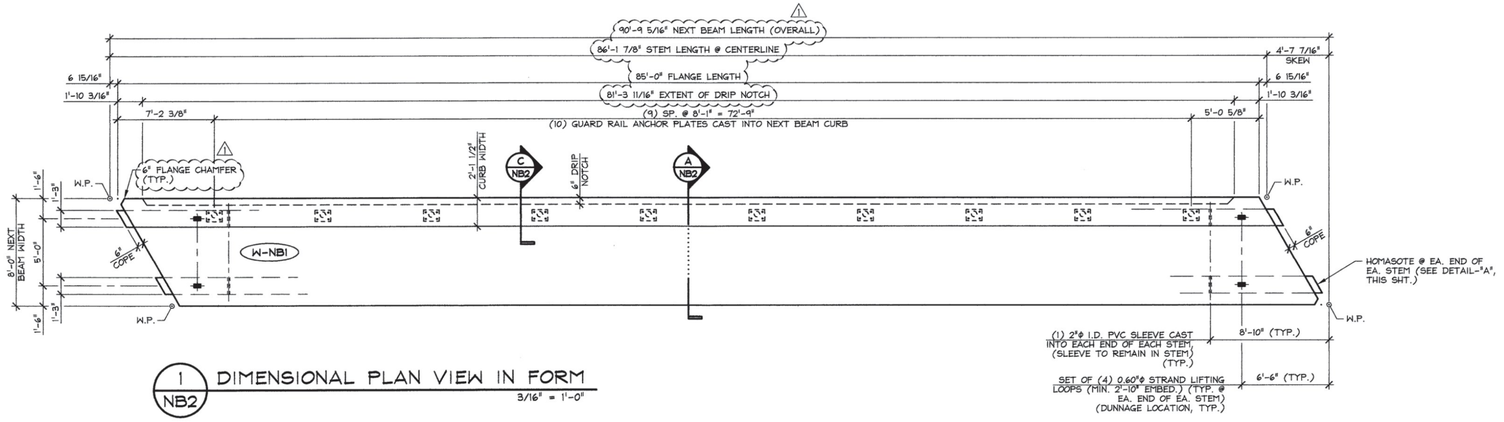
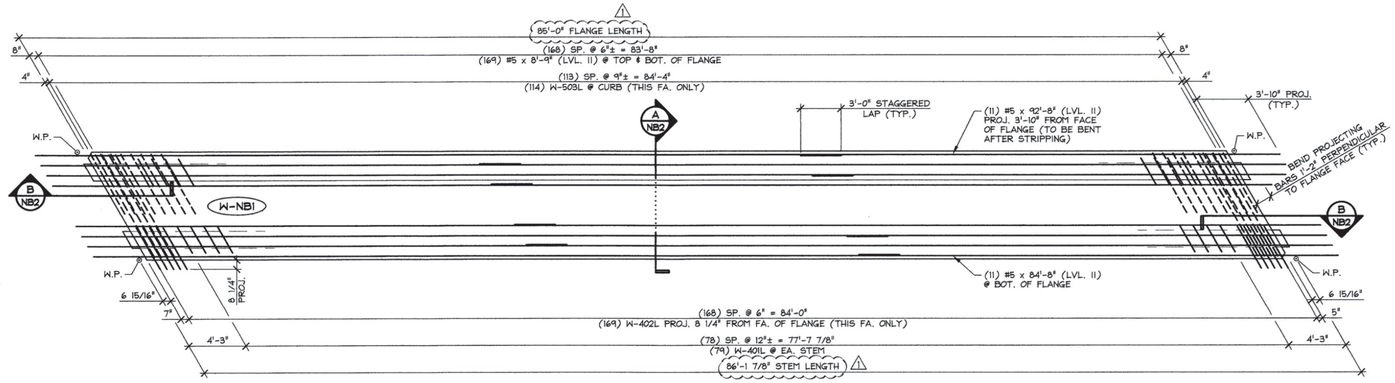
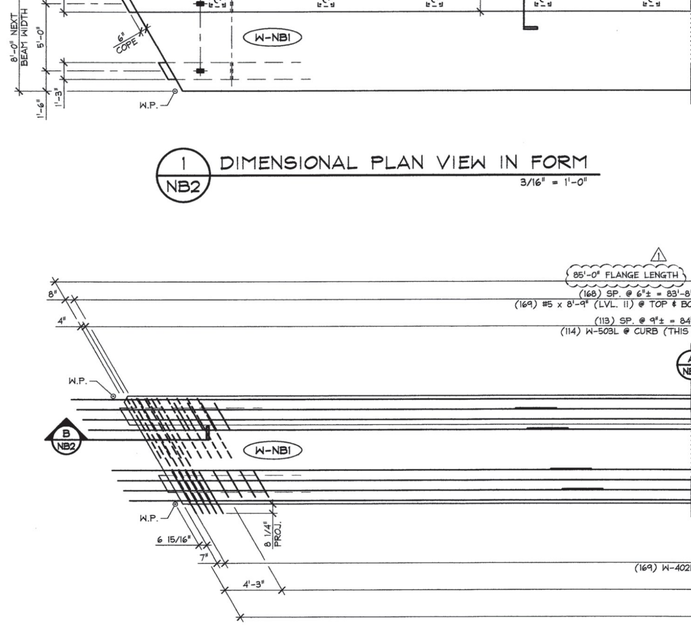


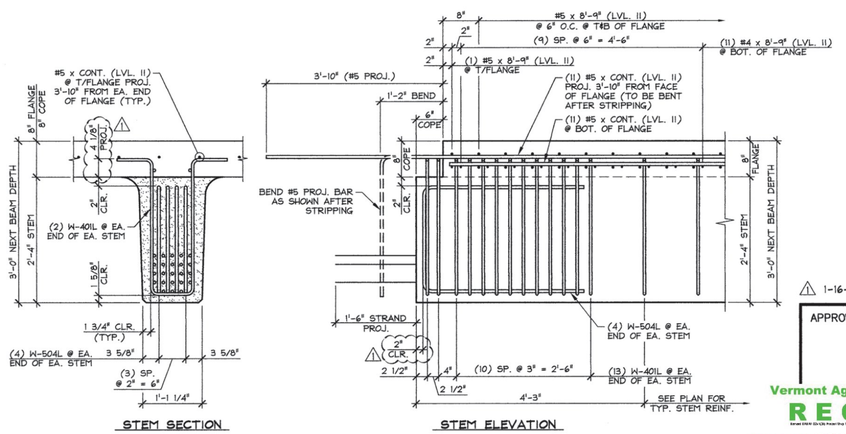
1 NB2 DIMENSIONAL PLAN VIEW IN FORM
3/16" = 1'-0"



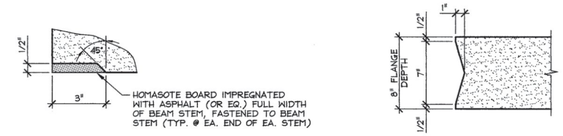
2 NB2 REINFORCING PLAN VIEW IN FORM
ALL DIMENSIONS INDICATED ARE PARALLEL OR PERPENDICULAR TO ℄ OF STEMS (U.N.O.)
3/16" = 1'-0"



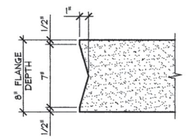
A NB2 DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"



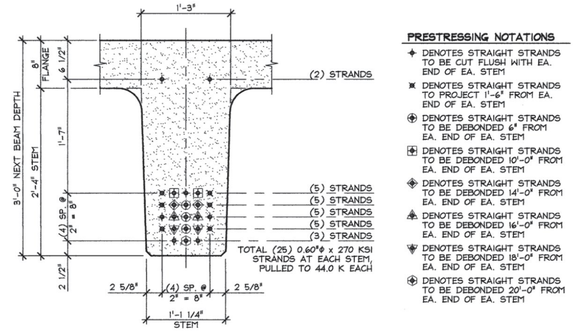
B NB2 END BLOCK STEM REINFORCING DETAILS
3/4" = 1'-0"



DETAIL - "A"
3" = 1'-0"



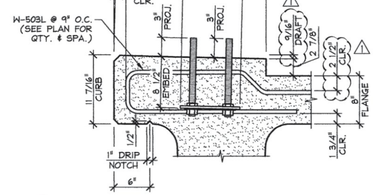
DETAIL - "B"
1 1/2" = 1'-0"



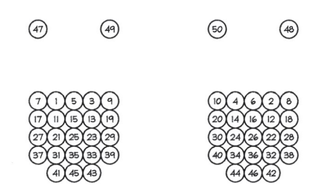
DETAIL - "C" (STEM STRAND PATTERN)
1" = 1'-0"

PRESTRESSING NOTATIONS

- ✦ DENOTES STRAIGHT STRANDS TO BE CUT FLUSH WITH EA. END OF EA. STEM
- ✖ DENOTES STRAIGHT STRANDS TO PROJECT 1'-6" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
- ⊞ DENOTES STRAIGHT STRANDS TO BE DEBONDED 10'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 14'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 16'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 18'-0" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 20'-0" FROM EA. END OF EA. STEM



C NB2 CURB & GUARD RAIL ANCHOR PLATE SECTION
TYP. BEAM REINF. NOT SHOWN FOR CLARITY
1" = 1'-0"



DETENSIONING SCHEDULE
N.T.S.

MARK: W-NB1	QTY.: 1	WT.: 73.38 T	VOL.: 36.24 cy

MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	W-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	210
2	W-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	169
3		#4 x 8'-9" (LEVEL II, DUAL COATED)	22
4			
5	W-503L	#5 BENT BAR (LEVEL II, DUAL COATED)	114
6	W-504L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
7		#5 x 8'-9" (LEVEL II, DUAL COATED)	340
8		#5 x 92'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
9		#5 x 84'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
10			
11			
12			
13		GUARD RAIL ANCHOR PLATE (GALV.) (SUPPLIED BY OTHERS)	10
14		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	4
15			

⚠ 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
RECEIVED
CK'D BY JDG/JW OK'D BY WDL
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RESUBMIT No Approved
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STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRESTRESSED NEXT BEAM DETAILS

DWG. NO: NB2

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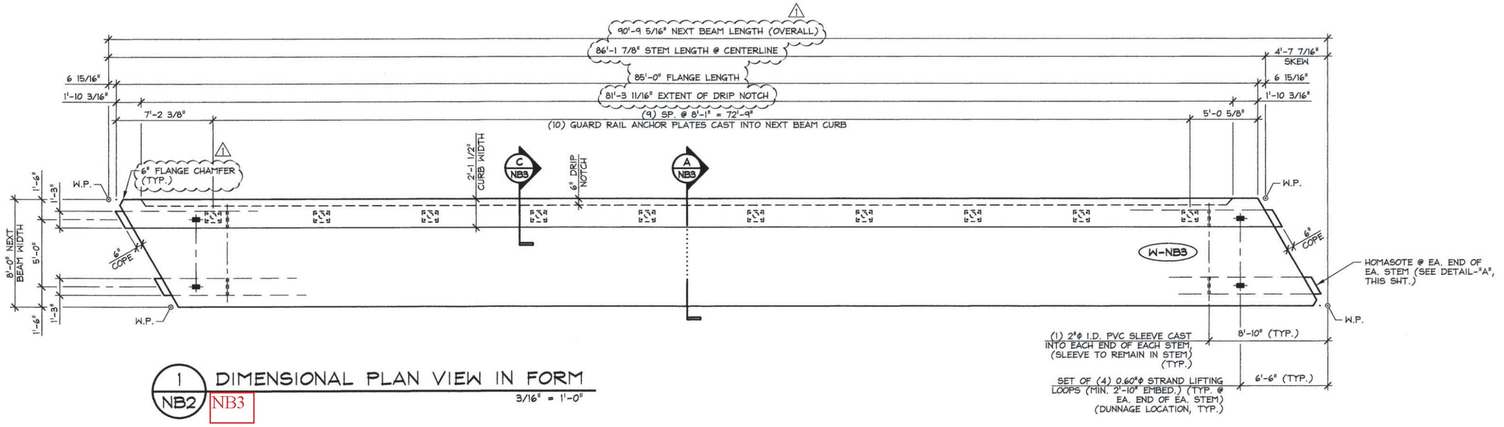
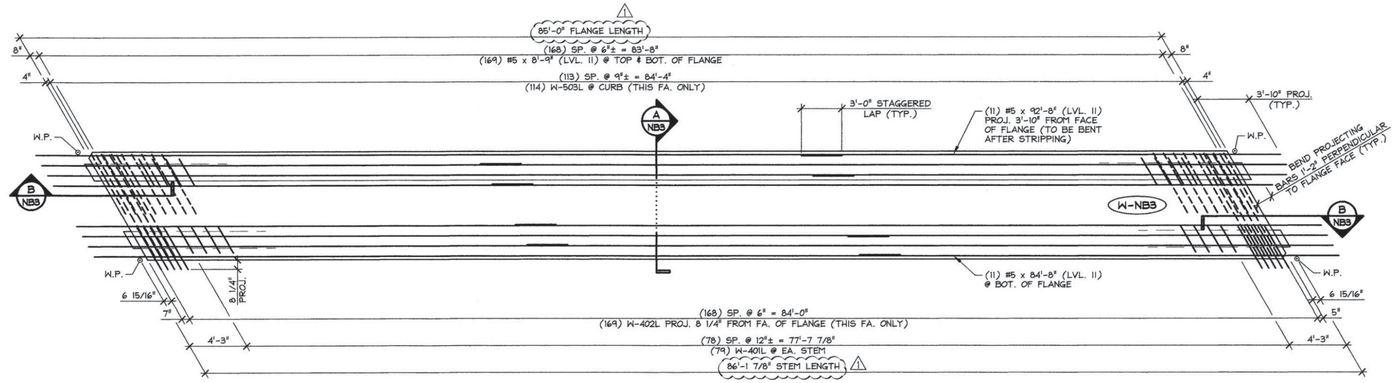
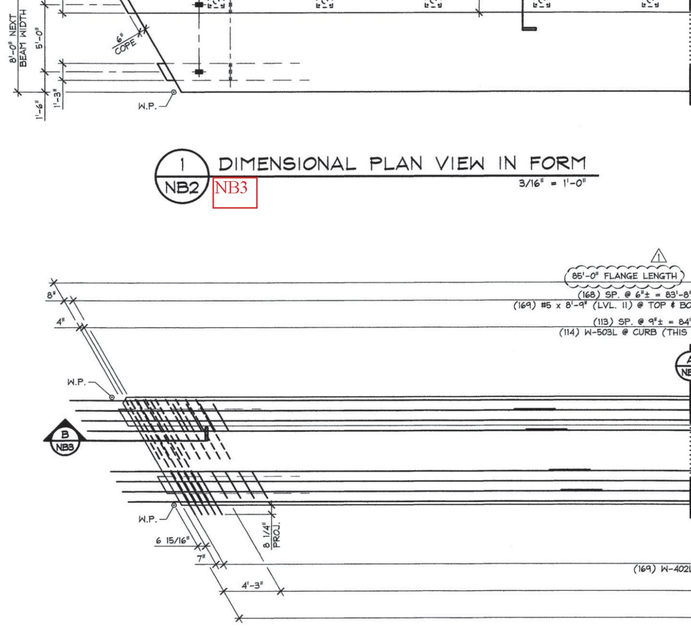


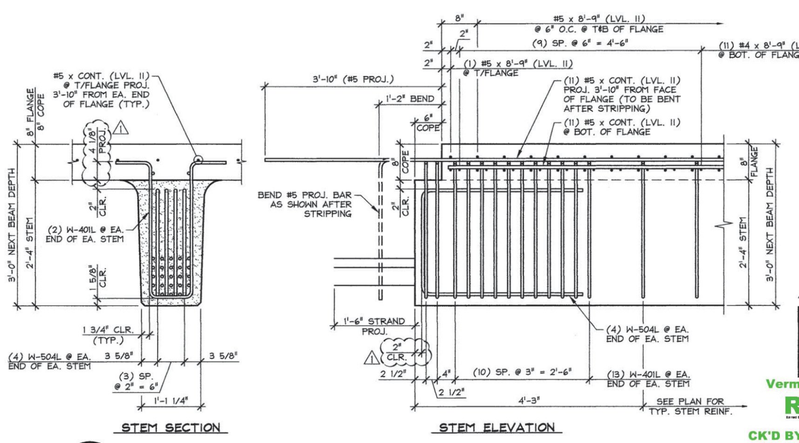
1 NB2 NB3 DIMENSIONAL PLAN VIEW IN FORM
3/16" = 1'-0"



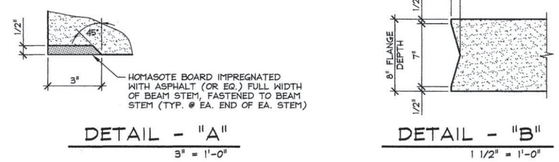
2 NB3 REINFORCING PLAN VIEW IN FORM
ALL DIMENSIONS INDICATED ARE PARALLEL OR PERPENDICULAR TO ℄ OF STEMS (U.N.O.)
3/16" = 1'-0"



A NB3 DIMENSIONAL & REINFORCING SECTION
3/4" = 1'-0"

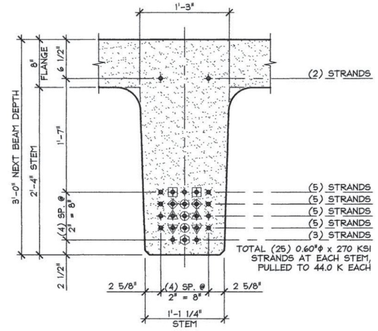


B NB3 END BLOCK STEM REINFORCING DETAILS
3/4" = 1'-0"



DETAIL - "A"
3" = 1'-0"

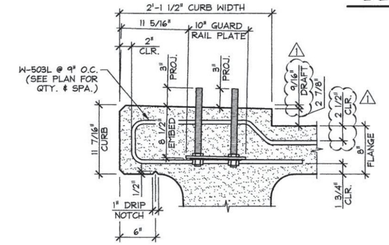
DETAIL - "B"
1 1/2" = 1'-0"



DETAIL - "C" (STEM STRAND PATTERN)
1" = 1'-0"

PRESTRESSING NOTATIONS

- ✦ DENOTES STRAIGHT STRANDS TO BE CUT FLUSH WITH EA. END OF EA. STEM
- ✖ DENOTES STRAIGHT STRANDS TO PROJECT 1'-6" FROM EA. END OF EA. STEM
- ⊕ DENOTES STRAIGHT STRANDS TO BE DEBONDED 6" FROM EA. END OF EA. STEM
- ⊞ DENOTES STRAIGHT STRANDS TO BE DEBONDED 10'-0" FROM EA. END OF EA. STEM
- ◈ DENOTES STRAIGHT STRANDS TO BE DEBONDED 14'-0" FROM EA. END OF EA. STEM
- ⋔ DENOTES STRAIGHT STRANDS TO BE DEBONDED 16'-0" FROM EA. END OF EA. STEM
- ⋎ DENOTES STRAIGHT STRANDS TO BE DEBONDED 18'-0" FROM EA. END OF EA. STEM
- ⊛ DENOTES STRAIGHT STRANDS TO BE DEBONDED 20'-0" FROM EA. END OF EA. STEM



C NB3 CURB & GUARD RAIL ANCHOR PLATE SECTION
TYP. BEAM REINF. NOT SHOWN FOR CLARITY
1" = 1'-0"

DETENSIONING SCHEDULE
N.T.S.

MARK: W-NB3	QTY.: 1	WT.: 73.38 T	VOL.: 36.24 cy

MATERIAL LIST / NEXT BEAM

ITEM	MARK	DESCRIPTION	QTY.
1	W-401L	#4 BENT BAR (LEVEL II, DUAL COATED)	210
2	W-402L	#4 BENT BAR (LEVEL II, DUAL COATED)	169
3		#4 x 8'-9" (LEVEL II, DUAL COATED)	22
4			
5	W-503L	#5 BENT BAR (LEVEL II, DUAL COATED)	114
6	W-504L	#5 BENT BAR (LEVEL II, DUAL COATED)	16
7		#5 x 8'-9" (LEVEL II, DUAL COATED)	340
8		#5 x 92'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
9		#5 x 84'-8" (W/ (1) 2'-6" STAGGERED LAP) (LVL. II, DUAL COATED)	11
10			
11			
12			
13		GUARD RAIL ANCHOR PLATE (GALV.) (SUPPLIED BY OTHERS)	10
14		SET OF (4) 0.60"ø x 270 KSI STRAND LIFTING LOOPS	4
15			

1 1-16-14 REVISED AS NOTED

APPROVAL STAMP:

Vermont Agency of Transportation
RECEIVED
CK'D BY JDG/JW OK'D BY WDL
January 27, 2014
RESUBMIT No Approved AsNoted
BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

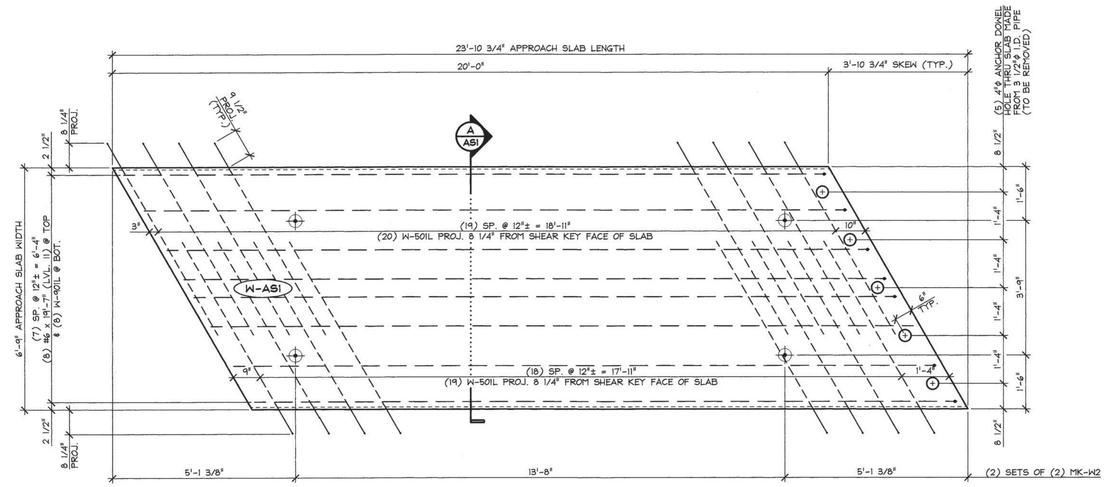
DATE: DEC. 18, 2013
SCALE: NOTED
CHKD: - DFTM: B.L.
JOB NO: 23413-013

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

PRESTRESSED NEXT BEAM DETAILS

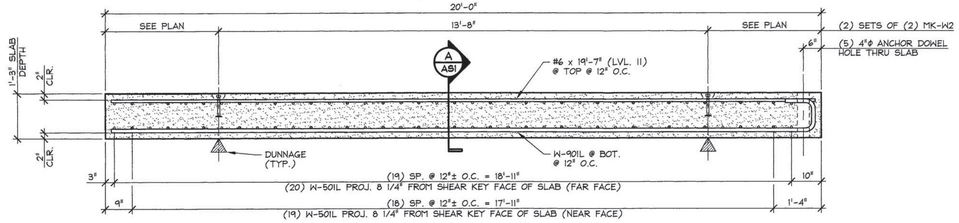
DWG. NO: NB3

F:\VT-Bridges\23413-13 Barnard\23413-NB3.dwg, 1/16/2014 4:49:16 PM



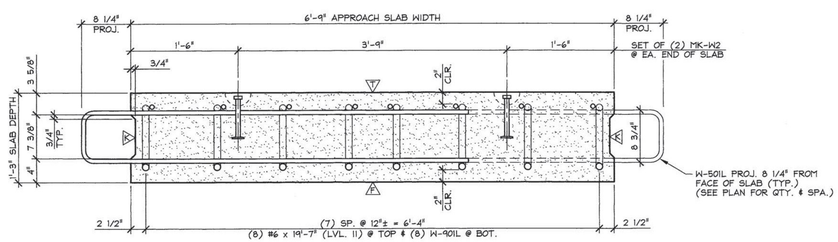
1 / AS1 PLAN VIEW IN FORM

1/2" = 1'-0"



2 / AS1 LONGITUDINAL SECTION

1/2" = 1'-0"



A / AS1 APPROACH SLAB SECTION

1" = 1'-0"

A DENOTES FORM FINISH

A DENOTES FLOAT FINISH

A DENOTES ROUGHENED FINISH

MARK: W-AS1	QTY.: 4	WT.: 12.46 T	VOL.: 6.16 cy
MARK: -	QTY.: -	WT.: -	VOL.: -

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB W-AS1	QTY./SLAB -
1	W-501L	#5 BENT BAR (LEVEL II, DUAL COATED)	39	
2				
3		#6 x 19'-7" (LEVEL II, DUAL COATED)	8	
4				
5	W-901L	#9 BENT BAR (LEVEL II, DUAL COATED)	8	
6				
7				
8	MK-W2	4T x 7 1/8" SWIFT LIFT LIFTER	4	
9				
10				

APPROVAL STAMP:

Vermont Agency of Transportation

RECEIVED

CK'D BY JDG/JW OK'D BY WDL

January 27, 2014

RESUBMIT No Approved

BY KMH DATE 02/10/2014

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

MILLER CONSTRUCTION, INC.
CONTRACTOR
BARNARD, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: DEC. 18, 2013

SCALE: NOTED

TOWN OF BARNARD
VT ROUTE 12, MAJOR COLLECTOR
BRIDGE NO.: 25 PROJECT NO.: ER BRF 0241(39)

CHKD: - DFTM: B.L.

JOB NO: 23413-013

PRECAST APPROACH SLAB DETAILS

DWG. NO: AS1

F:\VT-Bridges\23413-13 Barnard\23413-AS1.dwg, 12/18/2013 4:33:44 PM

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **ASTM A500 gr B**

Welding process **Gas Metal Arc Welding (GMAW)**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F) or Horizontal (2F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **35-45 CFM**

Single or multiple pass **Single**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

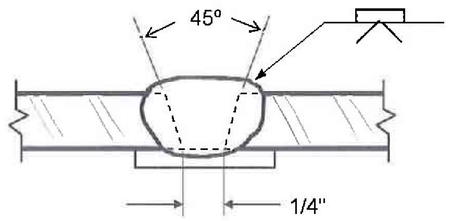
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F)**

Postheat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
	1	0.063"	300 A ± 30	29 V ± 2	15 ipm ± 2	B-U2a-GF 

Vermont Agency of Transportation
RECEIVED
CK'D BY _____ OK'D BY JWC
December 6, 2013
RESUBMIT NO Approved
BY JTS DATE 12-20-2013

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1

WPS no. **W-VGwBCK**

Revision no. **0**

Supporting PQR no. **Pre-Qualified**

Project Name **Barnard, Vermont**

Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

Date **12/5/13**

Project Number **ER BRF 0241 (39)**

Paul A Radice
AWI 98070221
QC1 EXP. 7/1/2018

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification: **ASTM A36, A709 Gr 36, A500 gr B, A709 gr 50, A572 gr 50, A992**

Welding process: **Gas Metal Arc Welding (GMAW) Spray Transfer**

Manual, semi-automatic, or automatic: **Semi-Automatic**

Position of welding: **Flat (1F) or Horizontal (2F)**

Filler metal specification: **AWS A5.18**

Filler metal classification: **ER70S-6**

Electrode and manufacturer: **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer: **N/A**

Shielding gas: **86% Argon / 14% CO2** Flow rate: **35-45 CFM**

Single or multiple pass: **Single or Multiple**

Single or multiple arc: **Single**

Welding current: **DCEP**

Polarity: **Reverse - electrode positive**

Welding progression: **Stringers**

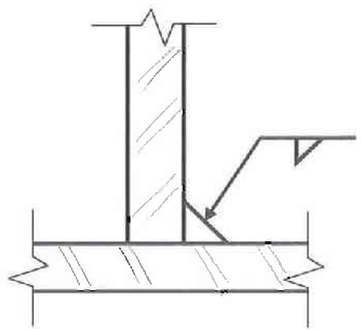
Root treatment: **clean base metal**

Preheat and interpass temperature: **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**

Postheat treatment: **None**

Electrode extension: **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
1/4"	1	0.062"	300 A ± 30	29 V ± 2	15 ipm ± 2	TYPICAL ALL FILLET WELDS 

Vermont Agency of Transportation
RECEIVED
CK'D BY _____ OK'D BY JWC
December 6, 2013
RESUBMIT NO Approved
BY JTS DATE 12-20-2013

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.1 / D1.5

WPS no. **W-1966**

Revision no. **0**

Supporting PQR no. **Pre-Qualified**

Project Name **Barnard, Vermont**

Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

Date **12/5/13**

Project Number **ER BRF 0241 (39)**

Paul A Radice
CWI 98070221
QCT EXP. 7/1/2016

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **A572 gr 50, A709 Gr 50**

Welding process **Gas Metal Arc Welding (GMAW) Spray Transfer**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F) or Horizontal (2F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **35-45 CFM**

Single or multiple pass **Single or Multiple**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

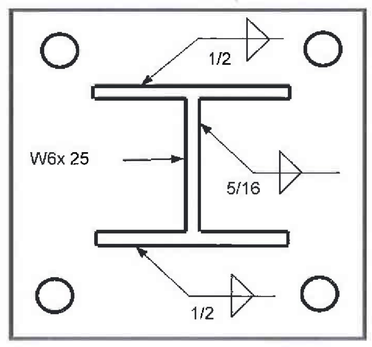
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**

Postheat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
5/16"	1	0.062"	300 A ± 30	29 V ± 2	15 ipm ± 2	
1/2"	1 & 2	0.062"	↓	↓	15 ipm ± 2	

Vermont Agency of Transportation
RECEIVED
CK'D BY _____ OK'D BY JWC
December 6, 2013
RESUBMIT NO Approved
BY JTS DATE 12-20-2013

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

WPS no. **W-VTPEDPOST2**

Revision no. **0**

Supporting PQR no. **Pre-Qualified**

Project Name **Barnard, Vermont**

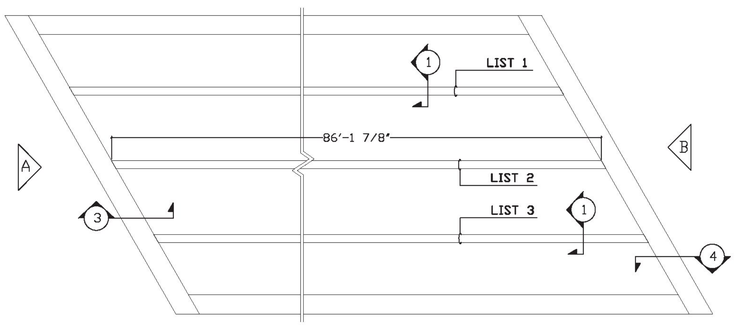
Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2016

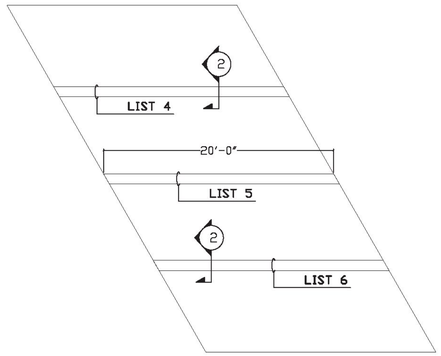
Date **12/5/13**

Project Number **ER BRF 0241 (39)**



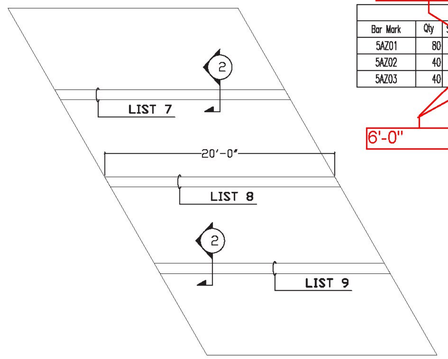
DECK PLAN

REF: DECK PLAN/17 of 39



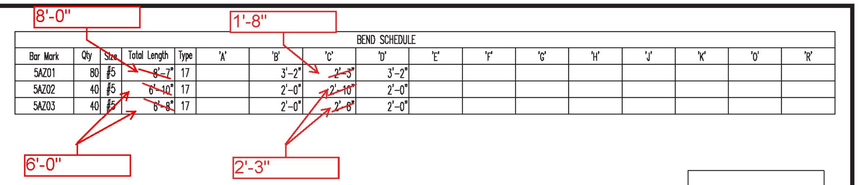
APPROACH SLAB #1 PLAN

REF: APPROACH SLAB VIEW #1 PLAN VIEW/20 of 39



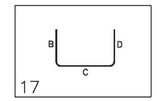
APPROACH SLAB #2 PLAN

REF: APPROACH SLAB VIEW #1 PLAN VIEW/20 of 39



BEND SCHEDULE

Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
5AZ01	80	#5	8'-7"	17		3'-2"	2'-3"	3'-2"								
5AZ02	40	#5	6'-10"	17		2'-0"	2'-10"	2'-0"								
5AZ03	40	#5	6'-8"	17		2'-0"	2'-8"	2'-0"								



LIST 1 86'-1 7/8"
"A" 4x3 #4 X 30'-0" (Z)
4x1 #4 X 3'-7" (Z)

LIST 2 86'-1 7/8"
"A" 4x3 #4 X 30'-0" (Z)
4x1 #4 X 3'-7" (Z)

LIST 3 86'-1 7/8"
"A" 4x3 #4 X 30'-0" (Z)
4x1 #4 X 3'-7" (Z)

LIST 4 20'-0"
"B" 4 #5 X 19'-8" (Z)

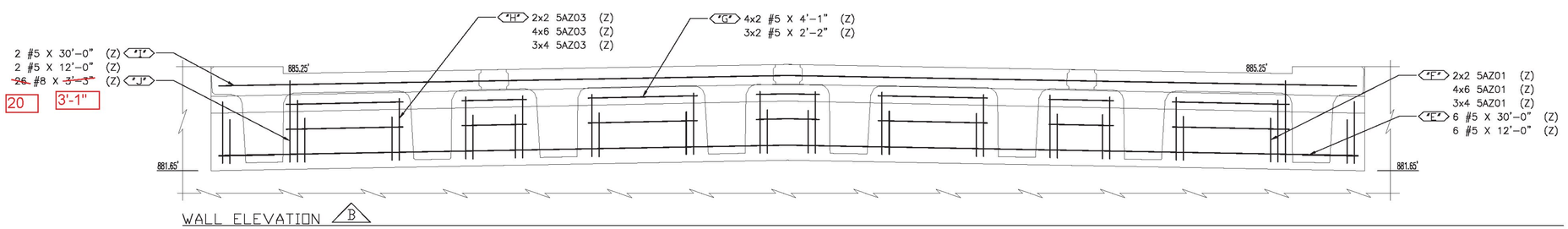
LIST 5 20'-0"
"B" 4 #5 X 19'-8" (Z)

LIST 6 20'-0"
"B" 4 #5 X 19'-8" (Z)

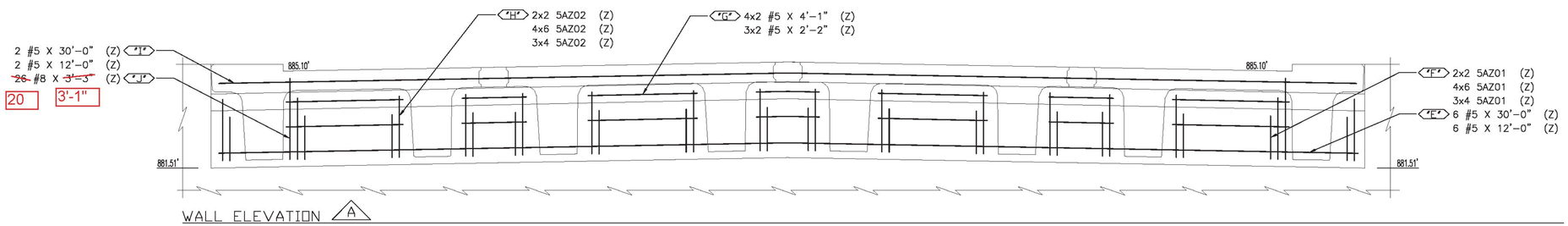
LIST 7 20'-0"
"B" 4 #5 X 19'-8" (Z)

LIST 8 20'-0"
"B" 4 #5 X 19'-8" (Z)

LIST 9 20'-0"
"B" 4 #5 X 19'-8" (Z)



WALL ELEVATION B



WALL ELEVATION A

NOTE: ALL REINFORCING ON THIS DRAWING IS DUAL COATED.

LEGEND:
CONT.-CONTINUOUS
TRANS.-TRANSVERSE
DWLS.-DOWELS
VERTS.-VERTICAL
HORIZ.-HORIZONTAL
T&B -TOP & BOTTOM
I.F.-INNER FACE
O.F.-OUTER FACE
E.E.-EACH END
E.F.-EACH FACE
F.F.-FRONT FACE
R.F.-REAR FACE
E.W.-EACH WAY
O.C.-ON CENTER
L.W.-LONG WAY
S.W.-SHORT WAY

TENSION LAP SPLICE LENGTHS	
#4	2'-7"
#5	2'-7"

FOR APPROVAL

ELEVATIONS & DIMENSIONS SHOWN ON THIS DWG. ARE FOR REINF. DETAILING PURPOSES ONLY AND ARE NOT INTENDED FOR CONSTRUCTION.

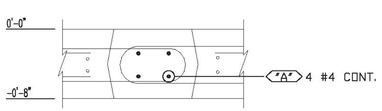
REINF. BARS ASTM A1055 (Z) BAR DUAL COATED BAR DENOTED (Z).

VERIFICATION OF UNCLEAR INFORMATION MAY BE REQUESTED ON THIS DRAWING. SHOULD VERIFICATION BE LEFT UNADDRESSED IT WILL REMAIN AS SHOWN AND ASSUME CORRECT.

CONTRACTOR/ENGINEER PLEASE VERIFY QUANTITY AND DIMENSIONS.

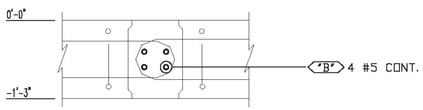
Vermont Agency of Transportation
RECEIVED
CK'D BY KF OK'D BY WL
January 31, 2014
RESUBMIT NO Approved AsNoted
BY KH DATE 2-6-2014

PLEASE PROVIDE DELIVERY ADDRESS.



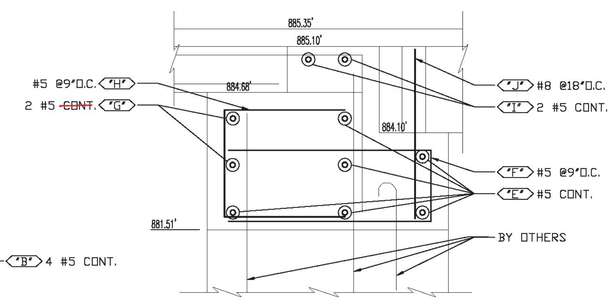
SECTION 1

REF: CONNECTION DETAIL/18 of 39



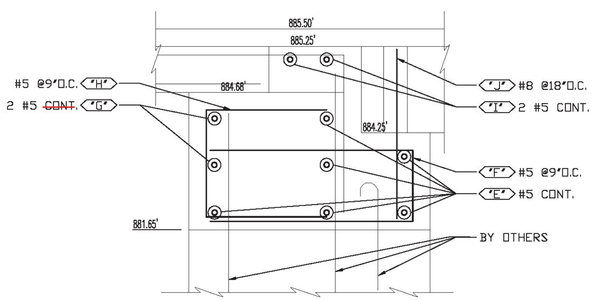
SECTION 2

REF: CONNECTION DETAIL/18 of 39



SECTION 3

REF: REINFORCING TYP./25 of 39



SECTION 4

REF: REINFORCING TYP./25 of 39

6			
5			
4			
3			
2	1/30/14	⚠	REVISE AND RESUBMIT/FOR APPROVAL
1	12/31/13	–	APPROVAL
	DATE	REV.#	SENT FOR

DIMENSION
DIMENSION FABRICATORS INC.
2000 7TH STREET
SCOTIA, N.Y. 12302
PH: (518) 374-1638
FAX (518) 374-4830
www.dimensionfabricators.com

STRUCTURE	BARNARD
LOCATION	
ARCHITECT	
ENGINEER	VERMONT AGENCY OF TRANSPORTATION
CUSTOMER	MILLER CONSTRUCTION

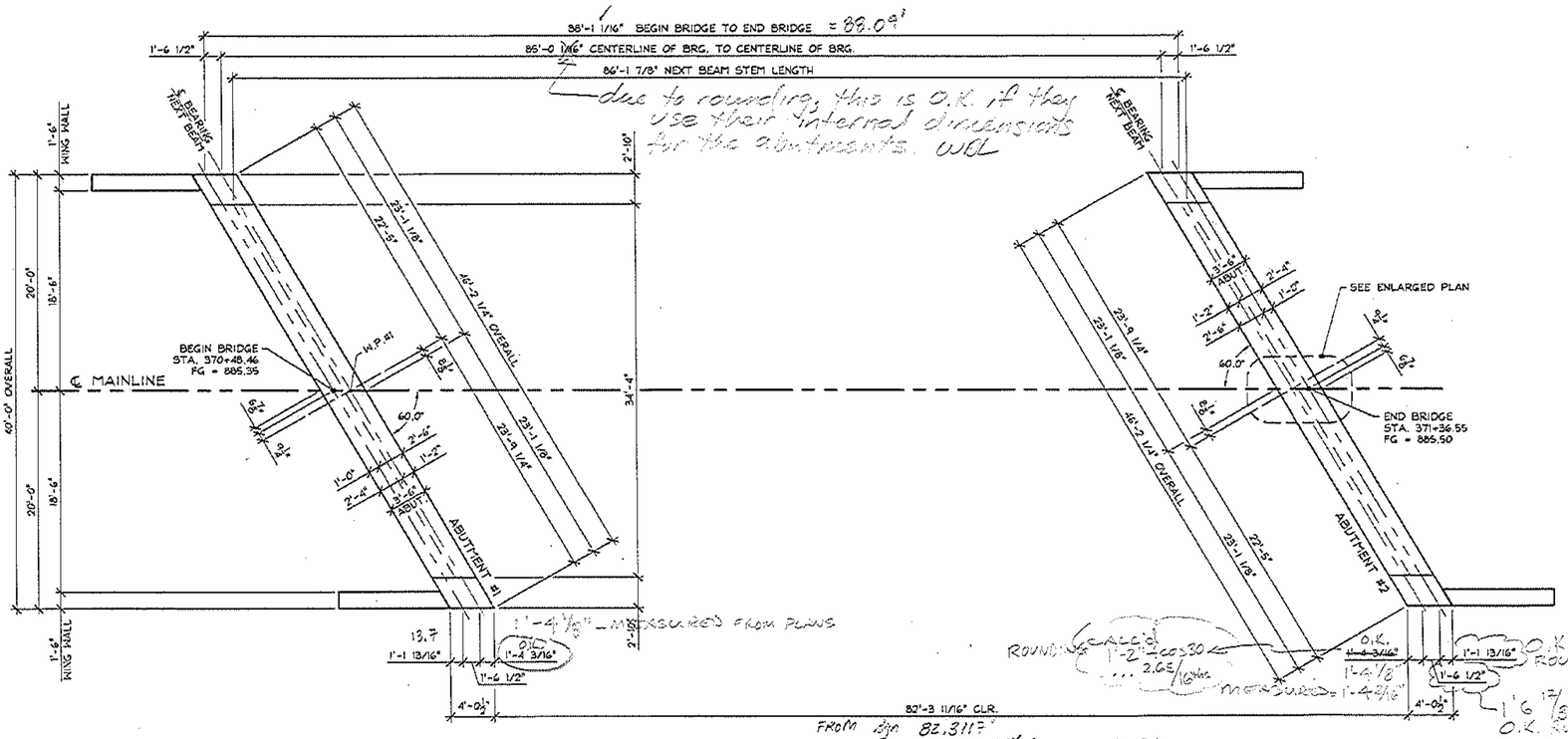
DRAWN BY	DATE	DFI #
ASHLEE	12/31/13	8702

DRAWING COVERS: APPROACH SLAB AND DECK SLAB CONNECTION JOINT REINFORCING

DRAWING #: A

1/16" → 1/32" OFF ~ ROUNDING ISSUE

MEASURED FROM MICROSTATION:
85.0000' ON PLANS = 85'-0 1/16"
℄ - ℄



ABUTMENT & WING WALL LAYOUT

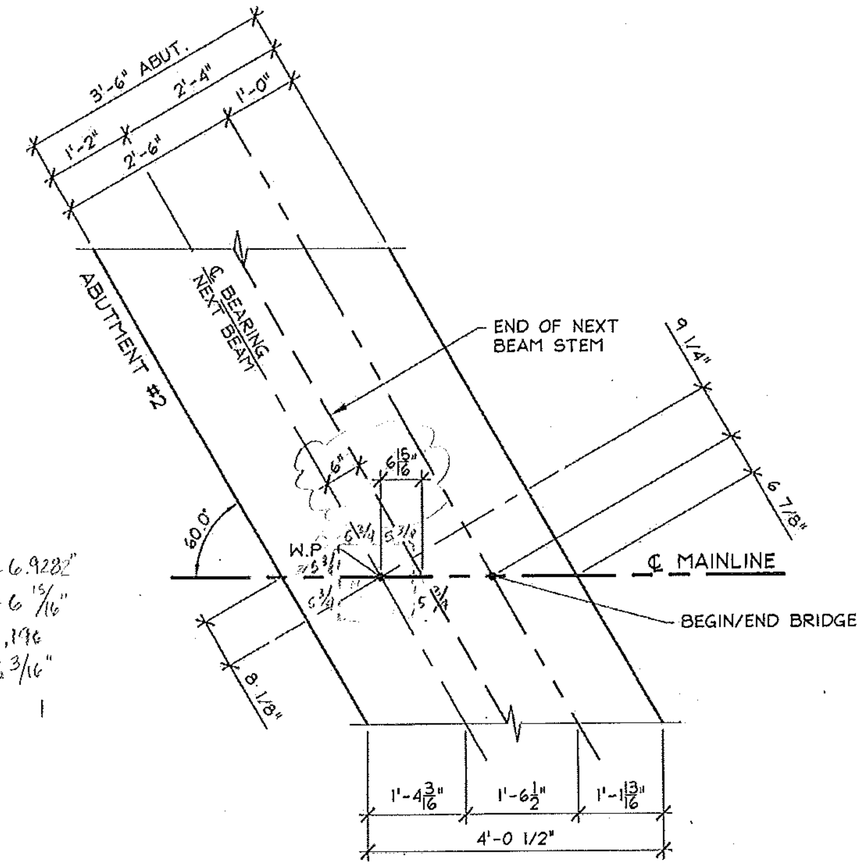
FROM CONTRACT PLANS
$\℄_{BRG} - \℄_{BRG} = (371+35.00) - (370+50.00) = 85'$
(BEG BRIDGE ↔ END BRIDGE) − (℄ BRG ↔ ℄ BRG) = 3' 1 1/16"
÷2
℄ BRG ↔ B/E BRIDGE = 1' 6 17/32"

BRANNAN (TSY) WEL 11/03/03

85'

PARAPETS (39)
WOL 11/07/13

Rebar #6 11 1/2" x 11 1/2"
-2
5 3/4"



ENLARGED PLAN

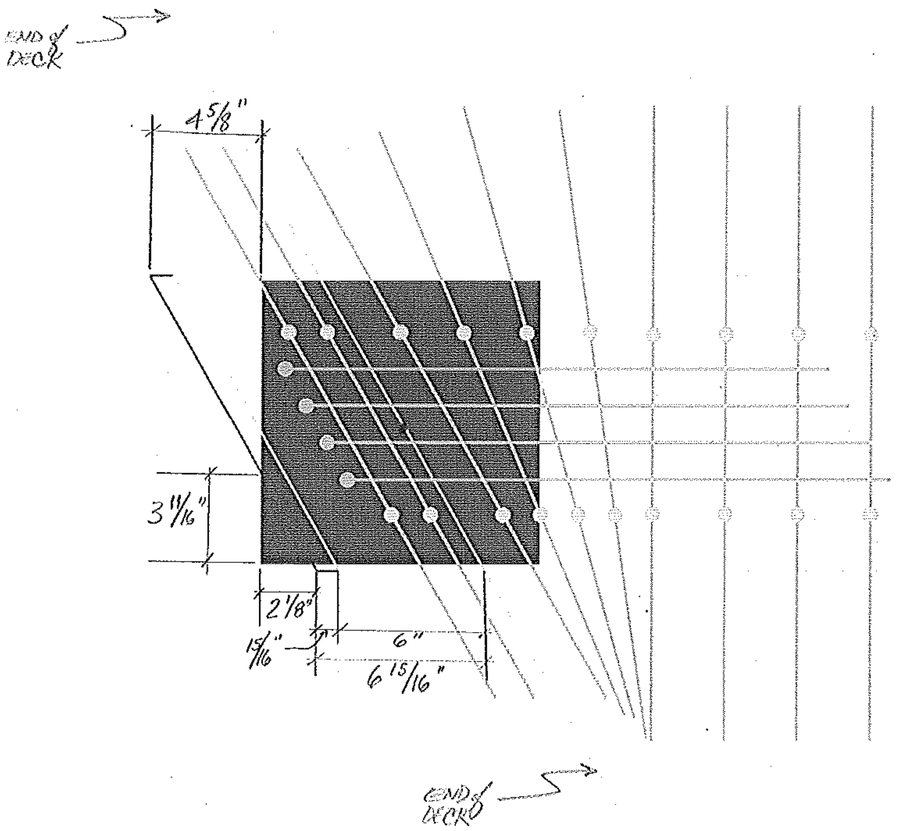
1/2" = 1'-0"

cos =
cos 30° = A/H
cos 30° = 0.866
6" ÷ cos 30° = 6.9282"
= 6 15/16"
6 cos 30 = 5.196
= 5 3/16"

$\frac{15}{16} \times 2 = \frac{30}{16} = 1\frac{14}{16} = 1\frac{7}{8}$"

EXTEND STEM 15/16" EA. END.

BEARING STILL STICKS OUT @ obtuse CORNER by 2 1/8"



CHECK AREA UNDER BEAM - SEE IF THAT SUPPORTS LOADS

$(11.5\,in)^2 - \frac{1}{2}(3\frac{11}{16}\,in)(2\frac{1}{8}\,in) =$

$132\,in^2 - 3.92\,in^2 = 128.08\,in^2 \sim 97\%$ OF AREA