STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

CITY OF RUTLAND

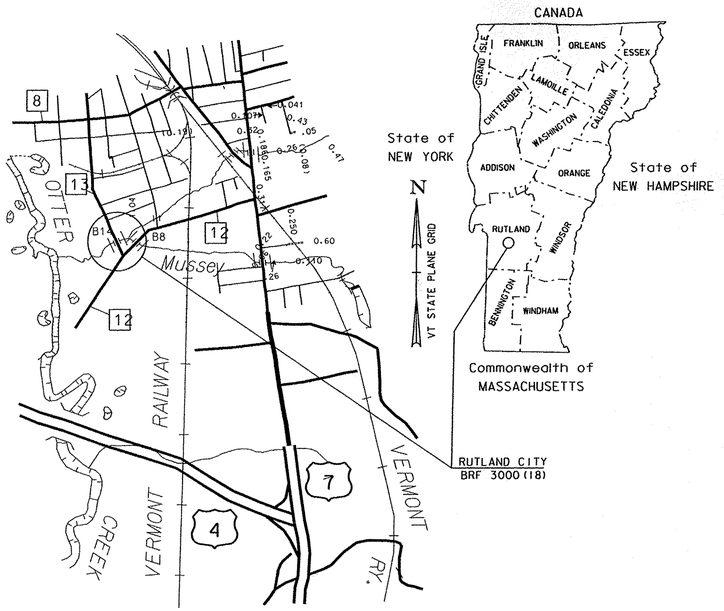
COUNTY OF RUTLAND

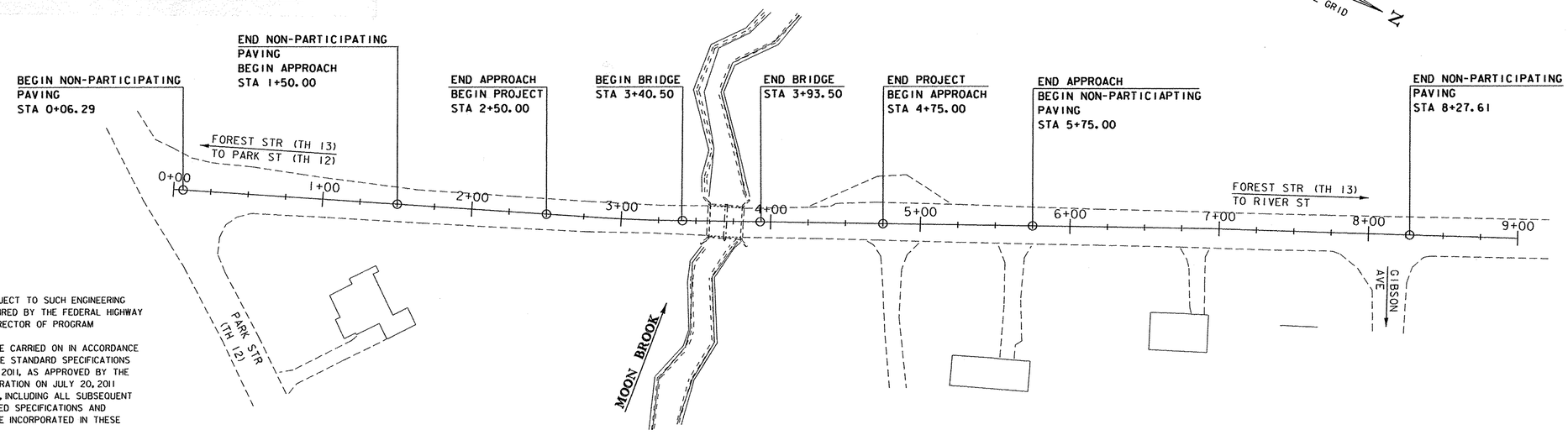
ROUTE NO : TH 13 (FOREST STREET) - URBAN COLLECTOR BRIDGE NO : 14

PROJECT LOCATION : ON FOREST STREET (TH 13), APPROXIMATELY 0.1 MILES FROM THE INTERSECTION OF FOREST STREET (TH 13) WITH PARK STREET (TH 12) OVER MOON BROOK

PROJECT DESCRIPTION : REPLACEMENT OF BRIDGE 14 WITH RELATED APPROACH ROADWAY AND CHANNEL WORK
NON-PARTICIPATING PAVING

LENGTH OF STRUCTURE : 53 FEET.
LENGTH OF ROADWAY : 172 FEET.
LENGTH OF PROJECT : 225 FEET.





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

RECORD PLANS

CONTRACTOR: THE BELDEN CO. INC. - RUTLAND, VT
RESIDENT ENGINEER: JUDY GILMORE
CONSTRUCTION BEGAN: JULY 14, 2014
CONSTRUCTION COMPLETE: OCTOBER 31, 2015
RECORD PLANS BY: JUDY GILMORE & KEVIN KING

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

BY Judy Gilmore RESIDENT ENGINEER
DATE 1 June 2016

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.

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.

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY :	L. ORVIS
SURVEYED DATE :	4-23-1998
DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83 (96)

DIRECTOR OF PROGRAM DEVELOPMENT
APPROVED Kevin J. Marchin DATE 3/3/14

PROJECT MANAGER : CAROLYN CARLSON, P.E.

PROJECT NAME : RUTLAND CITY
PROJECT NUMBER : BRF 3000(18)

SHEET 1 OF 44 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

Version 12.09.13

LRFD

INDEX OF SHEETS

PLAN SHEETS

1	TITLE
2	PRELIMINARY INFORMATION
3	TYPICAL SECTIONS
4	PROJECT NOTES
5 - 7	QUANTITY SHEET 1-3
8	BRIDGE QUANTITY SHEET
9	SYMBOLOGY LEGEND
10	TIE
11 - 12	LAYOUT 1-2
13 - 14	PROFILE 1-2
15	BORING LAYOUT
16	BORING LOGS
17	PLAN AND ELEVATION
18	BRIDGE DECK PLAN
19 - 20	BRIDGE VOIDED SLAB DETAILS 1-2
21	APPROACH SLAB DETAILS
22	ABUTMENT 1 & 2 PLAN & ELEVATION
23 - 24	ABUTMENT 1 & 2 REINFORCING DETAILS 1-2
25	BRIDGE RAIL DETAILS
26	TRANSITION RAIL DETAILS
27 - 31	MAINLINE CROSS SECTIONS 1-5
32 - 34	CHANNEL CROSS SECTIONS 1-3
35	BANKING / MATERIAL TRANSITION
36	EPSC NARRATIVE
37 - 38	EPSC EXISTING LAYOUT 1-2
39 - 40	EPSC CONSTRUCTION LAYOUT 1-2
41 - 42	EPSC FINAL LAYOUT 1-2
43 - 44	EPSC DETAILS 1-2

STANDARDS LIST

A-76	STANDARDS FOR TOWN & DEVELOPMENT ROADS	03-03-2003
B-12	SIDE ROAD INTERSECTION, DEPRESSED RAMP	06-01-1994
B-71	STANDARD FOR RESIDENTIAL AND COMMERCIAL DRIVES	07-08-2005
C-10	CURBING	02-11-2008
D-22	SANITARY SEWER SYSTEMS	03-10-1995
G-1	STEEL BEAM GUARDRAIL DETAILS (POST, DELINEATOR, TYPICALS)	01-03-2000
G-1D	STEEL BEAM GUARDRAIL DETAILS (END TERMINAL, ANCHOR, MEDIAN)	01-03-2000

WATER & SEWER REPLACEMENT PLANS

1 - 2	WATER AND SEWER NOTES 1 - 2	BY CLD
3 - 4	WATER/SEWER DETAILS 1 - 2	BY CLD
5	WATER/SEWER LAYOUT 1	BY CLD
6	SEWER PROFILE	BY CLD
7	WATER PROFILE	BY CLD

STRUCTURES DETAIL SHEETS

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

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2012	3000	340	51	4.9	110
2032	3200	360	51	3	70

20 year ESAL for flexible pavement from 2012 to 2032 : 387000

40 year ESAL for flexible pavement from 2012 to 2052 : 750000

Design Speed : 30 mph

AS BUILT "REBAR" DETAIL

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

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: Nov. 2012

DRAINAGE AREA : 8.3 sq. mi.
CHARACTER OF TERRAIN : Flat at site to hilly and mountainous uplands.
STREAM CHARACTERISTICS : Sinuous, alluvial, not incised, wide flood plain
NATURE OF STREAMBED : Gravel and cobbles

PEAK FLOW DATA

Q 2.33 =	325 cfs	Q 50 =	1150 cfs
Q 10 =	725 cfs	Q 100 =	1400 cfs
Q 25 =	950 cfs	Q 500 =	2000 cfs

DATE OF FLOOD OF RECORD : Unknown
ESTIMATED DISCHARGE: Unknown
WATER SURFACE ELEV.: Unknown
NATURAL STREAM VELOCITY : @ Q50 = 6.4 fps (1.7 fps)*
ICE CONDITIONS : Moderate
DEBRIS: Moderate
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? No
IS ORDINARY RISE RAPID? Yes
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? Yes
IF YES, DESCRIBE: Otter Creek is about 1300' downstream. This site is in the Otter Creek floodplain, and thus hydraulics at this site are sometimes controlled by the Otter Creek.

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Two span steel beam bridge with concrete deck
YEAR BUILT: 1900
CLEAR SPAN(NORMAL TO STREAM): Two 10' spans = 20' total
VERTICAL CLEARANCE ABOVE STREAMBED: 8'
WATERWAY OF FULL OPENING: 157 sq. ft.
DISPOSITION OF STRUCTURE: Remove
TYPE OF MATERIAL UNDER SUBSTRUCTURE: See boring logs

WATER SURFACE ELEVATIONS AT:

Q2.33 =	525.3' (525.6')*	VELOCITY =	4.6 fps (4.2 fps)*
Q10 =	527.3' (530.3')	"	6.9 fps (4.6 fps)
Q25 =	528.2' (531.6')	"	8.6 fps (4.1 fps)
Q50 =	528.9' (532.5')	"	10.1 fps (2.8 fps)
Q100 =	530.0' (533.4')	"	12.2 fps (2.3 fps)

LONG TERM STREAMBED CHANGES: None noted

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)
RELIEF ELEVATION: 530.1'
DISCHARGE OVER ROAD @Q100: None without tailwater (1045 cfs with tailwater)

UPSTREAM STRUCTURE

TOWN: N.A. - Stream divides
HIGHWAY# :
CLEAR SPAN:
YEAR BUILT:
STRUCTURE TYPE:
DISTANCE:
STRUCTURE #:
CLEAR HEIGHT:
FULL WATERWAY:

DOWNSTREAM STRUCTURE

TOWN: N.A. - Otter Creek confluence
HIGHWAY# :
CLEAR SPAN:
YEAR BUILT:
STRUCTURE TYPE:
DISTANCE:
STRUCTURE #:
CLEAR HEIGHT:
FULL WATERWAY:

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	2.18	1.16					
POSTING							
OPERATING	2.82	1.51	2.43	1.43	1.99	1.81	1.97
COMMENTS:							

PILE DRIVING AND TESTING REQUIREMENTS

1. NOMINAL PILE DRIVING CAPACITY — R_{nds}: 440.00 KIP
2. PILE TEST RESISTANCE FACTOR — ϕ: 0.65
3. MAXIMUM PILE TIP ELEVATION: 503.00 FT
4. 0

PROPOSED STRUCTURE

STRUCTURE TYPE: Single span, prestressed concrete voided slab

CLEAR SPAN(NORMAL TO STREAM): 48'
VERTICAL CLEARANCE ABOVE STREAMBED: 7'
WATERWAY OF FULL OPENING: 310 sq. ft.

WATER SURFACE ELEVATIONS AT:

Q2.33 =	525.2' (525.5')*	VELOCITY=	5.0 fps (4.5 fps)*
Q10 =	526.7' (530.0')	"	6.4 fps (2.9 fps)
Q25 =	527.2' (531.4')	"	7.3 fps (2.6 fps)
Q50 =	527.5' (532.5')	"	8.0 fps (2.1 fps)
Q100 =	528.0' (533.4')	"	8.8 fps (1.9 fps)

IS THE ROADWAY OVERTOPPED BELOW Q100: No (Yes)*
FREQUENCY: Above Q100 without tailwater (About Q10 with Otter Creek tailwater)
RELIEF ELEVATION: 530.1'
DISCHARGE OVER ROAD @Q100: None without tailwater (800 cfs with tailwater)

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 528.5'
VERTICAL CLEARANCE: @ Q50 = 1.0' without tailwater (-4.0' with tailwater)

SCOUR: Total contraction scour and long term degradation is 2' at Q100 and Q500.

REQUIRED CHANNEL PROTECTION: Stone Fill, Type III

PERMIT INFORMATION

AVERAGE DAILY FLOW:	20 cfs	DEPTH OR ELEVATION:
ORDINARY LOW WATER:	10 cfs	Elev. 521.5'
ORDINARY HIGH WATER:	140 cfs	Elev. 524.0'

TEMPORARY BRIDGE REQUIREMENTS

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

ADDITIONAL INFORMATION

*Hydraulics at this site are controlled by floodwaters from the Otter Creek. Water surface elevations and velocities listed first, are without tailwater from Otter Creek. They are followed by values in ( ), that represent conditions with equal frequency floods on the Otter Creek and Moon Brook.

TRAFFIC MAINTENANCE NOTES

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

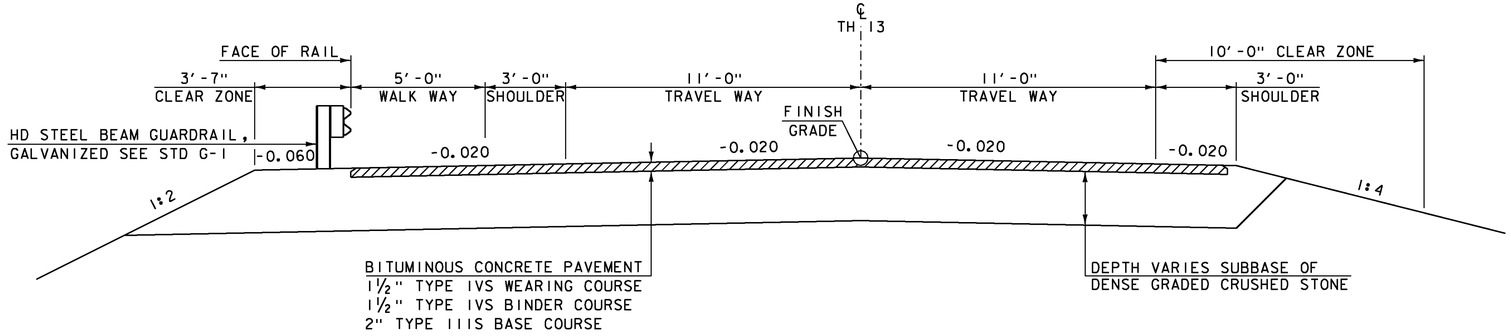
DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	3.0 INCH
3. DESIGN SPAN	L:	50.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	0.55 INCH
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	270 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	7.5 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	5.0 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:	4.0 KSF
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:	440.0 KIPS
20. PILE YIELD STRENGTH ASTM A572	f_y:	50 KSI
21. PILE SIZE		HP 10X57
22. EST. PILE LENGTH	L_p:	53 FT
23. PILE RESISTANCE FACTOR	ϕ:	0.65
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: **RUTLAND CITY**
PROJECT NUMBER: **BRF 3000(18)**

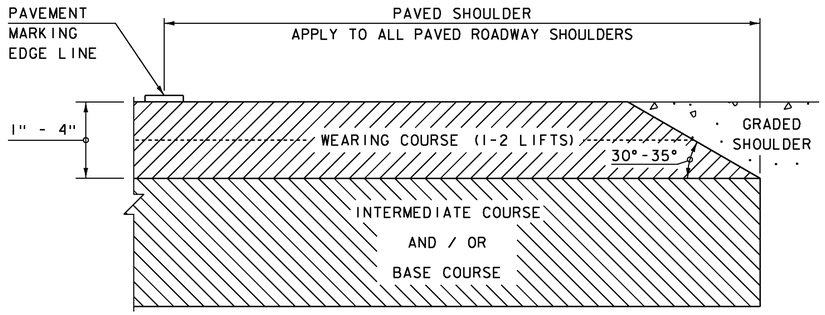
FILE NAME: **s96j244pi.xls**
PROJECT LEADER: **C. CARLSON**
DESIGNED BY: **M. EVANS-MONGEON**
PRELIMINARY INFORMATION

PLOT DATE: 2/28/2014
DRAWN BY: **R. PELLETT**
CHECKED BY: **M. E-M**
SHEET 2 OF 44



ROADWAY TYPICAL SECTION

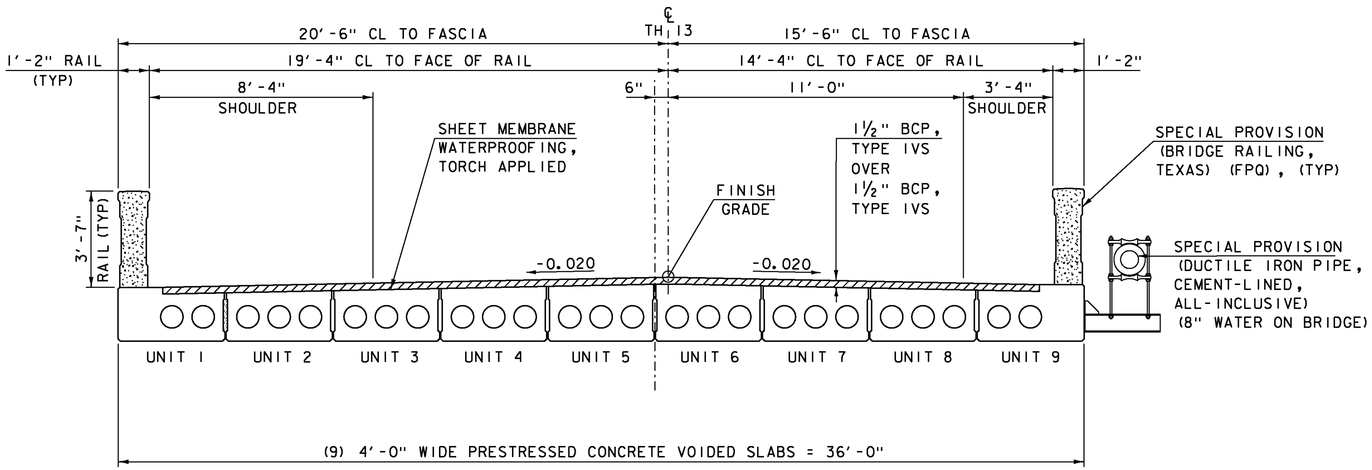
SCALE ⅜" = 1'-0"



SAFETY EDGE DETAIL

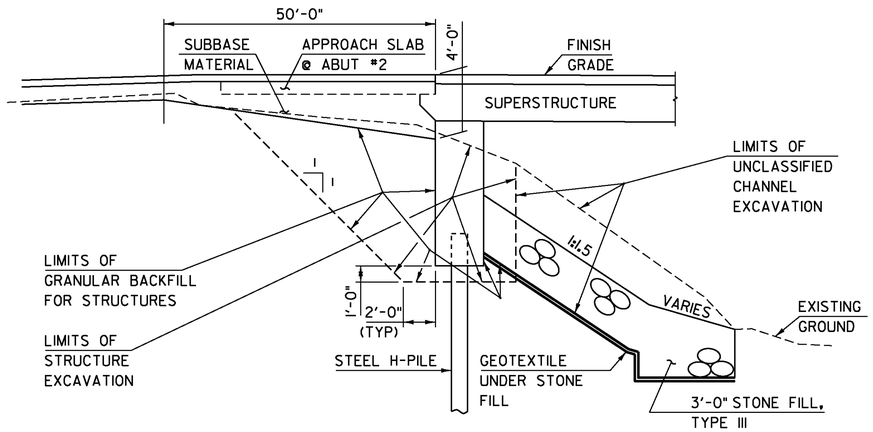
NOT TO SCALE

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.



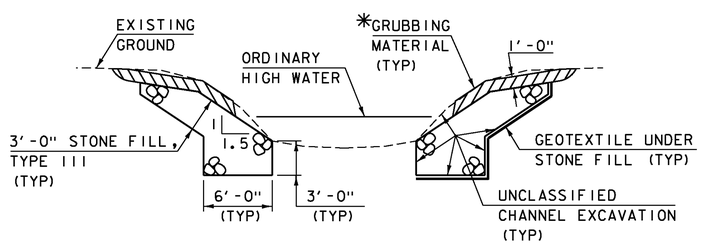
BRIDGE TYPICAL SECTION

SCALE ⅜" = 1'-0"



ABUTMENT EARTHWORK TYPICAL SECTION

NTS



TYPICAL CHANNEL SECTION

NTS

*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.

*BCP SHOULD BE READ AS BITUMINOUS CONCRETE PAVEMENT AND SHALL BE PAID FOR UNDER PAY ITEM 900.680 "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)".

TACK COAT:
EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.025 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AND ON COLD-PLANED SURFACES, AS DIRECTED BY THE ENGINEER.

MATERIAL TOLERANCES

(IF USED ON PROJECT)

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

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244typ.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
TYPICAL SECTIONS

PLOT DATE: 07-MAR-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 3 OF 44

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) 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.

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

4) THE WEARING SURFACE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF THE ADJACENT PRESTRESSED UNITS.

5) THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL BURIED AND AERIAL UTILITIES AND POLES PRIOR TO STARTING WORK. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

TRAFFIC CONTROL

6) THE CONTRACTOR WILL BE ALLOWED TO CLOSE THE BRIDGE FOR A MAXIMUM OF FOUR CONSECUTIVE WEEKS TO COMPLETE THE BRIDGE REPLACEMENT. SEE THE SPECIAL PROVISIONS FOR WORK REQUIREMENTS AND INCENTIVE/DISINCENTIVE PROVISIONS FOR THE BRIDGE CLOSURE PERIOD.

7) THE CONTRACTOR SHALL NOTIFY THE CITY OF RUTLAND A MINIMUM OF FOUR WEEKS PRIOR TO CLOSING THE BRIDGE.

8) FULL ACCESS TO ALL SIDE ROADS AND DRIVES WITHIN THE PROJECT LIMITS SHALL BE MAINTAINED AT ALL TIMES. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

9) THE CHOICE OF A DETOUR AND THE DETOUR SIGNING WILL BE THE RESPONSIBILITY OF THE CITY OF RUTLAND.

10) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF A SITE-SPECIFIC, TRAFFIC CONTROL PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE TRAFFIC CONTROL PACKAGE, IDENTIFYING THE PROJECT BEFORE, DURING AND AFTER THE EXISTING TRAFFIC CONTROL PATTERN IS ALTERED. THE CONTRACTOR SHALL SUBMIT A DETAILED TRAFFIC-CONTROL PLAN TO THE ENGINEER FOR ALL STAGES OF CONSTRUCTION, FOR APPROVAL PER SUBSECTION 105.03. NO WORK SHALL BEGIN UNTIL THE TRAFFIC-CONTROL PLAN HAS BEEN APPROVED. ALL COST SHALL BE INCLUDED IN ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". SEE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.

11) THE COST FOR ALL ITEMS REQUIRED TO IMPLEMENT THE CONTRACTOR'S TRAFFIC CONTROL PLAN SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

12) ALL SIGNS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE CLEANED WEEKLY OR AS DIRECTED BY THE ENGINEER. THE COST FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".

13) ALL SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD. WHERE CONFLICTS EXISTS BETWEEN THE MUTCD AND THE PLANS, THE MUTCD SHALL GOVERN. FOR ADDITIONAL SIGNING SEE THE T SERIES OF THE STANDARDS.

EARTHWORK

14) REMOVAL OF THE EXISTING STRUCTURE SHALL BE UNDER ITEM 529.15, "REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE THAT FALL OUTSIDE THE LIMITS OF ANY OF THE EXCAVATION ITEMS.

15) EXCAVATION OF SOILS TO THE LIMITS SHOWN ON THE TYPICAL ABUTMENT SECTION SHALL BE PAID FOR UNDER ITEM 204.25, "STRUCTURE EXCAVATION" AND ITEM 203.27, "UNCLASSIFIED CHANNEL EXCAVATION". ANY EXCAVATION OUTSIDE THESE LIMITS, WHICH IS NOT REMOVAL OF STRUCTURE, WILL BE AT THE CONTRACTOR'S EXPENSE.

16) THE "STONE FILL, TYPE III" UNDER THE BRIDGE AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE SUPERSTRUCTURE IS SET.

CONCRETE

17) ITEM 514.10, 'WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON THE BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, WITH THE EXCEPTION OF THE BOTTOM OF THE PRECAST VOIDED SLABS BETWEEN THE DRIP NOTCHES.

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

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

20) ALL REINFORCING STEEL SHALL MEET THE REQUIREMENTS FOR REINFORCING STEEL, LEVEL II. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE APPROPRIATE SECTION 540 CONTRACT ITEM.

PRECAST ABUTMENTS AND POST-TENSIONING

21) 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.

22) POST-TENSIONING AND ASSOCIATED ITEMS ARE ONLY REQUIRED IF THE PILE CAP IS CONSTRUCTED IN MORE THAN ONE PIECE. 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.

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

24) 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 POST-TENSIONING CONDUIT.
- e) THE JACKING FORCE PER STRAND = 32 KIPS

25) THE CONCRETE FOR THE ABUTMENT # 1 AND ABUTMENT #2 PILE CAVITIES SHALL MEET THE REQUIREMENTS OF ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".

26) 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)".

27) 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 WITH PREVIOUS EXPERIENCE IN POST-TENSIONING.
- h) FILL PILE CAVITIES WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".

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

PRESTRESSED VOIDED SLABS

29) DESIGN VALUES
- a) CONCRETE COMPRESSIVE STRENGTH: f'c = 7,500 PSI.
- b) LIVE LOAD HL-93.
- c) CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'ci = 5,000 PSI
- d) PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7-WIRE STRAND PULLED TO 75% OF THEIR ULTIMATE TENSILE STRENGTH.
- e) POST TENSIONING STRANDS: 0.5 INCH DIAMETER, 270 KSI, LOW-RELAXATION 7 WIRE STRAND.
- f) THERE SHALL BE TWO (2) TRANSVERSE STRANDS PER CONDUIT. JACKING FORCE PER STRAND = 32 KIPS.
- g) 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
- h) ASSUMED MODULUS OF ELASTICITY = 28,500 KSI.
- i)

SERVICE LOADS	FASCIA UNITS	INTERIOR UNITS
MEMBER MOMENT	298* K-FT	307 K-FT
SUPERIMPOSED DEAD LOAD MOMENT	81 K-FT	81 K-FT
LIVE LOAD AND IMPACT MOMENT	411 K-FT	357 K-FT
DEAD LOAD REACTION (PER BRG)	16* KIPS	15 KIPS
LIVE LOAD AND IMPACT REACTION (PER BRG)	19 KIPS	17 KIPS
TOTAL REACTION (PER BRG)	35 KIPS	32 KIPS
FINAL CAMBER	3/8 INCH	3/8 INCH

*INCLUDES WATERLINE DEAD LOAD

30) FILL KEYWAY WITH TYPE IV MORTAR ACCORDING TO SECTION 510. GROUTING SHALL BE PAID FOR UNDER ITEM 510.24, "GROUTING SHEAR KEYS".

31) THE FABRICATOR MAY ALTER THE DESIGN AS DETAILED IN THESE PLANS TO ACCOMMODATE THEIR SPECIFIC OPERATION. ALTERNATE CONFIGURATIONS SHALL MEET ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES; AND SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER, LICENSED IN VERMONT.

PROPOSED CONSTRUCTION SEQUENCE FOR PRESTRESSED VOIDED SLABS

32) LAYOUT WORKING LINES:
- A. LAYOUT WORKING LINES FOR THE ENTIRE BRIDGE WIDTH ON THE SLAB SEAT.
- B. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
- C. BASE THE WORKING LINES ON THE NOMINAL SLAB WIDTHS.

33) VERIFY SLAB SEAT ELEVATIONS
- 1. MEASURE ELEVATIONS AT SLAB SEATS.
- 2. IF SEATS ARE HIGH OR LOW, TAKE CORRECTIVE ACTION.
- 3. INSTALL BEARINGS.

34) ERECT SLAB:
- A. PLACE SLAB TO FIT WITHIN WORKING LINES.
- B. AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT SLABS TO MAINTAIN PROPER JOINT OPENING, A MINIMUM OF ONE WEDGE AT TRANSVERSE TENDON.
- C. DRILL ANCHOR BOLT HOLES.
- D. PLACE ANCHOR BOLTS.

35) INSTALL BACKER ROD:
- A. PLACE FILLER BELOW THE KEYWAY BOTTOM, AS SHOWN ON THE PLANS.

36) INSTALL TRANSVERSE TENDONS:
- A. FEED TENDONS THROUGH DUCTS.
- B. VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF SLABS.
- C. USING A CALIBRATED JACK, POST-TENSION TENDONS TO APPROXIMATELY 5 KIPS TO REMOVE SAG IN THE TENDON AND SEAT THE CHUCK.

37) GROUT SHEAR KEYS:
- A. CLEAN JOINT WITH AND OIL-FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. VERIFY THAT BACKER ROD IS STILL IN PLACE.
- B. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT.
- C. CAREFULLY ROD JOINTS TO ELIMINATE THE POSSIBILITY OF VOIDS.

38) POST-TENSION TRANSVERSE TENDONS:
- A. GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
- B. POST-TENSION TENDONS TO 32 KIPS EACH USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL. BEGIN WITH TENDONS AT THE ENDS AND WORK SYMMETRICALLY TOWARDS THE MID-SPAN FROM EACH END.

39) END DETAILS:
- A. GROUT ANCHOR BOLTS INTO THE SLEEVES IN THE PRE-STRESSED UNITS, BEFORE THE GROUT CURES, PLACE THE WASHER PLATE AND INSTALL THE NUT ON TOP AND TIGHTEN.
- B. GROUT OVER THE NUT AND BOLT IN THE ANCHOR BOLT BLOCK OUTS.

40) FINISH WORK:
- A. REMOVE WEDGES AND SURFACE PATCH THE FASCIA SLABS AT TRANSVERSE TENDONS.

H-PILES

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

42) THE PILES SHALL BE DRIVEN TO A NOMINAL PILE DRIVING RESISTANCE (R_{NDR}) OF 286 KIPS, PROVIDED A MINIMUM PENETRATION OF 25 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.

43) A MINIMUM OF TWO DYNAMIC TESTS ARE REQUIRED DURING PILE INSTALLATION. NO LESS THAN ONE DYNAMIC PILE TEST SHALL BE CONDUCTED AT EACH ABUTMENT. PAYMENT WILL BE MADE UNDER ITEM 505.45, "DYNAMIC PILE LOADING TEST".

44) THE TOPS OF THE PILES AFTER DRIVING 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 TO THE SATISFACTION OF THE ENGINEER HOW THE TOLERANCES WILL BE MET. THESE MEASURES SHALL BE DEMONSTRATED IN A SUBMITTAL TO BE ACCEPTED BEFORE PILE DRIVING COMMENCES.

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

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	ROADWAY (NOFED/STATE PART.)	EROSION CONTROL	UTILITIES - BID ITEMS	BRIDGE	FULL C.E. ITEMS	TOTALS GRAND TOTAL	TOTALS FINAL	UNIT	DESCRIPTIONS ITEMS	ITEM NUMBER	ROUND
1						1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	
730						730		CY	COMMON EXCAVATION	203.15	
				418		418		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	
			43			43		CY	SAND BORROW	203.31	
			10			10		CY	TRENCH EXCAVATION OF ROCK	204.21	
1						1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	
				320		320		CY	STRUCTURE EXCAVATION	204.25	
				100		100		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	
280	1210					1490		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	
710						710		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35	
8	9			4		21		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	
				530		530		LF	STEEL PILING, HP 10 X 57	505.12	
				2		2		EACH	DYNAMIC PILE LOADING TEST	505.45	
				914		914		LB	REINFORCING STEEL, LEVEL II	507.12	
				104		104		LF	PRESTRESSED CONCRETE VOIDED SLABS (21" X 48") (FASCIA)	510.22	
				364		364		LF	PRESTRESSED CONCRETE VOIDED SLABS (21" X 48") (INTERIOR)	510.22	
				416		416		LF	GROUTING SHEAR KEYS	510.24	
				15		15		GAL	WATER REPELLENT, SILANE	514.10	
				68		68		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	
				212		212		SY	SHEET MEMBRANE WATERPROOFING, TORCH APPLIED	519.20	
				1		1		EACH	REMOVAL OF STRUCTURE (510 SF - EST)	529.15	
				36		36		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	
			4			4		CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45	
			1			1		EACH	REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS III	604.418	
			1			1		EACH	CHANGING ELEVATION OF SEWER MANHOLES	604.42	
			2			2		EACH	CAST IRON COVER WITH FRAME, SEWER	604.56	
1.6						1.6		MGAL	DUST CONTROL WITH WATER	609.10	
30				270		300		CY	STONE FILL, TYPE III	613.12	
48						48		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	
238						238		LF	HD STEEL BEAM GUARDRAIL, GALVANIZED	621.21	
4						4		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	
4						4		EACH	GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL-2	621.746	
106						106		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
			1			1		LS	TRANSFER TO NEW SYSTEM, SANITARY SEWER	628.42	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		EARTHWORKS SUMMARY
		FILL AVAILABLE
511	CY	COMMON EXCAVATION (0.7 x 730 CY)
125	CY	UNCLASSIFIED CHANNEL EXCAVATION (0.3 x 418 CY)
30	CY	STRUCTURE EXCAVATION (0.3 x 320)
666	**CY**	**TOTAL FILL AVAILABLE**
		FILL REQUIRED
61.41	CY	FACTORED FILL (1.15 x 53.4)
0.59	CY	ROUNDING
62	**CY**	**TOTAL FILL REQUIRED**
604	**CY**	**TOTAL WASTE**

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
QUANTITY SHEET I

PLOT DATE: 05-MAR-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. E-M
SHEET 5 OF 44

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES													TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
					ROADWAY	ROADWAY (NO FED/STATE PART.)	EROSION CONTROL	UTILITIES - BID ITEMS	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
								2			2		EACH	GATE VALVE WITH VALVE BOX (6")	629.27				
					480						480		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				
					1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11				
					850	800					1650		LF	4 INCH YELLOW LINE	646.21				
						27					27		LF	DURABLE 24 INCH STOP BAR	646.480				
					850	880					1730		LF	TEMPORARY 4 INCH YELLOW LINE	646.610				
									270		270		SY	GEOTEXTILE UNDER STONE FILL	649.31				
							95				95		SY	GEOTEXTILE FOR SILT FENCE	649.51				
							60				60		SY	GEOTEXTILE FOR FILTER CURTAIN	649.61				
							15				15		LB	SEED	651.15				
							10				10		LB	SEED, WINTER RYE	651.17				
							90				90		LB	FERTILIZER	651.18				
							0.4				0.4		TON	AGRICULTURAL LIMESTONE	651.20				
							0.3				0.3		TON	HAY MULCH	651.25				
							100				100		CY	TOPSOIL	651.35				
									55		55		SY	GRUBBING MATERIAL	651.40				
							1				1		LS	EPSC PLAN	652.10				
							50				50		HR	MONITORING EPSC PLAN	652.20				
							1				1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30				
							310				310		SY	TEMPORARY EROSION MATTING	653.20				
							60				60		CY	VEHICLE TRACKING PAD	653.35				
							220				220		LF	BARRIER FENCE	653.50				
							570				570		LF	PROJECT DEMARCATION FENCE	653.55				
					1						1		LU	PRICE ADJUSTMENT, FUEL (N.A.B.I.)	690.50				
									22		22		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)(FPQ)	900.608				
								2			2		EACH	SPECIAL PROVISION (SANITARY SEWER MANHOLE, ALL-INCLUSIVE) (4' DIA.)	900.620				
									106		106		LF	SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)	900.640				
								335			335		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (12" SEWER)	900.640				
								88.7			88.7		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8" WATER ON BRIDGE)	900.640				
								157.8			157.8		LF	SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8" WATER)	900.640				
								260			260		LF	SPECIAL PROVISION (TRANSITE PIPE REMOVAL)	900.640				
					1						1		LS	SPECIAL PROVISION (CPM SCHEDULE)	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				

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
QUANTITY SHEET 2

PLOT DATE: 24-MAR-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. E-M
SHEET 6 OF 44

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	ROADWAY (NO FED/STATE PART.)	EROSION CONTROL	UTILITIES - BID ITEMS	BRIDGE	FULL C.E. ITEMS
1					
1					
34					
313	275			57	

TOTALS

GRAND TOTAL	FINAL
1	
1	
34	
645	

DESCRIPTIONS

UNIT	ITEMS	ITEM NUMBER	ROUND
LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY)(N.A.B.I.)	900.650	
LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650	
SY	SPECIAL PROVISION (HAND-PLACED BITUMINOUS CONCRETE MATERIAL, DRIVES)	900.675	
TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680	

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244qty.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
QUANTITY SHEET 3

PLOT DATE: 24-MAR-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. E-M
SHEET 7 OF 44

STATE OF VERMONT
AGENCY OF TRANSPORTATION

BRIDGE QUANTITY SHEET

| SUMMARY OF BRIDGE QUANTITIES | | |

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
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⊡	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
❄	APL	BOUND APPARENT LOCATION
▫	BM	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 — PDF — PROJECT DEMARCATION FENCE
- BF — 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 — 6F PROPERTY BOUNDARY
- 4F — 4F — 4F PROPERTY BOUNDARY
- HAZ — 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
- Ⓗ 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: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244epsc_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
SYMBOLOGY LEGEND

PLOT DATE: 28-FEB-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. E-M
SHEET 9 OF 44

GPS CONTROL POINTS

HVCTRL #1

RUT 13 FOREST

NORTH = 398824.83
EAST = 1513079.51
ELEV. = 538.27

GENERAL LOCATION, RUTLAND, VT. TO REACH FROM THE INTERSECTION OF U.S.ROUTE 7 AND U.S.ROUTE 4 WEST, SOUTH OF RUTLAND, GO NORTH ALONG U.S.ROUTE 7 FOR 1.25 MI (2.01 KM) TO THE INTERSECTION OF PARK STREET LEFT. TURN LEFT AND GO WEST ALONG PARK STREET FOR 0.5 MI (0.8 KM) TO THE INTERSECTION OF FOREST STREET RIGHT AND A PAVED DRIVE LEFT AND THE MARK ON THE LEFT. IT IS IN A GRASS STRIP BETWEEN THE PAVED DRIVE AND A GRAVEL DRIVE. THE MARK IS SET 10 CM ABOVE GROUND SURFACE IN THE TOP OF A 60 CM DIAMETER CONCRETE MONUMENT. IT IS 7.4 M (24.3 FT) SOUTH OF THE CENTERLINE OF PARK STREET, 9.9 M (32.5 FT) EAST OF THE CENTERLINE OF THE PAVED DRIVE, 2.5 M (8.2 FT) WEST OF THE CENTERLINE OF THE GRAVEL DRIVE, 13.3 M (43.6 FT) NORTHWEST OF THE NORTHWEST FOUNDATION CORNER OF HOUSE NO.121, AND 12.9 M (42.3 FT) WEST NORTHWEST OF THE NORTHWEST CORNER OF THE PORCH ON HOUSE NO.121.

HVCTRL #4

RUT 12 RR PARK

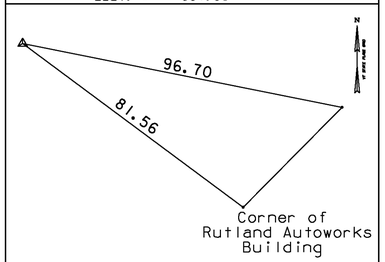
NORTH = 399759.65
EAST = 1514480.29
ELEV. = 543.34

GENERAL LOCATION, RUTLAND, VT. TO REACH FROM THE INTERSECTION OF U.S.ROUTE 7 AND U.S.ROUTE 4 WEST, SOUTH OF RUTLAND, GO NORTH ALONG U.S.ROUTE 7 FOR 1.25 MI (2.01 KM) TO THE INTERSECTION OF PARK STREET LEFT. TURN LEFT AND GO WEST ALONG PARK STREET FOR 0.3 MI (0.5 KM) TO THE INTERSECTION OF THE VERMONT RAILWAY TRACKS AND THE MARK ON THE RIGHT IN THE NORTHEAST QUADRANT OF THE INTERSECTION. THE MARK IS SET FLUSH WITH GROUND SURFACE IN THE TOP OF A 70 CM DIAMETER CONCRETE MONUMENT. IT IS 13.7 M (44.9 FT) NORTH OF THE CENTERLINE OF PARK STREET, 2.8 M (9.2 FT) EAST OF THE EAST RAIL OF THE MOST EASTERLY SET OF TRACKS OF THE RAILWAY, 3.0 M (9.8 FT) WEST OF THE WEST EDGE OF A GRAVEL PARKING LOT, 16.2 M (53.1 FT) SOUTH OF THE SOUTHWEST CORNER OF THE VERMONT RAILWAY OFFICE BUILDING, AND 7.8 M (25.6 FT) NORTH OF A RAILROAD CROSSING GATE AND SIGNAL POLE.

TRAVERSE TIES

HVCTRL #2

NORTH = 399091.61
EAST = 1513239.26
ELEV. = 531.96



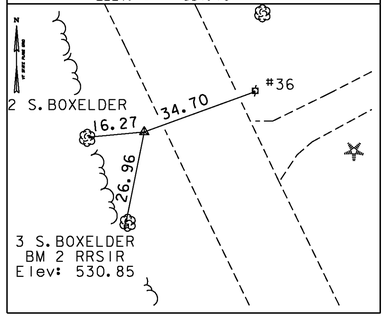
HVCTRL #3

NORTH = 399404.86
EAST = 1513704.02
ELEV. = 537.09

NOT TIED

HVCTRL #5

NORTH = 399489.70
EAST = 1512751.57
ELEV. = 531.70



NORTH =
EAST =
ELEV. =

NORTH =
EAST =
ELEV. =

• Main Traverse Completed 04/23/98 by L.Orvis P.C. & R.Bullock

ALIGNMENT TIES

NORTH =
EAST =

NORTH =
EAST =

NORTH =
EAST =

NORTH =
EAST =

NORTH =
EAST =

DATUM

VERTICAL NAVD 88
HORIZONTAL NAD 83 (96
ADJUSTMENT Compass

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244tie.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: SURVEY
TIE

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 10 OF 44

VT STATE PLANE GRID

N

CURVE (1) DATA
△ = 2°53′05"
D = 5°43′46"
R = 1000.00′
T = 25.18′
L = 50.35′
E = 0.32′

BEGIN
NON-PARTICIPATING
PAVING
STA 0+06.29

END NON-PARTICIPATING PAVING
BEGIN APPROACH
STA 1+50.00

BEGIN PROJECT
STA 2+50.00

PC STA 2+84.43

PT STA 3+34.78

BEGIN BRIDGE
STA 3+40.50

END BRIDGE
STA 3+93.50

END PROJECT
STA 4+75.00

END APPROACH
RESUME NON-PARTICIPATING
PAVING
STA 5+75.00

CLASS II WETLAND

WOODS

EXISTING R.O.W.

N 23°26′48.51" W

N 26°19′53.97" W

0+00 1+00 2+00 3+00 4+00 5+00 6+

MATCHLINE STA 6+00.00

71+50

70+00

69+00

68+50

S 69°40′05" W

R=16′

R=20′

90° (TYP)

R=20′ (TYP)

CZ

GRAVEL AREA

STONE WALL

STONE WALL

HOUSE

PAVE DRIVEWAY

PARK STREET (TH 12)

ET

EXISTING BRIDGE DATA
CONCRETE SLAB DECK
LENGTH = 20′-0"
WIDTH = 23′-0" CURB TO CURB
BUILT IN 1900

PI (CURVE 1)
STA 3+09.61 BK =
STA 3+09.60 AHD

MOON BROOK

STONE
FILL
TYPE III
(TYP)

ML STA. 3+50.00
CH STA. 70+00.00
DELTA = 85° RIGHT

GRAVEL DRIVEWAY

GRAVEL DRIVEWAY

DRIVEWAY NOT IN
USE SO NOT CONSTRUCTED.

CAST-IN-PLACE CONCRETE CURB, TYPE B
STA 3+28.50 TO STA 3+40.50 LT AND RT
STA 3+93.50 TO STA 4+05.50 LT AND RT

SPECIAL PROVISION
(BRIDGE RAILING, TEXAS) (FPQ)
STA 3+41.00 - STA 3+93.00 LT & RT

GUARDRAIL APPROACH SECTION TO
CONCRETE BRIDGE RAILING, TL-2
STA 3+28.50 - STA 3+41.00 LT & RT
STA 3+93.00 - STA 4+05.50 LT & RT

HD STEEL BEAM GUARDRAIL, GALVANIZED
STA 3+18.00 - STA 3+29.50 LT
STA 2+36.00 - STA 3+29.50 RT
STA 4+04.50 - STA 4+48.25 LT
STA 4+04.50 - STA 4+73.25 RT

ANCHOR FOR STEEL BEAM RAIL
STA 3+23.00 LT
STA 2+68.00 RT
STA 4+42.00 LT
STA 4+68.00 RT

DURABLE 24 INCH STOP BAR
STA 0+06.30

TEMPORARY 4 INCH YELLOW LINE
STA 0+06.30 - STA 8+27.61

4 INCH YELLOW LINE
STA 0+06.30 - STA 8+27.61

CONSTRUCT DRIVES W/ PAVED APRON
STA 4+39.40 - STA 5+20.25 LT (15′-0" APRON)
STA 4+56.10 - STA 5+07.60 RT (5′-0" APRON)
~~STA 5+50.75 - STA 5+75.00 RT (5′-0" APRON)~~

REMOVAL AND DISPOSAL OF GUARDRAIL
STA 3+31.00 - STA 3+58.00, LT AND RT
STA 3+82.00 - STA 4+08.00, LT AND RT

FOR CONSTRUCTION NOTES CONCERNING
WATER AND SEWER LINE
RELOCATIONS SEE WATER/SEWER LAYOUT 1

SCALE 1" = 20′-0"
20 0 20

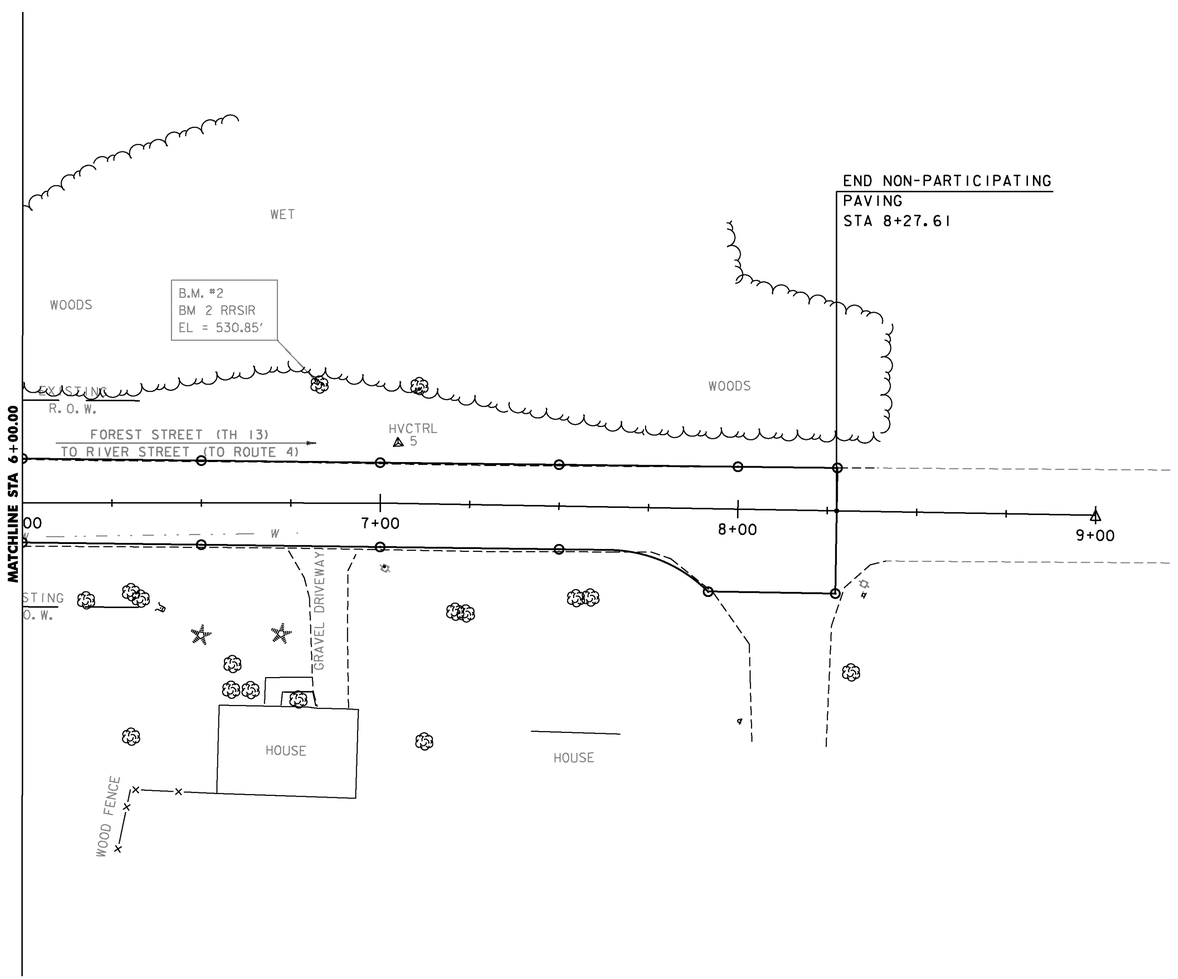
PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244bdr.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
LAYOUT 1

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 11 OF 44

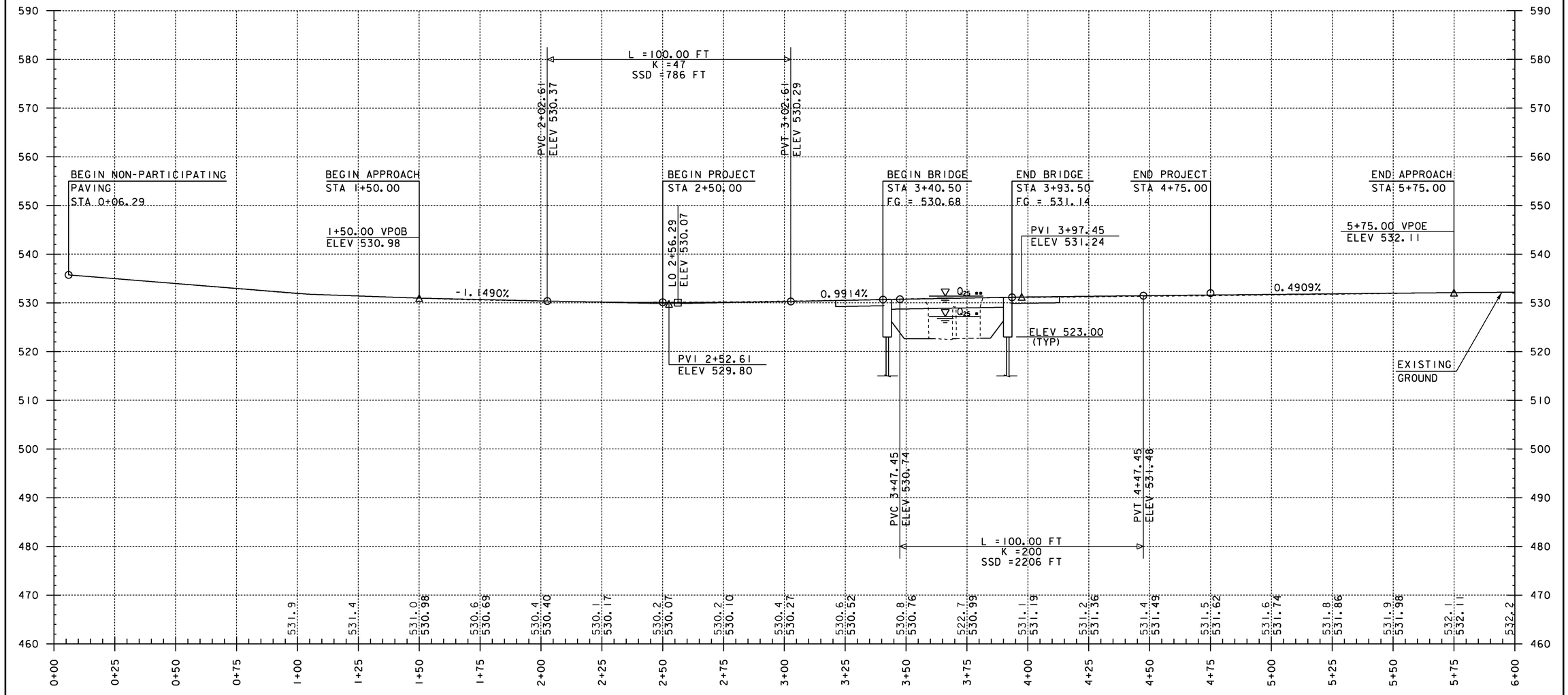
VT STATE PLANE GRID

N



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

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244bdr.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
LAYOUT 2	SHEET 12 OF 44



PROFILE

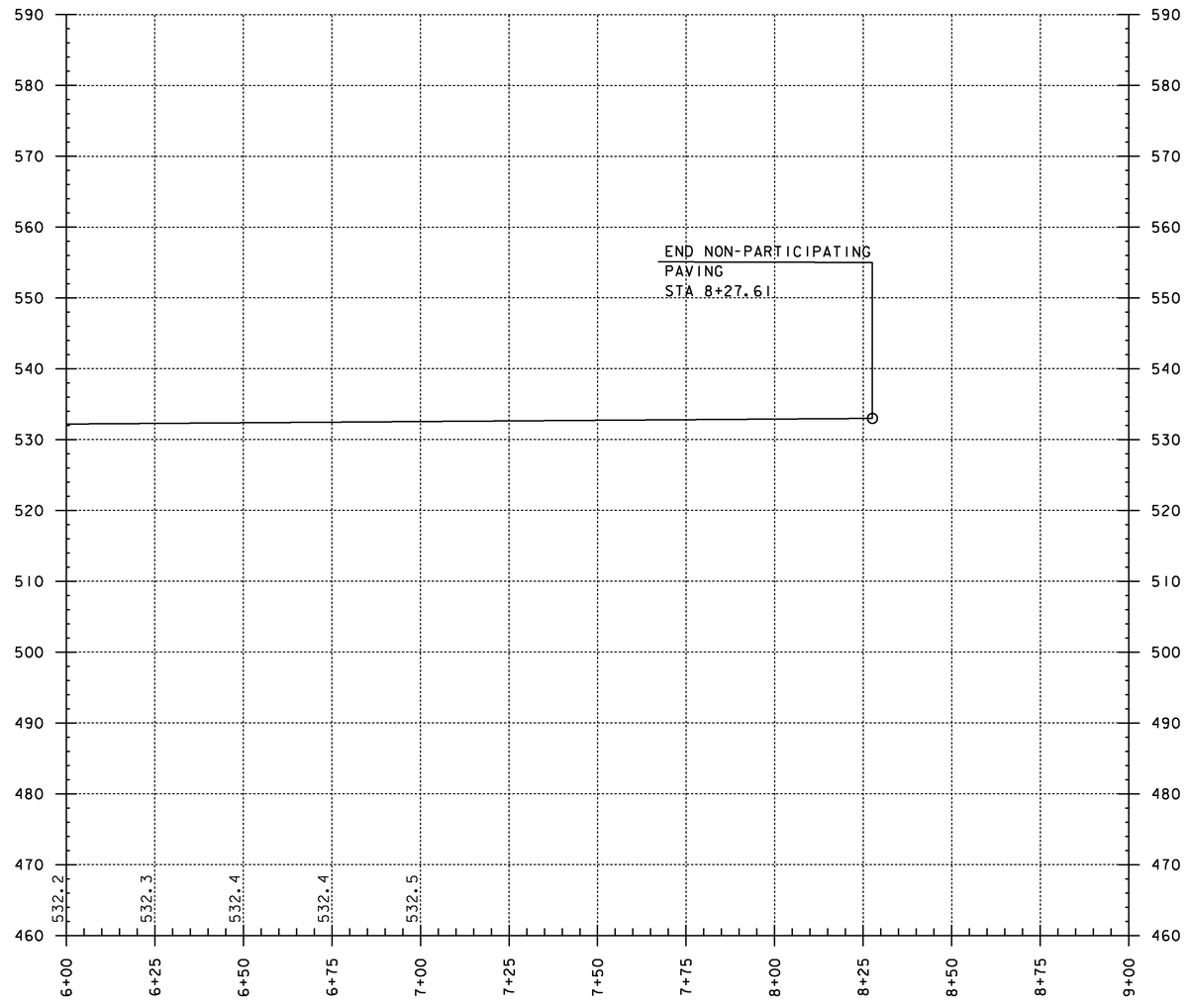
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 10'-0"

Q_{25} •• = 531.4' WITH OTTER CREEK TAILWATER
Q_{25} • = 527.2' WITHOUT OTTER CREEK TAILWATER

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:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244profile.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
PROFILE 1	SHEET 13 OF 44



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:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244profile.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
PROFILE 2	SHEET 14 OF 44

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

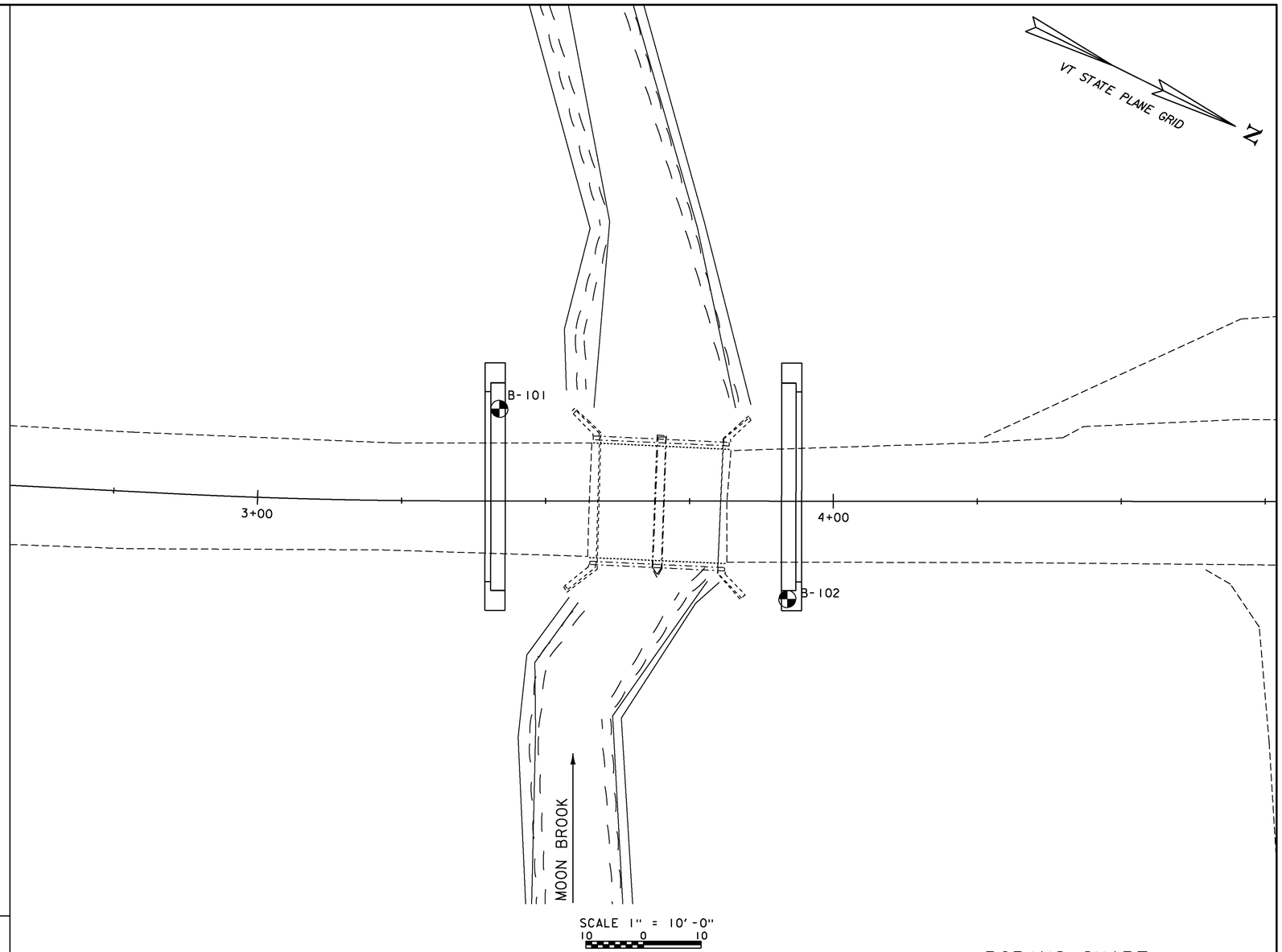
DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

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 1 3/8" I.D. Sampler Hammer Weight Of 140 Lbs. Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	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		



DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#10 sieve) and > 0.0029" (#200 sieve).

SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material.

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

GENERAL NOTES

1. The subsurface explorations shown herein were made between 08/09/12 and 08/10/12 by the Agency.
2. 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.
3. 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.
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.

BORING CHART

HOLE NO.	SURV. STATION	OFFSET	GROUND ELEV.	ELEV. TLOB
B-101	3+42.0	16' LT	528.65	476.65
B-102	3+92.0	17' RT	529.71	482.71

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244boring.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
BORING LAYOUT

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 15 OF 44

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

BORING LOG

RUTLAND CITY
BRF 3000(18)
TH-13 BR-14

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 96J244
Checked By: CEE

Boring Crew: GARROW, SALISBURY
Date Started: 8/09/12 Date Finished: 8/10/12
VTSPG NAD83: N 399164.67 ft E 1512913.26 ft
Station: 3+42 Offset: -16.00
Ground Elevation: 528.65 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	CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
08/10/12	7.0	Seated in Bedrock.

BOTTOM CAP
ELEV. 523.00

EST. PILE TIP
ELEV. 472.00

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 %	LL %	PI %
		A-1-b, SaGr, brn, Moist, Rec. = 0.8 ft, Roots & Leaves were within sample.				1-1-2-6 (3)	15.7	46.1	37.1	16.8		
		A-4, GrSaSi, brn, Moist, Rec. = 1.0 ft, Some Asphalt Pavement was within sample.				6-6-3-4 (9)	17.3	27.6	35.1	37.3		
		A-2-4, SiSa, brn, Wet, Rec. = 0.3 ft				2-2-1-2 (3)	25.5	2.2	75.5	22.3		
		A-2-4, SiGrSa, brn, Wet, Rec. = 0.8 ft				2-1-1-1 (2)	31.9	23.3	54.7	22.0		
		A-2-4, Sa, brn, Wet, Rec. = 0.4 ft, Sticks & Wood were within sample.				1-1-1-1 (2)	40.1	0.8	81.4	17.8		
10		A-2-4, SiSa, brn, Wet, Rec. = 0.4 ft, Pieces of Wood were within sample.				1-1-1-1 (2)	53.0	10.6	55.4	34.0		
		A-4, ClSi, gry, Wet, Rec. = 2.0 ft				1-1-WH-WH (1)	40.8		0.2	99.8	36	8
		Visual Description:, ClSi, gry, Wet, Rec. = 2.0 ft, Material similar to 12-14 ft.				WR-WR-WH-WH (WH)	41.4					
		A-6, SiCl, gry, Wet, Rec. = 2.0 ft					40.6		0.2	99.8	36	11
		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 16-18 ft.				(WH)	40.5					
20		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 16-18 ft.				(WH)	40.0					
		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 24-26 ft.				(WH)	43.9					
		A-6, SiCl, gry, Wet, Rec. = 2.0 ft				(WH)	46.5		0.3	99.7	40	12
		A-4, Si, gry, Wet, Rec. = 1.2 ft				WH-WH-1-1 (1)	34.9		7.4	92.6		
30		A-6, SiCl, gry, Wet, Rec. = 2.0 ft				WR-WR-WH-WH (WH)	47.1		1.9	98.1	40	14
40		A-4, Si, gry, MTW, Rec. = 0.5 ft				1-2-2-2 (4)	39.4		1.0	99.0		
		A-4, Si, gry, Wet, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.				2-3-2-2 (5)	30.9	7.4	1.7	90.9		
		Field Note:, BXDC, Cobbles, Fractured Rock										
50		Field Note:, Incompetent Fractured Rock										
		52.0 ft - 57.0 ft, Light gray, Dolomite, with closely spaced jointing. Moderately hard, Unweathered, Poor rock, BXGDC, RMR = 38	1 (NA)	70 (0)	3 3 4 4 4		Top of Bedrock @ 52.0 ft					
		57.0 ft - 58.0 ft, BXGDC, No Recovery. Drillers reported as "Seam".	2 (NA)	0 (0)	3							
60		58.0 ft - 63.0 ft, Light gray, Dolomite, with closely spaced jointing. Moderately hard, Unweathered, Poor rock, BXGDC, RMR = 38	3 (NA)	58 (0)	3 6 6 8							
		Hole stopped @ 63.0 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. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

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

BORING LOG

RUTLAND CITY
BRF 3000(18)
TH-13 BR-14

Boring No.: B-102
Page No.: 1 of 1
Pin No.: 96J244
Checked By: CEE

Boring Crew: GARROW, SALISBURY
Date Started: 8/08/12 Date Finished: 8/09/12
VTSPG NAD83: N 399225.08 ft E 1512923.07 ft
Station: 3+92 Offset: 17.00
Ground Elevation: 529.71 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	CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
08/09/12	6.1	Seated in Bedrock.

BOTTOM CAP
ELEV. = 523.00

EST. PILE TIP
ELEV. 472.00

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 %	LL %	PI %
		A-4, SaSi, brn, Moist, Rec. = 0.8 ft, Roots & Leaves were within sample.				1-3-2-3 (5)	35.3	13.6	36.7	49.7		
		A-4, SaSi, brn, Moist, Rec. = 0.2 ft				2-1-1-1 (2)	31.2	12.2	37.4	50.4		
		Visual Description:, ClSi, gry-brn, Moist, Rec. = 1.3 ft, Material similar to 8-10 ft.				2-2-2-1 (3)	36.3					
		Visual Description:, ClSi, gry, Moist, Rec. = 1.3 ft, Material similar to 8-10 ft.				WH-WH-2-1 (2)	38.0					
		A-4, ClSi, gry, MTW, Rec. = 2.0 ft				WH-WH-2-1 (2)	40.4		0.4	99.6	34	7
10		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 12-14 ft.					39.2					
		A-6, SiCl, gry, Wet, Rec. = 2.0 ft				(WR)	39.3		0.3	99.7	36	11
		Visual Description:, SiCl, gry, Wet, Rec. = 1.8 ft, Material similar to 12-14 ft.				(WH)	40.7					
		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 18-20 ft.				(WH)	38.8					
		A-6, SiCl, gry, Wet, Rec. = 2.0 ft				(WR)	39.2		0.3	99.7	35	11
20		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 18-20 ft.				(WR)	38.0					
		A-6, SiCl, gry, Wet, Rec. = 2.0 ft				(WH)	46.6		0.2	99.8	40	14
		Visual Description:, SiCl, gry, Wet, Rec. = 2.0 ft, Material similar to 22-24 ft.				(WR)	46.6					
		A-4, Si, gry, Wet, Rec. = 2.0 ft				(WR)	39.1		1.5	98.5		
30		A-4, Si, gry, Wet, Rec. = 2.0 ft				WH-WH-2-2 (2)	37.3		0.6	99.4		
		A-4, Si, gry, Wet, Rec. = 2.0 ft				1-1-1-1 (2)	40.4		1.1	98.9		
40		A-4, SiGr, gry, Wet, Rec. = 0.8 ft, Broken Rock was within sample.				1-13-15-18 (28)	15.6	44.4	14.8	40.8		
		Field Note:, BXDC, Incompetent Fractured Rock										
		47.0 ft - 52.0 ft, Light gray, Dolomite, with closely spaced jointing. Moderately hard, Unweathered, Poor rock, BXMDC, RMR = 38	1 (NA)	100 (20)	2 3 3 4 4		Top of Bedrock @ 47.0 ft					
50		52.0 ft - 57.0 ft, Light gray, Dolomite, with closely spaced jointing. Moderately hard, Unweathered, Poor rock, BXGDC, RMR = 38	2 (NA)	42 (0)	4 7 6 6 6							
		Hole stopped @ 57.0 ft										

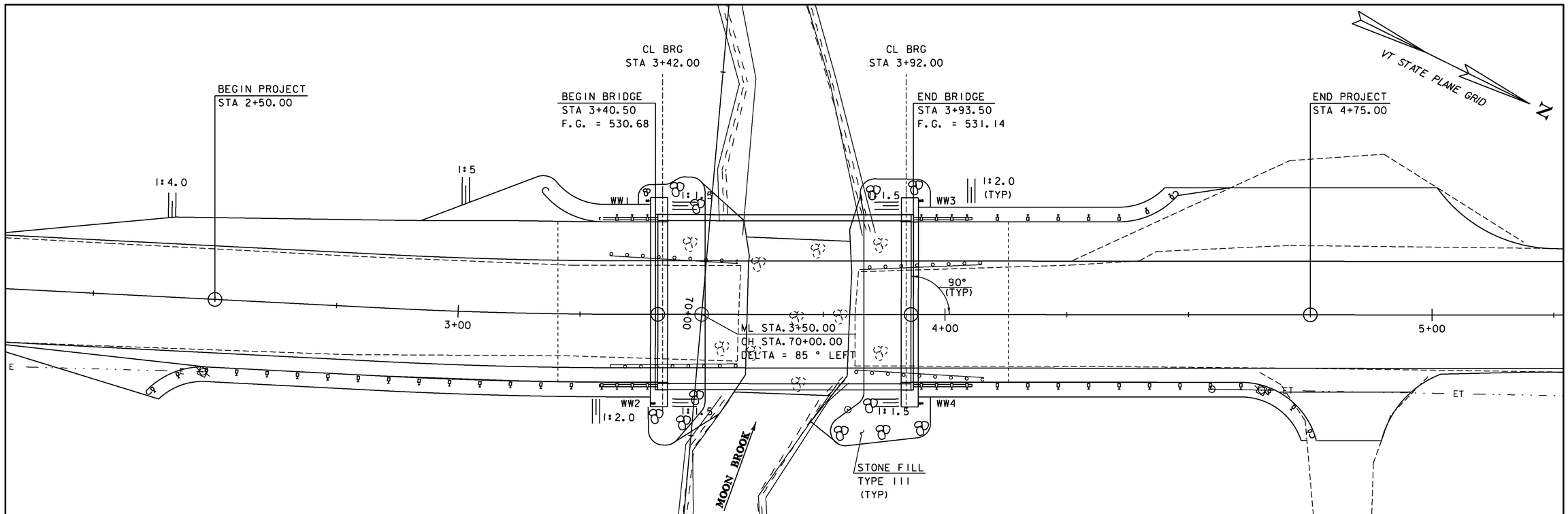
Notes:
1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. CE is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations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

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244borlog.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: MATERIALS & RESEARCH
BORING LOGS

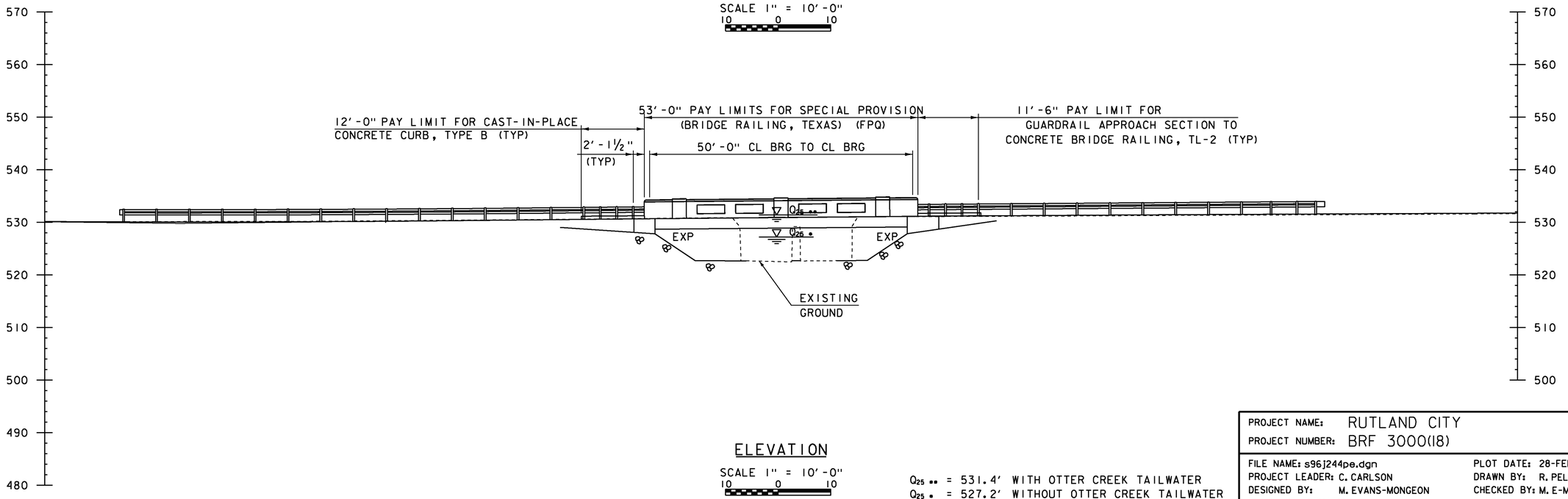
PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M

BORING LOG 2 RUTLAND CITY BRF 3000(18).GPJ VERMONT AOT.GDT 9/10/12



PLAN

SCALE 1" = 10'-0"

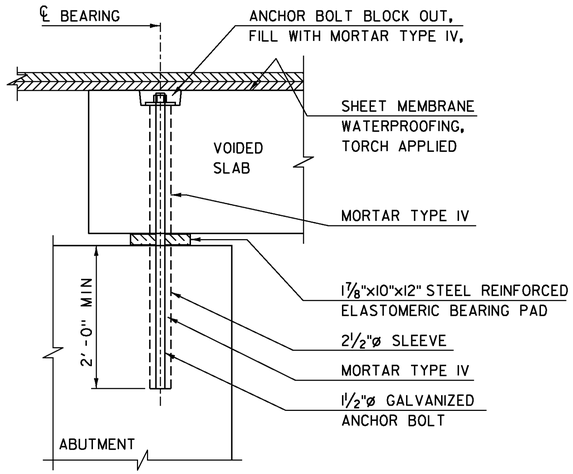


ELEVATION

SCALE 1" = 10'-0"

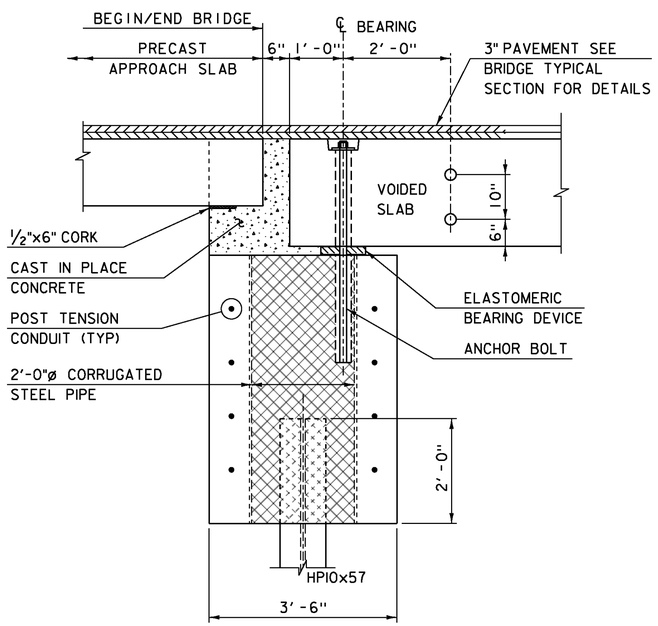
Q_{25} •• = 531.4' WITH OTTER CREEK TAILWATER
Q_{25} • = 527.2' WITHOUT OTTER CREEK TAILWATER

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244pe.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
PLAN AND ELEVATION	SHEET 17 OF 44



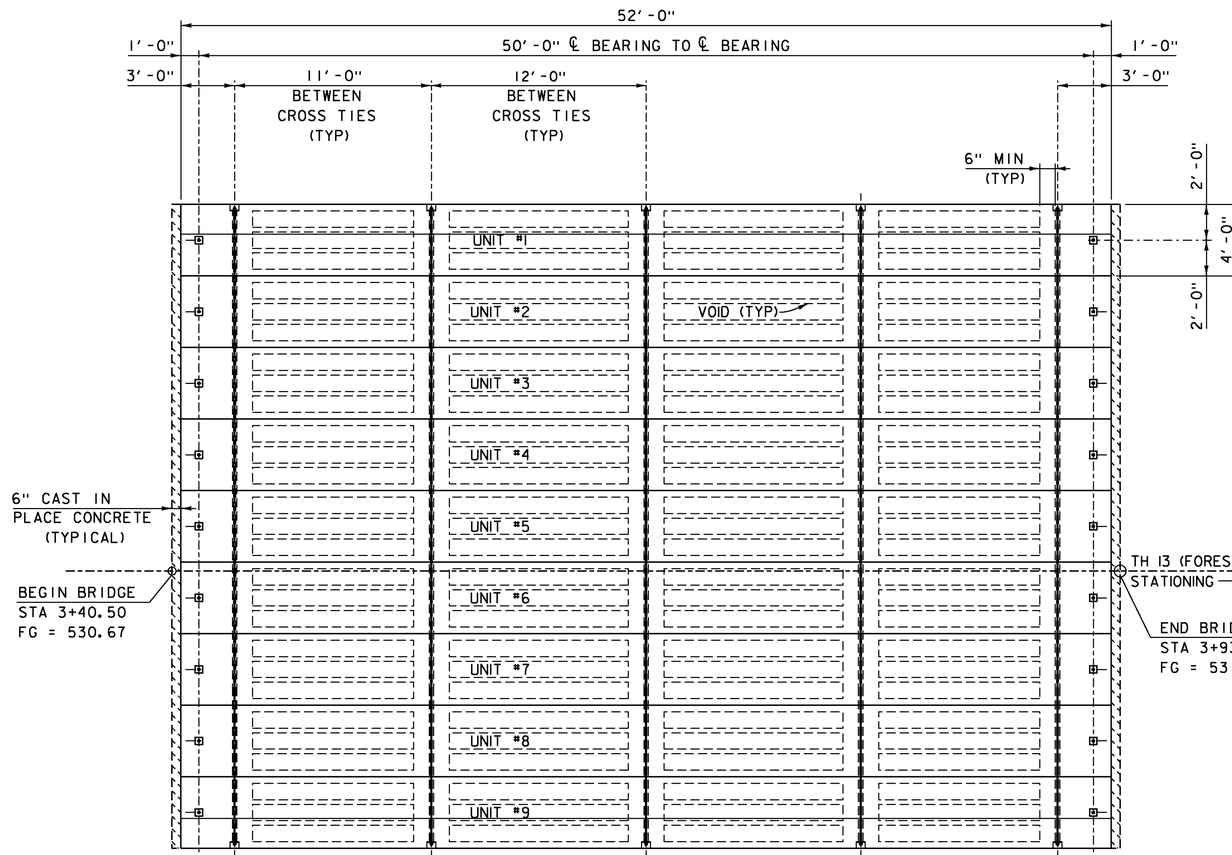
ANCHOR BOLT DETAIL

SCALE: 1" = 1'-0"



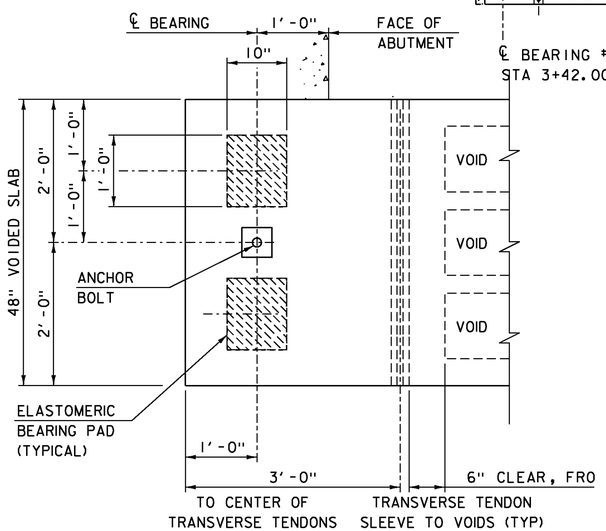
BEGIN/END BRIDGE DETAIL

SCALE: 3/4" = 1'-0"



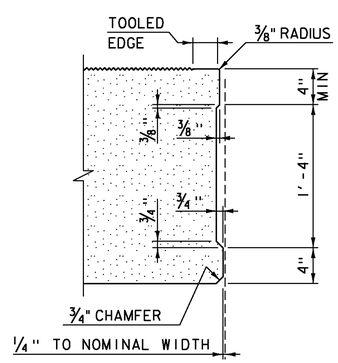
BRIDGE DECK PLAN

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



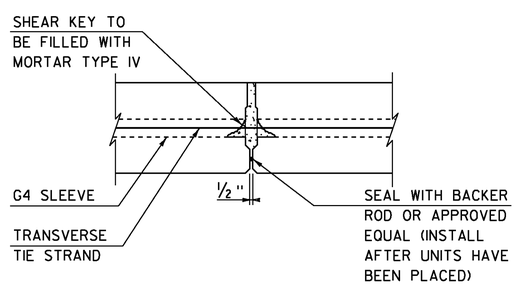
BEARING PAD PLACEMENT DETAIL

SCALE: 1" = 1'-0"



FULL DEPTH SHEAR KEY DETAIL

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

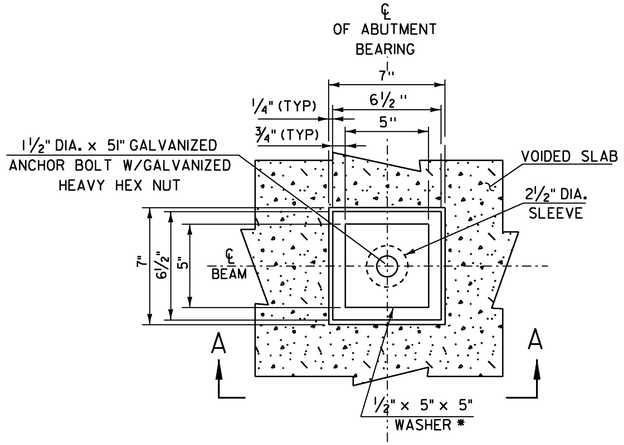


SHEAR KEY SECTION

SCALE: 1" = 1'-0"

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000 (18)

FILE NAME: s961244sup.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M. LONGSTREET
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. UMBERGER
BRIDGE DECK PLAN	SHEET 18 OF 44

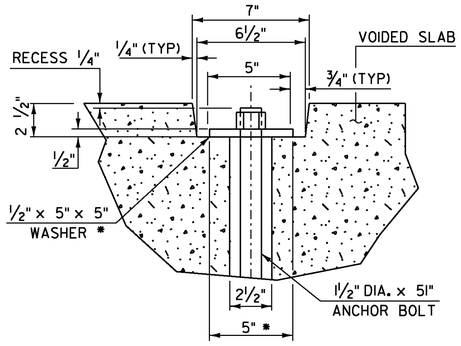


END BRIDGE ANCHOR BOLT DETAIL

NOT TO SCALE

NOTE:
SEE SUBSECTION 714.08
FOR ANCHOR BOLTS & NUTS

* ½" x 5" x 5" WASHER WITH 1½" DIA. HOLE (GALVANIZED)

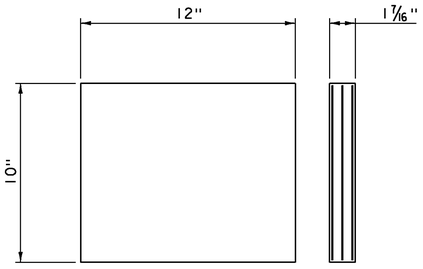


SECTION A-A

NOT TO SCALE

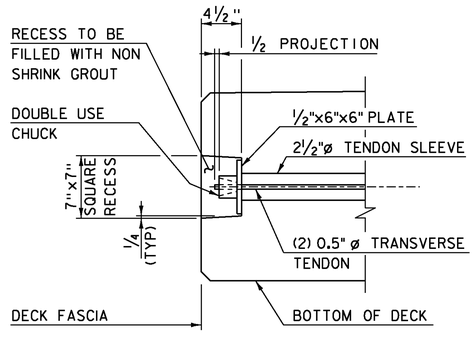
NOTES:
1. TRANSVERSE TENDONS SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND TENDON) FOR THE LENGTH OF TENDON, EXCEPT AT ANCHORAGE LOCATIONS. TENDONS SHALL BE TENSIONED TO 145 KIPS.

2. THE ½" PLATE SHALL CONFORM TO AASHTO M 270M/ M 270 GRADE 50. THE PLATE AND CHUCK SHALL BE GALVANIZED ACCORDING TO AASHTO M111M/ M111.



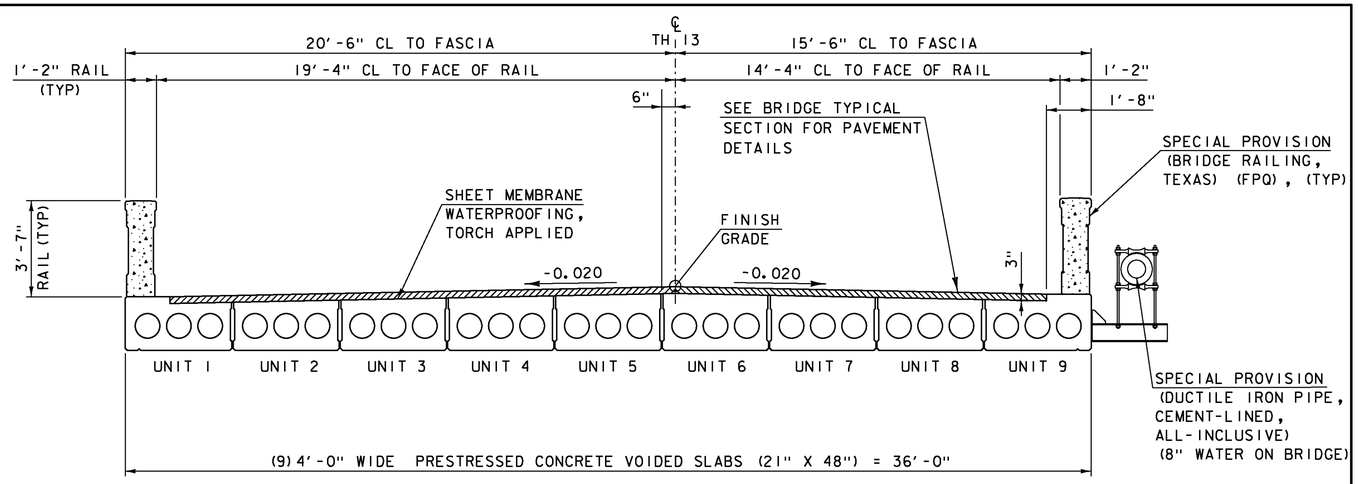
ELASTOMERIC BEARING DETAIL

SCALE: 3" = 1'-0"
⅛" ELASTOMERIC OUTER LAYER (TOP, BOTTOM, AND SIDES)
(2) ½" LAYERS OF INTERIOR ELASTOMERIC ALTERNATING W/
(3) 1/16" STEEL REINFORCING PLATES



TRANSVERSE TENDON CHUCK DETAIL

SCALE: 1½" = 1'-0"



BRIDGE DECK TYPICAL SECTION

SCALE: ⅜" = 1'-0"

BEARING NOTES:
1. BEARINGS WILL BE PAID FOR UNDER ITEM 531.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".

2. ALTERNATE CONFIGURATIONS FOR ELASTOMERIC BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE BEARING SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE LOADS AND CRITERIA SHOWN ON THIS SHEET AND MAINTAIN THE ANCHORAGE SYSTEM SHOWN. THE BEARINGS SHALL BE DESIGNED ACCORDING TO AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS" 2012 EDITION AND ITS LATEST REVISIONS.

4. ALL REINFORCMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL GRADE 50. NO FABRIC REINFORCEMENT WILL BE PERMITTED.

5. ELASTOMERIC BEARINGS REINFORCED WITH STEEL SHALL HAVE A ⅛" EDGE SEAL OF ELASTOMERIC INTEGRAL WITH THE BEARING OVER ALL PLATES.

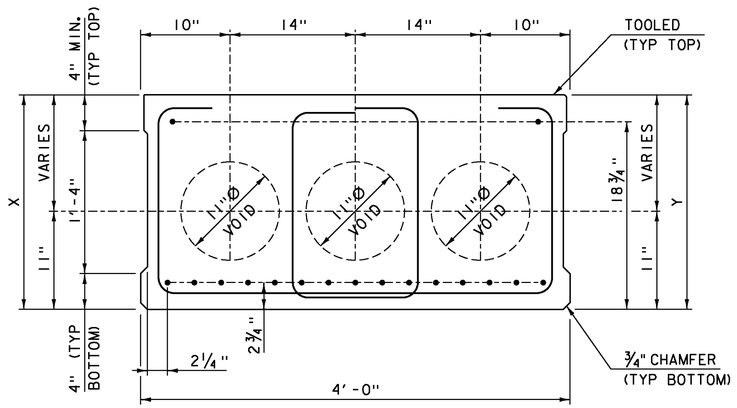
6. DESIGN CRITERIA:
   - A. TEMPERATURE RANGE: 80 F
   - B. 50 DUROMETER ELASTOMERIC
   - C. MAXIMUM BEARING STRESS: 1000 psi
   - D. DESIGN ROTATION: 0.010 rad
   - E. REACTION/BEAM:
     - RDL: 16 kips
     - RLL+I: 19 kips

7. THE FABRICATOR SHALL SUPPLY A SELF ADHESIVE COMPRESSIBLE SEALER BETWEEN THE BOTTOM OF THE UNITS AND THE BRIDGE SEAT. THIS COMPRESSIBLE SEALER SHALL SURROUND THE 2 ½" DIA SLEEVE IN THE UNIT. THE PURPOSE OF THE SEALER IS TO FACILITATE PLACEMENT OF THE MORTAR AROUND THE ANCHOR BOLTS. PAYMENT WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 535.17, "BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD"

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

FILE NAME: s96j244sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
BRIDGE VOIDED SLAB DETAILS 1

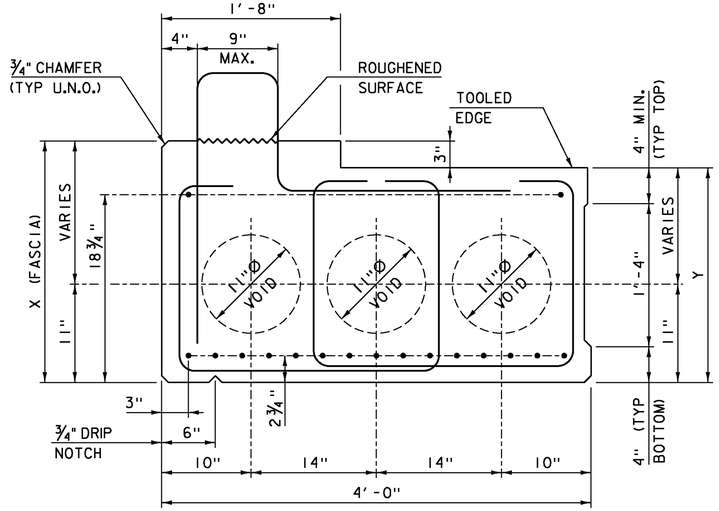
PLOT DATE: 28-FEB-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. UMBERGER
SHEET 19 OF 44



VOIDED SLAB UNIT #2-#8 TYPICAL

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

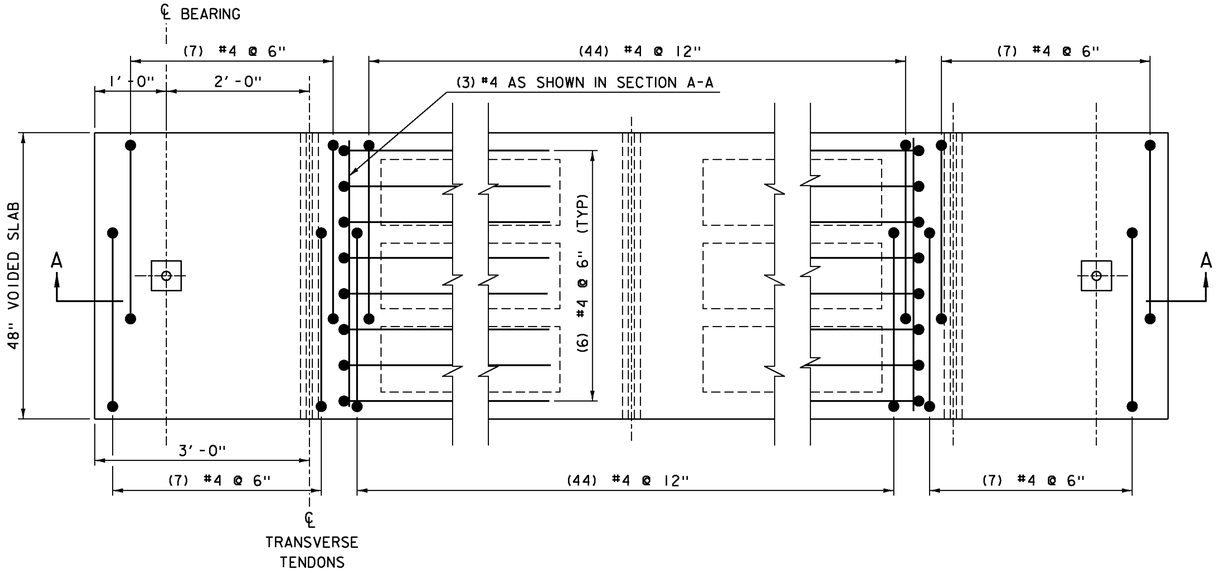
VOIDED SLAB UNIT	QUANTITY	(X) DIMENSION	(Y) DIMENSION	BOTTOM STRAND COUNT	TOP STRAND COUNT
#2	1	22"	23"	15	2
#3	1	23"	24"	16	2
#4	1	24"	25"	16	2
#5	1	25"	26"	17	2
#6	1	25"	26"	17	2
#7	1	24"	25"	16	2
#8	1	23"	24"	16	2



VOIDED SLAB UNIT #1 & #9 TYPICAL

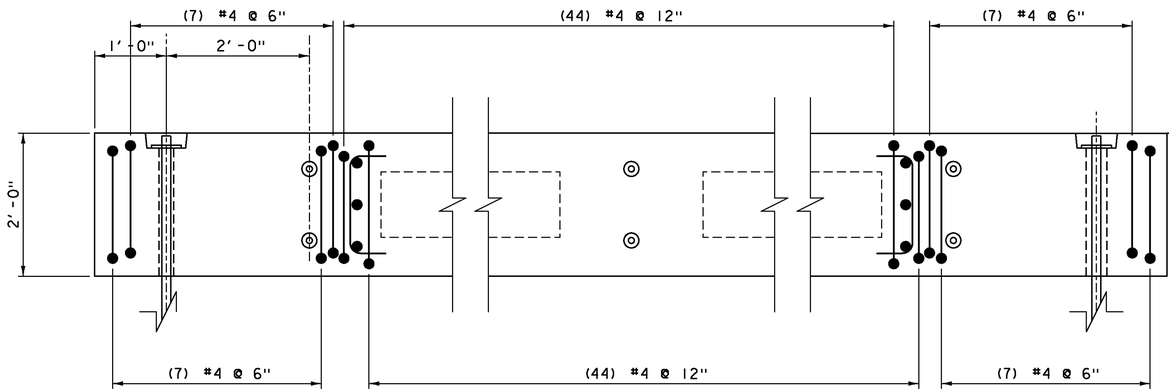
SCALE: 1 1/2" = 1'-0"

VOIDED SLAB UNIT	QUANTITY	(X) FASCIA DIMENSION	(Y) DIMENSION	BOTTOM STRAND COUNT	TOP STRAND COUNT
#1	1	24"	22"	16	2
#9	1	25"	23"	17	2



VOIDED SLAB PLAN DETAIL

SCALE: 1" = 1'-0"



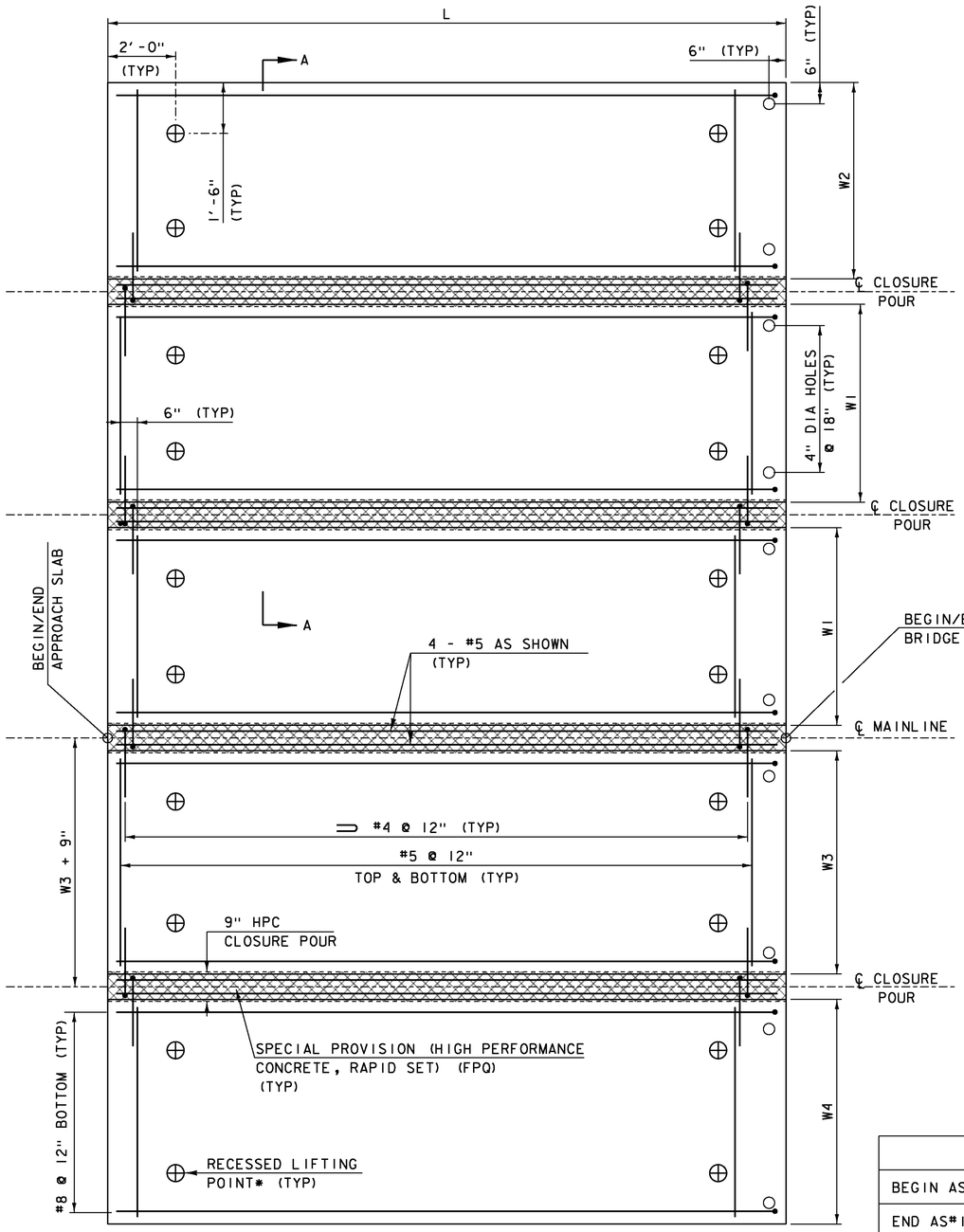
VOIDED SLAB SECTION A-A

SCALE: 1" = 1'-0"

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

FILE NAME: s961244sup.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
BRIDGE VOIDED SLAB DETAILS 2

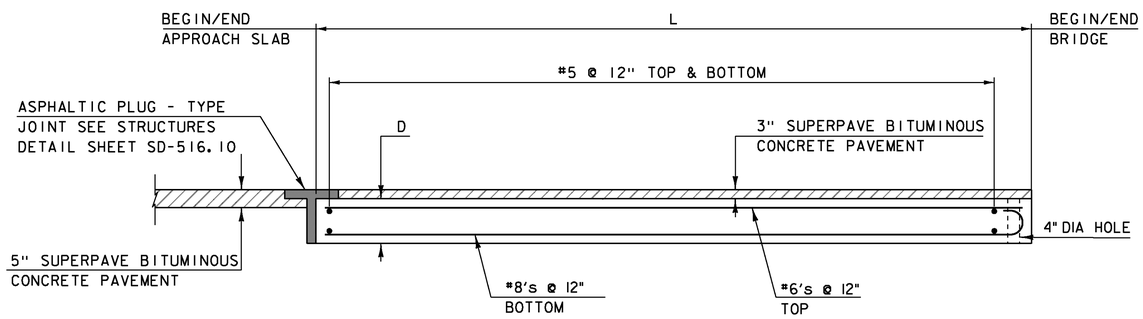
PLOT DATE: 28-FEB-2014
DRAWN BY: M. LONGSTREET
CHECKED BY: M. UMBERGER
SHEET 20 OF 44



* ALTERNATE LIFTING POINTS MAY BE SUBMITTED WITH CALCULATIONS FOR NEW LOCATIONS.

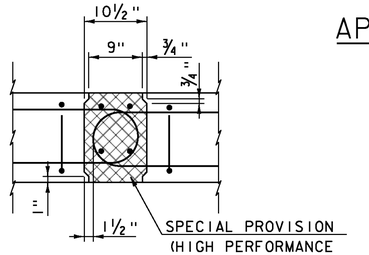
APPROACH SLAB PLAN VIEW

SCALE 1/2" = 1'-0



APPROACH SLAB ELEVATION VIEW

SCALE 1/2" = 1'-0

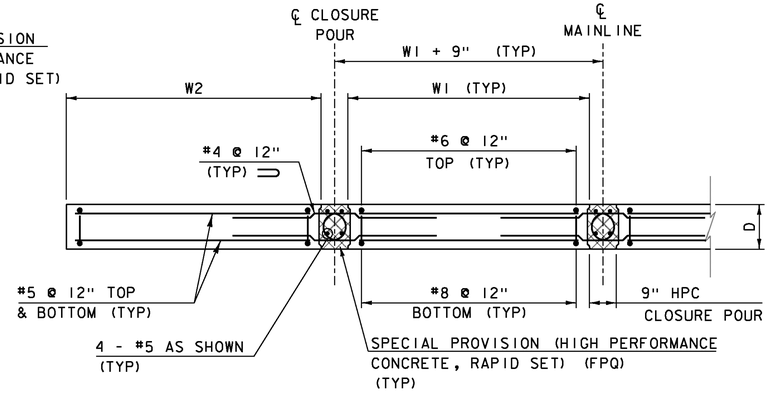


JOINT DETAIL

SCALE 1" = 1'-0

D	1'-3"
L	20'-0"
W	7'-4"
W1	5'-10"
W2	5'-9½"
W3	6'-7"
W4	6'-7½"

APPROACH SLAB DIMENSIONS



SECTION A-A

SCALE 1/2" = 1'-0

	STATION	19'-4" LT	℄	14'-4" RT
BEGIN AS#1	3+20.50	529.83	530.22	529.93
END AS#1	3+40.50	530.04	530.43	530.14
BEGIN AS#2	3+93.50	530.50	530.89	530.60
END AS#2	4+13.50	530.65	531.04	530.75

APPROACH SLAB ELEVATIONS

ALL ELEVATIONS ARE TOP OF SLAB

NOTE:

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

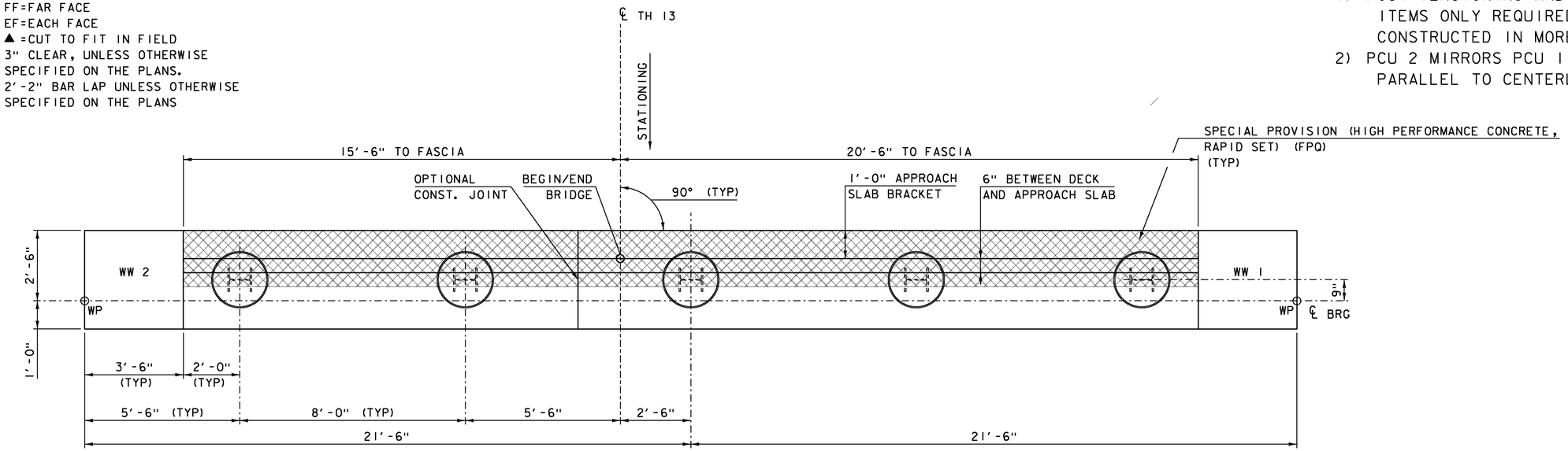
PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

FILE NAME: s96j244appslab.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: EVANS-MONGEON
APPROACH SLAB DETAILS

PLOT DATE: 28-FEB-2014
DRAWN BY: EVANS-MONGEON
CHECKED BY: C. CARLSON
SHEET 21 OF 44

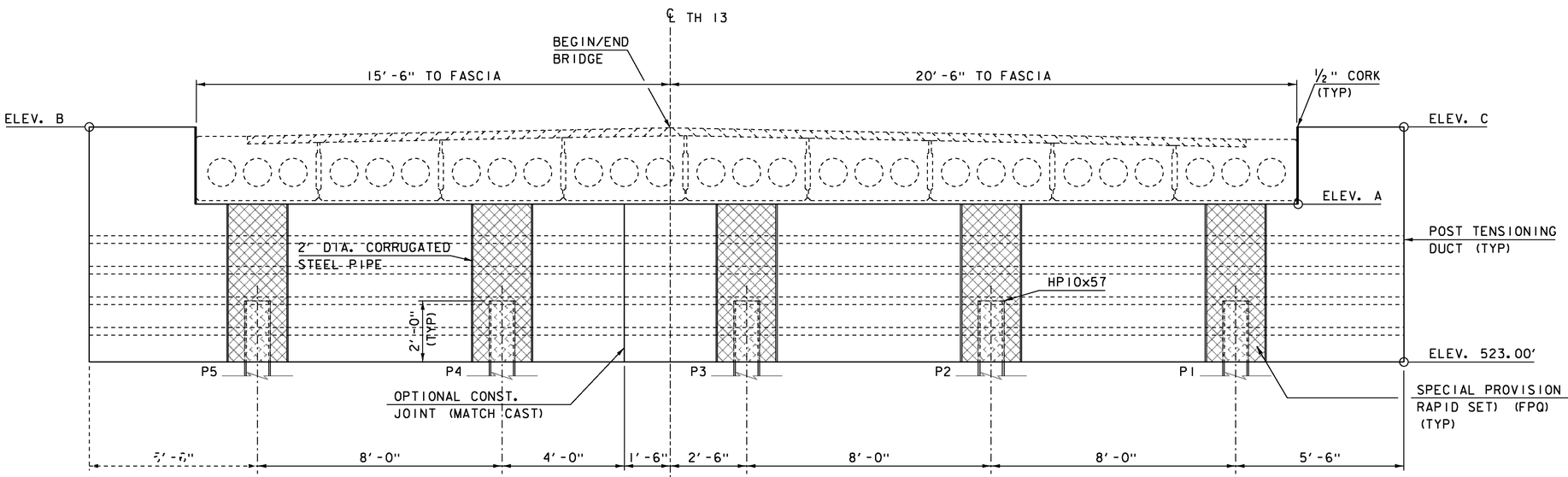
NOTE:
NF=NEAR FACE
FF=FAR FACE
EF=EACH FACE
▲ =CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

NOTES:
1) POST-TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED IN MORE THAN ONE PIECE.
2) PCU 2 MIRRORS PCU 1 ABOUT LINE PARALLEL TO CENTERLINE OF BEARING.



ABUTMENT #1 (PCU1)

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



	ABUTMENT 1	ABUTMENT 2
ELEV. A	528.16'	528.60'
ELEV. B	530.65'	531.09'
ELEV. C	530.55'	531.00'

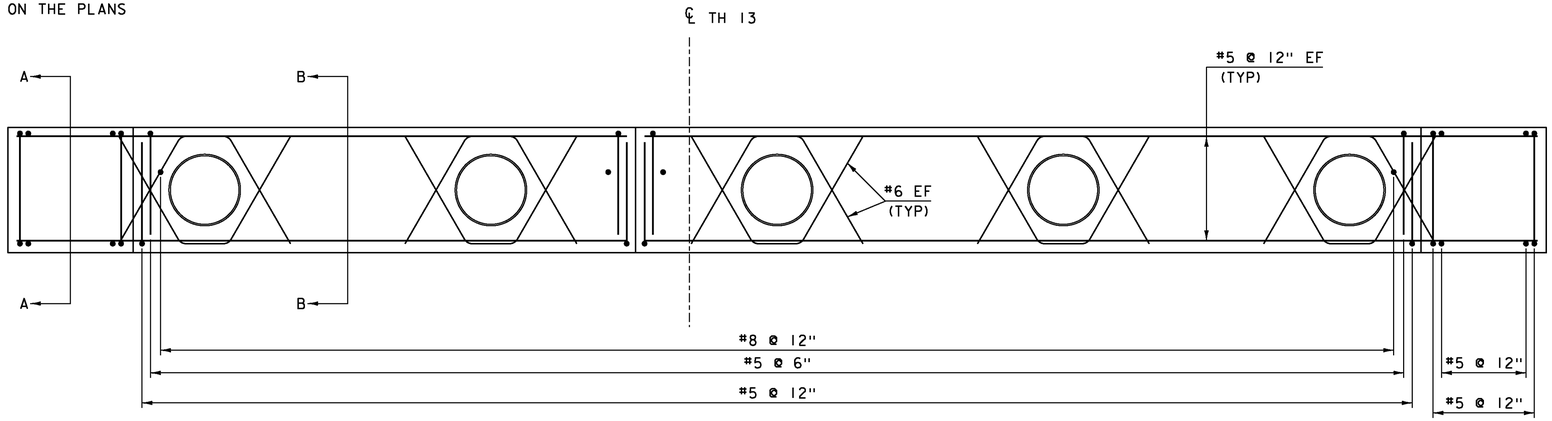
ABUTMENT #1 ELEVATION (PCU1)

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

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

FILE NAME: s96j244sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
ABUTMENT 1 & 2 PLAN & ELEVATION
PLOT DATE: 28-FEB-2014
DRAWN BY: M.UMBERGER
CHECKED BY: M. LONGSTREET
SHEET 22 OF 44

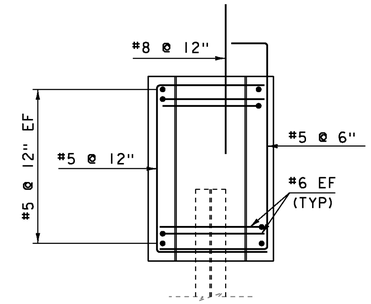
NOTE:
NF=NEAR FACE
FF=FAR FACE
EF=EACH FACE
▲ =CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS



ABUTMENT #1 REINFORCING PLAN (PCU1)

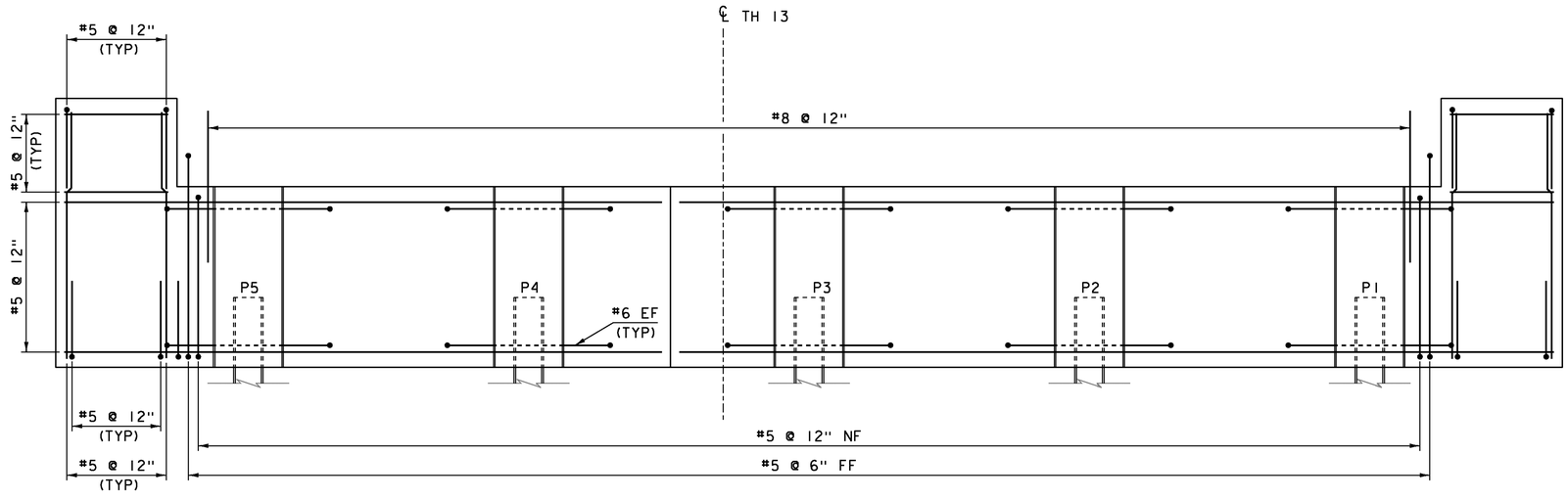
SCALE: ½"=1'-0"

NOTES:
1) POST-TENSIONING AND ASSOCIATED ITEMS ONLY REQUIRED IF PILE CAP IS CONSTRUCTED IN MORE THAN ONE PIECE.
2) PCU 2 MIRRORS PCU 1 ABOUT LINE PARALLEL TO CENTERLINE OF BEARING.



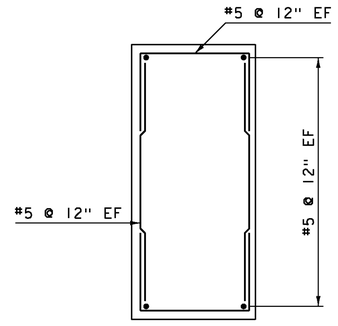
SECTION B-B

SCALE: ½"=1'-0"



ABUTMENT #1 REINFORCING ELEVATION (PCU1)

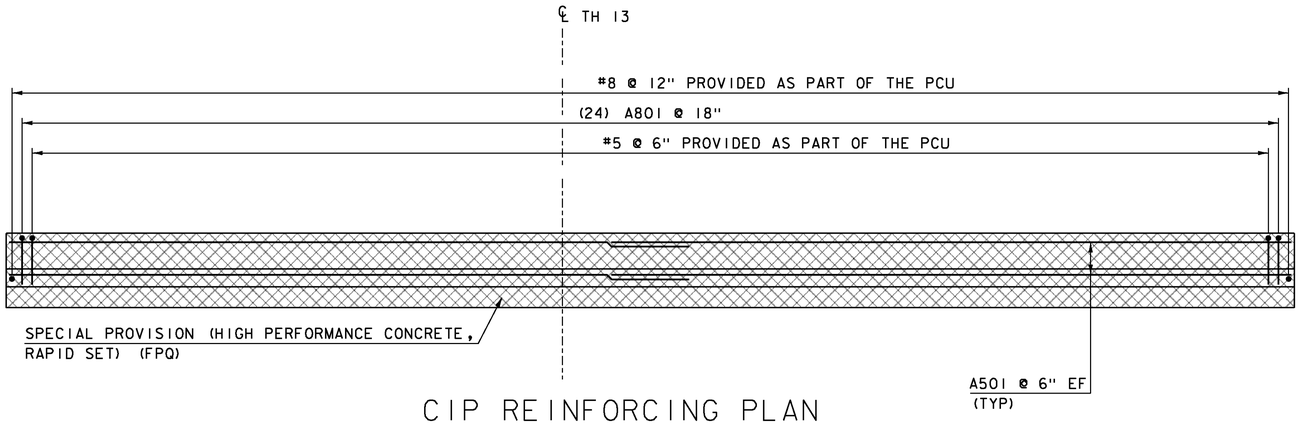
SCALE: ½"=1'-0"



SECTION A-A

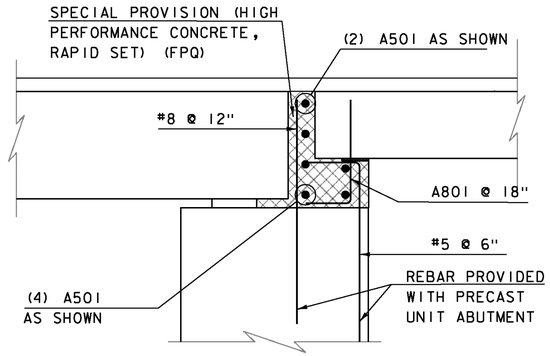
SCALE: ½"=1'-0"

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000 (18)
FILE NAME: s961244sub.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: M.UMBERGER
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. LONGSTREET
ABUTMENT 1 & 2 REINFORCING DETAILS 1	SHEET 23 OF 44



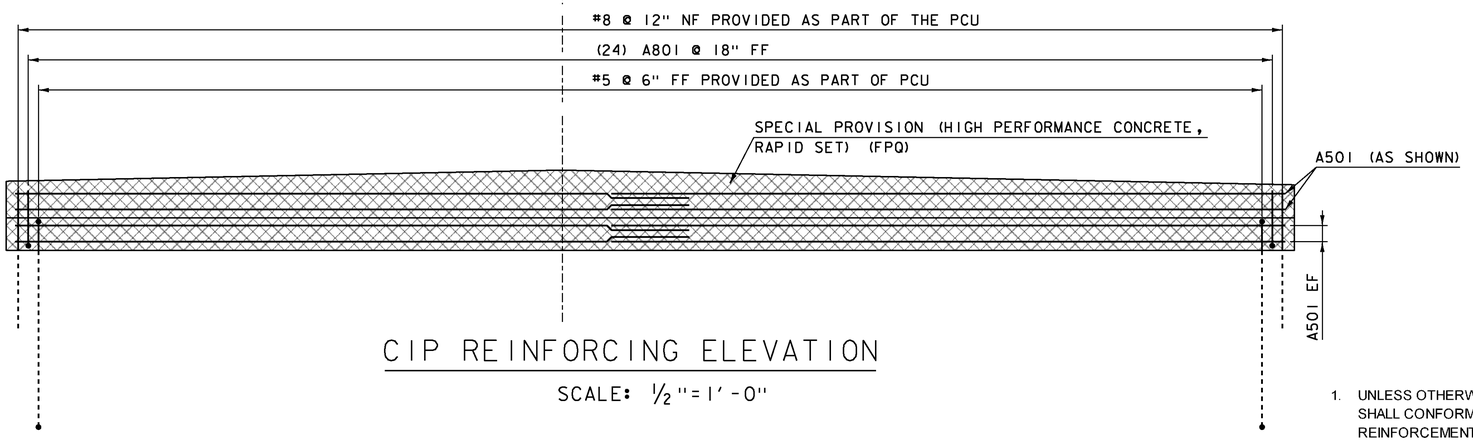
CIP REINFORCING PLAN

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



CIP REINFORCING TYPICAL

SCALE: 3/4"=1'-0"



CIP REINFORCING ELEVATION

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

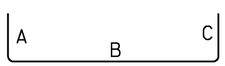
NOTE: NF=NEAR FACE
FF=FAR FACE
EF=EACH FACE
▲=CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS

REINFORCING STEEL NOTES

1. UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-SI). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
2. FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
3. BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
4. ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
5. "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
6. "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
7. WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
8. ▲ DENOTES BARS TO BE CUT IN FIELD.
9. ✳ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.

REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
✳	13	5	18'- 10"	1A501	STR	18'- 10"											
✳	25	8	3'- 0"	1A801	2	1'- 3"	1'- 9"	---									
✳	13	5	18'- 10"	2A501	STR	18'- 10"											
✳	25	8	3'- 0"	2A801	2	1'- 3"	1'- 9"	---									

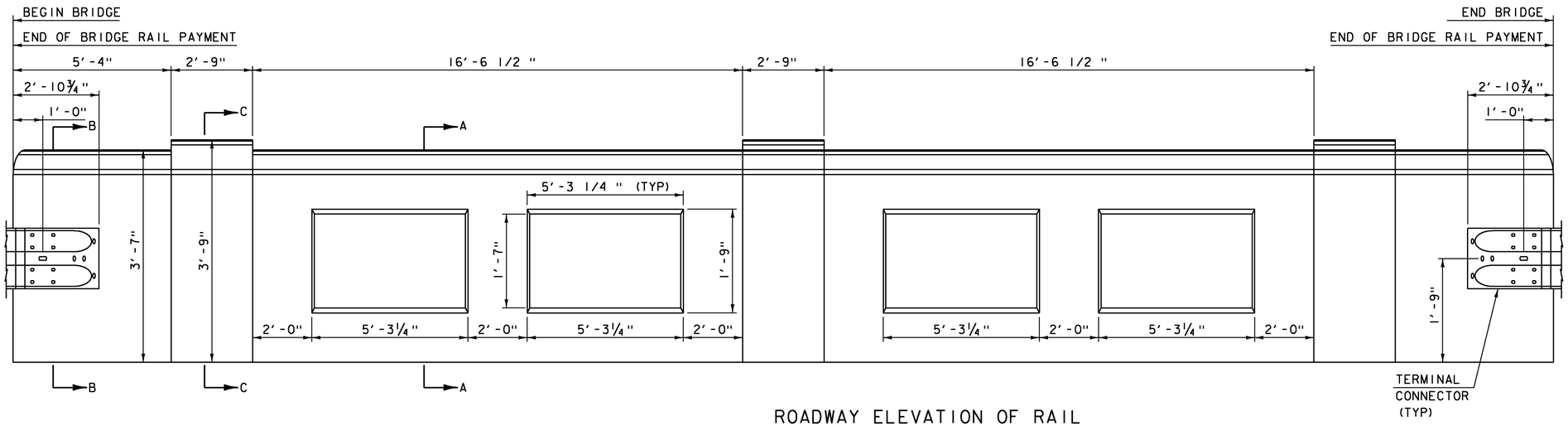


BAR TYPE 2

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

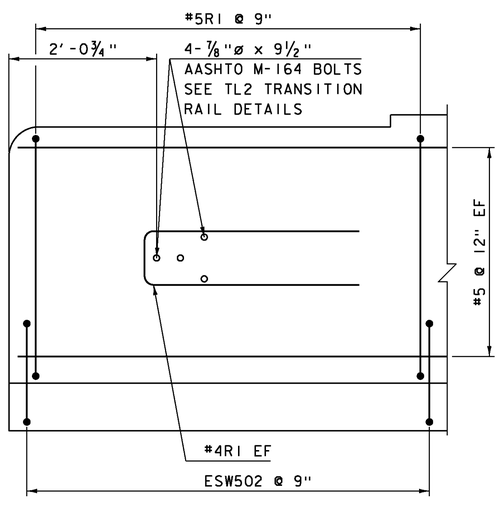
FILE NAME: s96j244sub.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
ABUTMENT 1 & 2 REINFORCING DETAILS 2

PLOT DATE: 28-FEB-2014
DRAWN BY: M.UMBERGER
CHECKED BY: M. LONGSTREET
SHEET 24 OF 44



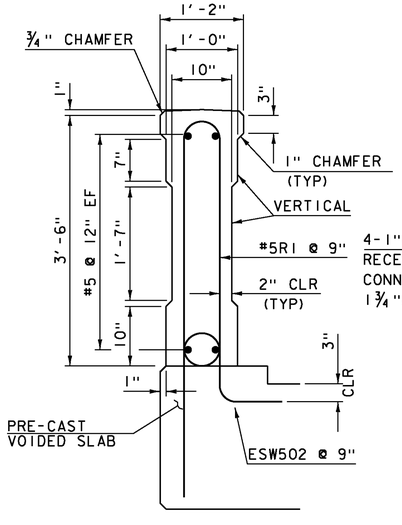
ROADWAY ELEVATION OF RAIL

SCALE: VERTICAL: 1" = 1'-0"
HORIZONTAL: ½" = 1'-0"



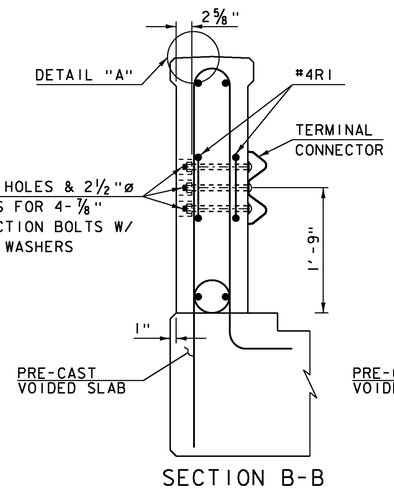
TYPICAL REINFORCING PLACEMENT

SCALE 1" = 1'-0"



SECTION A-A

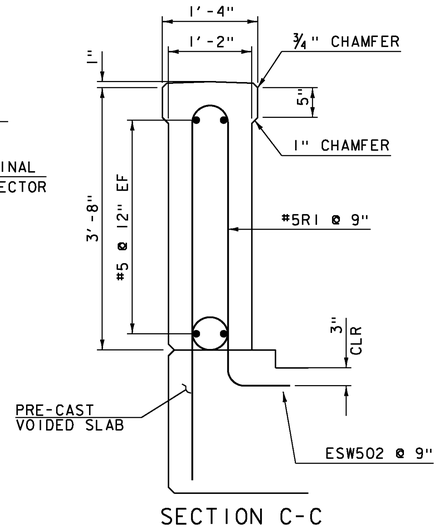
SCALE 1" = 1'-0"



SECTION B-B

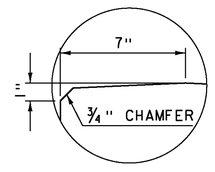
SCALE 1" = 1'-0"

HOLES AND RECESSES ARE TO BE FORMED OR CORED, PERCUSSION DRILLING IS NOT PERMITTED.



SECTION C-C

SCALE 1" = 1'-0"



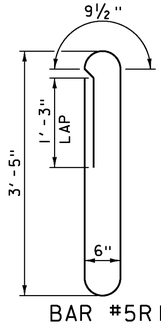
DETAIL "A"

SCALE 3" = 1'-0"



BAR #4RI

SCALE 1" = 1'-0"
8 - REQUIRED



BAR #5RI

SCALE 1" = 1'-0"
164 - REQUIRED

NOTE:

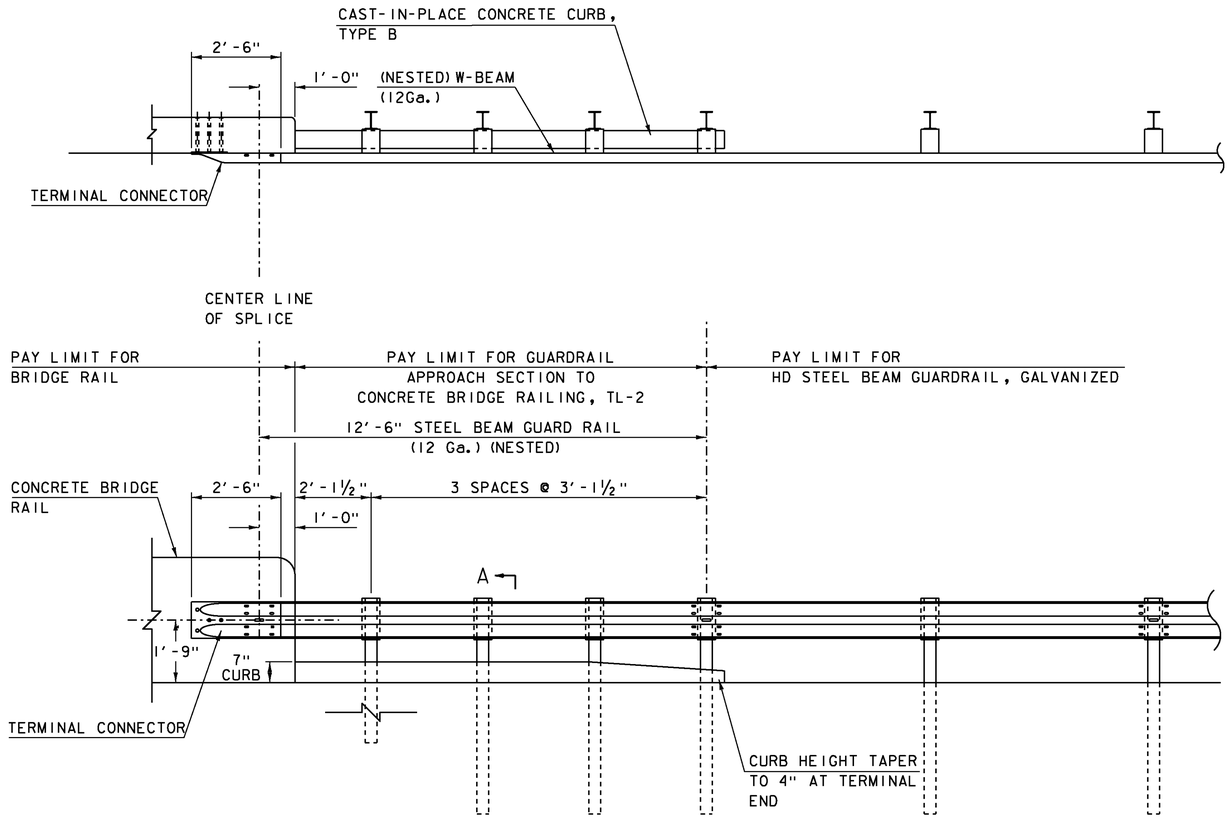
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2'-2" BAR LAP UNLESS OTHERWISE SPECIFIED ON THE PLANS.

NOTES:
1. BRIDGE RAIL SHALL BE PAID FOR UNDER ITEM 900.640 "SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)"
2. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING AND WILL BE PAID FOR UNDER ITEM 900.640 SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)
3. ALL EXPOSED CONCRETE SHALL BE TREATED WITH WATER REPELLANT, SILANE IN ACCORDANCE WITH SECTION 514.
4. THE BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.

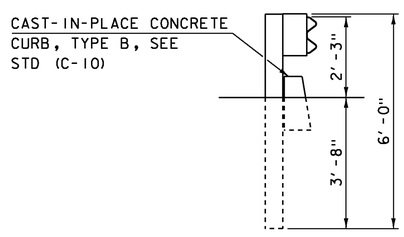
PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000 (18)

FILE NAME: s96j244rail.dgn
PROJECT LEADER: C.W. CARLSON
DESIGNED BY: EVANS-MONGEON
BRIDGE RAIL DETAILS

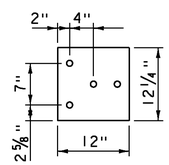
PLOT DATE: 28-FEB-2014
DRAWN BY: EVANS-MONGEON
CHECKED BY:
SHEET 25 OF 44



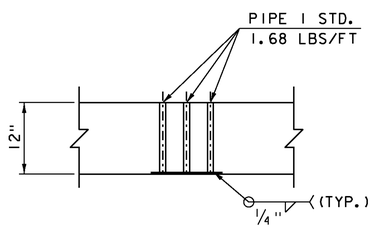
TYPICAL ELEVATION VIEW



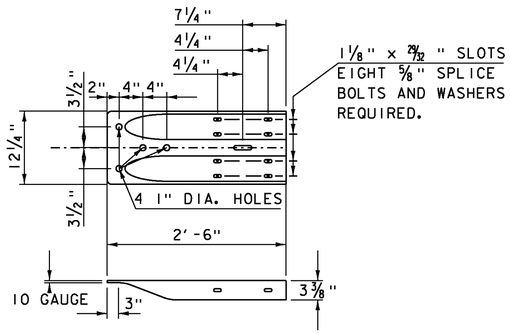
SECTION A-A



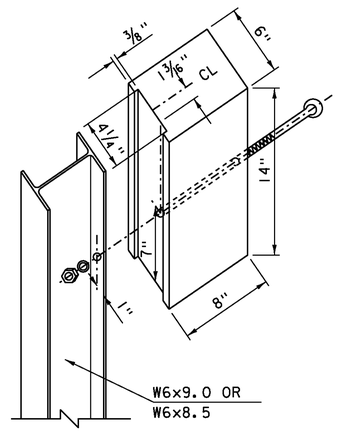
CONNECTION PLATE DETAIL- ELEVATION



CONNECTION PLATE DETAIL -PLAN



TERMINAL CONNECTOR



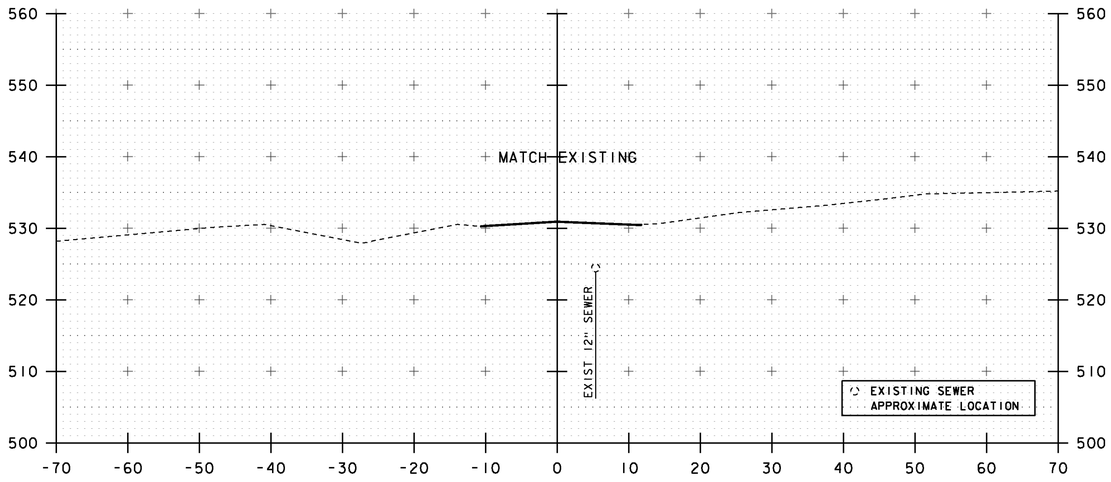
BLOCKOUT TO POST DETAIL

NTS

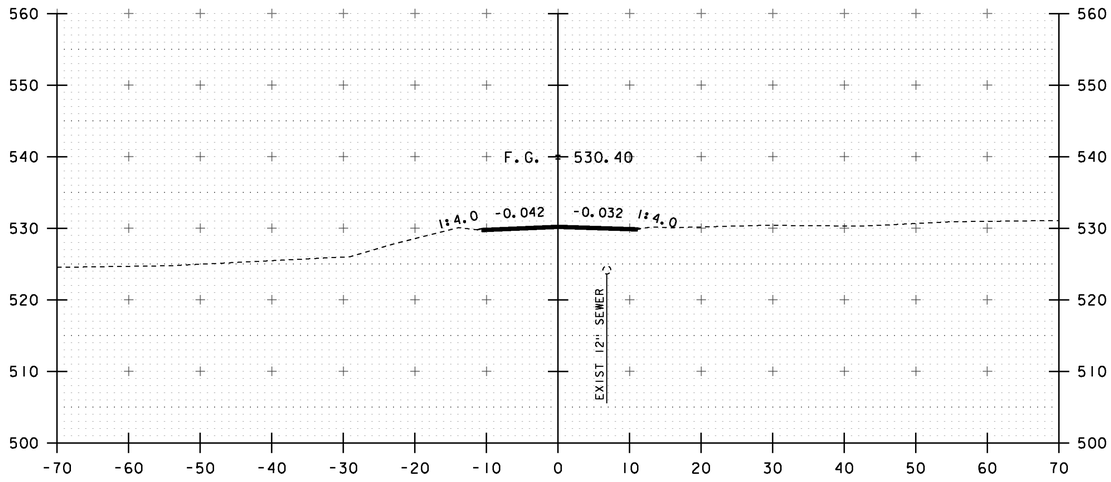
GENERAL NOTES

1. A COMPOSITE MATERIAL POST AND/OR BLOCKOUT FROM THE APPROVED PRODUCTS LIST MAY BE SUBSTITUTED FOR A POST AND/OR BLOCKOUT OF SIMILAR DIMENSIONS.
2. REFER TO STANDARD DRAWINGS G-1 AND G-1D FOR ADDITIONAL DETAILS.
3. THE TERMINAL CONNECTOR SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 621.746 "GUARDRAIL APPROACH SECTION TO CONCRETE BRIDGE RAILING, TL-2". THE CONNECTION PLATE SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 900.640 "SPECIAL PROVISION (BRIDGE RAILING, TEXAS) (FPQ)".

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000 (18)
FILE NAME: s96j244rail.dgn	PLOT DATE: 24-MAR-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: EVANS-MONGEON
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. LONGSTREET
TRANSITION RAIL DETAIL	SHEET 26 OF 44

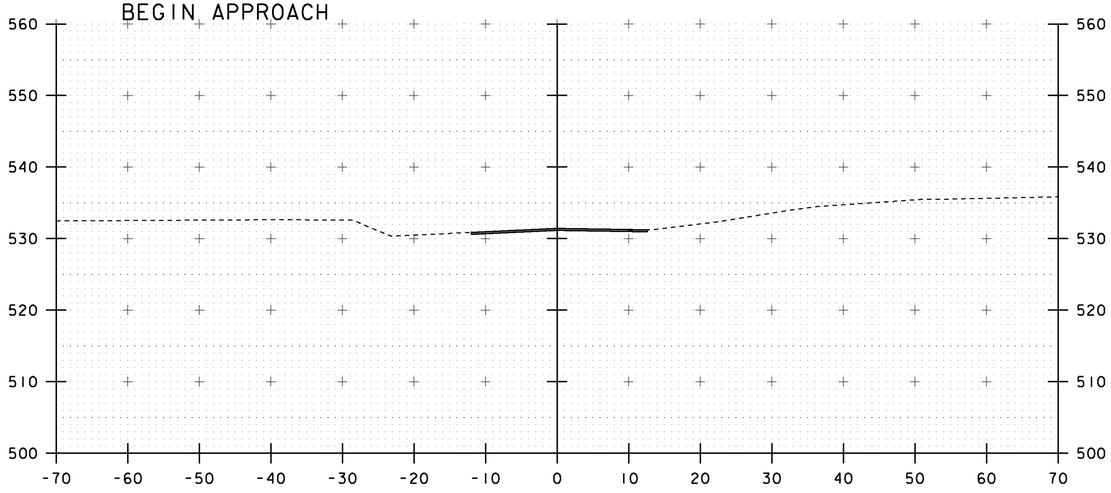


1+50

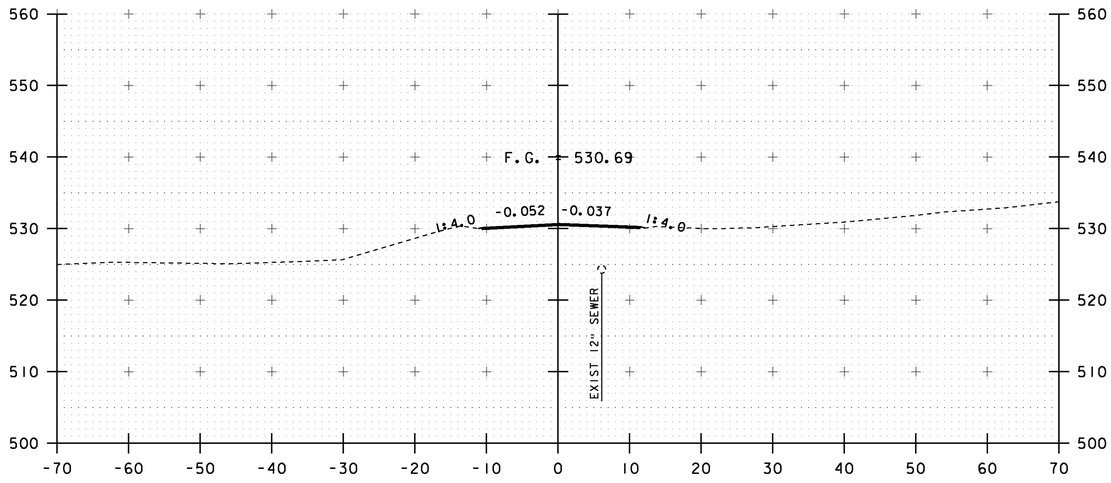


2+00

STA 1+50
END NON-PARTICIPATING PAVING
BEGIN APPROACH



1+25



1+75

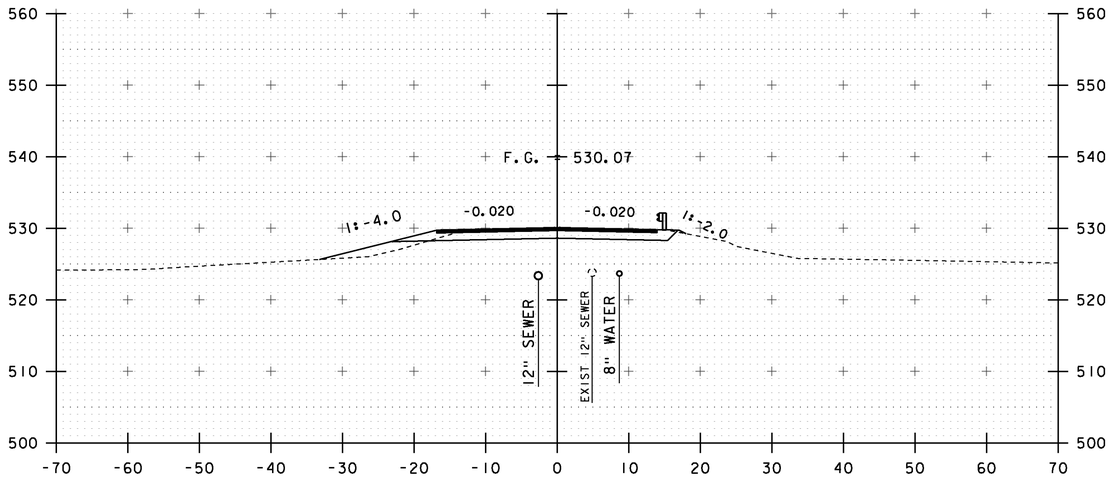
STA 0+06.29
BEGIN NON-PARTICIPATING PAVING

STA. 1+25 TO STA. 2+00

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

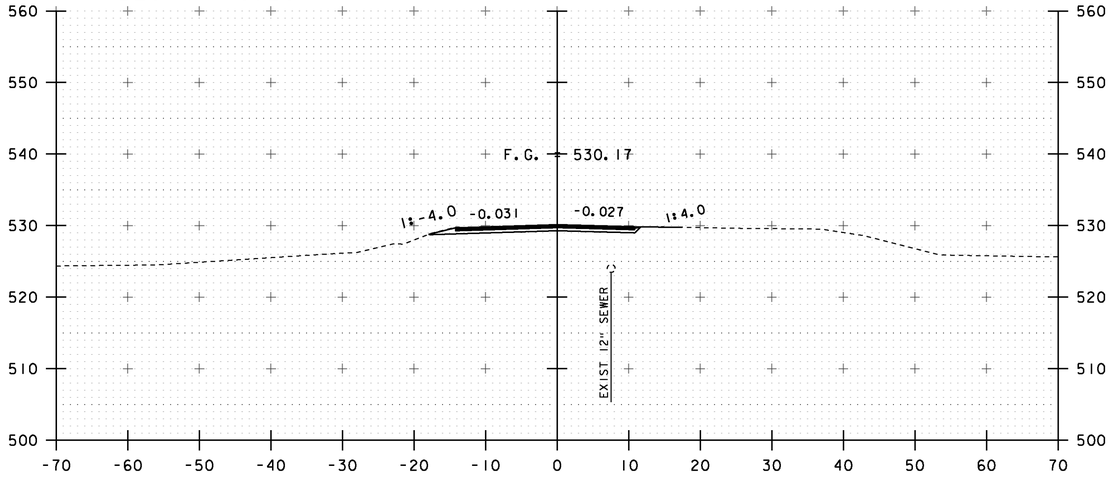
FILE NAME: s961244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
MAINLINE CROSS SECTIONS 1

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 27 OF 44

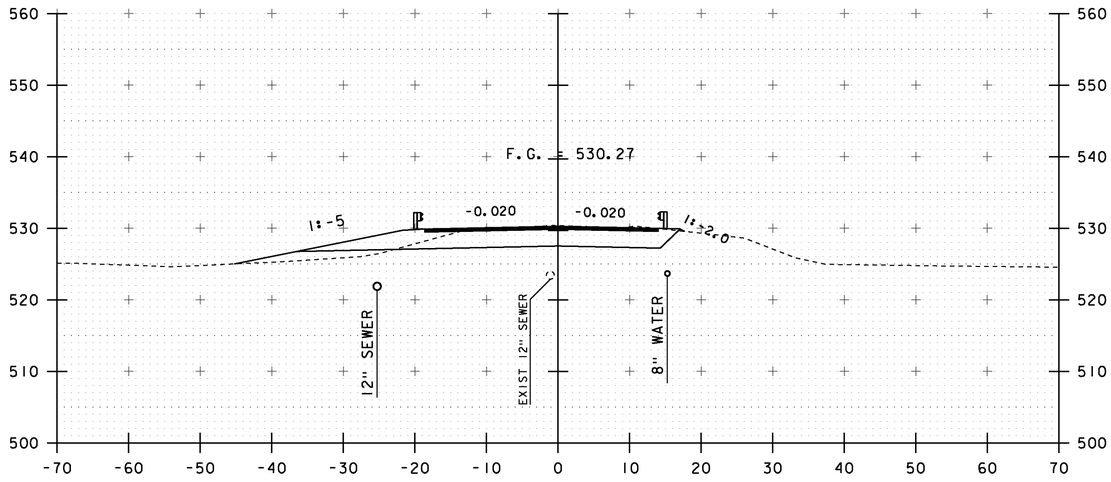


2+50

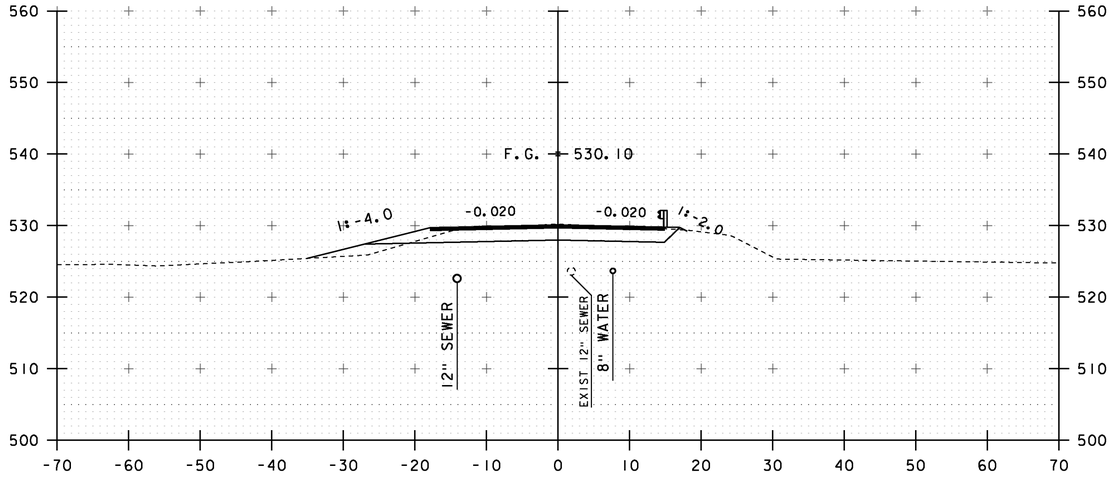
STA 2+50
END APPROACH
BEGIN PROJECT



2+25



3+00



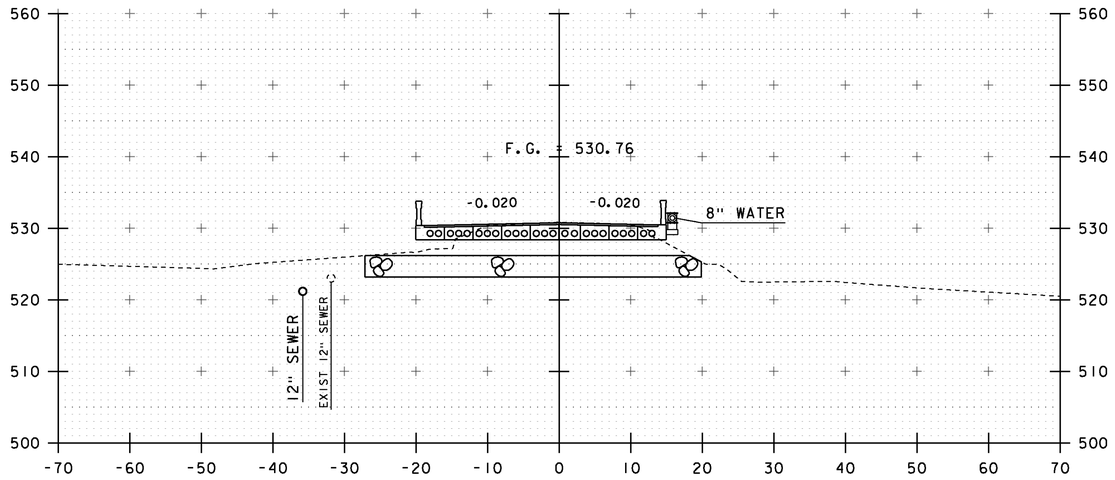
2+75

STA. 2+25 TO STA. 3+00

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

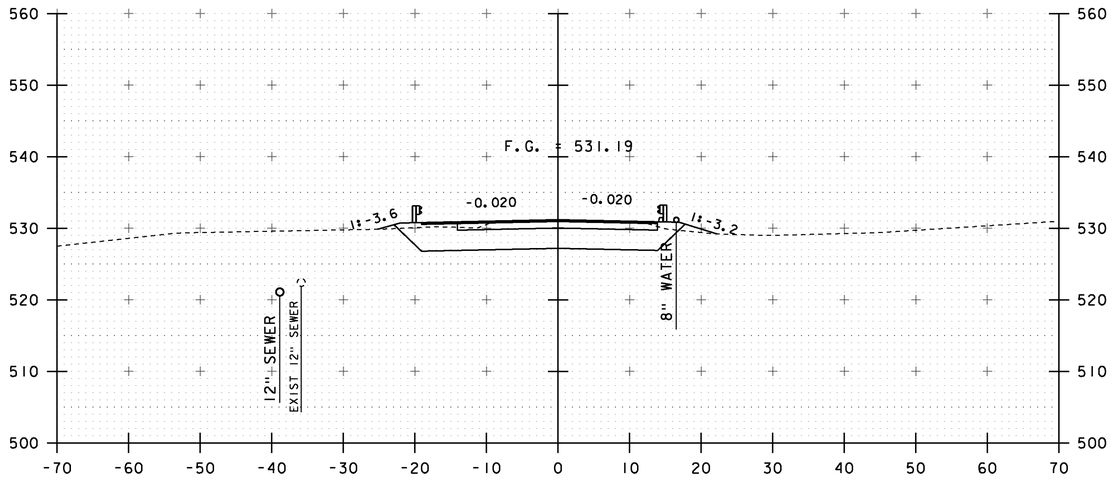
FILE NAME: s961244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
MAINLINE CROSS SECTIONS 2

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 28 OF 44



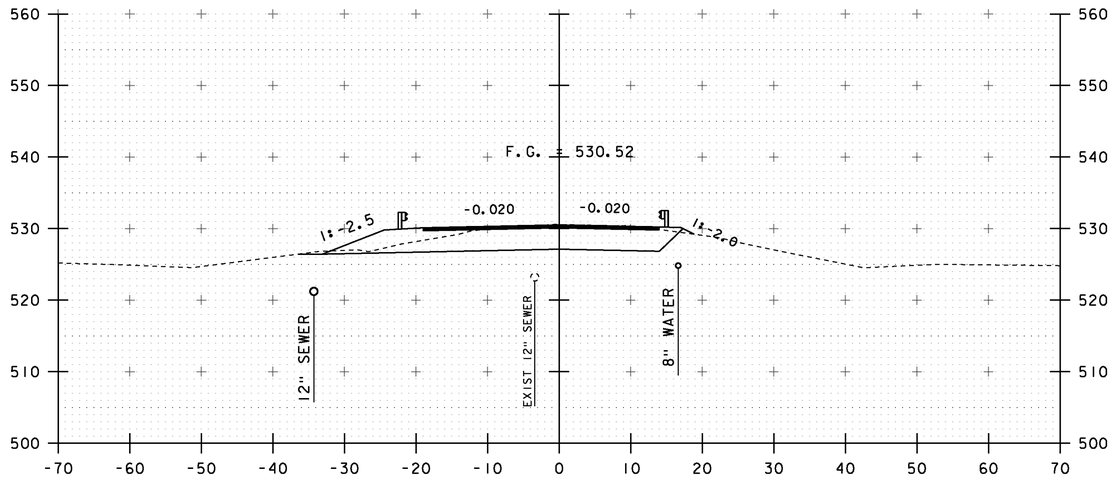
3+50

BEGIN BRIDGE STA 3+40.50

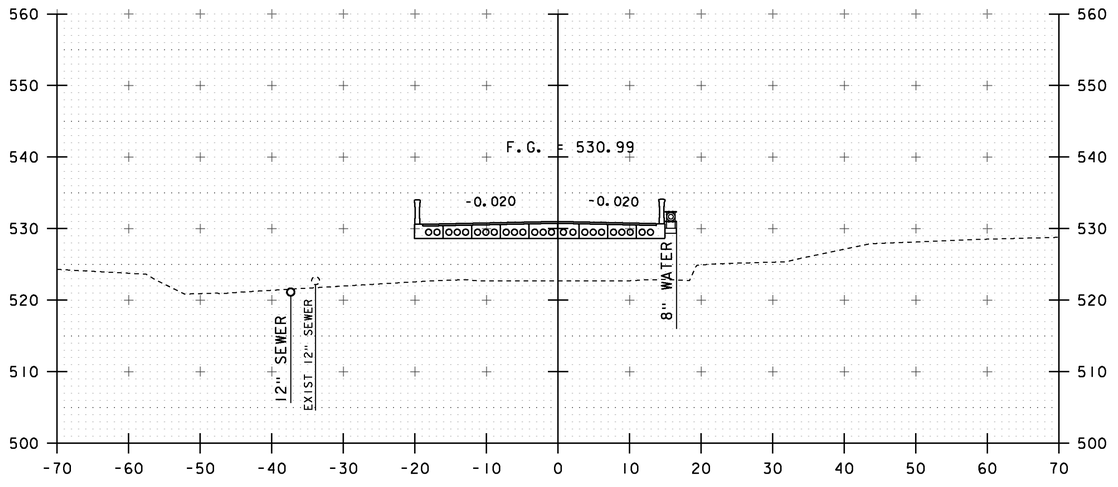


4+00

END BRIDGE STA 3+93.50



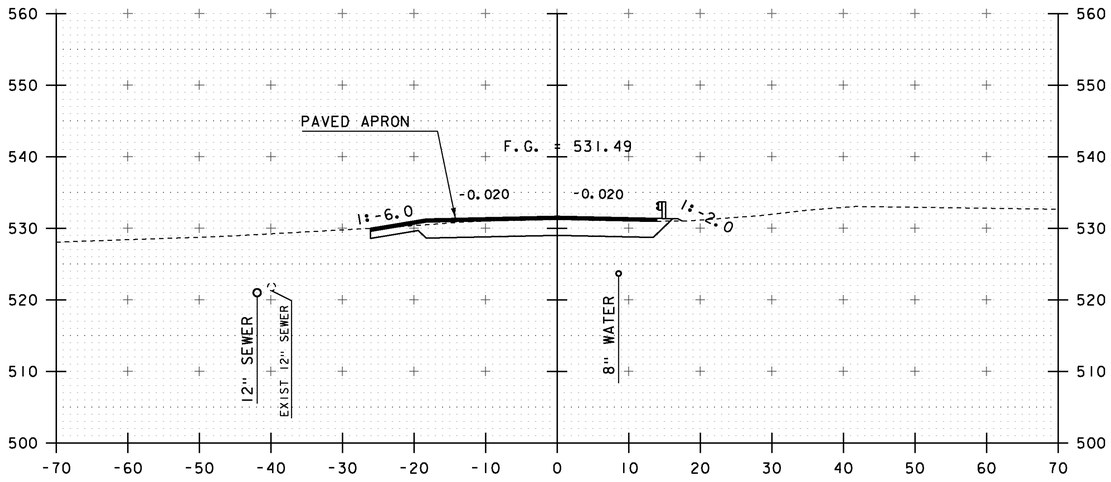
3+25



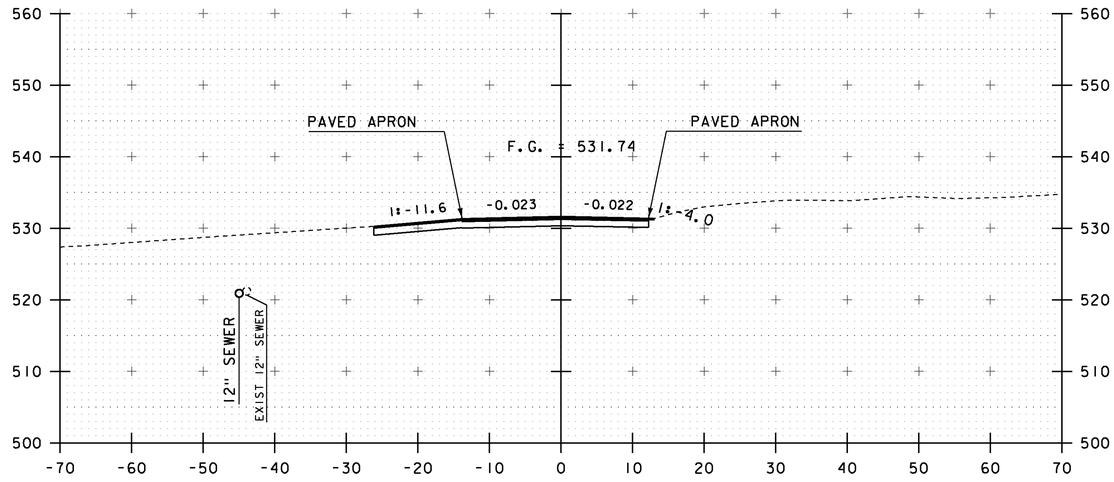
3+75

STA. 3+25 TO STA. 4+00

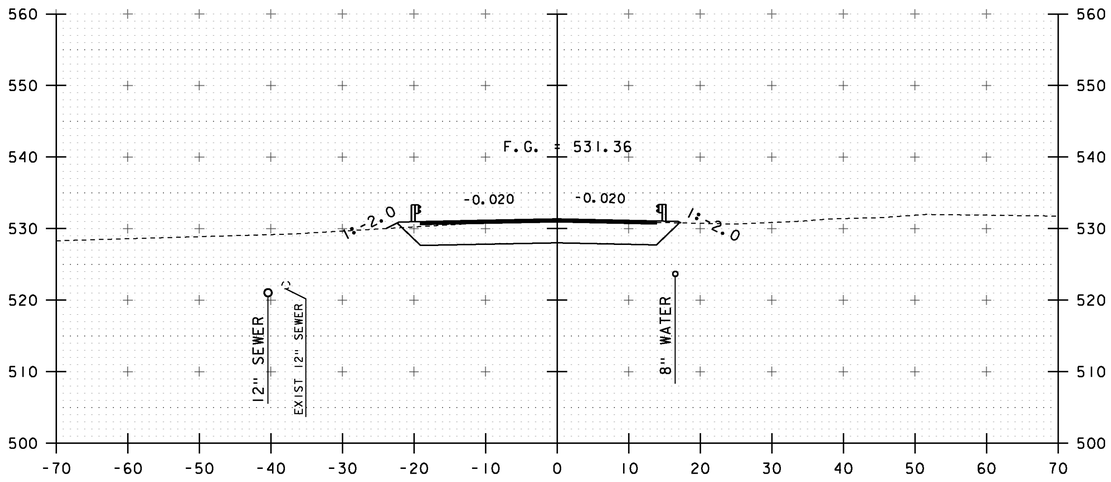
PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s961244xs.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
MAINLINE CROSS SECTIONS 3	SHEET 29 OF 44



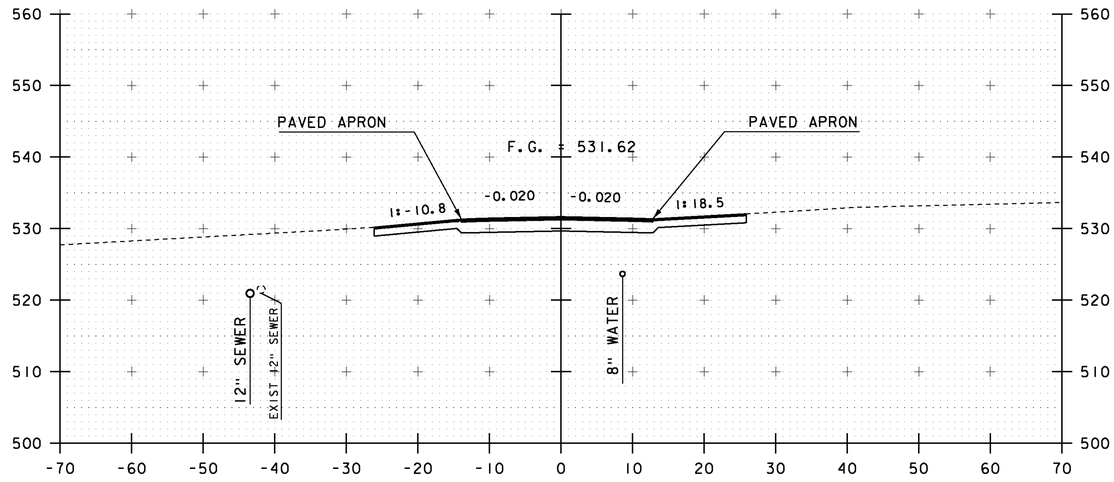
4+50



5+00



4+25



4+75

STA 4+75
END PROJECT
BEGIN APPROACH

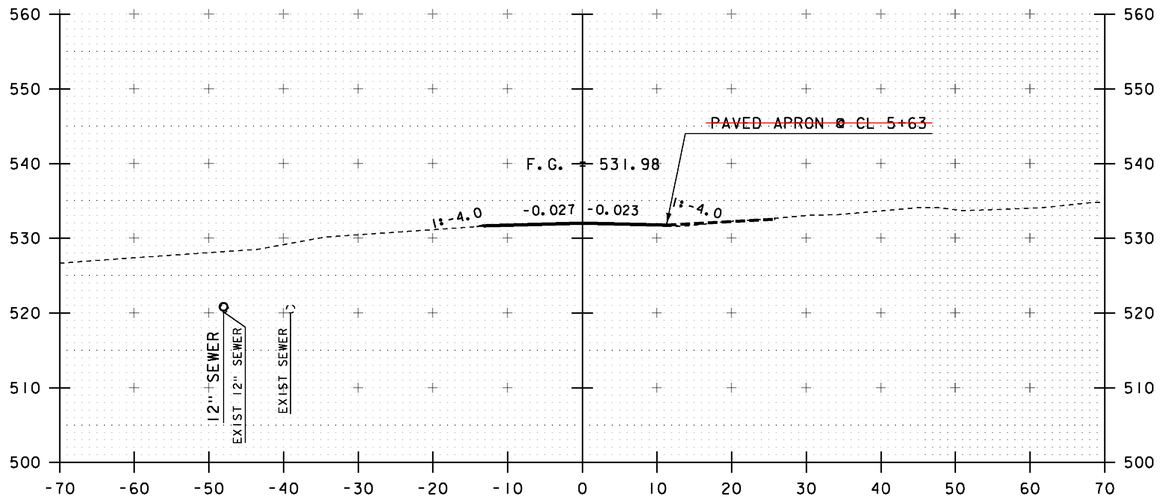
STA. 4+25 TO STA. 5+00

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

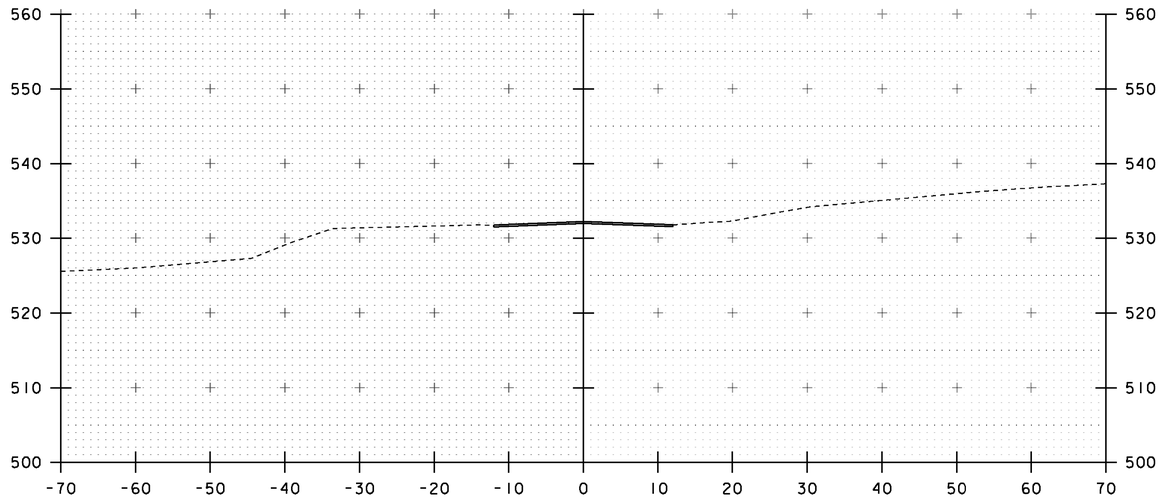
FILE NAME: s961244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
MAINLINE CROSS SECTIONS 4

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 30 OF 44

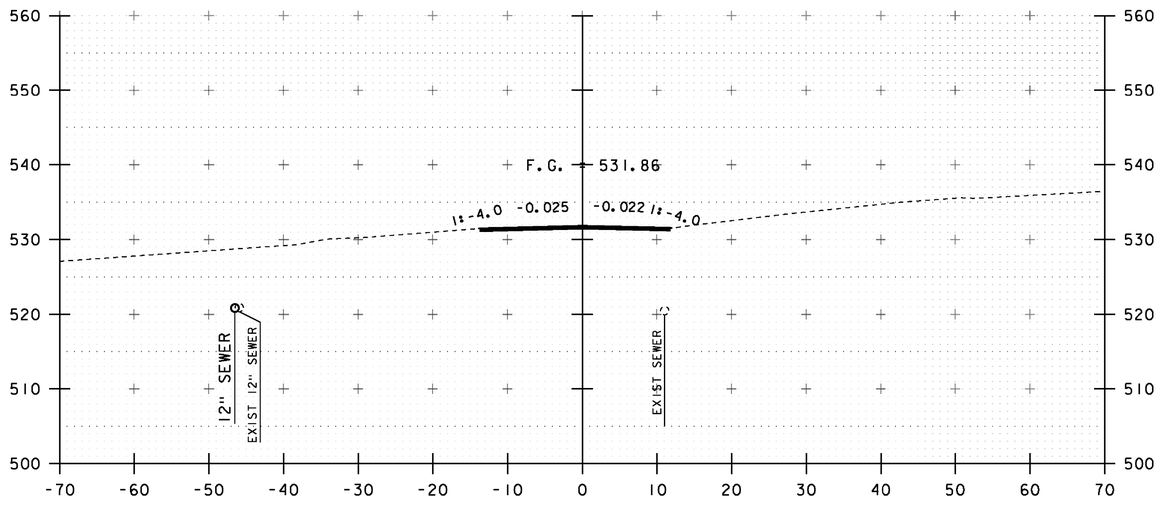
STA 8+27.61
END NON-PARTICIPATING PAVING



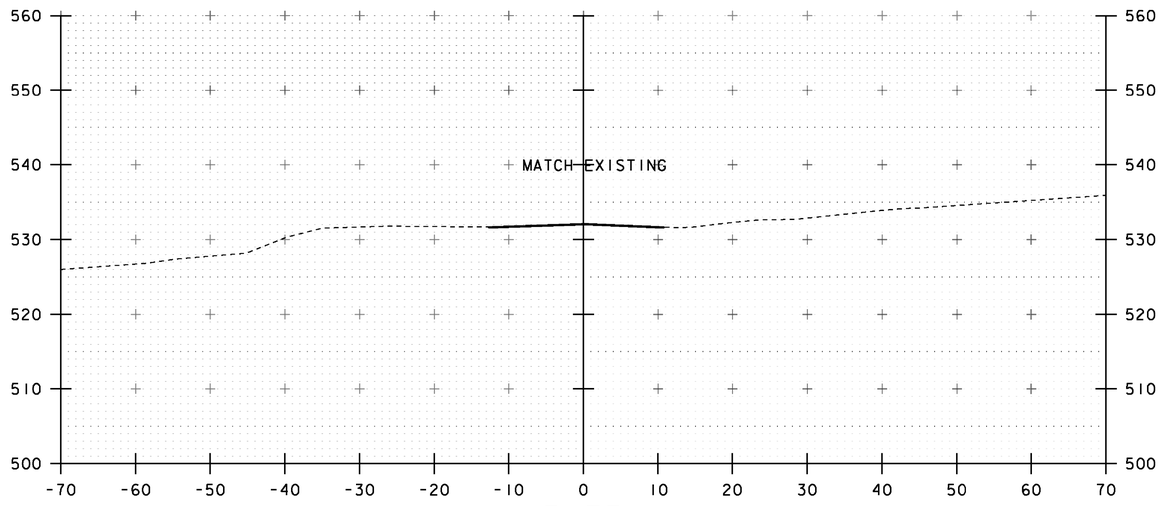
5+50



6+00



5+25



5+75

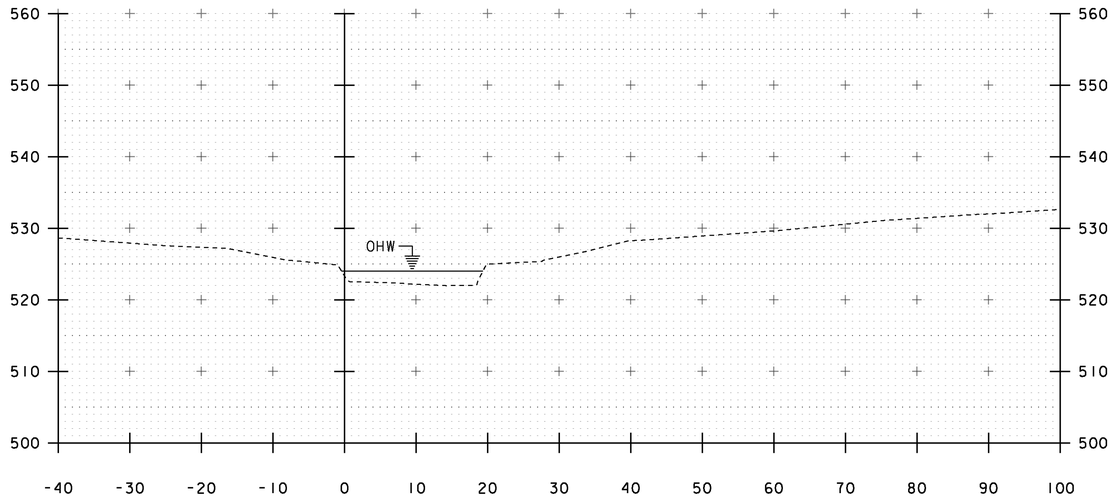
STA 5+75
END APPROACH
RESUME NON-PARTICIPATING PAVING

STA. 5+25 TO STA. 6+00

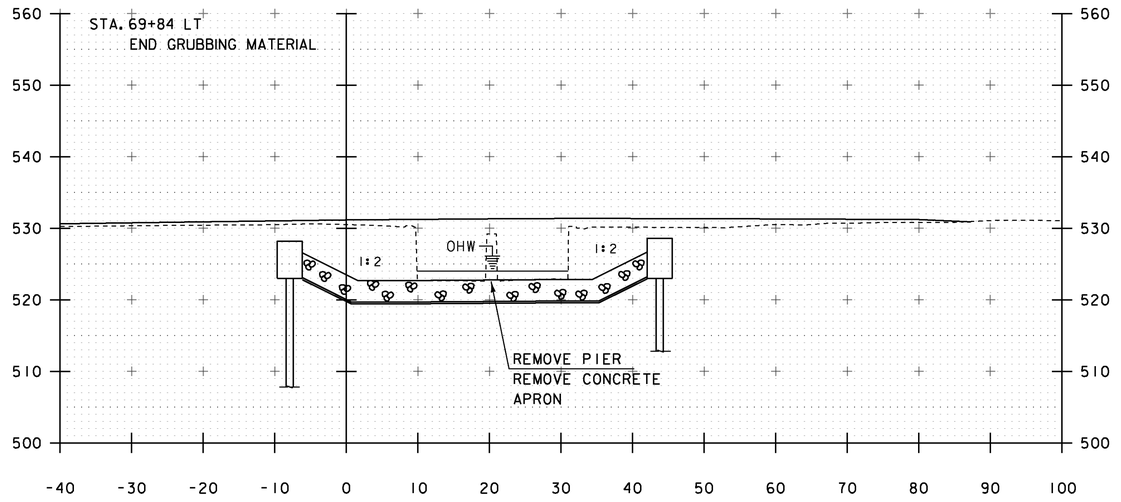
PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
MAINLINE CROSS SECTIONS 5

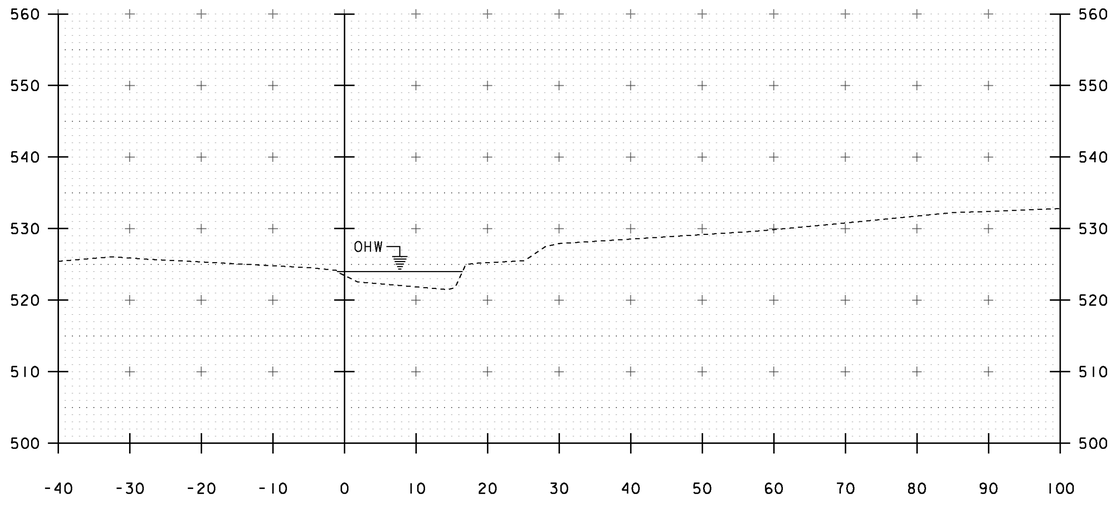
PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 31 OF 44



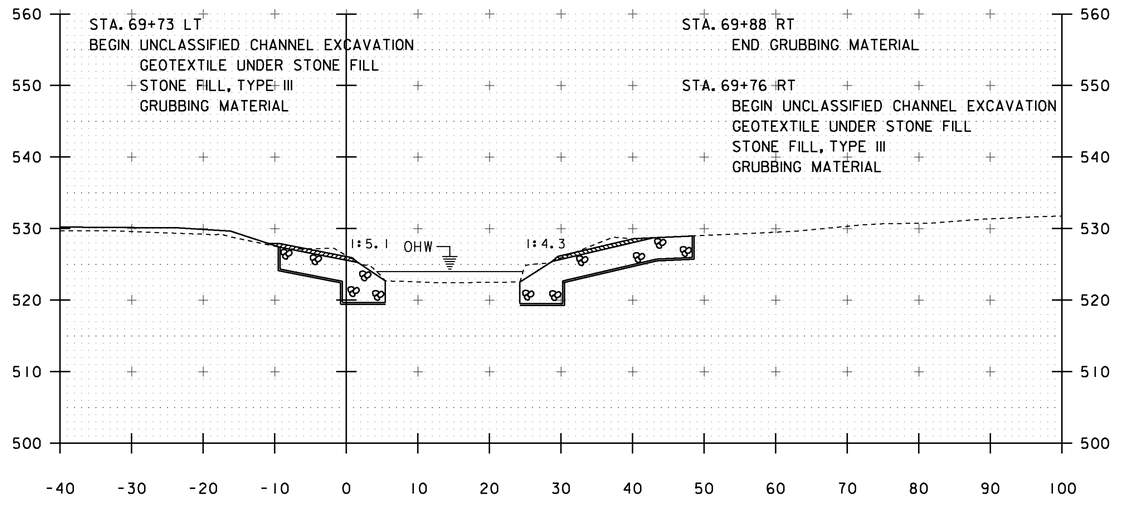
69+70



69+90



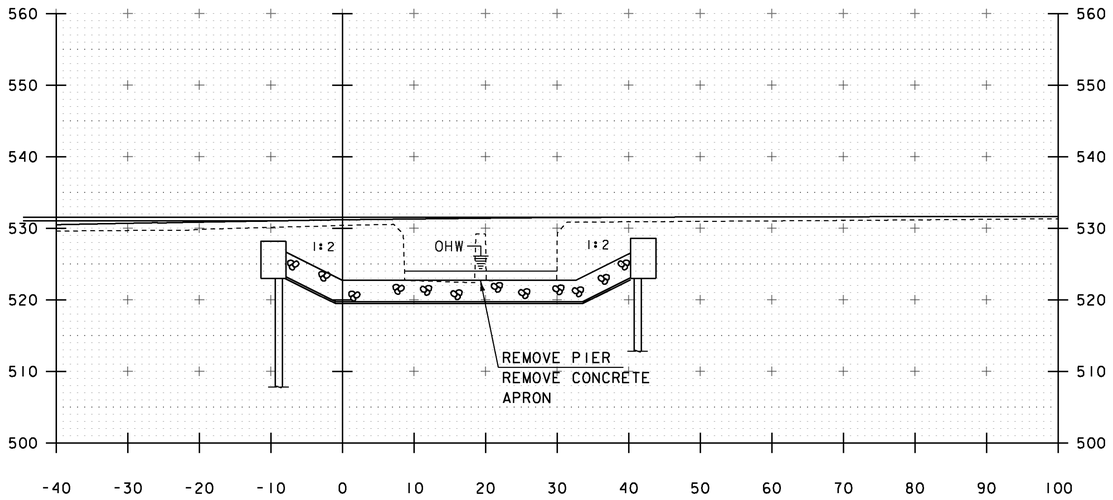
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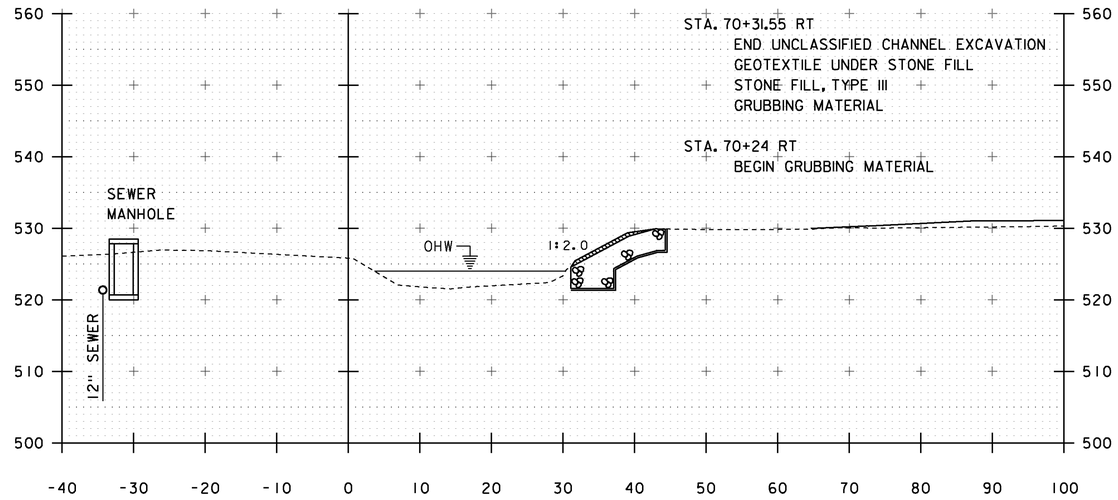
69+80

STA. 69+60 TO STA. 69+90

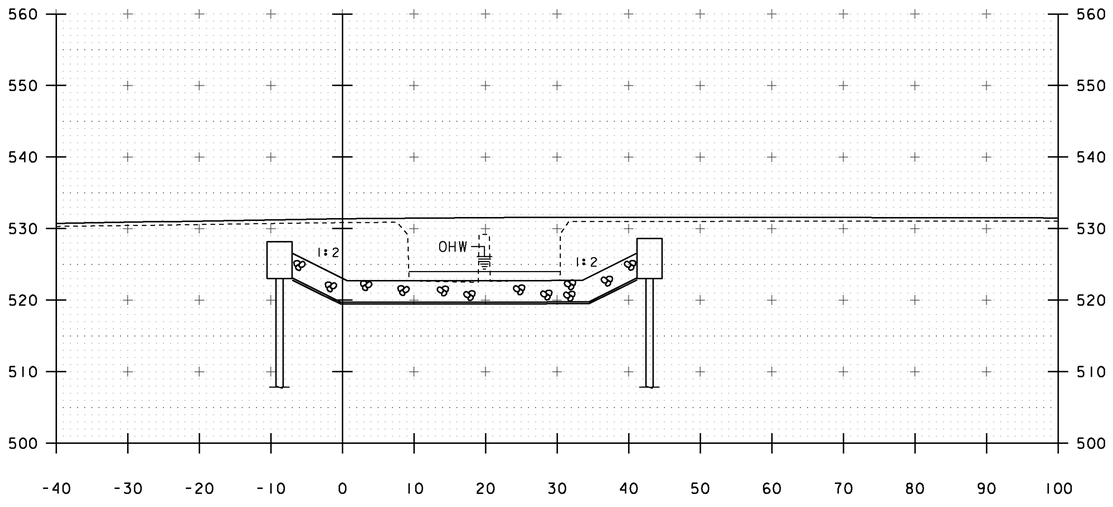
PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s961244xs.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
CHANNEL CROSS SECTIONS 1	SHEET 32 OF 44



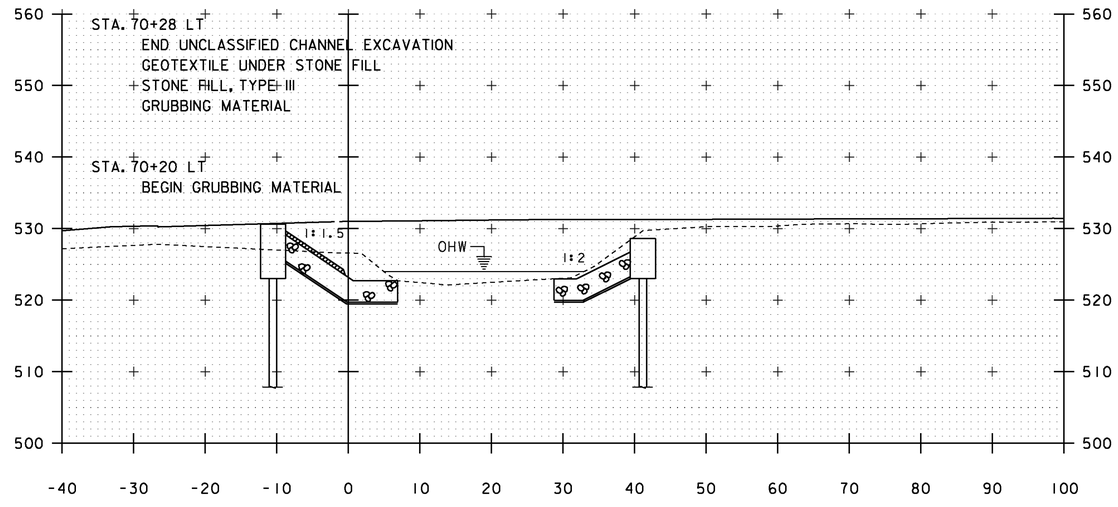
70+10



70+30



70+00



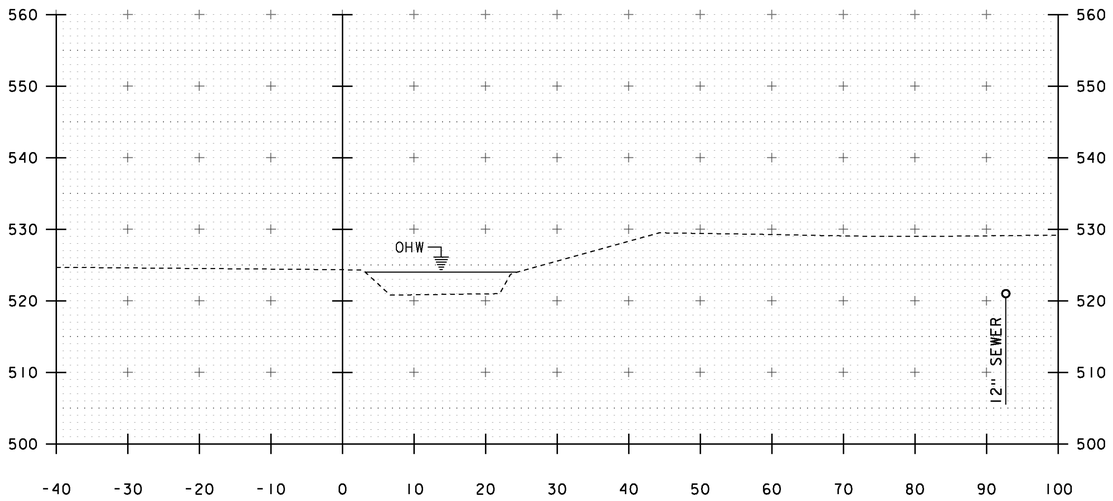
70+20

STA. 70+00 TO STA. 70+30

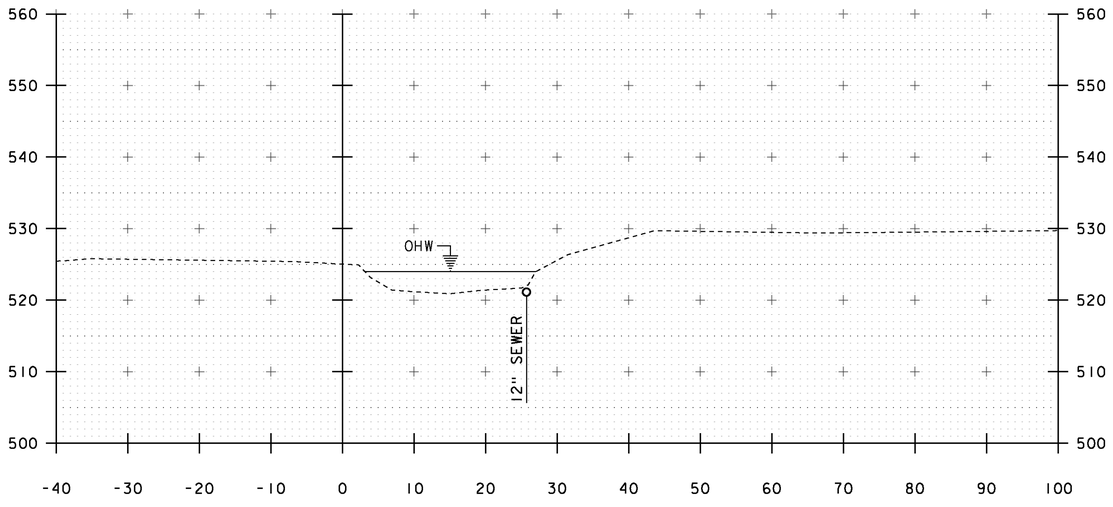
PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s961244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
CHANNEL CROSS SECTIONS 2

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 33 OF 44



70+50



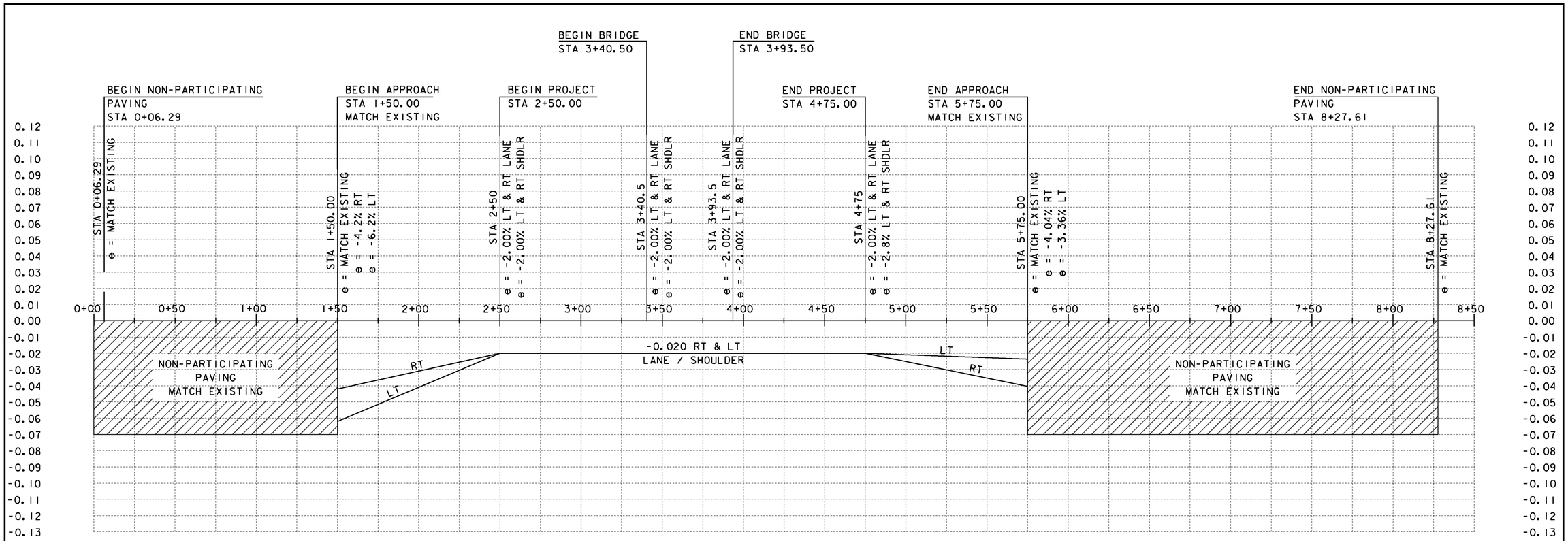
70+40

STA. 70+40 TO STA. 70+50

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

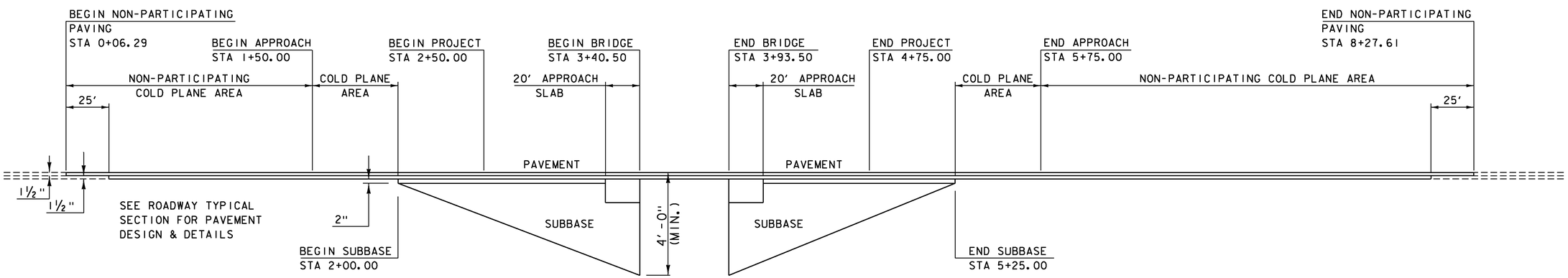
FILE NAME: s961244xs.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
CHANNEL CROSS SECTIONS 3

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 34 OF 44



BANKING DIAGRAM

HORIZONTAL SCALE 1" = 30'-0"
NO VERTICAL SCALE



MATERIAL TRANSITION

HORIZONTAL SCALE 1" = 30'-0"
NO VERTICAL SCALE

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244xs.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
BANKING / MATERIAL TRANSITION	SHEET 35 OF 44

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT IS LOCATED ON FOREST STREET (TH 13), APPROXIMATELY 0.1 MILES FROM THE INTERSECTION OF FOREST STREET (TH 13) AND PARK STREET (TH 12) OVER THE MOON BROOK. IT INVOLVES THE RECONSTRUCTION OF THE EXISTING BRIDGE WITH RELATED APPROACH ROADWAY AND CHANNEL WORK. THE BRIDGE IS BEING REPLACED WITH A 53 FOOT PRESTRESSED CONCRETE VOIDED SLAB BRIDGE. THE ROAD WILL BE CLOSED AND TRAFFIC MAINTAINED ON AN OFFSITE DETOUR. THE TOTAL LENGTH OF PROJECT IS 305 FEET.

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 AREA IS A SADDLE THAT IS AGRICULTURAL FIELDS AND SOME RESIDENTAIL AREAS. FOREST STREET (TH 13) AND THREE DRIVES ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE NORTH WEST AND SOUTH WEST SIDES OF THE PROJECT.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES
MOON BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS SHALLOW. THE STREAM BED CONSISTS OF COBBLES, GRAVEL AND CONCRETE.

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 BRIDGE. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE III AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS
ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF RUTLAND, VERMONT. SOILS ON THE PROJECT SITE ARE:
BELGRADE SILT LOAM, 3% TO 8% SLOPES, “K FACTOR” = 0.49
RIPPOWAM FINE SANDY LOAM, 0% TO 3% SLOPES, “K FACTOR” = 0.20
TEEL SILT LOAM, SANDY SUBSTRATUM, 0% TO 3% SLOPES, “K FACTOR” = 0.37.

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: YES, ARCHEOLOGICAL ON NORTH WEST SIDE OF PROJECT.
PRIME AGRICULTURAL LAND: YES, AGRICULTURAL ON NORTH WEST SIDE OF PROJECT.
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: MOON BROOK
WETLANDS: YES, ON SOUTH WEST & SOUTH EAST SIDES OF PROJECT.

1.3 RISK EVALUATION

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

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

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

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

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

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

1.4.3 SITE ENTRANCE/EXIT STABILIZATION
TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE.

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

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

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

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

THE PROJECT AREA IS REALTIVELY FLAT. THERFORE IT IS NOT ANTICPIATED THAT DIVERSION MEASURES WILL BE 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.

THE PROJECT AREA IS RELATIVELY FLAT; THEREFORE IT IS NOT ANTICIPATED THAT CHECK STRUCTURES WILL BE NECESSARY.

1.4.7 CONSTRUCT PERMANENT CONTROLS
NO PERMANENT STORMWATER TREATMENT DEVICES ARE REQUIRED.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION
ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE.

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.

NO DEWATERING ACTIVITIES ARE ANTICIPATED FOR THIS PROJECT. IF THE CONTRACTOR FINDS THAT DEWATERING IS NECESSARY THE CONTRACTOR WILL BE RESPONSIBLE FOR DESIGNING THE METHOD AND CHOOSING THE LOCATION FOR THESE ACTIVITIES.

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:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)

FILE NAME: s961244epsc_narr.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC NARRATIVE	SHEET 36 OF 44

25B - BELGRADE SILT LOAM
WITH 3% TO 8% SLOPES
"K FACTOR" = 0.49

21 - RIPPOWAM FINE SANDY LOAM
WITH 0% TO 3% SLOPES
"K FACTOR" = 0.20

109 - TEEL SILT LOAM, SANDY SUBSTRATUM
WITH 0% TO 3% SLOPES
"K FACTOR" = 0.37

VT STATE PLANE GRID

N

BEGIN
NON-PARTICIPATING
PAVING
STA 0+06.29

END NON-PARTICIPATING PAVING
BEGIN APPROACH
STA 1+50.00

BEGIN PROJECT
STA 2+50.00

BEGIN BRIDGE
STA 3+40.50

END BRIDGE
STA 3+93.50

END PROJECT
STA 4+75.00

END APPROACH
RESUME NON-PARTICIPATING
PAVING
STA 5+75.00

MATCHLINE STA 6+00.00

50' RIPARIAN BUFFER

50' WETLAND BUFFER

CLASS II WETLAND

WOODS

EXISTING R.O.W.

STONE WALL

STONE WALL

HOUSE

PAVE DRIVEWAY

PARK STREET (TH 12)

MH

OHW

12" VCP

10" VCP

6" PIPE

HVCTRL 10

HVCTRL 2

MH TO BE REMOVED

GRAVEL AREA

GRAVEL DRIVEWAY

S SEWER
4'x6' CONCRETE BOX

MOON BROOK

ARCH

ET

W

S

E

0+00 1+00 2+00 3+00 4+00 5+00 6+

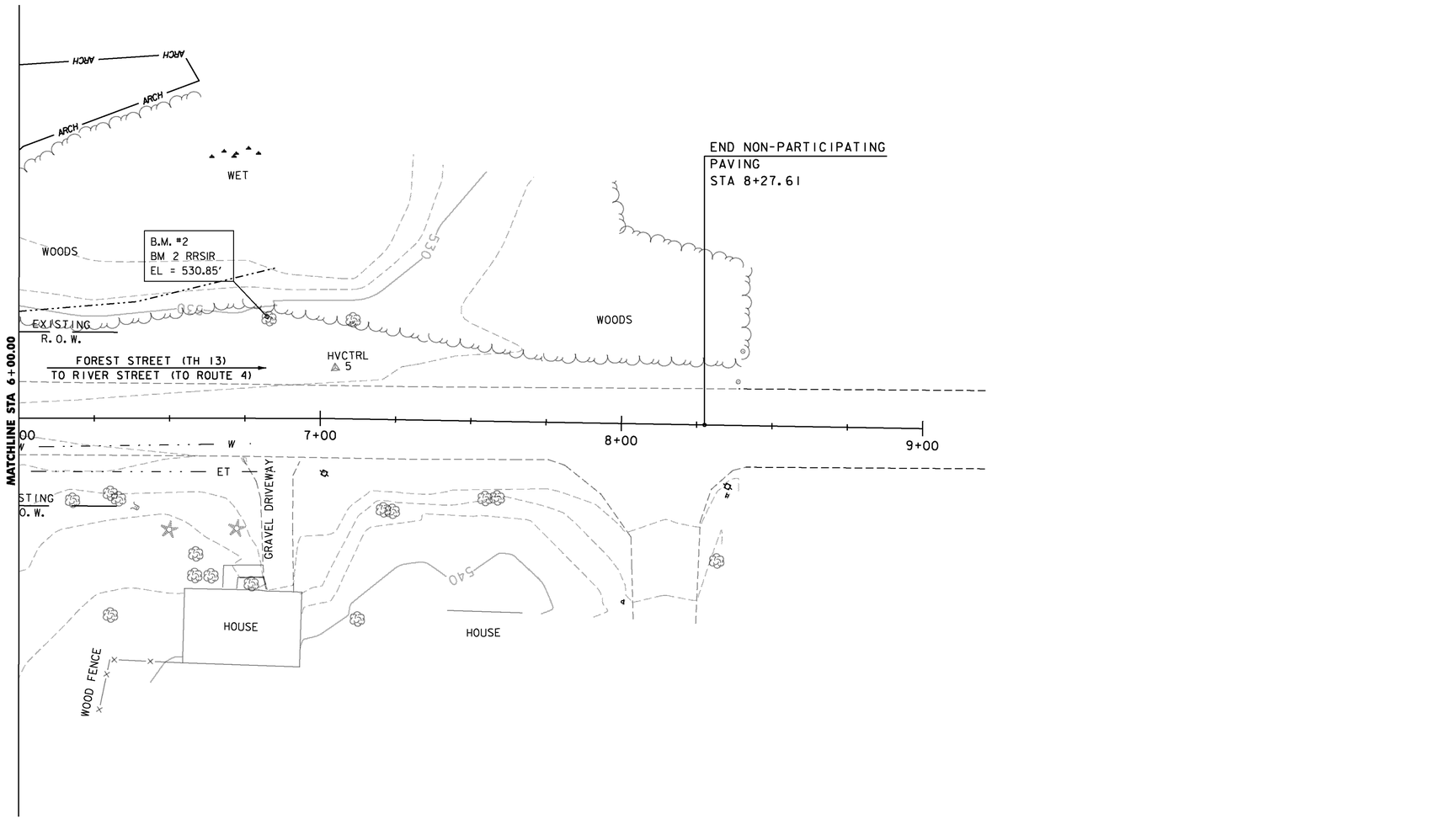
EXISTING BRIDGE DATA
CONCRETE SLAB DECK
LENGTH = 20'-0"
WIDTH = 23'-0" CURB TO CURB
BUILT IN 1900

25B - BELGRADE SILT LOAM
WITH 3% TO 8% SLOPES
"K FACTOR" = 0.49

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.
SEE SYMBOLOGY LEGEND SHEET AND EPSC DETAILS
SHEETS 1 & 2 FOR LEGEND INFORMATION.

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

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s96j244epsc_dur.dgn	PLOT DATE: 05-MAR-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC EXISTING LAYOUT 1	SHEET 37 OF 44



NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.
SEE SYMBOLOGY LEGEND SHEET AND EPSC DETAILS
SHEETS 1 & 2 FOR LEGEND INFORMATION.

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

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)

FILE NAME: s96j244eroBdr.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC EXISTING LAYOUT 2	SHEET 38 OF 44

VT STATE PLANE GRID

N

BEGIN
NON-PARTICIPATING
PAVING
STA 0+06.29

END NON-PARTICIPATING PAVING
BEGIN APPROACH
STA 1+50.00

BEGIN PROJECT
STA 2+50.00

BEGIN BRIDGE
STA 3+40.50

END BRIDGE
STA 3+93.50

END PROJECT
STA 4+75.00

END APPROACH
RESUME NON-PARTICIPATING
PAVING
STA 5+75.00

MATCHLINE STA 6+00.00

50' RIPARIAN BUFFER

50' WETLAND BUFFER

CLASS II WETLAND

WOODS

EXISTING R.O.W.

GRAVEL AREA

STONE WALL

STONE WALL

HOUSE

PAVE DRIVEWAY

PARK STREET (TH 12)

MOON BROOK

GRAVEL DRIVEWAY

GRAVEL DRIVEWAY

HOUSE

0+00 1+00 2+00 3+00 4+00 5+00 6+

EXISTING BRIDGE DATA
CONCRETE SLAB DECK
LENGTH = 20'-0"
WIDTH = 23'-0" CURB TO CURB
BUILT IN 1900

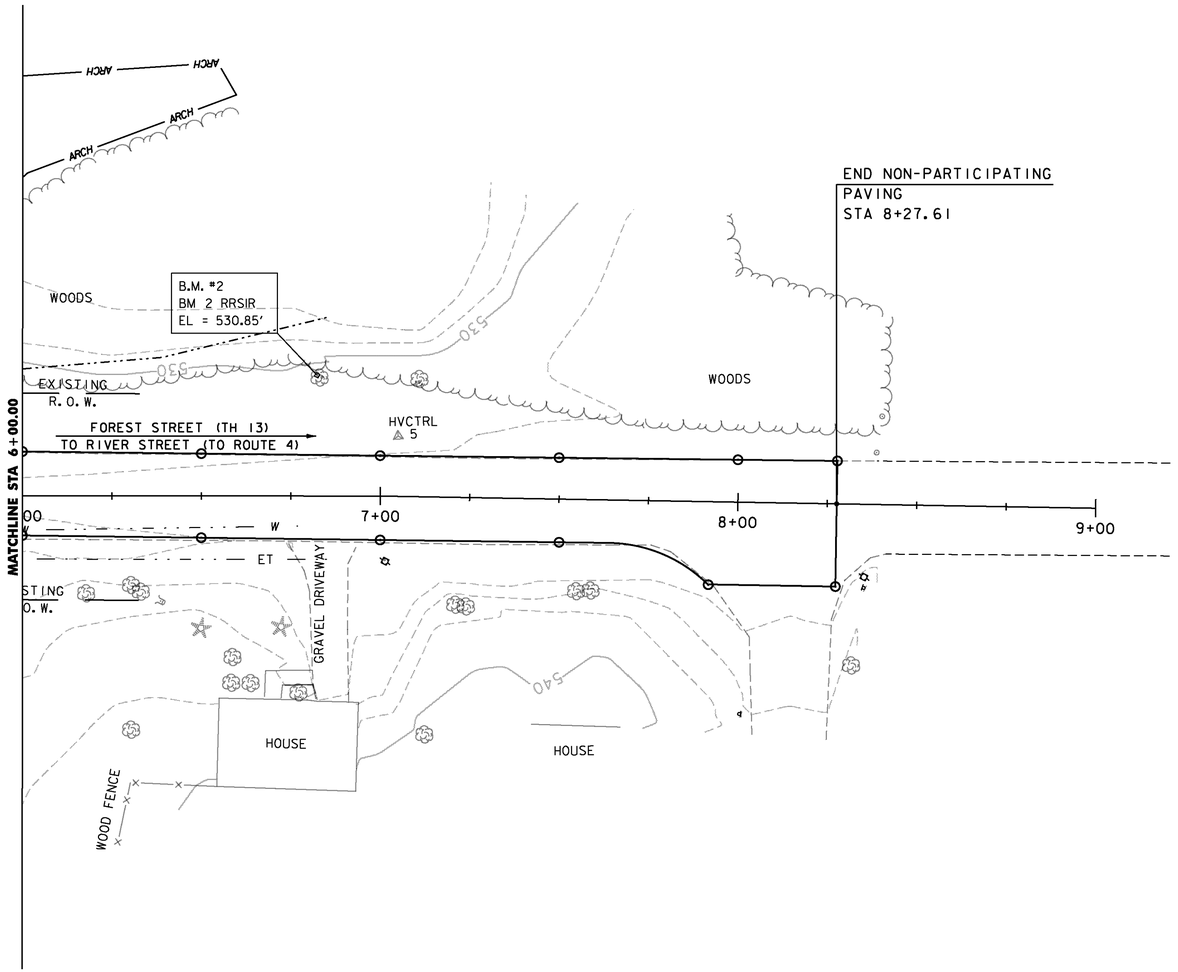
NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.
SEE SYMBOLOGY LEGEND SHEET AND EPSC DETAILS
SHEETS 1 & 2 FOR LEGEND INFORMATION.

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

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)
FILE NAME: s961244epsc_dur.dgn	PLOT DATE: 05-MAR-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC CONSTRUCTION LAYOUT 1	SHEET 39 OF 44

VT STATE PLANE GRID

N



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

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.
SEE SYMBOLOGY LEGEND SHEET AND EPSC DETAILS
SHEETS 1 & 2 FOR LEGEND INFORMATION.

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)

FILE NAME: s96j244eroBdr.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC CONSTRUCTION LAYOUT 2	SHEET 40 OF 44

VT STATE PLANE GRID

N

BEGIN
NON-PARTICIPATING
PAVING
STA 0+06.29

END NON-PARTICIPATING PAVING
BEGIN APPROACH
STA 1+50.00

BEGIN PROJECT
STA 2+50.00

BEGIN BRIDGE
STA 3+40.50

END BRIDGE
STA 3+93.50

END PROJECT
STA 4+75.00

END APPROACH
RESUME NON-PARTICIPATING
PAVING
STA 5+75.00

MATCHLINE STA 6+00.00

CLASS II
WETLAND

WOODS

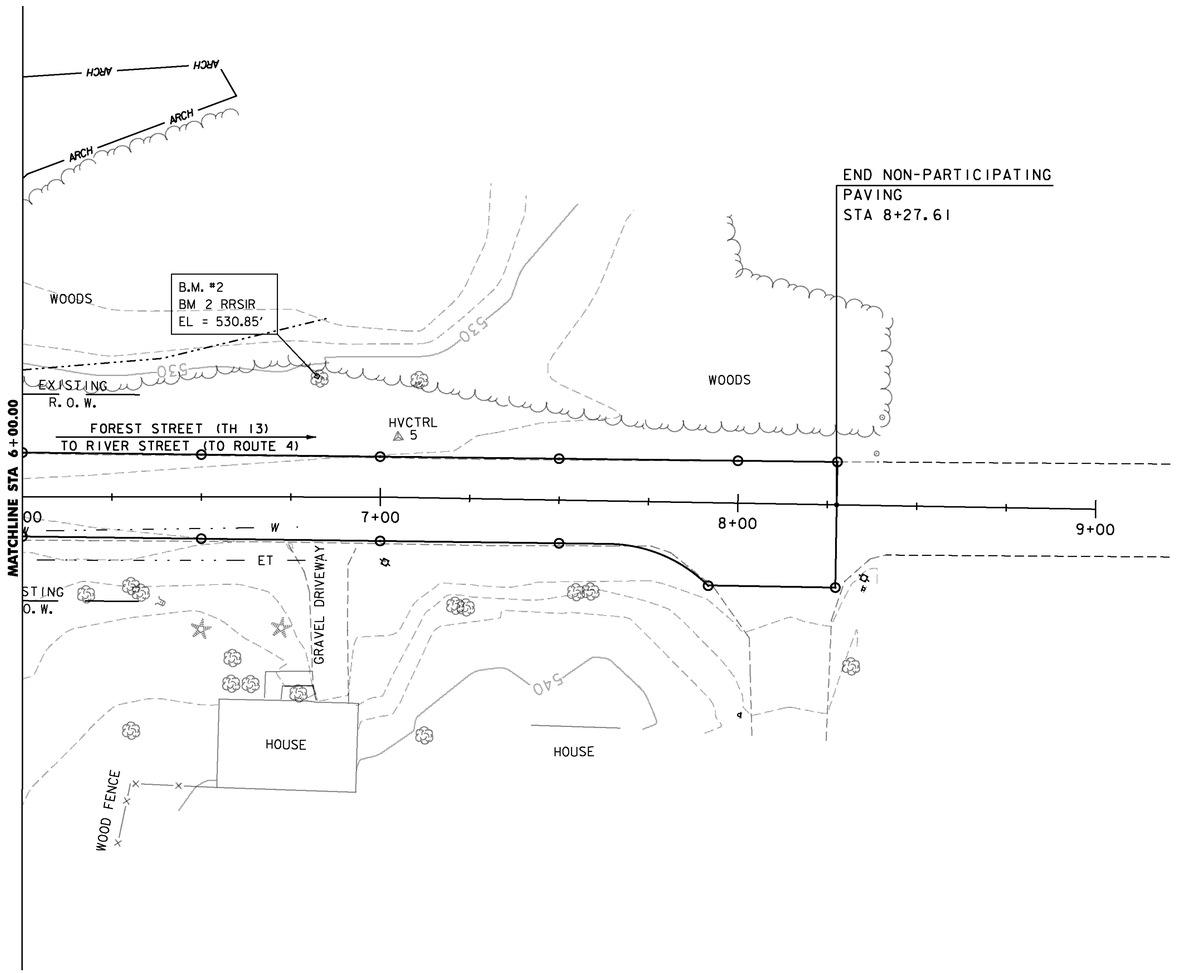
EXISTING
R.O.W.

0+00
1+00
2+00
3+00
4+00
5+00
6+

S
S
S

VT STATE PLANE GRID

N

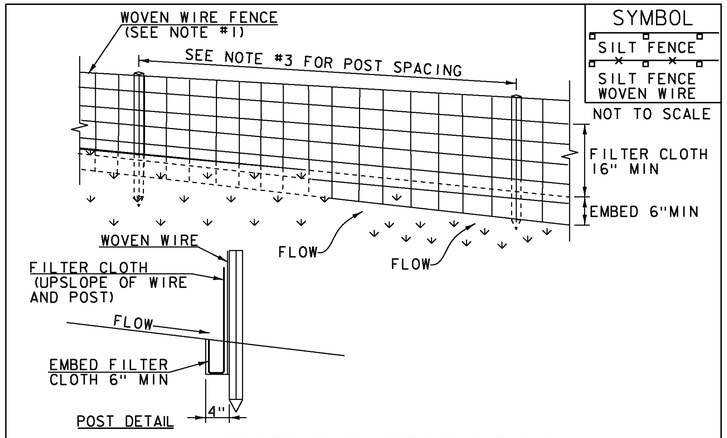


SCALE 1" = 20'-0"
20 0 20

NOTE:
REFER TO CROSS SECTIONS FOR FINAL GROUND CONTOURS.
SEE SYMBOLOGY LEGEND SHEET AND EPSC DETAILS
SHEETS 1 & 2 FOR LEGEND INFORMATION.

PROJECT NAME:	RUTLAND CITY
PROJECT NUMBER:	BRF 3000(18)

FILE NAME: s96j244eroBdr.dgn	PLOT DATE: 28-FEB-2014
PROJECT LEADER: C. CARLSON	DRAWN BY: R. PELLETT
DESIGNED BY: M. EVANS-MONGEON	CHECKED BY: M. E-M
EPSC FINAL LAYOUT 2	SHEET 42 OF 44



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.

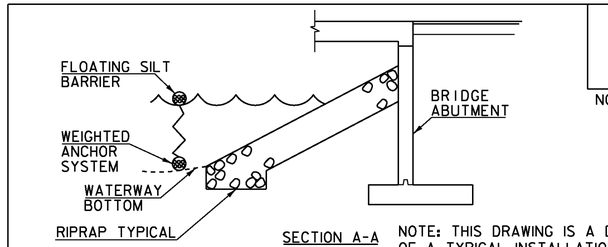
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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

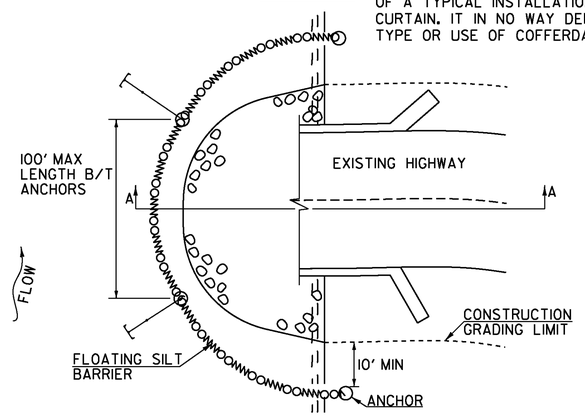


SYMBOL

NOT TO SCALE

SECTION A-A

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

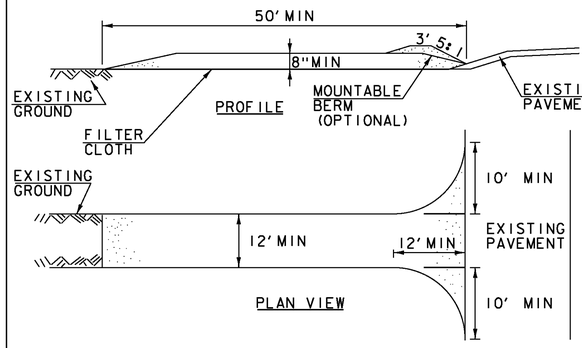
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 FOR GEOTEXTILE FOR FILTER CURTAIN (PAY ITEM 649.61).

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

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244epsc_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
EPSC DETAILS 1

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 43 OF 44



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.

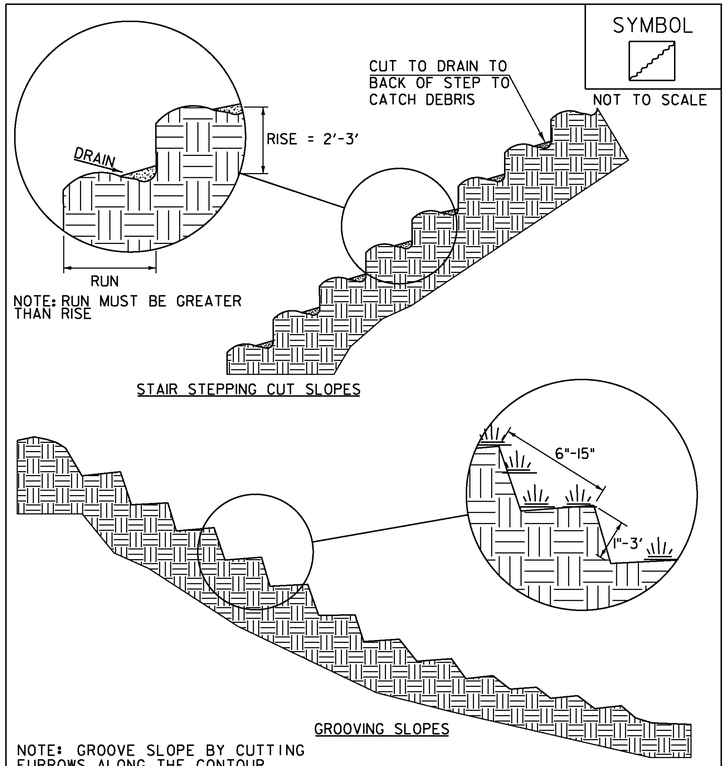
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA-NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



SYMBOL

NOT TO SCALE

STAIR STEPPING CUT SLOPES

GROOVING SLOPES

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

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

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

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s961244epsc_det.dgn
PROJECT LEADER: C. CARLSON
DESIGNED BY: M. EVANS-MONGEON
EPSC DETAILS 2

PLOT DATE: 28-FEB-2014
DRAWN BY: R. PELLETT
CHECKED BY: M. E-M
SHEET 44 OF 44

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PROPOSED IMPROVEMENT
BRIDGE PROJECT

TOWN OF RUTLAND CITY

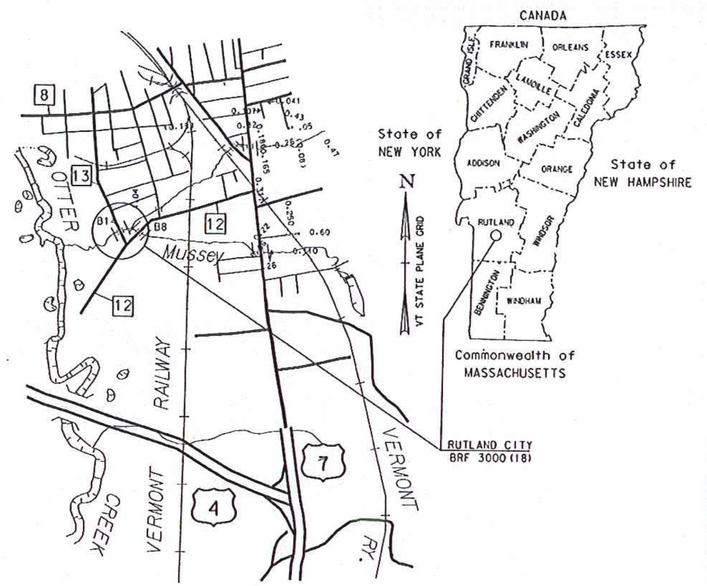
COUNTY OF RUTLAND

ROUTE NO : TH 13 (FOREST STREET) - URBAN COLLECTOR BRIDGE NO : 14

PROJECT LOCATION : ON FOREST STREET (TH 13), APPROXIMATELY 0.1 MILES FROM THE INTERSECTION OF FOREST STREET (TH 13) WITH PARK STREET (TH 12) OVER MOON BROOK

PROJECT DESCRIPTION : REPLACEMENT OF BRIDGE 14 WITH RELATED APPROACH ROADWAY AND CHANNEL WORK NON-PARTICIPATING PAVING AND WATERLINE

LENGTH OF STRUCTURE :	52 FEET.
LENGTH OF ROADWAY :	173 FEET.
LENGTH OF PROJECT :	225 FEET.

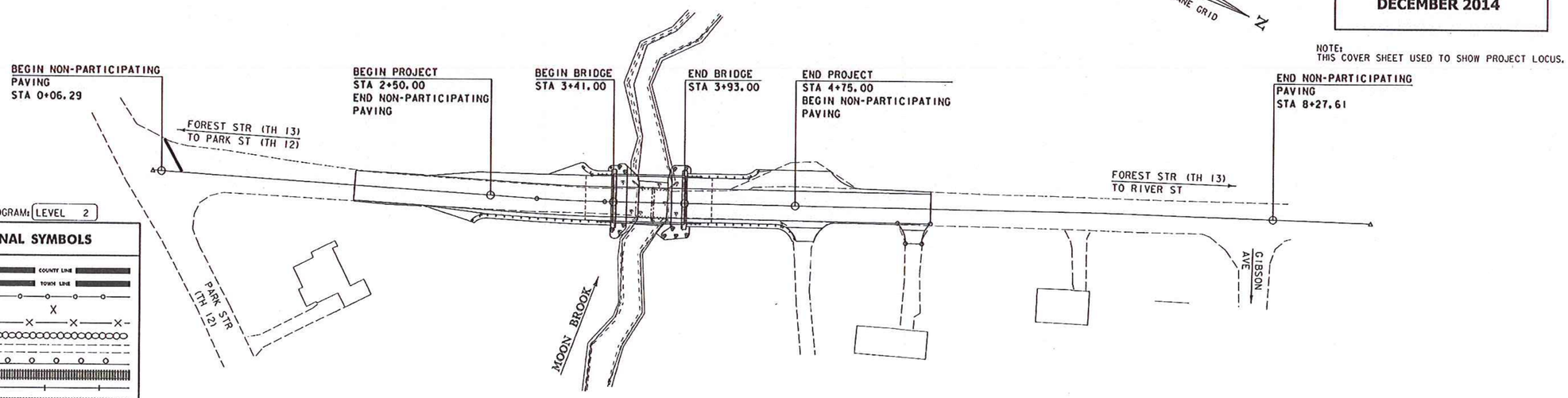


RECORD PLANS

WATER & SEWER REPLACEMENT PLAN SUBSET

DECEMBER 2014

NOTE:
THIS COVER SHEET USED TO SHOW PROJECT LOCUS.



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 (SR)
- TOP OF CUT
- TOE OF SLOPE

SURVEYED BY : L. ORVIS
SURVEYED DATE : 4-23-1998

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 88 (96)

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

RECORD DRAWING WATER AND SEWER ELEMENTS

SOME OF THE CONTENT SHOWN ON THESE RECORD DRAWINGS HAS BEEN PREPARED BASED ON INFORMATION FURNISHED BY OTHERS. THE LOCATION OF ITEMS SHOWN WITHOUT LABELED DIMENSIONS SHALL BE CONSIDERED AS APPROXIMATE. MODIFICATIONS TO BRIDGE ELEMENTS ARE NOT ADDRESSED ON THESE RECORD PLANS. THE SITE WAS NOT RE-SURVEYED AFTER CONSTRUCTION, SO RECORD LOCATIONS, ELEVATIONS AND FINISH GRADES ARE APPROXIMATE AND SHALL BE CONSIDERED "SCHEMATIC." DETAILS AND CROSS SECTIONS MAY NOT REFLECT "AS-BUILT" CONDITIONS.

CONTRACTOR: THE BELDEN COMPANY, INC.
UTILITY ENGINEER: CLD CONSULTING ENGINEERS, INC.

STATE OF VERMONT · DAVID A. LEWIS · NO. 018.0008418 · CIVIL · LICENSED · PROFESSIONAL ENGINEER

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 2014, 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.

PROJECT MANAGER : CAROLYN CARLSON

PROJECT NAME : RUTLAND CITY
PROJECT NUMBER : BRF 3000(18)

SHEET 0 OF 7 SHEETS

MODEL: TITLE
CLD 13-0026

GENERAL WATER AND SEWER NOTES:

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS. ADDITIONAL REFERENCE IS MADE TO THE FOLLOWING DOCUMENTS:
   - -STATE OF VERMONT, AGENCY OF TRANSPORTATION -STANDARD DRAWINGS AND STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011.
   - -STATE OF VERMONT, AGENCY OF NATURAL RESOURCES - WATER SUPPLY RULE, DATED 2010.
   - -STATE OF VERMONT, AGENCY OF NATURAL RESOURCES - WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES, DATED 2007.
   - -STATE OF VERMONT, DEPARTMENT OF ENVIRONMENTAL CONSERVATION STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL, DATED 2006.
   - -AMERICAN WATER WORKS ASSOCIATION STANDARDS - AWWA STANDARDS, LATEST EDITIONS.
   - -AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM, LATEST EDITIONS.
2. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR IN THE GROUND, WITHIN THE CONSTRUCTION AREA, AND SHALL COORDINATE WITH THE OWNERS OF SAID UTILITIES. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL EXISTING UTILITIES. RELOCATION OF ANY UTILITY, IF REQUIRED, SHALL BE ONLY AS DIRECTED BY THE OWNER OF SAID UTILITY. UTILITIES THAT ARE DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL ARRANGEMENTS FOR ANCHORING, SUPPORTING, AND/OR RELOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
3. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR DESIGN ENGINEER HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND PAYMENT OF ALL NECESSARY PERMITS AND INSPECTIONS AS REQUIRED.
5. ALL EXCAVATIONS SHALL COMPLY WITH OSHA AND VERMONT OSHA REQUIREMENTS.
6. NO WORK WILL TAKE PLACE UNLESS THE OWNER'S REPRESENTATIVE IS PRESENT. THE OWNER RESERVES THE RIGHT TO REJECT ANY AND ALL WORK NOT MEETING THIS REQUIREMENT.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL ENGINEERING AND RELATED COSTS ASSOCIATED WITH ANY DESIGN ALTERNATIVES IN ACCORDANCE WITH SUBSECTION 105.30 OF THE SPECIFICATIONS. DESIGN ALTERNATIVES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO IMPLEMENTATION.
8. THE CONTRACTOR SHALL MAINTAIN "RED LINE" DRAWINGS DURING CONSTRUCTION THAT REFLECT LOCATIONS AND ELEVATIONS OF INSTALLED WORK TO INCLUDE AT A MINIMUM, PIPE INVERTS, WATER CORPORATION STOPS, AND TEE LOCATIONS.
9. TEMPORARY BYPASS UTILITIES WILL BE NECESSARY TO ACCOMMODATE THE INSTALLATION OF THE NEW SEWER. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 628.42 TRANSFER TO NEW SYSTEM, SANITARY SEWER.
10. NO VERTICAL DEPTH FACTOR WILL APPLY TO EARTHWORK EXCAVATION OR BACKFILL FOR WATER OR SEWER WORK.

WORK LIMITATIONS IN ROADWAY:

1. THE CONTRACTOR SHALL MAINTAIN EMERGENCY ACCESS TO ALL AREAS AFFECTED BY THE WORK AT ALL TIMES.
2. ALL CROSS-COUNTRY EXCAVATIONS SHALL BE THOROUGHLY SECURED WITH STEEL PLATES ON A DAILY BASIS BY THE CONTRACTOR.
3. EXCAVATION UNDER CLOSED ROADWAYS SHALL BE PLATED AT THE COMPLETION OF EACH WORKING DAY. NO OPEN TRENCHES WILL BE PERMITTED OVERNIGHT.

DEMOLITION WITHIN TRENCH LIMITS:

1. MANHOLES AND PIPES THAT ARE NO LONGER NECESSARY SHALL BE COMPLETELY REMOVED OR FLOW FILLED.
2. MANHOLES AND PIPES THAT ARE NO LONGER NECESSARY AND EXTEND BEYOND THE ROADWAY LIMIT SHALL BE CAPPED AND FLOW FILLED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ALL ITEMS REMOVED DURING CONSTRUCTION.
4. FRAMES AND COVERS SHALL BE SALVAGED TO THE OWNER.
5. THE EXISTING SANITARY SEWER MAY CONSIST OF TRANSITE PIPE. A QUANTITY OF ITEM 900.640 SPECIAL PROVISION (TRANSITE PIPE REMOVAL) HAS BEEN INCLUDED FOR REMOVAL OF TRANSITE PIPE IF ENCOUNTERED WHERE THE NEW SEWER ALIGNMENT IS IN THE VICINITY OF THE EXISTING SEWER.

SURVEY NOTES:

1. THE BASE MAPPING SHOWN WAS DEVELOPED BY VTRANS AND SUPPLEMENTED BY CITY AND ENGINEER MEASUREMENTS. SOME SUBSURFACE FEATURES SHOWN WERE INPUT BASED ON THE BEST AVAILABLE DATA SUPPLIED BY THE CITY.
2. THE CONTRACTOR WILL ESTABLISH AND MAINTAIN SURVEY CONTROL THROUGHOUT THE PROJECT. THIS WORK IS SUBJECT TO THE CHECKING, APPROVAL, AND SURVEILLANCE BY THE ENGINEER.

PLAN REVISIONS

(1) 1/16/14: MINOR NOTE REVISIONS.

WATER AND SEWER PLANS

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

CLD CONSULTING ENGINEERS
540 Commercial Street, Manchester, NH 03101
(603) 668-8223 • Fax: (603) 668-8302
cld@cldengineers.com • www.cldengineers.com
Maine • New Hampshire • Vermont

FILE NAME: $FILEABBREV$ | PLOT DATE: 3/5/2014
PROJECT LEADER: C. BEAN | DRAWN BY: W. GORDON
DESIGNED BY: D. LEWIS | CHECKED BY: S. REICHERT
WATER AND SEWER NOTES I | SHEET 1 OF 7

WATER CONSTRUCTION:

1. BUY AMERICA REQUIREMENTS APPLY TO ALL STEEL AND IRON PRODUCTS. SEE SUBSECTION 107.22.

2. ONLY CITY PERSONNEL MAY OPERATE VALVES.

3. ISOLATION OF WATER MAIN FOR BRIDGE PROJECT:
   - THE FOREST STREET WATER MAIN CAN BE VALVED OFF BY THE CITY SOUTH OF THE PROJECT AREA AT THE PARK STREET INTERSECTION (STA. 0+10). THE CONTRACTOR SHALL ASSEMBLE SPOOL LENGTHS OF PIPE, REDUCER, 8-INCH GATE VALVE, AND FITTINGS TO INSERT NEAR STA. 2+50 AS SHOWN ON WATER/SEWER LAYOUT 1.
   - THE FOREST STREET WATER MAIN CAN BE VALVED OFF BY THE CITY NORTH OF THE PROJECT AREA AT THE GIBSON AVENUE INTERSECTION. THE CONTRACTOR SHALL ASSEMBLE SPOOL LENGTHS OF PIPE, REDUCER, 8-INCH GATE VALVE, AND FITTINGS TO INSERT NEAR STA. 4+85 AS SHOWN ON WATER/SEWER LAYOUT 1.
   - AT EACH LOCATION, THIS ASSEMBLY SHALL BE INSTALLED AND RESTRAINED BY INSTALLING A MINIMUM OF 20' OF PIPE, FITTINGS AND THRUST BLOCK WITHIN THE PROJECT AREA TO ALLOW WATER SYSTEM RECHARGING. THIS WORK SHALL BE PERFORMED DURING NIGHT HOURS (10 P.M. TO 5 A.M.) MONDAY THROUGH THURSDAY. BOTH LOCATIONS SHALL BE COMPLETED DURING A SINGLE NIGHT SHIFT. PROVIDE 2 WEEKS NOTICE TO THE CITY AND WATER CUSTOMERS. THIS WORK WILL BE PAID FOR USING ESTABLISHED CONTRACT ITEMS. NO ADDITIONAL COMPENSATION WILL BE PROVIDED.

4. THE CONTRACTOR SHALL SUPPLY A TIE-CARD TO THE OWNER AND THE WATER CUSTOMER DOCUMENTING THE LOCATION OF EACH INSTALLED SERVICE CONNECTION (CORPORATION AND CURB STOP).

5. WATER MAIN INSTALLATION SHALL COMPLY WITH AWWA C-600 AND THE VERMONT WATER SUPPLY RULE. HYDROSTATIC TESTING PER AWWA C-600 SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER AND CITY DPW PERSONNEL. THE OWNER RESERVES THE RIGHT TO REJECT WORK NOT COMPLYING WITH THIS REQUIREMENT. NOTE THAT SECTION SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE OF LEAST 150 PERCENT OF WORKING PRESSURE FOR A TWO HOUR DURATION. WORKING PRESSURE IS 150 PSI.

6. WATER MAIN DISINFECTION SHALL COMPLY WITH AWWA C-651. CHLORINATED WATER SHALL BE NEUTRALIZED PER APPENDIX C, AWWA C-651, PRIOR TO DISCHARGE TO SANITARY SEWER. COORDINATE WITH OWNER.

7. WATER MAIN SHALL HAVE 5.5 FT COVER MIN. (TYP.).

8. ALL DUCTILE IRON (DI) PIPE SHALL BE CLASS 52, DOUBLE CEMENT LINED AND SEAL COATED

9. ALL WATER SERVICE PIPE TO BE TYPE K COPPER.

10. THRUST RESTRAINT REQUIREMENTS:
    - RETAINER GLANDS WITHIN THREE PIPE LENGTHS ON EACH SIDE SHALL BE USED IN LIEU OF THREADED ROD OR GRIP RINGS AT ALL PIPE BENDS, FITTINGS, VALVES, AND APPURTENANCES.
    - CONTRACTOR SHALL IDENTIFY SELECTION OF RESTRAINT IN WORKING DRAWINGS PROVIDED TO ENGINEER FOR REVIEW.

11. ALL HYDRANTS TO OPEN LEFT AND VALVES TO OPEN RIGHT.

12. THE OPEN ENDS OF EXPOSED PIPE SHALL BE LEFT PLUGGED IN EXCAVATIONS AT THE CONCLUSIONS OF THE DAY'S WORK. DURING PERIODS OF DELAY AND AT THE CONCLUSION OF THE DAY'S WORK, LENGTHS OF PIPE WITH OPEN ENDS SHALL BE TIGHTLY CLOSED WITH WATERTIGHT PLUGS, SPECIAL SEALS, OR BY OTHER SUITABLE MEANS ACCEPTED BY THE ENGINEER TO PREVENT THE ENTRY OF ANIMALS, FOREIGN MATTER AND TRENCH WATER. TRENCH WATER SHALL BE PUMPED OUT BEFORE THE SEALS, PLUGS, OR OTHER TEMPORARY CLOSURES ARE REMOVED.

13. EXISTING WATER MAIN THAT WILL NO LONGER REMAIN IN SERVICE SHALL BE ABANDONED IN PLACE WHERE IT EXISTS BEYOND TRENCHING LIMITS FOR NEW PIPE. PIPE ENDS SHALL BE GROUTED AND CAPPED. THE CONTRACTOR SHALL NOTE LOCATIONS AND DEPTHS OF CAPPED ENDS ON THE RED-LINE DRAWINGS. WHERE THE EXISTING PIPING IS LOCATED WITHIN THE TRENCH LIMITS FOR NEW PIPING, REMOVAL OF OLD PIPE SHALL BE CONSIDERED INCIDENTAL TO INSTALLATION OF NEW PIPE.

14. PROVIDE BRONZE CONDUCTIVE WEDGES ON WATER MAIN INSTALLATION.

SEWER CONSTRUCTION

1. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES, AND SHALL BE MAINTAINED THROUGHOUT THE PROJECT.

2. NO SEWER SURCHARGING WILL BE PERMITTED. WASTEWATER FLOW SHALL BE MAINTAINED BY BYPASS PUMPING OR OTHER METHODS AS APPROVED BY THE ENGINEER.

3. CONTRACTOR TO VERIFY INVERTS ON CONNECTING MANHOLES PRIOR TO LAYING SEWER PIPE.

4. THE CONTRACTOR SHALL SUPPLY A TIE-CARD TO THE TOWN AND BUILDING OWNER FOR DOCUMENTING THE LOCATION OF EACH SERVICE CONNECTION.

5. THE CONTRACTOR SHALL EXCAVATE, REMOVE, AND REPLACE ALL EXISTING PIPE TO REMAIN THAT IS DAMAGED AT THE CONTRACTOR'S OWN EXPENSE. THE NEW PIPE SHALL BE THE SAME SIZE AS THE EXISTING PIPE AND SHALL BE CONNECTED TO THE EXISTING PIPE WITH APPROVED REPAIR COUPLINGS.

6. UNLESS OTHERWISE SPECIFIED, MINIMUM PIPE COVER SHALL BE 5 FT.

7. ALL PIPE LENGTHS ARE MEASURED FROM INSIDE MANHOLE WALL TO INSIDE MANHOLE WALL. SLOPES ARE SHOWN IN PERCENT.

8. SEWER LINES SHALL BE LOCATED A MINIMUM OF 10 FT HORIZONTALLY FROM ALL PROPOSED AND EXISTING WATER MAINS, AS MEASURED FROM OUTSIDE PIPE WALLS.

9. ALL SANITARY MANHOLES SHALL PASS LEAKAGE TESTING CRITERIA OUTLINED IN SECTION 628 OF THE SPECIFICATIONS. AS AN ALTERNATIVE, THE CONTRACTOR MAY ELECT TO PERFORM VACUUM TESTING ON MANHOLES PRIOR TO BACK FILLING AS FOLLOWS:
   - ALL LIFT HOLES AND INVERT HOLES SHALL BE PLUGGED.
   - THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES Hg.
   - THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR A 1 INCH Hg DROP TO 9 INCHES Hg SHALL BE:
     a) NOT LESS THAN 1 MINUTE FOR MANHOLES LESS THAN 14 FT DEEP;
     b) NOT LESS THAN 2 MINUTES FOR MANHOLES DEEPER THAN 14 FT.
   - THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE CRITERIA LISTED ABOVE.

10. ALL SMHs TO BE 4 FT DIAMETER UNLESS NOTED OTHERWISE.

11. CONTRACTOR SHALL FLUSH INSTALLED SEWER AND VIDEOTAPE FOR ENGINEER'S REVIEW PRIOR TO FINAL ACCEPTANCE AND APPLICATION OF WEARING COURSE PAVEMENT.

12. SEWER PIPE SHALL BE CLASS 50 DUCTILE IRON DOUBLE CEMENT LINED, AND SEAL COATED UNLESS NOTED OTHERWISE.

13. TRENCH DAM SHALL BE INSTALLED ON NORTH SIDE OF STREAM CROSSING. SEE TRENCH DAM DETAIL.

PLAN REVISIONS

(2) 3/5/14: WATER CONSTRUCTION NOTE 3 REVISED (PER CITY).

(1) 1/16/14: MINOR NOTE REVISIONS.

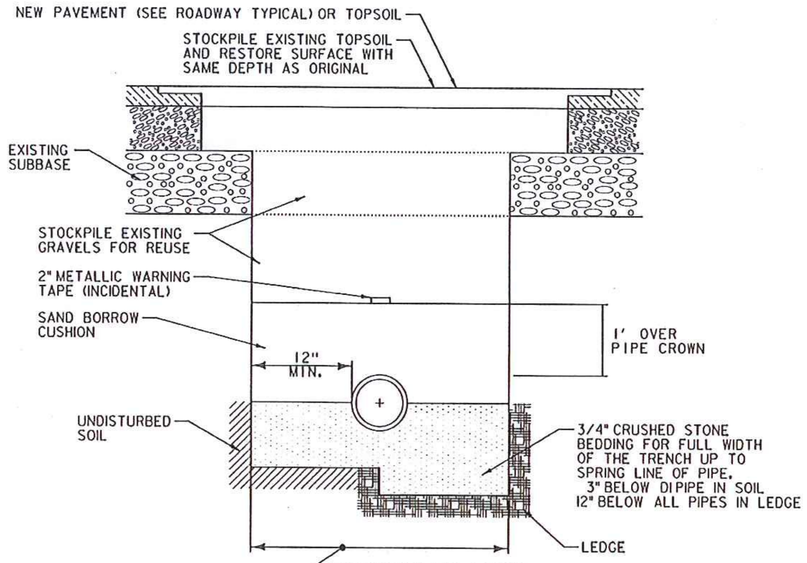
WATER AND SEWER PLANS

CONSULTING ENGINEERS
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Maine • New Hampshire • Vermont

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: $FILEABBREV$
PROJECT LEADER: C. BEAN
DESIGNED BY: D. LEWIS
WATER AND SEWER NOTES 2

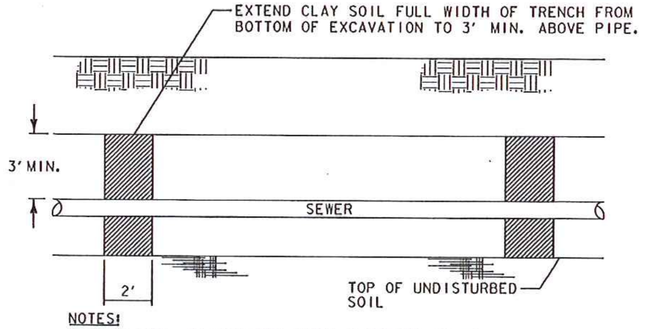
PLOT DATE: 3/5/2014
DRAWN BY: W. GORDON
CHECKED BY: S. REICHERT
SHEET 2 OF 7



NOTES:

1. EXCEPT FOR NEW PAVEMENT AND TRENCH EXCAVATION OF ROCK, WORK DEPICTED ON THIS DETAIL SHALL BE INCIDENTAL TO EITHER SPECIAL PROVISION WATER MAIN OR SPECIAL PROVISION SEWER ITEMS.
2. FOR STREET EXCAVATIONS, SUITABLE STOCKPILED MATERIAL FOR BACKFILL SHALL BE PLACED TO MATCH THE DEPTH OF EXISTING SUBBASE. UNSUITABLE BACKFILL WILL INCLUDE STONES OVER 4 INCHES IN LARGEST DIMENSION, CLAY, WET OR UNSTABLE MATERIAL, WOOD OR OTHER ORGANIC MATERIAL, AND FROZEN MATERIAL.
3. PAYMENT FOR TRENCH EXCAVATION OF EARTH, STOCKPILING, DISPOSAL OF ALL SURPLUS MATERIAL, BACKFILL, SAND BORROW CUSHION, CRUSHED STONE BEDDING, LABOR, TOOLS, EQUIPMENT AND ALL INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCIDENTAL TO THE APPLICABLE PAY ITEM REFERENCED IN NOTE 1: EXCEPT FOR NEW PAVEMENT AND TRENCH EXCAVATION OF ROCK, WHICH WILL BE PAID FOR SEPARATELY.

TYPICAL TRENCH DETAIL

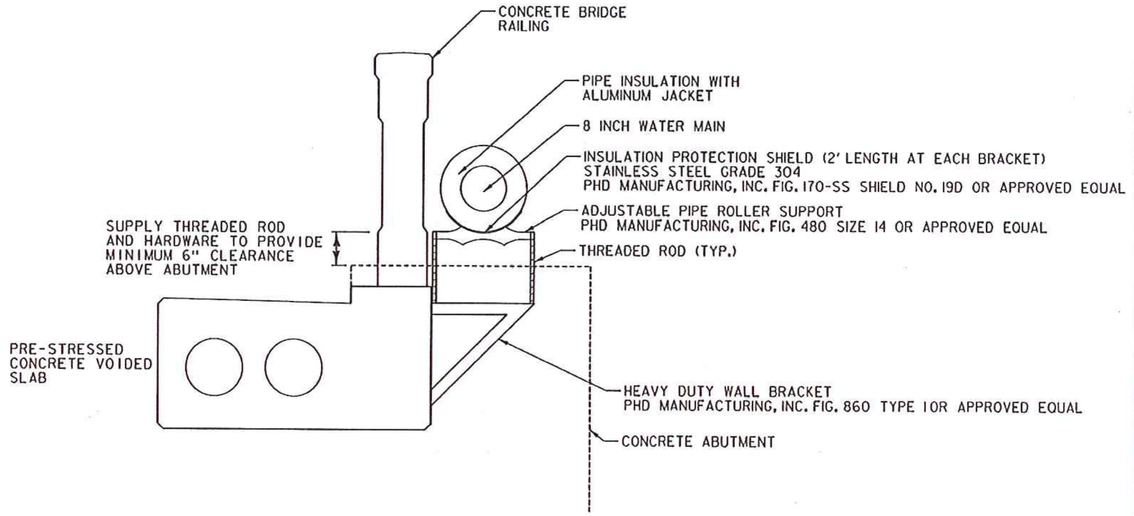


NOTES:

1. CLAY SOIL TO EXHIBIT IX10E-6 CM/SEC PERMEABILITY MAX.
2. TRENCH DAM REQUIRED ON NORTH SIDE OF STREAM CROSSING AS SHOWN ON SEWER PROFILE.
3. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (12" SEWER)

TRENCH DAM DETAIL

NOT TO SCALE



NOTES:

1. PIPE SHALL FEATURE RESTRAINED JOINTS.
2. PROVIDE AT LEAST ONE PIPE SUPPORT PER PIPE LENGTH.
3. INSULATION SHALL BE 3-INCH POLYISOCYANURATE WITH A 0.020-INCH THICK ALUMINUM JACKET.
4. PROVIDE THREADED ANCHOR SLEEVE AND PROPOSE WALL BRACKET BOLT CONFIGURATION IN PRE-STRESSED CONCRETE VOIDED SLAB WORKING PLANS. PROVIDE LOAD CALCULATIONS SHOWING PIPE AND SUPPORT COMPONENT WEIGHTS WITH VOIDED SLAB WORKING PLANS.
5. INSTALL LOCKABLE 2-INCH CORPORATION FOR MANUAL AIR RELEASE.
6. ALL WORK SHALL BE PAID FOR UNDER ITEM 900.640 SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8" WATER ON BRIDGE).

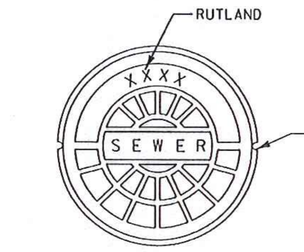
WATER MAIN ON BRIDGE CROSSING

PLAN REVISIONS

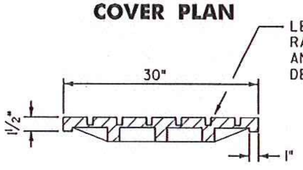
(2) 3/5/14: MODIFICATIONS TO WATER MAIN ON BRIDGE CROSSING DETAIL.

(1) 1/16/14: MODIFIED TRENCH DAM DETAIL (PER DEC).

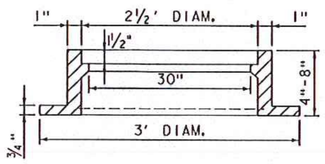
WATER AND SEWER PLANS	PROJECT NAME: RUTLAND CITY PROJECT NUMBER: BRF 3000(18)
CLD CONSULTING ENGINEERS 540 Commercial Street, Manchester, NH 03101 (603) 668-8223 • Fax: (603) 668-8802 cld@cldengineers.com • www.cldengineers.com Maine • New Hampshire • Vermont	FILE NAME: $FILEABBREV$ PROJECT LEADER: C. BEAN DESIGNED BY: D. LEWIS WATER/SEWER DETAILS 1 PLOT DATE: 3/5/2014 DRAWN BY: W. GORDON CHECKED BY: S. REICHERT SHEET 3 OF 7



COVER PLAN

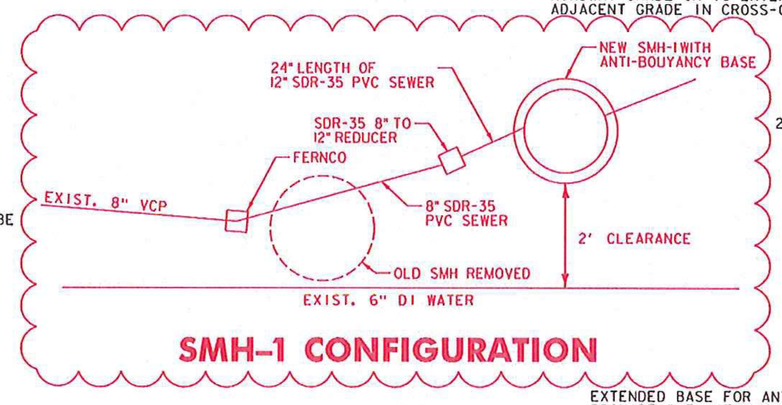


COVER SECTION

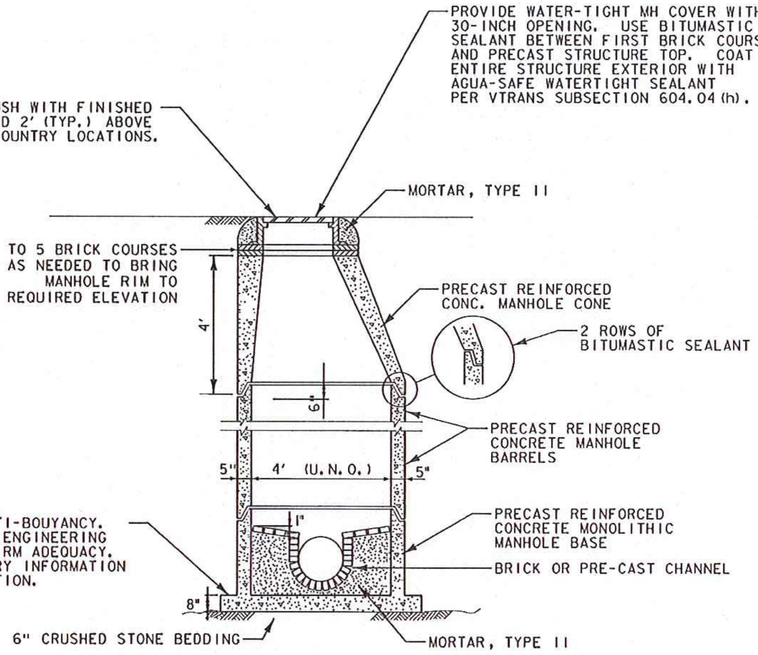


FRAME SECTION

MANHOLE FRAME AND COVER DETAIL

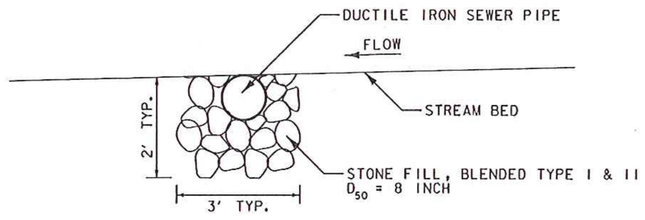


SMH-1 CONFIGURATION



NOTES:
1. ALL MATERIALS AND WORK DEPICTED THIS DETAIL SHALL BE PAID UNDER ITEM 900.620 SPECIAL PROVISION (SANITARY MANHOLE, ALL-INCLUSIVE) (4' DIA.) OR ITEM 604.56 CAST IRON COVER WITH FRAME, SEWER.

PRECAST REINFORCED CONCRETE SANITARY SEWER MANHOLE



NOTES:
1. COST OF STONE FILL, INCLUDING EXCAVATION, SHALL BE INCIDENTAL TO ITEM 900.640 SPECIAL PROVISION (SEWER, DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (12" SEWER)

STREAM BEDDING DETAIL

(2) RECORD CHANGES CLOUD

PLAN REVISIONS

(1) 1/16/14: MODIFIED SEWER MANHOLE DETAIL AND ADDED STREAM BEDDING DETAIL (PER DEC).

NOT TO SCALE

WATER AND SEWER PLANS	PROJECT NAME: RUTLAND CITY PROJECT NUMBER: BRF 3000(18)
CLD CONSULTING ENGINEERS 540 Commercial Street, Manchester, NH 03101 (603) 668-8223 • Fax: (603) 668-8802 cld@cldengineers.com • www.cldengineers.com Maine • New Hampshire • Vermont	FILE NAME: $FILEABBREV$ PROJECT LEADER: C. BEAN DESIGNED BY: D. LEWIS WATER/SEWER DETAILS 2 PLOT DATE: 3/5/2014 DRAWN BY: W. GORDON CHECKED BY: S. REICHERT SHEET 4 OF 7

CONSTRUCTION NOTES NOT REVISED TO REFLECT CHANGES

SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8" WATER)
2+50.0 TO 3+26.6 RT
4+12.5 TO 4+88.3 RT

SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (8" WATER ON BRIDGE)
3+26.6 TO 4+12.5 RT

GATE VALVE WITH VALVE BOX (8")
2+53.0 RT
4+85.5 RT

SPECIAL PROVISION (DUCTILE IRON PIPE, CEMENT-LINED, ALL-INCLUSIVE) (12" SEWER)
2+27.6 RT TO 3+21.0 LT
3+21.0 LT TO 5+54.7 LT

SPECIAL PROVISION (SANITARY MANHOLE, ALL-INCLUSIVE) (4' DIA.) CAST IRON COVER WITH FRAME, SEWER
2+27.6 RT 7.6 FT
3+21.0 LT 34.0 FT

REHAB, DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS III
5+54.7 LT

CHANGING ELEVATION OF SEWER MANHOLES
5+33.8 LT

VT STATE PLANE GRID N

EXIST. SMH-D
RIM = 528.90'
INV IN BOX = 520.08'
INV OUT BOX = 520.02'

REMOVE EXISTING PIPE INTO SEWER MANHOLE AND SEAL NEW DI SEWER. THIS WORK WILL BE PAID FOR UNDER ITEM 604.418 REHAB. DROP INLETS, CATCH BASINS, OR MANHOLES, CLASS III

CLD FIELD REVIEW 2013-06-18
INV IN (12" PIPE) = 520.30'
INV IN (4'x6' BOX CULV.) = 520.14'

EXIST. SMH
(PAVED OVER)
GROUND = 531.66'
RIM = 531.26'
INV IN = 519.94'
INV OUT = 520.05'

RESET SMH FRAME AND COVER. THIS WORK SHALL BE PAID UNDER ITEM 604.42 CHANGING ELEVATION OF SEWER MANHOLES

END NON-PARTICIPATING PAVING
BEGIN APPROACH
STA 1+50.00

EXIST. SMH-C
RIM = 527.32'
SHELF = 520.92'
INV IN = 520.86'
INV OUT = 520.72'

REMOVE EXISTING SMH AND BACKFILL WITH ITEM 203.31 SAND BORROW. EXCAVATION WILL BE PAID AS ITEM 204.20 TRENCH EXCAVATION OF EARTH.

BEGIN
NON-PARTICIPATING
PAVING
STA 0+06.29

BEGIN BRIDGE
STA 3+40.50

BEGIN PROJECT
STA 2+50.00

END BRIDGE
STA 3+93.50

END PROJECT
STA 4+75.00

END APPROACH
RESUME NON-PARTICIPATING PAVING
STA 5+75.00

PROPOSED SMH-1
RIM = 530.0
INV IN = 523.59
INV OUT = ~~523.40~~ 523.53

FOR SMH-1 CONFIGURATION, SEE DETAIL ON SHEET 4

PROPOSED SMH-2
RIM = 528.5
INV IN = ~~520.83~~ 520.80
INV OUT = 520.73

CLASS II WETLAND

TEMP. CONST. LIMITS

12" CL 50 DI SEWER
L=97.4'

12" CL 50 DI SEWER
L=229.7'

12" VCP

8" VCP

6" CI

PW

FOREST STREET (TH 13)
TO RIVER STREET (TO ROUTE 4)

GATE VALVES (PAVED OVER)

BURIED WSO

STONE WALL

HOUSE

PAVE DRIVEWAY

PARK STREET (TH 12)

EXIST. SMH-A
GROUND = 530.42'
RIM = 530.00'
SHELF = 524.25'
INV IN = 523.59'
INV OUT = 523.48'

SEE NOTE 1 BELOW.

6" SOLID SLEEVE COUPLING, 8" TO 6" REDUCER AND 8" GATE VALVE

TWO 22.5 DEG. BENDS. COORDINATE WITH GUARDRAIL POST LAYOUT

ABANDON AND FLOW FILL OLD SEWER. THIS WORK SHALL BE PAID UNDER ITEM 541.45 CONTROLLED DENSITY (FLOWABLE) FILL.

EXIST. SMH-B
RIM = 530.15'
SHELF = 523.44'
INV IN = 522.86'
INV OUT = 522.62'

REMOVE EXISTING SMH AND BACKFILL WITH ITEM 203.31 SAND BORROW. EXCAVATION WILL BE PAID AS ITEM 204.20 TRENCH EXCAVATION OF EARTH.

MOON BROOK

WOODS

BLOW-OFF

8" CL 52 DI WATER MAIN ON BRIDGE

ABANDON AND FLOW FILL OLD WATER MAIN UNDER STREAM. THIS WORK SHALL BE PAID UNDER ITEM 541.45 CONTROLLED DENSITY (FLOWABLE) FILL.

THREE 22.5 DEG. BENDS, TO AVOID UTILITY POLE (TYP.) COORDINATE WITH GUARDRAIL POST LAYOUT

6" SOLID SLEEVE COUPLING, 8" TO 6" REDUCER, 8" GATE VALVE AND 22.5 DEG. BEND

GRAVEL DRIVEWAY

GRAVEL AREA

CZ

"BOX CULV." 4'-2" x 6'-0"

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

NOTE:
1. REMOVE EXISTING SMH-A AND REPLACE WITH NEW MANHOLE SMH-1 AT SAME LOCATION. PROVIDE SPOOL SECTION OF 12" SDR 35 SEWER PIPE AND SOLID SLEEVE COUPLING TO CONNECT TO EXISTING 12" VCP. ADJUST NEW RIM ELEVATION TO FINAL ROADWAY GRADE. ALL EXCAVATION, MATERIALS AND WORK TO REMOVE AND REPLACE MANHOLE AND CONNECT TO EXISTING SEWER SHALL BE INCIDENTAL TO ITEM 900.620 SPECIAL PROVISION (SANITARY MANHOLE, ALL-INCLUSIVE) (4' DIA.).

(3) RECORD CHANGES CLOUD

PLAN REVISIONS
(2) 3/5/14: REVISED GATE VALVE LOCATIONS (PER CITY) AND MINOR CHANGES TO ACCOMMODATE VTRANS LAYOUT REVISIONS.
(1) 1/16/14: MINOR NOTE REVISIONS.

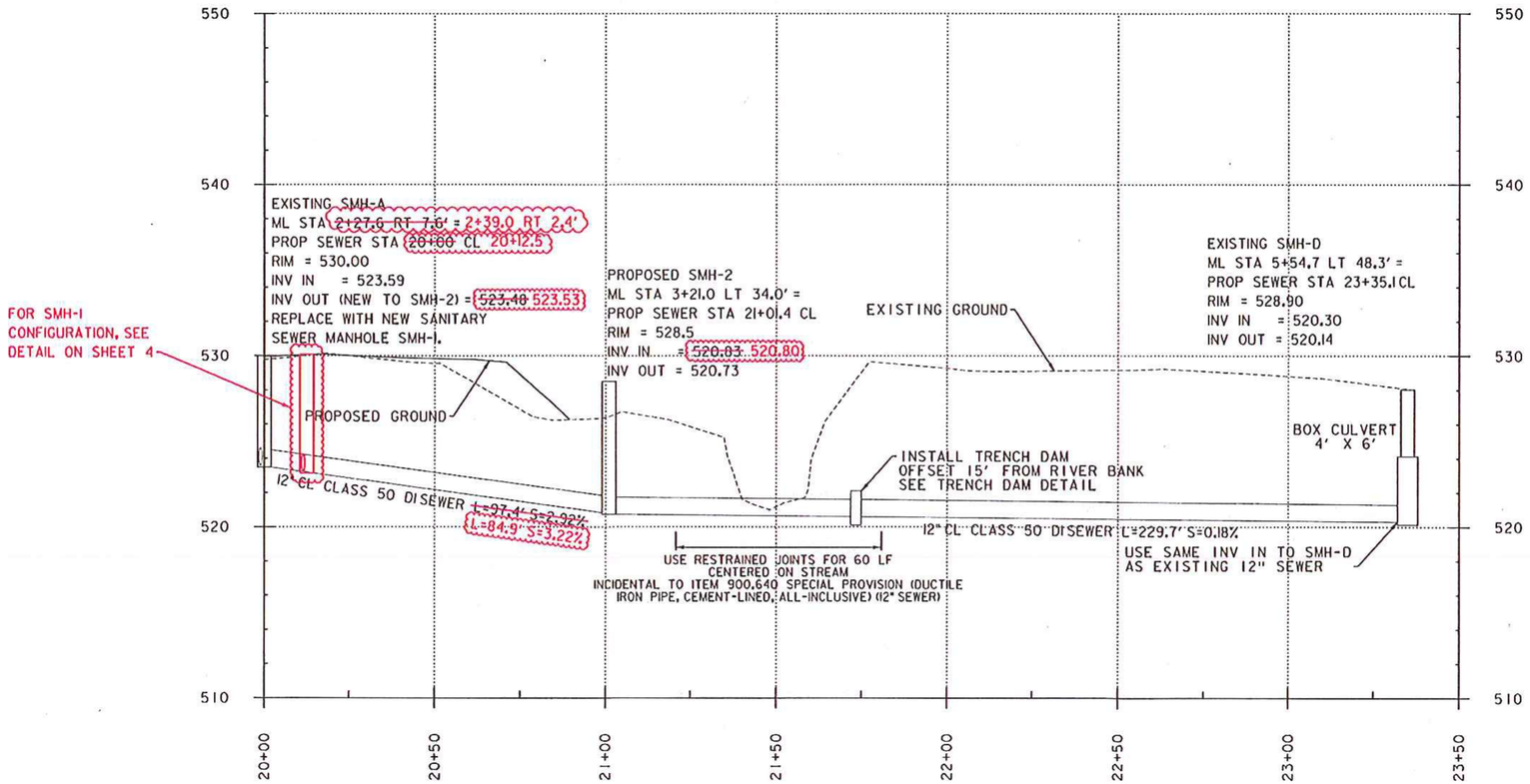
WATER AND SEWER PLANS

CONSULTING ENGINEERS
540 Commercial Street, Manchester, NH 03101
(603) 668-8223 • Fax: (603) 668-8802
cld@clldengineers.com • www.clldengineers.com
Maine • New Hampshire • Vermont

PROJECT NAME: RUTLAND CITY
PROJECT NUMBER: BRF 3000(18)

FILE NAME: s96j244bdr.dgn
PROJECT LEADER: C. BEAN
DESIGNED BY: D. LEWIS
WATER/SEWER LAYOUT 1

PLOT DATE: 3/5/2014
DRAWN BY: W. GORDON
CHECKED BY: S. REICHERT
SHEET 5 OF 7



SEWER STATION

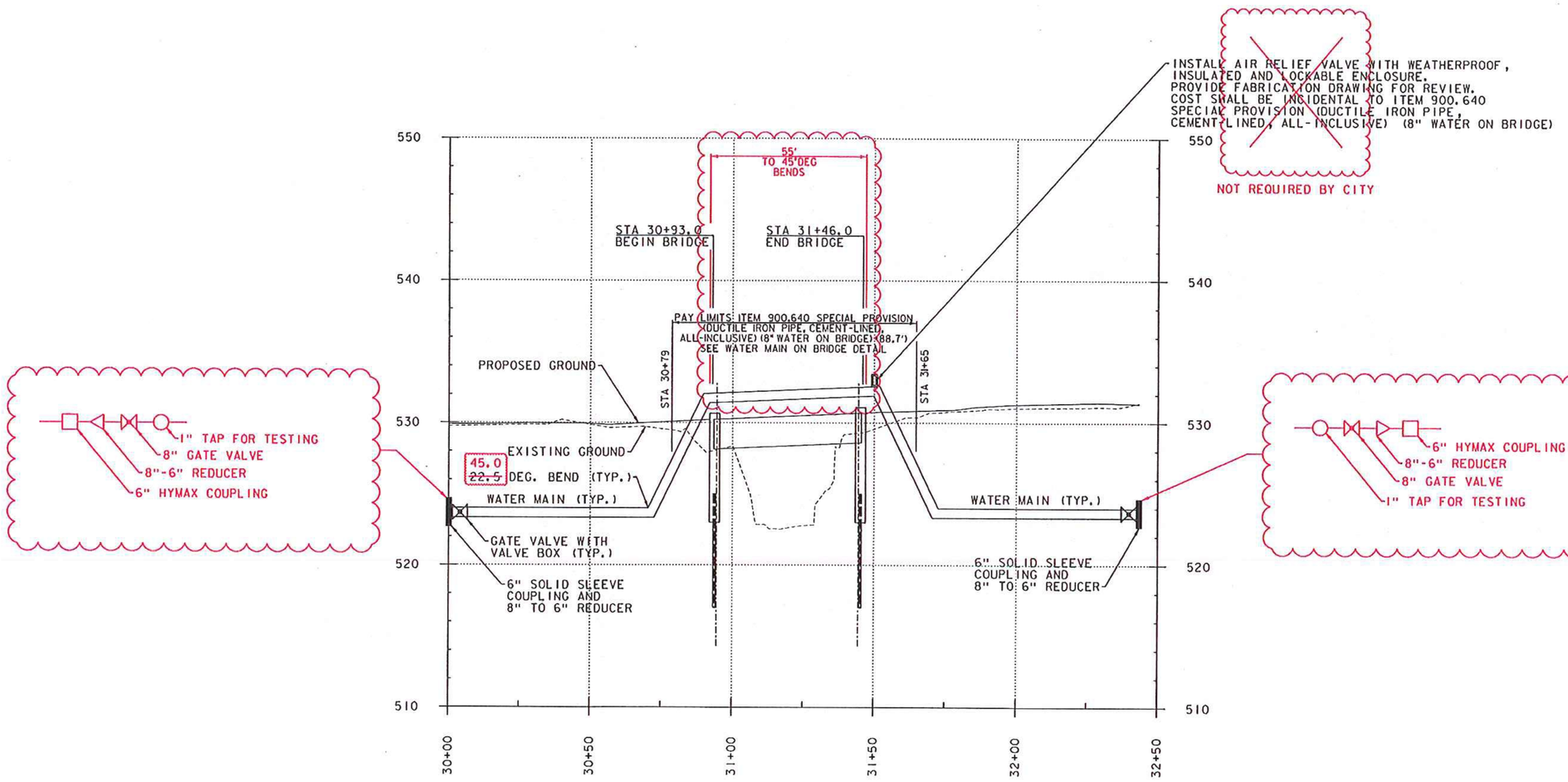
HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 4'-0"

(2) RECORD CHANGES CLOUD

PLAN REVISIONS

(1) 1/16/14: RESTRAINED JOINTS SHALL BE MEGALUGS OR APPROVED EQUAL AND CORRECTED SCALE (PER DEC).

WATER AND SEWER PLANS	PROJECT NAME: RUTLAND CITY PROJECT NUMBER: BRF 3000(18)
CLD CONSULTING ENGINEERS 540 Commercial Street, Manchester, NH 03101 (603) 668-8223 • Fax: (603) 668-8602 cld@cldengineers.com • www.cldengineers.com Maine • New Hampshire • Vermont	FILE NAME: $FILEABBREV$ PROJECT LEADER: C. BEAN DESIGNED BY: D. LEWIS SEWER PROFILE PLOT DATE: 3/5/2014 DRAWN BY: W. GORDON CHECKED BY: S. REICHERT SHEET 6 OF 7



WATER MAIN STATION

HOR. SCALE 1" = 20'-0"
VER. SCALE 1" = 4'-0"

(3) RECORD CHANGES CLOUD

PLAN REVISIONS

(2) 3/5/14: REVISED WATER MAIN PROFILE ON BRIDGE TO ACCOMODATE HANGER INSTALLATION REQUIREMENTS. REVISED AIR RELIEF VALVE AND GATE VALVE LOCATIONS.

(1) 1/16/14: ADDED NOTE TO DEFINE INSULATION EXTENT AND CORRECTED SCALE (PER DEC).

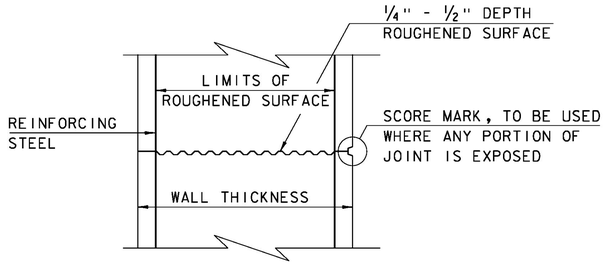
WATER AND SEWER PLANS	PROJECT NAME: RUTLAND CITY PROJECT NUMBER: BRF 3000(18)

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FILE NAME: $FILEABBREV$	PLOT DATE: 3/5/2014
PROJECT LEADER: C. BEAN	DRAWN BY: W. GORDON
DESIGNED BY: D. LEWIS	CHECKED BY: S. REICHERT
WATER PROFILE	SHEET 7 OF 7

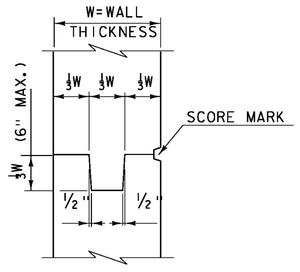
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

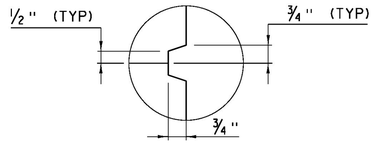


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

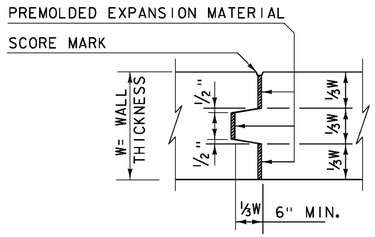
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



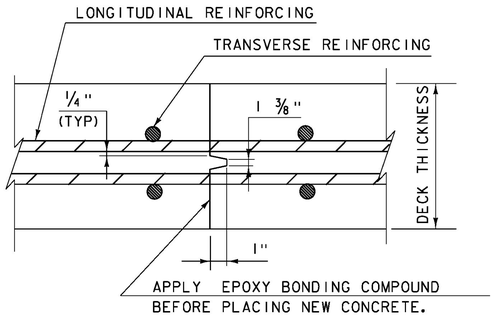
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



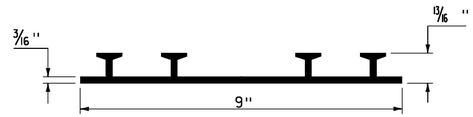
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



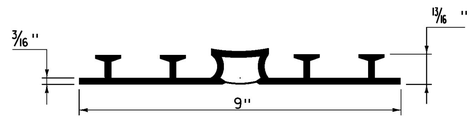
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



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.

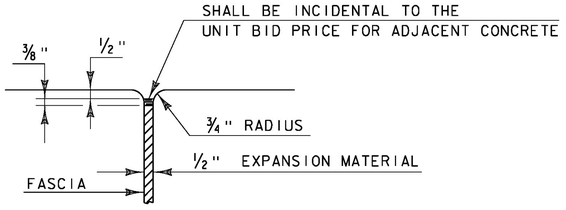
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



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.



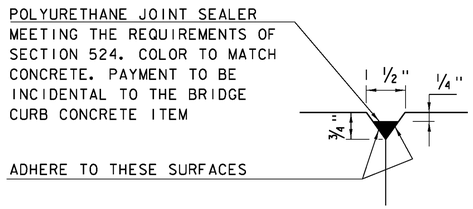
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

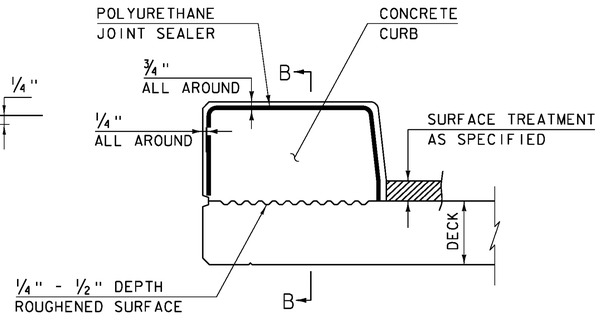
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

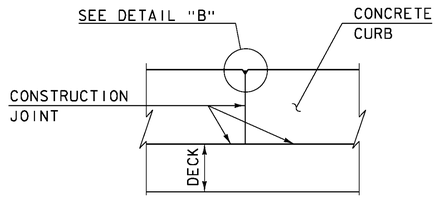
STRUCTURES DETAIL
SD-501.00



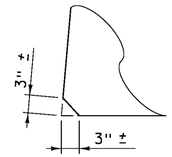
DETAIL "B"
(NOT TO SCALE)



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

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.

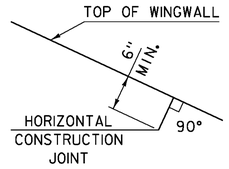
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

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.

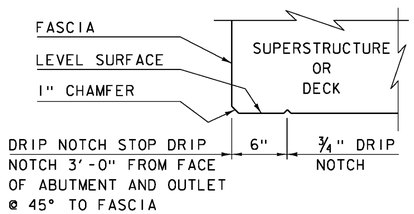
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

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.

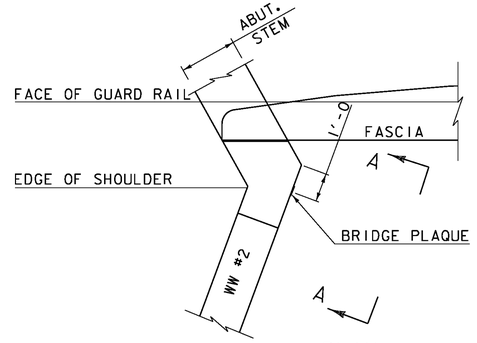
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



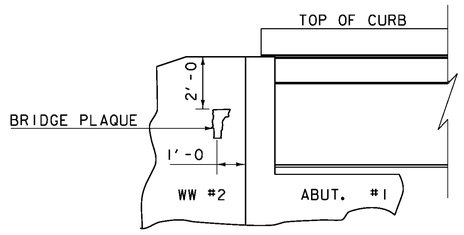
HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



PLAN



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.

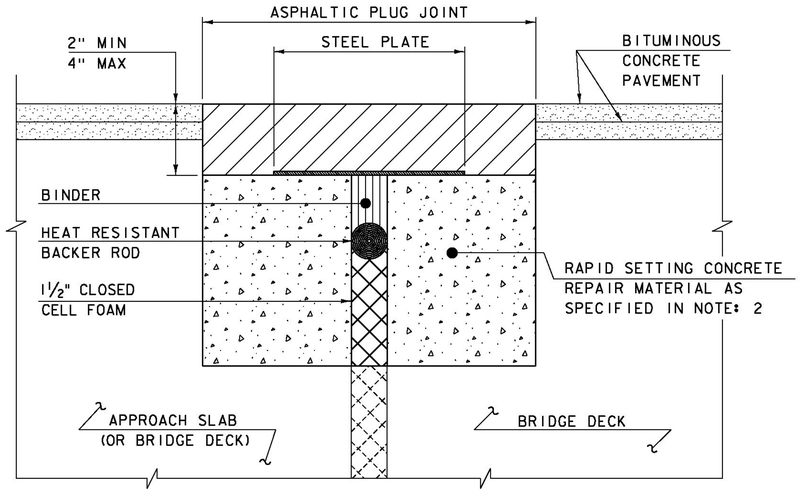
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

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 JOINT DETAIL - REHAB

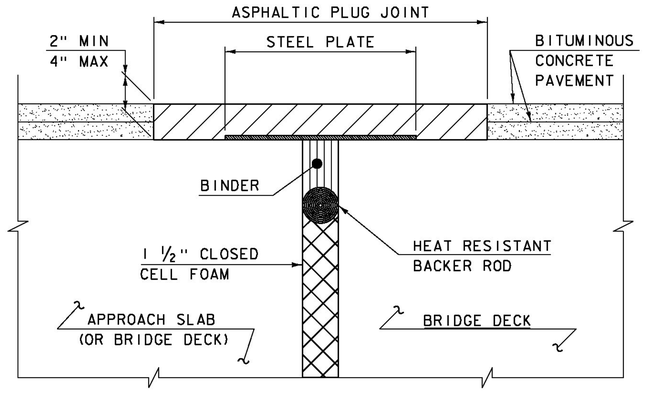
NOTES:

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 COARSE 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.

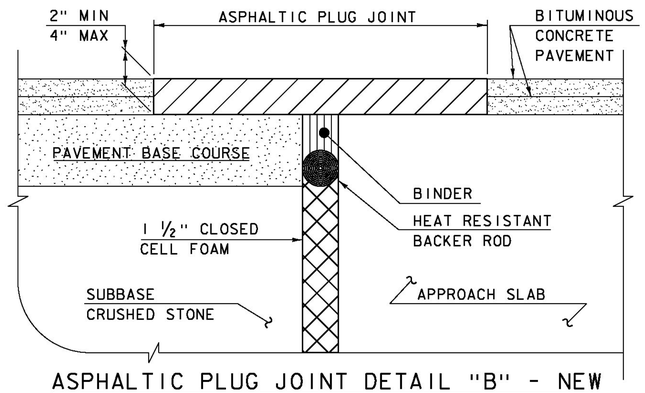
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

4. 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.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:
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.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

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. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

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.

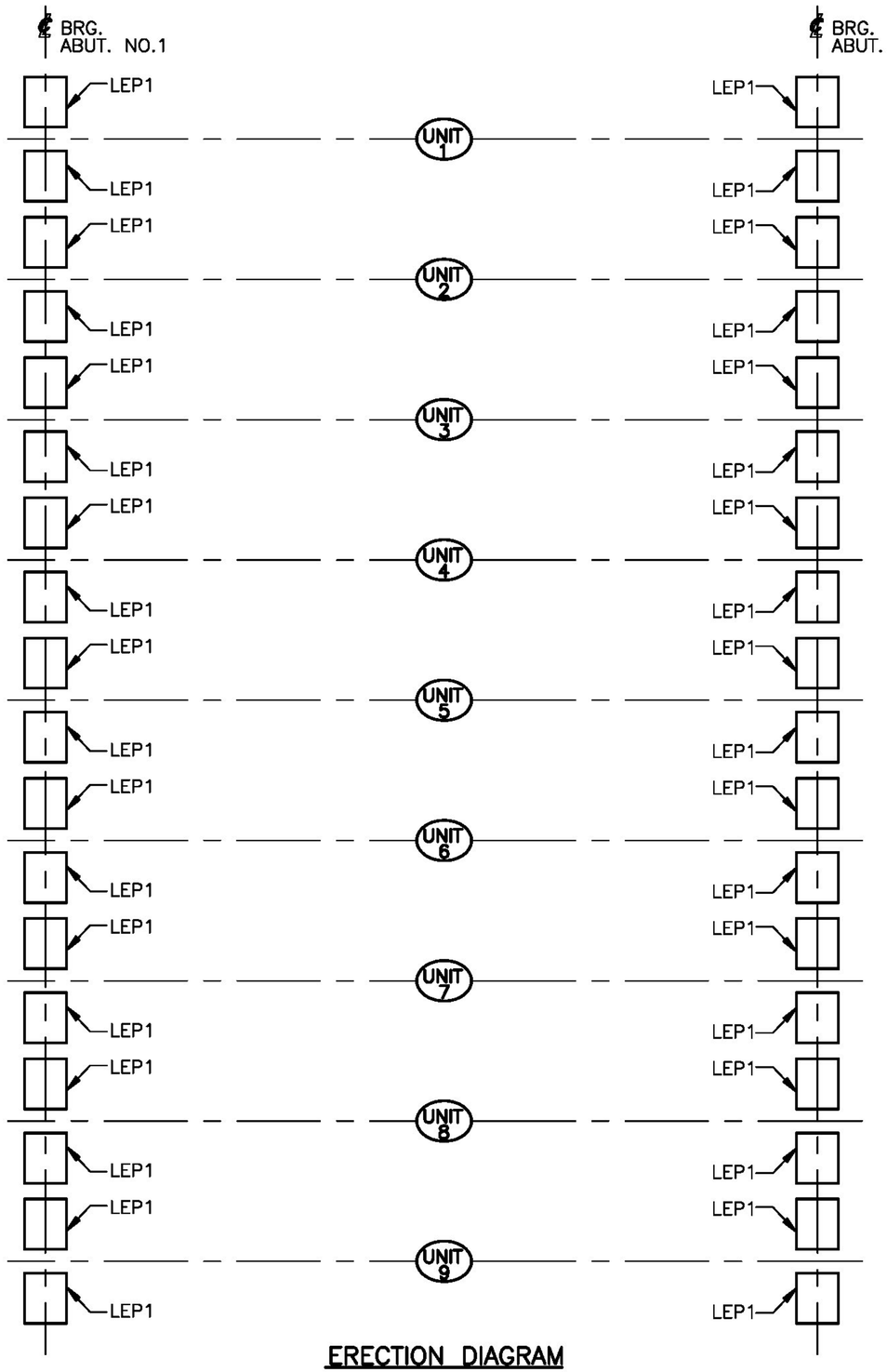
DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

STRUCTURES DETAIL
SD-516.10



ERECTION DIAGRAM

Vermont Agency of Transportation
RECEIVED
Erection Diagram and Bearings 6-9-14.pdf
CK'D BY M. UMBERGER OK'D BY C. CARLSON
June 9, 2014
RESUBMIT NO Approved
BY C. CARLSON DATE 06/24/2014

SEE SHEET D1 FOR SHOP NOTES

STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGE NO.14
ROUTE NO: TH 13 (FOREST STREET)
OVER MOON BROOK
ITEM NO. 513.17
CITY OF RUTLAND

STATE	COUNTY	CONTROL NO.
VT	RUTLAND	N/A

PROJ. NO.: BRF 3000 (18)

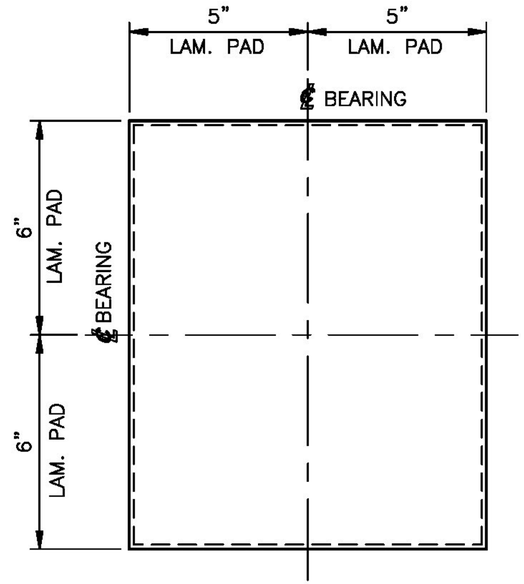
DYNAMIC RUBBER.:
LAMINATED BEARING PADS

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

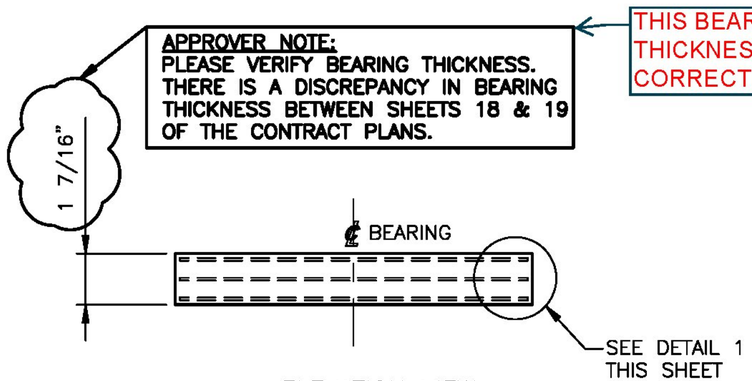
SCALE: NONE	DRAWN BY: RO	CHECKED BY: SL
	DATE: 5/22/14	DATE: 6/5/14
SHEET E1 OF 1	JOB NO.: 12541	

REV.	DESCRIPTION	BY	DATE	CK'D	DATE

CUSTOMER: THE BELDEN COMPANY
DRAWING NUMBER 12541-E1
REV. 0

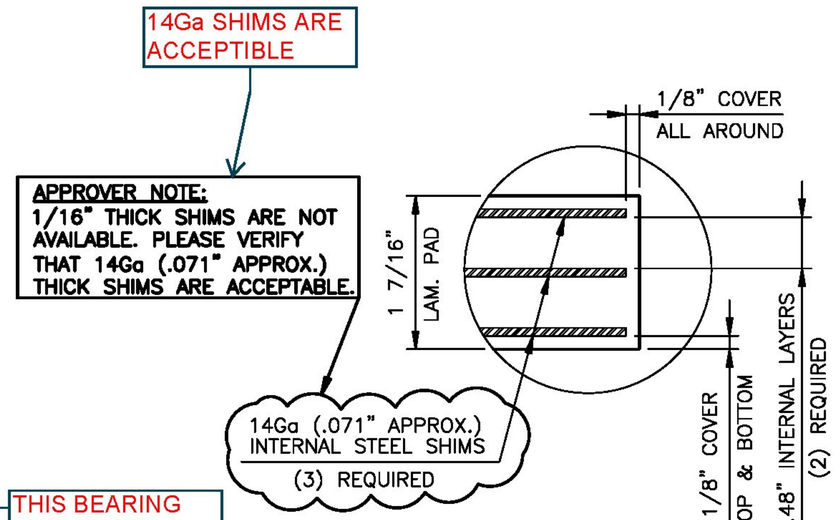


PLAN VIEW



ELEVATION VIEW

LAMINATED ELASTOMERIC BEARING PAD
MARK: LEP1
(18) REQUIRED AT ABUT. NO.1
(18) REQUIRED AT ABUT. NO.2
(36) REQUIRED



DETAIL 1
LAMINATED BEARING PAD
1 7/16" X 12" X 10"
50 DUROMETER GRADE 4 NATURAL RUBBER
(36) REQUIRED FOR STRUCTURE

TEST PAD
LAMINATED BEARING PAD
1 7/16" X 12" X 10"
50 DUROMETER GRADE 4 NATURAL RUBBER
(2) REQUIRED FOR TESTING

MAX. REACTION/BEAM
DEAD LOAD = 16 kips
LIVE LOAD = 19 kips

SHOP NOTES:

1. ALL BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTIONS 531 AND 731 OF THE 2011 VTAOT STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
2. MATERIAL:
   ELASTOMER: 50 DUROMETER GRADE 4 NATURAL RUBBER.
   STEEL LAMINAE: ASTM A1011 GRADE 50 OR EQ.
3. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. ALL MARKS SHALL BE PERMANANT AND BE VISIBLE AFTER ERECTION.
4. ALL DIMENSIONS ARE IN INCHES.
5. COSMEC REPRESENTATIVE KERRY MARCHAND: (508) 455-3290
6. VT.A.O.T. WILL BE NOTIFIED (7) DAYS BEFORE THE START OF FABRICATION.

Vermont Agency of Transportation

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Erection Diagram and Bearings 6-9-14.pdf

CK'D BY M. UMBERGER OK'D BY C. CARLSON

June 9, 2014

RESUBMIT NO Approved

BY C. CARLSON DATE 06/24/2014

STATE OF VERMONT
AGENCY OF TRANSPORTATION
BRIDGE NO.14
ROUTE NO: TH 13 (FOREST STREET)
OVER MOON BROOK
ITEM NO. 531.17
CITY OF RUTLAND

STATE	COUNTY	CONTROL NO.
VT	RUTLAND	N/A

PROJ. NO.: BRF 3000 (18)

DYNAMIC RUBBER.:
LAMINATED BEARING PADS

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

SCALE: NONE	DRAWN BY: RO	CHECKED BY: SL
	DATE: 5/22/14	DATE: 6/5/14
SHEET 1 OF 1	JOB NO.: 12541	

REV.	DESCRIPTION	BY	DATE	CK'D	DATE
0					

CUSTOMER: THE BELDEN COMPANY
DRAWING NUMBER 12541-D1 REV. 0

ABUTMENT & APPROACH SLAB 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 (UNLESS NOTED OTHERWISE).
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31) LEVEL II (DUAL COATED) (AS NOTED ON SHOP DRAWINGS).
4. THE TOP OF ABUTMENTS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
5. SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
6. 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.
7. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX:

   APPROACH SLABS: J.P.C. BRIDGE MIX #445MSCC

   ABUTMENTS: J.P.C. BRIDGE MIX #445MSCC
8. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
9. 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.
10. TRANSVERSE POST-TENSIONING SEQUENCE:
    A. ERECT PRECAST ABUTMENTS.
    B. EPOXY CONSTRUCTION JOINT.
    C. POST TENSION TENDONS TO 32,000 LBS.

VOIDED SLAB GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 7,500 PSI.
2. MIN. CONCRETE STRENGTH AT STRESS TRANSFER SHALL BE 5,000 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"ϕ 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 VOIDED SLABS (UNLESS NOTED OTHERWISE) AND EPOXY PAINTED.
7. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
8. THE TOP OF SLABS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
9. SHEAR KEY SURFACES SHALL BE SAND BLASTED CLEAN.
10. SLABS 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 SLAB. **THE PINS OF THE SHACKLES SHALL BE PLACED THROUGH THE LIFTING LOOPS. SEE DETAIL, SHEET 'F5'.** SLABS SHALL BE STORED AND TRANSPORTED WITH TIMBER SUPPORTS WITHIN 2'-0" OF THE SLAB ENDS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
    ONCE VOIDED SLABS HAVE BEEN ERECTED, CUT LIFTING LOOPS AT RECESS, EPOXY PAINT AND PATCH AS REQUIRED (BY OTHERS). ⚠1
11. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

    DESIGN MIX: J.P.C. BRIDGE MIX #426M (NO DCI)
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 SLAB 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. TRANSVERSE POST-TENSIONING SEQUENCE:
    A. ERECT VOIDED SLABS.
    B. GROUT SHEAR KEYS.
    C. ONCE SHEAR KEY GROUT HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 1,500 PSI; POST TENSION TENDONS TO 32,000 LBS.
15. 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"ϕ 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
C1	COVER SHEET	1	7-1-14
F1	PRECAST ABUTMENT LAYOUT		
F2	PRECAST ABUTMENT ELEVATIONS		
F3	PRESTRESSED VOIDED SLAB & PRECAST APPROACH SLAB LAYOUT		
F4	PRESTRESSED VOIDED SLAB & PRECAST APPROACH SLAB SECTIONS		
F5	SUPERSTRUCTURE SECTIONS & DETAILS	1	7-1-14
SS1	PRESTRESSED VOIDED SLAB DETAILS "R-SS3"		
SS2	PRESTRESSED VOIDED SLAB DETAILS "R-SS4"		
SS3	PRESTRESSED VOIDED SLAB DETAILS "R-SS5"		
SS4	PRESTRESSED VOIDED SLAB DETAILS "R-SS6"		
SS5	PRESTRESSED VOIDED SLAB DETAILS "R-SS1"		
SS6	PRESTRESSED VOIDED SLAB DETAILS "R-SS2"		
AS1	PRECAST APPROACH SLAB DETAILS "R-AS1" & "R-AS2"	1	7-1-14
AS2	PRECAST APPROACH SLAB DETAILS "R-AS5" & "R-AS6"	1	7-1-14
AS3	PRECAST APPROACH SLAB DETAILS "R-AS3" & "R-AS4"	1	7-1-14
AB1	PRECAST ABUTMENT DETAILS "R-AS1"	1	7-1-14
AB2	PRECAST ABUTMENT DETAILS "R-AS2"	1	7-1-14
AB3	PRECAST ABUTMENT DETAILS "R-AS3"	1	7-1-14
AB4	PRECAST ABUTMENT DETAILS "R-AS4"	1	7-1-14
M1	MATERIALS LIST		

DESIGN LIVE LOAD: HL-93

Vermont Agency of Transportation
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23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

⚠ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

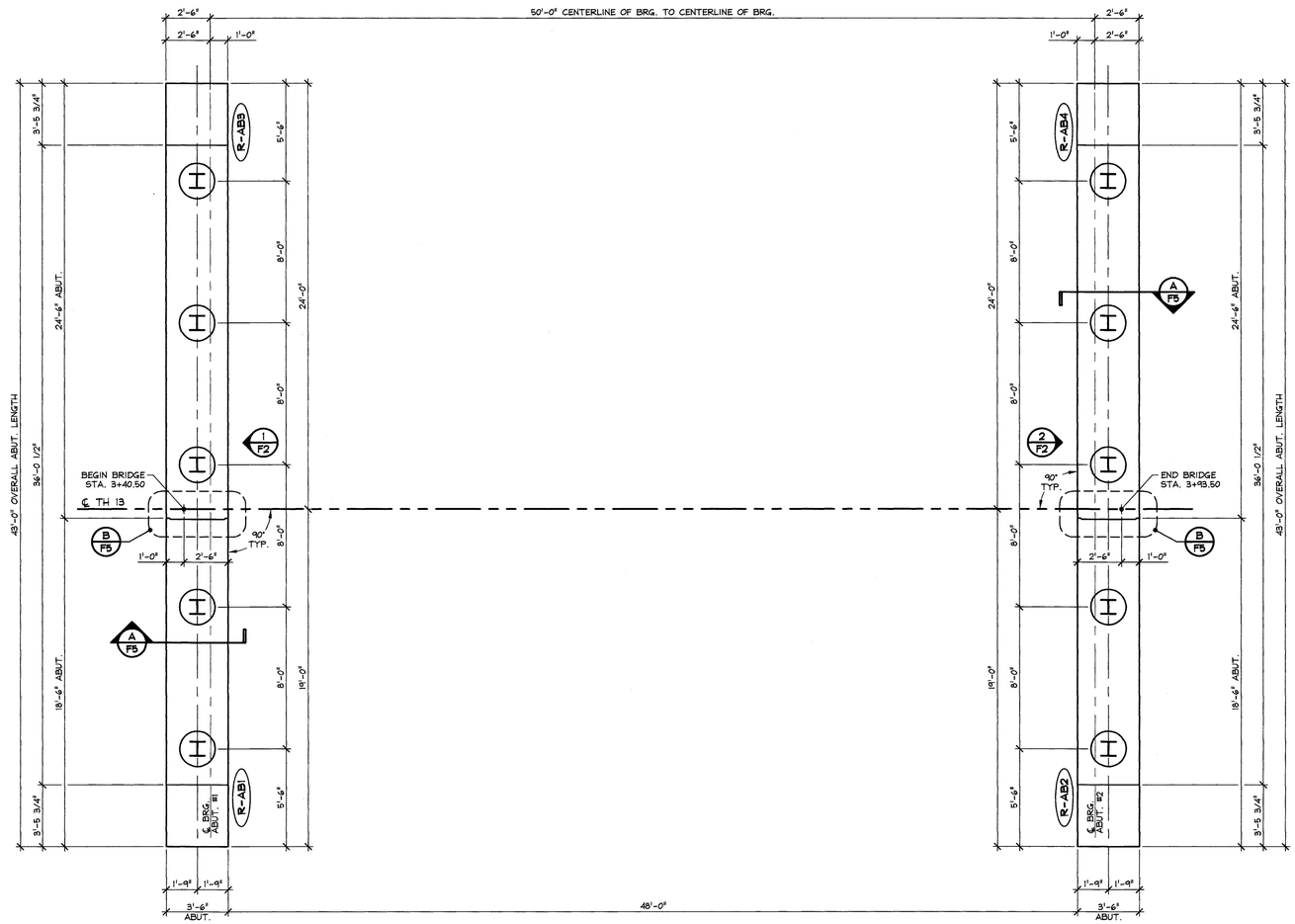
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

COVER SHEET

DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014
DWG. NO: C1

F:\VT-Bridges\23430-14 Rutland\023430-C1.dwg, 7/1/2014 2:13:34 PM



1 / F1 PRECAST ABUTMENT LAYOUT

1/4" = 1'-0"

Vermont Agency of Transportation

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23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

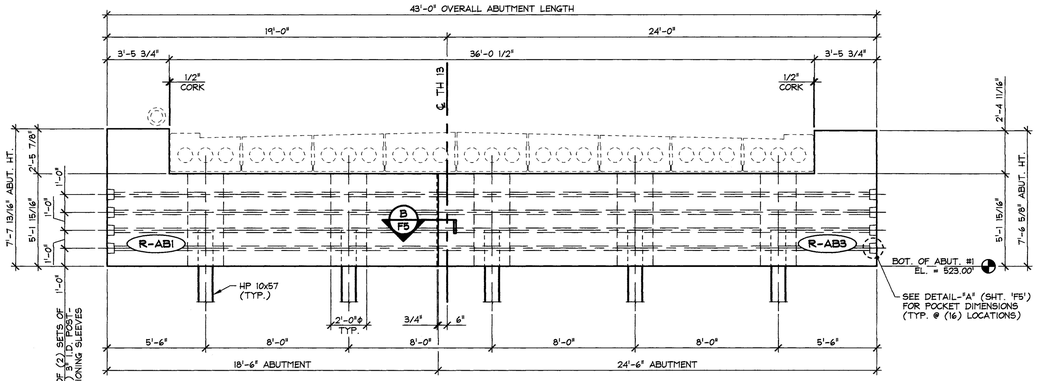
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

PRECAST ABUTMENT LAYOUT

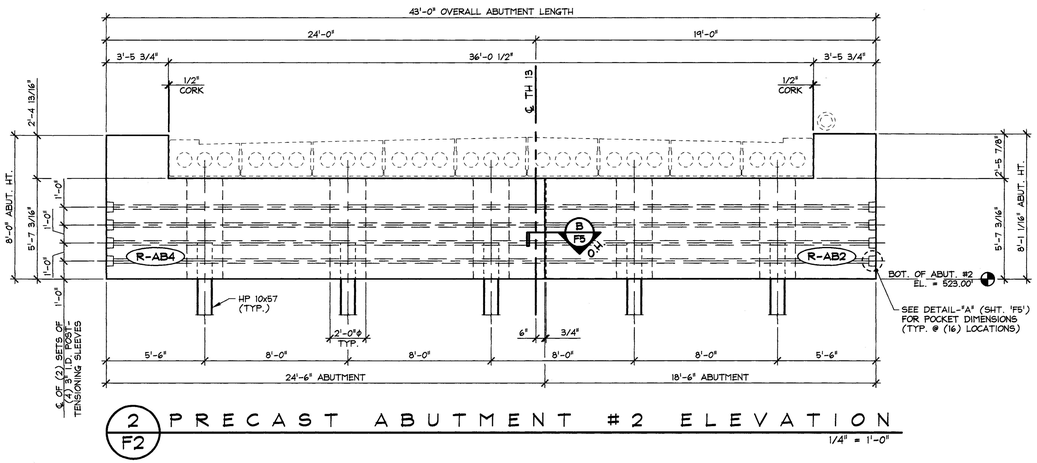
DWG. NO: F1

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1/F2 PRECAST ABUTMENT #1 ELEVATION

1/4" = 1'-0"



2/F2 PRECAST ABUTMENT #2 ELEVATION

1/4" = 1'-0"

Vermont Agency of Transportation

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23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

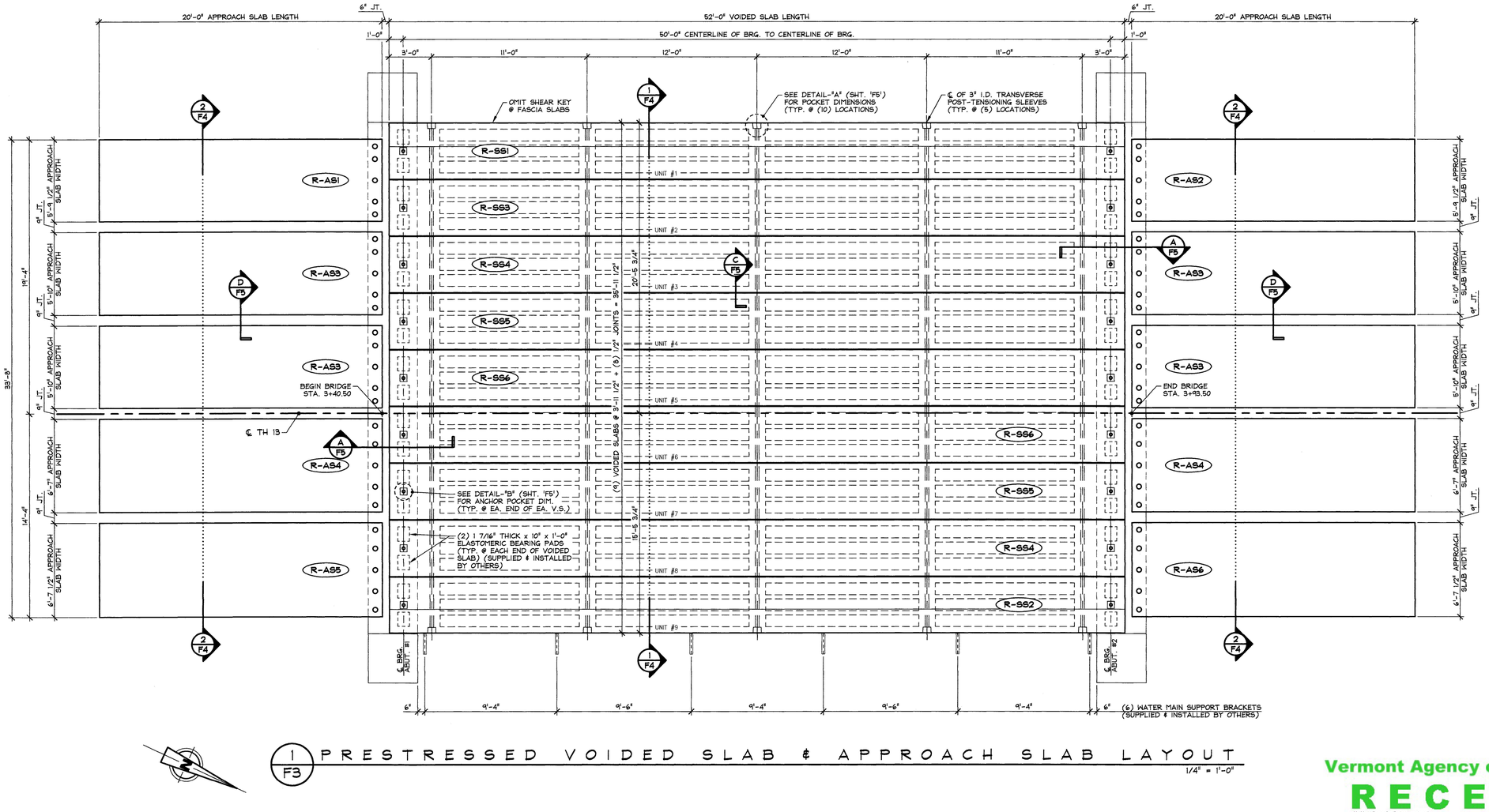
July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010	THE BELDEN COMPANY, INC. CONTRACTOR RUTLAND, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF RUTLAND	DATE: APR. 25, 2014 SCALE: NOTED
	CITY OF RUTLAND ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)	CHKD: M.D. DFTM: B.L. JOB NO: 23430-014
	PRECAST ABUTMENT ELEVATIONS	DWG. NO: F2

F:\VT-Bridges\23430-14 Rutland\23430-F2.dwg, 6/11/2014 4:47:33 PM



1/F3 PRESTRESSED VOIDED SLAB & APPROACH SLAB LAYOUT

1/4" = 1'-0"

Vermont Agency of Transportation

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23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.

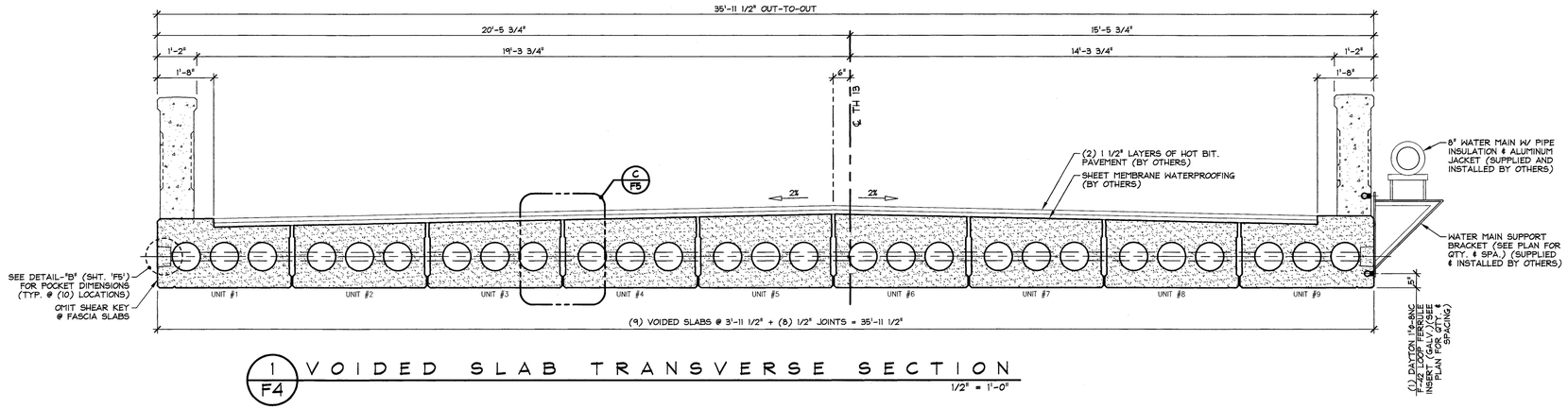
CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

JOB NO: 23430-014

PRESTRESSED VOIDED SLAB & PRECAST APPROACH SLAB LAYOUT

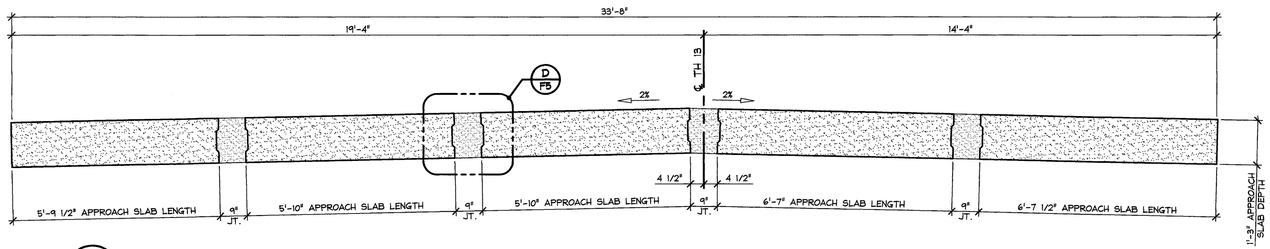
DWG. NO: F3

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1/F4 VOIDED SLAB TRANSVERSE SECTION

1/2" = 1'-0"



2/F4 APPROACH SLAB TRANSVERSE SECTION

1/2" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

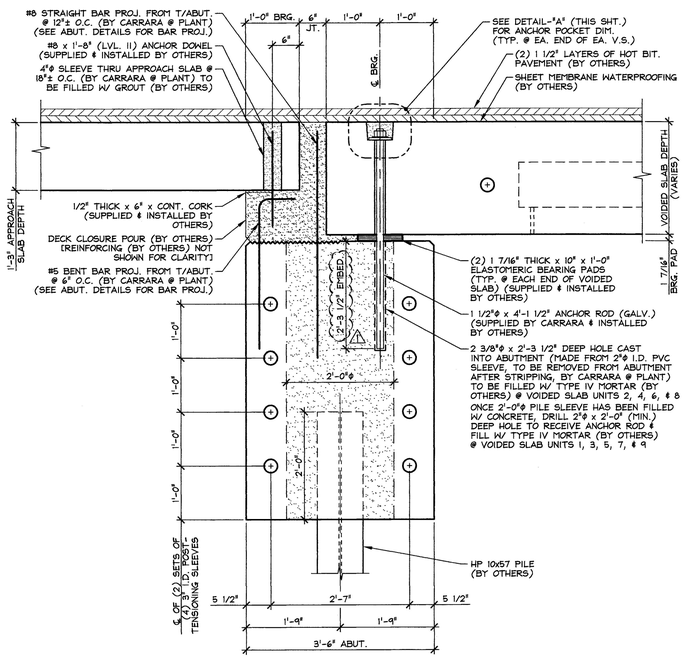
July 1, 2014

RESUBMIT No Approved

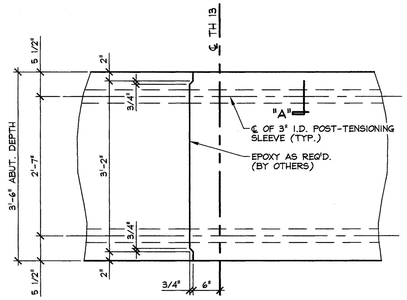
BY C. Carlson DATE 07/08/2014

APPROVAL STAMP:	J.P. CARRARA & SONS INC. Precast & Prestress Manufacturer 2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010	THE BELDEN COMPANY, INC. CONTRACTOR RUTLAND, VERMONT
	STATE OF VERMONT AGENCY OF TRANSPORTATION COUNTY OF RUTLAND	DATE: APR. 25, 2014 SCALE: NOTED
	CITY OF RUTLAND ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)	CHKD: M.D. DFTM: B.L. JOB NO: 23430-014
	PRESTRESSED VOIDED SLAB & PRECAST APPROACH SLAB SECTIONS	DWG. NO: F4

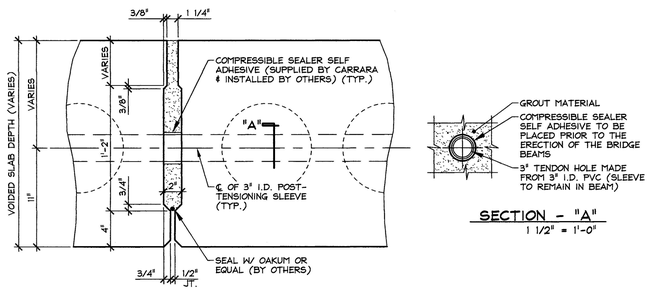
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A / F5 BEARING SECTION
3/4" = 1'-0"

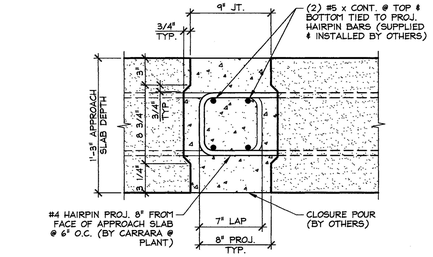


B / F5 CONSTRUCTION JOINT SECTION @ P.T. SLEEVE (ABUTMENT)
3/4" = 1'-0"

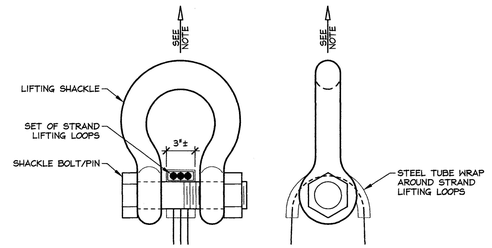


SECTION - "A"
1 1/2" = 1'-0"

C / F5 SHEAR KEY SECTION @ P.T. SLEEVE (VOIDED SLABS)
1 1/2" = 1'-0"

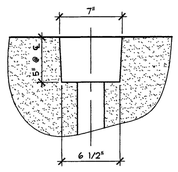


D / F5 APPROACH SLAB CLOSURE POUR
1 1/2" = 1'-0"

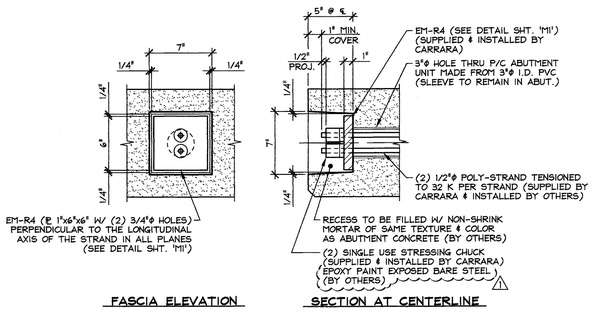


NOTE: SLAB SHALL BE HANDLED AND ERECTED USING THE LIFTING LOOPS ONLY. RIGGING SHALL BE CONFIGURED SUCH THAT EQUAL FORCES ARE APPLIED TO EACH SET OF LIFTING LOOPS AT EACH END OF THE SLAB. SHACKLE BOLT/PIN SHALL BE PLACED UNDER LIFT LOOPS AS SHOWN. DESIGN AND CONFIGURATION OF RIGGING BY PURCHASER.

LIFTING SHACKLE DETAILS
N.T.S.

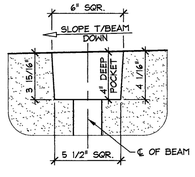


PLAN OF POCKET

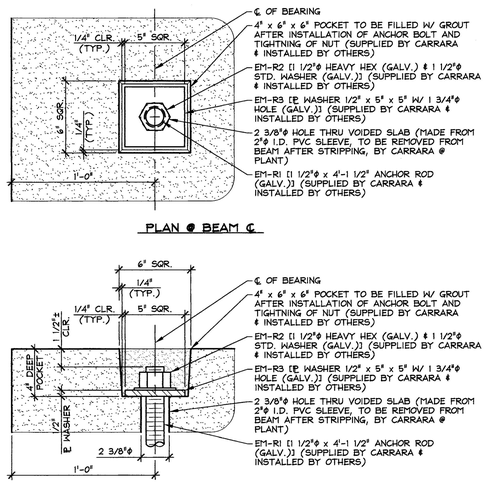


FASCIA ELEVATION — SECTION AT CENTERLINE

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



POCKET ELEVATION



PLAN @ BEAM ℄ — SECTION @ BEAM ℄

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

7-1-14 REVISED AS NOTED

Vermont Agency of Transportation
RECEIVED
23430-14 Forest Str_Rutland_rev1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

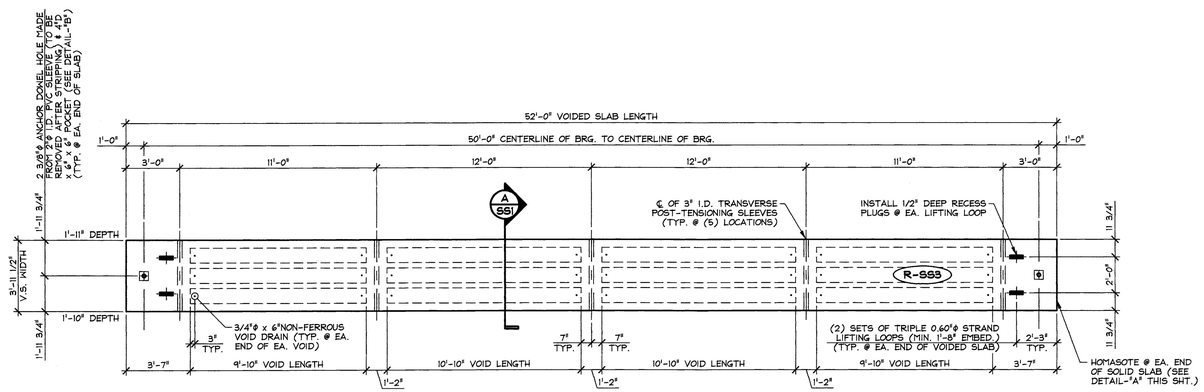
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

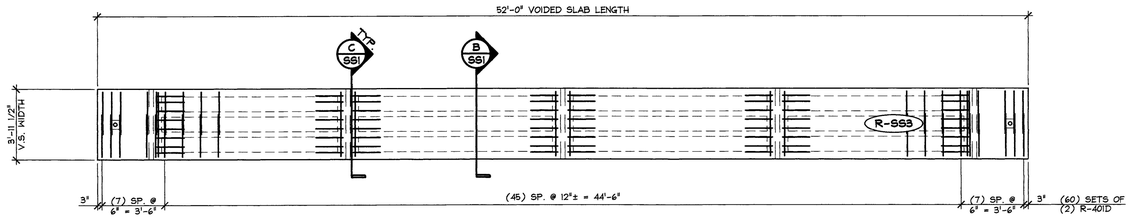
SUPERSTRUCTURE SECTIONS & DETAILS

DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014
DWG. NO: F5

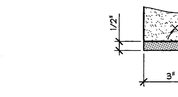
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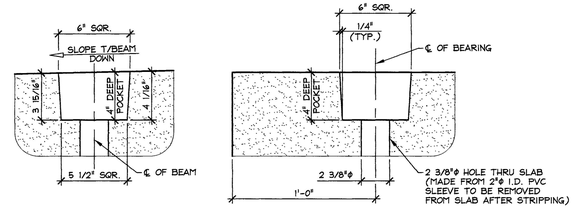
1 / SS1 DIMENSIONAL PLAN VIEW IN FORM
1/4" = 1'-0"



2 / SS1 REINFORCING PLAN VIEW IN FORM
1/4" = 1'-0"



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

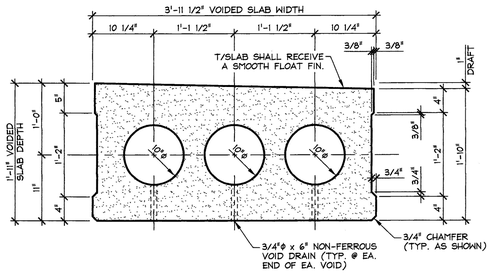


DETAIL - "B"
2" = 1'-0"

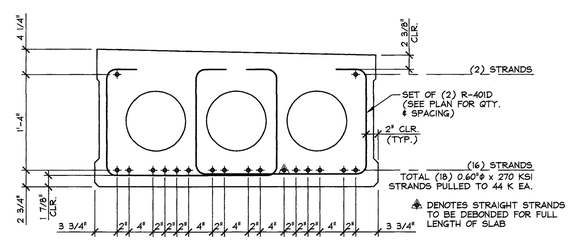
1 2

3 5 7 9 11 13 15 17 18 16 14 12 10 8 6 4

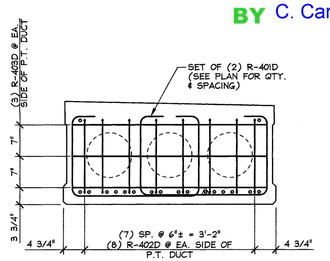
DETENSIONING SCHEDULE
N.T.S.



A / SS1 DIMENSIONAL SECTION
1" = 1'-0"



B / SS1 REINFORCING SECTION
1" = 1'-0"



C / SS1 POST-TENSIONING DIAPHRAGM REINFORCING SECTION
3/4" = 1'-0"

Vermont Agency of Transportation
RECEIVED
23430-14 Forest Str_Rutland_rev1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

MARK: R-SS3	QTY.: 1	WT.: 23.22 T	VOL.: 11.47 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5			
6			
7			
8			
9			
10			
11		3/4"ø x 6" NON-FERROUS VOID DRAIN	24
12		10"ø x 9'-10" VOID	6
13		10"ø x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ø STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014
SCALE: NOTED

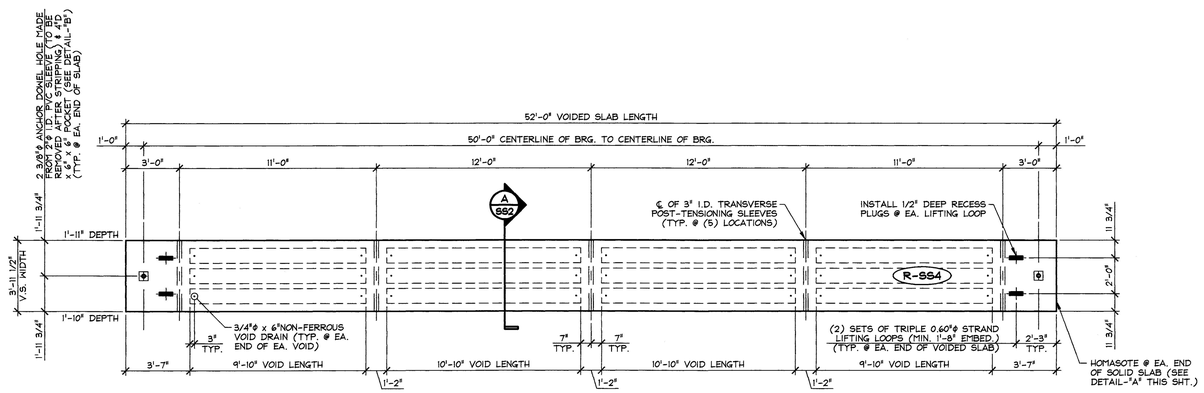
CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

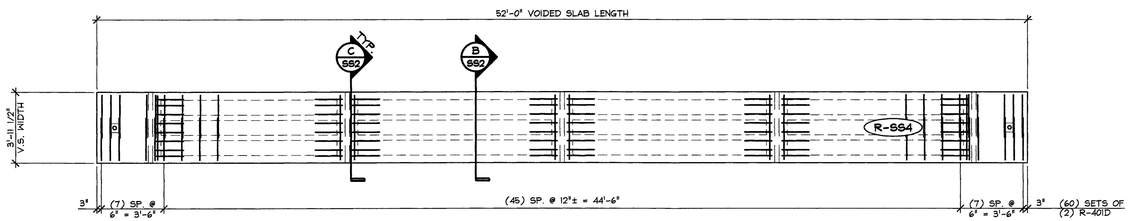
PRESTRESSED VOIDED SLAB DETAILS

DWG. NO: SS1

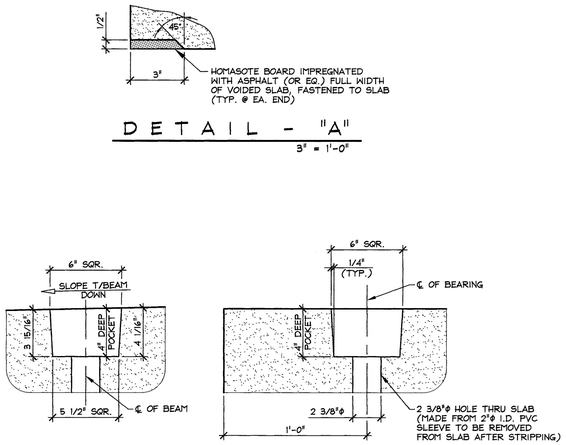
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1 SS2 DIMENSIONAL PLAN VIEW IN FORM
1/4" = 1'-0"



2 SS2 REINFORCING PLAN VIEW IN FORM
1/4" = 1'-0"



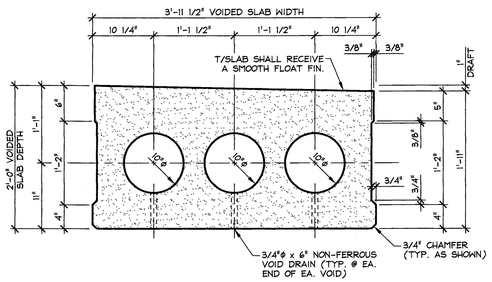
DETAIL - "B"
2" = 1'-0"

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

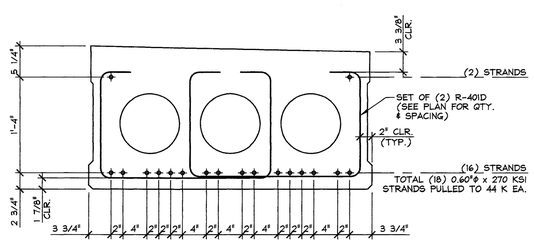
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③⑤ ⑦⑨⑪⑬ ⑮⑰ ⑱⑯ ⑭⑫⑩⑧ ⑥④

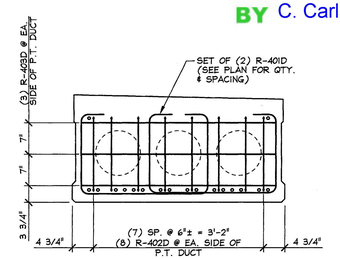
DETENSIONING SCHEDULE
N.T.S.



A SS2 DIMENSIONAL SECTION
1" = 1'-0"



B SS2 REINFORCING SECTION
1" = 1'-0"



C SS2 POST-TENSIONING DIAPHRAGM REINFORCING SECTION
3/4" = 1'-0"

Vermont Agency of Transportation
RECEIVED
23430-14 Forest Str_Rutland_rev1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

MARK: R-SS4	QTY.: 2	WT.: 24.48 T	VOL.: 12.09 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5			
6			
7			
8			
9			
10			
11		3/4"ø x 6" NON-FERROUS VOID DRAIN	24
12		10"ø x 9'-10" VOID	6
13		10"ø x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ø STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2444 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

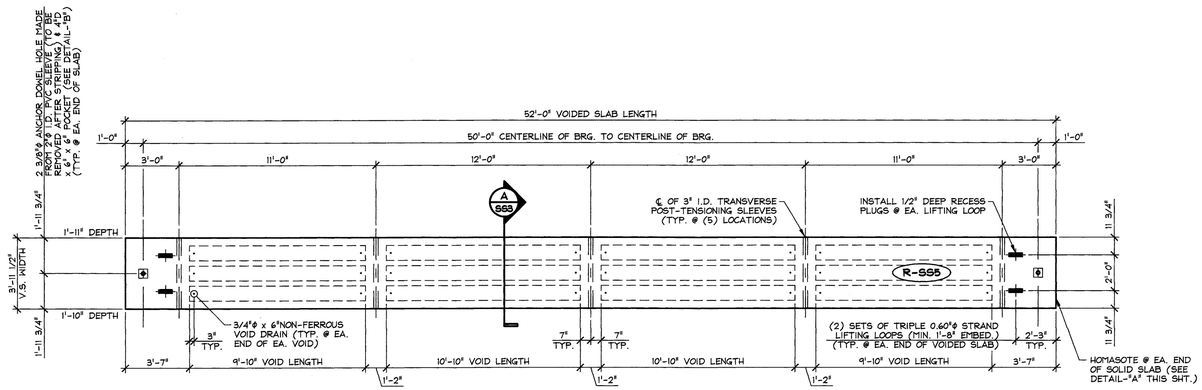
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

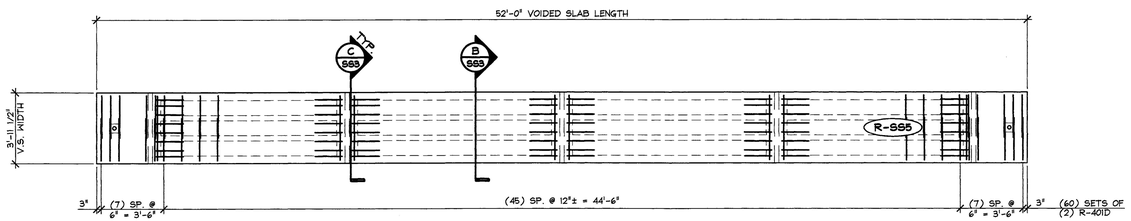
PRESTRESSED VOIDED SLAB DETAILS

DWG. NO: SS2

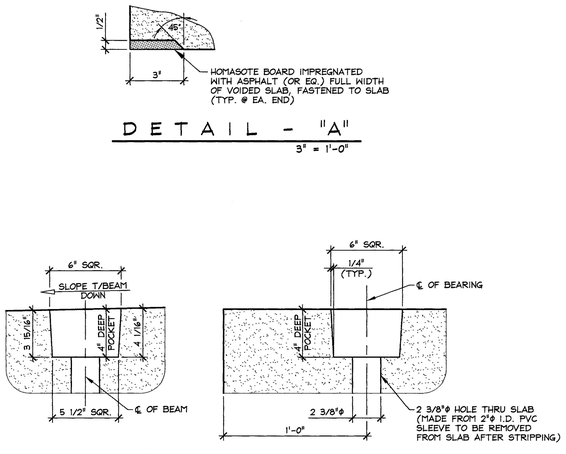
F:\VT-Bridges\23430-14 Rutland\023430-SS2.dwg, 6/11/2014 5:12:11 PM



1 SS3 DIMENSIONAL PLAN VIEW IN FORM
1/4" = 1'-0"



2 SS3 REINFORCING PLAN VIEW IN FORM
1/4" = 1'-0"



POCKET ELEVATION

SECTION @ BEAM ℄

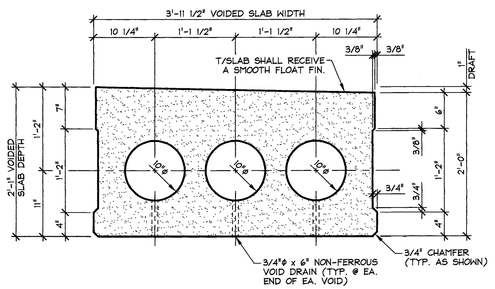
DETAIL - "A"
3" = 1'-0"

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

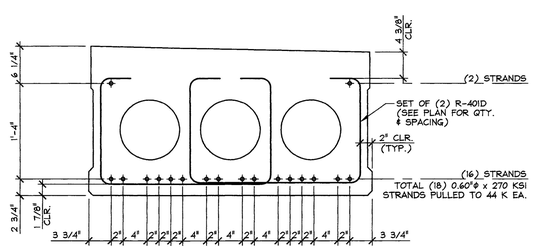
① ②

③⑤ ⑦⑨⑪⑬ ⑮⑰ ⑱⑯ ⑭⑫⑩⑧ ⑥④

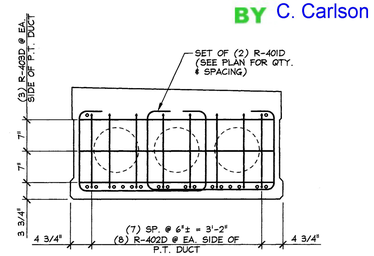
DETENSIONING SCHEDULE
N.T.S.



A SS3 DIMENSIONAL SECTION
1" = 1'-0"



B SS3 REINFORCING SECTION
1" = 1'-0"



C SS3 POST-TENSIONING DIAPHRAGM REINFORCING SECTION
3/4" = 1'-0"

Vermont Agency of Transportation
RECEIVED
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CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

MARK: R-SS5	QTY.: 2	WT.: 25.75 T	VOL.: 12.72 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5			
6			
7			
8			
9			
10			
11		3/4"ϕ x 6" NON-FERROUS VOID DRAIN	24
12		10"ϕ x 9'-10" VOID	6
13		10"ϕ x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ϕ STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

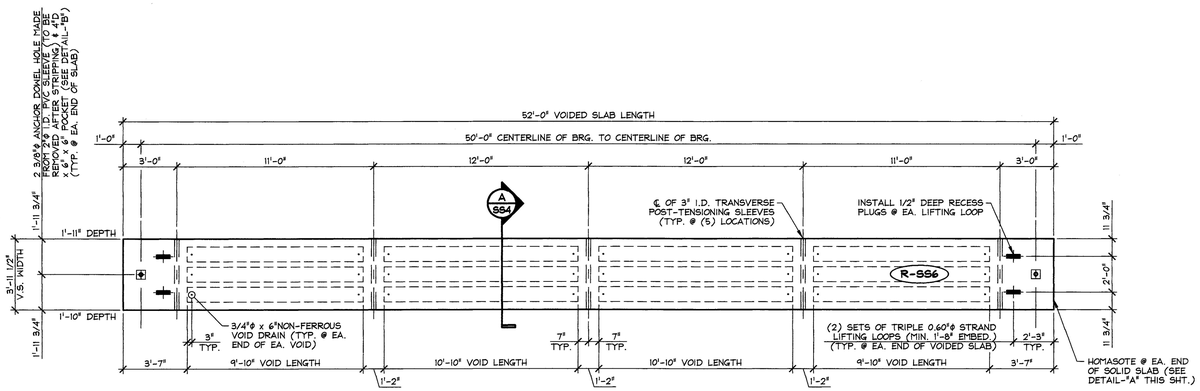
DATE: APR. 25, 2014
SCALE: NOTED

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

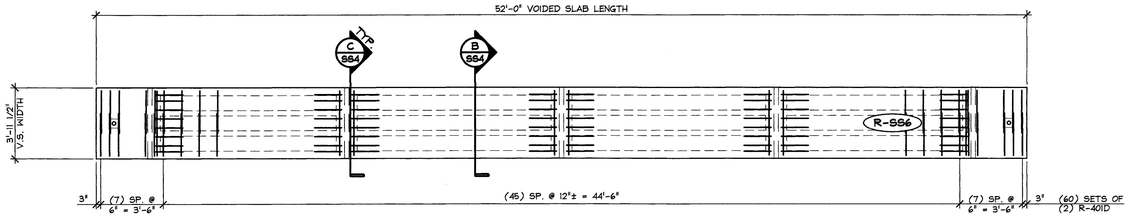
PRESTRESSED VOIDED SLAB DETAILS
DWG. NO: SS3

F:\VT-Bridges\23430-14 Rutland\23430-SS3.dwg, 6/11/2014 5:13:29 PM



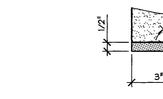
1 SS4 DIMENSIONAL PLAN VIEW IN FORM

1/4" = 1'-0"



2 SS4 REINFORCING PLAN VIEW IN FORM

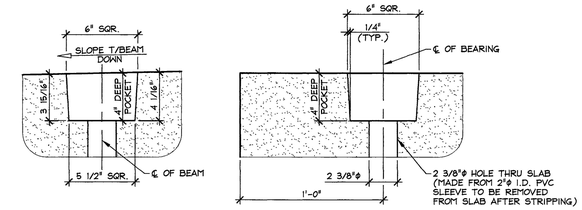
1/4" = 1'-0"



HOMASOTE BOARD IMPREGNATED WITH ASPHALT (OR EQ.) FULL WIDTH OF VOIDED SLAB, FASTENED TO SLAB (TYP. @ EA. END)

DETAIL - "A"

3" = 1'-0"



DETAIL - "B"

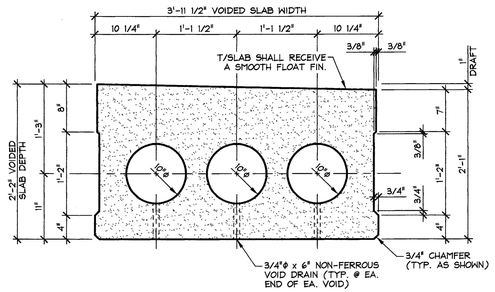
2" = 1'-0"

① ②

3 5 7 9 11 13 15 17 19 18 16 14 12 10 8 6 4

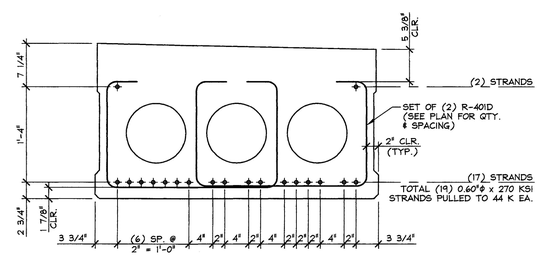
DETENSIONING SCHEDULE

N.T.S.



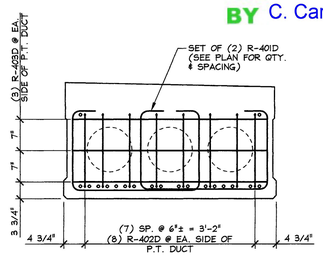
A SS4 DIMENSIONAL SECTION

1" = 1'-0"



B SS4 REINFORCING SECTION

1" = 1'-0"



C SS4 POST-TENSIONING DIAPHRAGM REINFORCING SECTION

3/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

MARK: R-SS6	QTY.: 2	WT.: 27.02 T	VOL.: 13.34 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5			
6			
7			
8			
9			
10			
11		3/4"ø x 6" NON-FERROUS VOID DRAIN	24
12		10"ø x 9'-10" VOID	6
13		10"ø x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ø STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014
SCALE: NOTED

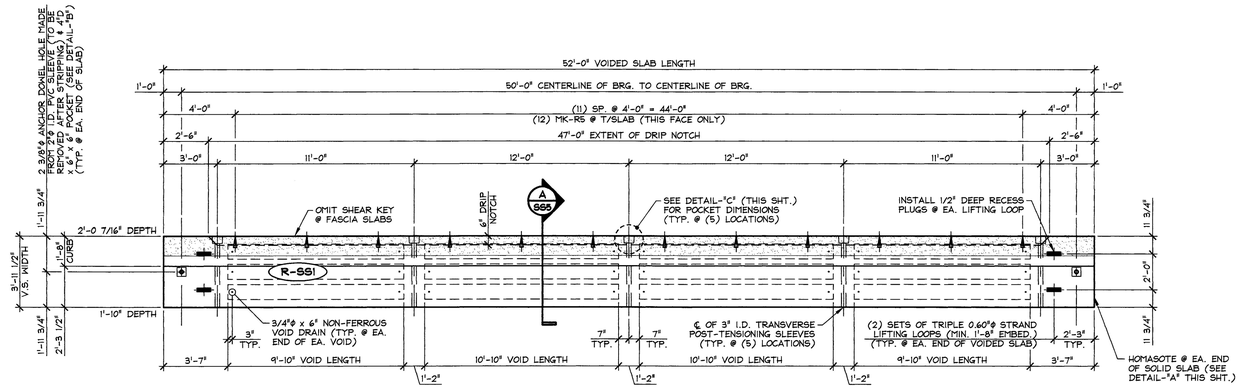
CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

PRESTRESSED VOIDED SLAB DETAILS

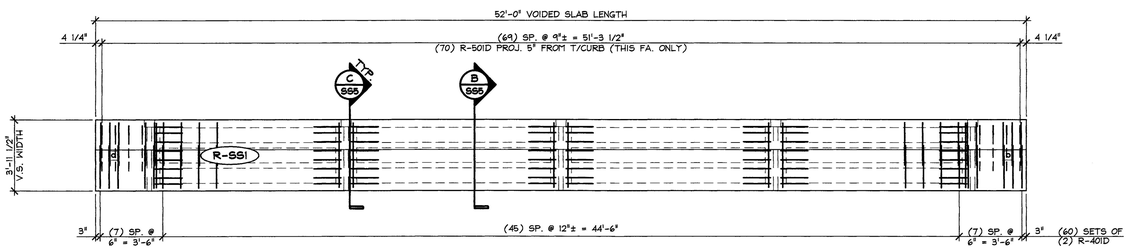
DWG. NO: SS4

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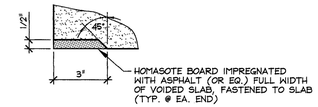
1 SS5 DIMENSIONAL PLAN VIEW IN FORM

1/4" = 1'-0"



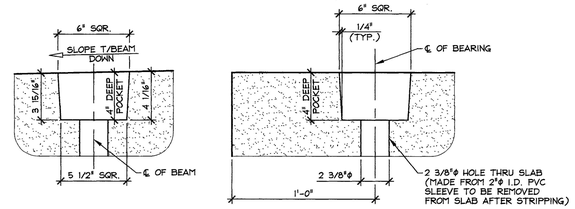
2 SS5 REINFORCING PLAN VIEW IN FORM

1/4" = 1'-0"



DETAIL - "A"

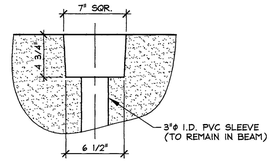
3" = 1'-0"



POCKET ELEVATION — SECTION @ BEAM ℄

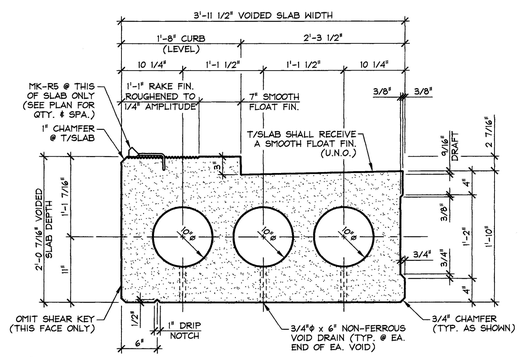
DETAIL - "B"

2" = 1'-0"



DETAIL - "C"

1 1/2" = 1'-0"

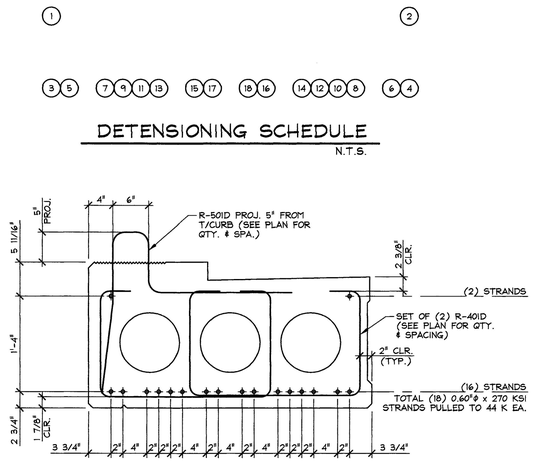


A SS5 DIMENSIONAL SECTION

1" = 1'-0"

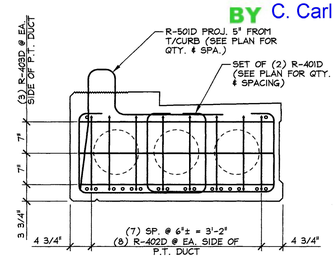
DETENSIONING SCHEDULE

N.T.S.



B SS5 REINFORCING SECTION

1" = 1'-0"



C SS5 POST-TENSIONING DIAPHRAGM REINFORCING SECTION

3/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

MARK: R-SS1	QTY.: 1	WT.: 23.97 T	VOL.: 11.84 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5	R-501D	#5 BENT BAR (LEVEL II, DUAL COATED)	70
6			
7			
8			
9			
10	MK-R5	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	12
11		3/4"ø x 6" NON-FERROUS VOID DRAIN	24
12		10"ø x 9'-10" VOID	6
13		10"ø x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ø STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014
SCALE: NOTED

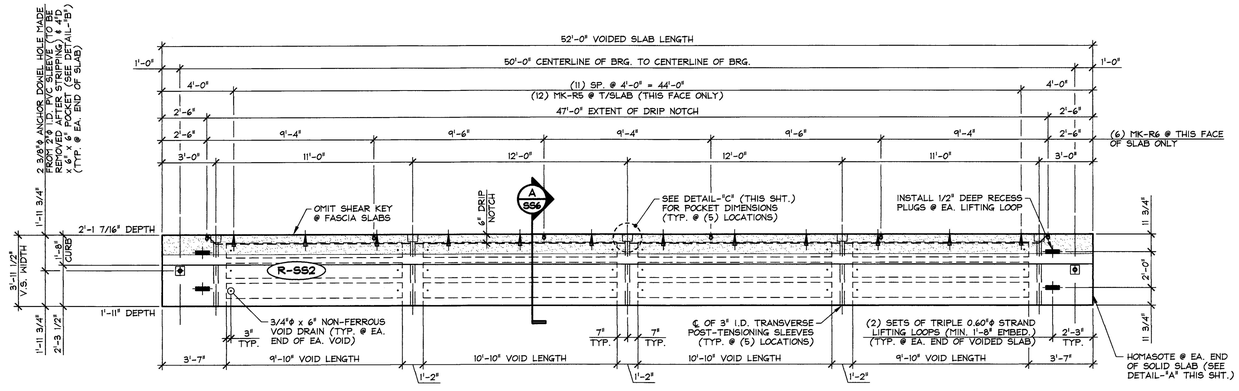
CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

PRESTRESSED VOIDED SLAB DETAILS

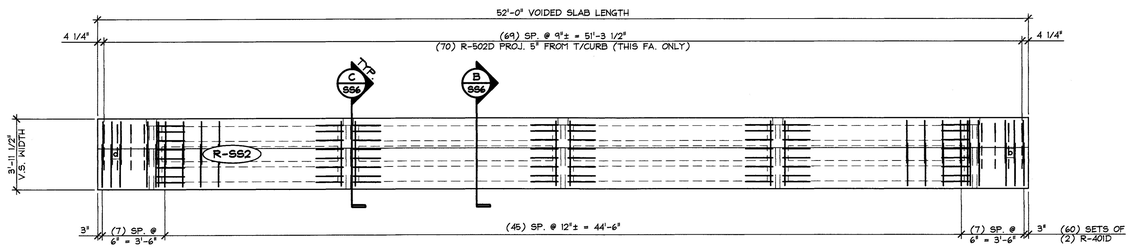
DWG. NO: SS5

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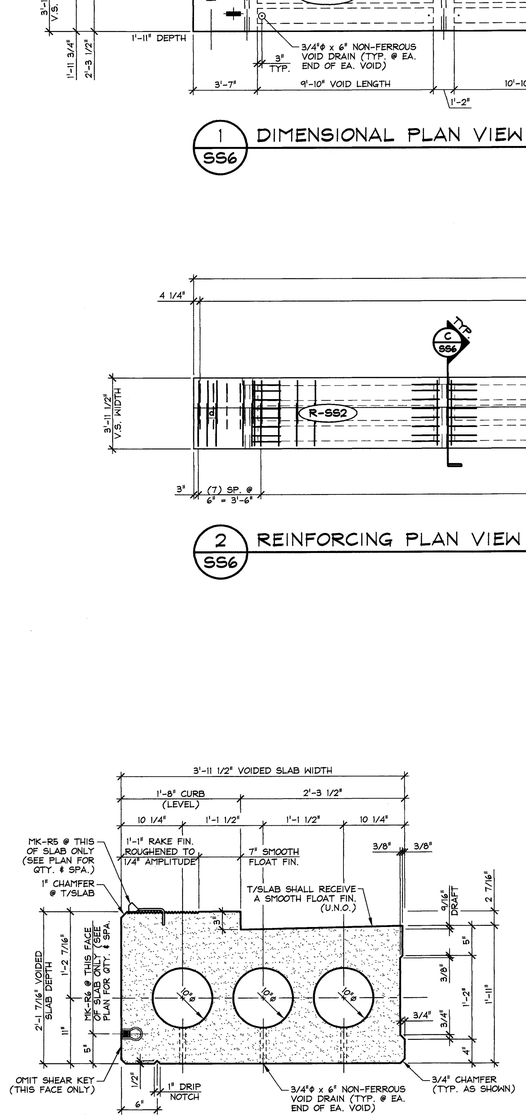
1 SS6 DIMENSIONAL PLAN VIEW IN FORM

1/4" = 1'-0"



2 SS6 REINFORCING PLAN VIEW IN FORM

1/4" = 1'-0"



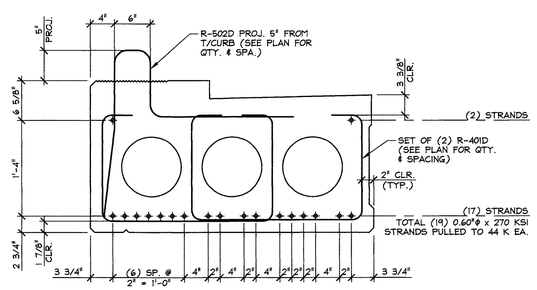
A SS6 DIMENSIONAL SECTION

1" = 1'-0"

DETENSIONING SCHEDULE

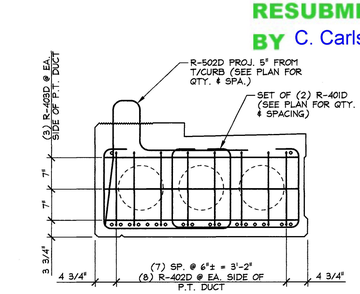
N.T.S.

①	②
3 5 7 9 11 13 15	17 19
18 16	14 12 10 8
6 4	



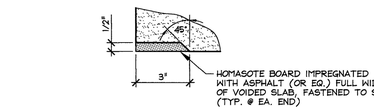
B SS6 REINFORCING SECTION

1" = 1'-0"



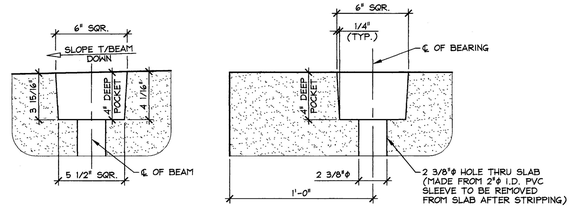
C SS6 POST-TENSIONING DIAPHRAGM REINFORCING SECTION

3/4" = 1'-0"



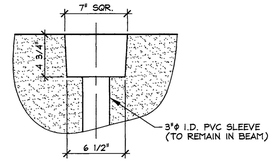
DETAIL - "A"

3" = 1'-0"



DETAIL - "B"

2" = 1'-0"



DETAIL - "C"

1 1/2" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

MARK: R-SS2	QTY.: 1	WT.: 25.25 T	VOL.: 12.47 cy

MATERIAL LIST / VOIDED SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	R-401D	#4 BENT BAR (LEVEL II, DUAL COATED)	120
2	R-402D	#4 BENT BAR (LEVEL II, DUAL COATED)	64
3	R-403D	#4 x 3'-7 1/2" (LEVEL II, DUAL COATED)	24
4			
5	R-502D	#5 BENT BAR (LEVEL II, DUAL COATED)	70
6			
7			
8			
9	MK-R5	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	12
10	MK-R6	DAYTON 1"ϕ-8NC F-42 LOOP FERRULE INSERT (GALV.)	6
11		3/4"ϕ x 6" NON-FERROUS VOID DRAIN	24
12		10"ϕ x 9'-10" VOID	6
13		10"ϕ x 10'-10" VOID	6
14		SET OF TRIPLE 0.60"ϕ STRAND LIFTING LOOPS	4
15			

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

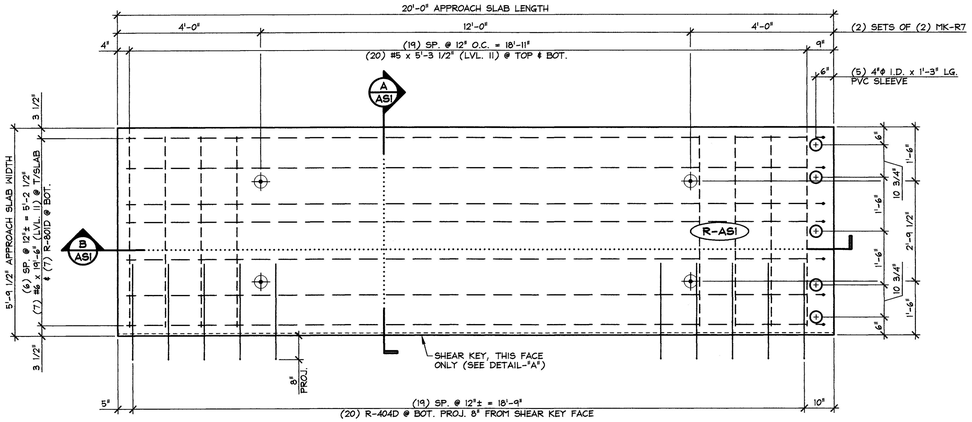
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

PRESTRESSED VOIDED SLAB DETAILS

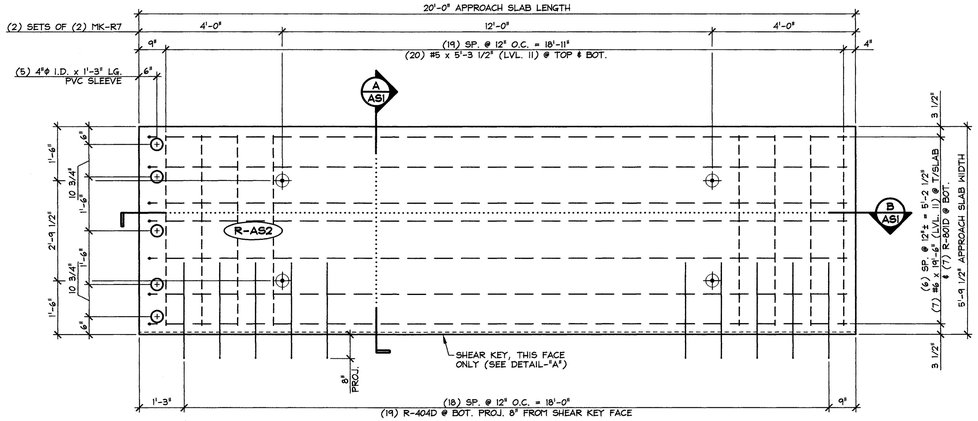
DWG. NO: SS6

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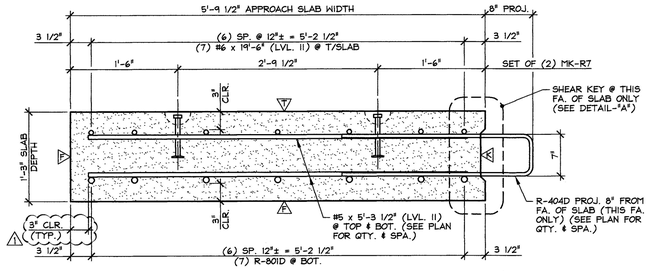
1 / AS1 APPROACH SLAB PLAN VIEW IN FORM

1/2" = 1'-0"



2 / AS1 APPROACH SLAB PLAN VIEW IN FORM

1/2" = 1'-0"



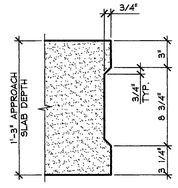
A / AS1 TRANSVERSE SECTION

1" = 1'-0"

△ DENOTES FORM FINISH

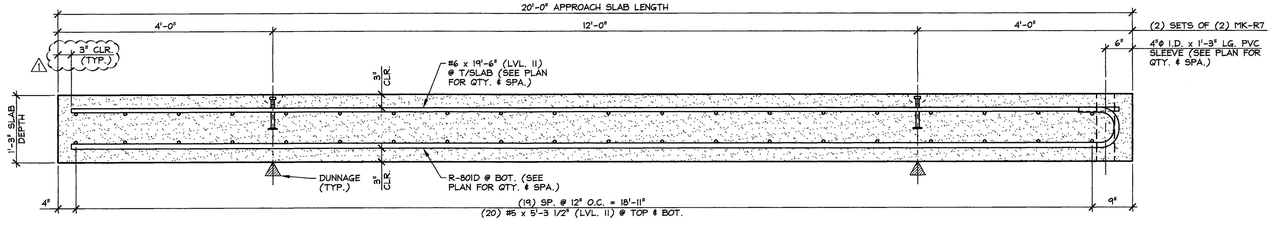
△ DENOTES FLOAT FINISH

△ DENOTES ROUGHENED FINISH



DETAIL - "A"

1 1/2" = 1'-0"



B / AS1 LONGITUDINAL SECTION

3/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

MARK:	R-AS1	QTY.:	1	WT.:	10.8 T	VOL.:	5.3 cy
MARK:	R-AS2	QTY.:	1	WT.:	10.8 T	VOL.:	5.3 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB	
			R-AS1	R-AS2
1	R-404D	#4 BENT BAR (LEVEL II, DUAL COATED)	20	19
2				
3		#5 x 5'-3 1/2" (LEVEL II, DUAL COATED)	40	40
4				
5		#6 x 19'-6" (LEVEL II, DUAL COATED)	7	7
6				
7	R-801D	#8 BENT BAR (LEVEL II, DUAL COATED)	7	7
8				
9	MK-R7	4T x 7 1/8" SWIFT LIFT LIFTER (GALVANIZE)	4	4
10		4"ϕ I.D. x 1'-3" PVC SLEEVE	5	5

△ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014

SCALE: NOTED

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

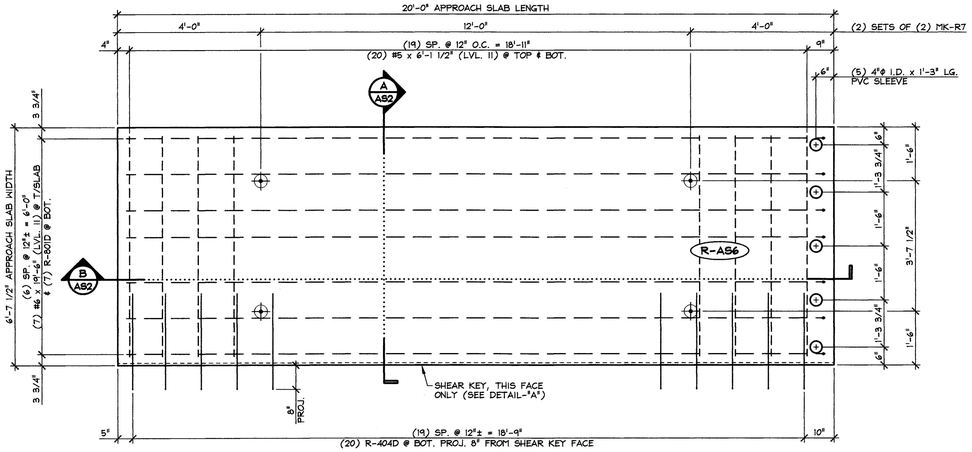
CHKD: M.D. DFTM: B.L.

JOB NO: 23430-014

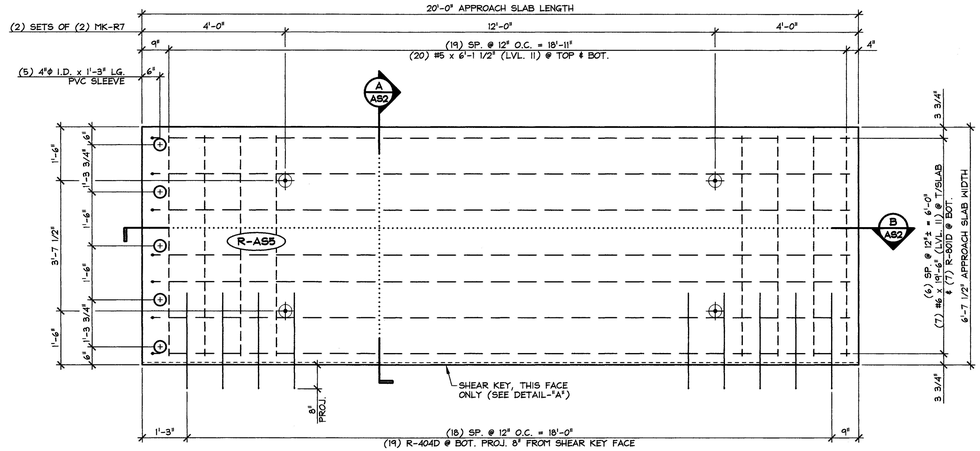
PRECAST APPROACH SLAB DETAILS

DWG. NO: AS1

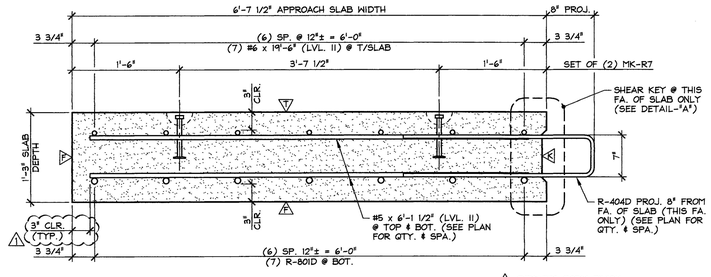
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1 AS2 APPROACH SLAB PLAN VIEW IN FORM
1/2" = 1'-0"

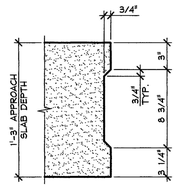


2 AS2 APPROACH SLAB PLAN VIEW IN FORM
1/2" = 1'-0"

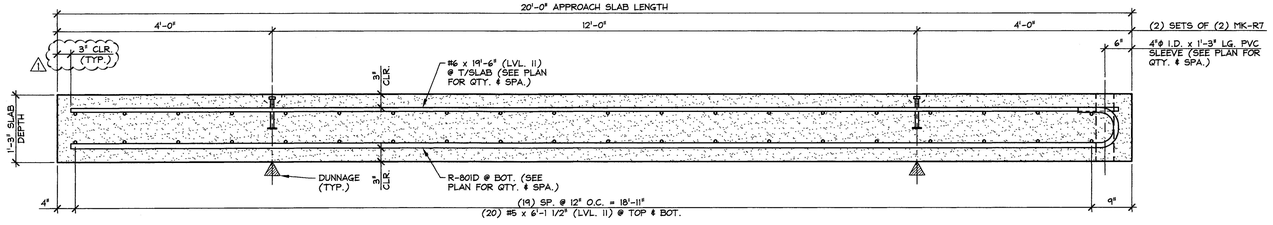


A AS2 TRANSVERSE SECTION
1" = 1'-0"

△ DENOTES FORM FINISH
△ DENOTES FLOAT FINISH
△ DENOTES ROUGHENED FINISH



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



B AS2 LONGITUDINAL SECTION
3/4" = 1'-0"

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev-1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

MARK:	R-AS6	QTY.:	1	WT.:	12.4 T	VOL.:	6.1 cy
MARK:	R-AS5	QTY.:	1	WT.:	12.4 T	VOL.:	6.1 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB	
			R-AS6	R-AS5
1	R-404D	#4 BENT BAR (LEVEL II, DUAL COATED)	20	19
2				
3		#5 x 6'-1 1/2" (LEVEL II, DUAL COATED)	40	40
4				
5		#6 x 19'-6" (LEVEL II, DUAL COATED)	7	7
6				
7	R-801D	#8 BENT BAR (LEVEL II, DUAL COATED)	7	7
8				
9	MK-R7	4T x 7 1/8" SWIFT LIFT LIFTER (GALVANIZE)	4	4
10		4"ϕ I.D. x 1'-3" PVC SLEEVE	5	5

△ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

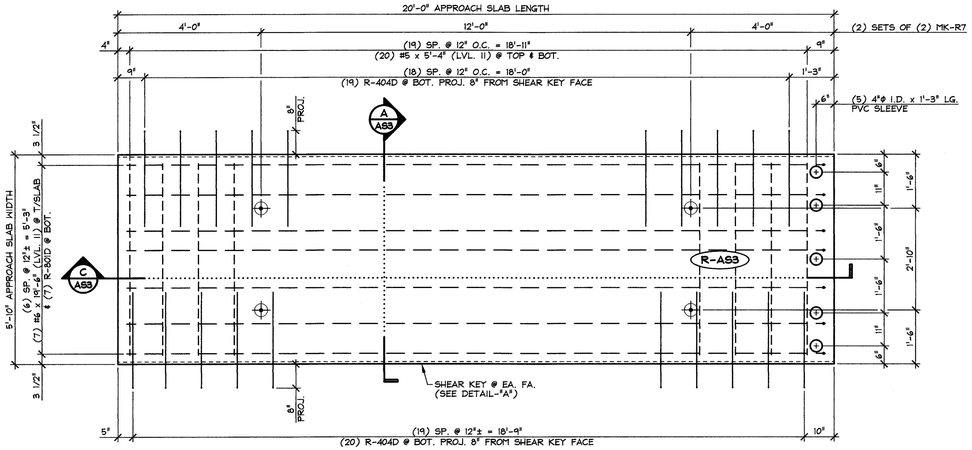
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

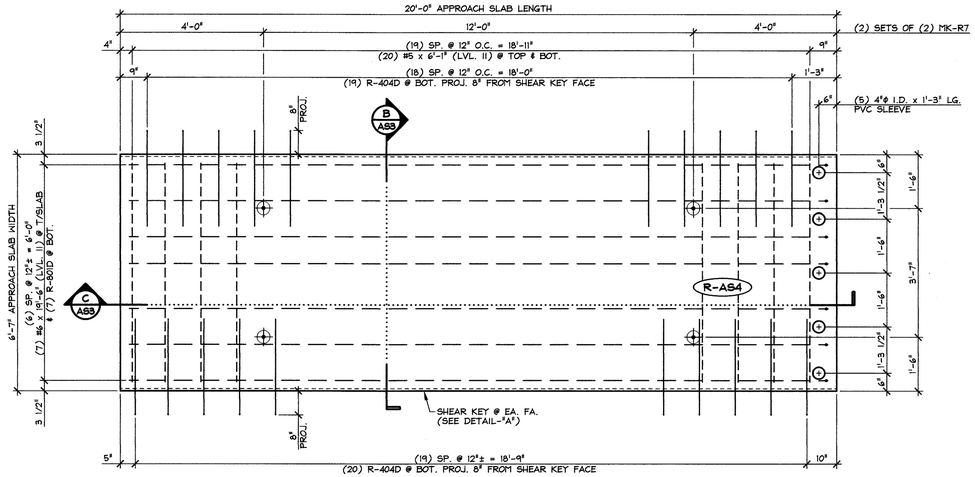
PRECAST APPROACH SLAB DETAILS

DWG. NO: AS2

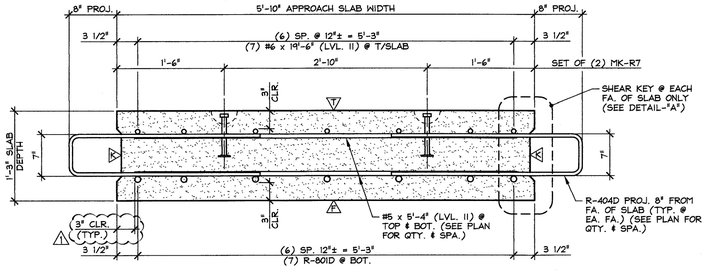
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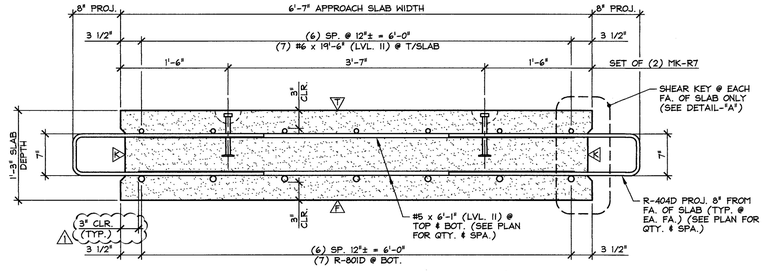
1 AS3 APPROACH SLAB PLAN VIEW IN FORM
1/2" = 1'-0"



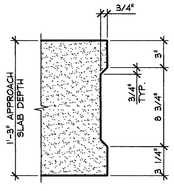
2 AS3 APPROACH SLAB PLAN VIEW IN FORM
1/2" = 1'-0"



A AS3 TRANSVERSE SECTION
1" = 1'-0"



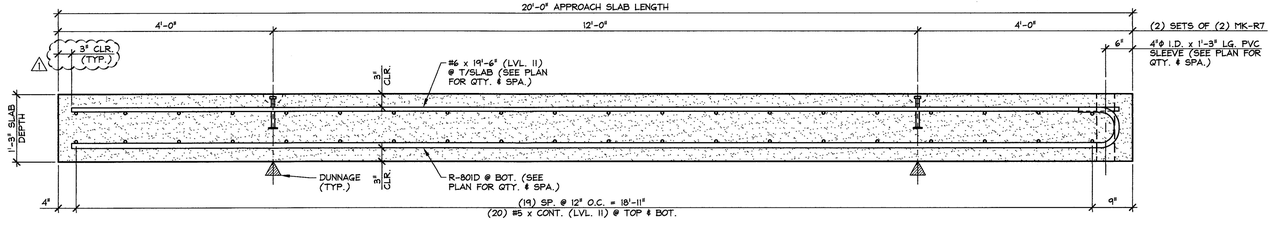
B AS3 TRANSVERSE SECTION
1" = 1'-0"



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

△A DENOTES FORM FINISH
△F DENOTES FLOAT FINISH
△R DENOTES ROUGHENED FINISH

△A DENOTES FORM FINISH
△F DENOTES FLOAT FINISH
△R DENOTES ROUGHENED FINISH



C AS3 LONGITUDINAL SECTION
3/4" = 1'-0"

Vermont Agency of Transportation
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23430-14 Forest St_Rutland_Jw1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

△1 7-1-14 REVISED AS NOTED

MARK:	R-AS3	QTY.:	4	WT.:	10.8 T	VOL.:	5.3 cy
MARK:	R-AS4	QTY.:	2	WT.:	12.2 T	VOL.:	6.0 cy

MATERIAL LIST / APPROACH SLAB

ITEM	MARK	DESCRIPTION	QTY./SLAB R-AS3	QTY./SLAB R-AS4
1	R-404D	#4 BENT BAR (LEVEL II, DUAL COATED)	38	38
2		#5 x 5'-4" (LEVEL II, DUAL COATED)	40	
3		#5 x 6'-1" (LEVEL II, DUAL COATED)		40
4				
5		#6 x 19'-6" (LEVEL II, DUAL COATED)	7	7
6				
7	R-801D	#8 BENT BAR (LEVEL II, DUAL COATED)	7	7
8				
9	MK-R7	4T x 7 1/8" SHIFT LIFT LIFTER (GALVANIZE)	4	4
10		4"ø I.D. x 1'-3" PVC SLEEVE	5	5

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THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

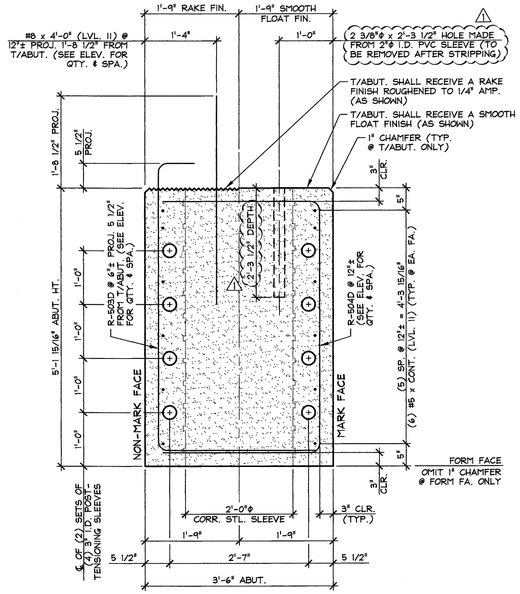
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

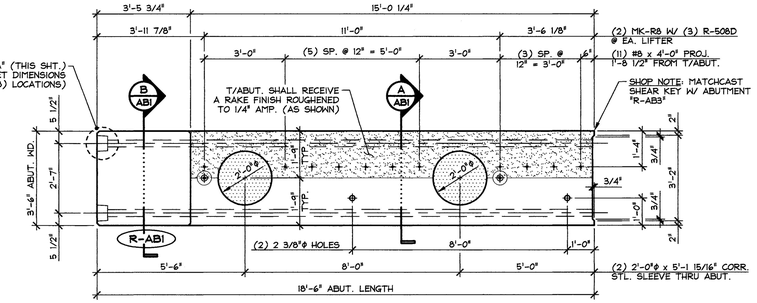
PRECAST APPROACH SLAB DETAILS

DWG. NO: AS3

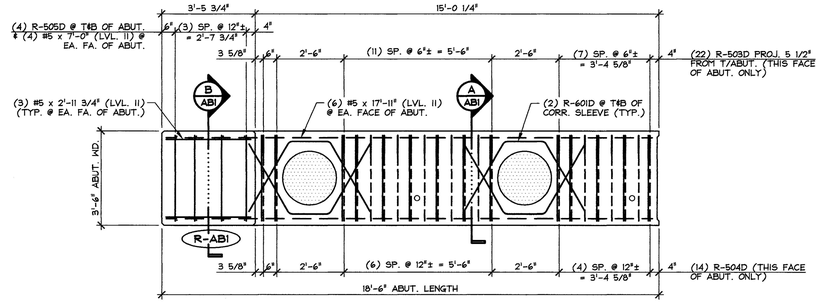
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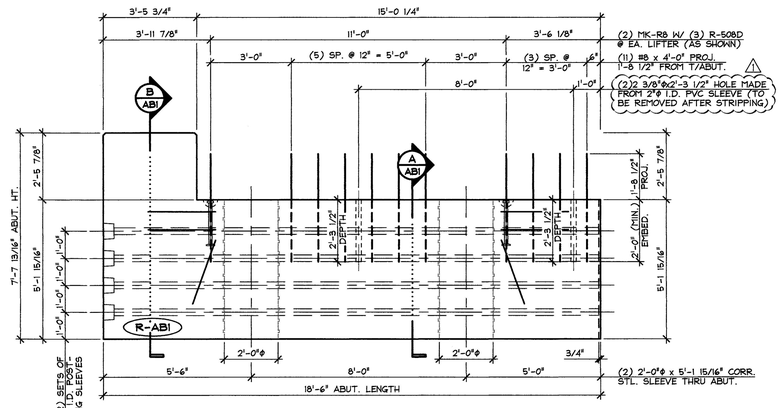
A ABI ABUTMENT SECTION
3/4" = 1'-0"



PLAN VIEW IN FORM

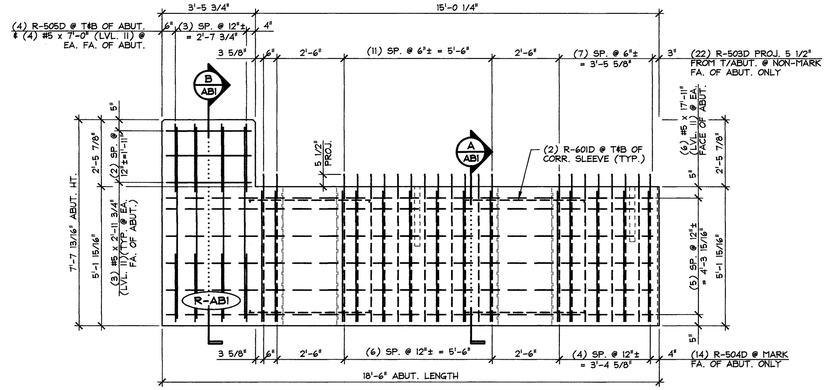


PLAN VIEW IN FORM



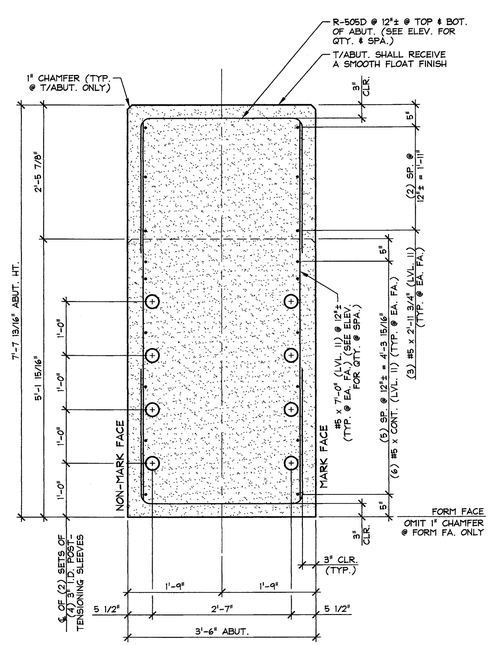
MARK FACE ELEVATION

1 ABI ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

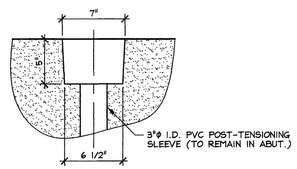


MARK FACE ELEVATION

2 ABI ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"



B ABI ABUTMENT SECTION
3/4" = 1'-0"



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

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

MARK: R-ABI	QTY.: 1	WT.: 24.83 T	VOL.: 12.26 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	R-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	22
2	R-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
3	R-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	8
4	R-508D	#5 HAIRPIN (LEVEL II, DUAL COATED)	6
5		#5 x 7'-0" (LEVEL II, DUAL COATED)	8
6		#5 x 17'-11" (LEVEL II, DUAL COATED)	12
7		#5 x 2'-11 3/4" (LEVEL II, DUAL COATED)	6
8			
9	R-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	8
10			
11		#8 x 4'-0" (LEVEL II, DUAL COATED)	11
12			
13		2'-0"ø x 5'-1 15/16" CORRUGATED STEEL PIPE (GALV.)	2
14	MK-R8	20T x 19 3/4" SWIFT LIFT LIFTER (GALV.)	2
15			

Vermont Agency of Transportation
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23430-14 Forest Str_Rutland_rev1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

⚠ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

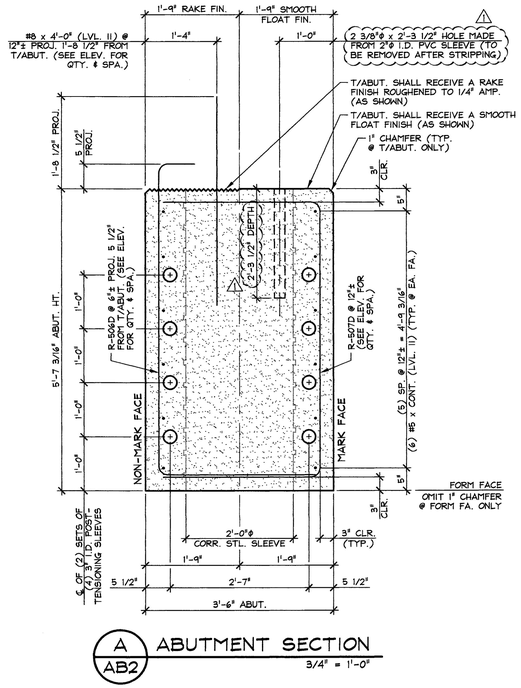
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

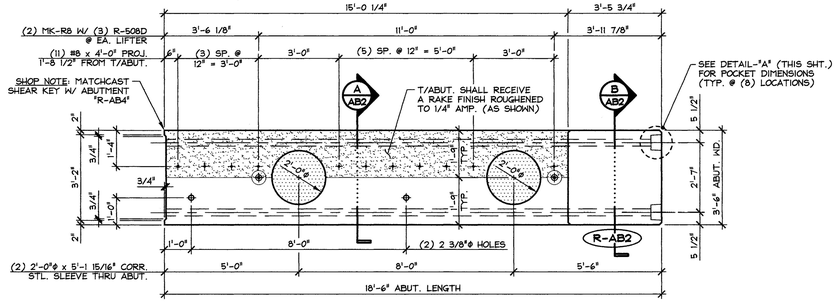
PRECAST ABUTMENT DETAILS

DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014
DWG. NO: AB1

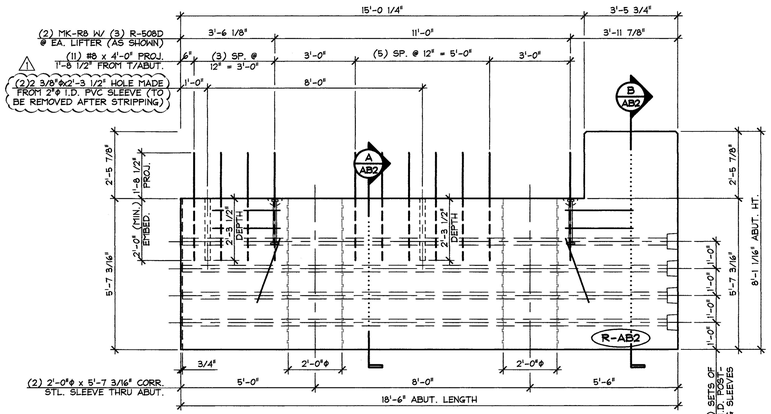
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A AB2 ABUTMENT SECTION
3/4" = 1'-0"

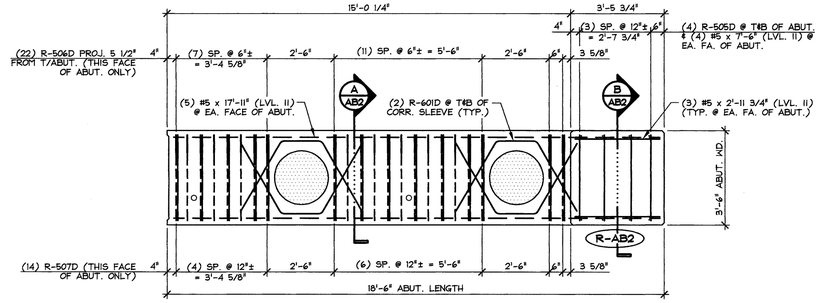


PLAN VIEW IN FORM

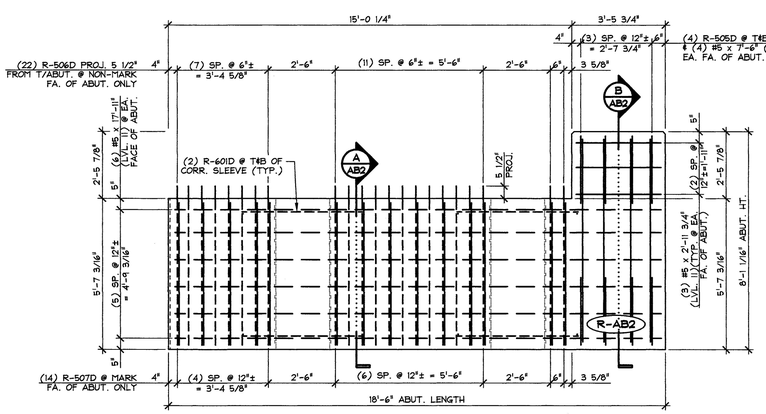


MARK FACE ELEVATION

1 AB2 ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

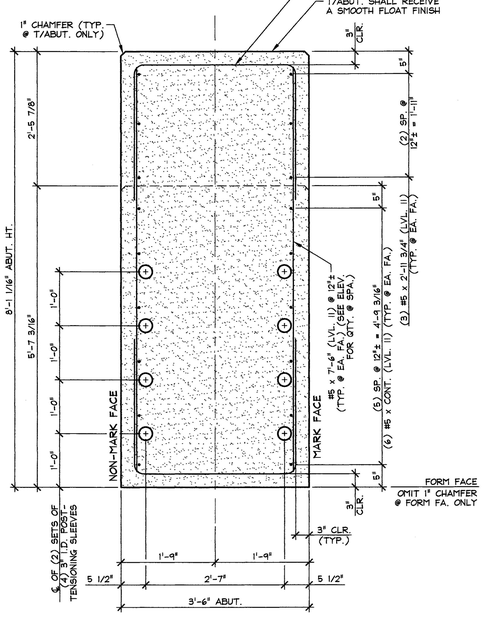


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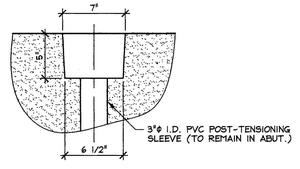


MARK FACE ELEVATION

2 AB2 ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"



B AB2 ABUTMENT SECTION
3/4" = 1'-0"



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

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

MARK: R-AB2	QTY.: 1	WT.: 26.74 T	VOL.: 13.20 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	R-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	8
2	R-506D	#5 BENT BAR (LEVEL II, DUAL COATED)	22
3	R-507D	#5 BENT BAR (LEVEL II, DUAL COATED)	14
4	R-508D	#5 HAIRPIN (LEVEL II, DUAL COATED)	6
5		#5 x 7'-6" (LEVEL II, DUAL COATED)	8
6		#5 x 17'-11" (LEVEL II, DUAL COATED)	12
7		#5 x 2'-11 3/4" (LEVEL II, DUAL COATED)	6
8			
9	R-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	8
10			
11		#8 x 4'-0" (LEVEL II, DUAL COATED)	11
12			
13		2'-0"ϕ x 5'-7 3/16" CORRUGATED STEEL PIPE (GALV.)	2
14	MK-R8	20T x 19 3/4" SNIFT LIFT LIFTER (GALV.)	2
15			

Vermont Agency of Transportation
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CK'D BY M. Umberger OK'D BY C. Carlson
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RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

⚠ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

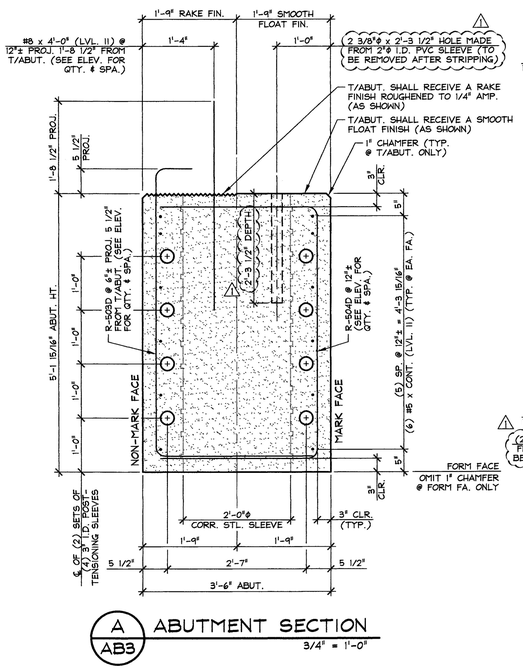
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

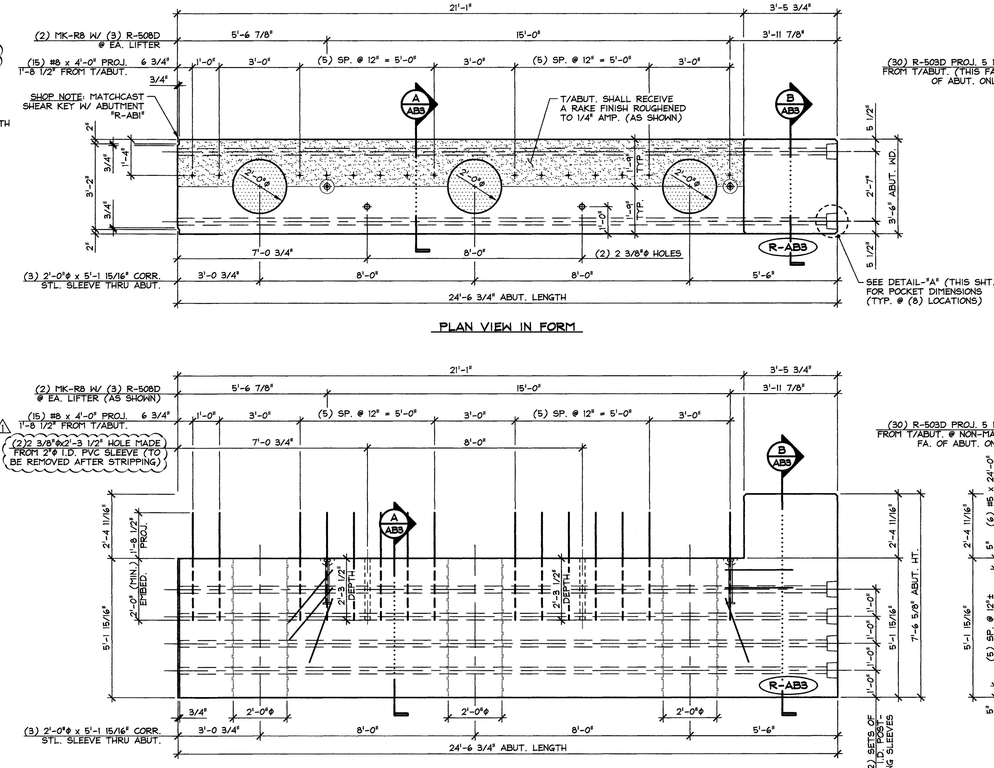
PRECAST ABUTMENT DETAILS

DWG. NO: AB2

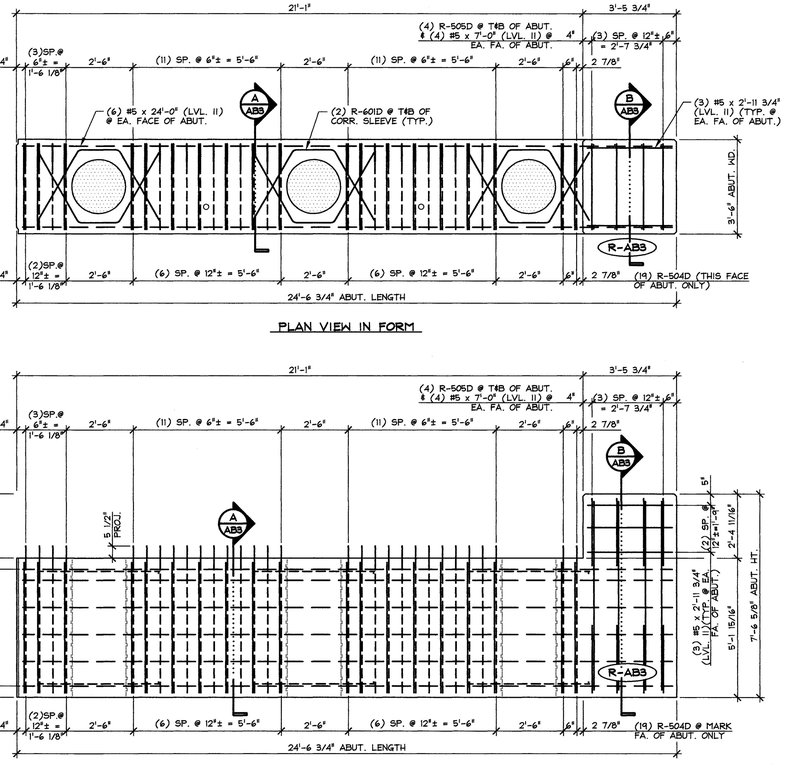
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A AB3 ABUTMENT SECTION
3/4" = 1'-0"



PLAN VIEW IN FORM



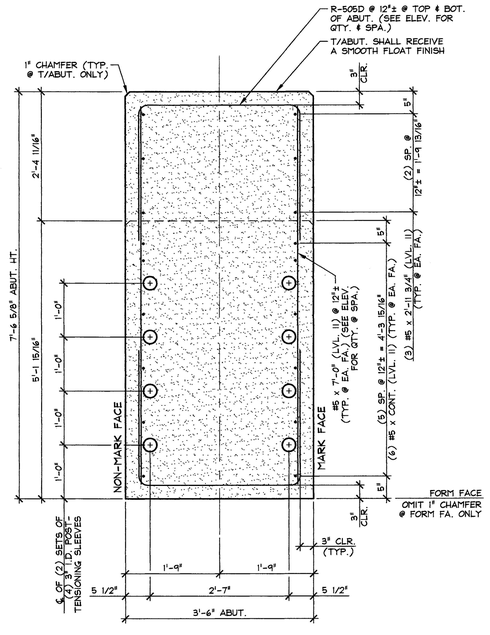
PLAN VIEW IN FORM

MARK FACE ELEVATION

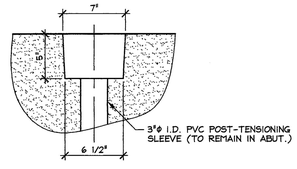
MARK FACE ELEVATION

1 AB3 ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

2 AB3 ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"



B AB3 ABUTMENT SECTION
3/4" = 1'-0"



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

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

MARK: R-AB3	QTY.: 1	WT.: 27.44 T	VOL.: 13.55 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	R-503D	#5 BENT BAR (LEVEL II, DUAL COATED)	30
2	R-504D	#5 BENT BAR (LEVEL II, DUAL COATED)	19
3	R-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	8
4	R-508D	#5 HAIRPIN (LEVEL II, DUAL COATED)	6
5		#5 x 7'-0" (LEVEL II, DUAL COATED)	8
6		#5 x 24'-0" (LEVEL II, DUAL COATED)	12
7		#5 x 2'-11 3/4" (LEVEL II, DUAL COATED)	6
8			
9	R-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	12
10			
11		#8 x 4'-0" (LEVEL II, DUAL COATED)	15
12			
13		2'-0"ϕ x 5'-1 15/16" CORRUGATED STEEL PIPE (GALV.)	3
14	MK-R8	20T x 19 3/4" SKWIFT LIFT LIFTER (GALV.)	2
15			

Vermont Agency of Transportation
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BY C. Carlson DATE 07/08/2014

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THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

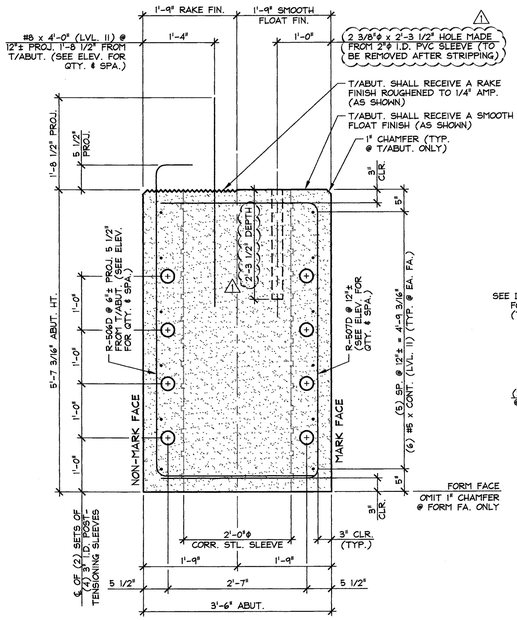
DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

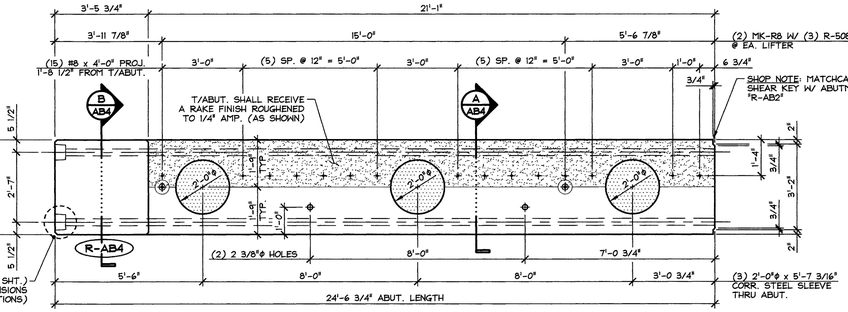
PRECAST ABUTMENT DETAILS

DWG. NO: AB3

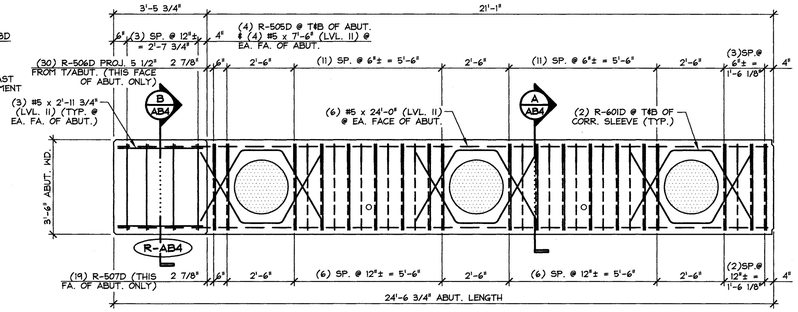
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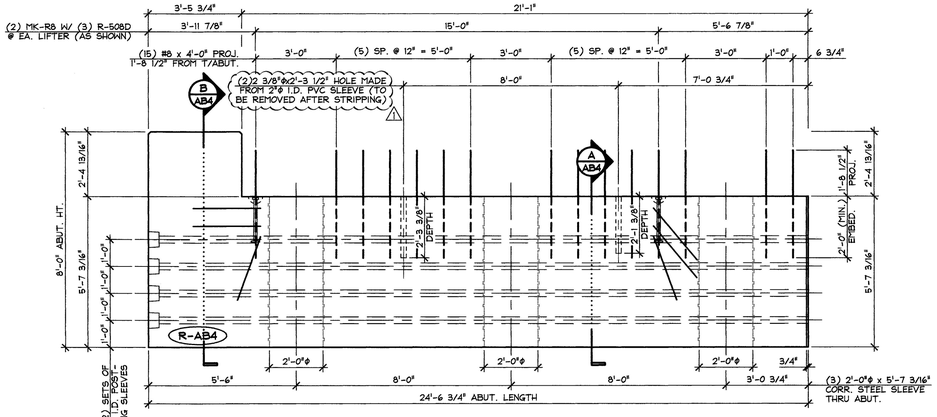
A AB4 ABUTMENT SECTION
3/4" = 1'-0"



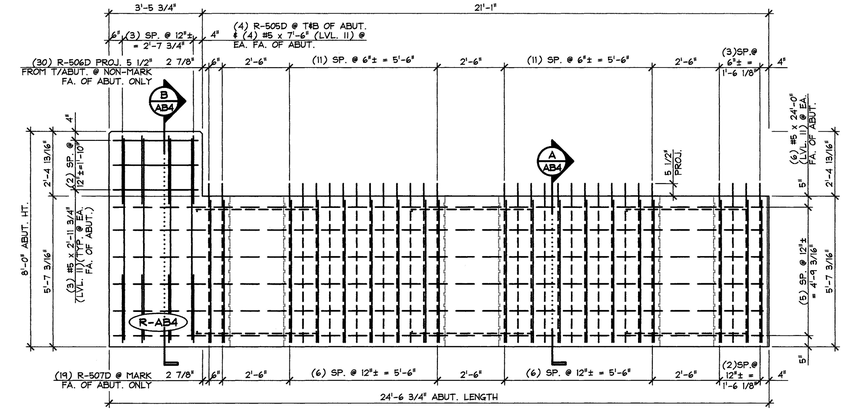
PLAN VIEW IN FORM



PLAN VIEW IN FORM



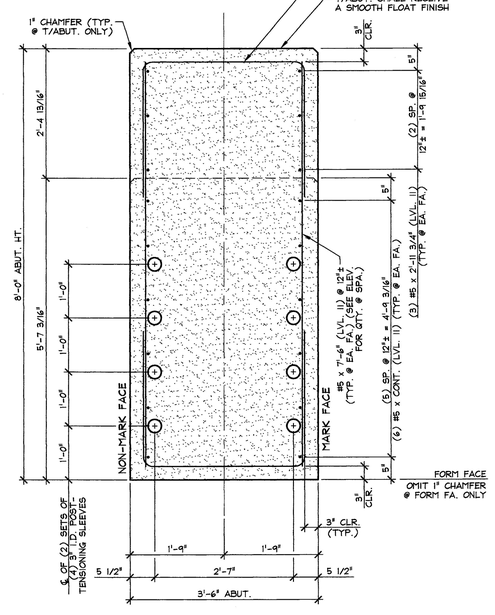
MARK FACE ELEVATION



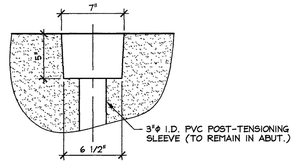
MARK FACE ELEVATION

1 AB4 ABUTMENT DIMENSIONAL DETAILS
3/8" = 1'-0"

2 AB4 ABUTMENT REINFORCING DETAILS
3/8" = 1'-0"



B AB4 ABUTMENT SECTION
3/4" = 1'-0"



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

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

MARK: R-AB4	QTY.: 1	WT.: 34.32 T	VOL.: 16.95 cy

MATERIAL LIST / ABUTMENT

ITEM	MARK	DESCRIPTION	QTY.
1	R-505D	#5 BENT BAR (LEVEL II, DUAL COATED)	8
2	R-506D	#5 BENT BAR (LEVEL II, DUAL COATED)	30
3	R-507D	#5 BENT BAR (LEVEL II, DUAL COATED)	19
4	R-508D	#5 HAIRPIN (LEVEL II, DUAL COATED)	6
5		#5 x 7'-6" (LEVEL II, DUAL COATED)	8
6		#5 x 24'-0" (LEVEL II, DUAL COATED)	12
7		#5 x 2'-11 3/4" (LEVEL II, DUAL COATED)	6
8			
9	R-601D	#6 BENT BAR (LEVEL II, DUAL COATED)	12
10			
11		#8 x 4'-0" (LEVEL II, DUAL COATED)	15
12			
13		2'-0"ϕ x 5'-7 3/16" CORRUGATED STEEL PIPE (GALV.)	3
14	MK-R8	20T x 19 3/4" SWIFT LIFT LIFTER (GALV.)	2
15			

Vermont Agency of Transportation
RECEIVED
23430-14 Forest Str_Rutland_rev1a.pdf
CK'D BY M. Umberger OK'D BY C. Carlson
July 1, 2014
RESUBMIT No Approved
BY C. Carlson DATE 07/08/2014

⚠ 7-1-14 REVISED AS NOTED

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

DATE: APR. 25, 2014
SCALE: NOTED

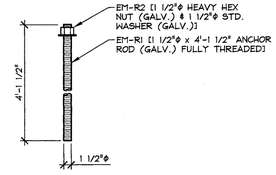
CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014

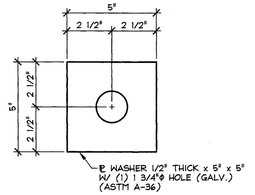
PRECAST ABUTMENT DETAILS

DWG. NO: AB4

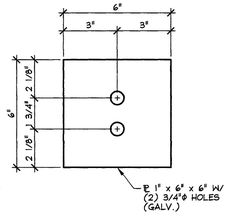
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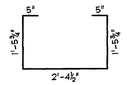
ANCHOR ROD & NUT
(18) REQ'D. 1" = 1'-0"



EM - R3
(18) REQ'D. 3" = 1'-0"



EM - R4
(42) REQ'D. 3" = 1'-0"

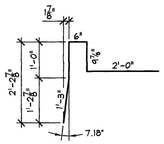


R-401D
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 2"ϕ [50 mm] PIN
(1,080) REQ'D.

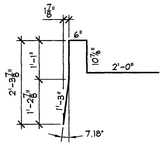


R-402D
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 2"ϕ [50 mm] PIN
(576) REQ'D.

R-403D
#4 x 3'-7 1/2"
LEVEL II (DUAL COATED)
USE 2"ϕ [50 mm] PIN
(216) REQ'D.

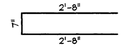


R-501D
#6 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(70) REQ'D.

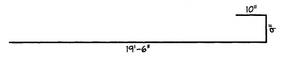


R-502D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(70) REQ'D.

PRESTRESSED NEXT BEAMS

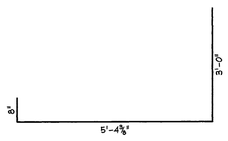


R-404D
#4 BENT BAR
LEVEL II (DUAL COATED)
USE 2"ϕ [50 mm] PIN
(312) REQ'D.

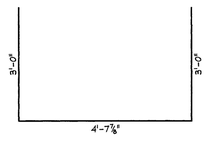


R-801D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 6"ϕ PIN
(70) REQ'D.

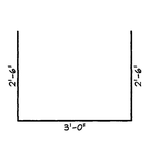
PRECAST APPROACH SLABS



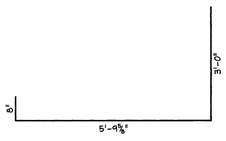
R-503D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(52) REQ'D.



R-504D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(33) REQ'D.



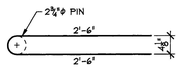
R-505D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(32) REQ'D.



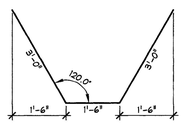
R-506D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(52) REQ'D.



R-507D
#5 BENT BAR
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(33) REQ'D.



R-508D
#5 HAIRPIN
LEVEL II (DUAL COATED)
USE 2¾"ϕ [70 mm] PIN
(24) REQ'D.



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

PRECAST APPROACH SLABS

Vermont Agency of Transportation

RECEIVED

23430-14 Forest Str_Rutland_rev1a.pdf

CK'D BY M. Umberger OK'D BY C. Carlson

July 1, 2014

RESUBMIT No Approved

BY C. Carlson DATE 07/08/2014

ERECTION MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS	
1	EM-R4	32	℄ 1" x 6" x 6" W/ (2) 3/4"ϕ HOLES (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	PRECAST ABUTMENTS
2		32	1/2"ϕ x 45'-9" POLY-STRAND	FOR ERECTION	
3		64	1/2"ϕ SINGLE USE STRESSING CHUCK	FOR ERECTION	
4					
5					
6					
7					
8					
9					
10					
11	EM-R1	18	1 1/2"ϕ x 3'-9" ANCHOR DOWEL ROD (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	PRESTRESSED VOIDED SLABS
12	EM-R2	18	1 1/2"ϕ HEAVY HEX NUT (GALV.) & 1 1/2" STD. WASHER (GALV.)		
13	EM-R3	18	℄ WASHER 1/2" x 5" x 5" W/ 1 3/4"ϕ HOLE (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	
14	EM-R4	10	℄ 1" x 6" x 6" W/ (2) 3/4"ϕ HOLES (GALV.)	FOR ERECTION; SEE DETAIL THIS SHEET	
15		10	1/2"ϕ x 38'-9" POLY-STRAND	FOR ERECTION	
16		20	1/2"ϕ SINGLE USE STRESSING CHUCK	FOR ERECTION	
17		40	COMPRESSIBLE SEALER SELF ADHESIVE	FOR ERECTION	
18					
19					
20					

EMBEDDED MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS	
1	MK-R5	24	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)		PRESTRESSED VOIDED SLABS
2	MK-R6	6	DAYTON 1"ϕ-8NC F-42 LOOP FERRULE INSERT (GALV.)	3:1 S.F. & SHL (T&V) = 5,300 LBS	
3					
4		216	3/4"ϕ x 6" NON-FERROUS VOID DRAIN		
5		54	10"ϕ x 9'-10" VOID		
6		54	10"ϕ x 10'-10" VOID		
7		36	SET OF TRIPLE 0.60"ϕ STRAND LIFTING LOOPS		
8					
9					
10					
11		80	#5 x 5'-3 1/2" (LEVEL II, DUAL COATED)		PRECAST APPROACH SLABS
12		160	#5 x 5'-4" (LEVEL II, DUAL COATED)		
13		80	#5 x 6'-1" (LEVEL II, DUAL COATED)		
14		80	#5 x 6'-1 1/2" (LEVEL II, DUAL COATED)		
15					
16		70	#6 x 19'-6" (LEVEL II, DUAL COATED)		
17					
18	MK-R7	40	4T x 7 1/8" SWIFT LIFT LIFTER (GALVANIZE)		PRECAST ABUTMENTS
19		50	4"ϕ I.D. x 1'-3" PVC SLEEVE		
20					
21		16	#5 x 7'-0" (LEVEL II, DUAL COATED)		
22		16	#5 x 7'-6" (LEVEL II, DUAL COATED)		
23		24	#5 x 17'-11" (LEVEL II, DUAL COATED)		
24		24	#5 x 24'-0" (LEVEL II, DUAL COATED)		
25		24	#5 x 2'-11 3/4" (LEVEL II, DUAL COATED)		
26					
27		52	#8 x 4'-0" (LEVEL II, DUAL COATED)		
28					
29		5	2'-0"ϕ x 5'-1 15/16" CORRUGATED STEEL PIPE (GALV.)		
30		5	2'-0"ϕ x 5'-7 3/16" CORRUGATED STEEL PIPE (GALV.)		
31	MK-R8	8	20T x 19 3/4" SWIFT LIFT LIFTER (GALV.)		
32					
33					
34					
35					

APPROVAL STAMP:

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

THE BELDEN COMPANY, INC.
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF RUTLAND

CITY OF RUTLAND
ROUTE NO.: TH 13 (FOREST STREET) - URBAN COLLECTOR
BRIDGE NO.: 14 PROJECT NO.: BRF 3000(18)

MATERIALS LIST

DATE: APR. 25, 2014
SCALE: NOTED
CHKD: M.D. DFTM: B.L.
JOB NO: 23430-014
DWG. NO: M1

F:\VT-Bridges\23430-14 Rutland\23430-M1.dwg, 6/12/2014 5:02:50 PM

RUTLAND BRIDGE
JPC #23430-014

INSERT DETIGN FOR WATER LINE BRACKET
(WORK W/ CARRARA SHOP DWGS)



FOR TYPE #2 BRACKET

V_1 = 60 PLF X 9.5' = 570 LB WATER LINE &

V_2 = 66 LB BRACKET

V_{TOT} = 570/66 = 636 LB ; THINK IT NO TERMINU ON BOTTOM INSERT.

EDGE DISTANCE AT BOTTOM INSERT IS 5"

AND SIZE OF INSERT IS 1"ϕ AT BOLT HOLE IN BRACKET IS 1 1/4"ϕ

FROM ATTACHED DATA TO SUPERIOR PRODUCT LITERATURE

WE 1"-8 NC F-42 LOOP FERRULE INSERT

SWL(V) 3:1 S.F IS 4060 LB FOR 8" EDGE DISTANCE, SINCE THERE IS ONLY A 5" EDGE DISTANCE, USE INFO FOR 5/8"-11 NC INSERT F-42 INSERT

SWL(V) 3:1 S.F = 1990 LB > 636 LB, O.K.

(NOTE: IT IS CONSERVATIVELY ASSUMED THAT ANY VERTICAL SHEAR LOAD IS REACTED BY TOP INSERT)

Vermont Agency of Transportation
RECEIVED
CK'D BY M. Umberger OK'D BY C. Mooney
June 19, 2014
RESUBMIT ---------
BY C. Carlson DATE 06/30/2014
TOPS 35500

FERGUSON Waterworks

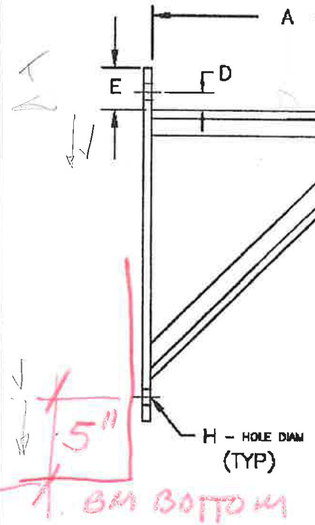
SPACING for 6 Brackets

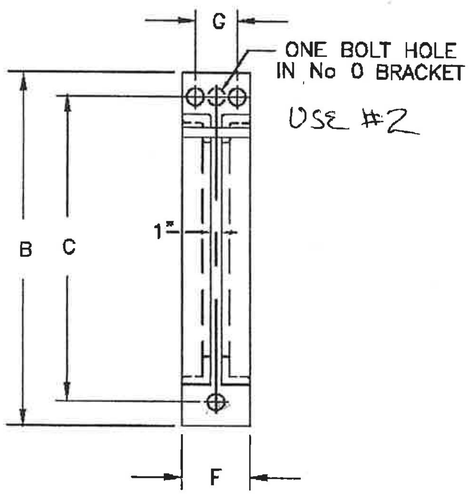
2.5', 11.9', 21.3', 30.7', 40.1', 49.5'

9.25 9.5 9.33 9.5 9.42

DESC: HD WALL BRACKET
PROJ: RUTLAND BRF3000(18)
CUST: BELDEN COMPANY

REVISED 6/6/14





#2

BRACKET NO	A	B	C	D	E	F	G	H	MAX LOAD	UNIT WGT
0	12	18	15 1/2	1 3/8	2 3/4	4	–	13/16	3000	24.00
1	18	24	21 1/2	1 7/16	2 3/4	5	2 3/4	13/16	3000	52.00
2	24	30	27 1/2	1 1/2	2 3/4	5	2 1/2	1 1/16	3000	66.00
3	30	36	33 1/4	1 5/8	3	5	2 1/2	1 1/16	3000	82.00
4	36	42	39	1 1/2	3	6	3 1/2	1 1/16	3000	141.00
5	42	50	46	1 1/2	3 1/2	6	3 1/2	1 1/16	3000	166.00

LOAD (LBS) • DIMENSIONS (INCHES) • WEIGHT (LBS)

MSS-SP-69 TYPE 33

REV	DATE	APP	DESCRIPTION
6			
5			
4			
3			
2	03/01/07	UB	ADDED MSS-SP-69 TYPE NUMBER
1	02/25/01	UB	REVISED HOLE SIZE 1 FROM 15/16" TO 13/16"

CARPENTER AND PATERSON INC
WOBURN, MA 01801 / SADDLE BROOK, NJ 07663

SUBMITTAL DRAWING

MATERIAL:	FINISH:	DESCRIPTION
CARBON STEEL	HOT-DIP GALVANIZED	HEAVY WELDED STEEL BRACKET

DRAWN	CHKD.	APPVD.	DATE	SCALE	SHEET	DWG/FIGURE NO.	REV
BM	RP	UB	3/94	N/A	1	139G	2

NC Threaded Inserts

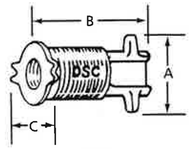
For Suspending, Connecting and Anchoring to Concrete

DAYTON® SUPERIOR

F-5 Threaded Insert

The Dayton Superior F-5 Threaded Inserts have National Course (NC) threads and are recommended for use under permanent loading conditions. This insert has been approved by the Board of Standards and Appeals for use in New York City under Calendar No. 447-60SM.

The F-5 insert is cast from ductile iron that meets ASTM A-395, Grade 60-40-18.



F-5
Threaded Insert

To Order:
Specify: (1) quantity, (2) name, (3) bolt diameter.

Example:
200, F-5 Threaded Inserts, 3/4" bolt diameter.

F-5 Threaded Insert Selection Chart

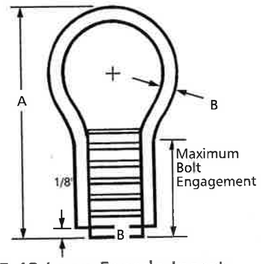
Bolt Diameter and Threads per Inch	Tension Safe Working Load	Bolt Engagement	A	B	C
1/2" – 13	1,500 lbs.	15/16"	1-5/8"	2-1/2"	1-5/8"
5/8" – 11	2,000 lbs.	3/4"	1-5/8"	3"	1-5/8"
3/4" – 10	2,500 lbs.	7/8"	1-13/16"	3"	1-7/8"
7/8" – 9	3,000 lbs.	1-5/16"	2-1/2"	3-3/8"	2-5/8"
1" – 8	3,000 lbs.	1-5/16"	2-1/2"	3-3/8"	2-5/8"

Safe Working Load provides a factor of safety of approximately 3 to 1 when the insert is properly embedded in 3,000 psi normal weight concrete.

F-42 Loop Ferrule Insert

The Dayton Superior F-42 Loop Ferrule Insert is fabricated by welding a looped strut to a closed-end ferrule. F-42 insert is available in the sizes shown in the chart below and is well suited for structural connections and the suspension of equipment, piping, etc.

Minimum spacing between inserts is twice the minimum corner distance.



F-42 Loop Ferrule Insert

To Order:
Specify: (1) quantity, (2) name, (3) bolt diameter.

Example:
200, F-42 Loop Ferrule Inserts, 3/4" bolt diameter.

F-42 Loop Ferrule Insert Selection Chart

Bolt Diameter and Threads per Inch	Minimum Edge Distance	Minimum Corner Distance	Safe Working Load Tension	Safe Working Load Shear	Maximum Bolt Engagement	A	B
1/4" – 20 NC	5"	5"	650 lbs.	650 lbs.	3/4"	2-3/4"	0.243"
3/8" – 16 NC	5"	5"	2,000 lbs.	1,260 lbs.	3/4"	2-3/4"	0.243"
	10"	15"	2,000 lbs.	2,000 lbs.			
1/2" – 13 NC	5"	5"	2,000 lbs.	1,280 lbs.	1"	2-3/4"	0.243"
	7"	10"	2,000 lbs.	2,000 lbs.			
5/8" – 11 NC	5"	7"	2,200 lbs.	1,990 lbs.	1-1/8"	3-1/2"	0.258"
	8"	8"	2,200 lbs.	2,200 lbs.			
3/4" – 10 NC	5"	7"	2,200 lbs.	1,990 lbs.	1-1/8"	3-1/2"	0.258"
	8"	8"	2,200 lbs.	2,200 lbs.			
7/8" – 9 NC	8"	8"	5,300 lbs.	4,060 lbs.	1-1/8"	6"	0.375"
	10"	15"	5,300 lbs.	5,300 lbs.			
1" – 8 NC	8"	8"	5,300 lbs.	4,060 lbs.	1-1/8"	6"	0.375"
	10"	15"	5,300 lbs.	5,300 lbs.			

Safe Working Load provides a factor of safety of approximately 3 to 1 in 3,000 psi normal weight concrete.
Safe Working Loads are based on 1/2" setback from face of concrete.