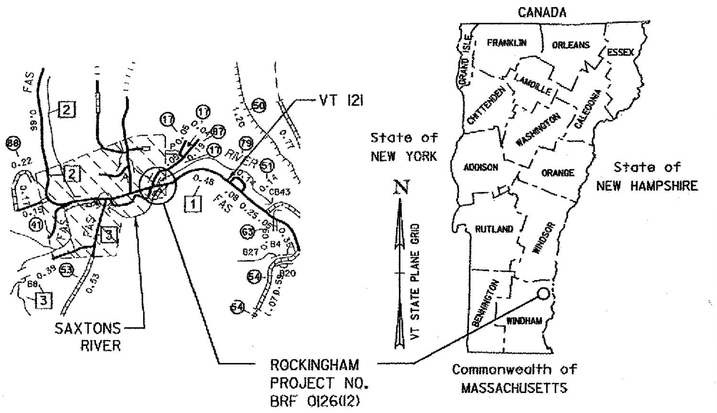
STATE OF VERMONT
AGENCY OF TRANSPORTATION



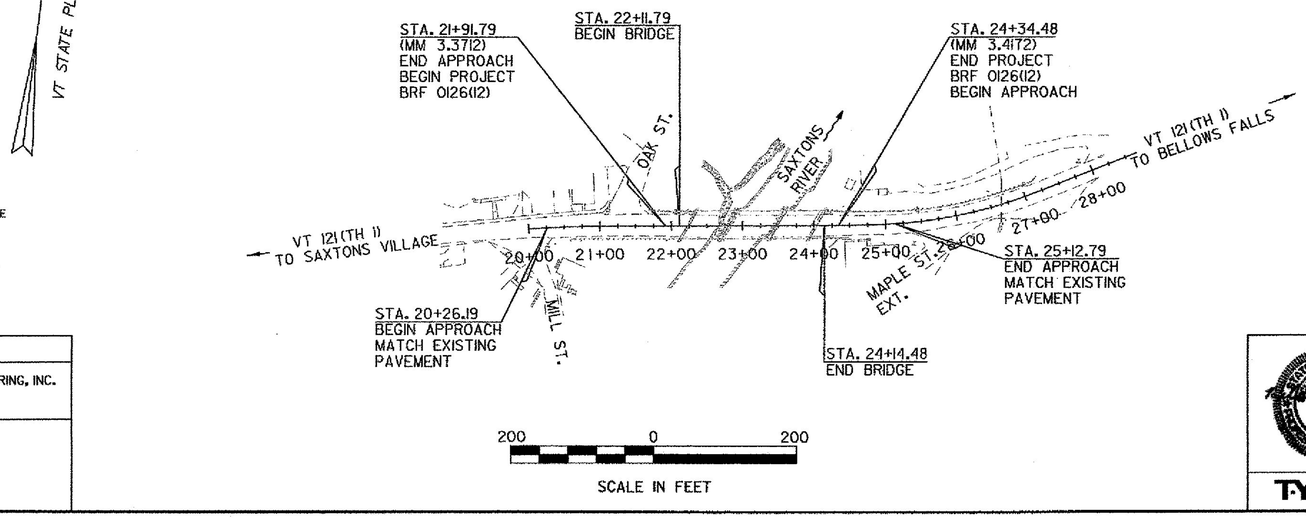
THIS PLAN SET HAS BEEN REVISED DUE TO VALUE ENGINEERING, SEE REVISIONS BY CALDERWOOD ENGINEERING, ETC.

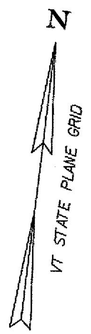
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ROCKINGHAM
COUNTY OF WINDHAM
VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR
BRIDGE NO. 11R

PROJECT LOCATION: BEGINNING ON VT 121 (CL2, TH 1)(FAS ROUTE 5012(6) APPROXIMATELY 4.1 MILES WEST OF THE JUNCTION WITH U.S. ROUTE 5 AND 68.0 FEET EAST OF THE JUNCTION WITH OAK STREET AND EXTENDING EASTERLY ALONG VT 121 APPROXIMATELY 243 FEET (0.04 MILES).

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REPLACEMENT OF BRIDGE NO. 11R SUPERSTRUCTURE WITH NEW SUPERSTRUCTURE ON EXISTING ALIGNMENT, PARTIAL REMOVAL OF EXISTING ABUTMENTS AND REPLACEMENT WITH NEW ABUTMENTS, REPAIR OF EXISTING PIERS AND CHANNEL WORK WITH OTHER RELATED HIGHWAY ITEMS.

STRUCTURE LENGTH: 202.69 FEET
ROADWAY LENGTH: 40.00 FEET
PROJECT LENGTH: 242.69 FEET





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

QUALITY ASSURANCE PROGRAM : LEVEL 2	
SURVEYED BY : VERMONT SURVEY & ENGINEERING, INC.	
SURVEYED DATE : 12/2010	
DATUM	
VERTICAL	NAVD 88(GEOID09)FT
HORIZONTAL	NAD 83 (CORS) sFT

RECORD PLANS

CONTRACTOR:	COLD RIVER BRIDGES, LLC- KEENE, NH
RESIDENT ENGINEER:	CHAD GREENWOOD
CONSTRUCTION BEGAN:	OCTOBER 29, 2014
CONSTRUCTION COMPLETE:	NOVEMBER 3, 2015
RECORD PLANS BY:	CHAD GREENWOOD & KEVIN KING

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

BY _____ RESIDENT ENGINEER

DATE 3/9/17

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.

STATE OF VERMONT — No. 7716 — Structural — ENGINEER — CIVIL ENGINEER

T-Y LIN INTERNATIONAL

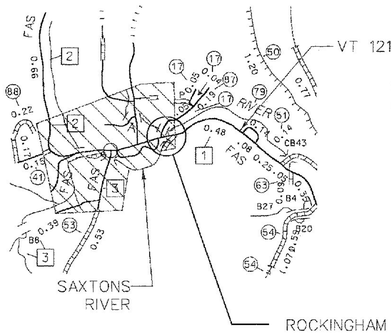
DIRECTOR OF PROJECT DELIVERY
APPROVED _____ DATE 7/30/2014

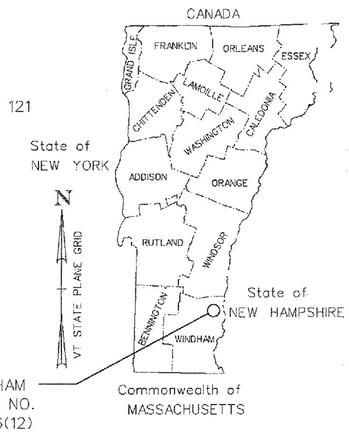
PROJECT MANAGER : TODD SUMNER, P.E.

PROJECT NAME : ROCKINGHAM
PROJECT NUMBER : BRF 0126(12)

SHEET 1 OF 69 SHEETS

STATE OF VERMONT
AGENCY OF TRANSPORTATION





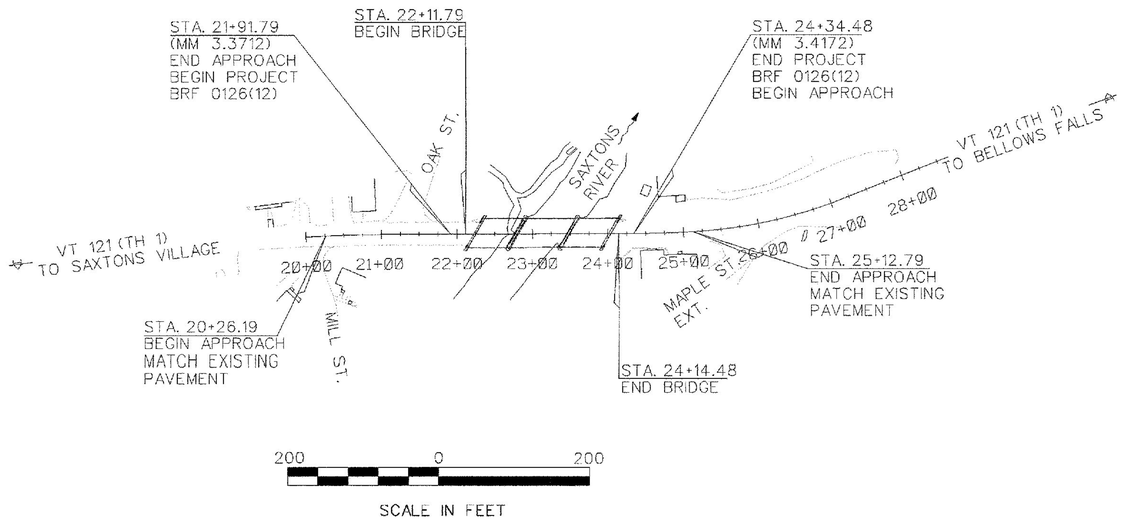
THIS IS A VALUE ENGINEERED PLAN SET. THESE PLANS HAVE BEEN DEVELOPED USING PORTIONS OF THE ORIGINAL VTRANS CONTRACT PLANS FOR BRIDGE NO. 11R, ROCKINGHAM AND MODIFICATIONS MADE BY CALDERWOOD ENGINEERING.
IN ORDER TO PROVIDE A COMPLETE SET PACKAGE FOR RECORD KEEPING PURPOSES AND FOR CONSTRUCT, VTRANS HAS PROVIDED THE ORIGINAL PLAN SET SO THEY COULD BE INCORPORATED WITH THE VALUE ENGINEERED PLANS. REPORT ANY DISCREPANCY BETWEEN THESE PLANS AND THE ACTUAL OBSERVED FIELD CONDITIONS TO THE VALUE ENGINEER OF RECORD IMMEDIATELY.
DO NOT PROCEED WITH ANY DEPENDENT WORK UNTIL SUCH REPORTED DISCREPANCY HAS BEEN RESOLVED TO THE SATISFACTION OF THE VALUE ENGINEER OR RECORD.

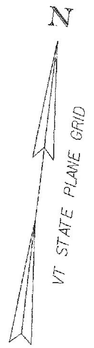
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF ROCKINGHAM
COUNTY OF WINDHAM
VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR
BRIDGE NO. 11R

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QUALITY ASSURANCE PROGRAM : LEVEL2

SURVEYED BY : VERMONT SURVEY & ENGINEERING, INC.
SURVEYED DATE : 12/2010

DATUM
VERTICAL NAVD 88(GEOID09)FT
HORIZONTAL NAD 83 (CORS) sFT

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CONTRACTOR:	COLD RIVER BRIDGES, LLC- KEENE, NH
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CONSTRUCTION COMPLETE:	NOVEMBER 3, 2015
RECORD PLANS BY:	CHAD GREENWOOD & KEVIN KING

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

BY _____ RESIDENT ENGINEER

DATE 3/9/17

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.

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR: COLD RIVER BRIDGES, LLC

CEE 106-BR-14

BY	DATE
ETC	2014

P.E. NUMBER

DATE:

DESIGN-DETAILED	
CHECKED-REVIEWED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

TITLE SHEET

SHEET NUMBER

1

CALDERWOOD ENGINEERING, ETC. 222 RIVER ROAD RICHMOND, ME 04357 PH/FX (207)737-2007/FAX (207)737-2008

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03-16-2004
E-142	REGULATORY SIGN DETAILS	09-20-1995
E-143	REGULATORY SIGN DETAILS	06-15-2004
E-152	WARNING SIGN DETAILS	05-01-2004
E-160	FLANGED CHANNEL STEEL SIGN POST	05-20-1999
E-161	W-SHAPED STEEL SIGN POST	08-18-1995
E-171A	TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS	08-09-1995
E-171B	TRAFFIC CONTROL SIGNALS MISC. DETAILS	08-09-1995
E-171C	TRAFFIC CONTROL SIGNALS CANTILEVER MOUNTING DETAILS	08-09-1995
E-172	VEHICLE DETECTOR LOOP DETAILS	08-09-1995
E-173	PULL BOXES AND JUNCTION BOXES	08-09-1995
E-175	POWER DROP STANCHIONS	06-08-2009
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-44	MILE MARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

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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	8/29/2011

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE:

DRAINAGE AREA: 70.0 SQ. MI.
CHARACTER OF TERRAIN: HILLY TO MOUNTAINOUS VALLEY SETTING
STREAM CHARACTERISTICS: STRAIGHT TO SINUOUS, ALLUVIAL, LITTLE TO NO FLOOD PLAN
NATURE OF STREAMBED: SAND, GRAVEL, SMALL COBBLES

Q 2.33 =	2850 CFS	Q50 =	8680 CFS
Q 10 =	5170 CFS	Q 100 =	10550 CFS
Q 25 =	7070 CFS	Q 500 =	16000 CFS

DATE OF FLOOD OF RECORD: AUGUST 28, 2011
ESTIMATED DISCHARGE: 20942 CFS
WATER SURFACE ELEVATION: 414.6 FT AT GAGE STATION DOWNSTREAM OF BRIDGE
NATURAL STREAM VELOCITY: 11.2 FPS @ Q50 = 8680 CFS
ICE CONDITIONS: LIGHT TO MODERATE
DEBRIS: LIGHT TO MODERATE
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? NO
IS ORDINARY RISE RAPID? NO
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
IF YES, DESCRIBE N/A

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3 SPAN STEEL GIRDER BRIDGE
YEAR BUILT: 1954
CLEAR SPAN (NORMAL TO STREAM): 157 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 28.3 FT (AVG.)
WATERWAY OF FULL OPENING: 2220 SQ. FT
DISPOSITION OF STRUCTURE: REMOVE ABUTMENT BACKWALL AND SUPERSTRUCTURE
TYPE OF MATERIAL UNDER SUBSTRUCTURE: GRAVEL

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	428.7 FT	VELOCITY =	10 FT/SEC
Q 10 =	431.0 FT	"	10.7 FT/SEC
Q 25 =	432.8 FT	"	11.2 FT/SEC
Q50 =	434.0 FT	"	12.4 FT/SEC
Q 100 =	435.4 FT	"	13.6 FT/SEC

LONG TERM STREAMBED CHANGES: LITTLE CHANGE SINCE 1953 PLANS

IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: >Q500
RELIEF ELEVATION: +/- 448.5 FT
DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE

TOWN: ROCKINGHAM — DISTANCE: 0.5 MI
HIGHWAY #: T.H. # 3 (HARTLEY HILL ROAD) — STRUCTURE #: 9
CLEAR SPAN: 128 FT — CLEAR HEIGHT: 15.3 FT
YEAR BUILT: 2004 — FULL WATERWAY: 2130 SF
STRUCTURE TYPE: WELDED PLATE GIRDER

DOWNSTREAM STRUCTURE

TOWN: ROCKINGHAM — DISTANCE: 1.0 MI
HIGHWAY #: T.H. # 51 (HALL BRIDGE ROAD) — STRUCTURE #: 43
CLEAR SPAN: 113 — CLEAR HEIGHT: +/- 12 FT
YEAR BUILT: 1982 — FULL WATERWAY: +/- 1350 SF

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	2.87	1.89					
POSTING							
OPERATING	3.88	2.55	3.33	2.21	2.84	2.55	2.80
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: 3 SPAN PRESTRESSED NEXT D BEAM BRIDGE

CLEAR SPAN (NORMAL TO STREAM): 170.21 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 28.1 FT (AVG.)
WATERWAY OF FULL OPENING: 2460 SQ FT

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	428.7 FT	VELOCITY =	10.0 FT/SEC
Q 10 =	430.8 FT	"	11.1 FT/SEC
Q 25 =	432.6 FT	"	11.2 FT/SEC
Q50 =	433.9 FT	"	12.4 FT/SEC
Q 100 =	435.4 FT	"	13.6 FT/SEC

IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: >Q500
RELIEF ELEVATION: +/- 448.5 FT
DISCHARGE OVER ROAD @ Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 446.7
VERTICAL CLEARANCE: 12.8 FT @ Q50 = 8,680 CFS

SCOUR: CONTRACTION SCOUR FOR Q100 IS 2 FT (Q500 IS 3 FT) TOTAL PIER SCOUR FOR Q100 IS 23 FT (Q500 IS 26 FT) STONE FILL, TYPE IV AT ABUTMENTS TO BE LEFT IN PLACE.
REQUIRED CHANNEL PROTECTION: EXISTING SCOUR CRITICAL PIERS RETAINED WITHOUT ADDED REVETMENT

PERMIT INFORMATION

AVERAGE DAILY FLOW:	150 CFS	
ORDINARY LOW WATER:	70 CFS	DEPTH OR ELEVATION: 423.1 FT
ORDINARY HIGH WATER:	1230 CFS	426.6 FT

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN SINGLE LANE ALTERNATING TRAFFIC USING PHASED CONSTRUCTION SEQUENCE
2. TEMPORARY TRAFFIC SIGNAL REQUIRED AT ROUTE 121 / OAK STREET INTERSECTION AND ON ROUTE 121 EASTERLY APPROACH

DESIGN VALUES

1. DESIGN LIVE LOAD		HL-93
2. FUTURE PAVEMENT	d_p:	0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS) (65.50 - 69.00 - 65.50) FT	L:	200.00 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ:	- - -
5. PRESTRESSING STRAND (0.60 INCH DIAMETER - LOW RELAX)	f_y:	243 KSI
6. PRESTRESSED CONCRETE STRENGTH	f'_c:	8.0 KSI
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f'_{ci}:	6.0 KSI
8. CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11. CONCRETE, CLASS C	f'_c:	- - -
12. REINFORCING STEEL	f_y:	60 KSI
13. STRUCTURAL STEEL AASHTO M270	f_y:	- - -
14. NOMINAL BEARING RESISTANCE OF SOIL	q_n:	- - -
15. SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
16. NOMINAL BEARING RESISTANCE OF ROCK	q_n:	- - -
17. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	- - -
18. PILE RESISTANCE FACTOR	ϕ:	0.65
19. LATERAL PILE DEFLECTION	Δ:	0.87 INCH
20. BASIC WIND SPEED	V_{3s}:	100 MPH
21. MINIMUM GROUND SNOW LOAD	p_g:	- - -
22. SEISMIC DATA — PGA: 7.0% g	S_s:	15% g
	S_1:	4.4% g
		- - -
		- - -

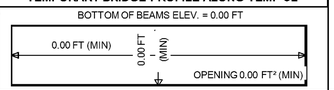
TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2014	3700	420	55	7.0	280	
2034	4000	450	55	9.5	410	

20 year ESAL for flexible pavement from 2014 to 2034 : 1621000
40 year ESAL for flexible pavement from 2014 to 2054 : 3584000
Design Speed : 25 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT



PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_pi.lsm
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
PRELIMINARY INFORMATION SHEET

PLOT DATE: 7/25/2014
DRAWN BY: T. POULIN
CHECKED BY: R. HEBERT
SHEET 2 OF 69

SEE SHEET 2 VE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PRELIMINARY INFORMATION SHEET (BRIDGE)

LRFD

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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	8/29/2011

STANDARDS LIST

B-5	SLOPE GRADING, EMBANKMENTS, MUCK	06-01-1994
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROAD	08-08-1995
E-123	GUIDE SIGN PLACEMENT - MISCELLANEOUS DETAILS	03-16-2004
E-142	REGULATORY SIGN DETAILS	09-20-1995
E-143	REGULATORY SIGN DETAILS	06-15-2004
E-152	WARNING SIGN DETAILS	05-01-2004
E-160	FLANGED CHANNEL STEEL SIGN POST	05-20-1999
E-161	W-SHAPED STEEL SIGN POST	08-18-1995
E-171A	TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS	08-09-1995
E-171B	TRAFFIC CONTROL SIGNALS MISC. DETAILS	08-09-1995
E-171C	TRAFFIC CONTROL SIGNALS CANTILEVER MOUNTING DETAILS	08-09-1995
E-172	VEHICLE DETECTOR LOOP DETAILS	08-09-1995
E-173	PULL BOXES AND JUNCTION BOXES	08-09-1995
E-175	POWER DROP STANCHIONS	06-08-2009
E-191	PAVEMENT MARKING DETAILS	02-01-1999
E-193	PAVEMENT MARKING DETAILS	08-18-1995
G-1B	BOX BEAM GUARD RAIL	06-01-1994
S-364C	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
S-364D	GUARDRAIL APPROACH SECTION, GALVANIZED 3 RAIL BOX BEAM	04-23-2012
T-1	TRAFFIC CONTROL GENERAL NOTES	08-06-2012
T-10	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING	08-06-2012
T-17	TRAFFIC CONTROL MISCELLANEOUS DETAILS	08-06-2012
T-24	TRAFFIC CONTROL FOR MAINTENANCE PAVEMENT MARKING OPERATION	08-06-2012
T-28	CONSTRUCTION SIGN DETAILS	08-06-2012
T-29	CONSTRUCTION SIGN DETAILS	08-06-2012
T-30	CONSTRUCTION SIGN DETAILS	08-06-2012
T-42	BRIDGE NUMBER PLAQUE	04-09-2014
T-44	MILE MARKER DETAILS STATE AND TOWN HIGHWAYS	04-09-2014
T-45	SQUARE TUBE SIGN POST AND ANCHOR	01-02-2013

TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT
2014	3700	420	55	7.0	280
2034	4000	450	55	9.5	410

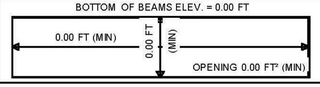
20 year ESAL for flexible pavement from 2014 to 2034 : 1621000

40 year ESAL for flexible pavement from 2014 to 2054 : 3584000

Design Speed : 25 mph

TEMPORARY BRIDGE PROFILE ALONG TEMP CL

BOTTOM OF BEAMS ELEV. = 0.00 FT



FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

DATE:

DRAINAGE AREA: 70.0 SQ. MI.
CHARACTER OF TERRAIN: HILLY TO MOUNTAINOUS VALLEY SETTING
STREAM CHARACTERISTICS: STRAIGHT TO SINUOUS, ALLUVIAL, LITTLE TO NO FLOOD PLAIN
NATURE OF STREAMBED: SAND, GRAVEL, SMALL COBBLES

Q 2.33 =	2850 CFS	Q50 =	8680 CFS
Q 10 =	5170 CFS	Q 100 =	10550 CFS
Q 25 =	7070 CFS	Q 500 =	16000 CFS

DATE OF FLOOD OF RECORD: AUGUST 28, 2011
ESTIMATED DISCHARGE: 20942 CFS
WATER SURFACE ELEVATION: 414.6 FT AT GAGE STATION DOWNSTREAM OF BRIDGE
NATURAL STREAM VELOCITY: 11.2 FPS @ Q50 = 8680 CFS
ICE CONDITIONS: LIGHT TO MODERATE
DEBRIS: LIGHT TO MODERATE
DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? NO
IS ORDINARY RISE RAPID? NO
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
IF YES, DESCRIBE N/A

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

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: 3 SPAN STEEL GIRDER BRIDGE
YEAR BUILT: 1954
CLEAR SPAN (NORMAL TO STREAM): 157 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 28.3 FT (AVG.)
WATERWAY OF FULL OPENING: 2220 SQ. FT
DISPOSITION OF STRUCTURE: REMOVE ABUTMENT BACKWALL AND SUPERSTRUCTURE
TYPE OF MATERIAL UNDER SUBSTRUCTURE: GRAVEL

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	428.7 FT	VELOCITY =	10 FT/SEC
Q 10 =	431.0 FT	"	10.7 FT/SEC
Q 25 =	432.8 FT	"	11.2 FT/SEC
Q50 =	434.0 FT	"	12.4 FT/SEC
Q 100 =	435.4 FT	"	13.6 FT/SEC

LONG TERM STREAMBED CHANGES: LITTLE CHANGE SINCE 1953 PLANS

IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: >Q500
RELIEF ELEVATION: +/- 448.5 FT
DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE

TOWN: ROCKINGHAM DISTANCE: 0.5 MI
HIGHWAY #: T.H. # 3 (HARTLEY HILL ROAD) STRUCTURE #: 9
CLEAR SPAN: 128 FT CLEAR HEIGHT: 15.3 FT
YEAR BUILT: 2004 FULL WATERWAY: 2130 SF
STRUCTURE TYPE: WELDED PLATE GIRDER

DOWNSTREAM STRUCTURE

TOWN: ROCKINGHAM DISTANCE: 1.0 MI
HIGHWAY #: T.H. # 51 (HALL BRIDGE ROAD) STRUCTURE #: 43
CLEAR SPAN: 113 CLEAR HEIGHT: +/- 12 FT
YEAR BUILT: 1982 FULL WATERWAY: +/- 1350 SF

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	4.136	1.187					
POSTING							
OPERATING	5.36	1.54	3.72	1.84	3.67	3.21	3.21
COMMENTS:							

PROPOSED STRUCTURE

STRUCTURE TYPE: 3 SPAN PRESTRESSED NEXT D BEAM BRIDGE

CLEAR SPAN (NORMAL TO STREAM): 170.21 FT
VERTICAL CLEARANCE ABOVE STREAMBED: 28.1 FT (AVG.)
WATERWAY OF FULL OPENING: 2460 SQ FT

WATER SURFACE ELEVATIONS AT: ONE BRIDGE LENGTH UPSTREAM

Q 2.33 =	428.7 FT	VELOCITY =	10.0 FT/SEC
Q 10 =	430.8 FT	"	11.1 FT/SEC
Q 25 =	432.6 FT	"	11.2 FT/SEC
Q50 =	433.9 FT	"	12.4 FT/SEC
Q 100 =	435.4 FT	"	13.6 FT/SEC

IS THE ROADWAY OVERTOPPED BELOW Q100? NO
FREQUENCY: >Q500
RELIEF ELEVATION: +/- 448.5 FT
DISCHARGE OVER ROAD @ Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 446.7
VERTICAL CLEARANCE: 12.8 FT @ Q50 = 8,680 CFS

SCOUR: CONTRACTION SCOUR FOR Q100 IS 2 FT (Q500 IS 3 FT) TOTAL PIER SCOUR FOR Q100 IS 23 FT (Q500 IS 26 FT) STONE FILL, TYPE IV AT ABUTMENTS TO BE LEFT IN PLACE.
REQUIRED CHANNEL PROTECTION: EXISTING SCOUR CRITICAL PIERS RETAINED WITHOUT ADDED REVETMENT

PERMIT INFORMATION

AVERAGE DAILY FLOW:	150 CFS	DEPTH OR ELEVATION:	
ORDINARY LOW WATER:	70 CFS	423.1 FT	
ORDINARY HIGH WATER:	1230 CFS	426.6 FT	

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: N/A
CLEAR SPAN (NORMAL TO STREAM): N/A
VERTICAL CLEARANCE ABOVE STREAMBED: N/A
WATERWAY AREA OF FULL OPENING: N/A

ADDITIONAL INFORMATION

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN SINGLE LANE ALTERNATING TRAFFIC USING PHASED CONSTRUCTION SEQUENCE
2. TEMPORARY TRAFFIC SIGNAL REQUIRED AT ROUTE 121 / OAK STREET INTERSECTION AND ON ROUTE 121 EASTERLY APPROACH

DESIGN VALUES

1.	DESIGN LIVE LOAD		HL-93
2.	FUTURE PAVEMENT	d_p:	3.0 INCH
3.	ABUTMENT BEARING TO BEARING LENGTH (THREE SPANS) (65.50 - 69.00 - 65.50) FT	L:	200.00 FT
4.		Δ:	
5.		f_y:	
6.		f'_c:	
7.		f'_{ci}:	
8.	CONCRETE, HIGH PERFORMANCE CLASS AA	f'_c:	4.0 KSI
9.	CONCRETE, HIGH PERFORMANCE CLASS A	f'_c:	4.0 KSI
10.	CONCRETE, HIGH PERFORMANCE CLASS B	f'_c:	3.5 KSI
11.	CONCRETE, CLASS C	f'_c:	
12.	REINFORCING STEEL	f_y:	60 KSI
13.	STRUCTURAL STEEL AASHTO M270 (WEATHERING)	f_y:	50 KSI
14.	NOMINAL BEARING RESISTANCE OF SOIL	q_n:	
15.	SOIL BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	
16.	NOMINAL BEARING RESISTANCE OF ROCK	q_n:	
17.	ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	ϕ:	
18.	PILE RESISTANCE FACTOR	ϕ:	0.65
19.	LATERAL PILE DEFLECTION	Δ:	0.066 INCH
20.	BASIC WIND SPEED	V_{3s}:	50 MPH
21.	MINIMUM GROUND SNOW LOAD	p_g:	
22.	SEISMIC DATA PGA:	S_s:	
		S_1:	

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_pi.xlsm
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
PRELIMINARY INFORMATION SHEET

PLOT DATE:
DRAWN BY: T. POULIN
CHECKED BY: R. HEBERT
SHEET OF

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
DESIGN - DETAILED	ETC	2014
CHECKED - REVIEWED		
REVISION 1		
REVISION 2		
REVISION 3		
REVISION 4		
FIELD CHANGES		

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

PRELIMINARY INFORMATION SHEET

SHEET NUMBER

2

CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 | FAX (207) 737-2008

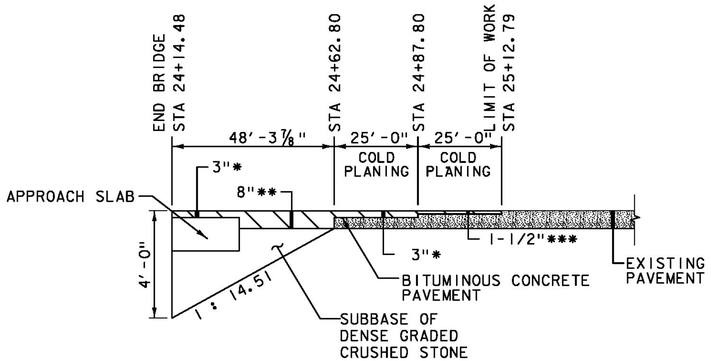
NOTES:

1. SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.
2. TACK COAT: EMULSIFIED ASPHALT SHALL BE APPLIED TO THE COLD PLANED BITUMINOUS CONCRETE PAVEMENT SURFACE AT THE RATE OF 0.040 GAL./SY. OR AS DIRECTED BY THE ENGINEER. EMULSIFIED ASPHALT SHALL ALSO BE APPLIED BETWEEN ALL LIFTS OF PAVEMENT. THE COST SHALL BE PAID UNDER ITEM 404.65, "EMULSIFIED ASPHALT".

MATERIAL TOLERANCES

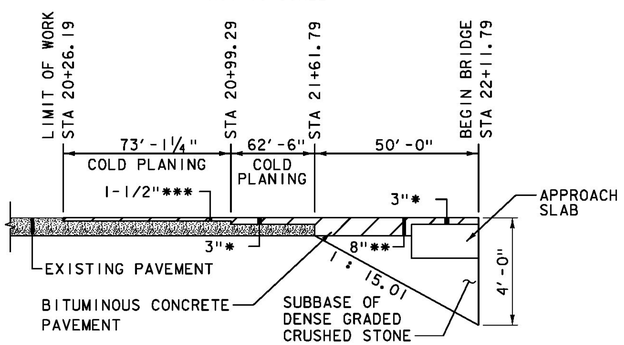
(IF USED ON PROJECT)

	TOTAL DEPTH
SURFACE - PAVEMENT SUBBASE	+/- 1/4" +/- 1"



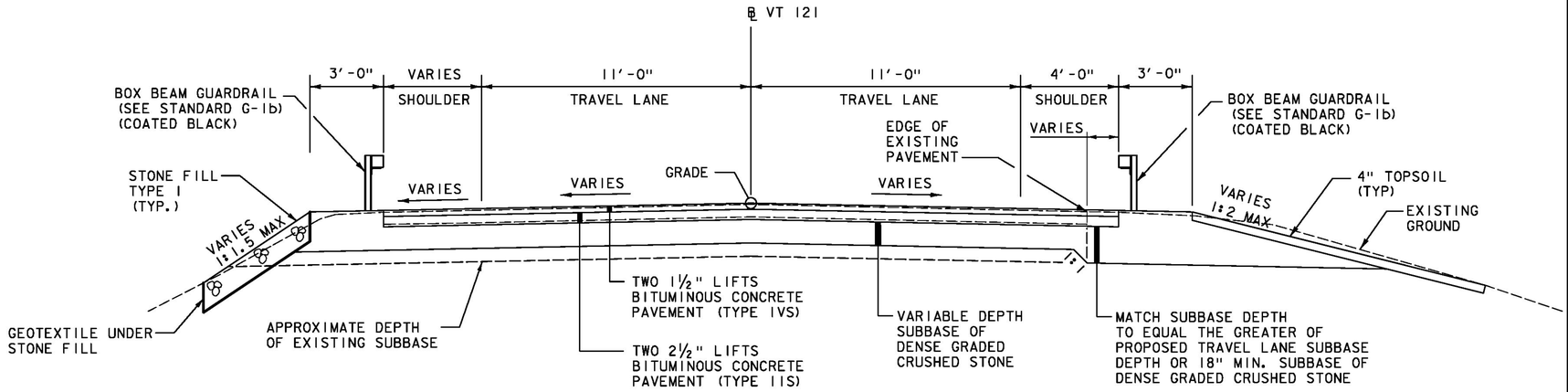
SUBBASE TAPER - EAST APPROACH

ALONG BASELINE
NOT TO SCALE



SUBBASE TAPER - WEST APPROACH

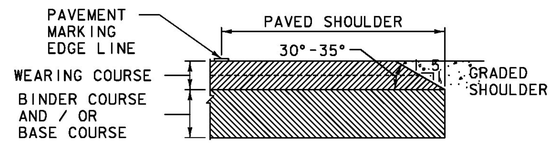
ALONG BASELINE
NOT TO SCALE



FULL DEPTH
TYPICAL ROADWAY SECTION - VT ROUTE 121

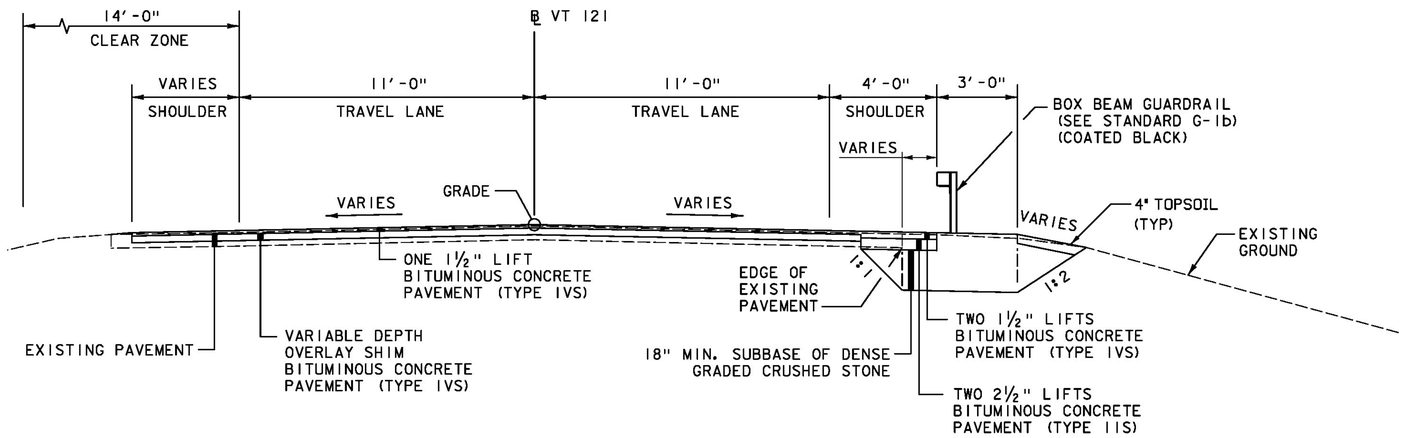
STA 21+61.79 TO STA 22+11.79
STA 24+14.48 TO STA 24+62.80

SCALE 3/8" = 1'-0



SAFETY EDGE DETAIL

NOT TO SCALE



* TWO 1½" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)

** TWO 1½" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IVS) OVER TWO 2½" LIFTS BITUMINOUS CONCRETE PAVEMENT (TYPE IIS)

*** ONE 1½" LIFT BITUMINOUS CONCRETE PAVEMENT (TYPE IVS)

COLD PLANE AND WIDENING
TYPICAL ROADWAY SECTION - VT ROUTE 121

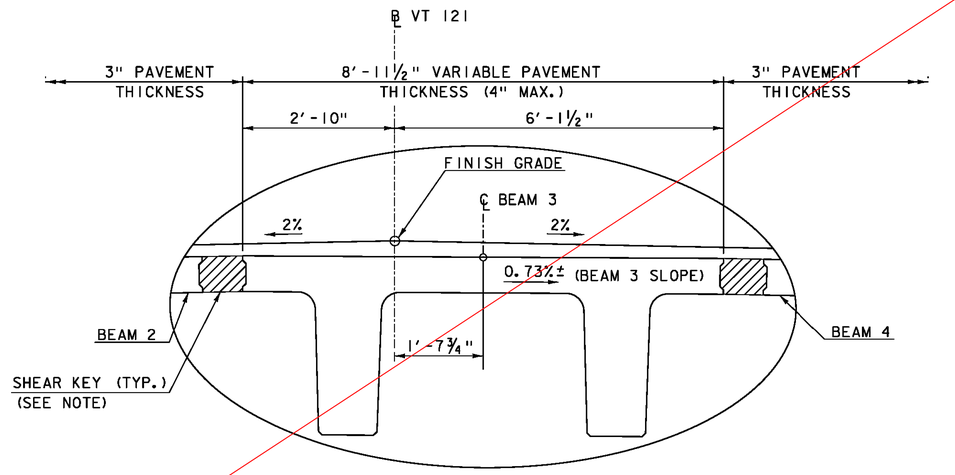
STA 20+26.19 TO STA 21+61.79
STA 24+62.80 TO STA 25+12.79

SCALE 3/8" = 1'-0

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

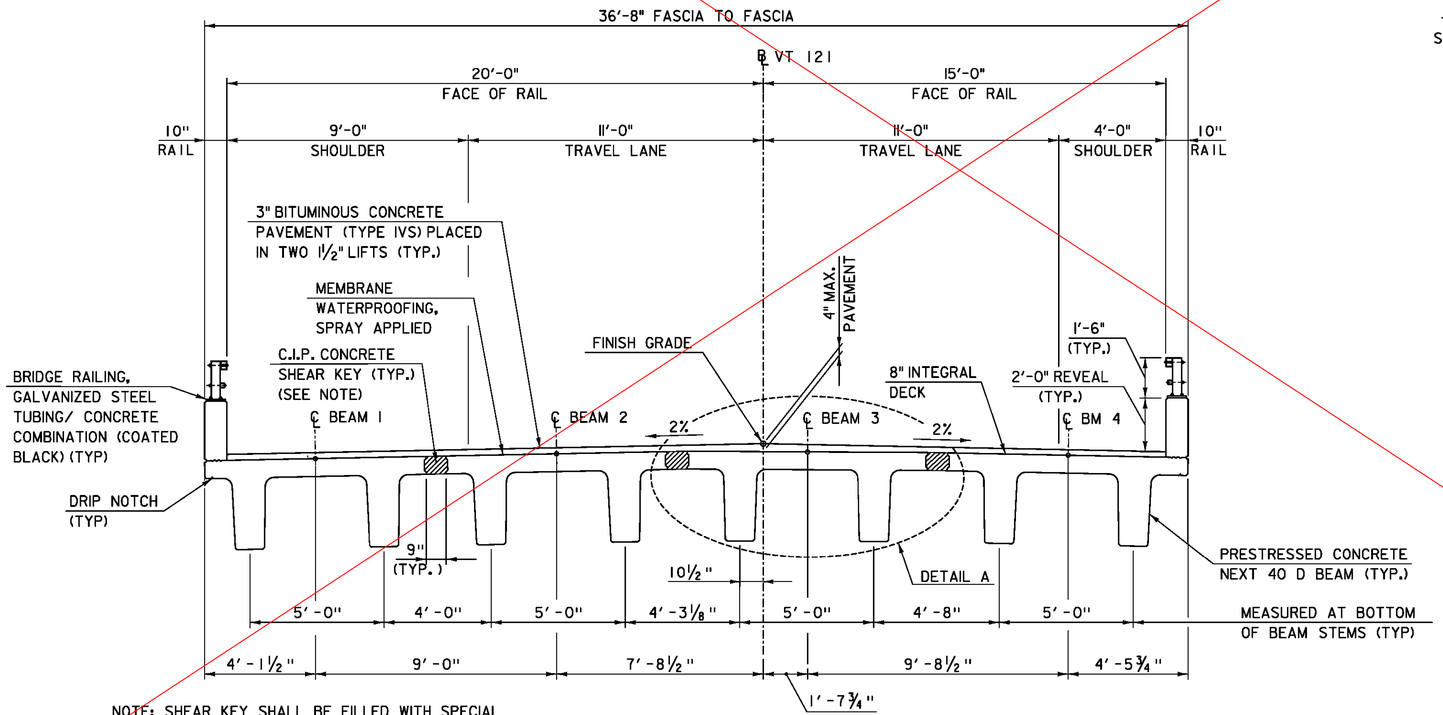
T.Y. LIN INTERNATIONAL

FILE NAME: z10j072bdr_typ.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: C. SARGEANT
DESIGNED BY: C. SARGEANT	CHECKED BY: D. BURHANS
ROADWAY TYPICAL SECTIONS	SHEET 3 OF 69



DETAIL A

SCALE ¾" = 1'-0"



NOTE: SHEAR KEY SHALL BE FILLED WITH SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)

BRIDGE TYPICAL SECTION

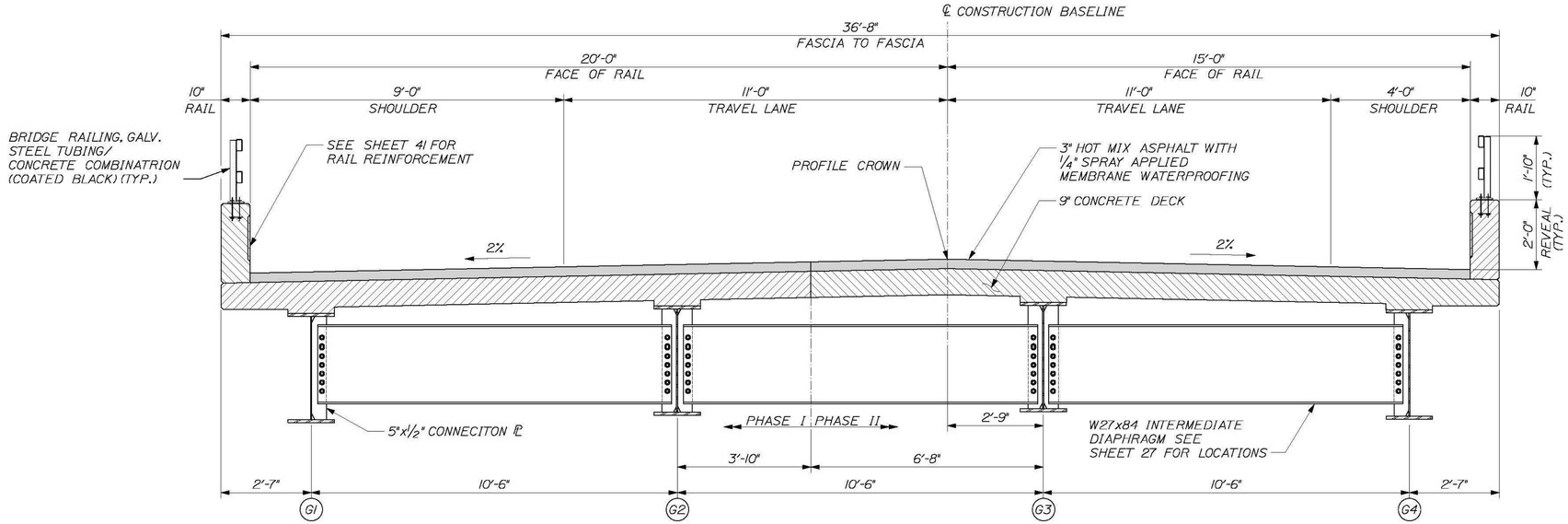
SCALE ⅜" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z101072bdr_btyp.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
BRIDGE TYPICAL SECTION	SHEET 4 OF 69

SEE SHEET 4 VE



BRIDGE TYPICAL SECTION

1/2" = 1'-0"

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DETAILED	
CHECKED-REVIEWED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

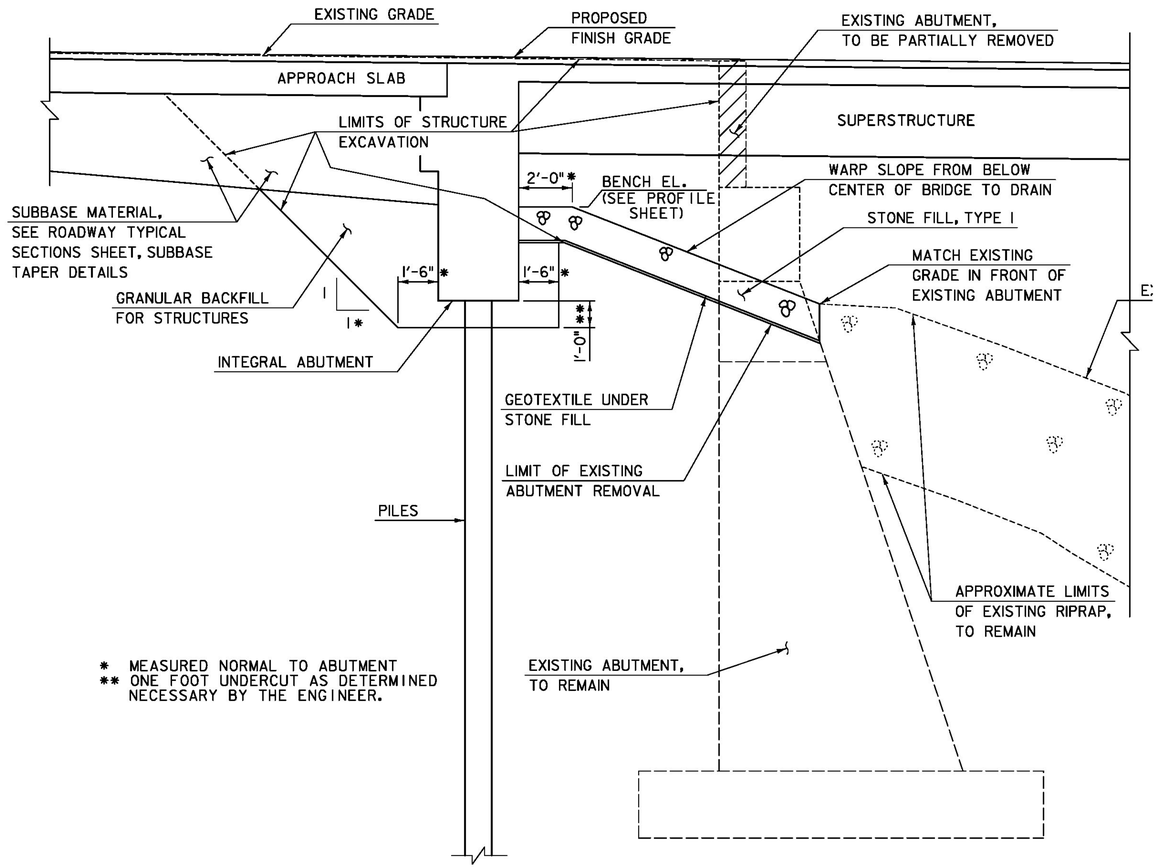
PRELIM VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

TYPICAL SECTION

SHEET NUMBER

4

CALDERWOOD ENGINEERING 222 RIVER ROAD RICHMOND, ME 04357 PH. (207) 737-2007 FAX (207) 737-2008



* MEASURED NORMAL TO ABUTMENT
** ONE FOOT UNDERCUT AS DETERMINED NECESSARY BY THE ENGINEER.

TYPICAL ABUTMENT SECTION

SCALE 3/8" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T·Y·LIN INTERNATIONAL

FILE NAME: z101072bdr_bew.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. KELLER
DESIGNED BY: S. KELLER	CHECKED BY: D. MYERS
EARTHWORK TYPICAL SECTIONS	SHEET 5 OF 69

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 — PROJECT DEMARCATION FENCE
- BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN LINE — TOWN BOUNDARY LINE
- COUNTY LINE — COUNTY BOUNDARY LINE
- STATE LINE — STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- P/L — PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6F — 6F PROPERTY BOUNDARY
- 4F — 4F PROPERTY BOUNDARY
- HAZ — 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
- AREA OF ARCHAEOLOGICAL SIGNIFICANCE
- STABILIZED CONSTRUCTION ENTRANCE
- SURFACE ROUGHENING

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: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z101072bdr_legend.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: R. HEBERT
CONVENTIONAL SYMBOLOGY LEGEND

PLOT DATE: 8/26/2014
DRAWN BY: S. MORGAN
CHECKED BY: R. HEBERT
SHEET 6 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				507.11 REINFORCING STEEL, LEVEL I
620					620		CY	COMMON EXCAVATION	203.15		8200	LB	APPROACH SLAB
20					20		CY	SOLID ROCK EXCAVATION	203.16		8200	LB	TOTAL
20					20		CY	SAND BORROW	203.31				
20					20		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				507.12 REINFORCING STEEL, LEVEL II
			635		635		CY	STRUCTURE EXCAVATION	204.25		11720	LB	DECK CLOSURE POURS
			130		130		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1340	LB	DIAPHRAMS
625					625		SY	COLD PLANING-BIT.PAVEMENT	210.10		7110	LB	ABUTMENTS
450					450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1330	LB	PIERS
4.8			1.8		6.6		CWT	EMULSIFIED ASPHALT	404.65		21500	LB	TOTAL
1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
			56		56		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
			124		124		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
			1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
			960		960		LF	STEEL PILING, HP 10 X 57	505.12				
			2740		2740		SF	TEMPORARY STEEL SHEET PILING	505.36				
			2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				
			8200		8200		LB	REINFORCING STEEL, LEVEL I	507.11				
			21500		21500		LB	REINFORCING STEEL, LEVEL II	507.12				
			384		384		LF	DRILLING AND GROUTING DOWELS	507.16				
			84		84		EACH	MECHANICAL BAR CONNECTOR	507.19				
			80		80		GAL	WATER REPELLENT, SILANE	514.10				
			82		82		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
			790		790		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
			82		82		LF	JOINT SEALER, HOT POURED	524.11				
			406		406		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)	525.45				
			1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
			600		600		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
			1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
			16		16		EACH	BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD	531.16				
			32		32		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
			50		50		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13				
			8		8		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14				
			2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15				
		20			20		HR	POWER GRADER RENTAL	608.15				
		20			20		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
		20			20		HR	TRUCK RENTAL	608.37				
		20			20		HR	LOADER RENTAL, TYPE I	608.40				
40					40		MGAL	DUST CONTROL WITH WATER	609.10				
50			50		100		CY	STONE FILL, TYPE I	613.10				

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_qnty.xlsm
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
QUANTITY SHEET #1

PLOT DATE: 07/28/2014
DRAWN BY: D. BURHANS
CHECKED BY: R. HEBERT
SHEET 7 OF 69

SEE SHEET 7 VE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES											TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
						ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
						1					1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10				507.11 REINFORCING STEEL, LEVEL I
						620					620		CY	COMMON EXCAVATION	203.15		8200	LB	APPROACH SLAB
						20					20		CY	SOLID ROCK EXCAVATION	203.16		8200	LB	TOTAL
						20					20		CY	SAND BORROW	203.31				
						20					20		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22				507.12 REINFORCING STEEL, LEVEL II
									635		635		CY	STRUCTURE EXCAVATION	204.25		11720	LB	DECK CLOSURE POURS
									130		130		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30		1340	LB	DIAPHRAMS
						625					625		SY	COLD PLANING-BIT.PAVEMENT	210.10		7110	LB	ABUTMENTS
						450					450		CY	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35		1330	LB	PIERS
						4.8			1.8		6.6		CWT	EMULSIFIED ASPHALT	404.65		21500	LB	TOTAL
						1					1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50				
									56		56		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33				
									124		124		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34				
									1		1		LS	FURNISHING EQUIPMENT FOR DRIVING PILING	504.10				
									960		960		LF	STEEL PILING, HP 10 X 57	505.12				
									2740		2740		SF	TEMPORARY STEEL SHEET PILING	505.36				
									2		2		EACH	DYNAMIC PILE LOADING TEST	505.45				
									8200		8200		LB	REINFORCING STEEL, LEVEL I	507.11				
									21500		21500		LB	REINFORCING STEEL, LEVEL II	507.12				
									384		384		LF	DRILLING AND GROUTING DOWELS	507.16				
									84		84		EACH	MECHANICAL BAR CONNECTOR	507.19				
									80		80		GAL	WATER REPELLENT, SILANE	514.10				
									82		82		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10				
									790		790		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10				
									82		82		LF	JOINT SEALER, HOT POURED	524.11				
									406		406		LF	BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)	525.45				
									1		1		LS	MAINTENANCE OF STRUCTURES AND APPROACHES	527.10				
									600		600		SY	REMOVAL OF BRIDGE PAVEMENT	529.10				
									1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
									8		8		EACH	BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD	531.17				
									50		50		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13				
									8		8		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14				
									2		2		CY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	580.15				
								20			20		HR	POWER GRADER RENTAL	608.15				
								20			20		HR	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	608.25				
								20			20		HR	TRUCK RENTAL	608.37				
								20			20		HR	LOADER RENTAL, TYPE I	608.40				
						40					40		MGAL	DUST CONTROL WITH WATER	609.10				
						50			50		100		CY	STONE FILL, TYPE I	613.10				

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
DESIGN-DETAILED	ETC	2014
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

QUANTITY SHEET #1

SHEET NUMBER

7

CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 | FAX (207) 737-2008

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES								TOTALS		DESCRIPTIONS			
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS				GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
440								440		LF	BOX BEAM GUARDRAIL (COATED BLACK)	621.30	
1								1		EACH	MANUFACTURED TERMINAL SECTION, TANGENT (COATED BLACK)	621.51	
4								4		EACH	ENERGY ABSORPTION ATTENUATOR	621.56	
4								4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM (COATED BLACK)	621.72	
570								570		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	
380								380		LF	TEMPORARY TRAFFIC BARRIER	621.90	
360								360		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95	
160								160		HR	UNIFORMED TRAFFIC OFFICERS	630.10	
500								500		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	
	520							520		HR	EMPLOYEE TRAINEESHIP	634.10	
1								1		LS	MOBILIZATION / DEMOBILIZATION	635.11	
1								1		LS	TRAFFIC CONTROL	641.10	
2								2		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	
960								960		LF	DURABLE 4 INCH WHITE LINE	646.400	
900								900		LF	DURABLE 4 INCH YELLOW LINE	646.410	
570								570		LF	DURABLE 12 INCH WHITE LINE	646.460	
20								20		LF	DURABLE 24 INCH STOP BAR	646.480	
4								4		EACH	DURABLE LETTER OR SYMBOL	646.490	
130			150					280		SY	GEOTEXTILE UNDER STONE FILL	649.31	
		180						180		SY	GEOTEXTILE FOR SILT FENCE	649.51	
		18						18		LB	SEED	651.15	
		10						10		LB	SEED, WINTER RYE	651.17	
		55						55		LB	FERTILIZER	651.18	
		0.25						0.25		TON	AGRICULTURAL LIMESTONE	651.20	
		0.25						0.25		TON	HAY MULCH	651.25	
60								60		CY	TOPSOIL	651.35	
		1						1		LS	EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.10	
		80						80		HR	MONITORING EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.20	
		1						1		LU	MAINTENANCE OF EROSION PREVENTION & SEDIMENT CONTROL PLAN (N.A.B.I.)	652.30	
		180						180		SY	TEMPORARY EROSION MATTING	653.20	
		30						30		CY	VEHICLE TRACKING PAD	653.35	
		310						310		LF	BARRIER FENCE	653.50	
		220						220		LF	PROJECT DEMARCATION FENCE	653.55	
10								10		SF	TRAFFIC SIGNS, TYPE A	675.20	
60								60		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	
4								4		EACH	REMOVING SIGNS	675.50	

DETAILED SUMMARY OF QUANTITIES		
QUANTITIES	UNIT	ITEMS

PROJECT NAME: **ROCKINGHAM**
PROJECT NUMBER: **BRF 0126(12)**

FILE NAME: **z10j072bdr_qnty.xlsm**
PROJECT LEADER: **R. HEBERT**
DESIGNED BY: **D. BURHANS**
QUANTITY SHEET #2

PLOT DATE: **07/28/2014**
DRAWN BY: **D. BURHANS**
CHECKED BY: **R. HEBERT**
SHEET **8** OF **69**

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES					TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	TRAINING	EROSION CONTROL	BRIDGE	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
2					2		EACH	ERECTING SALVAGED SIGNS	675.60				
1					1		EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40				
3					3		EACH	TEMPORARY DETECTOR	678.42				
			30		30		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608				
			811		811		LF	SPECIAL PROVISION (PRESTRESSED CONCRETE NEXT D BEAMS) (NEXT 40 D)	900.640				
			1		1		LS	SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING)	900.645				
1					1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
1					1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
280			140		420		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

PROJECT NAME: **ROCKINGHAM**
PROJECT NUMBER: **BRF 0126(12)**

FILE NAME: **z10j072bdr_qnty.xlsm**
PROJECT LEADER: **R. HEBERT**
DESIGNED BY: **D. BURHANS**
QUANTITY SHEET #3

PLOT DATE: **07/28/2014**
DRAWN BY: **D. BURHANS**
CHECKED BY: **R. HEBERT**
SHEET **9** OF **69**

SEE SHEET 9 VE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 3

SUMMARY OF ESTIMATED QUANTITIES																			TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
											ROADWAY		TRAINING		EROSION CONTROL		BRIDGE		FULL C.E. ITEMS		GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
											2										2		EACH	ERECTING SALVAGED SIGNS	675.60				
											1										1		EACH	TEMPORARY TRAFFIC SIGNAL SYSTEM	678.40				
											3										3		EACH	TEMPORARY DETECTOR	678.42				
																	30				30		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)	900.608				
																	1				1		LS	SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING)	900.645				
											1										1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, SMALL QUANTITY) (N.A.B.I.)	900.650				
											1										1		LU	SPECIAL PROVISION (MIXTURE PAY ADJUSTMENT)(N.A.B.I.)	900.650				
											280						140				420		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, SMALL QUANTITY)	900.680				

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
	ETC	2014

DESIGN-DETAILED
CHECKED-REVIEWED

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

QUANTITY SHEET #1

SHEET NUMBER

9

CALDERWOOD ENGINEERING, ETC.
222 RIVER ROAD
RICHMOND, ME 04357
TEL (207) 737-2007 FAX (207) 737-2008

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, WITH ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6TH EDITION, AND THE PCI NORTHEAST GUIDELINES FOR NEXT BEAM 1ST EDITION.
2. THE BRIDGE IS DESIGNED FOR HL-93 LIVE LOADING.
3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE BASED ON 68° F OR AS NOTED OTHERWISE.
4. THE CONTRACTOR IS RESPONSIBLE FOR FIELD CHECKING ANY AND ALL DIMENSIONS AND ELEVATIONS APPLICABLE TO THIS WORK PRIOR TO COMMENCING WORK OR ORDERING MATERIAL.
5. NO ADJUSTMENT TO THE BITUMINOUS WEARING SURFACE ON THE BRIDGE SHALL BE MADE TO ACCOUNT FOR THE DIFFERENCE BETWEEN BEAM CAMBER AND THE THEORETICAL ROADWAY PROFILE. THE WEARING SURFACE ON THE BRIDGE SHALL BE SHIMMED TRANSVERSELY AS NECESSARY TO ACCOUNT FOR POTENTIAL DIFFERENTIAL CAMBER OF ADJACENT BEAMS AND TO FORM THE ROADWAY CROWN.
6. THE TOWN WILL MAINTAIN RESPONSIBILITY FOR SNOW REMOVAL ON THE EXISTING BRIDGE THROUGHOUT THE DURATION OF THE PROJECT.
7. ALL WORK SHALL TAKE PLACE WITHIN THE EXISTING RIGHT-OF-WAY. NO PROVISIONS HAVE BEEN MADE FOR THE CONTRACTOR TO PERFORM WORK OR SETUP STAGING OUTSIDE THE EXISTING RIGHT-OF-WAY.
8. EXISTING AERIAL ELECTRIC AND TELEPHONE LINES AND POLES SHALL BE REMOVED AND PERMANENTLY RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE ALL BRIDGE REPLACEMENT AND APPROACH RECONSTRUCTION WORK WITH UTILITY RELOCATION WORK AS REQUIRED. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
9. EXISTING UTILITY CONDUIT ON THE BRIDGE IS ABANDONED AND WILL BE REMOVED TO LIMITS REQUIRED TO PERFORM THE WORK.
10. THE CONTRACTOR IS HEREBY NOTIFIED THAT AGENCY PERSONNEL WILL PERFORM A VIDEO INSPECTION OF THE NEARBY BUILDINGS AND STUCTURES ADJACENT TO THE PROJECT AND APPROACH LIMITS. A VIDEO INSPECTION WILL BE PERFORMED PRIOR TO THE BEGINNING OF CONSTRUCTION AND FOLLOWING THE COMPLETION OF CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE BUILDINGS AND STRUCTURES AS A RESULT OF THE CONTRACTOR'S ACTIVITIES AT NO ADDITIONAL COMPENSATION.
11. THE CONTRACTOR SHALL CONDUCT CONSTRUCTION VIBRATION AND CRACK MONITORING IN ACCORDANCE WITH SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING). THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO ADJACENT STRUCTURES OR BUILDINGS CAUSED BY THE CONTRACTOR'S ACTIVITIES. NO SEPARATE PAYMENT WILL BE MADE FOR ANY REPAIRS OF EXISTING STRUCTURES OR BUILDINGS. PAYMENT FOR CONSTRUCTION VIBRATION AND CRACK MONITORING SHALL BE MADE UNDER CONTRACT ITEM 900.645 SPECIAL PROVISION (CONSTRUCTION VIBRATION AND CRACK MONITORING).

EARTHWORK

1. ITEM 613.10, "STONE FILL, TYPE I", UNDER THE BRIDGE AT THE ABUTMENTS AS SHOWN IN THE PLANS SHALL BE PLACED BEFORE THE NEW BEAMS ARE SET.
2. ITEM 613.10, "STONE FILL, TYPE I" SHALL BE USED TO REPAIR AREAS OF EMBANKMENT AND SLOPE EROSION AS ORDERED BY THE ENGINEER.

REMOVAL OF EXISTING STRUCTURE

1. PARTIAL REMOVAL OF THE EXISTING STRUCTURE SHALL BE UNDER ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL OF THE SUPERSTRUCTURE AND PARTIAL REMOVAL OF EXISTING ABUTMENTS. THE CONTRACTOR'S METHODS FOR PARTIAL REMOVAL OF THE EXISTING STRUCTURE SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY REMOVAL WORK.
2. THE EXISTING BRIDGE SUPERSTRUCTURE AND REMOVED PORTIONS OF THE SUBSTRUCTURE AND APPROACH SHALL BECOME THE PROPERTY OF THE CONTRACTOR AFTER DEMOLITION. RECORD PLANS HAVE BEEN INCLUDED AS PART OF THIS PLAN SET.
3. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.
4. THE EXISTING PAVEMENT ON THE BRIDGE DECK SHALL BE REMOVED UNDER ITEM 529.10, REMOVAL OF BRIDGE PAVEMENT.
5. PAYMENT FOR MAINTAINING THE EXISTING STRUCTURE AND ROADWAY FOR ACCEPTABLE USE DURING PHASED CONSTRUCTION WILL BE MADE UNDER CONTRACT ITEM 527.10 "MAINTENANCE OF STRUCTURES AND APPROACHES".

CONCRETE

1. THE ABUTMENTS BELOW THE BRIDGE SEAT CONSTRUCTION JOINT, PIER PEDESTALS, AND APPROACH SLABS SHALL BE ITEM 501.34 "CONCRETE, HIGH PERFORMANCE – CLASS B".
2. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1", UNLESS NOTED OTHERWISE.
3. ITEM 514.10 "WATER REPELLENT, SILANE", SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES, INCLUDING EXISTING PIERS, EXCEPT THE UNDERSIDE OF THE NEXT D BEAMS BETWEEN DRIP NOTCHES.
4. ALL REINFORCING STEEL IN THE NEXT D BEAMS, CLOSURE POURS, CONCRETE BRIDGE RAILING, ABUTMENTS AND PIERS SHALL BE LEVEL II IN ACCORDANCE WITH SECTION 507. APPROACH SLAB REINFORCING SHALL BE LEVEL I (EPOXY COATED) IN ACCORDANCE WITH SECTION 507. PAYMENT FOR STEEL REINFORCEMENT IN BRIDGE RAILING WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 525.45. PAYMENT FOR STEEL REINFORCEMENT IN NEXT D BEAMS WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.640. PAYMENT FOR STEEL REINFORCEMENT IN APPROACH SLABS WILL BE MADE UNDER CONTRACT ITEM 507.11. PAYMENT FOR STEEL REINFORCEMENT IN DECK CLOSURE POURS, CONCRETE DIAPHRAGMS, ABUTMENTS, AND PIERS WILL BE MADE UNDER CONTRACT ITEM 507.12.
5. REINFORCEMENT PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
   - SPACING +/- 1"
   - CLEARANCE +/- ¼"
6. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

• CONCRETE BRIDGE RAILING	3.0 INCH
• SURFACES CAST AGAINST EARTH	3.0 INCH
• ELSEWHERE, UNLESS NOTED OTHERWISE	2.0 INCH

7. THE KEY-IN CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINTS.
8. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
9. JOINTS IN CONCRETE BRIDGE RAILING SHALL BE SPACED AT 15' - 0" MAXIMUM. POUR SEQUENCE SHALL BE IN ALTERNATING SECTIONS.
10. REINFORCING STEEL SHALL CONFORM TO AASHTO M 31, GRADE 420 (GRADE 60) AND SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI).
11. PIER CONCRETE REPAIRS SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. A THOROUGH INSPECTION BY THE ENGINEER WILL BE MADE OF ALL PIER SUBSTRUCTURE AREAS PRIOR TO COMMENCING ANY WORK AND THOSE AREAS FOUND TO HAVE SPALLED, DELAMINATED, OR TO OTHERWISE BE UNSOUND CONCRETE WILL BE REPAIRED. THE CONTRACTOR SHALL SUPPLY ANY STAGING REQUIRED FOR THIS INSPECTION, THE COST FOR WHICH SHALL BE INCIDENTAL TO ALL OTHER ITEMS IN THE CONTRACT.
12. ALL REINFORCING STEEL LAP LENGTHS WERE DESIGNED ASSUMING DUAL-COATED STEEL.
13. MECHANICAL CONNECTORS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 507 FOR LEVEL II REINFORCING.
14. UNLESS OTHERWISE NOTED, ALL CAST-IN-PLACE PORTIONS OF THE SUPERSTRUCTURE AND THE PORTION OF THE ABUTMENTS ABOVE THE HORIZONTAL CONSTRUCTION JOINT LOCATED BELOW THE BEAMS SHALL BE ITEM 501.33 "CONCRETE, HIGH PERFORMANCE CLASS A".
15. FORM A 1" V-GROOVE ON THE FASCIAS AT THE HORIZONTAL JOINT BETWEEN THE CONCRETE BRIDGE RAILING AND THE PRECAST PRESTRESSED CONCRETE NEXT D BEAM FLANGE
16. CONSTRUCTION JOINTS SHALL BE PROVIDED IN THE CONCRETE PARAPET PORTION OF THE BRIDGE RAILING CONSISTENT WITH THE REQUIREMENTS AND DETAILS FOR CONCRETE CURBS AS SHOWN ON STRUCTURES DETAIL SHEET SD-502.00

NEXT D BEAMS

1. NEXT D BEAMS ARE A NONPROPRIETARY SHAPE DEVELOPED BY PCI NORTHEAST (PCINE). STANDARDIZED SECTION PROPERTIES AND DETAILS MAY BE FOUND AT WWW.PCINE.ORG.
2. DESIGN VALUES
   A. CONCRETE COMPRESSIVE STRENGTH: f'_c =8000 PSI.
   B. CONCRETE COMPRESSIVE STRENGTH AT RELEASE: f'_{ci} =6000 PSI.
   C. PRESTRESSING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION, 7-WIRE STRANDS.
   D. APPARENT MODULUS OF ELASTICITY = 28,500 KSI.
   E. JACKING FORCE PER STRAND = 44 KIPS.
3. EXCEPT AS NOTED OTHERWISE FLANGE CLOSURE POURS SHALL BE HPC RAPID SET CONCRETE IN ACCORDANCE WITH ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET)." CONCRETE SHALL HAVE A 28 DAY MINIMUM COMPRESSIVE STRENGTH OF 7000 PSI.
4. FLANGE KEYWAYS SHALL BE SANDBLASTED PRIOR TO DELIVERY AND POWER WASHED WITH WATER PRIOR THE ERECTION OF THE BEAMS.
5. METHOD OF FORMING THE FLANGE CONNECTION SHALL BE DETERMINED BY THE CONTRACTOR. THE FORMS SHALL BE REMOVABLE AND ABLE TO ACCOMMODATE DIFFERENTIAL CAMBER. FORM SUPPORTS SHALL NOT PENETRATE THROUGH THE TOP OF THE POUR UNLESS APPROVED BY THE ENGINEER.
6. THE DRILLING OF HOLES IN THE PRECAST BEAMS AND THE USE OF POWER ARTICULATED TOOLS ON THE BEAMS WILL NOT BE PERMITTED.
7. PRODUCT DIMENSIONAL TOLERANCES FOR THE PRESTRESSED CONCRETE NEXT D BEAMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS FOR B-11 BOX BEAMS OF THE LATEST EDITION OF PCI MNL-116 MANUAL FOR QUALITY CONTROL FOR PLANTS AND PRODUCTION OF PRECAST AND PRESTRESSED PRODUCTS.

PILE FOUNDATIONS

1. THE PILES SHALL BE HP ~~10x57~~. 12x74 (NEW DESIGN).
2. PILE SHOES ARE REQUIRED AND SHALL CONFORM TO SUBSECTION 505.04(F) OF THE STANDARD SPECIFICATIONS.
3. THE TOPS OF PILES AFTER DRIVING SHALL NOT VARY FROM THE PLAN POSITION BY MORE THAN 3 INCHES. THE PILE ORIENTATION SHALL NOT VARY BY MORE THAN 5 DEGREES. THE CONTRACTOR SHALL DEMONSTRATE HOW THE TOLERANCES WILL BE MET TO THE SATISFACTION OF THE ENGINEER REGARDLESS OF INSTALLATION METHOD.
4. TO ENSURE THAT THE NOMINAL RESISTANCE HAS BEEN ATTAINED AND TO PREVENT THE OVERSTRESSING OF THE PILES DURING DRIVING OPERATIONS, DYNAMIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH SUBSECTION 505.04(D)-2 OF THE STANDARD SPECIFICATIONS. PAYMENT FOR ONE PILE TEST SHALL BE CONDUCTED ON THE FIRST PILE DRIVEN AT EACH ABUTMENT, FOR A TOTAL OF 2 TESTS. MORE TESTS MAY BE REQUIRED BY THE ENGINEER. PAY ITEM FOR TESTING, INCLUDING ANY ADDITIONAL TESTS ORDERED BY THE ENGINEER IS 505.45 "DYNAMIC PILE LOAD TEST."
5. THE PILES SHALL BE DRIVEN TO A REQUIRED NOMINAL RESISTANCE OF 265 KIPS AS DETERMINED BY THE RESULTS OF DYNAMIC TESTING, AS INTERPRETED BY THE ENGINEER PROVIDED A MINIMUM PENETRATION OF 15 FEET BELOW THE BOTTOM OF PILE CAP HAS BEEN ACHIEVED.
6. FOR ESTIMATING PURPOSES, THE PILE TIP ELEVATIONS WERE ASSUMED AS SHOWN ON THE BORING LOGS. THE ACTUAL LENGTHS MAY VARY.

ELASTOMERIC BEARINGS

1. ELASTOMER COMPOUND SHALL HAVE A NOMINAL HARDNESS OF 60 ON THE SHORE A SCALE, AND SHALL CONFORM TO SUBSECTION 731.03.
2. STEEL REINFORCEMENT FOR THE ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 506 FOR GRADE 50 STEEL.
3. THE ELEVATION OF THE BEARING PEDESTALS ARE DETAILED CONSIDERING PREDICTED BEAM CAMBER AND BEAM END ROTATIONS AT ERECTION (30-60 DAYS AFTER STRESSING).
4. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 32 - ¼" X 11 ½" X 1'-0 ½", 16 - 1/8" X 11 ½" X 1'-0 ½", AND 32 - TAPERED $^1/_8$" TO $^3/_8$" X 11 ½" X 1'-0 ½" (TAPERED ALONG 1'-0 ½" DIRECTION) RECTANGULAR GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON SETTING OF THE SUPERSTRUCTURE UNITS AT THE PIER LOCATIONS. A 1/8" THICK NEOPRENE SHEET WILL BE PROVIDED BETWEEN CONCRETE SURFACES AND THE STEEL SHIMS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.17, 'BEARING DEVICE ASSEMBLY, STEEL REINFORCED ELASTOMERIC PAD".
5. THE CONTRACTOR IS ADVISED TO HAVE A MINIMUM OF 16 - ¼" X 10" X 1'-2", 8 – 1/8" X 10" X 1'-2", AND 16 – TAPERED $^1/_8$" TO $^3/_8$" X 10" X 1'-2" (TAPERED ALONG 1'-2" DIRECTION) RECTANGULAR GALVANIZED STEEL SHIMS AVAILABLE FOR USE FOR ELEVATION ADJUSTMENTS UPON SETTING OF THE SUPERSTRUCTURE UNITS AT THE ABUTMENT LOCATIONS . A 1/8" THICK NEOPRENE SHEET WILL BE PROVIDED BETWEEN CONCRETE SURFACES AND THE STEEL SHIMS. THE SHIMS SHALL BE FABRICATED ACCORDING TO SECTION 531 AND SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 531.16, 'BEARING DEVICE ASSEMBLY, PLAIN ELASTOMERIC PAD".

BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL

1. ALL STEEL COMPONENTS OF THE BRIDGE RAILING, APPROACH RAILING, AND GUARDRAIL SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

TY LIN INTERNATIONAL

FILE NAME: z10j072bdr_notes.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
PROJECT NOTES	SHEET 10 OF 69

GPS/NGS CONTROL POINTS

SPRINGFIELD VT CORS ARP

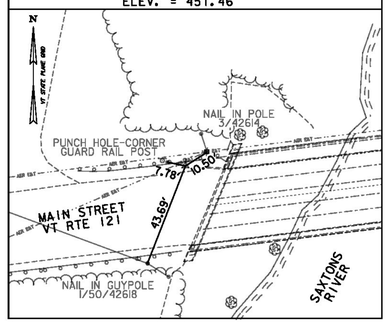
PID DJ8961
N = 284807.69
E = 1646390.48
ELLIP HEIGHT = 513.30

STATION IS A GPS CONTINOUSLY OPERATING REFERENCE STATION. STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA. LOCATED AT THE SPRINGFIELD, VERMONT HIGH SCHOOL, THE MONUMENT IS ATTACHED TO A TWO STORY CONCRETE & BRICK BUILDING WITH AN 8 FT CONCRETE FOUNDATION BUILT IN 1967. THE MAST IS A 1.75 INCH DIA. GALV PIPE THAT IS 108 INCHES LONG. THE MAST IS ATTACHED TO A STEEL MOUNTING FRAME WITH THREE ATTACHMENTS CONSISTING OF 3/8 INCH SS THROUGH BOLTS. THE MOUNTING FRAME IS ATTACHED TO THE BUILDING USING 8 ATTACHMENT POINTS. THE TOP 2 AND THIRD 2 ARE 1/2 INCH SS BOLTS SECURED TO THE BRICK OR CONC WITH LEAD ANCHORS. THE SECOND 2 AND BOTTOM 2 ATTACHMENTS ARE THROUGH BOLTED AND CONSIST OF 1/2 INCH SS THREADED ROD AND NUTS.

TRAVERSE TIES

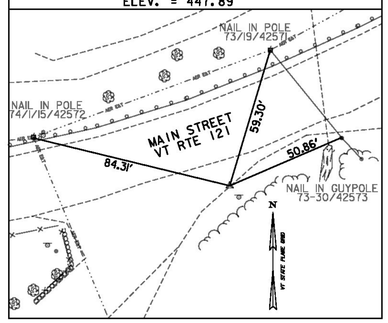
HVCTRL #2
5/8"REBAR SET 0.1' BG W/ CENTER PUNCH MARK

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EAST = 1639680.82
ELEV. = 451.46



HVCTRL #3
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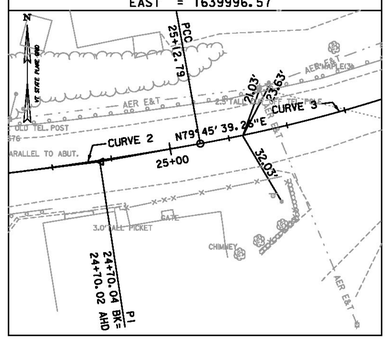
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ELEV. = 447.89



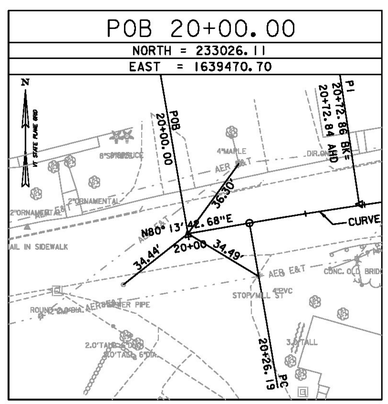
* MAIN TRAVERSE COMPLETED: DECEMBER 1, 2011 BY VSE, M. HUDSON-PC, M. YEFCHAK

ALIGNMENT TIES

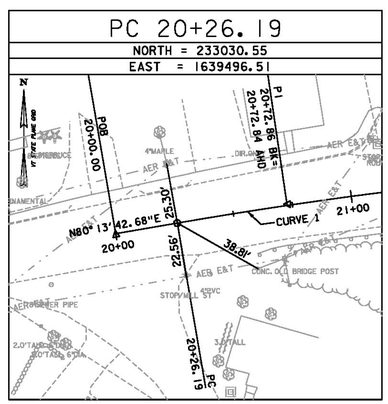
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EAST = 1639996.57



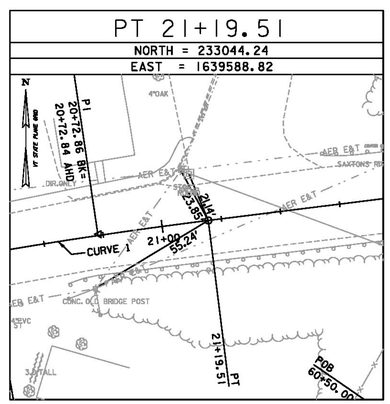
POB 20+00.00
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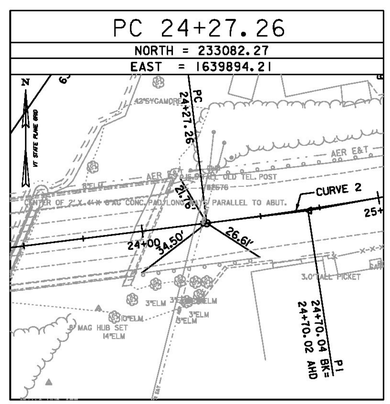
PC 20+26.19
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EAST = 1639496.51



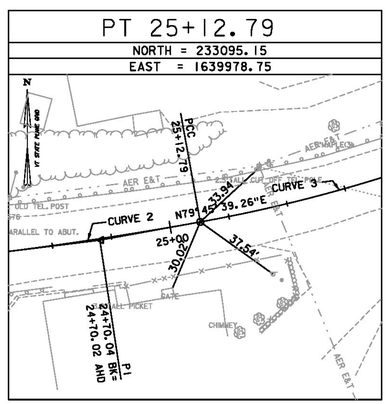
PT 21+19.51
NORTH = 233044.24
EAST = 1639588.82



PC 24+27.26
NORTH = 233082.27
EAST = 1639894.21



PT 25+12.79
NORTH = 233095.15
EAST = 1639978.75



DATUM
VERTICAL NAVD 88(GEOID09) FT
HORIZONTAL NAD 83(CORS) sFT
ADJUSTMENT LSQ

VERMONT SURVEY AND ENGINEERING

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z101072bdr_t1.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
TIE SHEET

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: R. HEBERT
SHEET 11 OF 69

N

VT STATE PLANE GRID

GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM (COATED BLACK)
21+69.32, RT - 22+03.33, RT
21+90.01, LT - 22+24.01, LT
24+05.15, RT - 24+38.98, RT
24+25.84, LT - 24+60.21, LT

BRIDGE RAILING, GALVANIZED STEEL TUBING/CONCRETE COMBINATION (COATED BLACK)
22+03.33, RT - 24+05.15, RT
22+24.01, LT - 24+25.84, LT

DURABLE 4" YELLOW LINE
20+26.19 - 21+12.28 (CENTERLINE)
21+52.28 - 25+12.79 (CENTERLINE)

DURABLE 4" WHITE LINE
20+26.19, LT - 21+20.38, LT (EDGELINE)
20+26.19, RT - 25+12.79, RT (EDGELINE)
21+57.35, LT - 25+12.79, LT (EDGELINE)

TOPSOIL AND SEED
20+22.97, RT - 22+15.91, RT
21+60.36, LT - 22+39.94, LT
23+89.09, RT - 24+24.63, RT
24+12.74, LT - 24+62.45, LT

REMOVAL AND DISPOSAL OF GUARDRAIL
21+69.52, LT - 22+31.98, LT
20+57.50, RT - 22+08.42, RT
24+18.55, LT - 24+62.21, LT
23+97.48, RT - 24+47.48, RT

DURABLE 24 INCH STOP BAR
21+15.37, LT - 21+35.37, LT

DURABLE LETTER OR SYMBOL
21+28.00, LT (STOP)

DURABLE 12 INCH WHITE LINE
21+69.09, LT - 25+09.76, LT (DIAGONAL STRIPING)

MANUFACTURED TERMINAL SECTION, TANGENT (COATED BLACK)
20+50.69, 16.00', RT - 21+00.21, 15.50' RT

BOX BEAM GUARDRAIL (COATED BLACK)
21+67.88, LT - 21+78.01, LT (30' RADIUS)
21+78.01, LT - 21+90.01, LT
21+00.21, RT - 21+19.51, RT
21+19.51, RT - 21+51.32, RT
21+51.32, RT - 21+69.32, RT
24+60.21, LT - 24+96.97, LT
24+96.97, LT - 27+15.01, LT
27+15.01, LT - 27+83.30, LT
27+83.30, LT - 28+01.09, LT (20' RADIUS)
24+38.98, RT - 24+43.76, RT

22+04.98, LT
SAXTONS RIVER HISTORIC DISTRICT S
N
SAXTONS RIVER HISTORIC DISTRICT R&S
R

21+11.51, LT
STOP N
N
STOP R
R

STA. 21+91.79
END APPROACH
BEGIN PROJECT
BRF 0126(12)

STA. 20+26.19
BEGIN APPROACH
MATCH EXISTING PAVEMENT

POB 20+00.00

PI 20+72.86 BK= 20+72.84 AHD

OAK ST.

UNNAMED STREAM

HVCTRL #2
⅝" REBAR
ELEV. = 451.46

2 GUYS

℄ BRG. ABUT. #1 STA. 22+13.13

30° SKEW (TYP)

EXISTING ROW

12" DIAGONAL WHITE LINES

APPROXIMATE LIMITS OF EXISTING RIPRAP AT ABUTMENT (TYP.)

POE 63+25.00

63+25

63+00

CHANNEL LINE

℄ EXISTING PIER #1 STA. 22+78.63

℄ EXISTING PIER #2 STA. 23+41.63

APPROXIMATE LOCATION AERIAL UTILITY RELOCATION (BY OTHERS)

℄ BRG. ABUT. #2 STA. 24+13.13

PC 24+27.26

GUY

24+30.02, LT
BRIDGE 11-R VT121 N
N

PCC 25+12.79

SEE GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS SHEET FOR GUARDRAIL INFORMATION

VT 121 TO SAXTONS VILLAGE

N80° 13' 42.68"E

+49.93

20+00

R 25'

CURVE 1

21+00

SWEL

DYL

22+00

℄ VT 121 (TH 1)

+64.12

N82° 54' 07.87"E

RELOCATE BY OTHERS

7' (TYP.)

42°

SWEL

23+00

62+00

24+00

25.84

RELOCATED BY OTHERS

CURVE 2

N79° 45' 39.26"E

CURVE 3

25+00

VT 121 TO BELLOWS FALLS

34'

MILL ST.

RELOCATED BY OTHERS

EXISTING BRIDGE

STA. 22+11.79
BEGIN BRIDGE

SAXTONS RIVER

N34° 34' 53.10"E

61+00

60+50

ROB 60+50.00

EXISTING ROW (TYP)

20+26.09, RT
Mill St R
STOP R&S
R
Mill St N
STOP S
N

20+26.19 PC

21+19.51 PT

21+97.75, RT
BRIDGE 11-R VT121 N
N

VT 121
STA. 23+07.97=
CHANNEL LINE
STA. 62+00.00

24+70.04 BK= 24+70.02 AHD PI

MAPLE ST. EXT.

STA. 24+34.48
END PROJECT
BRF 0126(12)
BEGIN APPROACH

STA. 24+14.48
END BRIDGE

STA. 25+12.79
END APPROACH
MATCH EXISTING PAVEMENT

SIGN LEGEND
N - NEW
R - REMOVE
R&S - REMOVE AND SALVAGE
S - SALVAGE
[ ] - NEW SIGN ASSEMBLY
[ ] - EXISTING SIGN ASSEMBLY

STRIPING LEGEND
DYL - 4" DOUBLE YELLOW LINE
SWEL- 4" SOLID WHITE EDGE LINE

EXISTING BRIDGE INFORMATION

BUILT 1954
CONTINUOUS, STEEL BEAM, CONCRETE DECK
3 SPANS @ 55.00', 69.00', AND 55.00'
30'-0" ROADWAY (CURB TO CURB)
CONCRETE POST AND STEEL RAILING

CURVE (1)
PI STA. = 20+72.86
DELTA = 2°40'25"
D = 2°51'53"
R = 2000.00'
T = 46.67'
L = 93.33'
E = 0.54'

CURVE (2)
PI STA. = 24+70.04
DELTA = 3°08'29"
D = 3°40'22"
R = 1560.00'
T = 42.77'
L = 85.53'
E = 0.59'

CURVE (3)
PI STA. = 26+14.75
DELTA = 18°06'13"
D = 8°57'09"
R = 640.00'
T = 101.96'
L = 202.22'
E = 8.07'

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

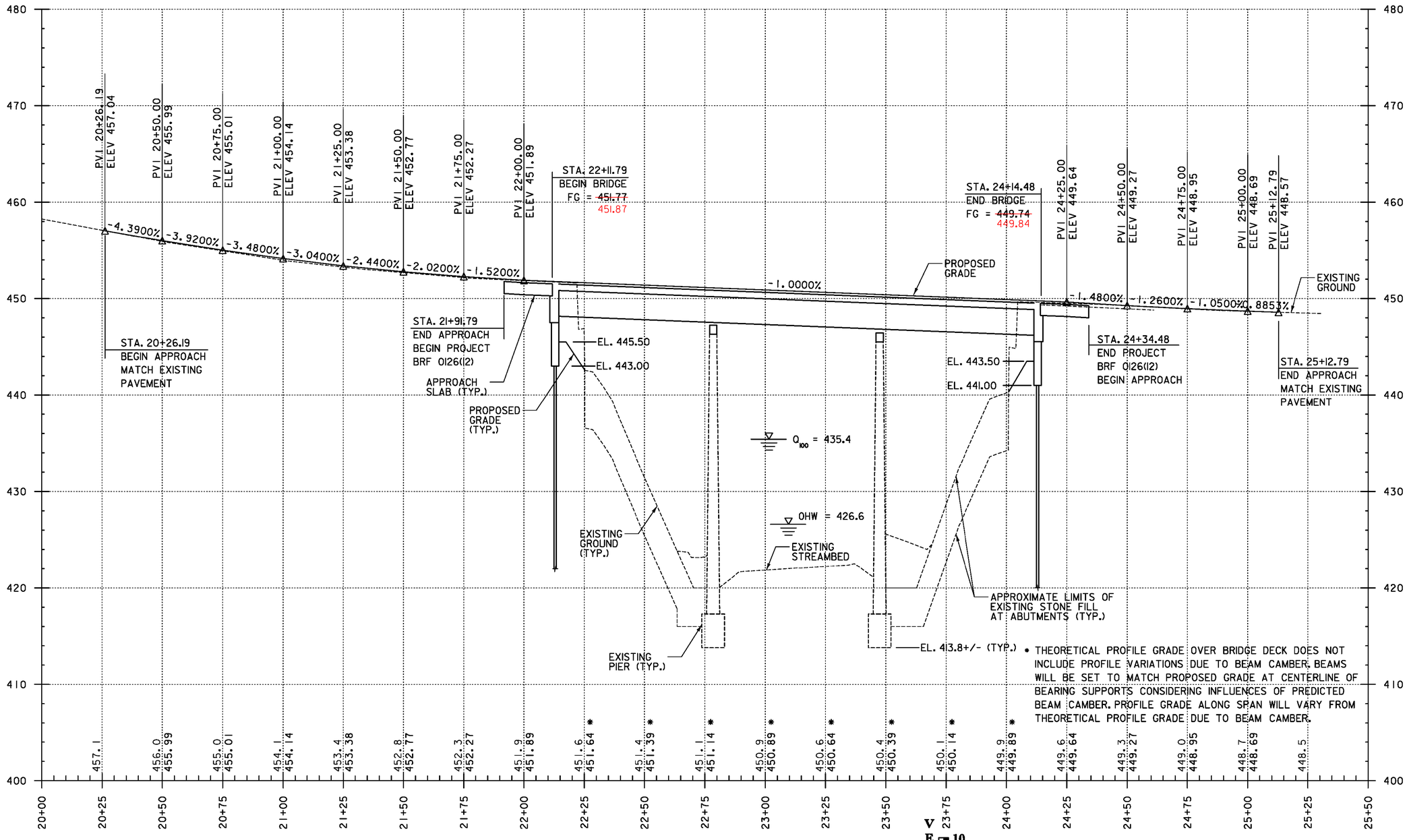
DATUM
VERTICAL NAVD 88(GEOID09) FT
HORIZONTAL NAD 83(CORS) sFT
ADJUSTMENT LSQ

T·Y·LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_nul.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
LAYOUT SHEET

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 12 OF 69



* THEORETICAL PROFILE GRADE OVER BRIDGE DECK DOES NOT INCLUDE PROFILE VARIATIONS DUE TO BEAM CAMBER. BEAMS WILL BE SET TO MATCH PROPOSED GRADE AT CENTERLINE OF BEARING SUPPORTS CONSIDERING INFLUENCES OF PREDICTED BEAM CAMBER. PROFILE GRADE ALONG SPAN WILL VARY FROM THEORETICAL PROFILE GRADE DUE TO BEAM CAMBER.

PROFILE: VT ROUTE 121

SCALES:
HORIZ: 1"= 20'
VERT: 1"= 5'

VERTICAL 10 5 0

HORIZONTAL 0 20 40 60

SCALE IN FEET

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

THE GRADES SHOWN TO THE NEAREST HUNDRETH ARE THE PROPOSED GRADES FOR THE NEW ALIGNEMENT

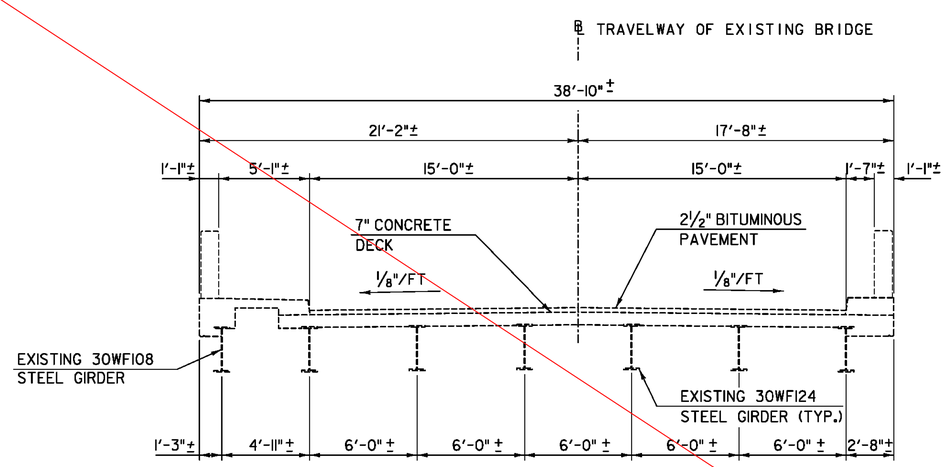
DATUM
VERTICAL NAVD 88(GEOID09) FT
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ADJUSTMENT LSQ

T.Y. LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

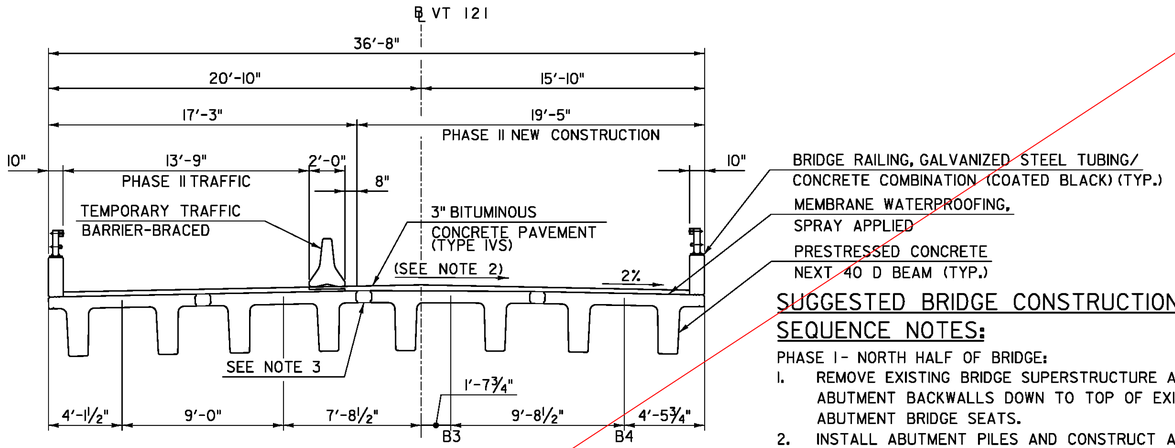
FILE NAME: z10j072bdr_pro.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
PROFILE SHEET

PLOT DATE: 8/26/2014
DRAWN BY: J. DAVIS
CHECKED BY: D. BRYANT
SHEET 13 OF 69



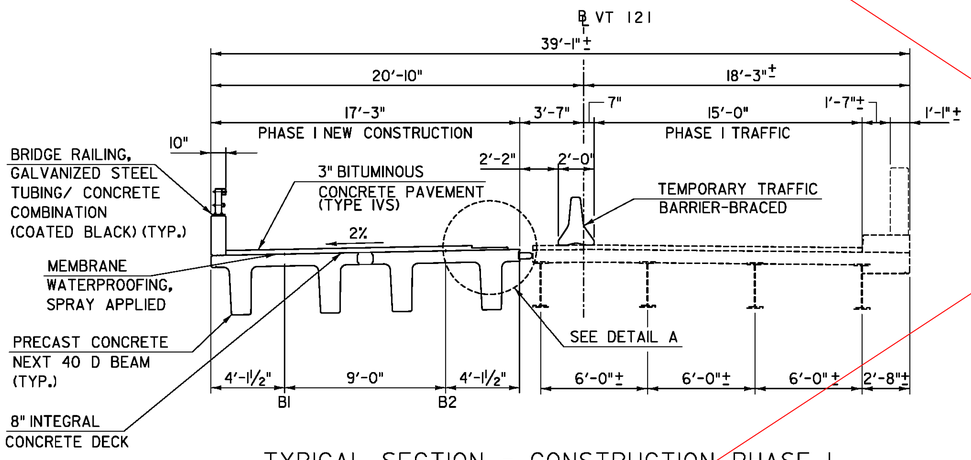
TYPICAL SECTION - EXISTING

SCALE ¼" = 1'-0"



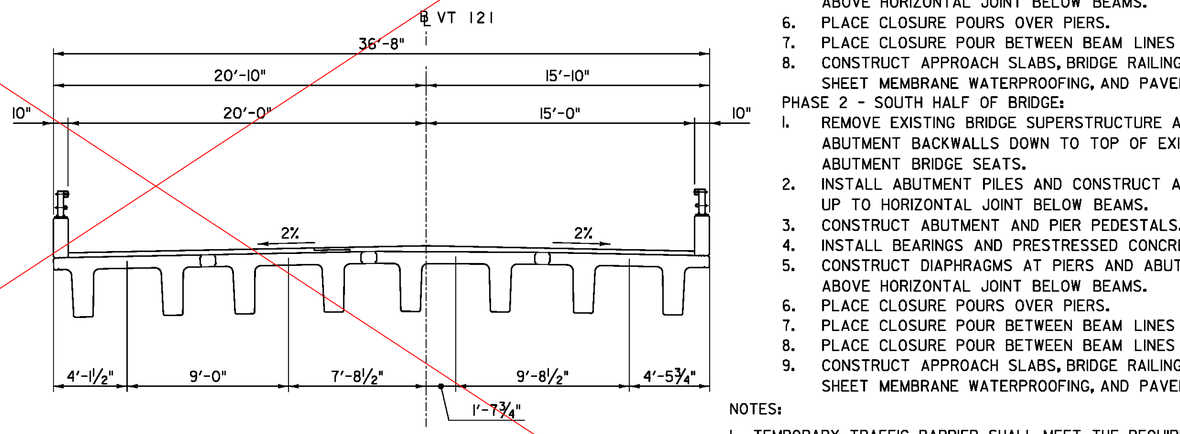
TYPICAL SECTION - CONSTRUCTION PHASE II

SCALE ¼" = 1'-0"



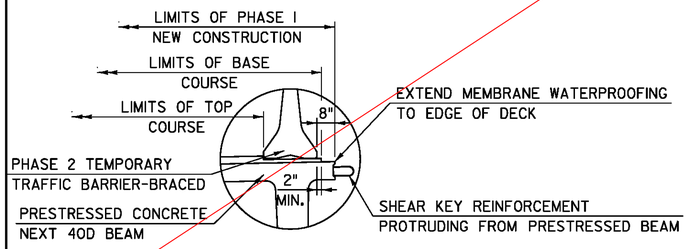
TYPICAL SECTION - CONSTRUCTION PHASE I

SCALE ¼" = 1'-0"



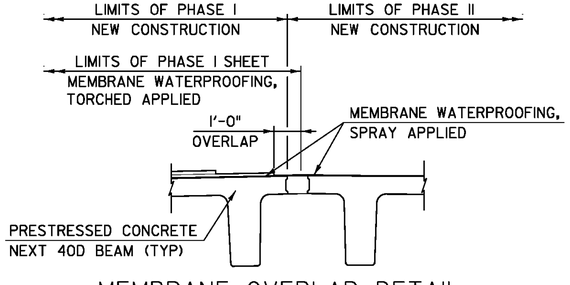
TYPICAL SECTION - FINAL BUILD

SCALE ¼" = 1'-0"



DETAIL A

SCALE ⅜" = 1'-0"



MEMBRANE OVERLAP DETAIL

SCALE ⅜" = 1'-0"

BRIDGE RAILING, GALVANIZED STEEL TUBING/ CONCRETE COMBINATION (COATED BLACK) (TYP.)

MEMBRANE WATERPROOFING, SPRAY APPLIED

PRESTRESSED CONCRETE NEXT 40 D BEAM (TYP.)

SUGGESTED BRIDGE CONSTRUCTION SEQUENCE NOTES:

PHASE 1 - NORTH HALF OF BRIDGE:

1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
4. INSTALL BEARINGS AND PRESTRESSED CONCRETE BEAMS.
5. CONSTRUCT DIAPHRAGMS AT PIERS AND ABUTMENTS ABOVE HORIZONTAL JOINT BELOW BEAMS.
6. PLACE CLOSURE POURS OVER PIERS.
7. PLACE CLOSURE POUR BETWEEN BEAM LINES 1 AND 2.
8. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.

PHASE 2 - SOUTH HALF OF BRIDGE:

1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
4. INSTALL BEARINGS AND PRESTRESSED CONCRETE BEAMS.
5. CONSTRUCT DIAPHRAGMS AT PIERS AND ABUTMENTS ABOVE HORIZONTAL JOINT BELOW BEAMS.
6. PLACE CLOSURE POURS OVER PIERS.
7. PLACE CLOSURE POUR BETWEEN BEAM LINES 3 AND 4.
8. PLACE CLOSURE POUR BETWEEN BEAM LINES 2 AND 3.
9. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.

NOTES:

1. TEMPORARY TRAFFIC BARRIER SHALL MEET THE REQUIREMENTS FOR BRIDGE RAIL PERFORMANCE LEVEL TL3 OF NCHRP 350. TEMPORARY BARRIER CONNECTIONS SHALL BE DEVELOPED BY CONTRACTOR AND SHALL BE SUBMITTED TO VTRANS FOR REVIEW AND APPROVAL. TEMPORARY TRAFFIC BARRIER MAY BE ANCHORED TO EXISTING DECK BUT NOT TO PROPOSED DECK.
2. BEAM 3 SHALL BE SLOPED TRANSVERSELY TO MATCH ADJACENT BEAMS AND SHEAR KEYS. SEE "BRIDGE TYPICAL SECTION" SHEET FOR DETAIL.
3. HIGH PERFORMANCE CONCRETE, RAPID SET BETWEEN BEAMS B2 AND B3 SHALL MEET A 3 HOUR COMPRESSIVE STRENGTH OF 3000 PSI AND A 28 DAY COMPRESSIVE STRENGTH OF 7000 PSI.
4. PAYMENT FOR TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER.

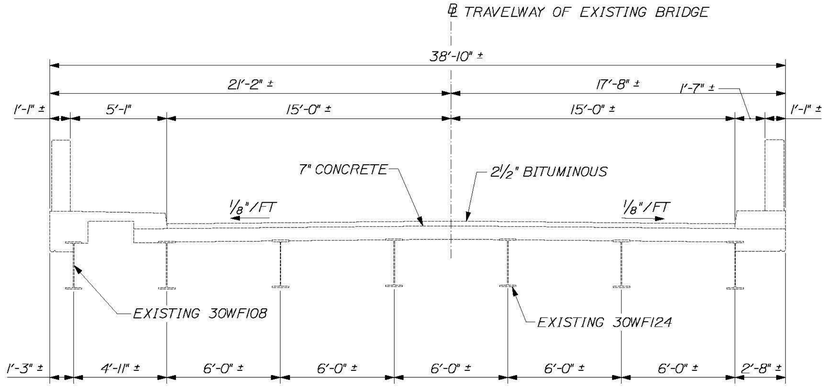
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

TYLIN INTERNATIONAL

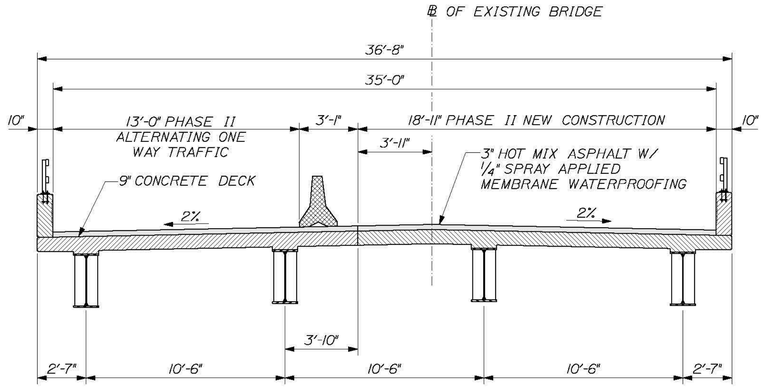
FILE NAME: z10j072bdr_bphase.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
BRIDGE CONSTRUCTION STAGING

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 14 OF 69

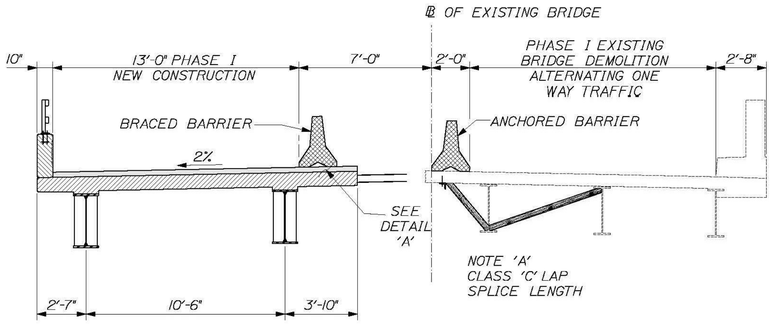
SEE SHEET 14 VE



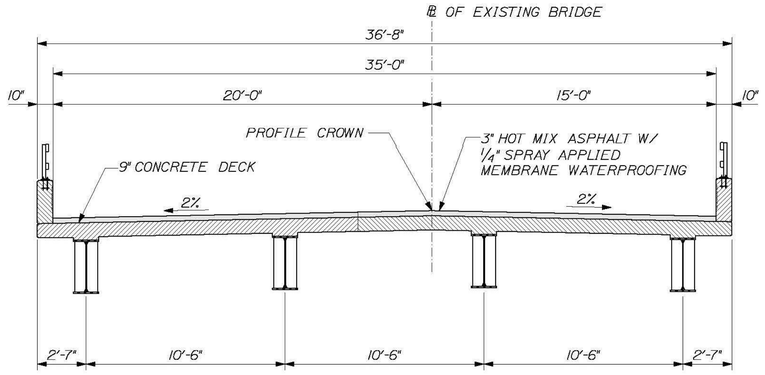
TYPICAL SECTION - EXISTING
1" = 4'-0"



TYPICAL SECTION - CONSTRUCTION PHASE II
1" = 4'-0"



TYPICAL SECTION - CONSTRUCTION PHASE I
1" = 4'-0"



TYPICAL SECTION - FINAL BUILD
1" = 4'-0"

SUGGESTED BRIDGE CONSTRUCTION SEQUENCE NOTES:

PHASE 1 - NORTH HALF OF BRIDGE:

1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
4. INSTALL BEARINGS AND NEW STEEL BEAMS.
5. INSTALL DIAPHRAGMS
6. PLACE CONCRETE DECK
7. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.

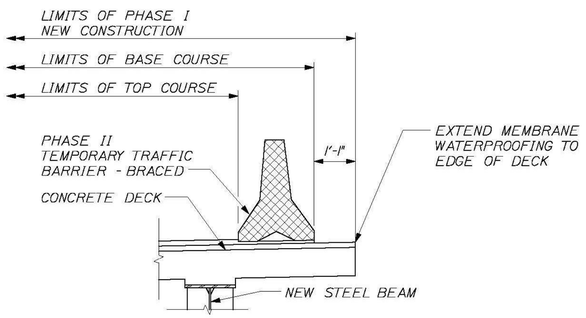
PHASE 2 - SOUTH HALF OF BRIDGE:

1. REMOVE EXISTING BRIDGE SUPERSTRUCTURE AND ABUTMENT BACKWALLS DOWN TO TOP OF EXISTING ABUTMENT BRIDGE SEATS.
2. INSTALL ABUTMENT PILES AND CONSTRUCT ABUTMENTS UP TO HORIZONTAL JOINT BELOW BEAMS.
3. CONSTRUCT ABUTMENT AND PIER PEDESTALS.
4. INSTALL BEARINGS AND NEW STEEL BEAMS.
5. INSTALL DIAPHRAGMS
6. PLACE CONCRETE DECK
7. CONSTRUCT APPROACH SLABS, BRIDGE RAILING, INSTALL SHEET MEMBRANE WATERPROOFING, AND PAVEMENT.

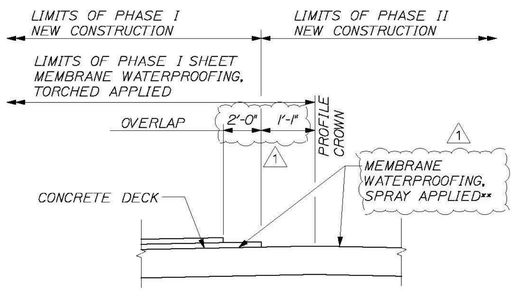
NOTES:

TEMPORARY TRAFFIC BARRIER SHALL MEET THE REQUIREMENTS FOR BRIDGE RAIL PERFORMANCE LEVEL TL3 OF NCHRP 350. TEMPORARY BARRIER CONNECTIONS SHALL BE DEVELOPED BY CONTRACTOR AND SHALL BE SUBMITTED TO VTRANS FOR REVIEW AND APPROVAL. TEMPORARY TRAFFIC BARRIER MAY BE ANCHORED TO EXISTING DECK BUT NOT TO PROPOSED DECK.

PAYMENT FOR TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER.



DETAIL 'A'
½" = 1'-0"



MEMBRANE OVERLAP DETAIL
½" = 1'-0"

** OVERLAP PHASE I SPRAY APPLIED MEMBRANE MIN. 6" ± WITH PHASE II MEMBRANE 1

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
DESIGN-DETAILED	ETC	2014
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

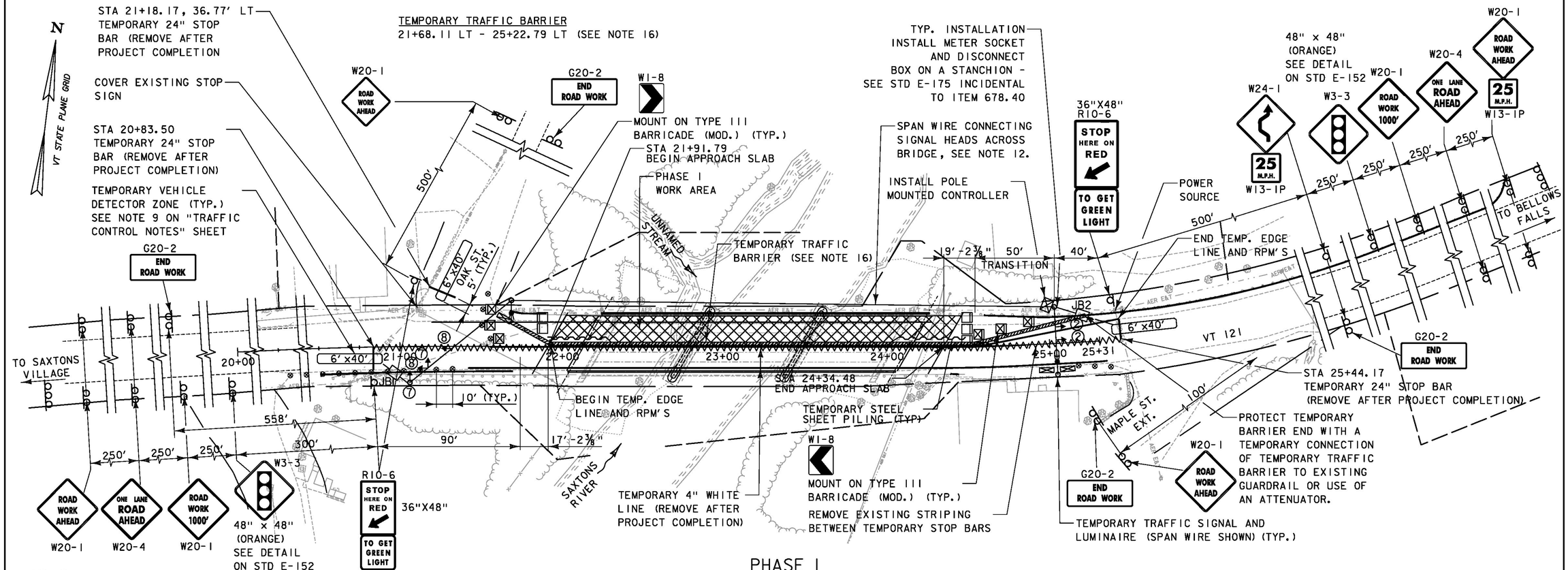
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

CONSTRUCTION PHASING

SHEET NUMBER
14

CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 | FAX (207) 737-2008

Filename: ...\014_VE_z10j072bdr_bphase.dgn



PHASE I

NOTES:

1. SEE SHEET ENTITLED "TRAFFIC CONTROL NOTES" FOR ADDITIONAL NOTES.
2. ALL SIGNAL RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN THE SIGNAL IS NOT OPERATING.
3. ITEM LOCATIONS ARE APPROXIMATE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONFIRM ALL MEASUREMENTS IN THE FIELD.
5. BRIDGE WORK SHALL BE CONSTRUCTED IN TWO PHASES:
   a. PHASE I: NORTH SIDE OF BRIDGE
   b. PHASE II: SOUTH SIDE OF BRIDGE
6. APPROACH CONSTRUCTION SIGNING SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD.
7. REMOVE ALL TEMPORARY PAVEMENT MARKINGS AFTER COMPLETION OF PROJECT.
8. THE CONTRACTOR SHALL REPLACE ALL EXISTING PAVEMENT MARKINGS IN KIND AFTER COMPLETION OF PROJECT. SEE LAYOUT SHEET FOR DETAILS.
9. TEMPORARY TRAFFIC SIGNAL POLES MAY BE CANTILEVER OR STRAIN POLE AT THE CONTRACTOR'S OPTION. POSITION TEMPORARY SIGNAL POLES FOR MAXIMUM VISIBILITY.
10. INSTALLATION OF TEMPORARY CONSTRUCTION SIGNS SHALL NOT OBSTRUCT EXISTING SIGNS.
11. LOCATIONS OF CONSTRUCTION APPROACH SIGNS ARE NOT SHOWN TO SCALE. USE THE DIMENSIONING SHOWN UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
12. AT CONTRACTOR'S OPTION, TEMPORARY SIGNAL WIRING ACROSS RIVER MAY BE LOCATED IN TEMPORARY CONDUIT ATTACHED TO BRIDGE.
13. PAYMENT FOR INSTALLATION OF TEMPORARY TRAFFIC SIGNAL SYSTEM, INCLUDING PAVEMENT MARKINGS AND PAVEMENT MARKING REMOVAL, AND ALL RELATED TRAFFIC CONTROL DEVICES AS SPECIFIED IN SECTION 678 WILL BE MADE UNDER THE APPROPRIATE SECTION 678 ITEMS IN THE CONTRACT. PAYMENT FOR FURNISHING AND MAINTAINING ALL REMAINING TRAFFIC CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO CONSTRUCTION APPROACH SIGNING, WILL BE MADE UNDER CONTRACT ITEM 641.10
14. PAYMENT FOR TEMPORARY PAVEMENT MARKINGS AND RAISED PAVEMENT MARKERS ASSOCIATED WITH THE TEMPORARY SIGNAL SYSTEM WILL BE MADE UNDER CONTRACT ITEM 678.40.
15. A SHORT TERM FULL ROADWAY CLOSURE, WITHIN THE PROJECT LIMITS, WILL BE REQUIRED FOR COMPLETION OF THE KEYWAY CLOSURE POUR BETWEEN BEAMS B2 AND B3. CLOSURE SHALL NOT EXCEED 6 HOURS. THE CONTRACTOR SHALL PROVIDE A PLAN FOR THE SHORT TERM FULL ROAD CLOSURE TO THE ENGINEER FOR APPROVAL A MINIMUM OF 14 DAYS PRIOR TO THE CLOSURE. THE CONTRACTOR SHALL PROVIDE TWO (2) PORTABLE CHANGEABLE MESSAGE SIGNS. THEY SHALL BE PLACED ON VT RTE 121 IN ADVANCE OF THE PROJECT, ONE TO THE EAST AND ONE TO THE WEST. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE PLACED 14 DAYS PRIOR TO THE CLOSURE TO GIVE ADVANCED NOTICE TO THE PUBLIC. THE ADVANCED NOTICE MESSAGE SHALL BE APPROVED BY THE ENGINEER. FOR CLOSURE PERIOD THE MESSAGE SHALL READ "BRIDGE CLOSED - SEEK ALTERNATE ROUTE". THESE SIGNS WILL BE PAID FOR UNDER ITEM 641.15. ALL OTHER ITEMS SPECIFIC TO THE FULL CLOSURE SHALL BE PAID FOR UNDER ITEM 641.10 TRAFFIC CONTROL.
16. TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE USED EXCEPT FLARED ENDS MAY BE TEMPORARY TRAFFIC BARRIER IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 621.07. SEE "TEMPORARY TRAFFIC BARRIER-BRACED" SHEETS FOR DETAILS.

LEGEND

- TEMPORARY TRAFFIC BARRIER
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- TRAFFIC SIGNAL POLE WITH LUMINAIRE
- SIGNAL HEAD AND STEP
- CONTROLLER
- JUNCTION BOX
- ATTENUATOR
- PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN WITH ONE POST
- SIGN WITH TWO POSTS

SIGNING NOTES:

1. INSTALL SIGNS WITH THE FLOW OF TRAFFIC.
2. ADJUST SIGN SPACINGS TO ACCOMODATE EXISTING SIGNS OR OBSTRUCTIONS - TRIM BRANCHES AS NECESSARY. PAYMENT FOR TRIMING BRANCHES SHALL BE INCIDENTAL TO ITEM 641.10 TRAFFIC CONTROL
3. COVER CONTRADICTORY EXISTING SIGNING.
4. SEE LEGEND ON TRAFFIC CONTROL PLAN -2.

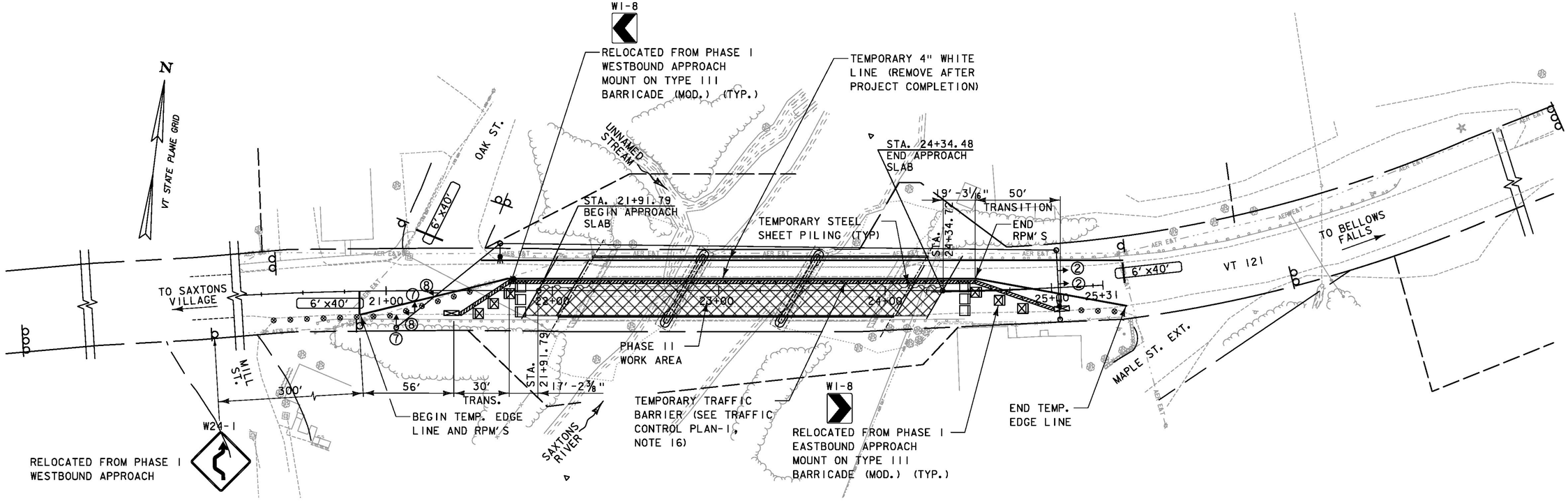
SCALE 1" = 30'-0"
30 0 30

T-Y LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_mot_01.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: C. SARGEANT
TRAFFIC CONTROL PLAN - 1

PLOT DATE: 8/26/2014
DRAWN BY: C. SARGEANT
CHECKED BY: D. BURHANS
SHEET 15 OF 69



PHASE II

NOTES:

1. FOR ADDITIONAL NOTES SEE TRAFFIC CONTROL PLAN - 1.
2. SEE TRAFFIC CONTROL PLAN - 1 FOR CONSTRUCTION APPROACH SIGNING.

SIGN #	DESCRIPTION	SIZE	QTY	SUPPORT
W20-1	ROAD WORK AHEAD	48x48	4	8 - POSTS (2/SIGN ASSEMBLY)
W13-1P	25 M.P.H.	24x30	2	
W20-1	ROAD WORK 1000 FT	48x48	2	4 - POSTS (2/SIGN)
W20-4	ONE LANE ROAD AHEAD	48x48	4	8 - POSTS (2/SIGN)
W3-3	TRAFFIC SIGNAL	48x48	2	4 - POSTS (2/SIGN)
R10-6	STOP HERE ON RED	36x48	2	2 - POSTS (1/SIGN)
G20-2	END ROAD WORK	48x24	4	8 - POSTS (2/SIGN)
W1-8	CHEVRON	24X30	2	ON BARRICADE
W24-1	DOUBLE REVERSE CURVE (1LANE)	48x48	1	1- POSTS (1/SIGN ASSEMBLY)
W13-1P	25 M.P.H.	24x30	1	

SQUARE SIGN POSTS	35
POST ANCHORS	35

REMOVE AND RESET
TEMPORARY TRAFFIC BARRIER
21+40.71 RT - 24+88.45 RT

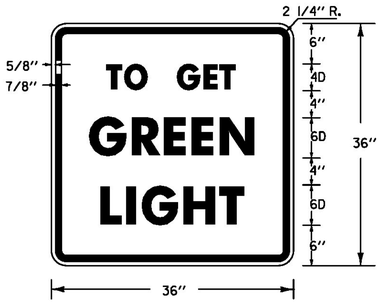
TEMPORARY TRAFFIC BARRIER
24+88.45 RT - 25+00.71 RT

SCALE 1" = 30'-0"
30 0 30

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

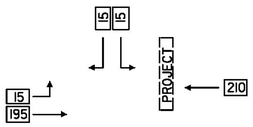
T.Y. LIN INTERNATIONAL

FILE NAME: z10j072bdr_mot_02.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: C. SARGEANT
DESIGNED BY: C. SARGEANT	CHECKED BY: D. BURHANS
TRAFFIC CONTROL PLAN - 2	SHEET 16 OF 69



COLORS: BLACK TEXT & BORDER
WHITE REFL. BACKGROUND
MATERIALS: PER STD. E-142

MOVEMENT VOLUME ASSUMPTIONS



CONTROLLER TIMING CHART

PHASE	1	2	3	4	5	6	7	8	9
IN USE	-	X	-	-	-	-	X	X	-
TRAFFIC MOVEMENT		WBT					SBLR	EBLT	
MIN GREEN		8					8	8	
MAX GREEN		23					20	24	
YELLOW CLEARANCE		5					5	5	
ALL RED CLEARANCE		6					6	6	
VEHICLE EXTENSION		3					3	3	
RECALL MODE		SOFT					NONE	SOFT	

SEE TRAFFIC CONTROL PLAN FOR PHASED CONSTRUCTION PLANS.

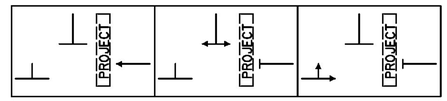
SIGNAL FACE ARRANGEMENT (12" LENSES)



ALL

NOTE:
RED BALL AND RED ARROW INDICATIONS REQUIRE LED LAMPS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS

PHASING DIAGRAM



PHASE 2 PHASE 7 PHASE 8

NOTES:

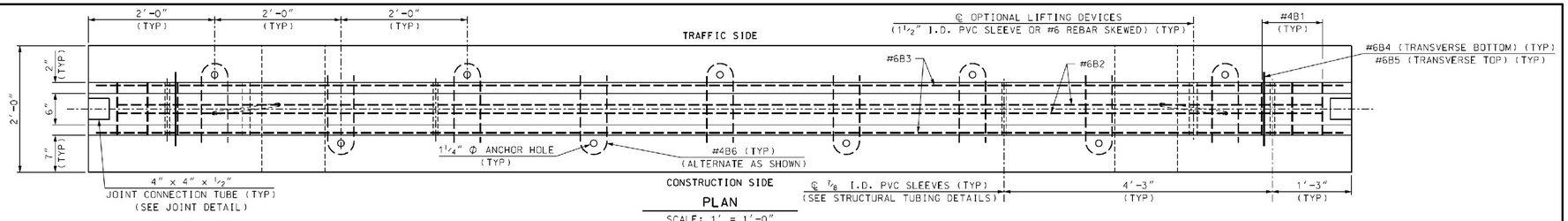
1. DESIGN OF THE SIGNAL SUPPORT(S) AND ANY REQUIRED GUYING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL WORK SHALL BE COMPLETED WITHIN THE EXISTING ROW.
2. SIGNAL TIMING/TIMING ADJUSTMENTS REQUESTED BY THE ENGINEER SHALL BE ACCOMPLISHED AS DIRECTED BY THE ENGINEER AND PAYMENT SHALL BE INCIDENTAL TO THE TRAFFIC SIGNAL ITEM. THE ALL-RED CLEARANCE INTERVAL IS BASED ON AN ASSUMED SPEED OF 10-20 MPH, THE ENGINEER SHALL MAKE SEVERAL TRIAL RUNS TO DETERMINE THE PROPER ALL-RED CLEARANCE INTERVAL.
3. SIGNAL FACES SHALL CONSIST OF 12" LENSES. (RED, YELLOW, AND GREEN)
4. THE BOTTOM OF THE HOUSING OF A SIGNAL FACE SUSPENDED OVER A ROADWAY SHALL NOT BE LESS THAN 16½ FEET NOR MORE THAN 19 FEET ABOVE THE PAVEMENT GRADE AT THE CENTER OF THE ROADWAY. THE BOTTOM OF A SIGNAL FACE NOT MOUNTED OVER A ROADWAY, SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE GROUND. CAUTION SHOULD BE USED TO ENSURE COMPLIANCE WITH THE HEIGHT REQUIREMENTS IN THE EVENT THE NEW APPROACH GRADES DIFFER SIGNIFICANTLY FROM THE OLD ROAD GRADE.
5. SIGNAL FACES FOR ANY ONE APPROACH SHALL NOT BE LESS THAN 8 FEET APART MEASURED HORIZONTALLY BETWEEN CENTER OF FACES.
6. SIGNAL HEADS MAY BE HUNG ON A SPAN WIRE OR ON A CANTILEVER MAST ARM. AT LEAST ONE SIGNAL HEAD SHALL BE UNMISTAKABLY IN LINE WITH THE CENTER OF APPROACHING TRAFFIC AT ALL TIMES. THE SECOND SIGNAL HEAD MAY BE POST MOUNTED, LOCATED AT A DISTANCE NO GREATER THAN 14½ FEET FROM THE CENTER OF THE APPROACH LANE WHEN THE STOP BAR IS 40 FEET FROM THE SIGNAL HEAD. CONSULT THE M.U.T.C.D. FOR ADDITIONAL INFORMATION CONCERNING SIGNAL PLACEMENT.
7. SIGNAL HEAD PLACEMENT IS CRITICAL. HEADS SHALL BE ADJUSTED TO REFLECT LANE LOCATION CHANGES.
8. THE CONTRACTOR SHALL PROVIDE AN ACTUATED CONTROLLER. THE APPROACHES NOTED SHALL HAVE A TEMPORARY VEHICLE DETECTOR (VIA MICROWAVE EQUIPMENT). LOOPS ARE SHOWN FOR PLACEMENT PURPOSES ONLY. THE CONTROLLER, DETECTOR AND ALL OTHER SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL NEMA STANDARDS.
9. VEHICLE DETECTION SHALL BE VIA MICROWAVE DETECTION AND SHALL BE 6' X 40' FOR PRESENCE DETECTION AT THE STOP BAR WITH THE NEAR PORTION LOCATED 5 FEET BEYOND THE STOP BAR.
10. INTERVAL TIMING SHOWN IN SECONDS.
11. INTERCONNECT BETWEEN SIGNAL POLES BY WHATEVER MEANS POSSIBLE OR CONVENIENT TO PROVIDE FOR A SAFE INSTALLATION.
12. PLACE TEMPORARY POLES BEHIND GUARDRAIL WHERE POSSIBLE.
13. POLES SUPPORTING SPAN WIRES AND/OR MAST ARMS SHALL BE ADEQUATELY BRACED OR GUYED AND SHALL NOT BE PLACED SO AS TO CREATE A HAZARD TO THE TRAVELLING PUBLIC.
14. ALL TEMPORARY SIGNAL EQUIPMENT, SIGNS, ETC., SHALL BELONG TO THE CONTRACTOR AT THE END OF THE PROJECT AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL, INCLUDING ANY TEMPORARY PAVEMENT MARKINGS, UTILITY POLES, WIRES, ETC.
15. A 250 WATT MER/150 WATT HPS LUMINAIRE AND MAST ARM SHALL BE PROVIDED ON A POLE ON EACH APPROACH AT A MOUNTING HEIGHT OF 30' ABOVE ROADWAY CENTERLINE. THE INTENT IS TO LIGHT UP THE AREA AROUND THE SIGNAL HEADS AND STOP BAR FOR INCREASED VISIBILITY. THE ENGINEER SHALL DETERMINE THE ADEQUACY OF THE LIGHTING AND DIRECT CHANGES IF THE LIGHTING IS INSUFFICIENT.
16. STOP BARS SHALL BE LOCATED A MINIMUM OF 40' AND A MAXIMUM OF 120' FROM THE NEAREST SIGNAL HEAD.
17. PAYMENT FOR THE VEHICLE DETECTORS SHALL BE FOR EACH UNIT INSTALLED UNDER ITEM 678.42.
18. SEE STANDARDS E-171A, E171B, AND E-171C FOR ADDITIONAL INFORMATION ON SIGNALS AND DETECTORS.
19. A "SIGNAL AHEAD" SIGN SHALL BE PLACED AT LEAST 500' FROM THE SIGNAL OR AT A POSITION TO BE DETERMINED BY THE ENGINEER. THE COST OF THIS SIGN SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 678.40.
20. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE ENGINEER PER STANDARDS T-10, T-28, T-29 AND T-30. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 641.10.
21. THE "TO GET GREEN LIGHT" SIGN IS TO BE USED ONLY ON APPROACHES WITH VEHICLE DETECTORS.
22. WHEN TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE, OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROAD WAY.
23. THE CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO ACTIVATING THE TRAFFIC SIGNALS SUCH THAT THEY CAN FIELD REVIEW CONDITIONS. THE SIGNAL SYSTEM SHALL BE PAID FOR UNDER ITEM 678.40 AND SHALL CONSIST OF POLES, SIGNS AND POSTS, WARNING SIGNS, LUMINAIRES (IF USED) AND SIGNAL EQUIPMENT TO PROVIDE FOR AN ADEQUATE DESIGN. ALSO INCLUDED ARE PERMITS AND COSTS ASSOCIATED WITH PROVIDING ELECTRICAL POWER.
24. PAYMENT FOR ALL TEMPORARY TRAFFIC CONTROL DEVICES NOT ASSOCIATED DIRECTLY WITH THE TEMPORARY TRAFFIC SIGNAL SYSTEM, INCLUDING BUT NOT LIMITED TO CONSTRUCTION APPROACH SIGNING, SHALL BE MADE UNDER ITEM 641.10.
25. SIGNS, POSTS, TEMPORARY PAVEMENT MARKINGS, RAISED PAVEMENT MARKINGS AND PAVEMENT MARKING REMOVAL RELATED TO THE TEMPORARY TRAFFIC SIGNAL SYSTEM INSTALLATION AS SHOWN ON THE TRAFFIC CONTROL PLAN ("STOP HERE ON RED", "SIGNAL AHEAD", "TO GET GREEN LIGHT", ETC.) ARE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 678.40.
26. PAYMENT FOR TEMPORARY TRAFFIC BARRIER, REMOVING AND RESETTING TEMPORARY TRAFFIC BARRIER, AND ASSOCIATED ENERGY ABSORPTION ATTENUATORS USED, SHALL BE MADE UNDER THE APPROPRIATE ITEMS. PAYMENT FOR THE REMOVING AND RESETTING OF THE ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO THE ENERGY ABSORPTION ATTENUATOR ITEM.

T·Y·LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

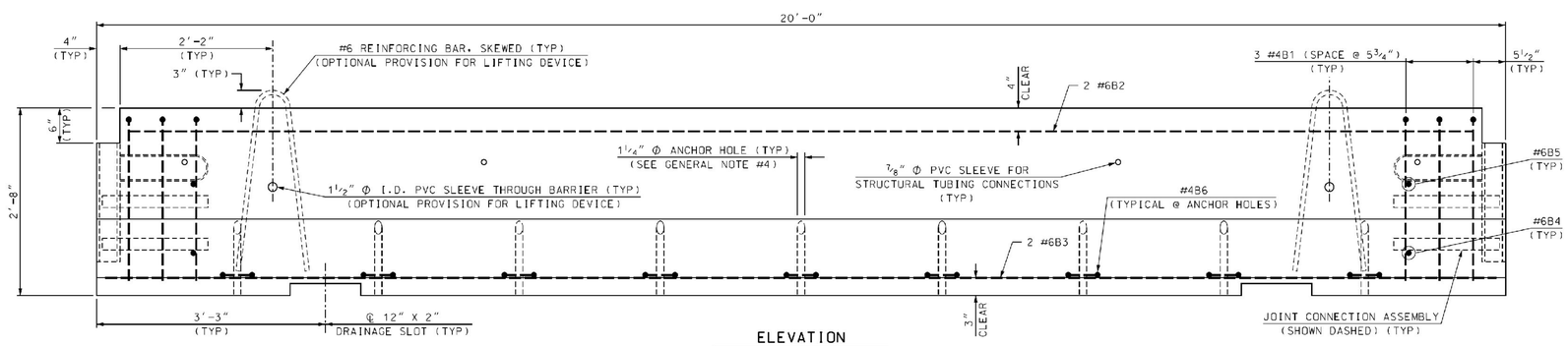
FILE NAME: z10j072bdr_mot_03.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: C. SARGEANT
TRAFFIC CONTROL NOTES

PLOT DATE: 8/26/2014
DRAWN BY: C. SARGEANT
CHECKED BY: D. BRYANT
SHEET 17 OF 69



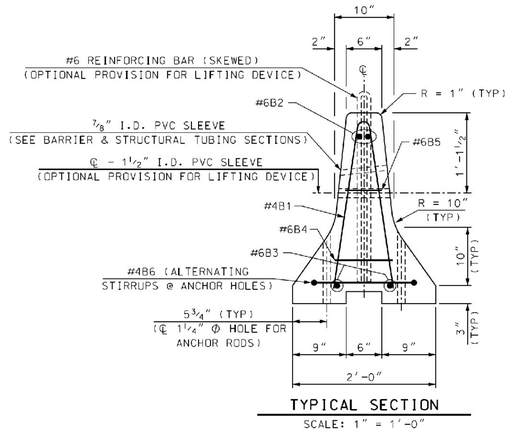
PLAN

SCALE: 1' = 1'-0"



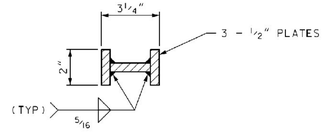
ELEVATION

SCALE: 1' = 1'-0"



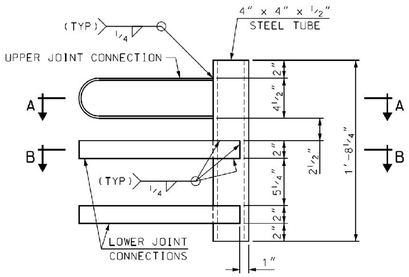
TYPICAL SECTION

SCALE: 1" = 1'-0"



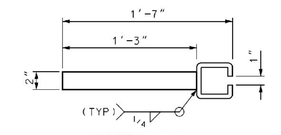
SECTION D-D

SCALE: 3" = 1'-0"

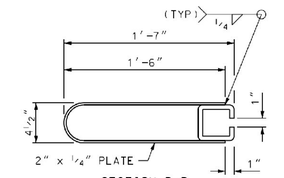


JOINT ASSEMBLY

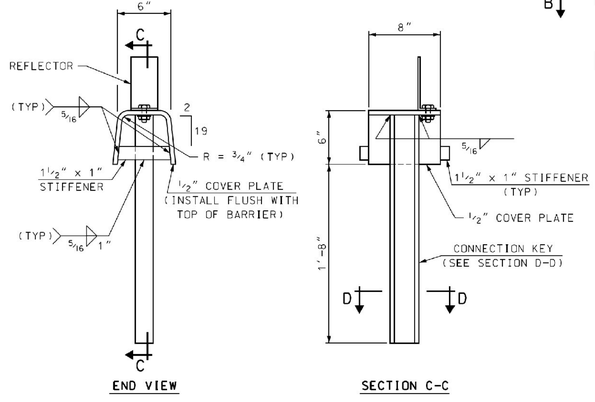
SCALE: 1½" = 1'-0"



SECTION A-A (UPPER CONNECTION)



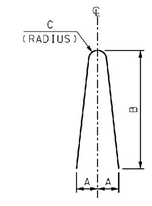
SECTION B-B (LOWER CONNECTION)



END VIEW SECTION C-C

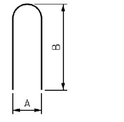
CONNECTION KEY ASSEMBLY DETAILS

SCALE: 1½" = 1'-0"



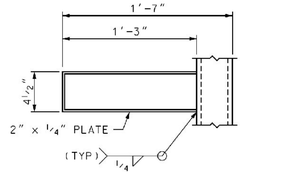
TYPE "I" REBAR

NOT TO SCALE

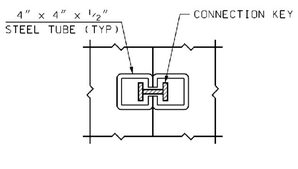


TYPE "II" REBAR

NOT TO SCALE



ELEVATION (UPPER CONNECTION)



SECTION B-B (LOWER CONNECTIONS - ALTERNATE)

ELEVATION (UPPER CONNECTION - ALTERNATE)

KEYED JOINT DETAIL

NOT TO SCALE

JOINT CONNECTION DETAILS

SCALE: 1½" = 1'-0" (EXCEPT AS NOTED)

GENERAL NOTES

1. TEMPORARY TRAFFIC BARRIER-BRACED SHALL BE FURNISHED BY THE CONTRACTOR AND PAID FOR AS ITEM 621.90 TEMPORARY TRAFFIC BARRIER. CONCRETE BARRIER AND ALL ATTACHMENTS SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 621. ALL BARRIER UNITS FOR BRACED SYSTEMS SHALL BE 20' LONG.

2. TEMPORARY TRAFFIC BARRIER-BRACED DETAILS, AS SHOWN IN THESE PLANS, ARE IN COMPLIANCE WITH REQUIREMENTS PER UPDATED NCHRP REPORT 350 FOR TEST NO. 3-11, TL-3 CRASH TESTED BY MIDWEST ROADSIDE SAFETY: NY BOX BEAM STIFFENING OF UNANCHORED TCB, MARCH 2008. THE BARRIER SYSTEM TESTED WITH A 27.6" DYNAMIC DEFLECTION AND ALLOWS FOR PLACEMENT AT A MINIMUM 12" DISTANCE BETWEEN BARRIERS AND EDGE OF BRIDGE DECK.

3. A MINIMUM OF TWO BARRIER UNITS WITH BRACED JOINTS ARE REQUIRED TO BE PLACED BEYOND BOTH ENDS OF THE BRIDGE WORK AREA FOR SPEED GREATER THAN 45 MPH. FOR SPEEDS ≤ 45 MPH, A MINIMUM OF ONE BRACED BARRIER IS REQUIRED TO BE FULLY SET BEYOND EACH END OF BRIDGE WORK AREA.

4. THE LAST CONCRETE BARRIER UNIT, AT EACH END OF BARRIER LAYOUT, SHALL BE ANCHORED A MINIMUM 18" BELOW THE ROADWAY SURFACE. REQUIRED 1" DIA. ANCHOR RODS (A36 STEEL) SHALL BE INSTALLED WITH 5 ANCHORS ON THE TRAFFIC SIDE OF BARRIER AND 4 ON THE CONSTRUCTION SIDE. IF THE END(S) OF THE BRACED CONCRETE BARRIER SYSTEM EXTENDS 50' OR MORE BEYOND LIMITS OF BRIDGE WORK THE LAST BARRIER UNIT DOES NOT REQUIRE ANCHORAGE.

5. TEMPORARY TRAFFIC BARRIER - BRACED, MAY BE INSTALLED WITH A 230' MINIMUM RADIUS. GAPS CREATED BETWEEN STRUCTURAL TUBES AND CONCRETE BARRIER, DURING A RADIAL LAYOUT, SHALL BE SHIMMED WITH 8"x8"x½" PLATES & FENDER WASHERS TO FIRMLY ATTACH STRUCTURAL TUBING TO BARRIER.

6. THE CONTRACTOR SHALL FURNISH AND INSTALL APPROVED RETROREFLECTIVE DELINEATORS AT 25-FOOT INTERVALS ALONG TOP AND/OR ONE FOOT DOWN THE SIDE OF PORTABLE CONCRETE BARRIER. PAYMENT FOR DELINEATORS SHALL BE MADE UNDER ITEM 621.90 TEMPORARY TRAFFIC BARRIER. THE COLOR OF DELINEATORS SHALL, IN ALL INSTANCES, CONFORM TO THE COLOR OF EDGE LINE MARKINGS. DELINEATORS SUPPLEMENT, BUT DO NOT REPLACE, THE NEED FOR RETROREFLECTIVE SOLID EDGE LINE MARKINGS.

MATERIAL NOTES

1. BARRIERS SHALL BE LIGHT COLORED CLASS AA CONCRETE, WITH MINIMUM COMPRESSIVE STRENGTH OF 4000 psi, AND SHALL HAVE A SMOOTH UNIFORM SURFACE FREE OF DEFECTS AND IRREGULARTIES. CASTING DATE SHALL BE SHOWN ON BARRIER. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED ¾", UNLESS OTHERWISE NOTED.

2. ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM A615) GRADE 60. ALL REINFORCEMENT SHALL HAVE 1½" MINIMUM CLEAR COVER, UNLESS OTHERWISE NOTED.

3. STRUCTURAL STEEL, EXCEPT THE STEEL TUBES, SHALL BE ASTM A36 GRADE 345. ALL STEEL SHALL BE FABRICATED IN ACCORDANCE WITH SECTION 506.

4. STEEL TUBES, 6x6x⅜ & 4x4x½, SHALL BE ASTM A 500 GRADE B OR C. THE 6x6x⅜ TUBES SHALL BE 12' LONG AND GALVANIZED IN ACCORDANCE WITH SUBSECTION 726.08.

5. A MINIMUM OF 2 RECESSED LIFTING DEVICES, EACH WITH THE CAPACITY TO LIFT A MASS OF 6 TONS (MINIMUM), SHALL BE INSTALLED TO EACH BARRIER UNIT. TWENTY FOOT LONG CONCRETE BARRIER UNITS ARE APPROXIMATELY 400 LBS./FT.

6. DELINEATORS SHALL BE ATTACHED TO BARRIER USING AN APPROVED ADHESIVE MATERIAL OR AS SHOWN ON THIS SHEET.

REINFORCING SCHEDULE (PER 20' BARRIER UNIT)

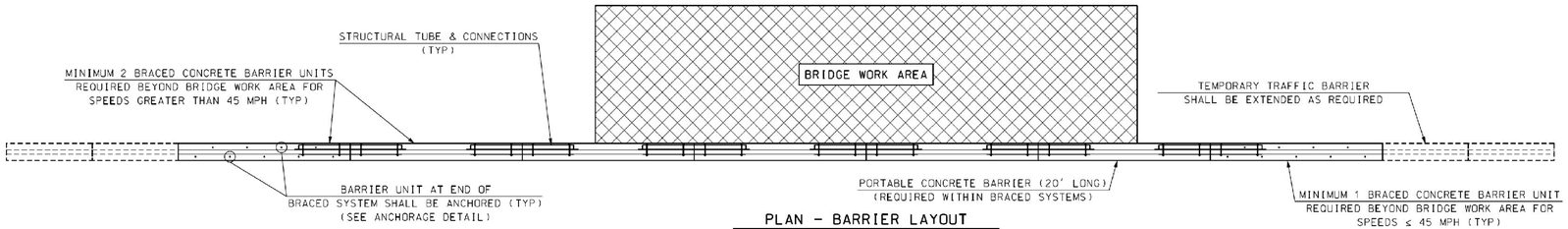
MARK	SIZE	LENGTH	# PIECES	TYPE	A	B	C	LOCATION
B1	#4	4'-10"	6	I	5"	2'-4"	1"	STIRRUPS
B2	#6	19'-1"	2	—				LONGITUDINAL (TOP)
B3	#6	19'-9"	2	—				LONGITUDINAL (BOTTOM)
B4	#6	1'-2"	2	—				TRANSVERSE (BOTTOM)
B5	#6	6"	2	—				TRANSVERSE (TOP)
B6	#4	2'-9"	9	II	5"	1'-3"		STIRRUPS

T-Y LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

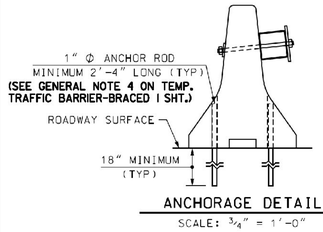
FILE NAME: x10J072bdr_ttb.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: -
PLOT DATE: 8/26/2014
DRAWN BY: P. MCCLURE
CHECKED BY: D. BURHANS

TEMPORARY TRAFFIC BARRIER-BRACED (1 OF 2) SHEET 18 OF 69



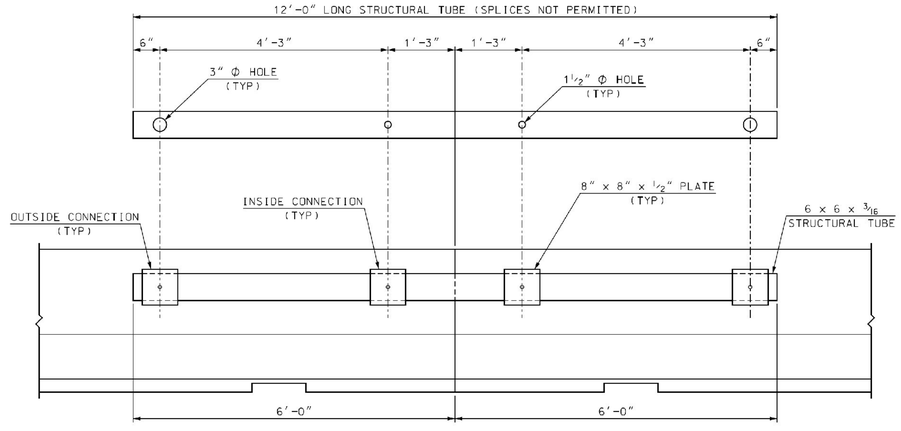
PLAN - BARRIER LAYOUT

NOT TO SCALE



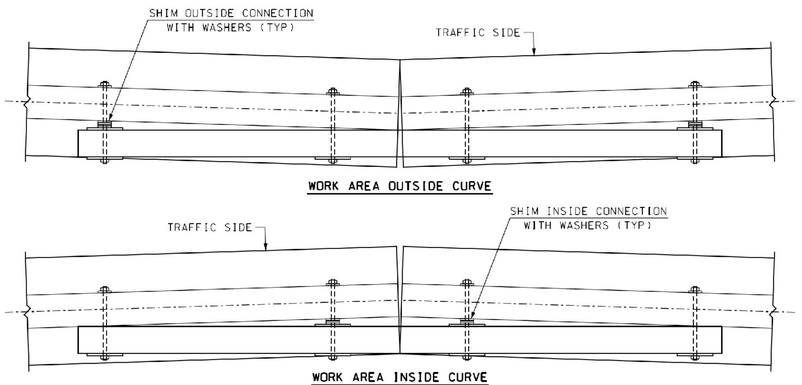
ANCHORAGE DETAIL

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



STRUCTURAL TUBING DETAILS

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

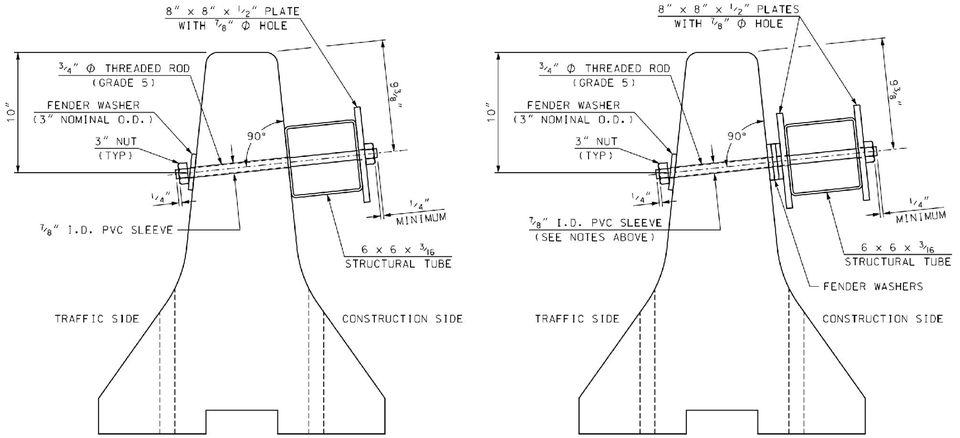


TUBE CONNECTIONS (CURVED ALIGNMENT)

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

PVC SLEEVE OPENINGS SHALL BE MODIFIED/DRILLED AS REQUIRED TO PROPERLY ALIGN STRUCTURAL TUBE BRACING UNITS FOR CURVED ALIGNMENTS

THE PRESENCE OF NORMAL HOLES WHICH HAVE BEEN MODIFIED/DRILLED WILL NOT AFFECT THE REUSE OF CONCRETE BARRIER UNITS



SECTION WITHOUT SHIMS

SECTION WITH SHIMS

BARRIER & STRUCTURAL TUBING SECTIONS

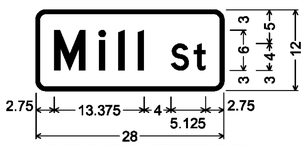
SCALE: 2" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
T·Y·LIN INTERNATIONAL	
FILE NAME: x10J072bdr_ttb.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: P. MCLURE
DESIGNED BY: -	CHECKED BY: D. BURHANS
TEMPORARY TRAFFIC BARRIER-BRACED (2 OF 2)	SHEET 19 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

TRAFFIC SIGN SUMMARY SHEET

MILE MARKER, STATION OR SIGN NUMBER	SIGN LEGEND	SIGN DIMENSIONS EACH	WIDTH (in)	HEIGHT (in)	NEW & SALVAGED SIGNS "A"	"B"	SALV SIGN	SALV TIS	EXIST POST RETAIN	SALVAGE	NEW SIGN POSTS NO. OF POST	FLANGED CHANNEL (LB / FT) 1.12	2.00	3.00	SQUARE STEEL (in) (LB / FT) 1.75 1.88	2.00 2.42	2.50 3.35	ANCHOR	SLEEVE	TUBULAR ALUMINUM Ø (IN) (LB / FT) 3.00 1.30	4.00 1.70	4.0 MOD 1.70	FOUNDATION	TUBULAR STEEL Ø (IN) (LB / FT) 3.00 7.60	3.50 9.00	4.00 10.80	5.00 14.60	W-SHAPE STEEL FTG. SIZE 24"	30"	WEIGHT	POST SIZE	SIGN FRAME REQUIRED	REMARKS	SIGN DETAIL DETAIL ON SHEET NUMBER	STANDARD SHEET NUMBER
OPTION ITEMS																																				
20+26.09, RT	Mill St / STOP		28.0	12.0	2.3		1.0				1.0					13.75' X		1.0																MOUNT TO STOP SIGN WITH BRACKET	20	
21+11.51, LT	STOP		30.0	30.0	6.3						1.0					13.25' X		1.0																		
22+04.98, LT	SAXTONS RIVER HISTORIC DISTRICT						1.0				1.0					12.0' X		1.0																		E-143
21+97.75, RT	BRIDGE 11-R VT121		6.0	~~8.0~~ 10.0	~~0.3~~ .42						1.0					10.0' X		1.0																BRIDGE NO. PLAQUE VD-701		T-42
24+30.02, LT	BRIDGE 11-R VT121		6.0	~~8.0~~ 10.0	~~0.3~~ .42						1.0					9.3' X		1.0																BRIDGE NO. PLAQUE VD-701		T-42
												FT .	FT .	FT .	FT .	FT ~~60.~~	FT .	EA 5.	EA .	LB .	LB .	LB .		LB .	LB .	LB .	LB .								
FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE VTRANS "SIGN POST DESIGN GUIDELINE."																																				
	TOTALS				SF ~~9.2~~ 9.44	SF .	EA. 2.	SF .				FT .			FT 58.3 ~~60.~~					LB .			EA.	LB .				EA. .	EA. .	LB .						



DOUBLE-SIDED STREET SIGN:;
1.500" Radius, 0.500" Border, White on Green;
[Mill] D; [St] D;

D3-1 STREET NAME SIGN DETAIL

T-Y LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10J072bdr_TSS.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: B. TOOTHAKER
SIGN SUMMARY SHEET

PLOT DATE: 8/26/2014
DRAWN BY: B.TOOTHAKER
CHECKED BY: D. BURHANS
SHEET 20 OF 69

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	To 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)

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.

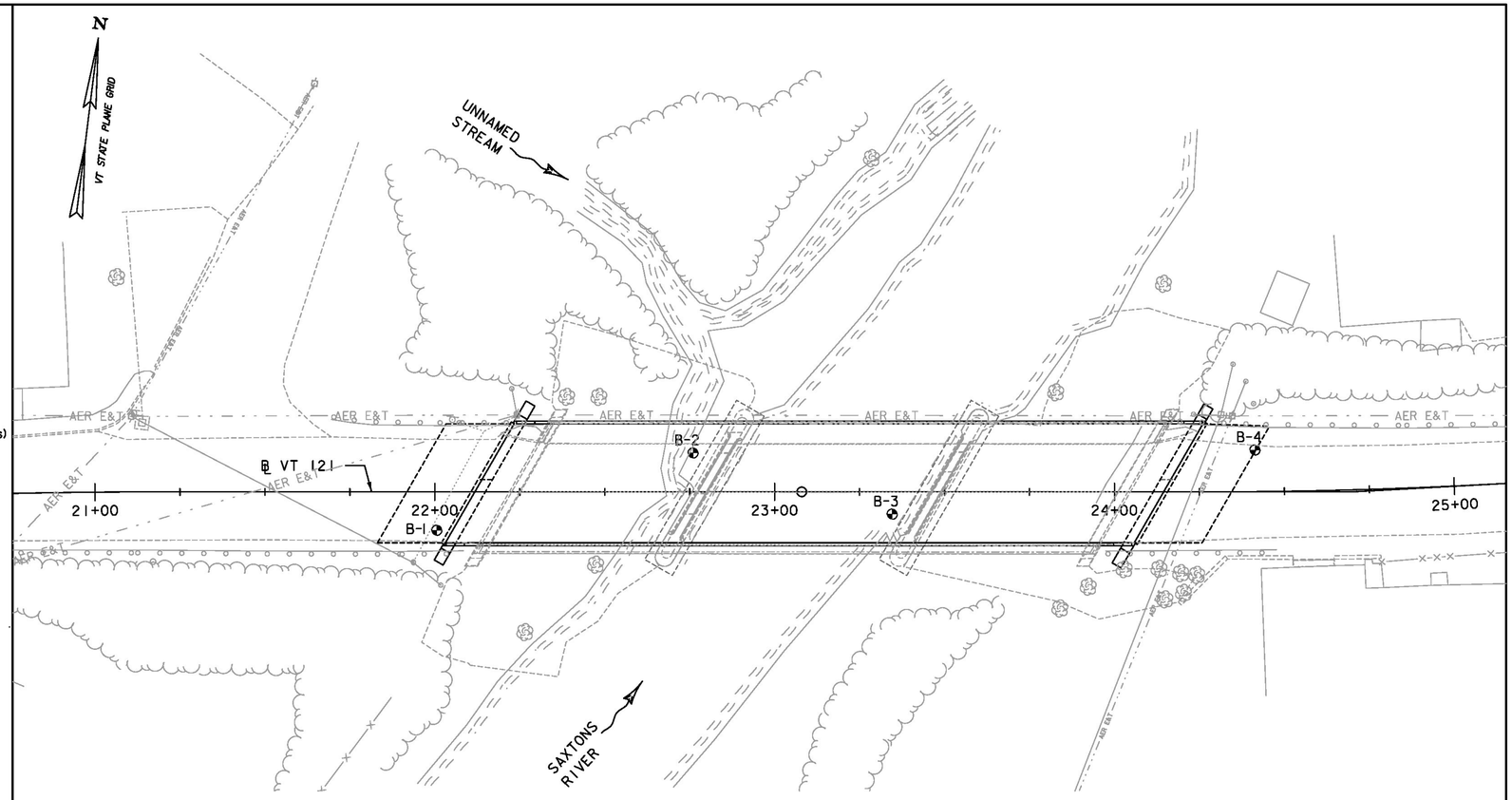
MUCK - Soft organic soil (containing > 10% organic material.

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.



BORING LAYOUT

SCALE 1" = 20'-0"

0 20 40

SCALE IN FEET

GENERAL NOTES

1. The subsurface explorations shown herein were made between November 11, 2011 and November 12, 2011 and between December 15, 2011 and December 16, 2011 by S.W. Cole Engineering, Inc.
2. Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by S.W. Cole Engineering and may not necessarily reflect actual variations in sub-surface 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 judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
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.

BORING LAYOUT

HOLE NO.	STATION	OFFSET	NORTHING	EASTING	GROUND ELEVATION	ELEVATION TLOB
B-1	22+00.6	11.3 RT	233043.05	1639670.68	452.0	356.0
B-2	22+76.0	11.4 LT	233074.93	1639742.67	451.0	-
B-3	23+34.6	6.6 RT	233064.31	1639803.06	450.0	-
B-4	24+41.5	12.3 LT	233096.24	1639906.66	449.0	-

T·Y·LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z101072bdr_bor_inf.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: T. POULIN
BORING INFORMATION & LAYOUT SHEET

PLOT DATE: 8/26/2014
DRAWN BY: S. MORGAN
CHECKED BY: R. HEBERT
SHEET 21 OF 69

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 1**
Page No.: 1 of 3
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/11/11 Date Finished: 11/15/11
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft
Station: Offset:
Ground Elevation: 452.0 ft

	Casing	Sampler
Type:	PW	SS
I.D.:	5 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Drp deg.)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft		12-10-10-9 (20)				
		Dark brown silty gravelly SAND, Rec. = 0.5 ft, 0.3 ft - 0.6 ft						
		Brown SAND with some gavel and silt, 0.6 ft - 3.0 ft						
5		Brown Silty SAND with some gravel, 3.0 ft - 8.0 ft Rec. = 1.0 ft		5-5-5-5 (10)				
		Brown silty gravelly SAND, 8.0 ft - 21.0 ft						
10		Rec. = 0.25 ft		4-3-4-3 (7)				
15		Rec. = 0.8 ft		8-9-10-7 (19)				
20		Rec. = 0.7 ft		9-7-7-11 (14)				
		Brown gravelly silty SAND, 21.0 ft - 28.0 ft, (NATIVE)						
25		Rec. = 1.2 ft		20-13-19-27 (32)				
		Gray silty gravelly SAND, 28.0 ft - 33.0 ft, (TILL)						
30		Rec. = 1.5 ft		30-48-31-34 (79)				
		Gray silty SAND with some gravel, 33.0 ft - 68.0 ft, (TILL)						
35		Rec. = 1.3 ft		24-35-53-79 (88)				
40		Rec. = 1.5 ft		32-34-41-46 (75)				
45		Rec. = 1.5 ft		44-48-76-50-4" (124)				
		Rec. = 1.5 ft		41-36-				

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

BOTTOM OF
ABUT. NO. 1
ELEV. = 443.00

ESTIMATED PILE TIP
@ ABUT. NO. 1
ELEV. = 367.00

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 1**
Page No.: 2 of 3
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/11/11 Date Finished: 11/15/11
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft
Station: Offset:
Ground Elevation: 452.0 ft

	Casing	Sampler
Type:	PW	SS
I.D.:	5 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Drp deg.)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		Rec. = 0.5 ft		47-50-4" (83)				
60		Rec. = 0.3 ft		21-50-4"				
65		Rec. = 0.8 ft		71-6"				
		Gray silty gravelly SAND with occasional cobbles, 68.0 ft - 95.0 ft, (TILL)		22-36-50-5"				
70		Rec. = 0.3 ft		50-6"				
75		Rec. = 0.25 ft		50-5"				
80		Rec. = 0.3 ft		30-37-72-25-1"				
85		Rec. = 0.2 ft		50-3"				
90		Rec. = 0.3 ft		94-6"				
95		Rec. = 0.3 ft		70-82				
		Weathered ROCK, 95.0 ft - 96.0 ft						
		BEDROCK, 96.0 ft - 106.0 ftNQ	R-1	Top of Bedrock @ 96.0 ft				

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

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 1**
Page No.: 3 of 3
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/11/11 Date Finished: 11/15/11
VTSPG NAD83: N 233043.05 ft E 1639670.68 ft
Station: Offset:
Ground Elevation: 452.0 ft

	Casing	Sampler
Type:	PW	SS
I.D.:	5 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Drp deg.)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
105		Hole stopped @ 106.0 ft						
110								
115								
120								
125								
130								
135								
140								
145								

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

2010.COPY 11-1600.GPJ VERMONT AGT.GDT 12/21/12

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
T-Y LIN INTERNATIONAL	
FILE NAME: z10j072bdr_bor1.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: T. KELLEY
DESIGNED BY: S. KELLER	CHECKED BY: S. KELLER
BORING LOG (1 OF 4)	SHEET 22 OF 69

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 2**
Page No.: 1 of 2
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/17/11 Date Finished: 11/17/11
VTSPG NAD83: N 233074.93 ft E 1639742.67 ft
Station: Offset:
Ground Elevation: 451.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft					
		REINFORCED CONCRETE, 0.3 ft - 0.8 ft					
		Open air, 0.8 ft - 26.0 ft					
25		River Bottom Alluvial soils, cobbles, 26.0 ft - 32.0 ft					
30		Gray silty SAND with some gravel, 32.0 ft - 63.0 ft, (TILL)					
		Rec. = 0.4 ft	82-63-56 (119)				
40		Rec. = 1.5 ft	25-33-37-25 (70)				
45		Rec. = 0.75 ft	30-44-50-5"				
		Rec. = 1.0 ft	20-26-				

BOTTOM OF EXISTING PIER. NO. 1
ELEV. = 413.8 ±

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

2010.COPY 11-1603.GPJ VERMONT AOT.GDT 12/21/12

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 2**
Page No.: 2 of 2
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/17/11 Date Finished: 11/17/11
VTSPG NAD83: N 233074.93 ft E 1639742.67 ft
Station: Offset:
Ground Elevation: 451.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		Rec. = 0.7 ft	24-36 (50)				
		Rec. = 0.8 ft	73-75-3"				
60			54-50-5"				
65		Gray silty SAND with some gravel with occasional cobbles, 63.0 ft - 69.5 ft, (TILL)					
		Rec. = 0.5 ft	75-6"				
70		Rec. = 0.3 ft	69-6"				
		Hole stopped @ 69.5 ft					

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

2010.COPY 11-1603.GPJ VERMONT AOT.GDT 12/21/12

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_bor2.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
BORING LOG (2 OF 4)

PLOT DATE: 8/26/2014
DRAWN BY: T. KELLEY
CHECKED BY: S. KELLER
SHEET 23 OF 69

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 3**
Page No.: 1 of 2
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/16/11 Date Finished: 11/16/11
VTSPG NAD83: N 233064.31 ft E 1639803.06 ft
Station: Offset:
Ground Elevation: 450.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		BITUMINOUS PAVEMENT, 0.0 ft - 0.3 ft REINFORCED CONCRETE, 0.3 ft - 0.8 ft Open air, 0.8 ft - 27.0 ft					
30		Alluvial Soils? (silty sands), 27.0 ft - 33.0 ft Rec. = 0.0 ft	8-3-4-4 (7)				
35		Gray silty SAND with some gravel, 33.0 ft - 58.0 ft, (TILL) Rec. = 0.6 ft	19-25-17-28 (42)				
40		Rec. = 0.7 ft	15-29-50 (79)				
45		Rec. = 0.8 ft	31-48-50-4"				

BOTTOM OF EXISTING PIER. NO. 2
ELEV. = 413.8 ±

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

2010 COPY 11-1030.GPJ \\VERMONT AOT.GDT 12/21/12

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 3**
Page No.: 2 of 2
Pin No.:
Checked By:

Boring Crew: Nate Seguin (SWCE), Tony Martinelli (CDS)
Date Started: 11/16/11 Date Finished: 11/16/11
VTSPG NAD83: N 233064.31 ft E 1639803.06 ft
Station: Offset:
Ground Elevation: 450.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
55		Rec. = 1.5 ft	19-31-37-41 (68)				
		Rec. = 0.6 ft	56-70				
60		Gray gravelly silty SAND, 58.0 ft - 68.0 ft, (TILL) Rec. = 0.3 ft	100-5"				
65		Rec. = 0.25 ft	78-5"				
70		Gray silty fine SAND with some gravel, 68.0 ft - 71.5 ft, (TILL) Rec. = 0.88 ft	21-37-50 (87)				
		Hole stopped @ 71.5 ft					
75							
80							
85							
90							
95							

Notes:
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2. N Values have not been corrected for hammer energy. C_E is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

2010 COPY 11-1030.GPJ \\VERMONT AOT.GDT 12/21/12

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10J072bdr_bor3.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
BORING LOG (3 OF 4)

PLOT DATE: 8/26/2014
DRAWN BY: T. KELLEY
CHECKED BY: S. KELLER
SHEET 24 OF 69

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 4**
Page No.: 1 of 2
Pin No.:
Checked By:

Boring Crew: Nate Sequin (SWCE), Tony Martinelli (CDS)
Date Started: 12/15/11 Date Finished: 12/16/11
VTSPG NAD83: N 233096.24 ft E 1639906.66 ft
Station: Offset:
Ground Elevation: 449.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0		BITUMINOUS PAVEMENT, Rec. = 1.0 ft, 0.0 ft - 0.3 ft	17-15-16-19				
		Dark brown silty gravelly Sand, 0.3 ft - 1.0 ft					
		Brown silty SAND with some gravel, 1.0 ft - 18.0 ft, (FILL)					
5		Rec. = 0.8 ft	10-7-7-6				
10		Rec. = 0.8 ft	6-2-3-3				
15		Rec. = 0.8 ft	9-5-6-6				
		Gray-brown silty gravelly SAND, 18.0 ft - 36.0 ft, (TILL)					
20		Rec. = 0.66 ft	23-13-18-50-5"				
25		Rec. = 0.8 ft	13-15-17-17				
30		Rec. = 1.3 ft	23-24-30-39				
35		Rec. = 1.0 ft	22-28-37-37				
		With occasional cobbles, 36.0 ft - 46.0 ft					
40		Rec. = 0.8 ft	24-26-24-26				
45		Rec. = 0.66 ft	58-50-4"				
		Changing to brown, 46.0 ft - 58.0 ft					
		Rec. = 0.66 ft	44-25-				

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

2010 COPY - 11-1000.GPJ - VERMONT AOT.GDT 12/21/12

BOTTOM OF
ABUT. NO. 2
ELEV. = 441.00

ESTIMATED PILE TIP
@ ABUT. NO. 2
ELEV. = 367.00

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

BORING LOG

BRF 0126(12) Bridge Replacement Proj.
Route 121 over the Saxton River
Rockingham, Vermont

Boring No.: **B- 4**
Page No.: 2 of 2
Pin No.:
Checked By:

Boring Crew: Nate Sequin (SWCE), Tony Martinelli (CDS)
Date Started: 12/15/11 Date Finished: 12/16/11
VTSPG NAD83: N 233096.24 ft E 1639906.66 ft
Station: Offset:
Ground Elevation: 449.0 ft

	Casing	Sampler
Type:	HW	SS
I.D.:	4 in	1.25 in
Hammer Wt:	N.A.	140 lb.
Hammer Fall:	N.A.	30 in.
Hammer/Rod Type:	Auto/AWJ	
Rig: Truck Mount D-120	C_E =	

Groundwater Observations

Date	Depth (ft)	Notes

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
			1"				
55		Rec. = 0.2 ft	50-6"				
60		Gray-brown silty SAND with some gravel, 58.0 ft - 63.0 ft, (TILL)					
		Rec. = 0.0 ft	50-5"				
65		Gray-brown silty gravelly SAND, 63.0 ft - 69.6 ft, (TILL)					
		Rec. = 0.0 ft	50-5"				
70		Rec. = 0.0 ft	47-25-1"				
		Hole stopped @ 69.6 ft					
75							
80							
85							
90							
95							

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

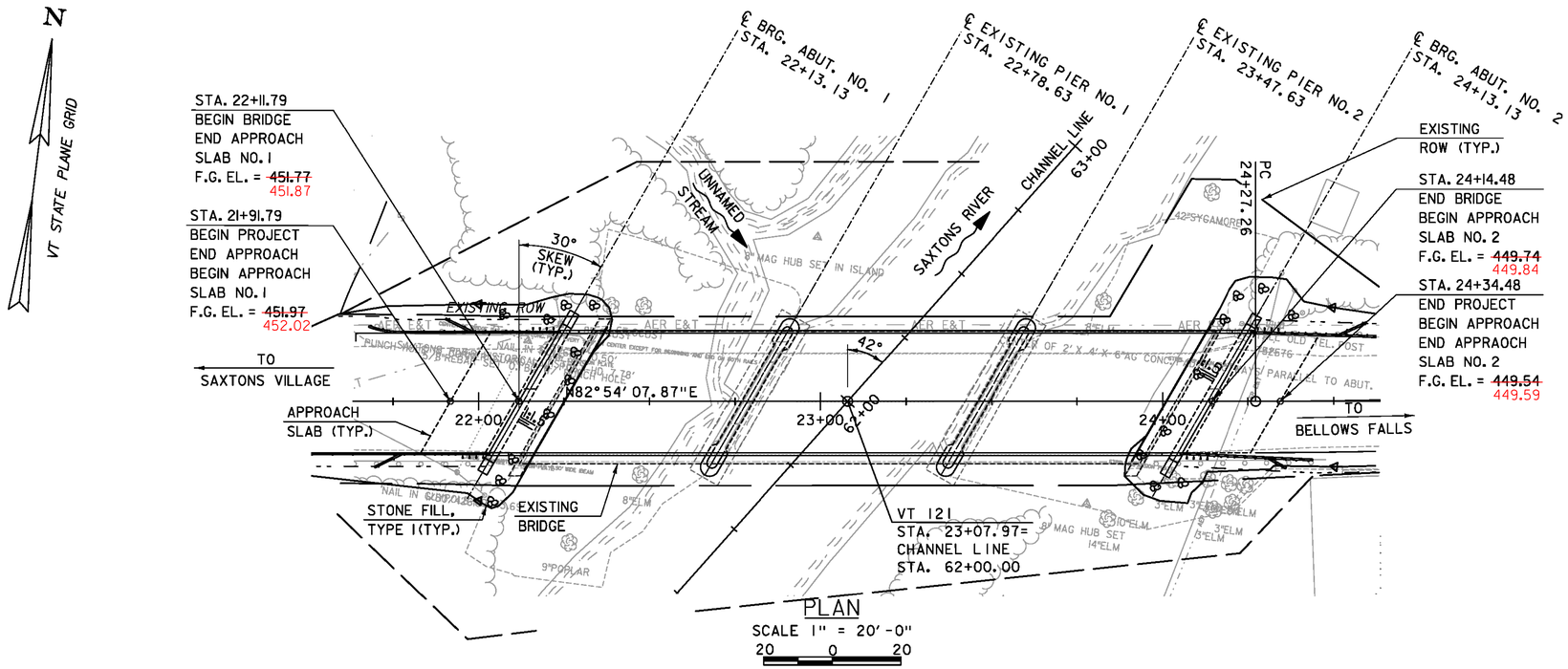
2010 COPY - 11-1000.GPJ - VERMONT AOT.GDT 12/21/12

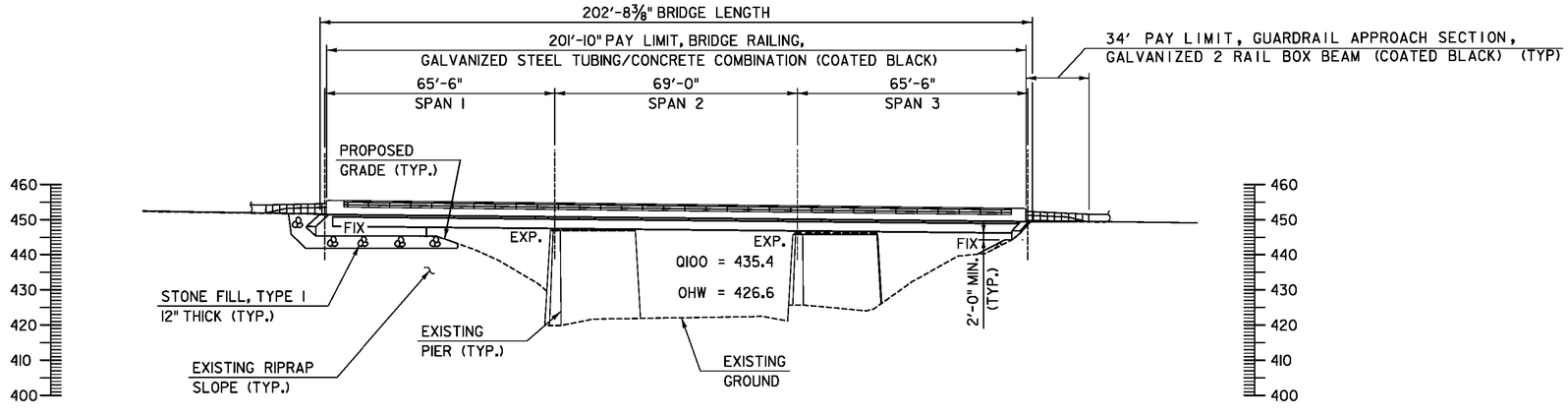
T·Y·LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10J072bdr_bor4.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
BORING LOG (4 OF 4)

PLOT DATE: 8/26/2014
DRAWN BY: T. KELLEY
CHECKED BY: S. KELLER
SHEET 25 OF 69



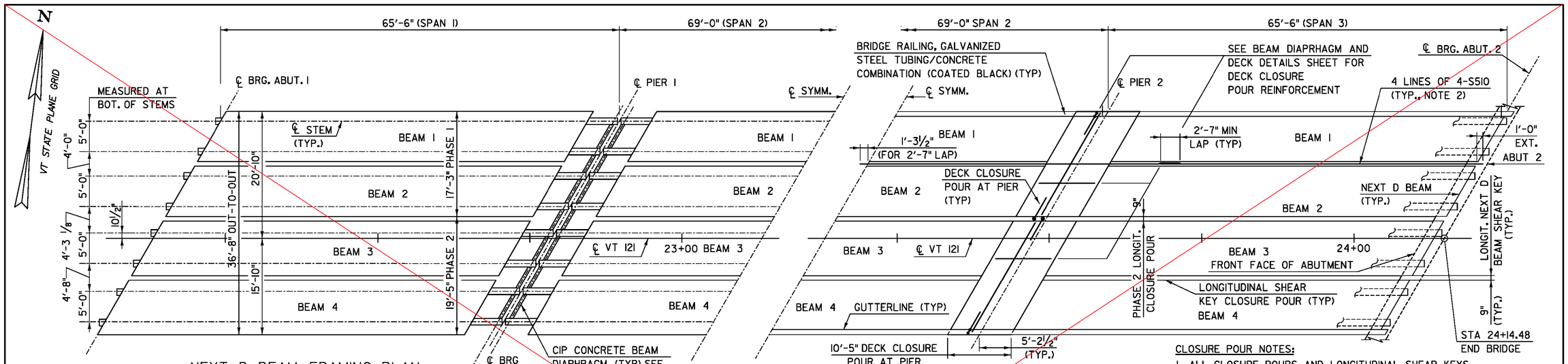


ELEVATION
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_gpe.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
BRIDGE PLAN AND ELEVATION	SHEET 26 OF 69



SPAN	NEXT D BEAM PLAN DIMENSIONS			
	"A"	"B"	"C"	"D"
1	66'-0 5/8"	60'-3 1/2"	0'-10 1/8"	4'-11"
2	68'-5 1/8"	58'-7"	4'-11"	4'-11"
3	66'-0 5/8"	60'-3 1/2"	4'-11"	0'-10 1/8"

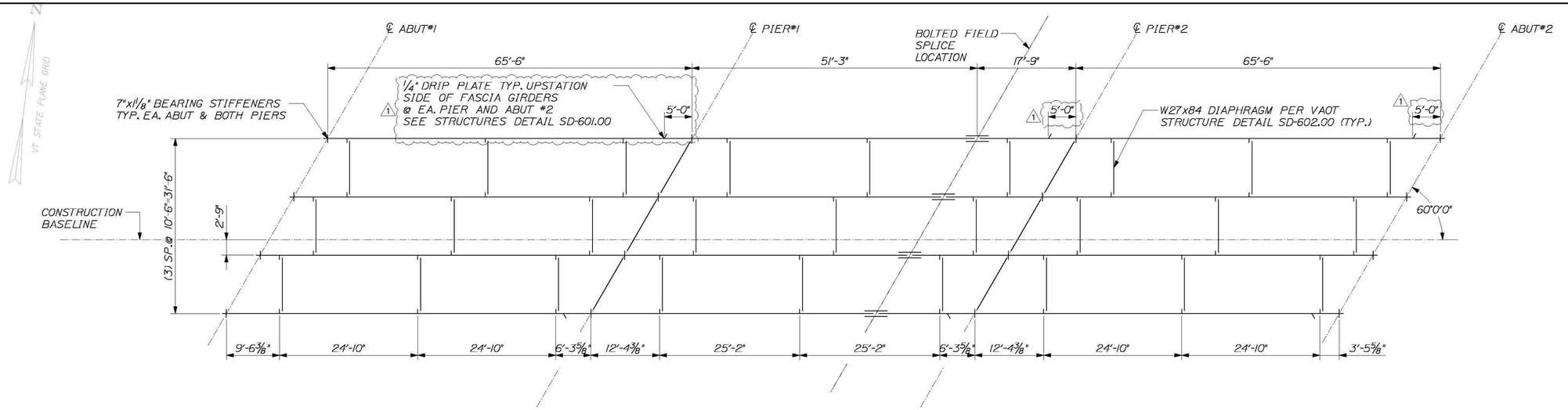
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

TYLININTERNATIONAL

FILE NAME: z10J072bdr_girder_1.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
NEXT D BEAM DETAILS (1 OF 3)

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 27 OF 69

SEE SHEET 27 VE



FRAMING PLAN
3/32" = 1'-0"

STRUCTURAL STEEL NOTES

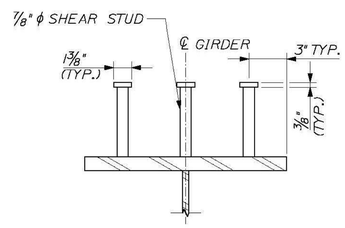
1. ALL STEEL SHALL BE ASTM A709 GRADE 50W

2. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE SPACED AS REQUIRED BY DESIGN, BUT SHALL BE LIMITED TO A MAXIMUM SPACING OF 4'-0". THE DESIGN OF FALSEWORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

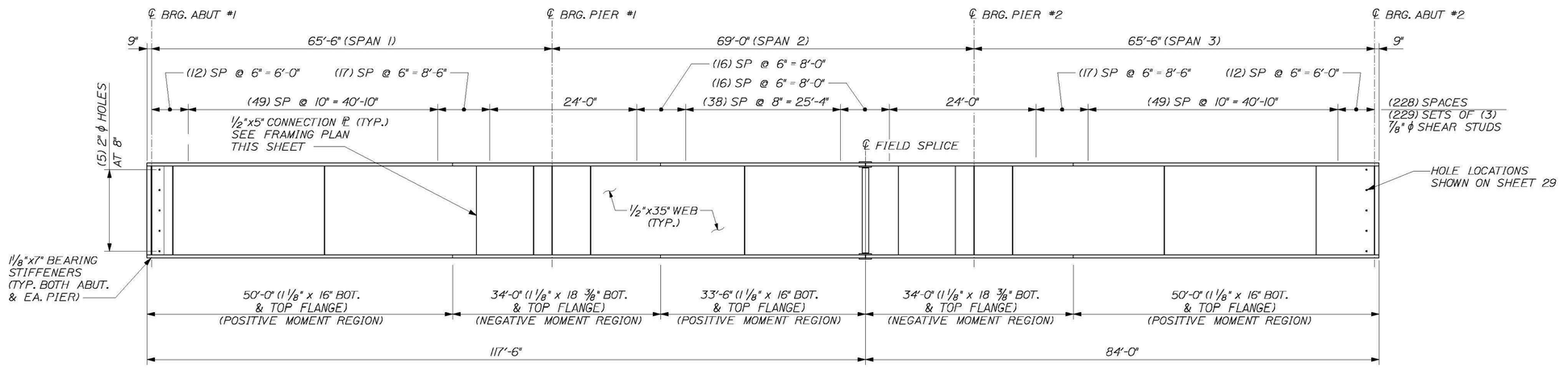
3. ANY BOLT HOLES IN THE WEBS OF FASCIA GIRDERS NO OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD TYPE 3 BOLTS. THE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19 OF THE STANDARD SPECIFICATIONS.

4. ENDS OF THE GIRDERS SHALL BE VERTICAL IN THEIR FINAL POSITION.

5. DUE TO STABILITY CONCERNS AT THE ABUTMENTS DURING THE ERECTION OF THE SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT THE ERECTION PLAN A MINIMUM OF 30 WORKING DAYS PRIOR TO ERECTING THE SUPERSTRUCTURE.



SHEAR STUD CONNECTOR DETAIL
2" = 1'-0"



GIRDER ELEVATION
5V:1H

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
DESIGN-DETAILED	ETC	2014
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

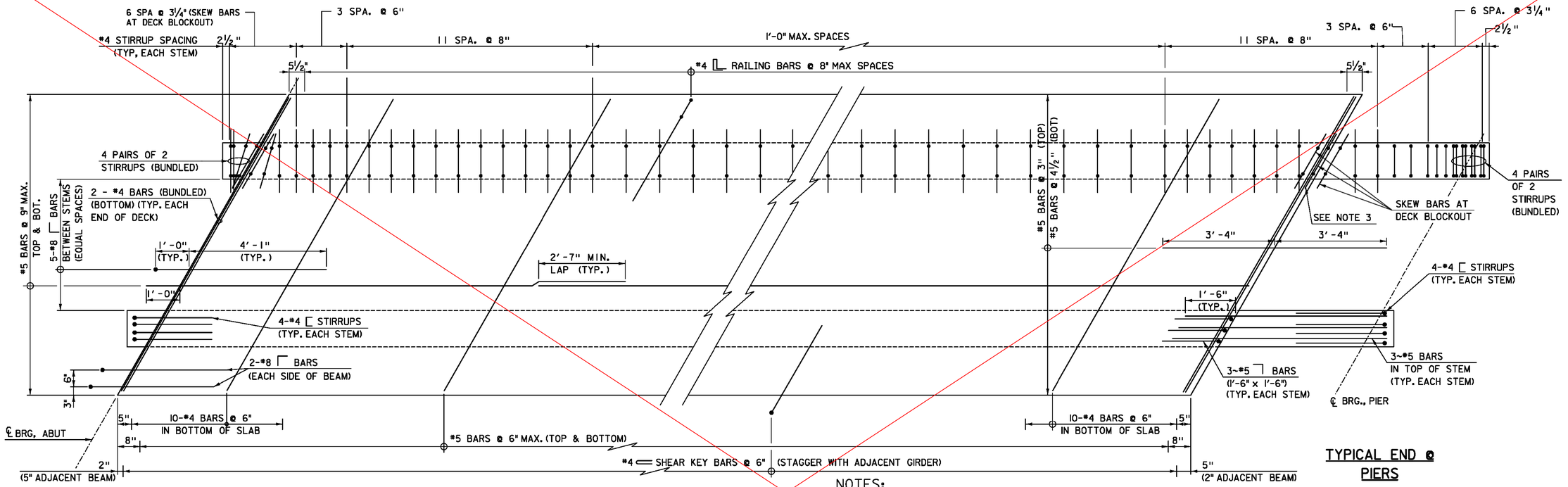
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

STEEL GIRDER DETAILS (1 OF 3)

SHEET NUMBER

27

CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 FAX (207) 737-2008



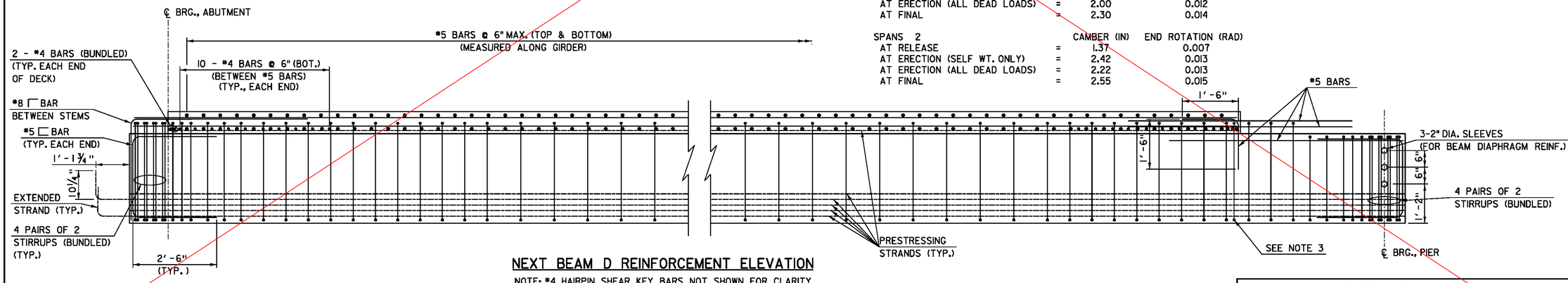
TYPICAL END @ PIERS

TYPICAL END @ ABUTMENTS

NEXT BEAM D REINFORCEMENT PLAN

(BEAM 1, SPAN 1 SHOWN, BEAMS 2, 3 AND 4 AND SPANS 2 AND 3 SIMILAR)

SCALE: 1"=1'-0"



NEXT BEAM D REINFORCEMENT ELEVATION

NOTE: #4 HAIRPIN SHEAR KEY BARS NOT SHOWN FOR CLARITY

SCALE: 1"=1'-0"

NOTES:

1. BEAM REINFORCEMENT DETAILED IN PLAN AND ELEVATION IS TYPICAL ABOUT THE MIDSPAN OF EACH BEAM.
2. SEE 'NEXT D BEAM DETAILS (3 OF 3)' SHEET FOR PRESTRESSING STRAND LAYOUT AND DEBONDING.
3. PLACE EXTRA STIRRUP AT END OF COPED FLANGE (PIER ENDS ONLY).
4. PREDICTED BEAM CAMBER AND END ROTATION:

SPANS 1 & 3		CAMBER (IN)	END ROTATION (RAD)
AT RELEASE	=	1.23	0.007
AT ERECTION (SELF WT. ONLY)	=	2.18	0.013
AT ERECTION (ALL DEAD LOADS)	=	2.00	0.012
AT FINAL	=	2.30	0.014

SPANS 2		CAMBER (IN)	END ROTATION (RAD)
AT RELEASE	=	1.37	0.007
AT ERECTION (SELF WT. ONLY)	=	2.42	0.013
AT ERECTION (ALL DEAD LOADS)	=	2.22	0.013
AT FINAL	=	2.55	0.015

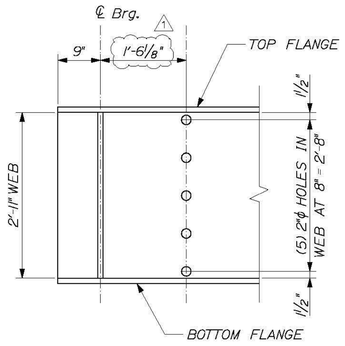
5. ACTUAL BEAM CAMBER AND END ROTATIONS MAY VARY DUE TO CONSTRUCTION TOLERANCES.
6. PREDICTED LONG-TERM BEAM CAMBERS AND DEFLECTIONS ARE ESTIMATED PREDICTED VALUES BASED ON TABLE 4.6.2. SUGGESTED MULTIPLIERS TO BE USED AS A GUIDE IN ESTIMATING LONG-TERM CAMBERS AND DEFLECTIONS FOR TYPICAL MEMBERS OF THE PCI DESIGN HANDBOOK, 4TH EDITION.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

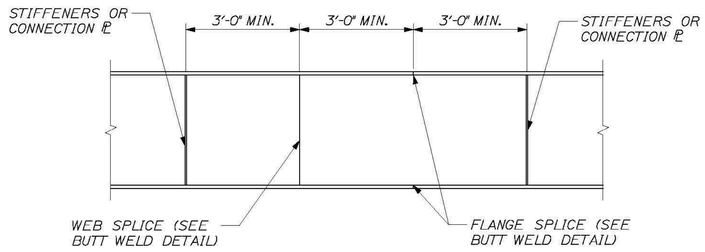
T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_girder_2.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
NEXT D BEAM DETAILS (2 OF 3)	SHEET 28 OF 69

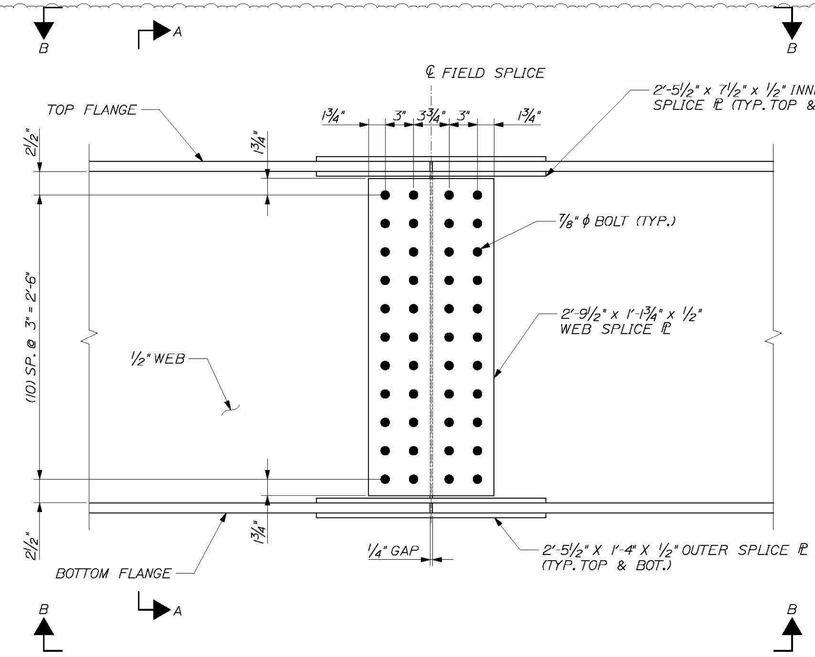
SEE SHEET 28 VE



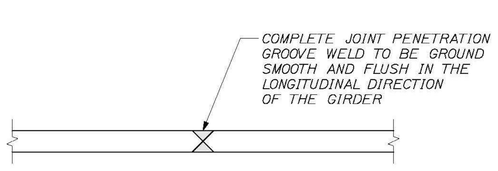
GIRDER END DETAIL
SCALE: 3/4" = 1'-0"



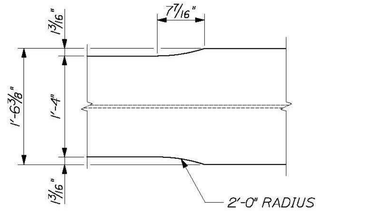
WELDED SPLICE TRANSITION
1/2" = 1'-0"



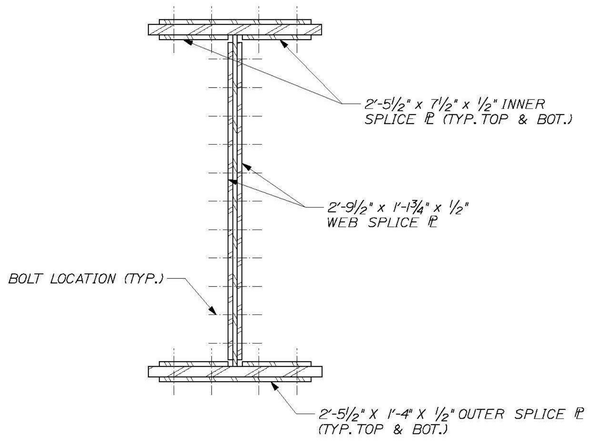
BOLTED FIELD SPLICE ELEVATION
1 1/2" = 1'-0"



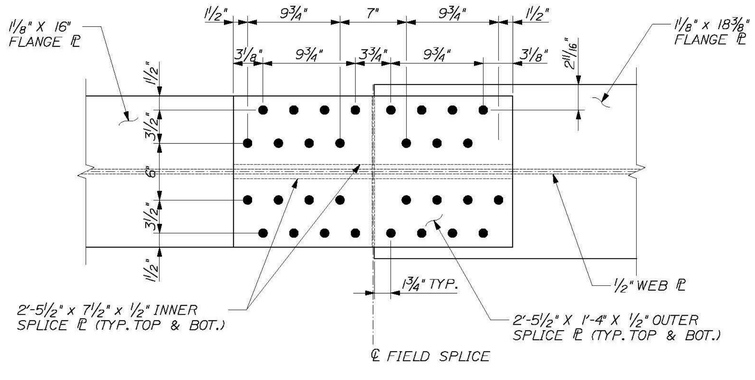
FLANGE OR WEB BET WELD
3" = 1'-0"



FLANGE WIDTH TRANSITION DETAIL
1" = 1'-0"



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



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

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

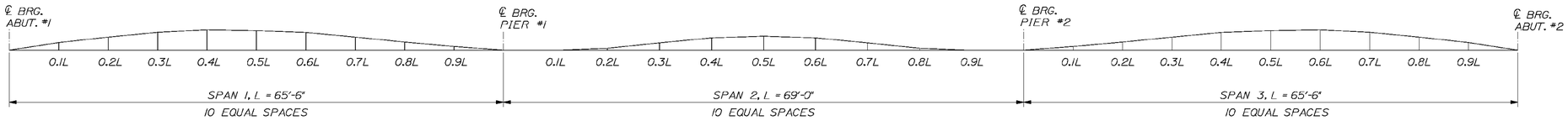
	BY	DATE
DESIGN-DETAILED	ETC	2014
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

STEEL GIRDER DETAILS (2 OF 3)

SHEET NUMBER
28

CALDERWOOD ENGINEERING
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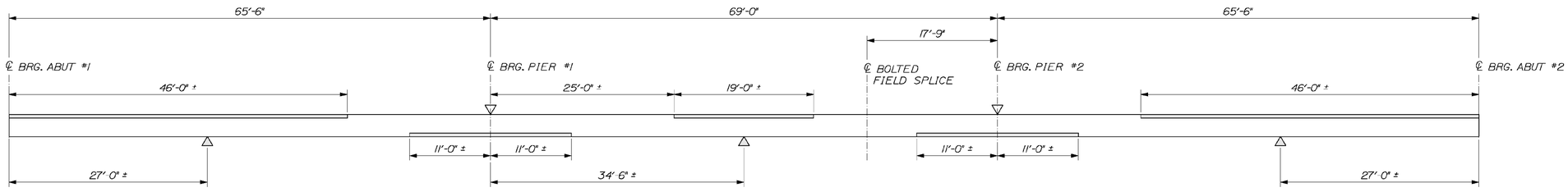
CAMBER DIAGRAM
N.T.S

	Table of Camber -Exterior Girders (Inches)																												
	CL Brg Abut #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #2	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Abut. #2
Steel Dead Load	0.00	0.04	0.07	0.10	0.11	0.11	0.09	0.07	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.02	0.04	0.07	0.09	0.11	0.11	0.10	0.07	0.04	0.00
Fluid Exterior	0.00	0.18	0.33	0.44	0.49	0.49	0.43	0.32	0.20	0.08	0.00	-0.02	0.01	0.05	0.08	0.09	0.08	0.05	0.01	-0.02	0.00	0.08	0.20	0.32	0.43	0.49	0.49	0.44	0.33	0.18	0.00
SIDL Ext	0.00	0.04	0.07	0.09	0.10	0.10	0.09	0.07	0.05	0.02	0.00	0.01	0.03	0.04	0.05	0.06	0.05	0.04	0.03	0.01	0.00	0.02	0.05	0.07	0.09	0.10	0.10	0.09	0.07	0.04	0.00
Residual Camber	0.00	0.38	0.63	0.88	1.00	0.94	0.88	0.63	0.38	0.19	0.00	0.00	0.13	0.50	0.88	1.00	0.88	0.50	0.13	0.00	0.00	0.19	0.38	0.63	0.88	0.94	1.00	0.88	0.63	0.38	0.00
Total Camber Ext	0.00	0.63	1.09	1.50	1.70	1.63	1.48	1.09	0.67	0.31	0.00	-0.02	0.16	0.60	1.03	1.17	1.03	0.60	0.16	-0.02	0.00	0.31	0.67	1.09	1.48	1.63	1.70	1.50	1.09	0.63	0.00

	Table of Camber -Interior Girders (Inches)																												
	CL Brg Abut #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #2	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Abut. #2
Steel Dead Load	0.00	0.04	0.07	0.10	0.11	0.11	0.09	0.07	0.04	0.02	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.00	0.00	0.00	0.02	0.04	0.07	0.09	0.11	0.11	0.10	0.07	0.04	0.00
Fluid Interior	0.00	0.24	0.44	0.59	0.66	0.65	0.57	0.44	0.27	0.11	0.00	-0.03	0.01	0.06	0.11	0.12	0.11	0.06	0.01	-0.03	0.00	0.11	0.27	0.44	0.57	0.65	0.66	0.59	0.44	0.24	0.00
SIDL Int	0.00	0.04	0.07	0.09	0.11	0.11	0.10	0.08	0.05	0.02	0.00	0.01	0.03	0.05	0.06	0.06	0.06	0.05	0.03	0.01	0.00	0.02	0.05	0.08	0.10	0.11	0.11	0.09	0.07	0.04	0.00
Residual Camber	0.00	0.38	0.63	0.88	1.00	0.94	0.88	0.63	0.38	0.19	0.00	0.00	0.13	0.50	0.88	1.00	0.88	0.50	0.13	0.00	0.00	0.19	0.38	0.63	0.88	0.94	1.00	0.88	0.63	0.38	0.00
Total Camber Int	0.00	0.69	1.21	1.65	1.87	1.80	1.64	1.21	0.74	0.34	0.00	-0.02	0.16	0.62	1.06	1.21	1.06	0.62	0.16	-0.02	0.00	0.34	0.74	1.21	1.64	1.80	1.87	1.65	1.21	0.69	0.00

• ALL GRADES RAISED 0.1' TO ADJUST FOR NEGATIVE HAUNCH DEPTH PER DESIGNER

	Bottom of Slab Elevations																												
	CL Brg Abut #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #1	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Pier #2	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL Brg Abut. #2
G1	450.27	450.22	450.17	450.11	450.05	449.99	449.92	449.84	449.76	449.68	449.61	449.54	449.47	449.41	449.35	449.28	449.21	449.13	449.06	448.99	448.92	448.86	448.81	448.76	448.70	448.64	448.58	448.51	448.43	448.35	448.27
G2	450.54	450.49	450.45	450.40	450.34	450.27	450.20	450.12	450.04	449.96	449.88	449.81	449.75	449.68	449.62	449.55	449.48	449.41	449.33	449.26	449.19	449.14	449.09	449.04	448.98	448.93	448.86	448.79	448.71	448.62	448.54
G3	450.70	450.65	450.61	450.56	450.50	450.43	450.36	450.28	450.20	450.12	450.04	449.97	449.91	449.84	449.78	449.71	449.64	449.57	449.49	449.42	449.35	449.30	449.25	449.20	449.15	449.09	449.02	448.95	448.87	448.79	448.70
G4	450.55	450.50	450.45	450.39	450.33	450.27	450.20	450.12	450.04	449.97	449.89	449.82	449.76	449.69	449.63	449.56	449.49	449.42	449.34	449.27	449.20	449.15	449.09	449.04	448.98	448.92	448.86	448.79	448.71	448.63	448.55



GIRDER STRESS DIAGRAM

▽= MAXIMUM NEGATIVE MOMENT

△= MAXIMUM POSITIVE MOMENT

SHADED AREAS ARE ALWAYS IN COMPRESSION
OTHER AREAS ARE IN TENSION OR HAVE STRESS REVERSAL

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DRFTED
CHECKED-REVIEWED

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

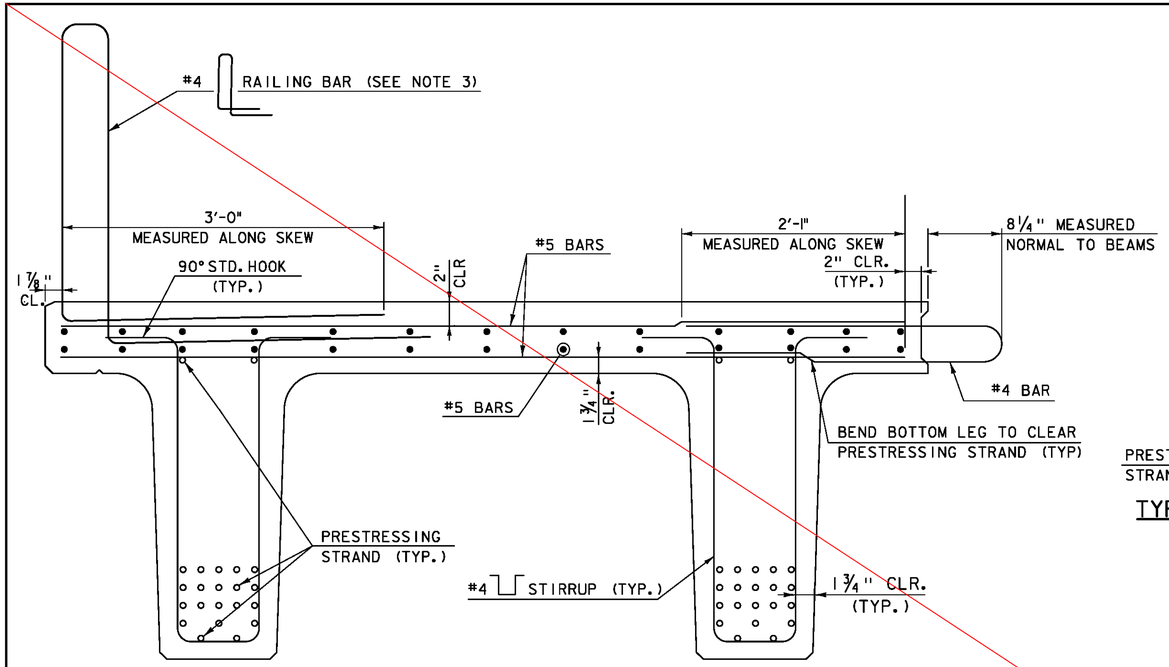
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

STEEL GIRDER DETAILS (3 OF 3)

SHEET NUMBER

28a

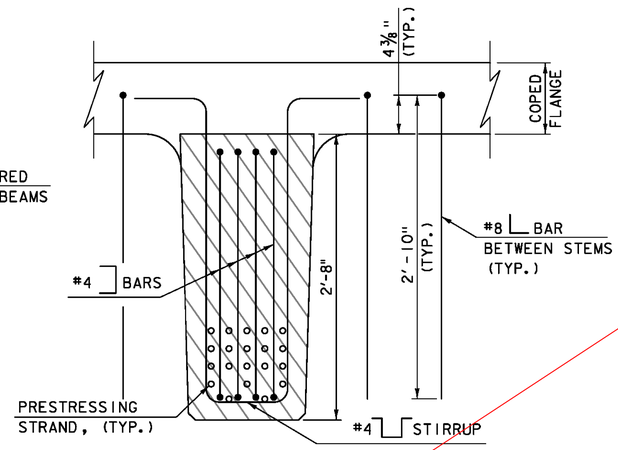
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RICHMOND, ME 04357
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BRIDGE FASCIA INTERIOR

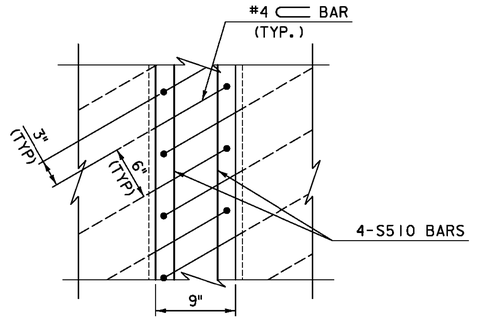
NEXT D BEAM REINFORCEMENT SECTION

(SECTION IS SHOWN NORMAL TO BEAM, BUT REINFORCEMENT IS PARALLEL TO ℄ BRG.)
(BEAM 1 SPAN 2 SHOWN, END SPANS AND OTHER BEAMS SIMILAR)
SCALE: 1½" = 1'-0"

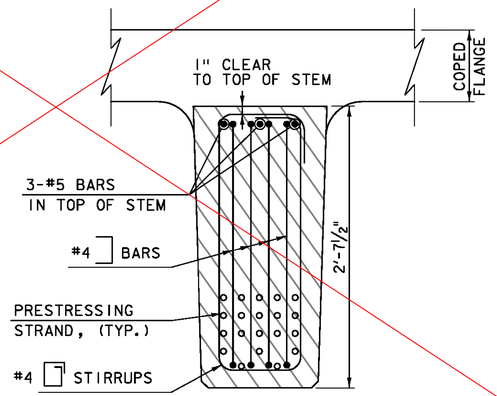


TYPICAL STEM REINF. @ ABUTMENT END

SCALE: 1½" = 1'-0"

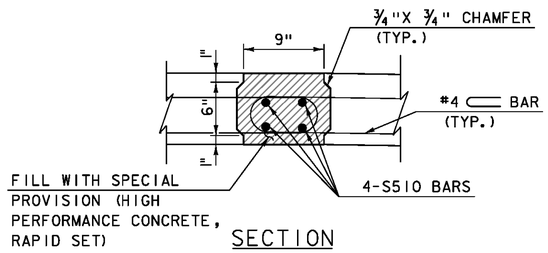


PLAN



TYPICAL STEM REINF. @ PIER END

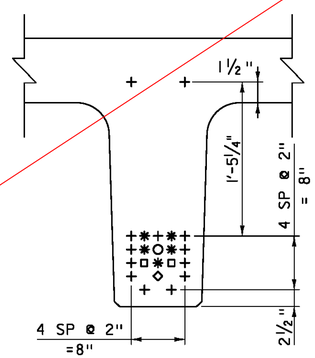
SCALE: 1½" = 1'-0"



SECTION

SHEAR KEY DETAILS

SCALE: 1½" = 1'-0"



TYPICAL NEXT BEAM STRAND PATTERN

N. T. S.

PRESTRESSING LEGEND:

- × FULLY BONDED. EXTENDED 2'-0" BEYOND END OF BEAM AT ABUTMENT ENDS ONLY. (BEND UP 90° @ 1'-1¾" BEYOND END OF BEAM)
- + FULLY BONDED
- ✳ DEBONDED 0.5 FEET
- ○ DEBONDED 6 FEET
- □ DEBONDED 8 FEET
- ◇ DEBONDED 10 FEET

PRECAST BEAM NOTES:

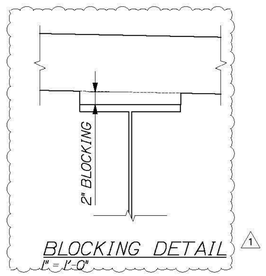
1. PRESTRESSING STRANDS SHALL BE 0.6 INCH DIAMETER.
2. ALL STRANDS SHALL BE TENSIONED TO 44 KIPS EACH.
3. ANGLE VERTICAL LEGS OF RAILING BAR TO MAKE THEM PLUMB IN PLACE. REFER TO 'BRIDGE RAILING DETAILS (1 OF 3)' FOR ADDITIONAL RAILING DETAILS.
4. SHEAR KEY FACES SHALL BE SAND BLASTED AT THE PRECAST PLANT TO IMPROVE CLOSURE POUR GROUT BOND. IF VISUAL INSPECTION REVEALS LAITANCE OR DEBRIS WITHIN THE SHEAR KEYS WHEN THE BEAMS ARRIVE ON-SITE, THEN THE SHEAR KEY FACES SHALL BE CLEANED BY POWER WASHING OR OTHER METHOD APPROVED BY THE ENGINEER.

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

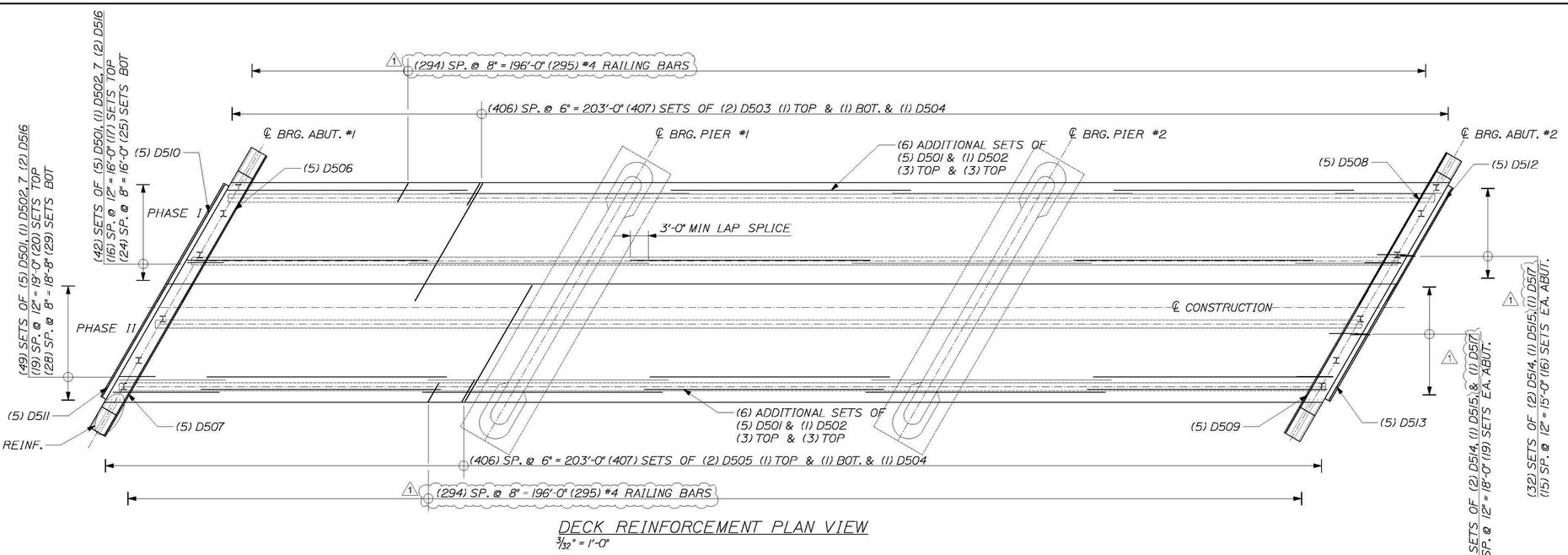
FILE NAME: z101072bdr_girder_3.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
NEXT D BEAM DETAILS (3 OF 3)

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 29 OF 69

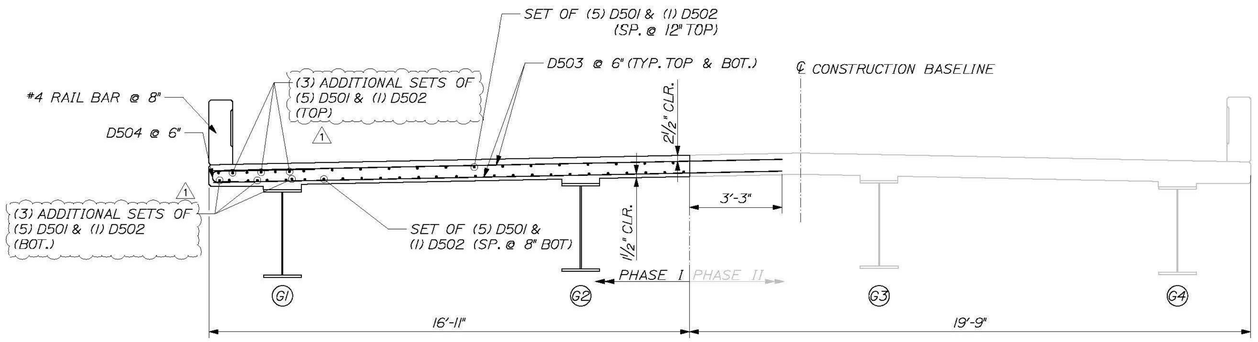
SEE SHEET 29 VE



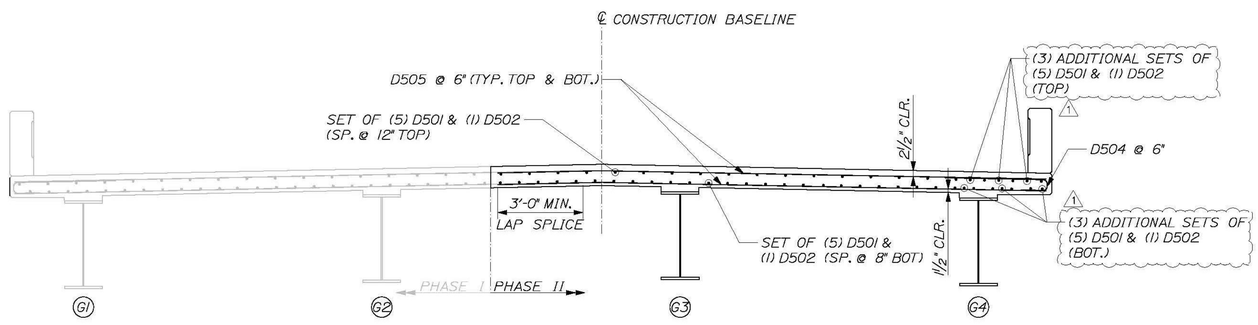
BLOCKING DETAIL
1" = 1'-0"



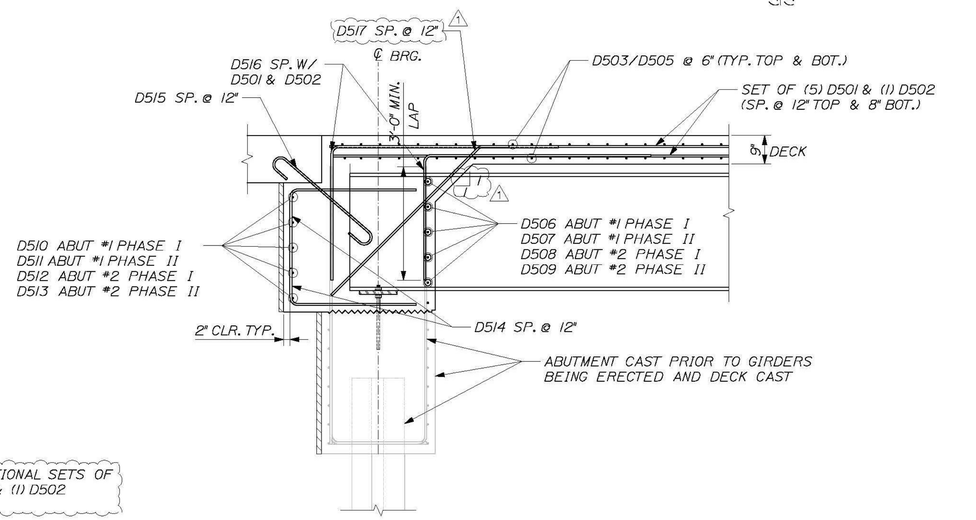
DECK REINFORCEMENT PLAN VIEW
3/32" = 1'-0"



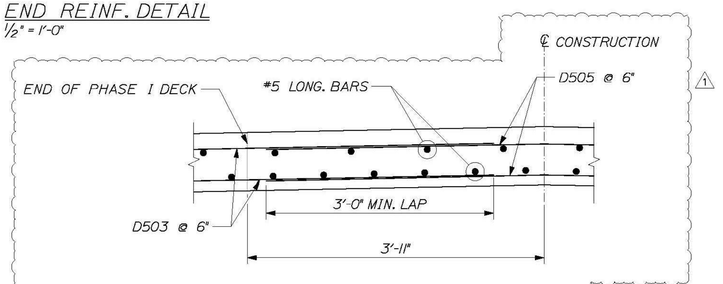
PHASE I DECK REINF. SECTION
3/8" = 1'-0"



PHASE II DECK REINF. SECTION
3/8" = 1'-0"



END REINF. DETAIL
1/2" = 1'-0"



LONGITUDINAL DECK JOINT DETAIL
1" = 1'-0"

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DETAILED
CHECKED-REVIEWED

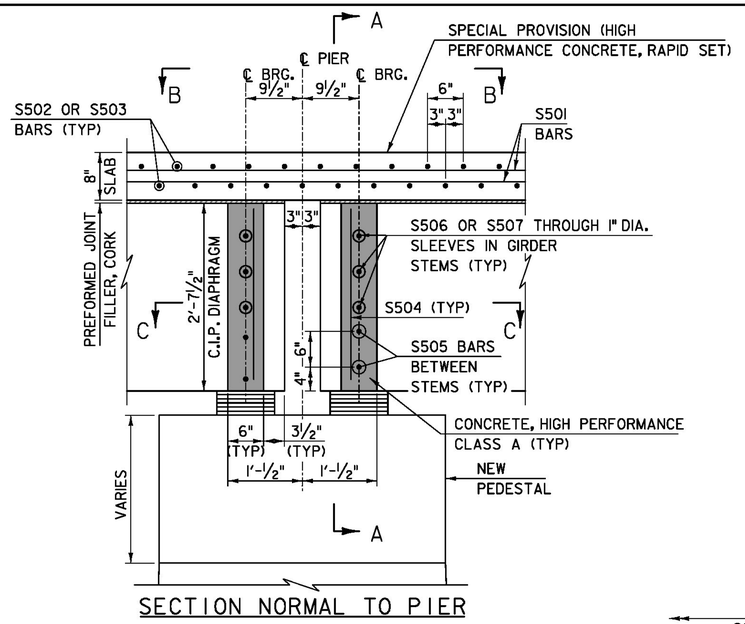
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

SUPERSTRUCTURE REINF. DETAILS

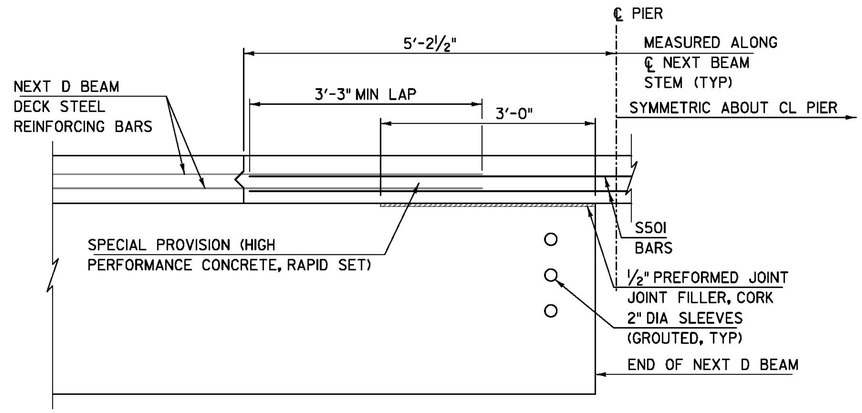
SHEET NUMBER
29

CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 FAX (207) 737-2008



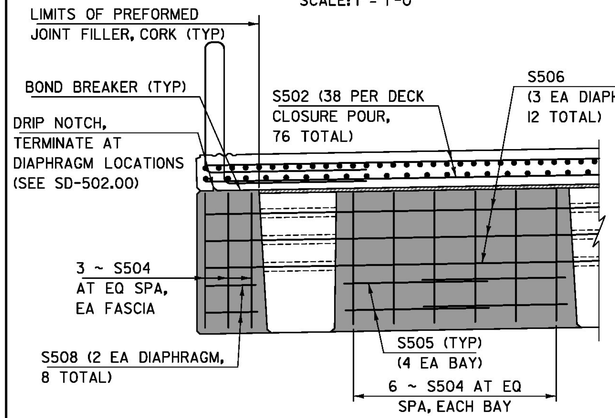
SECTION NORMAL TO PIER

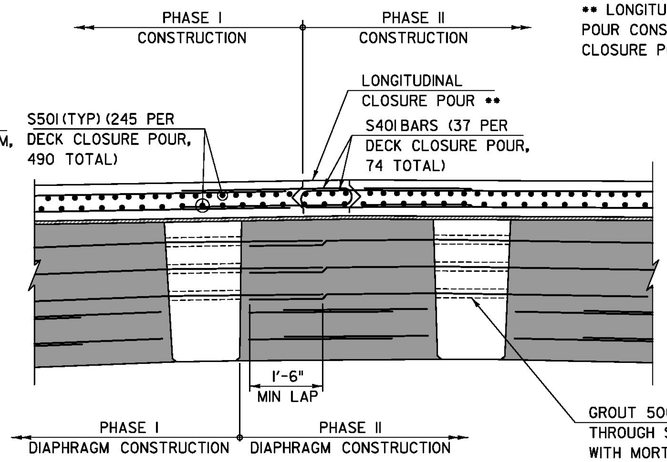
SCALE: 1" = 1'-0"



DECK CLOSURE POUR AT PIERS

SCALE: 1" = 1'-0"

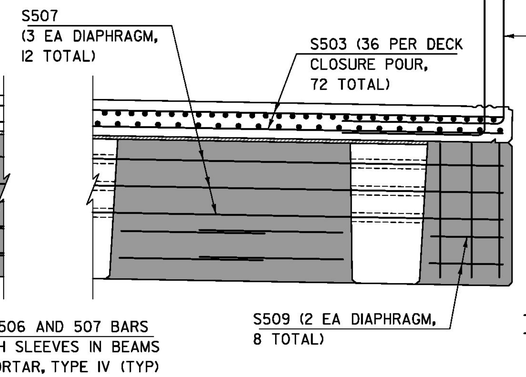


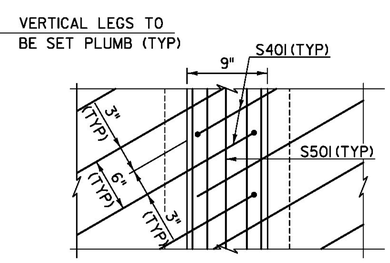


SECTION A-A: DIAPHRAGM ELEVATION

SCALE: ¾" = 1'-0"

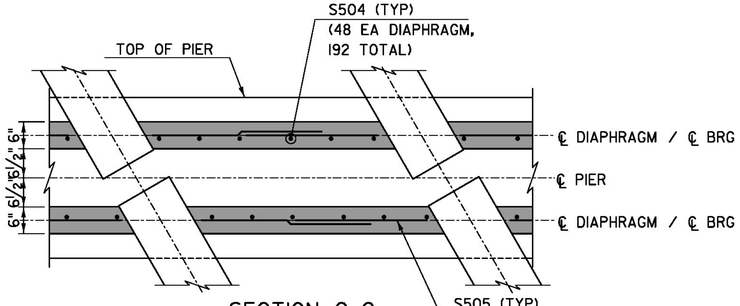
** LONGITUDINAL CLOSURE POUR BETWEEN PHASED DECK CLOSURE POUR CONSTRUCTION TO BE CAST SIMULTANEOUSLY WITH FLANGE CLOSURE POUR BETWEEN PHASED NEXT BEAM CONSTRUCTION.





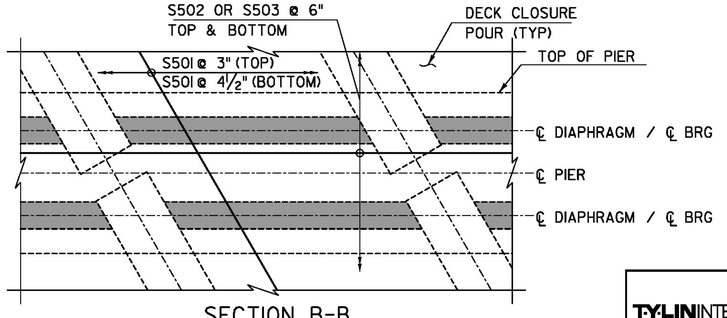
LONGITUDINAL CLOSURE POUR PLAN THROUGH DECK CLOSURE POUR REGIONS

SCALE: 1½" = 1'-0"



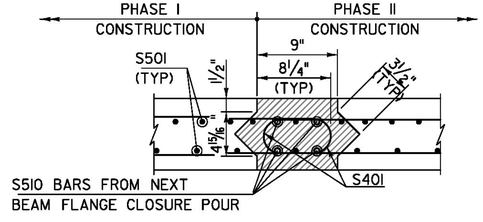
SECTION C-C

SCALE: ¾" = 1'-0"



SECTION B-B

SCALE: ¾" = 1'-0"



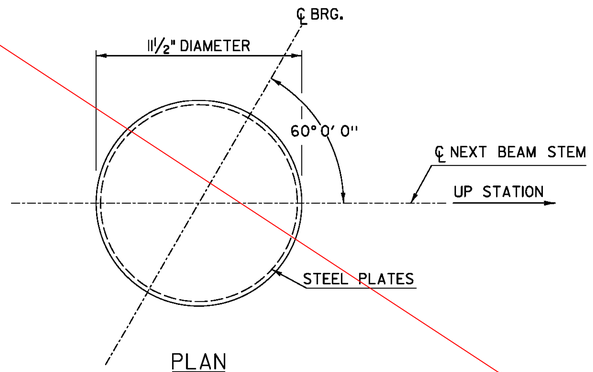
LONGITUDINAL CLOSURE POUR SECTION THROUGH DECK CLOSURE POUR REGIONS

SCALE: 1½" = 1'-0"

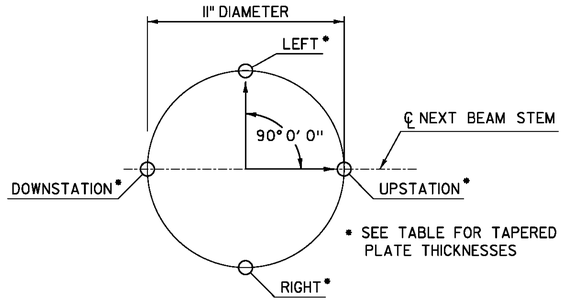
PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_PierdiaphA.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. MORGAN
DESIGNED BY: J. OLUND	CHECKED BY: S. KELLER
BEAM DIAPHRAGM AND DECK DETAILS	SHEET 30 OF 69



PLAN

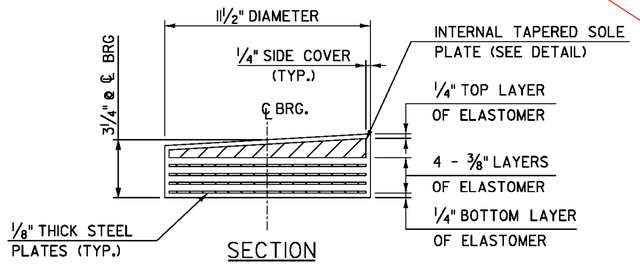


TAPERED SOLE PLATE DETAIL

SCALE: 3" = 1′-0"

NOTES:

1. INTERNAL TAPERED SOLE PLATES ARE DETAILED CONSIDERING THE INFLUENCES OF BRIDGE CROSS SLOPE, PROFILE GRADE, AND PREDICTED BEAM CAMBER AND END ROTATION AT ERECTION.
2. THE CENTER ELEVATION OF THE BEARINGS ARE DETAILED CONSIDERING PREDICTED BEAM CAMBER AND BEAM END ROTATIONS AT ERECTION (30-60 DAYS AFTER STRESSING).



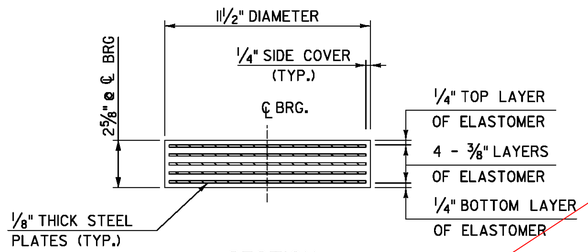
SECTION

REINFORCED ELASTOMERIC PAD - PIERS (TYPE B-F)

SCALE: 3" = 1′-0"

BEARING	INTERNAL SOLE PLATE THICKNESS (INCHES)				QUANTITY
	UPSTATION	DOWNSTATION	LEFT	RIGHT	
A	-	-	-	-	4
B	0.750	0.750	0.640	0.860	8
C	0.750	0.750	0.860	0.640	4
D	0.876	0.624	0.750	0.750	4
E	0.876	0.624	0.640	0.860	8
F	0.876	0.624	0.860	0.640	4

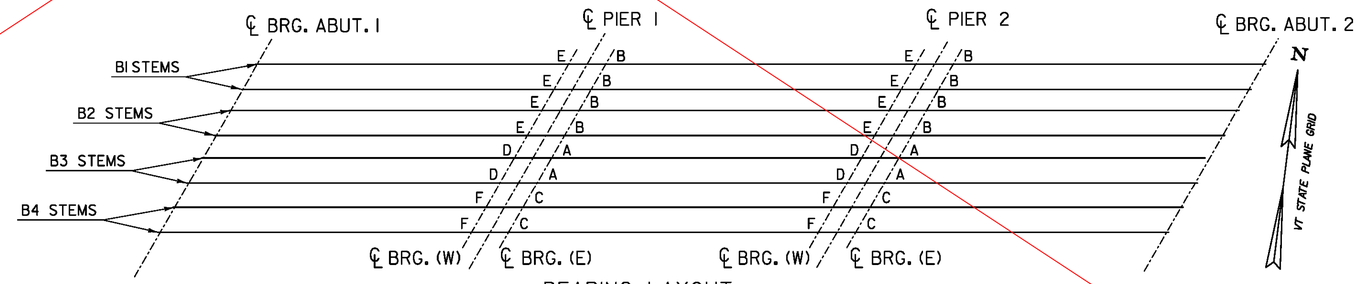
TAPERED PLATE ELEVATIONS



SECTION

REINFORCED ELASTOMERIC PAD - PIERS (TYPE A)

SCALE: 3" = 1′-0"



BEARING LAYOUT

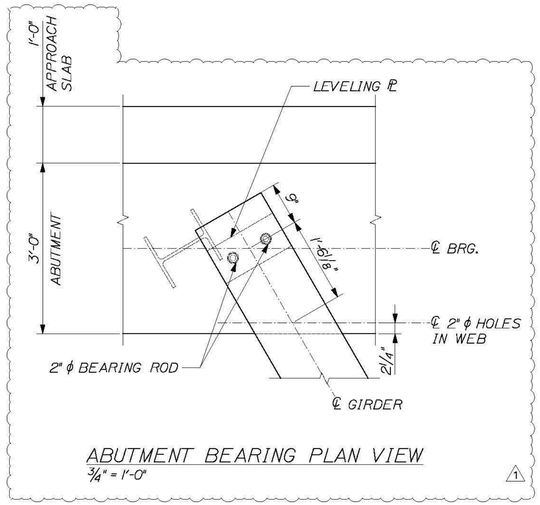
NOT TO SCALE

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

TYLIN INTERNATIONAL

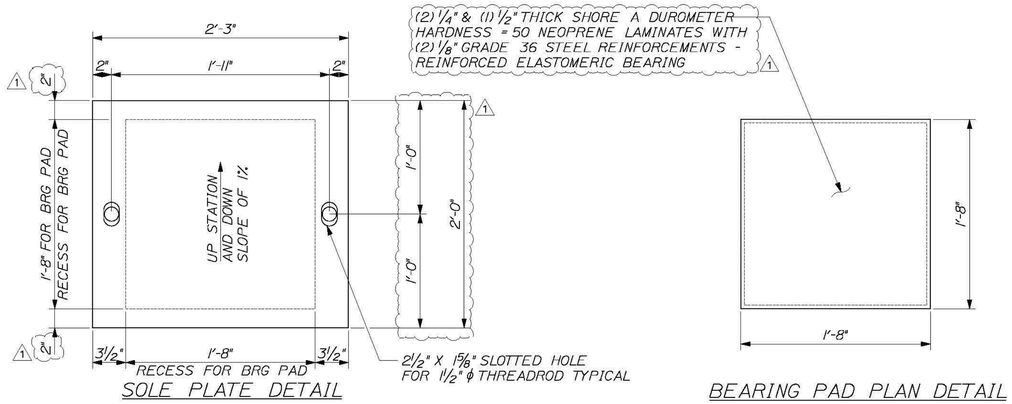
FILE NAME: z10j072bdr_brgdets.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ELASTOMERIC BEARING DETAILS	SHEET 31 OF 69

SEE SHEET 31VE



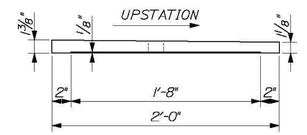
ABUTMENT BEARING PLAN VIEW

3/4" = 1'-0"



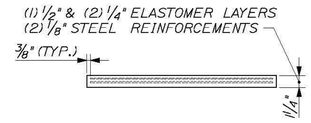
SOLE PLATE DETAIL

BEARING PAD PLAN DETAIL

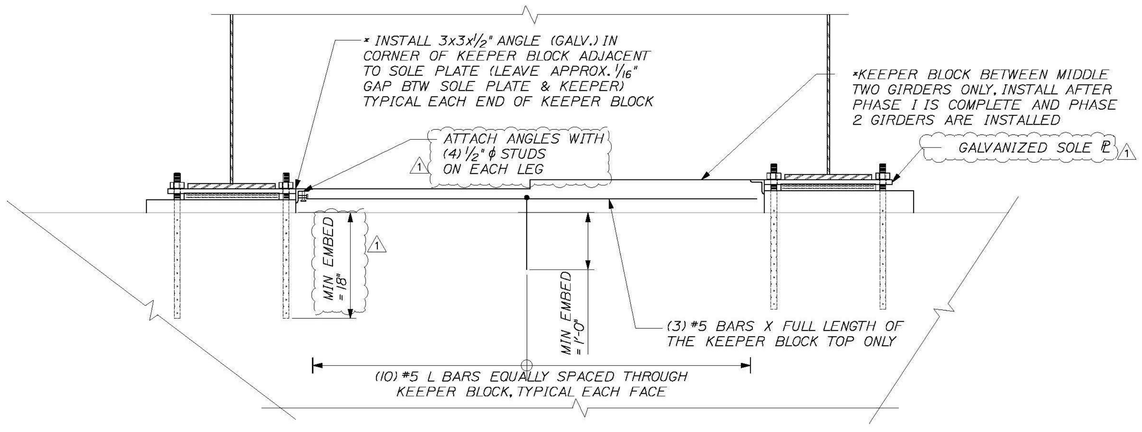


SECTION THRU SOLE PLATE

PIER BEARINGS

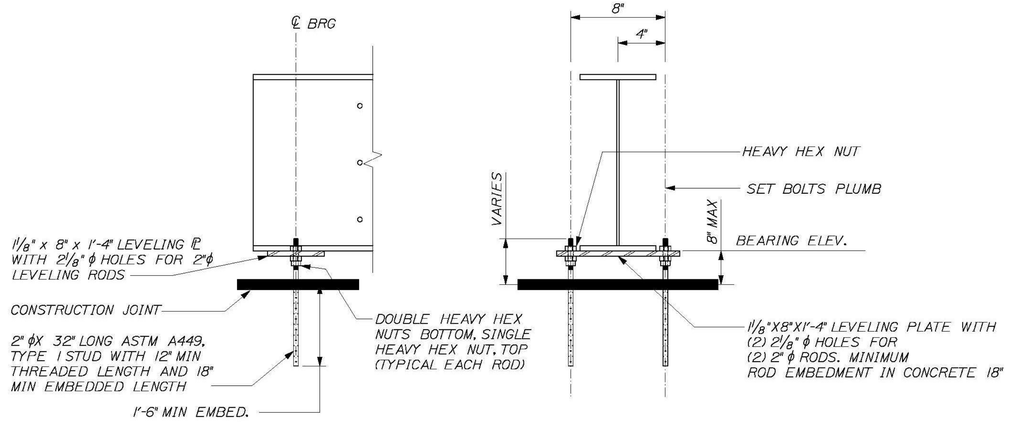


BEARING PAD ELEV. DETAIL



KEEPER BLOCK ELEVATION - INSTALL BETWEEN GIRDER LINES 2 & 3 AT EACH PIER

SCALE: 3/4" : 1



ANCHORAGE & BEARING DETAILS

SCALE: 3/4" : 1

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DETAILED
CHECKED-REVIEWED

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

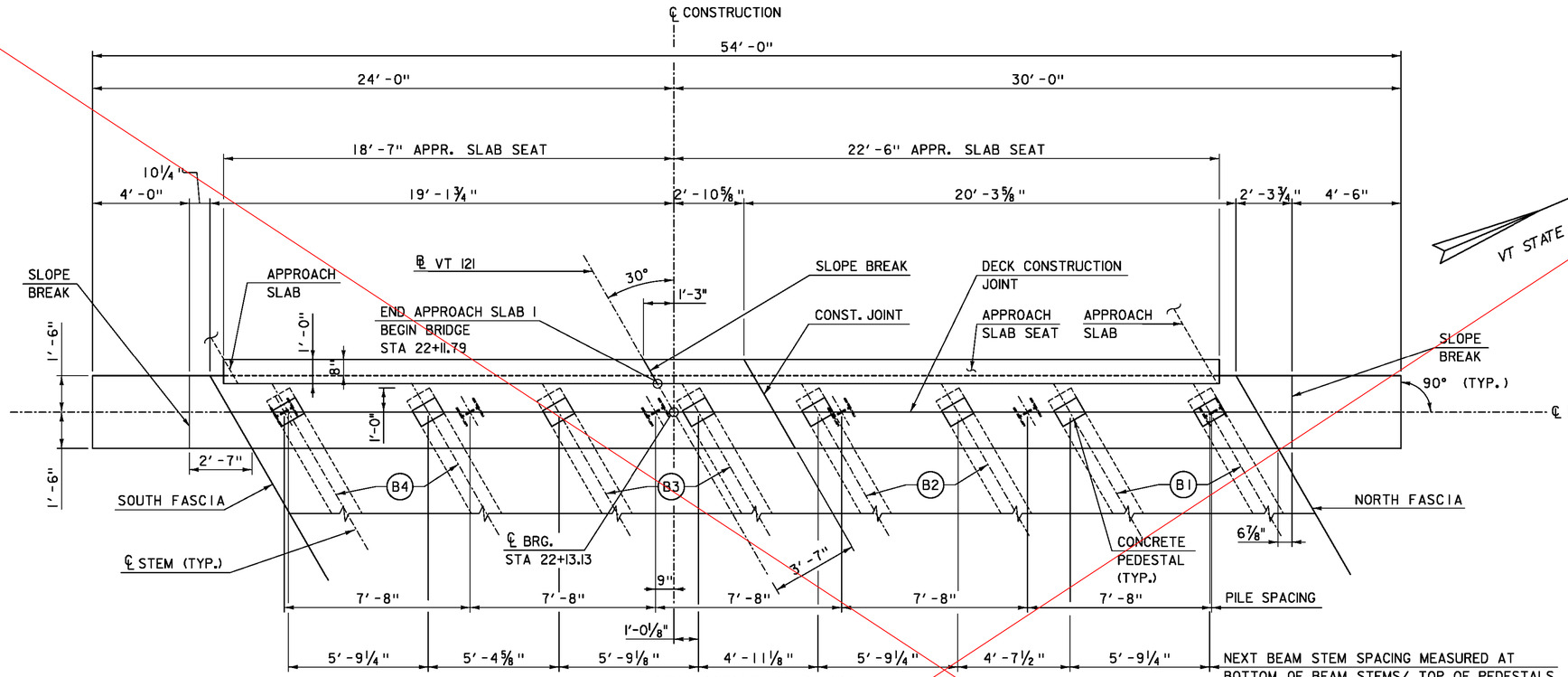
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ELASTOMERIC BEARING DETAILS

SHEET NUMBER

31

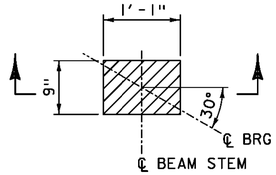
CALDERWOOD ENGINEERING
222 RIVER ROAD
N. RICHMOND, ME 04357
TEL (207) 737-2007 FAX (207) 737-2008



ABUTMENT 1 PLAN

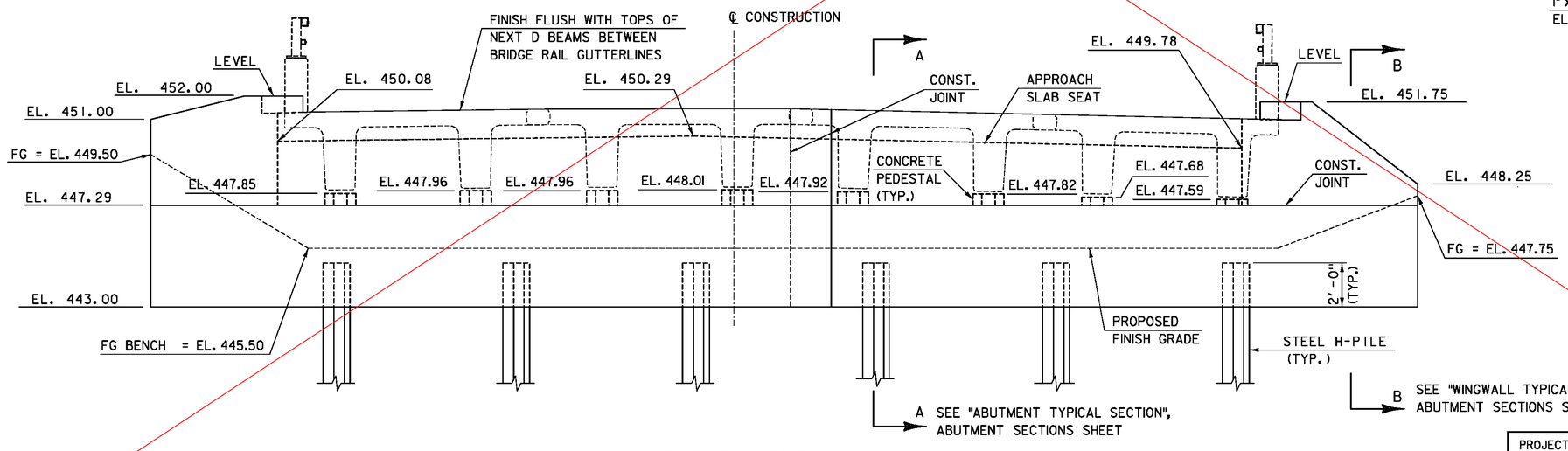
SCALE: ⅜" = 1′-0"

(NOTE: CONSTRUCTION JOINTS AT BEAM KEYWAYS NOT SHOWN FOR CLARITY.)



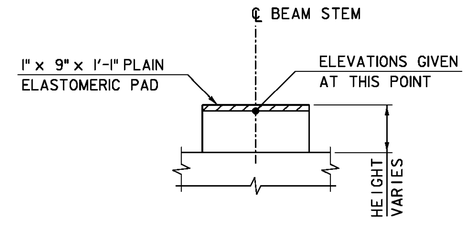
PEDESTAL PLAN

SCALE: 1" = 1′-0"



ABUTMENT 1 ELEVATION

SCALE: ⅜" = 1′-0"



PEDESTAL SECTION

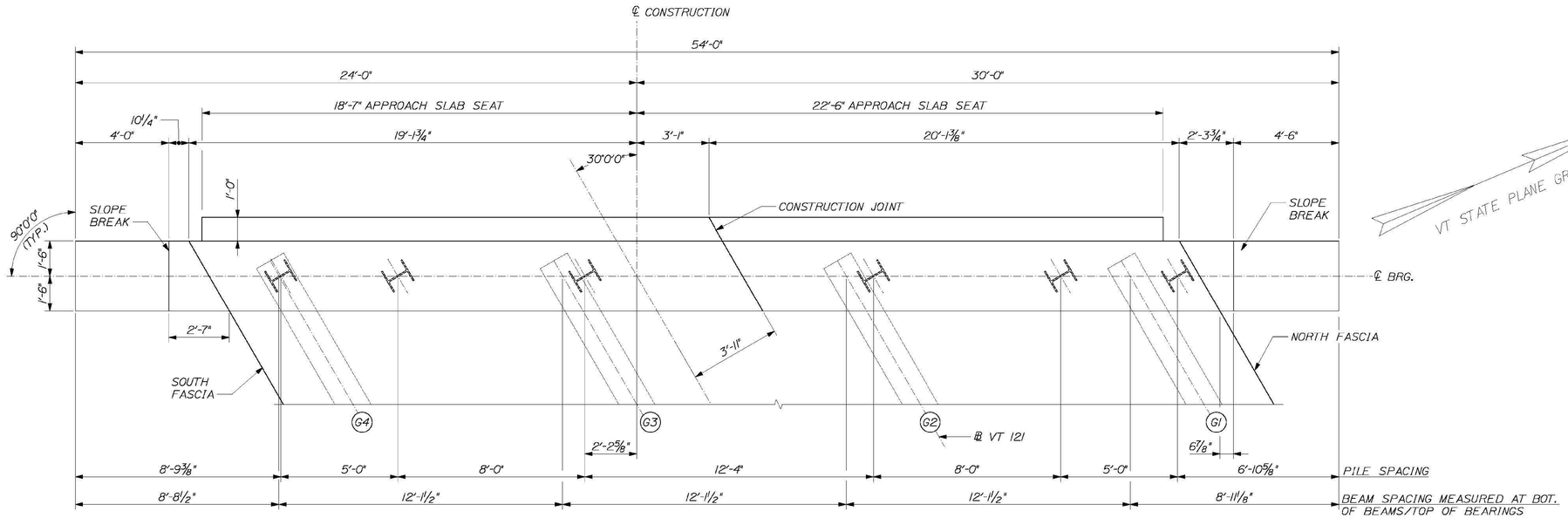
SCALE: 1" = 1′-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

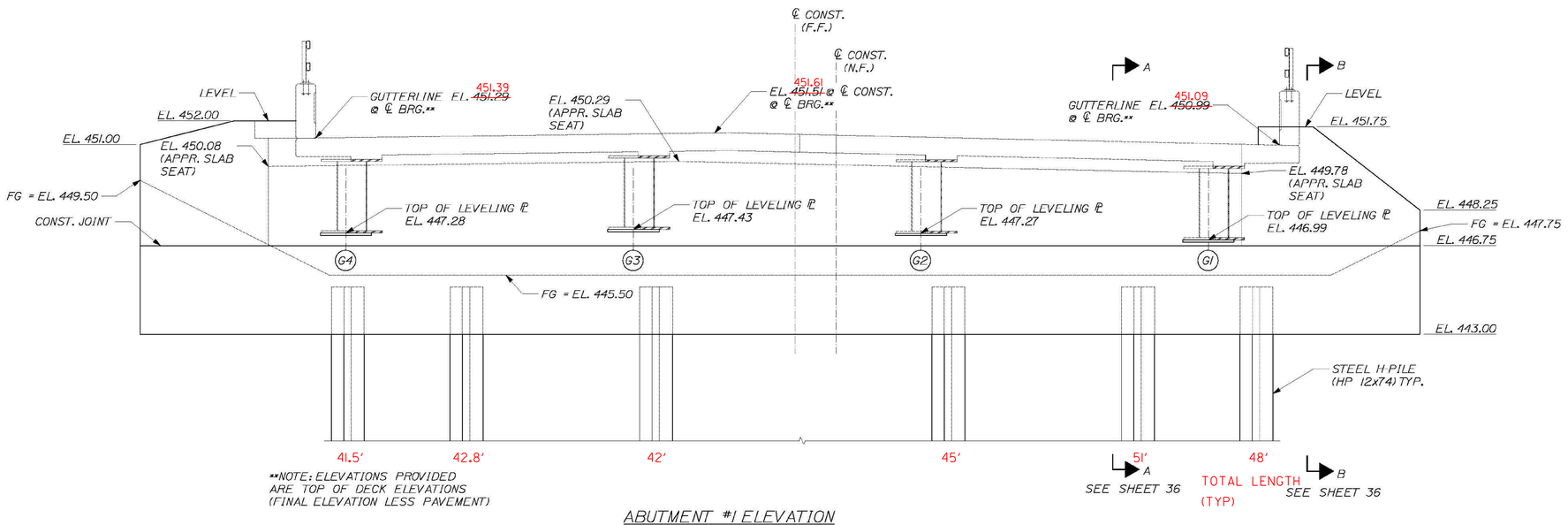
TY-LIN INTERNATIONAL

FILE NAME: z10j072bdr_abut1.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ABUTMENT 1 MASONRY	SHEET 32 OF 69

SEE SHEET 32 VE



ABUTMENT #1 PLAN



**NOTE: ELEVATIONS PROVIDED ARE TOP OF DECK ELEVATIONS (FINAL ELEVATION LESS PAVEMENT)

ABUTMENT #1 ELEVATION

3/8"=1'-0"

NOTE: FRONT FACE OF DECK & RAIL ONLY SHOWN FOR CLARITY

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

BY	DATE
ETC	2014

P.E. NUMBER

DATE:

DESIGN-DETAILED
CHECKED-REVIEWED
REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

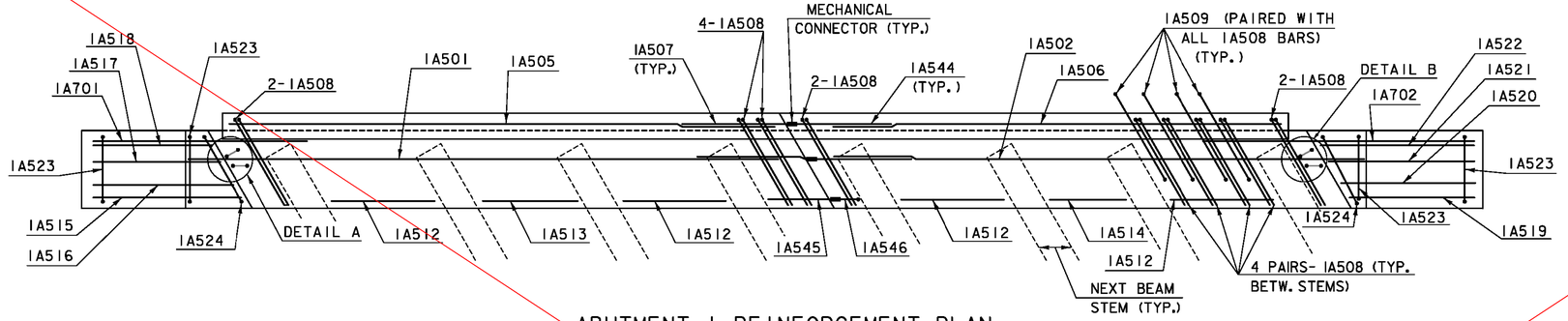
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 1 MASONRY

SHEET NUMBER

32

CALDERWOOD ENGINEERING 222 RIVER ROAD RICHMOND, ME 04357 PH. (207) 737-2007 FAX (207) 737-2008



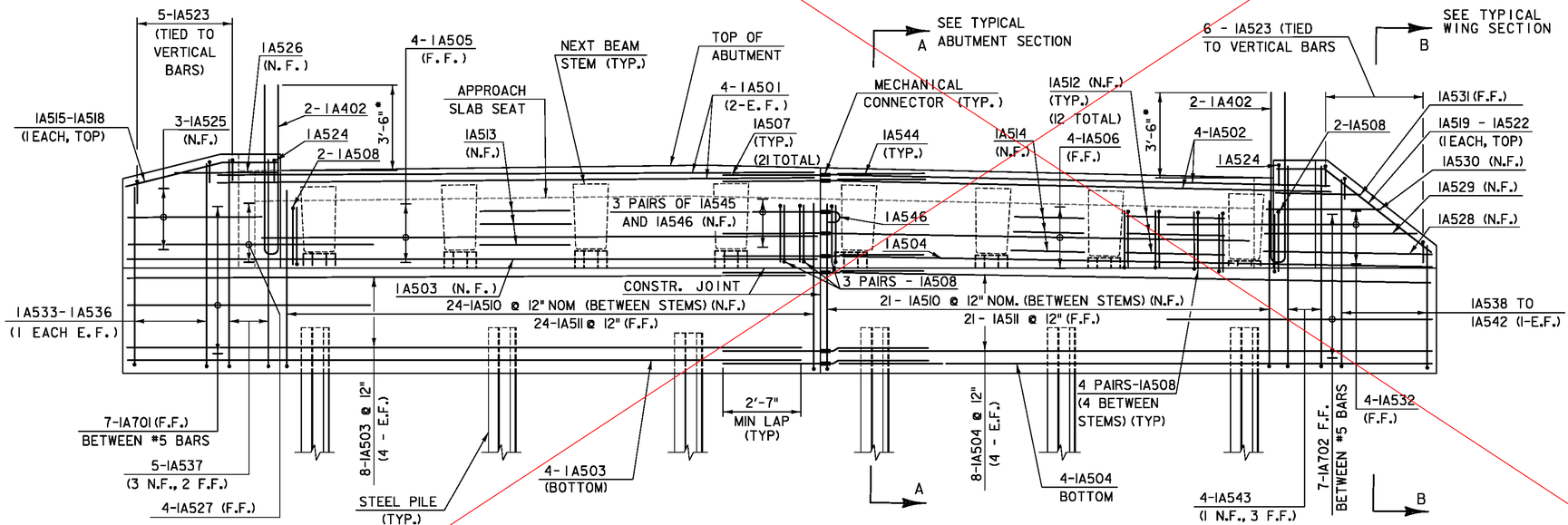
ABUTMENT 1 REINFORCEMENT PLAN

SCALE: N. T. S.

NOTE: PLAN VIEW IS FOR LAYOUT OF SPECIFIC BARS.
NOT ALL ABUTMENT BARS ARE SHOWN IN PLAN VIEW.

PHASE II

PHASE I



ABUTMENT 1 REINFORCMENT ELEVATION

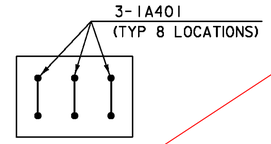
SCALE: N. T. S.

NOTE: A509 BARS (APPROACH SLAB DOWELS) NOT SHOWN IN ELEVATION VIEW FOR CLARITY.

* TRIM 1A402 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST.

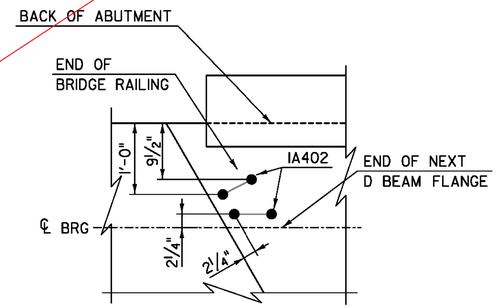
LEGEND

N.F. = NEAR FACE
F.F. = FAR FACE
E.F. = EACH FACE



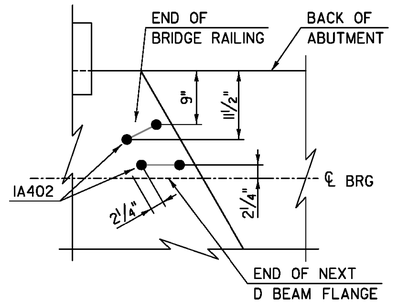
TYPICAL PEDESTAL REINFORCEMENT PLAN

SCALE: 1½" = 1'-0"



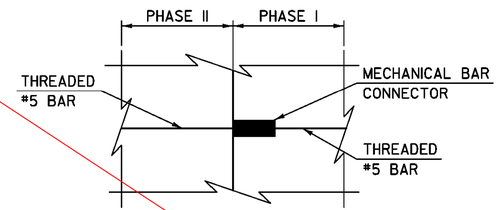
DETAIL A

SCALE: 1" = 1'-0"



DETAIL B

SCALE: 1" = 1'-0"



TYPICAL MECHANICAL CONNECTOR DETAIL

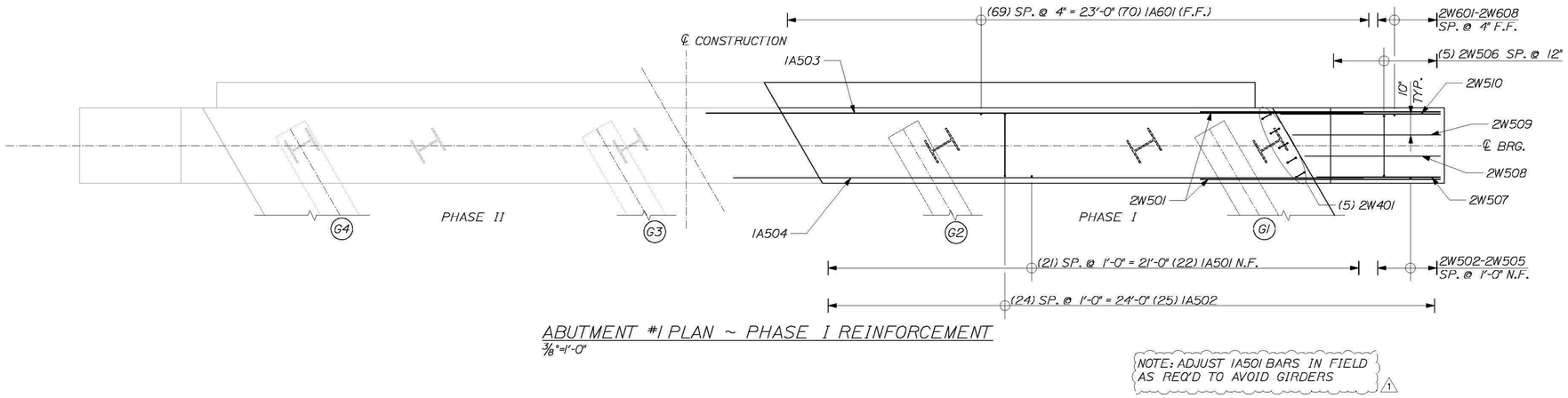
SCALE: 1½" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T-Y LIN INTERNATIONAL

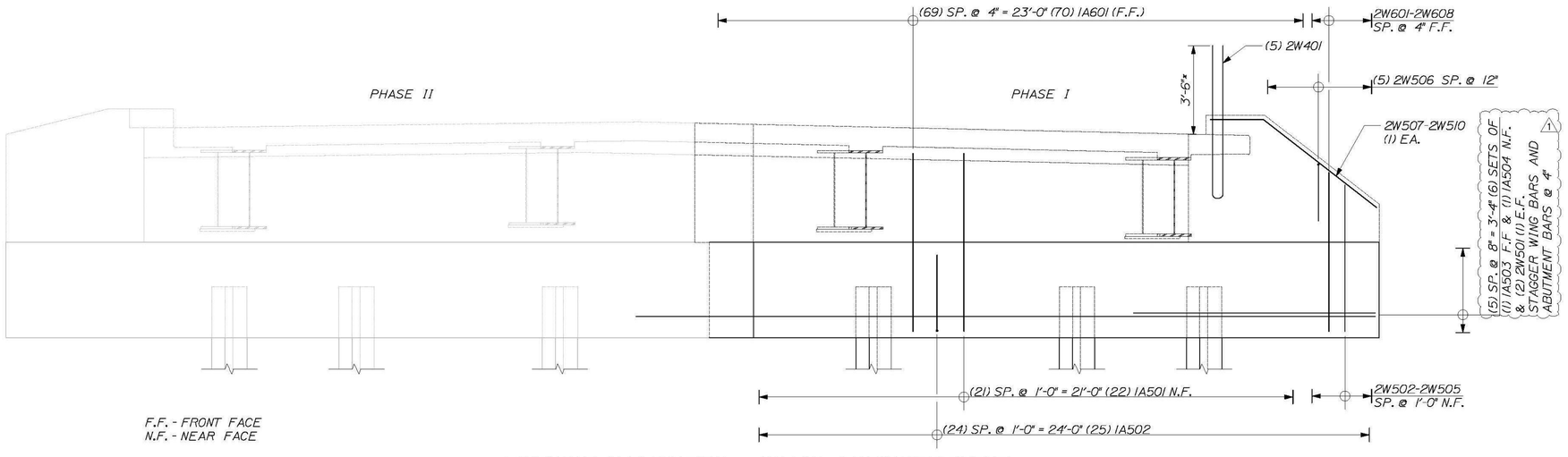
FILE NAME: z101072bdr_abut1R.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: B. CARTER
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ABUTMENT 1 REINFORCEMENT	SHEET 33 OF 69

SEE SHEET 33 VE



ABUTMENT #1 PLAN ~ PHASE I REINFORCEMENT
3/8"=1'-0"

NOTE: ADJUST 1A501 BARS IN FIELD AS REQ'D TO AVOID GIRDERS 1



F.F. - FRONT FACE
N.F. - NEAR FACE

ABUTMENT #1 ELEVATION ~ PHASE I REINFORCEMENT
3/8"=1'-0"

* TRIM 2W401 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

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DATE:

BY	DATE
ETC	2014

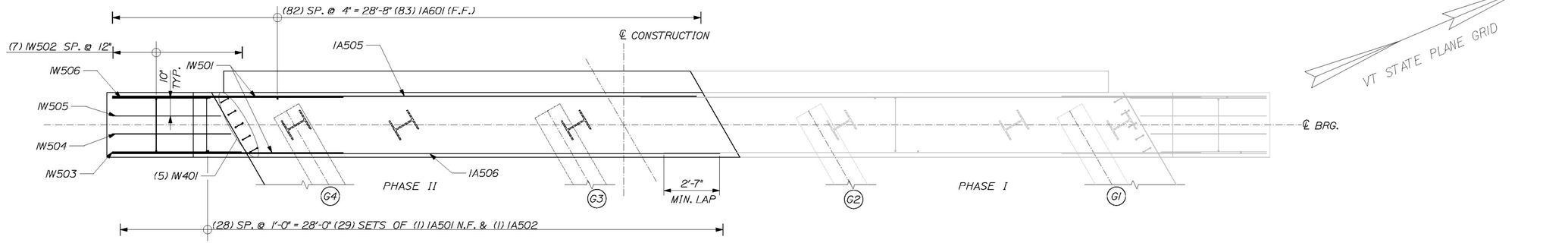
DESIGN-DETAILED	
CHECKED-REVIEWED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 1 PHASE I REINFORCEMENT

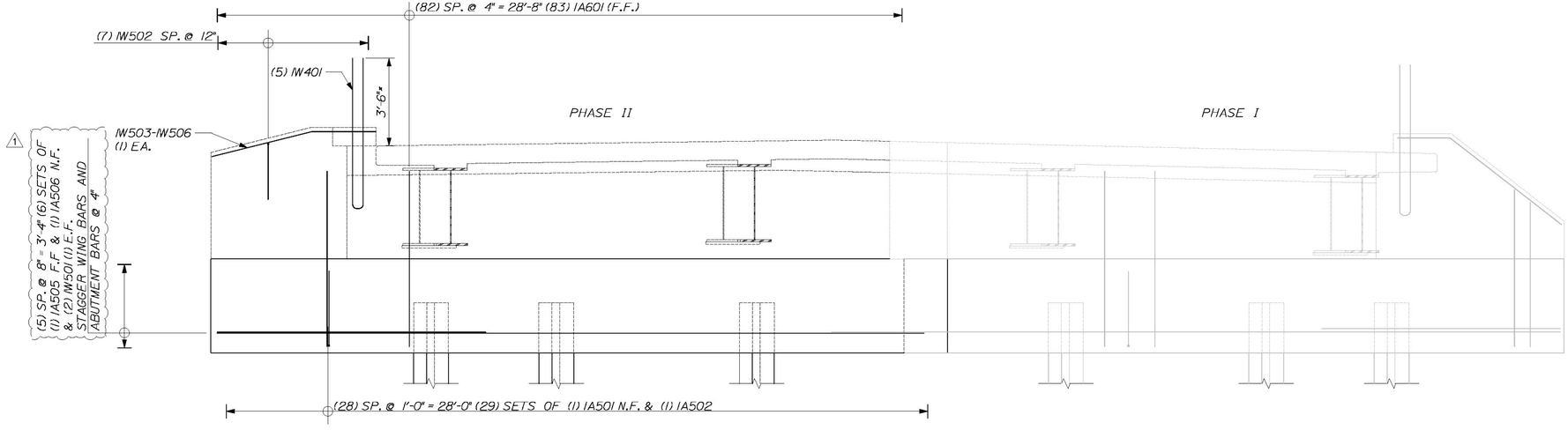
SHEET NUMBER
33

CALDERWOOD ENGINEERING
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RICHMOND, ME 04357
PH. (207) 737-2007 FAX (207) 737-2008



NOTE: ADJUST IA501 BARS IN FIELD AS REQ'D TO AVOID GIRDERS ⚠1

ABUTMENT #1 PLAN ~ PHASE II REINFORCEMENT
3/8"=1'-0"



F.F. - FRONT FACE
N.F. - NEAR FACE

* TRIM IW401 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST

ABUTMENT #1 ELEVATION ~ PHASE II REINFORCEMENT
3/8"=1'-0"

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PREPARED FOR:
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CEE 106-BR-14

P.E. NUMBER

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BY	DATE
ETC	2014

DESIGN-DETAILED	
CHECKED-REVIEWED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

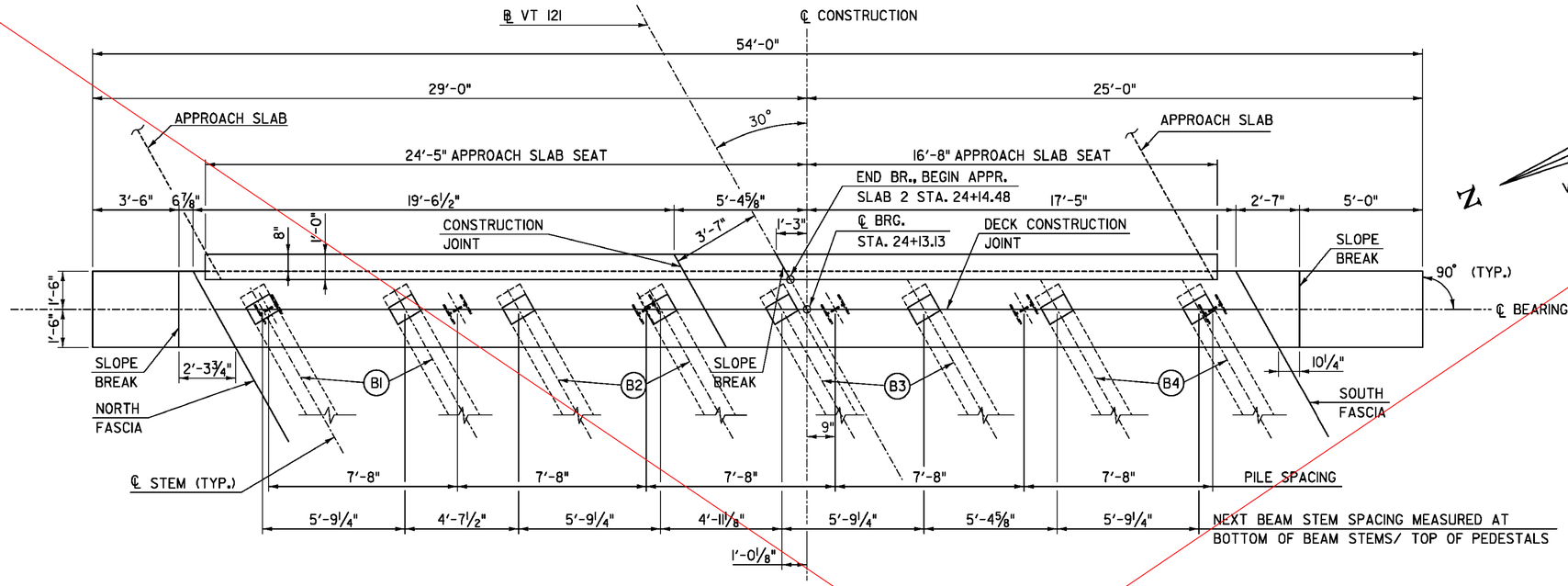
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 1 PHASE II REINFORCEMENT

SHEET NUMBER

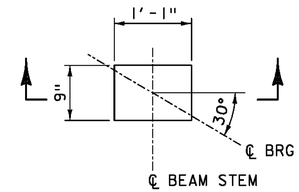
33a

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RICHMOND, ME 04357
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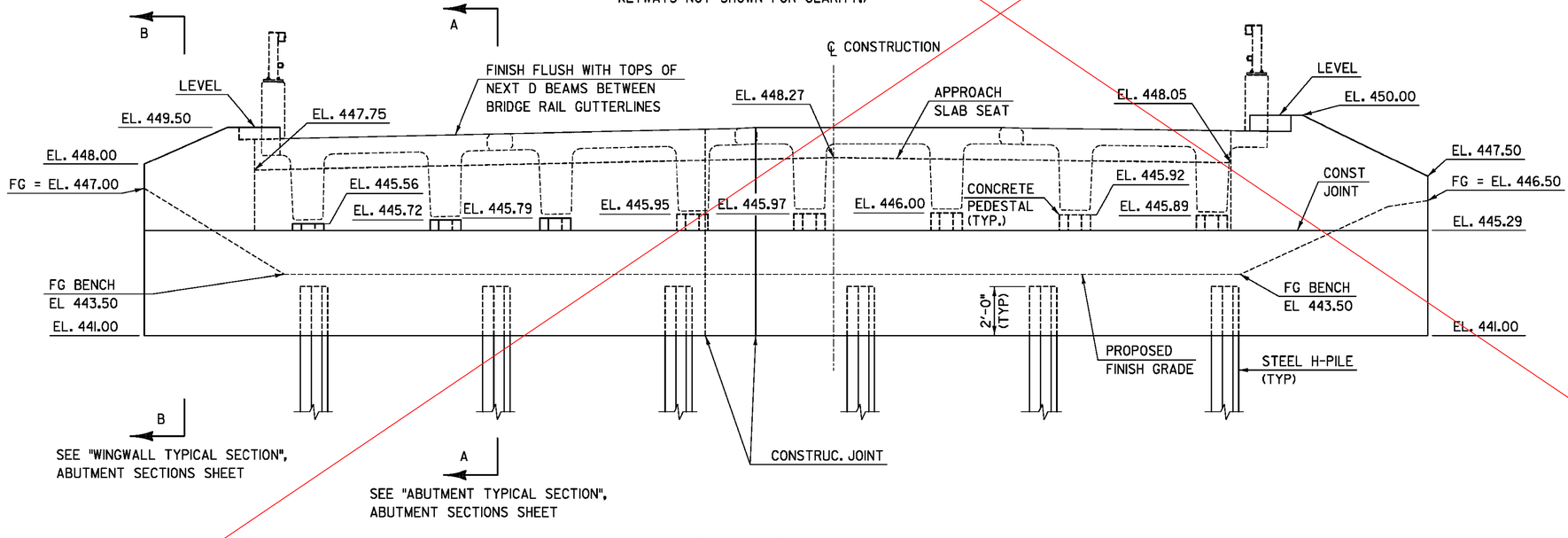
ABUTMENT 2 PLAN

SCALE: ⅜" = 1'-0"
(NOTE: CONSTRUCTION JOINTS AT BEAM KEYWAYS NOT SHOWN FOR CLARITY.)



PEDESTAL PLAN

SCALE: 1" = 1'-0"



ABUTMENT 2 ELEVATION

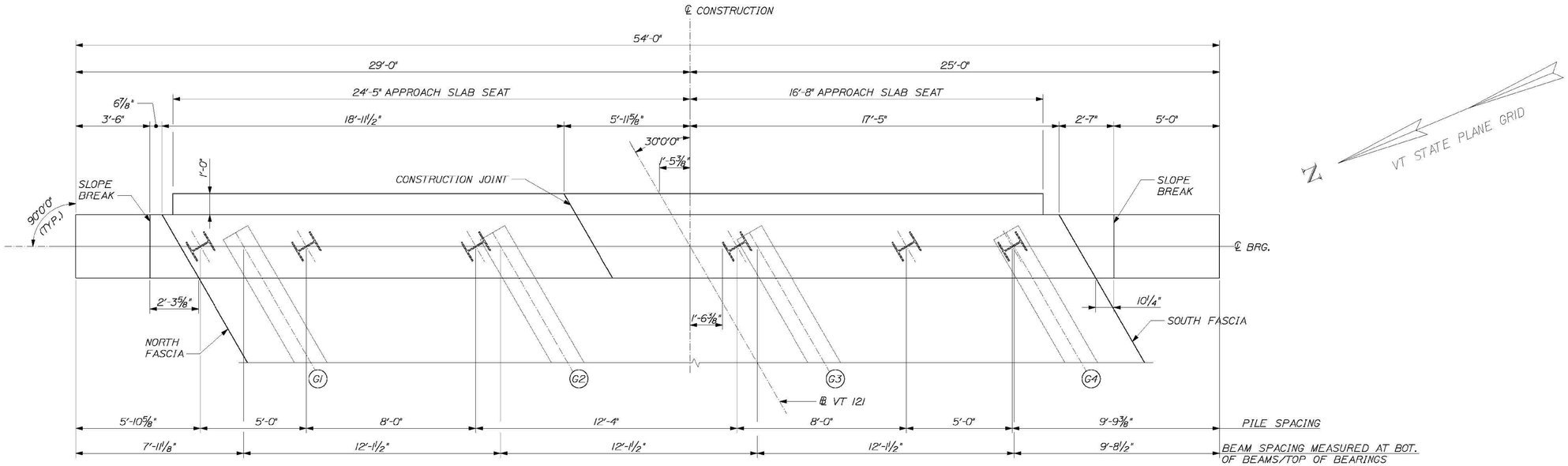
SCALE: ⅜" = 1'-0"

PEDESTAL SECTION

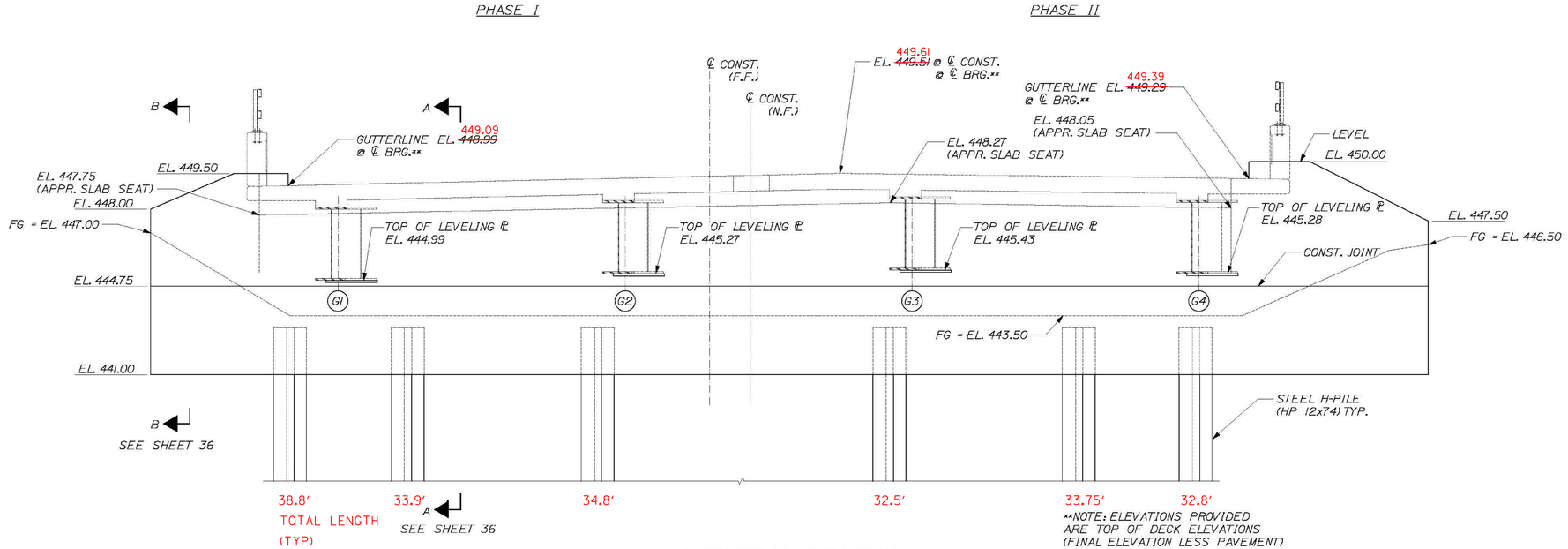
SCALE: 1" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)
TY LIN INTERNATIONAL	
FILE NAME: z10J072bdr_abut2.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: B. CARTER
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ABUTMENT 2 MASONRY	SHEET 34 OF 69

SEE SHEET 34 VE



ABUTMENT #2 PLAN



ABUTMENT #2 ELEVATION

3/8"=1'-0"

NOTE: FRONT FACE OF DECK & RAIL ONLY SHOWN FOR CLARITY

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CEE 106-BR-14

P.E. NUMBER

DATE:

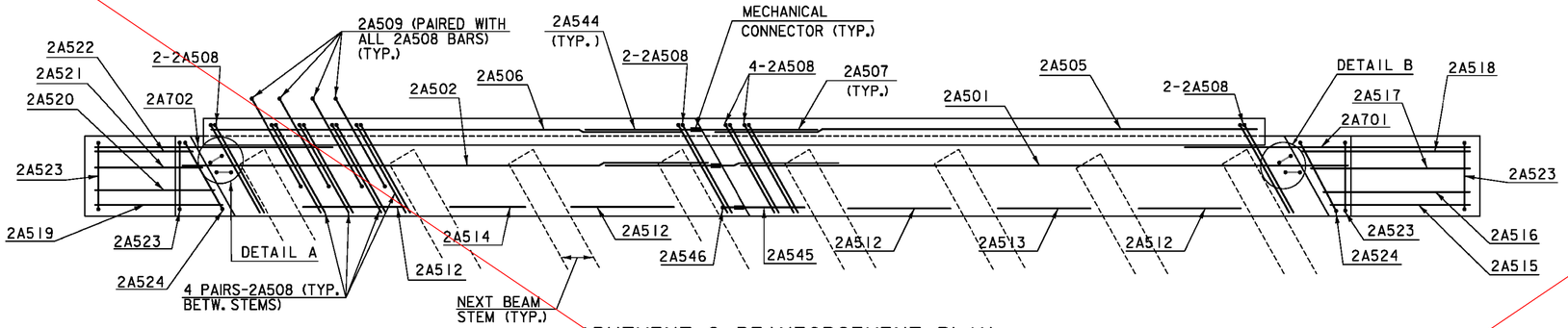
	BY	DATE
DESIGN-DETAILED		
CHECKED-REVIEWED		
REVISIONS 1	ETC	2014
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

VE SUPER. DESIGN ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 2 MASONRY

SHEET NUMBER

34



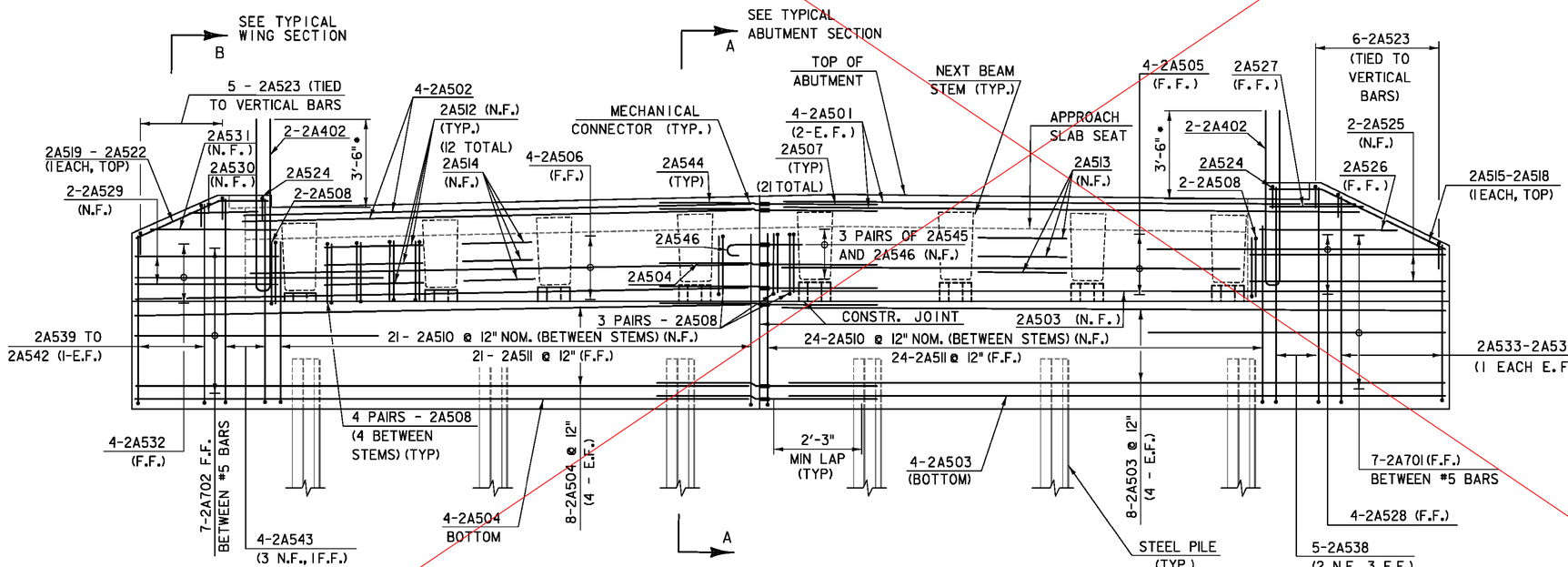
ABUTMENT 2 REINFORCEMENT PLAN

SCALE: N.T.S.

NOTE: PLAN VIEW IS FOR LAYOUT OF SPECIFIC BARS. NOT ALL ABUTMENT BARS ARE SHOWN IN PLAN VIEW.

PHASE I

PHASE II



ABUTMENT 2 REINFORCMENT ELEVATION

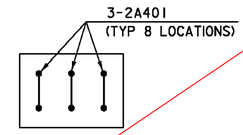
SCALE: N.T.S.

NOTE: 2A509 BARS (APPROACH SLAB DOWELS) NOT SHOWN IN ELEVATION VIEW FOR CLARITY.

* TRIM 1A402 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST.

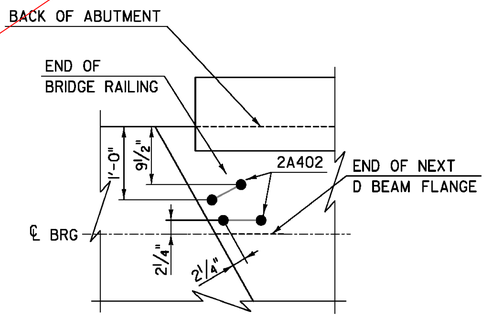
LEGEND

N.F. = NEAR FACE
F.F. = FAR FACE
E.F. = EACH FACE



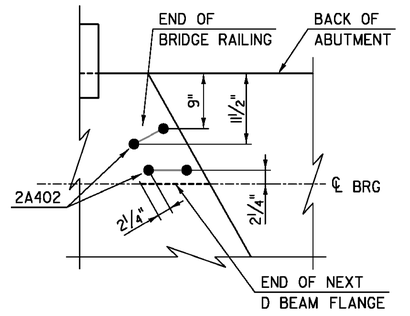
TYPICAL PEDESTAL REINFORCEMENT PLAN

SCALE: 1½" = 1'-0"



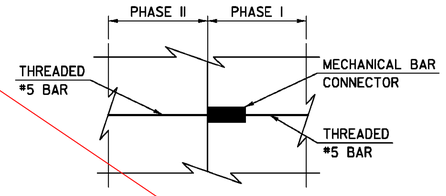
DETAIL A

SCALE: 1" = 1'-0"



DETAIL B

SCALE: 1" = 1'-0"



TYPICAL MECHANICAL CONNECTOR DETAIL

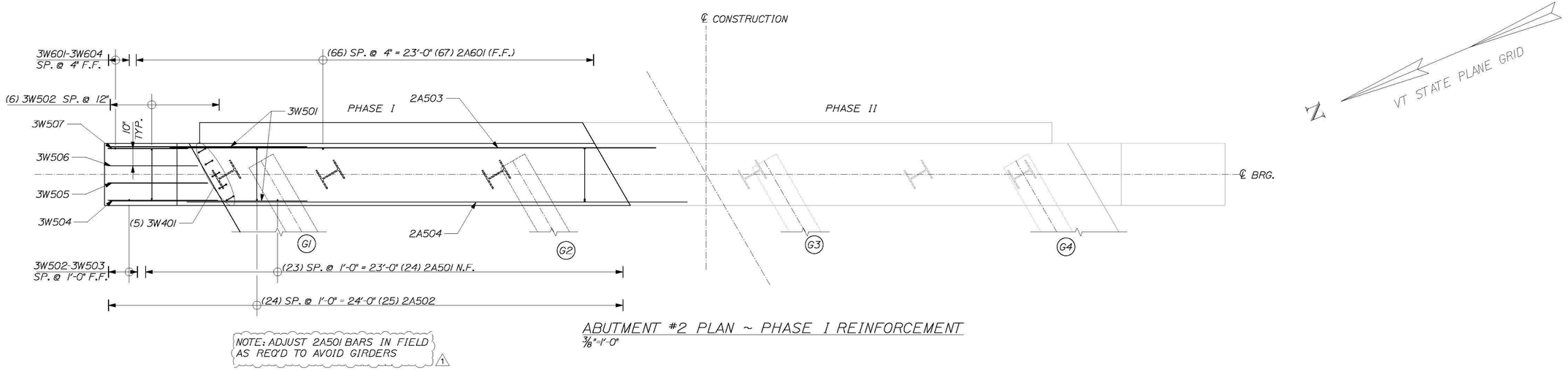
SCALE: 1½" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

TY·LIN INTERNATIONAL

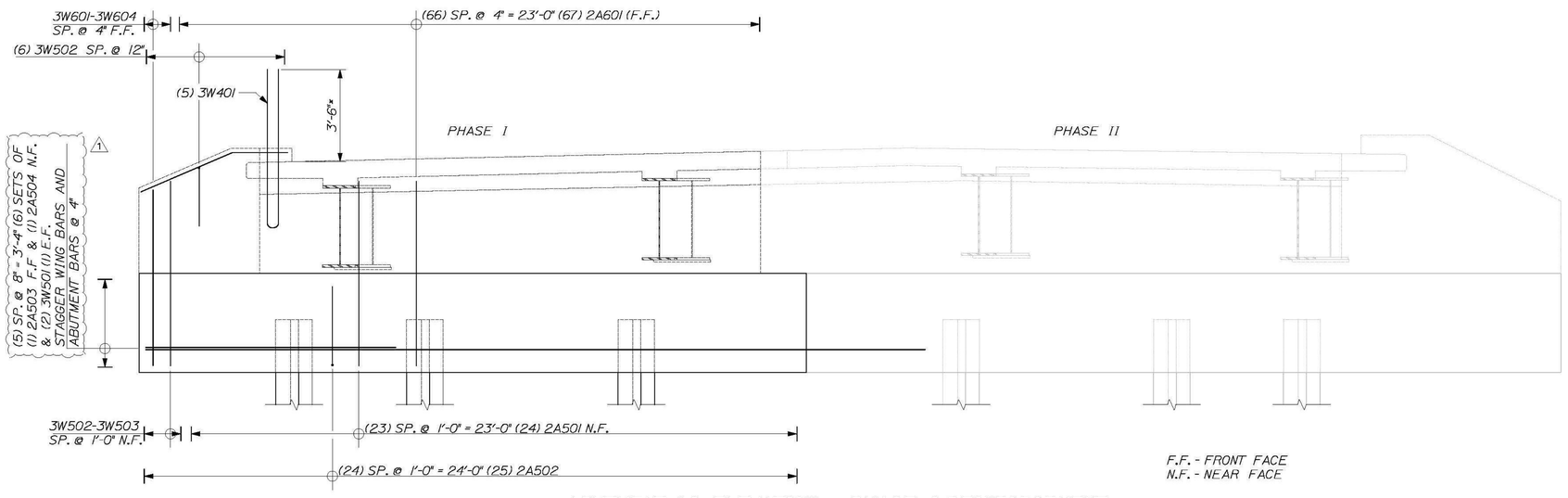
FILE NAME: z10J072bdr_abut2R.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: B. CARTER
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ABUTMENT 2 REINFORCEMENT	SHEET 35 OF 69

SEE SHEET 35 VE



ABUTMENT #2 PLAN ~ PHASE I REINFORCEMENT

3/8"=1'-0"



ABUTMENT #2 ELEVATION ~ PHASE I REINFORCEMENT

3/8"=1'-0"

* TRIM 3W401 BARS IN FIELD AS NEEDED TO MAINTAIN COVER TO TOP OF CONCRETE BRIDGE RAILING END POST

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

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REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

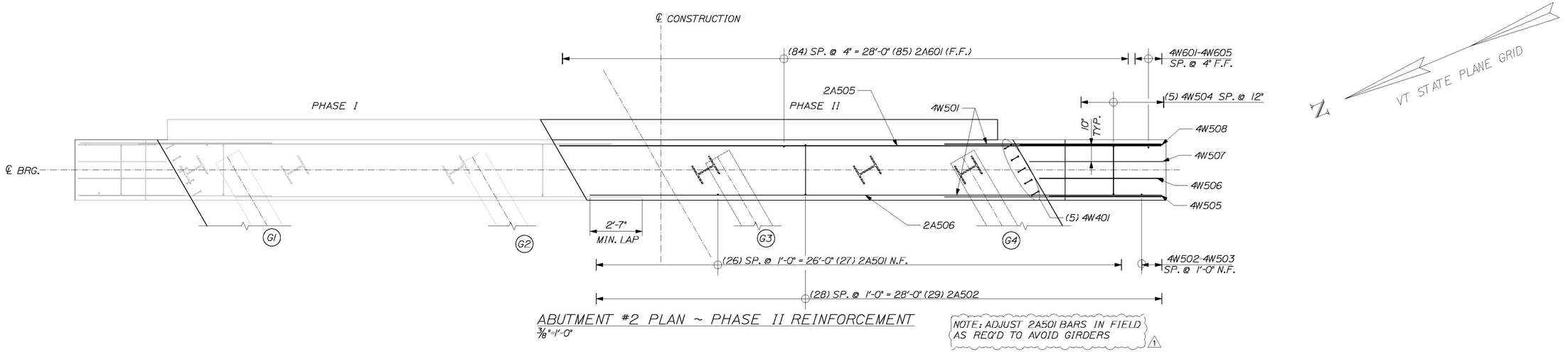
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 2 PHASE I REINFORCEMENT

SHEET NUMBER

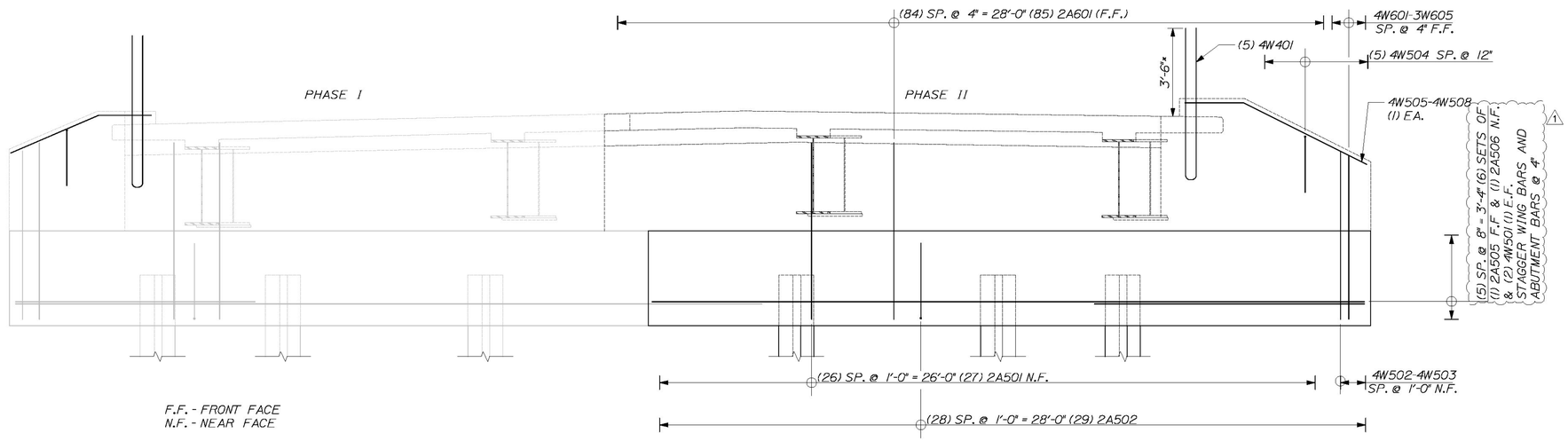
35

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ABUTMENT #2 PLAN ~ PHASE II REINFORCEMENT

3/8"=1'-0"



F.F. - FRONT FACE
N.F. - NEAR FACE

ABUTMENT #2 ELEVATION ~ PHASE II REINFORCEMENT

3/8"=1'-0"

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

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DATE:

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ETC	2014

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REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

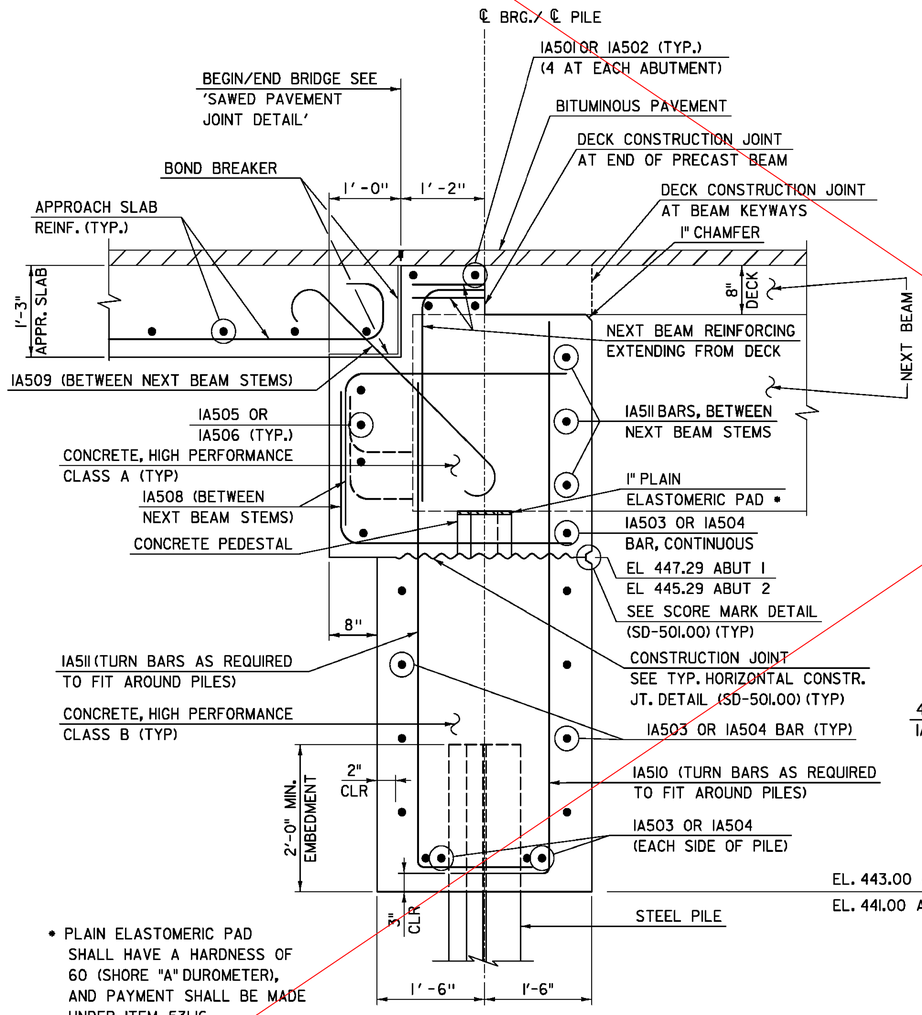
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT 2 PHASE 2 REINFORCEMENT

SHEET NUMBER

35a

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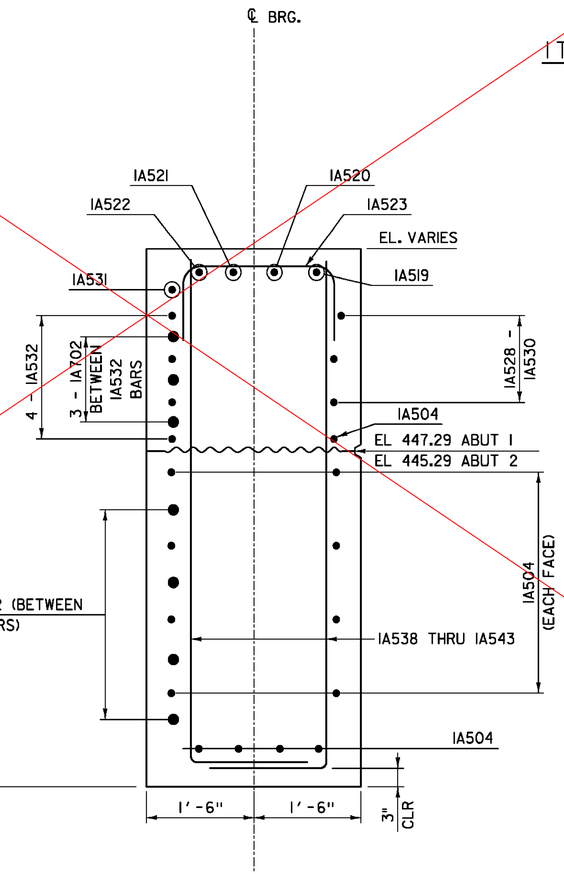


* PLAIN ELASTOMERIC PAD SHALL HAVE A HARDNESS OF 60 (SHORE "A" DUROMETER), AND PAYMENT SHALL BE MADE UNDER ITEM 531.16.

ABUTMENT TYPICAL SECTION

NOT TO SCALE

(REINFORCEMENT FOR ABUTMENT 1 SHOWN. REINFORCEMENT FOR ABUTMENT 2 SIMILAR.)



WINGWALL TYPICAL SECTION

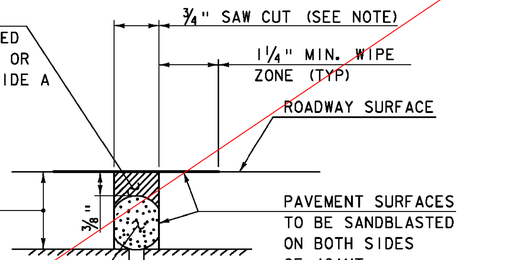
NOT TO SCALE

(REINFORCEMENT FOR NW WINGWALL SHOWN. REINFORCEMENT FOR OTHER WINGWALLS SIMILAR.)

JOINT SEALER, HOT POURED: SHALL BE SLIGHTLY OVER FILLED THEN WIPED FLUSH WITH A "V" OR "U" SHAPED SQUEEGEE TO PROVIDE A 1¼" WIPE ZONE EACH SIDE OF JOINT. ASPHALTIC PLUG JOINT BINDER MAY BE USED AS A SUBSTITUTE JOINT SEALER

TOP COURSE OF PAVEMENT

⅞"Ø HEAT RESISTANT FOAM BACKER ROD. COMPRESSION FIT REQUIRED TO ENSURE THAT THE ROD POSITION IS MAINTAINED DURING FILLING OPERATION. COST TO BE INCLUDED WITH UNIT PRICE BID FOR JOINT SEALER.



ITEM 524.11, "JOINT SEALER, HOT POURED" SAWED PAVEMENT JOINT DETAIL

N. T. S.

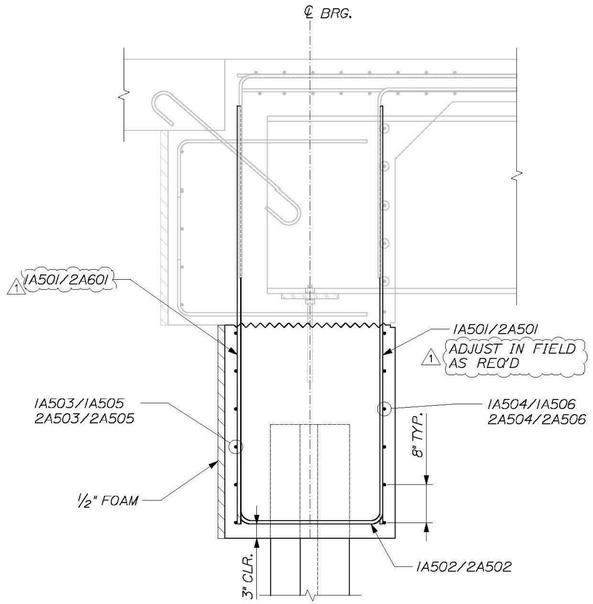
NOTE: JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUTS WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING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

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

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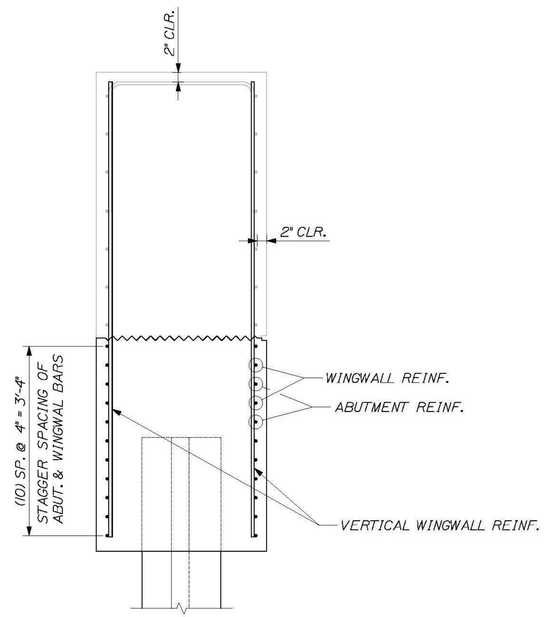
FILE NAME: z10J072bdr_abutsect.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
ABUTMENT SECTIONS	SHEET 36 OF 69

SEE SHEET 36 VE



ABUTMENT REINFORCING SECTION

3/4" = 1'-0"



WINGWALL REINFORCING SECTION

3/4" = 1'-0"

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	BY	DATE
	ETC	2014

DESIGN-DETAILED	
CHECKED-REVIEWED	

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REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

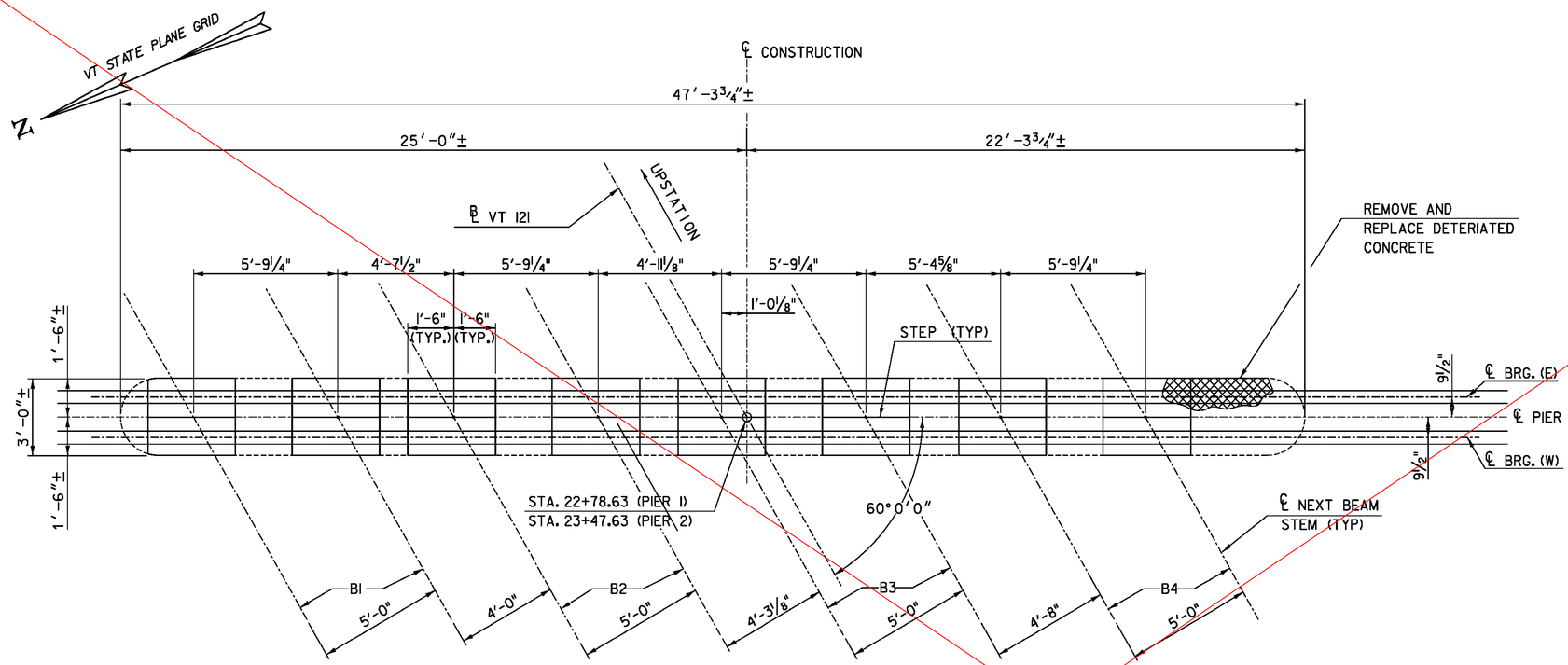
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

ABUTMENT SECTIONS

SHEET NUMBER

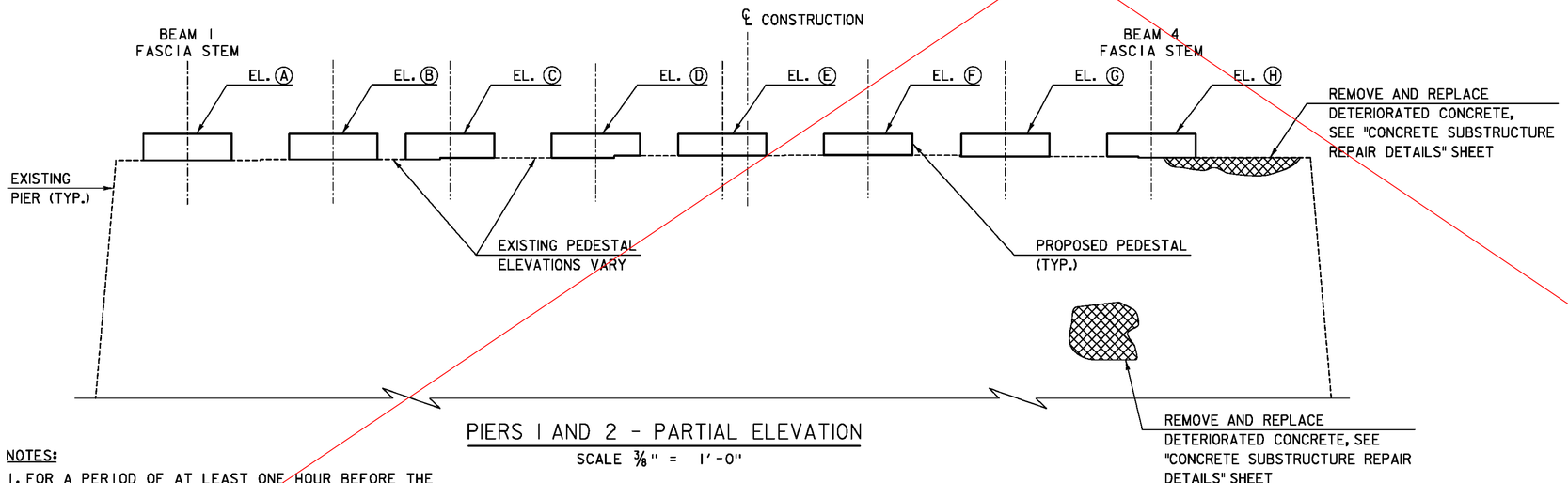
36

CALDERWOOD ENGINEERING
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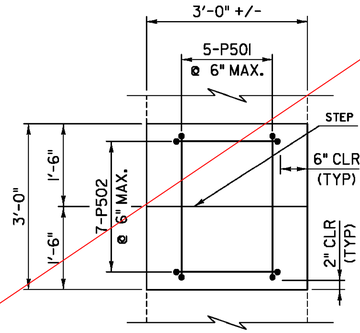
PIERS 1 AND 2 - PLAN

SCALE ⅜" = 1′-0"



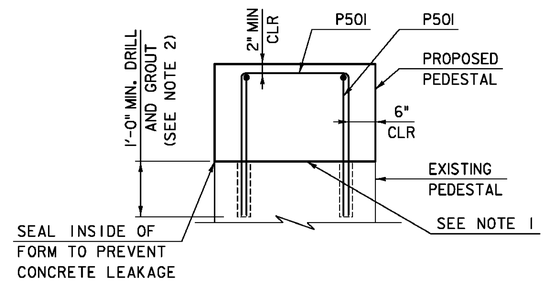
PIERS 1 AND 2 - PARTIAL ELEVATION

SCALE ⅜" = 1′-0"



PEDESTAL REINFORCEMENT PLAN

SCALE ¾" = 1′-0"



PEDESTAL REINFORCEMENT ELEVATION

SCALE ¾" = 1′-0"

ELEVATION TABLE				
LOCATION	PIER 1 WEST	PIER 1 EAST	PIER 2 WEST	PIER 2 EAST
A	446.72	446.74	446.03	446.05
B	446.89	446.83	446.20	446.14
C	446.95	446.97	446.26	446.28
D	447.12	446.06	446.43	446.37
E	447.14	447.21	446.45	446.52
F	447.17	447.17	446.48	446.48
G	447.09	447.11	446.40	446.42
H	447.06	447.00	446.37	446.31
EXISTING PEDESTAL ELEVATIONS VARY	446.0* TO 446.3*	445.2* TO 445.5*	445.2* TO 445.5*	445.2* TO 445.5*

NOTES:

1. FOR A PERIOD OF AT LEAST ONE HOUR BEFORE THE PLACEMENT OF PEDESTAL CONCRETE MATERIAL, THE PREPARED SURFACE SHALL BE FLOODED WITH WATER. AFTER REMOVAL OF ALL FREE WATER, THE PEDESTAL CONCRETE MATERIAL SHALL BE DEPOSITED ON THE DAMPENED SURFACE.
2. DIAMETER OF DRILLED HOLE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

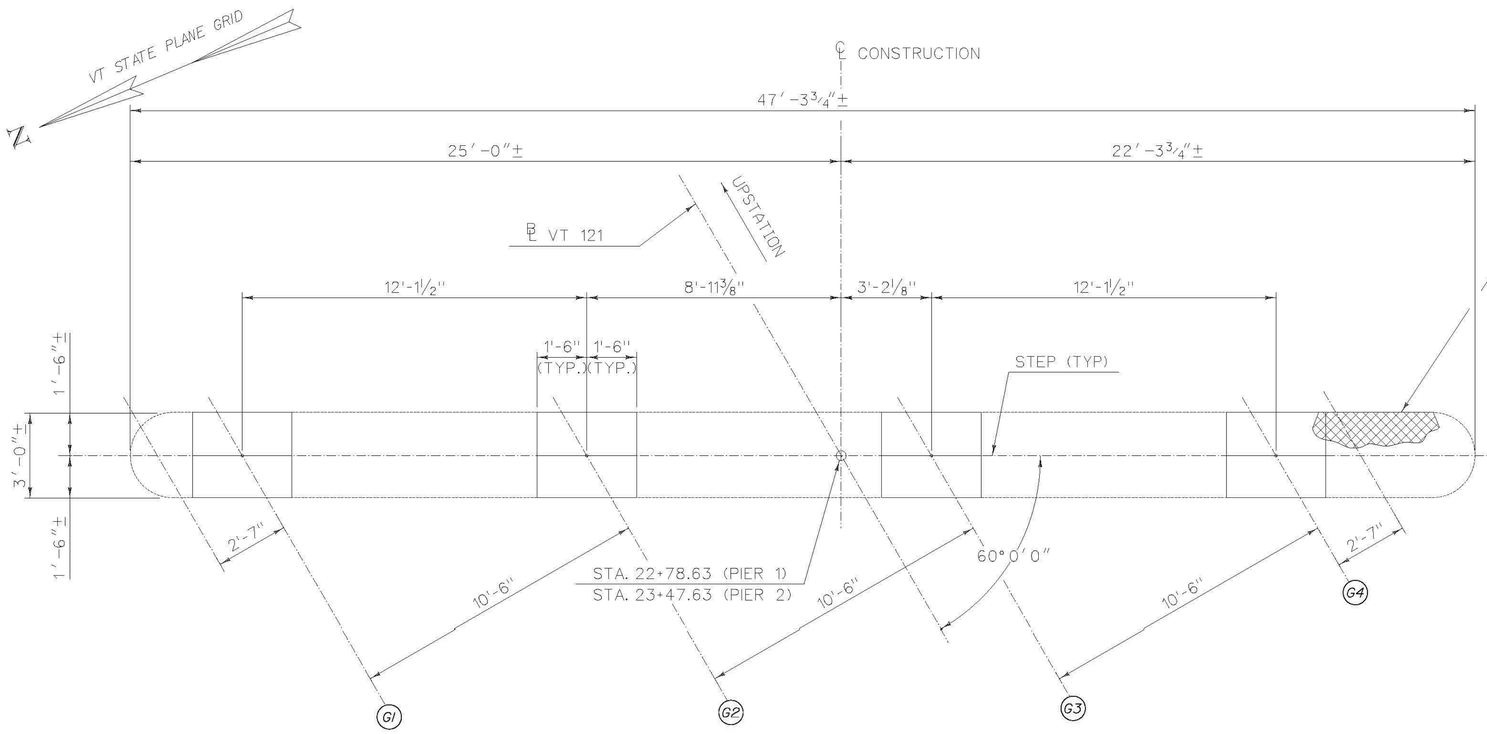
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T.Y. LIN INTERNATIONAL

FILE NAME: z10J072bdr_Pier1.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
PIER MODIFICATION

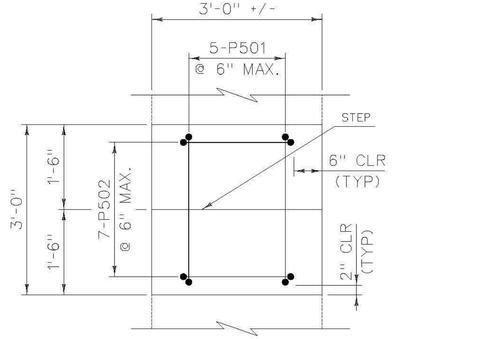
PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 37 OF 69

SEE SHEET 37 VE



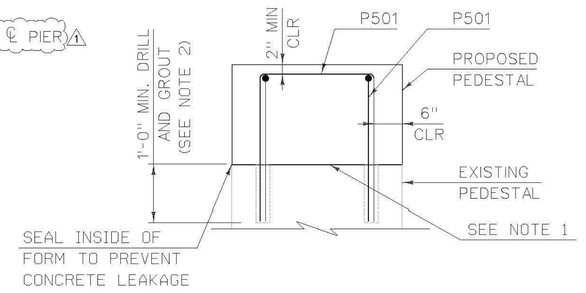
PIERS 1 AND 2 - PLAN

SCALE ⅜" = 1'-Ø"



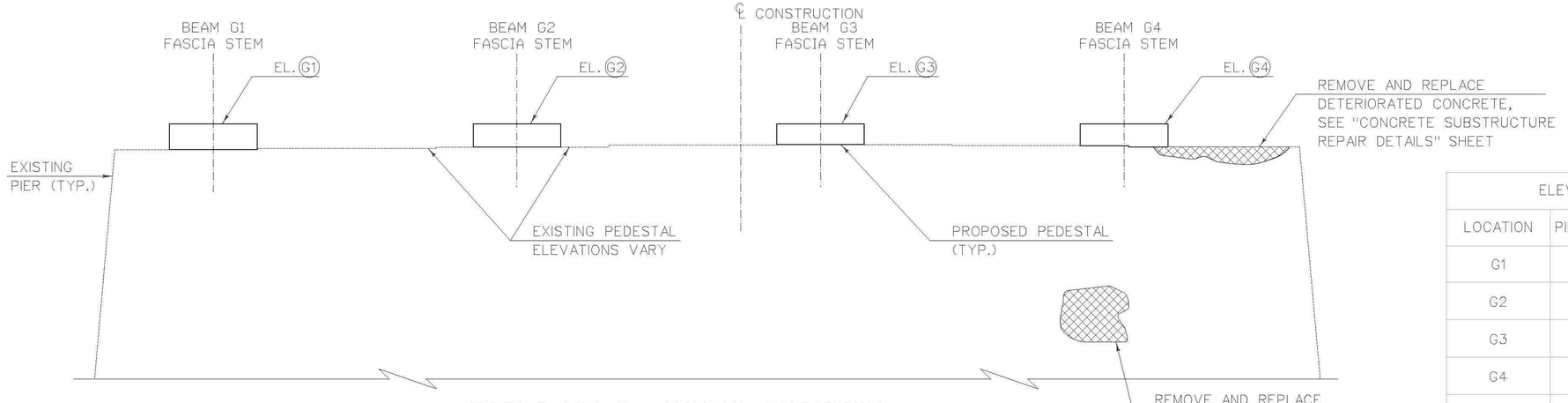
PEDESTAL REINFORCEMENT PLAN

SCALE ¾" = 1'-Ø"



PEDESTAL REINFORCEMENT ELEVATION

SCALE ¾" = 1'-Ø"



PIERS 1 AND 2 - PARTIAL ELEVATION

SCALE ⅜" = 1'-Ø"

ELEVATION TABLE		
LOCATION	PIER 1 WEST	PIER 2 WEST
G1	446.15	445.46
G2	446.42	445.73
G3	446.58	445.89
G4	446.43	445.74
EXISTING PEDESTAL ELEVATIONS VARY	446.0± TO 446.3±	445.2± TO 445.5±

NOTES:

1. FOR A PERIOD OF AT LEAST ONE HOUR BEFORE THE PLACEMENT OF PEDESTAL CONCRETE MATERIAL, THE PREPARED SURFACE SHALL BE FLOODED WITH WATER. AFTER REMOVAL OF ALL FREE WATER, THE PEDESTAL CONCRETE MATERIAL SHALL BE DEPOSITED ON THE DAMPENED SURFACE.
2. DIAMETER OF DRILLED HOLE SHALL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

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PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DETAILED
CHECKED-REVIEWED

REVISIONS 1
REVISIONS 2
REVISIONS 3
REVISIONS 4
FIELD CHANGES

VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

PIER MODIFICATION

SHEET NUMBER

37

CALDERWOOD ENGINEERING
222 RIVER ROAD
N. RICHMOND, ME 04357
TEL (207) 737-2007 FAX (207) 737-2008

EXISTING SUBSTRUCTURE CONCRETE REPAIR NOTES:

1. WHEN "OVERHEAD AND VERTICAL CONCRETE REPAIR MATERIAL" CONFORMING TO SUBSECTION 780.02 IS USED, THE BONDING AGENT, (IF ANY REQUIRED) AND ITS APPLICATION PROCEDURE SHALL COMPLY WITH THE REQUIREMENTS OF THE PATCHING MATERIAL MANUFACTURER. PAYMENT FOR BONDING AGENT WILL BE INCIDENTAL TO ITEM 580.13, 580.14 OR 580.15.

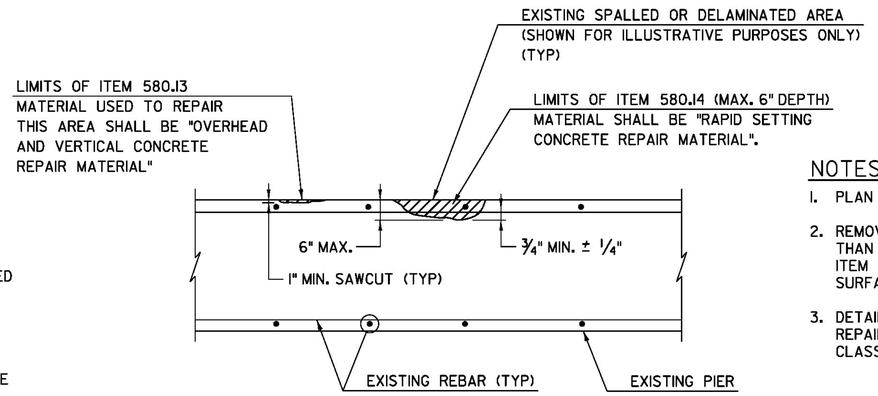
2. ALL WORK AND MATERIALS NECESSARY FOR PREPARING A PATCH AND FILLING IT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 580.13, 580.14 OR 580.15

3. ITEM 580.14 FILLING MATERIAL SHALL BE "RAPID SETTING CONCRETE REPAIR MATERIAL" CONFORMING TO SUBSECTION 780.03.

4. ITEM 580.15 FILLING MATERIAL SHALL BE "RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE" CONFORMING TO SUBSECTION 780.04.

5. IF PNEUMATICALLY APPLIED CONCRETE IS SELECTED FOR REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II OR III, THEN THIS TYPE OF CONCRETE REPAIR SHALL BE CONFINED ONLY TO VERTICAL AND OVERHEAD SURFACES OF THE SUBSTRUCTURE. ALSO, THE BRIDGE AND BEAMS SHOULD BE COMPLETELY PROTECTED FROM REBOUND MATERIAL DURING PNEUMATICALLY APPLIED CONCRETE APPLICATION PROCEDURES.

6. THE ENGINEER SHALL ORDER REPLACEMENT OF ANY SUBSTRUCTURE REINFORCING STEEL THAT IS DETERIORATED (WITH MORE THAN 25% SECTION LOSS) WITH NEW REINFORCING STEEL OF THE SAME SIZE. ALL REINFORCING STEEL SHALL HAVE AN APPROPRIATE LAP SPLICE. SUBSTRUCTURE REINFORCING STEEL REPLACED WILL BE PLAIN BAR REINFORCING STEEL, LEVEL I OR BETTER AND WILL BE INCIDENTAL TO ITEM 580.14 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS II" OR ITEM 580.15 "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE CLASS III".



CONCRETE SUBSTUCTURE REPAIR DETAIL
NOT TO SCALE

NOTES:

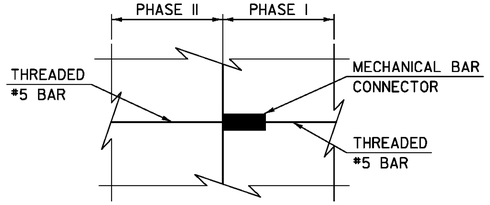
1. PLAN VIEW OF EXISTING PIER SHOWN.
2. REMOVAL OF EXISTING CONCRETE TO A DEPTH GREATER THAN SPECIFIED FOR ITEM 580.14 SHALL BE PAID UNDER ITEM 580.15, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III".
3. DETAIL SHOWS LIMIT OF ITEMS 580.13, 580.14 AND 580.15 REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I, CLASS II, OR CLASS III.

T-Y LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

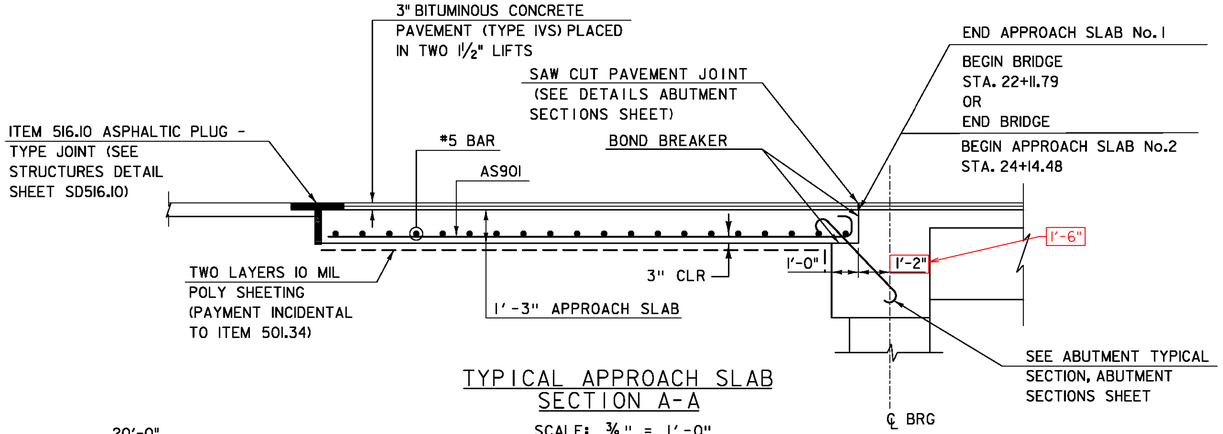
FILE NAME: z10j072bdr_repair.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
CONCRETE SUBSTRUCTURE REPAIR DETAILS

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 38 OF 69



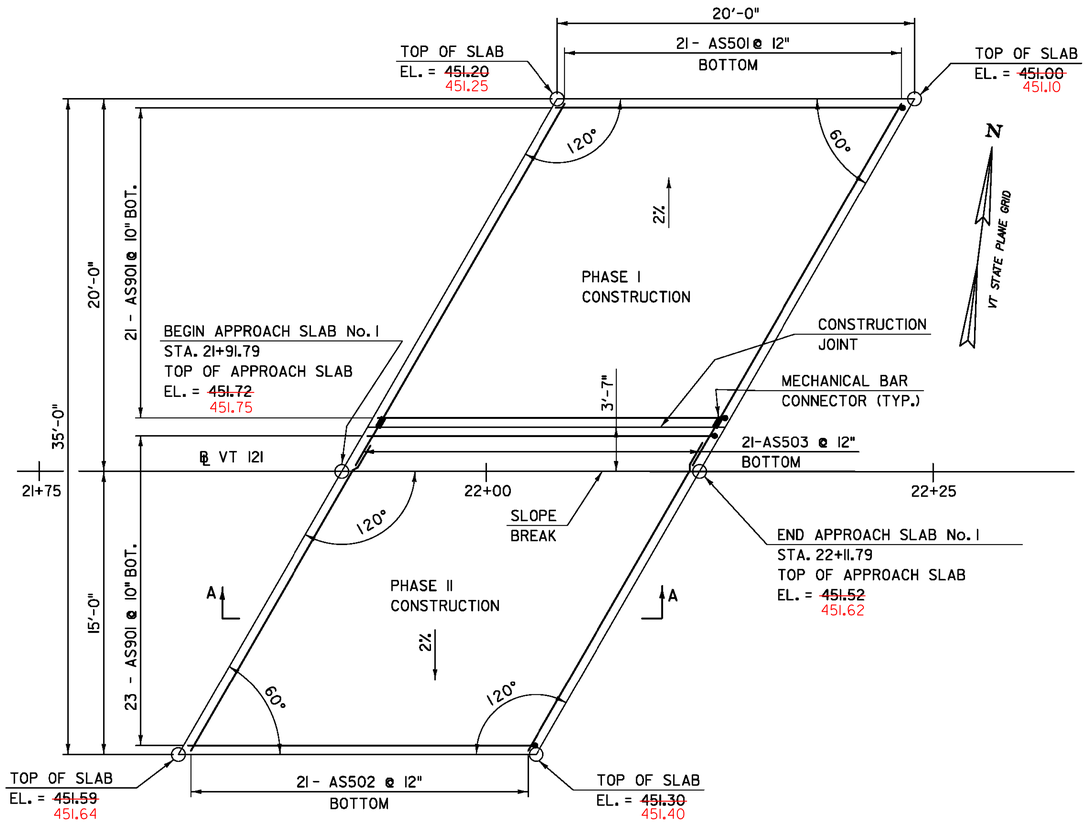
TYPICAL MECHANICAL CONNECTOR DETAIL

SCALE: 1½" = 1'-0"



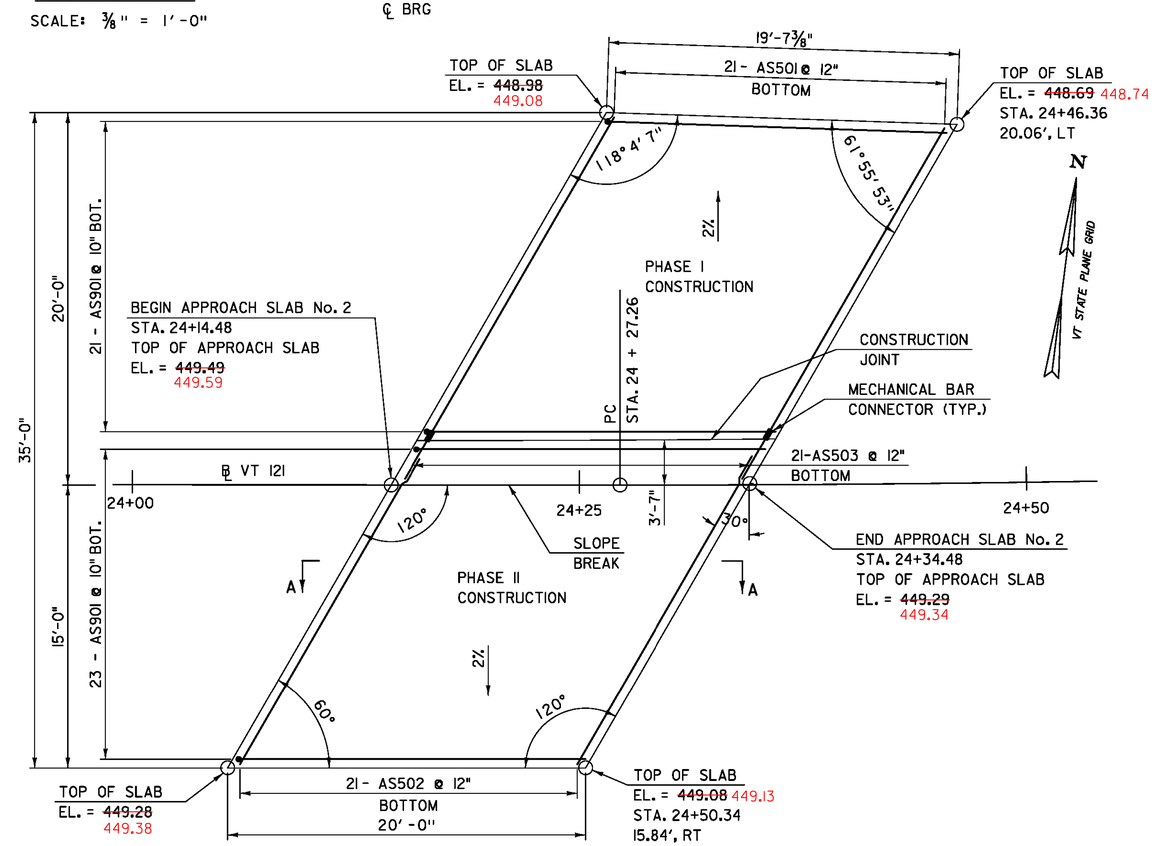
TYPICAL APPROACH SLAB SECTION A-A

SCALE: ⅜" = 1'-0"



APPROACH SLAB No. 1 PLAN

SCALE: ¼" = 1'-0"



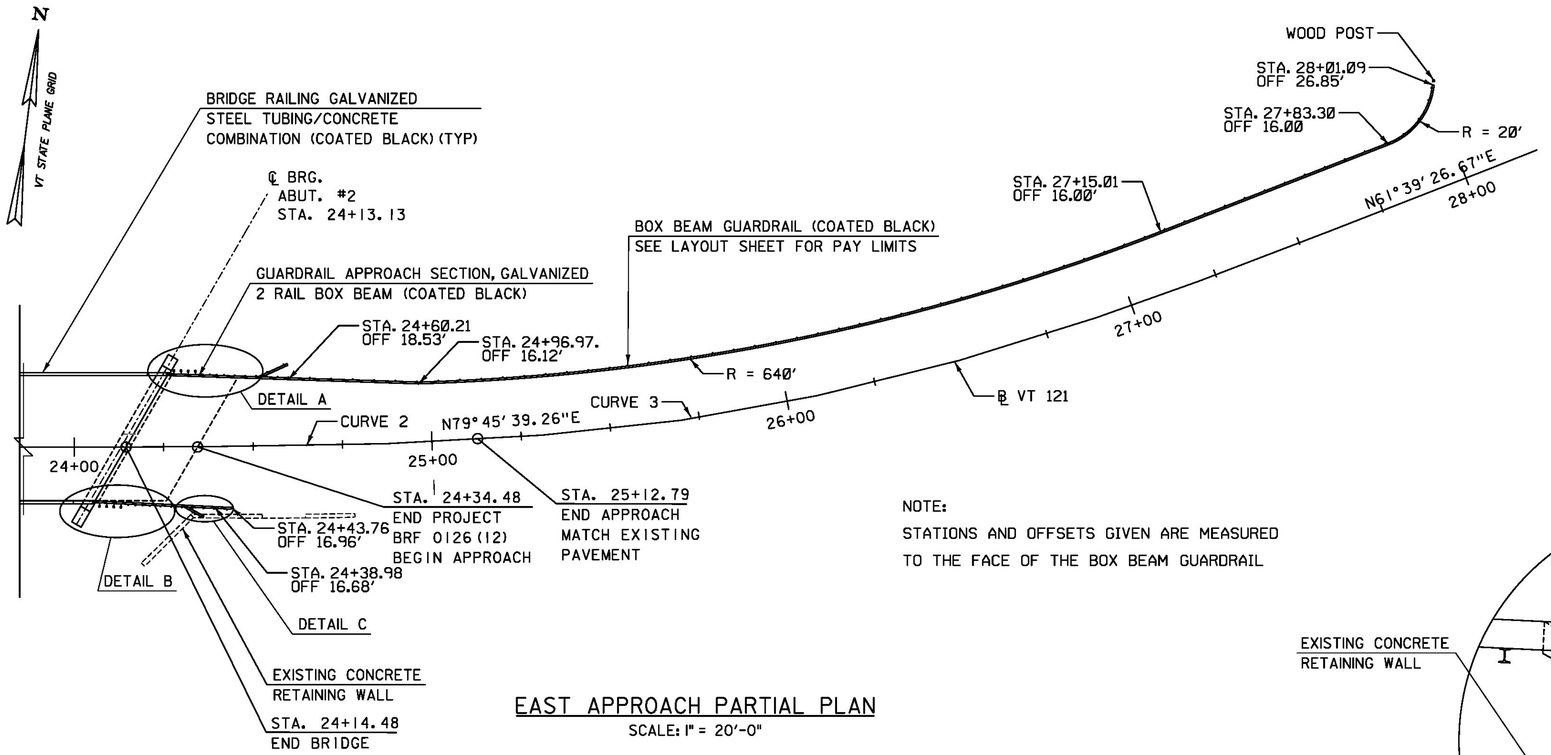
APPROACH SLAB No. 2 PLAN

SCALE: ¼" = 1'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

TYLIN INTERNATIONAL

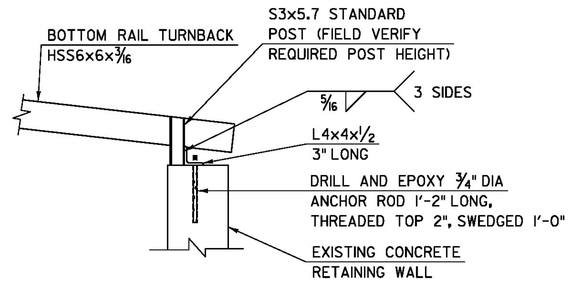
FILE NAME: z101072bdr_apprslab.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
APPROACH SLAB DETAILS	SHEET 39 OF 69



EAST APPROACH PARTIAL PLAN

SCALE: 1" = 20'-0"

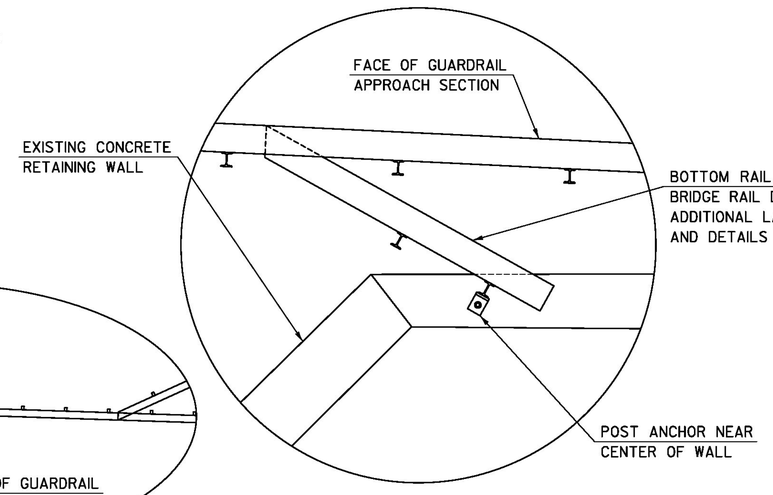
NOTE:
STATIONS AND OFFSETS GIVEN ARE MEASURED TO THE FACE OF THE BOX BEAM GUARDRAIL



POST ANCHOR DETAIL

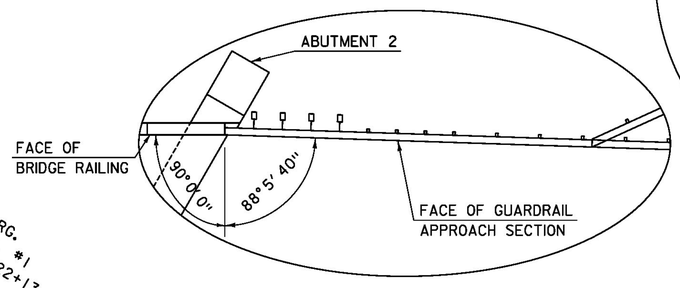
N.T.S.

NOTE: PAYMENT FOR POST ANCHOR SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 621.72.



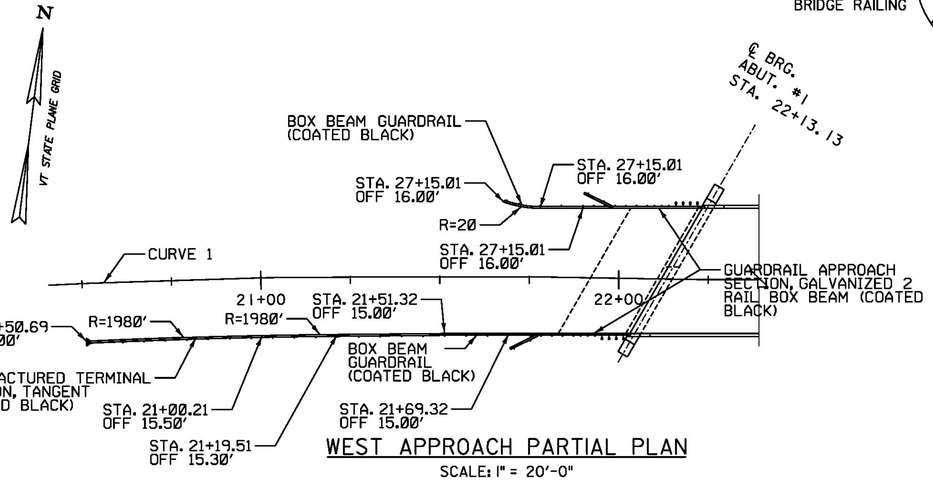
DETAIL C

N.T.S.



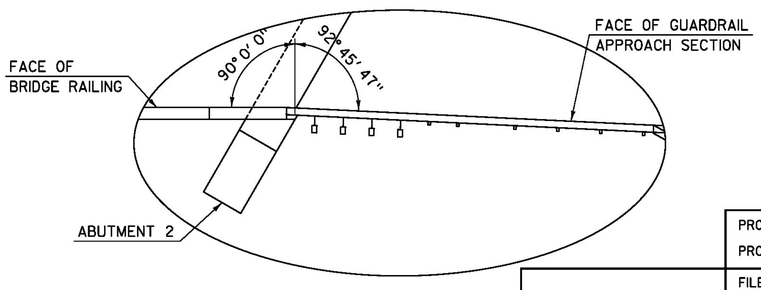
DETAIL A

N.T.S.



WEST APPROACH PARTIAL PLAN

SCALE: 1" = 20'-0"



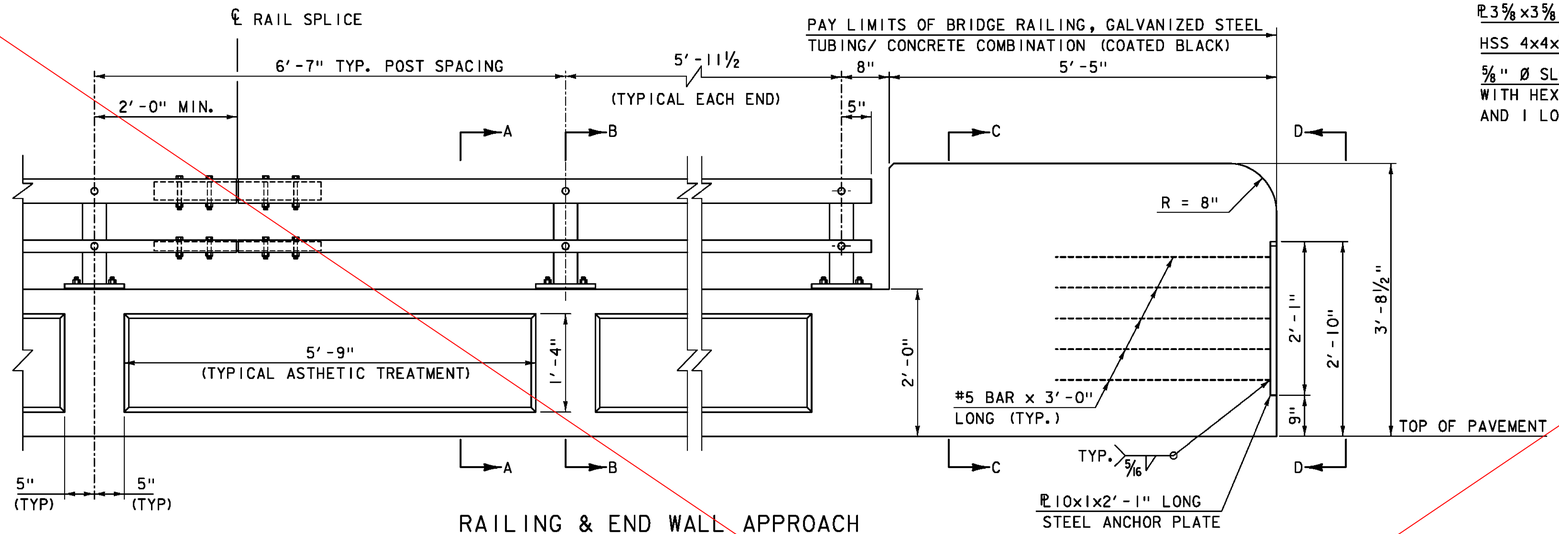
DETAIL B

N.T.S.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

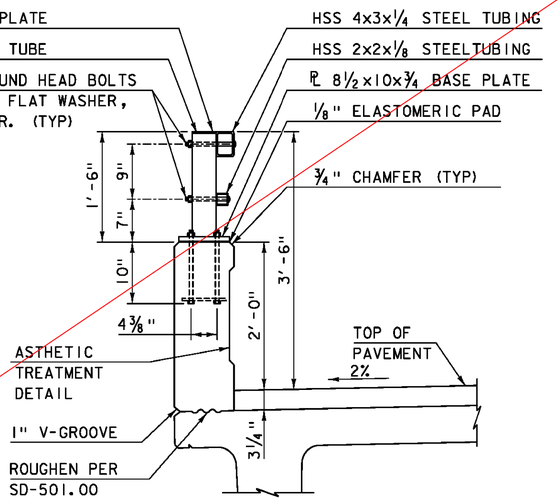
T·Y·LIN INTERNATIONAL

FILE NAME: z101072bdr_rail_pln.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. KELLER
DESIGNED BY: S. KELLER	CHECKED BY: D. BURHANS
GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS	SHEET 40 OF 69



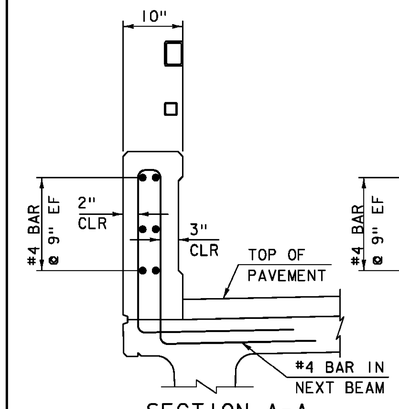
RAILING & END WALL APPROACH

SCALE 1"=1'-0"



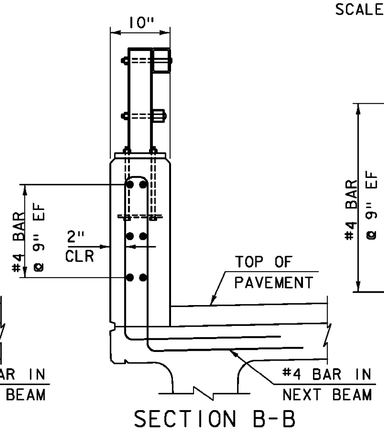
RAIL TYPICAL SECTION

SCALE 1"=1'-0"



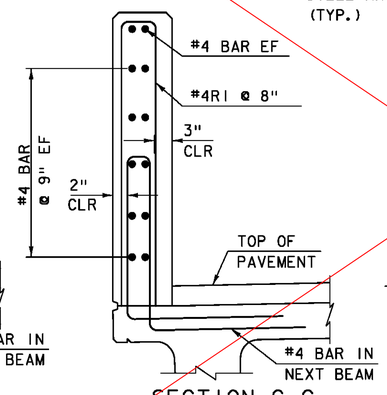
SECTION A-A

SCALE 1"=1'-0"



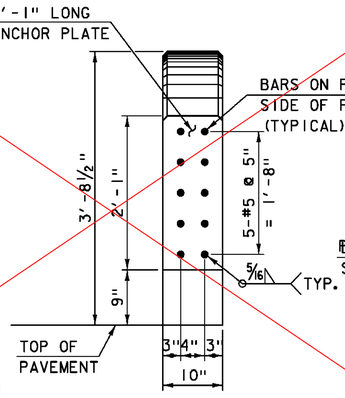
SECTION B-B

SCALE 1"=1'-0"

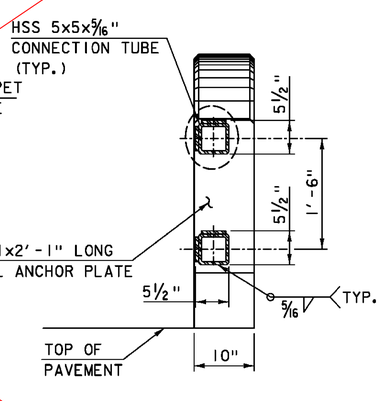


SECTION C-C

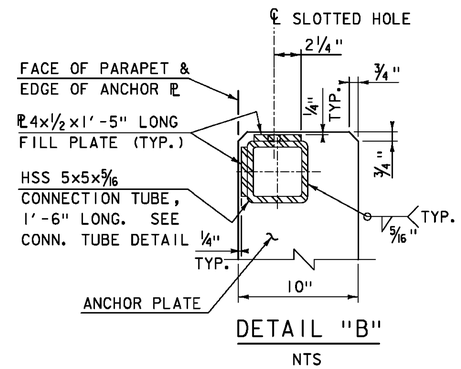
SCALE 1"=1'-0"



SHOWING EMBEDED REBAR



WITH HSS CONNECTOR TUBE

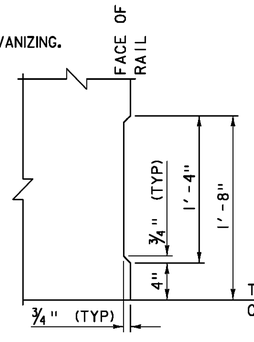


DETAIL "B"

NTS

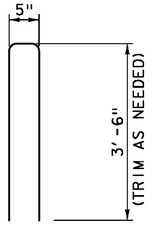
NOTES:

1. BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
2. HOLES AND RECESSES ARE TO BE FORMED OR CORED, PERCUSSION DRILLING IS NOT ALLOWED.
3. ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.
4. ALL REINFORCEMENT SHALL BE LEVEL II.
5. ALL LONGITUDINAL BARS SHALL HAVE A MINIMUM LAP LENGTH OF 2'-1".
6. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
7. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
8. ALL POSTS SHALL BE SET NORMAL TO GRADE.
9. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
10. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
11. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
12. RAIL TUBES SHALL BE ATTACHED USING ⅝" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
13. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
14. SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH CONNECTION TUBE DETAILS.



ASTHETIC TREATMENT DETAIL

SCALE 1½"=1'



#4RI BAR DETAIL

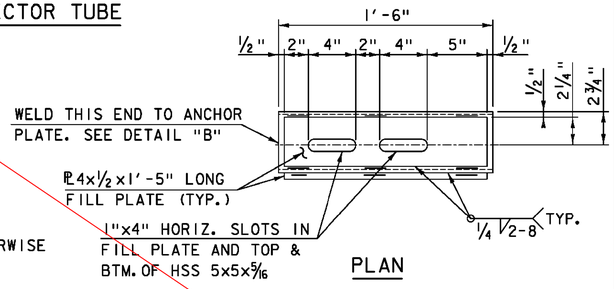
(9 EACH END, 36 TOTAL)

VIEW D-D

SCALE 1"=1'-0"

NOTE:

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



PLAN

CONNECTION TUBE DETAIL

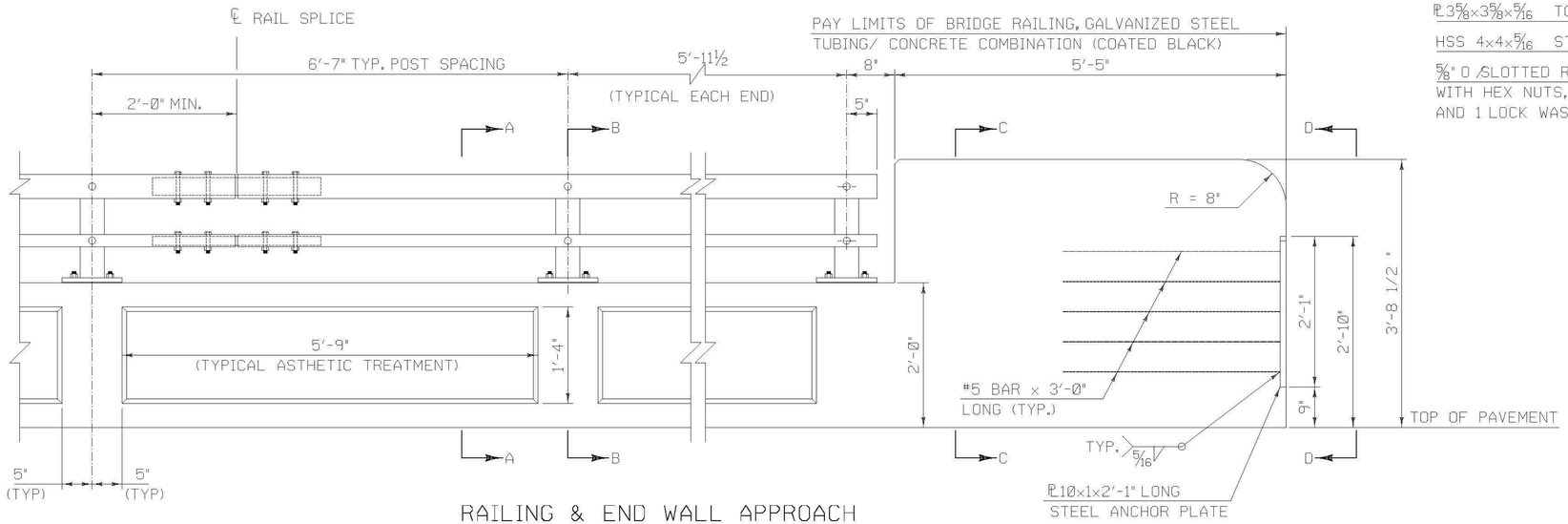
NTS

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

TY·LIN INTERNATIONAL

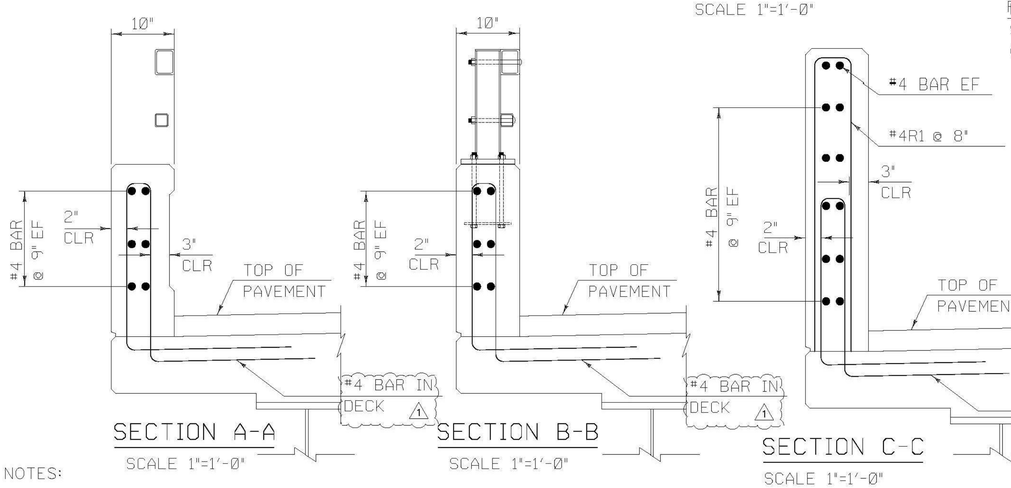
FILE NAME: z101072bdr_rail_01.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. AXTELL
DESIGNED BY: S. KELLER	CHECKED BY: T. POULIN
BRIDGE RAILING DETAILS (1 OF 3)	SHEET 41 OF 69

SEE SHEET 41VE



RAILING & END WALL APPROACH

SCALE 1"=1'-Ø"



SECTION A-A
SCALE 1"=1'-Ø"

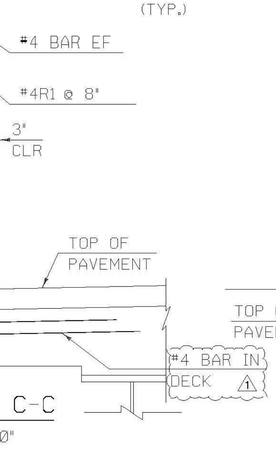
SECTION B-B
SCALE 1"=1'-Ø"

SECTION C-C
SCALE 1"=1'-Ø"

SHOWING EMBEDED REBAR

NOTES:

1. BRIDGE RAIL SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
2. HOLES AND RECESSES ARE TO BE FORMED OR CORED, PERCUSSION DRILLING IS NOT ALLOWED.
3. ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.
4. ALL REINFORCEMENT SHALL BE LEVEL II.
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9. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
10. HOLES IN RAILS FOR TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
11. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
12. RAIL TUBES SHALL BE ATTACHED USING 5/8" FULL DIAMETER BODY ASTM A 449 (TYPE 1) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
13. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
14. SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH CONNECTION TUBE DETAILS.



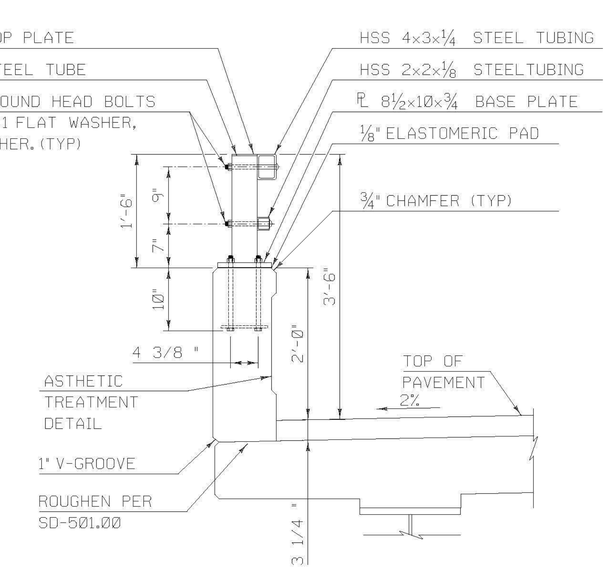
ASTHETIC TREATMENT DETAIL
SCALE 1½"=1'



#4R1 BAR DETAIL
(9 EACH END, 36 TOTAL)

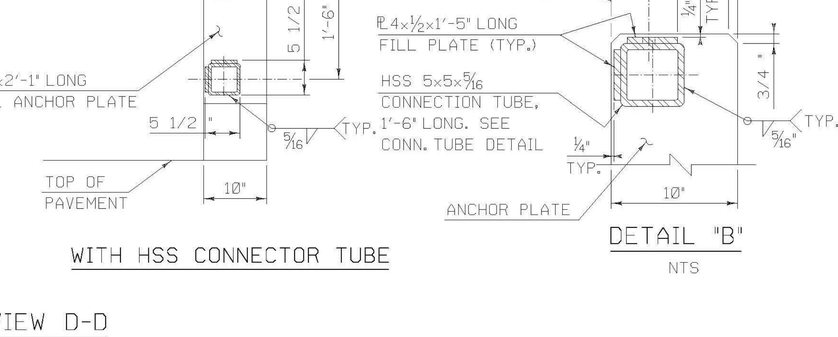
VIEW D-D
SCALE 1"=1'-Ø"

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



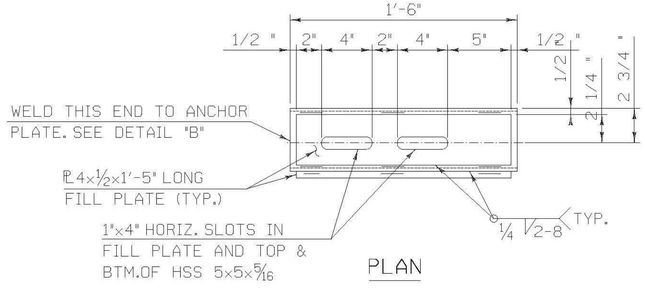
RAIL TYPICAL SECTION

SCALE 1"=1'-Ø"



WITH HSS CONNECTOR TUBE

DETAIL "B"
NTS



PLAN

CONNECTION TUBE DETAIL
NTS

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

	DATE	BY
DESIGN-DETAILED	2014	ETC
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

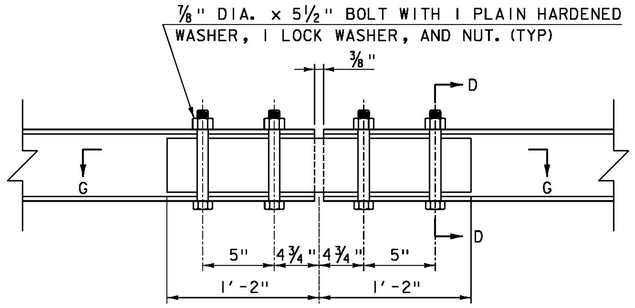
VE SUPER. DESIGN
ROCKINGHAM VT. BRF 0126 (12)

BRIDGE RAILING DETAILS (1 OF 3)

SHEET NUMBER

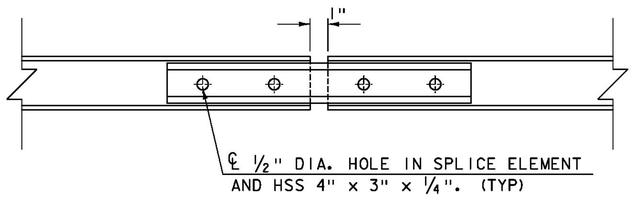
41

CALDERWOOD ENGINEERING
222 RIVER ROAD
P. O. RICHMOND, ME 04357
PH. (207) 737-2007 FAX (207) 737-2008



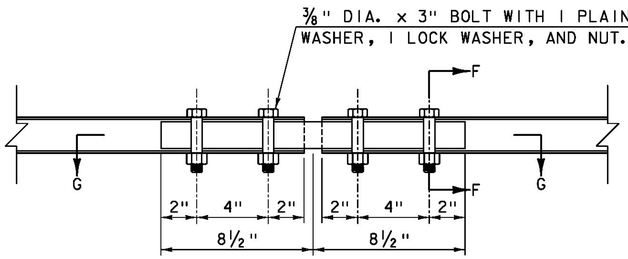
TOP RAIL SPLICE DETAIL

N. T. S.



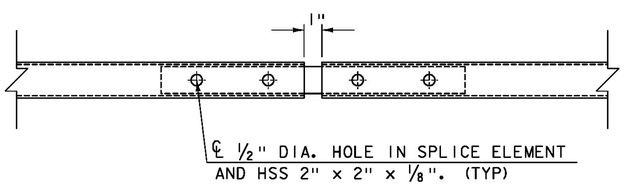
SECTION E-E

N. T. S.



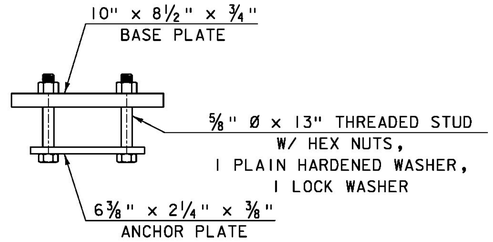
BOTTOM RAIL SPLICE DETAIL
ELEVATION VIEW

N. T. S.



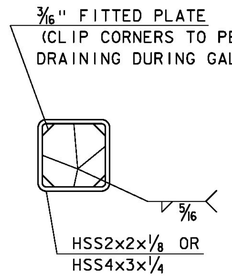
SECTION G-G

N. T. S.



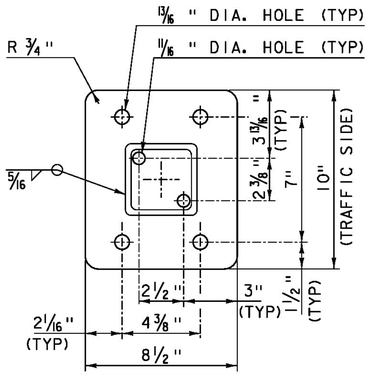
RAIL POST ANCHORAGE

N. T. S.



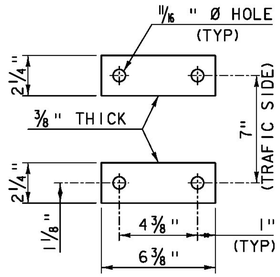
END OF RAIL DETAIL

N. T. S.



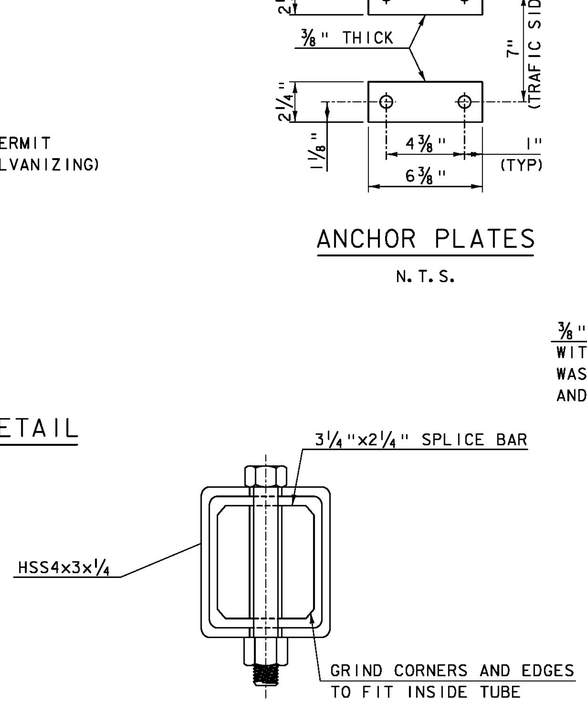
BASE PLATE

N. T. S.



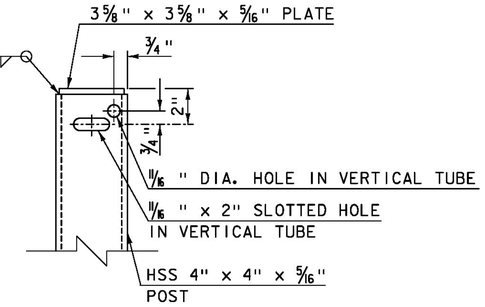
ANCHOR PLATES

N. T. S.



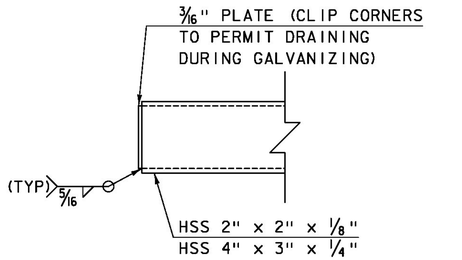
SECTION D-D

N. T. S.



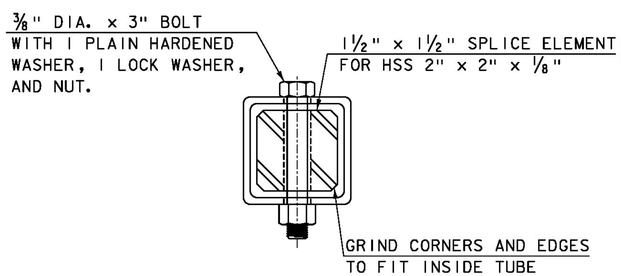
VERTICAL TUBE DETAIL
(FRONT VIEW)

N. T. S.



END OF RAIL DETAIL

N. T. S.



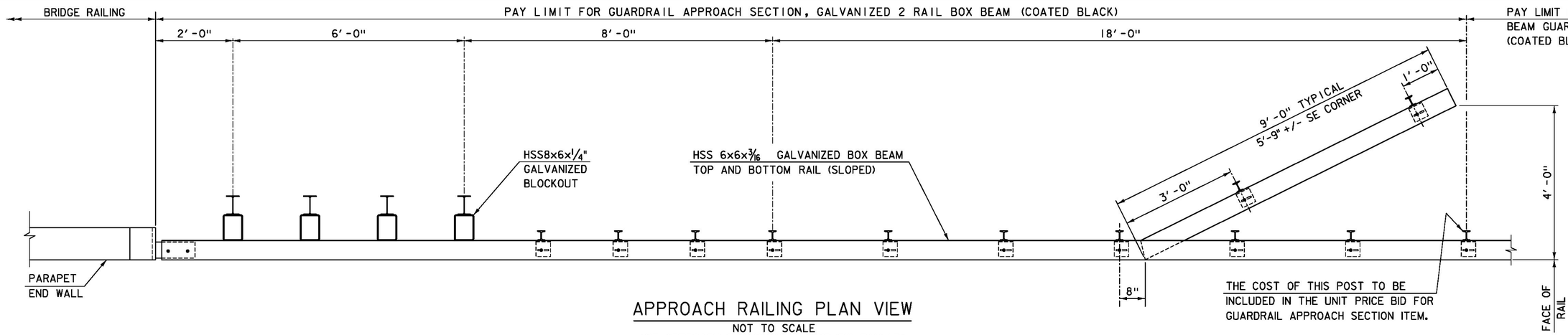
SECTION F-F

N. T. S.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

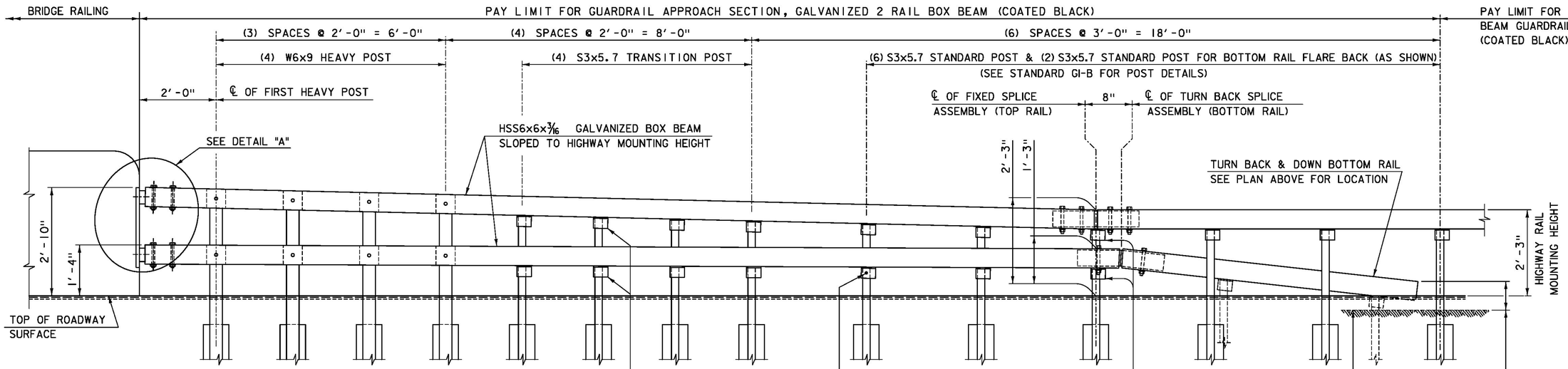
T.Y.LIN INTERNATIONAL

FILE NAME: z101072bdr_rail_02.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: B. CARTER
DESIGNED BY: S. KELLER	CHECKED BY: T.POULIN
BRIDGE RAILING DETAILS (2 OF 3)	SHEET 42 OF 69



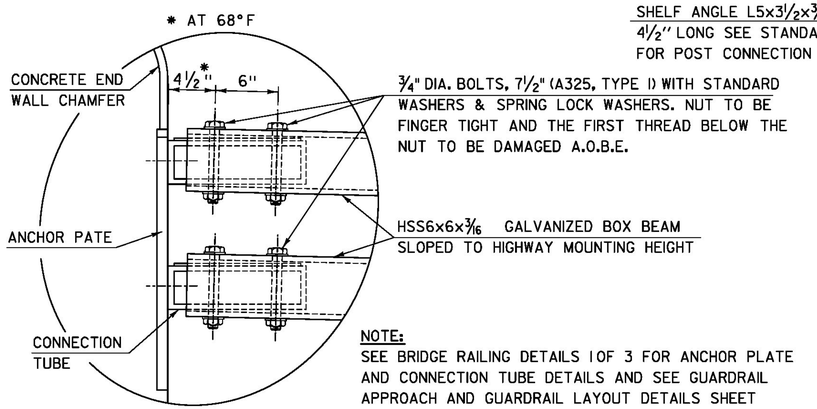
APPROACH RAILING PLAN VIEW

NOT TO SCALE
(NE APPROACH SHOWN, NW, SE, AND SW SIMILAR)



APPROACH RAILING ELEVATION

NOT TO SCALE
* LONG LEG HORIZONTAL



DETAIL "A"

NOT TO SCALE

NOTE:
SEE BRIDGE RAILING DETAILS 1OF 3 FOR ANCHOR PLATE AND CONNECTION TUBE DETAILS AND SEE GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS SHEET FOR DEFLECTION ANGLES OF EAST APPROACH.

NOTES:

1. ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.
2. FOR "FIXED SPLICE TUBE", "FIXED SPLICE BAR", "FIXED SPLICE TUBE ASSEMBLY", AND "FIXED SPLICE BAR ASSEMBLY" DETAILS, SEE STANDARD S-364C.
3. FOR "TURN BACK SPLICE TUBE DETAIL" AND "TURN BACK SPLICE TUBE ASSEMBLY" DETAILS, SEE STANDARD S-364D.
4. FOR "HEAVY POST DETAIL" AND "TRANSITION POST DETAIL", SEE STANDARD S-364D.
5. FOR SE CORNER MODIFICATION DETAILS, SEE 'BRIDGE RAILING AND GUARDRAIL LAYOUT' SHEET.
6. SEE "GUARDRAIL APPROACH AND GUARDRAIL LAYOUT DETAILS" SHEET FOR ADDITIONAL EAST APPROACH RAILING DETAILS.

T-Y LIN INTERNATIONAL

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_rail_03.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: S. KELLER
BRIDGE RAILING DETAILS (3 OF 3)

PLOT DATE: 8/26/2014
DRAWN BY: D. AXTELL
CHECKED BY: T. POULIN
SHEET 43 OF 69

STATE OF VERMONT
AGENCY OF TRANSPORTATION

REINFORCING STEEL SCHEDULE

SUPERSTRUCTURE REINFORCEMENT

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	74	4	6'- 2"	S401	S11								2'- 11"				0'- 4"
	68	4	11'- 0"	S402	S5	3'- 0"	2'- 5"	0'- 4"	2'- 7"			2'- 8"					
	482	5	10'- 3"	S501	STR												
	76	5	19'- 6"	S502	STR												
	72	5	21'- 2"	S503	STR												
	192	5	2'- 3"	S504	STR												
	112	5	2'- 9"	S505	STR												
	12	5	20'- 3"	S506	STR												
	12	5	23'- 3"	S507	STR												
	8	5	0'- 11"	S508	STR												
	8	5	1'- 4"	S509	STR												
	48	5	52'- 6"	S510	STR												

ABUTMENT 1 REINFORCEMENT

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	24	4	3'- 9"	1A401	S11								1'- 9"				0'- 5"
✳	5	4	11'- 3"	1A402	S11								5'- 6"				0'- 5"
	4	5	23'- 5"	1A501	STR												
	4	5	21'- 10"	1A502	STR												
	13	5	27'- 1"	1A503	STR												
	13	5	24'- 10"	1A504	STR												
	4	5	21'- 3"	1A505	STR												
	4	5	19'- 3"	1A506	STR												
	21	5	4'- 5"	1A507	STR												
	58	5	5'- 5"	1A508	S10			3'- 4"	2'- 1"								
	29	5	4'- 6"	1A509	1	0'- 7"	3'- 4"					0'- 7"		0'- 5"			
	45	5	9'- 6"	1A510	2	2'- 6"	7'- 0"					0'- 0"					
	45	5	8'- 9"	1A511	2	2'- 6"	6'- 3"					0'- 0"					
	12	5	3'- 11"	1A512	STR												
	3	5	3'- 6"	1A513	STR												
	3	5	2'- 9"	1A514	STR												
	1	5	6'- 2"	1A515	22		3'- 11"	2'- 3"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	5'- 8"	1A516	22		3'- 11"	1'- 9"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	5'- 2"	1A517	22		3'- 11"	1'- 3"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	4'- 8"	1A518	22		3'- 11"	0'- 9"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
✳	2	5	5'- 11"	1A519	22		5'- 6"	0'- 5"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	6'- 5"	1A520	22		5'- 6"	0'- 11"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	6'- 11"	1A521	22		5'- 6"	1'- 5"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	7'- 5"	1A522	22		5'- 6"	1'- 11"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	11	5	4'- 4"	1A523	2	0'- 10"	2'- 8"					0'- 10"					
	2	5	4'- 8"	1A524	2	0'- 10"	3'- 0"					0'- 10"					
	3	5	7'- 8"	1A525	STR												
	1	5	4'- 9"	1A526	STR												
	4	5	10'- 6"	1A527	STR												
	1	5	6'- 0"	1A528	STR												
	1	5	4'- 11"	1A529	STR												
	1	5	3'- 10"	1A530	STR												
	1	5	1'- 7"	1A531	STR												
	4	5	10'- 9"	1A532	STR												
	2	5	10'- 1"	1A533	2	2'- 6"	7'- 7"					0'- 0"					
	2	5	10'- 4"	1A534	2	2'- 6"	7'- 10"					0'- 0"					
	2	5	10'- 7"	1A535	2	2'- 6"	8'- 1"					0'- 0"					
	2	5	10'- 10"	1A536	2	2'- 6"	8'- 4"					0'- 0"					
	5	5	11'- 1"	1A537	2	2'- 6"	8'- 7"					0'- 0"					
	2	5	7'- 5"	1A538	2	2'- 6"	4'- 11"					0'- 0"					
	2	5	8'- 0"	1A539	2	2'- 6"	5'- 6"					0'- 0"					
	2	5	8'- 9"	1A540	2	2'- 6"	6'- 3"					0'- 0"					
	2	5	9'- 5"	1A541	2	2'- 6"	6'- 11"					0'- 0"					
	2	5	10'- 2"	1A542	2	2'- 6"	7'- 8"					0'- 0"					
	4	5	10'- 10"	1A543	2	2'- 6"	8'- 4"					0'- 0"					
✳	22	5	4'- 5"	1A544	STR												
✳	4	5	2'- 2"	1A545	STR												
	3	5	1'- 3"	1A546	1	0'- 7"	0'- 8"					0'- 0"	0'- 5"				
	7	7	10'- 6"	1A701	STR												
	7	7	10'- 9"	1A702	STR												

ABUTMENT 2 REINFORCEMENT

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	24	4	3'- 9"	2A401	S11								1'- 9"				0'- 5"
	4	4	11'- 3"	2A402	S11								5'- 6"				0'- 5"
	4	5	24'- 7"	2A501	STR												
	4	5	20'- 8"	2A502	STR												
	13	5	28'- 3"	2A503	STR												
	13	5	21'- 4"	2A504	STR												
	4	5	21'- 8"	2A505	STR												
	4	5	18'- 10"	2A506	STR												
	21	5	4'- 5"	2A507	STR												
	58	5	5'- 5"	2A508	S10		3'- 4"	2'- 1"									
	29	5	4'- 6"	2A509	1	0'- 7"	3'- 4"					0'- 7"		0'- 5"			
	45	5	9'- 6"	2A510	2	2'- 6"	7'- 0"					0'- 0"					
	45	5	8'- 9"	2A511	2	2'- 6"	6'- 3"					0'- 0"					
	12	5	3'- 11"	2A512	STR												
	3	5	3'- 6"	2A513	STR												
	3	5	2'- 9"	2A514	STR												
	1	5	6'- 1"	2A515	22		5'- 5"	0'- 8"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	6'- 8"	2A516	22		5'- 5"	1'- 3"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	7'- 2"	2A517	22		5'- 5"	1'- 9"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	7'- 8"	2A518	22		5'- 5"	2'- 3"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	5'- 7"	2A519	22		3'- 7"	2'- 0"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	5'- 1"	2A520	22		3'- 7"	1'- 6"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	4'- 6"	2A521	22		3'- 7"	0'- 11"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	4'- 0"	2A522	22		3'- 7"	0'- 5"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	11	5	4'- 4"	2A523	2	0'- 10"	2'- 8"					0'- 10"					
	2	5	4'- 8"	2A524	2	0'- 10"	3'- 0"					0'- 10"					
	2	5	7'- 2"	2A525	STR												
	1	5	6'- 3"	2A526	STR												
	1	5	2'- 10"	2A527	STR												
	4	5	12'- 6"	2A528	STR												
	2	5	6'- 6"	2A529	STR												
	1	5	4'- 7"	2A530	STR												
	1	5	3'- 0"	2A531	STR												
	4	5	8'- 9"	2A532	STR												
	2	5	8'- 8"	2A533	2	2'- 6"	6'- 2"					0'- 0"					
	2	5	9'- 1"	2A534	2	2'- 6"	6'- 7"					0'- 0"					
	2	5	9'- 7"	2A535	2	2'- 6"	7'- 1"					0'- 0"					
	2	5	10'- 1"	2A536	2	2'- 6"	7'- 7"					0'- 0"					
	5	5	10'- 7"	2A537	2	2'- 6"	8'- 1"					0'- 0"					
	2	5	11'- 1"	2A538	2	2'- 6"	8'- 7"					0'- 0"					
	2	5	9'- 1"	2A539	2	2'- 6"	6'- 7"					0'- 0"					
	2	5	9'- 5"	2A540	2	2'- 6"	6'- 11"					0'- 0"					
	2	5	9'- 10"	2A541	2	2'- 6"	7'- 4"					0'- 0"					
	2	5	10'- 3"	2A542	2	2'- 6"	7'- 9"					0'- 0"					
	4	5	10'- 7"	2A543	2	2'- 6"	8'- 1"					0'- 0"					
✳	22	5	4'- 5"	2A544	STR												
✳	4	5	2'- 2"	2A545	STR												
	3	5	1'- 3"	2A546	1	0'- 7"	0'- 8"					0'- 0"	0'- 5"				
	7	7	12'- 6"	2A701	STR												
✳	8	7	8'- 9"	2A702	STR												

PIER REINFORCEMENT

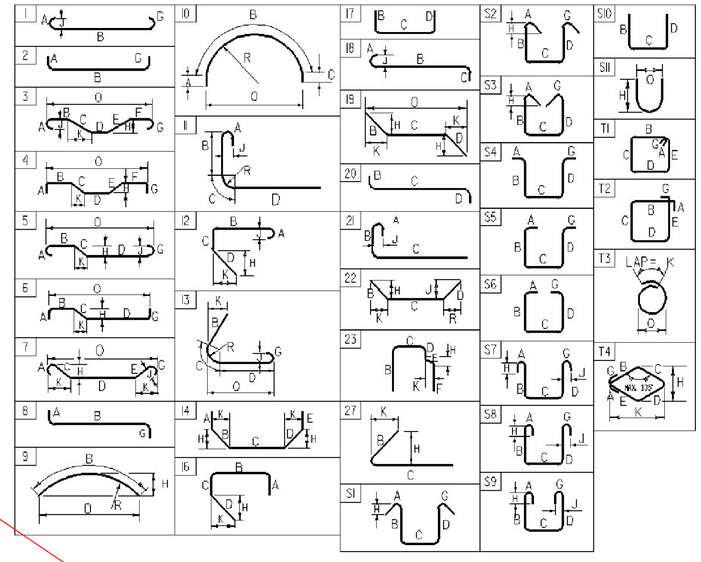
ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	80	5	7'- 0"	P501	S10		2'- 2"	2'- 8"	2'- 2"								
	112	5	6'- 4"	P502	S10		2'- 2"	2'- 0"	2'- 2"								

APPROACH SLAB REINFORCEMENT

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
	42	5	18'- 9"	AS501	STR												
	42	5	21'- 2"	AS502	STR												
✳	43	5	2'- 8"	AS503	STR												
✳	89	9	20'- 11"	AS901	1	1'- 3"	19'- 8"					0'- 0"	0'- 10"				

~ 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.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. SUPERSTRUCTURE, ABUTMENT, AND PIER REINFORCEMENT SHALL BE LEVEL II. APPROACH SLAB REINFORCEMENTSHALL BE LEVEL I.



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ^{2}	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **ROCKINGHAM**
PROJECT NUMBER: **BRF 0126(12)**

FILE NAME: **z10j072bdr_rss.dgn**
PROJECT MANAGER: **R. HEBERT**
DESIGNED BY: **S. KELLER**
REINFORCING STEEL SCHEDULE

PLOT DATE: **5/14/2014**
DRAWN BY: **T. POULIN**
CHECKED BY: **R. HEBERT**
SHEET **44** OF **69**

SEE SHEET 44 VE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

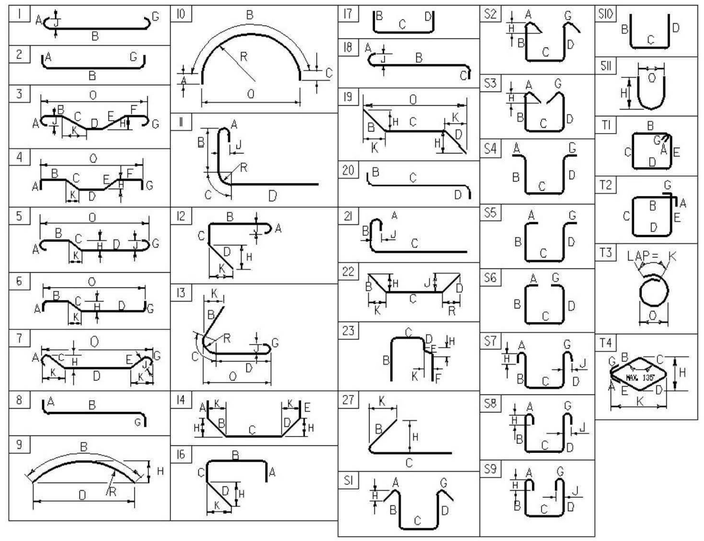
REINFORCING STEEL SCHEDULE

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
DECK REINFORCEMENT																	
				PHASE I													
	240	5	40'- 0"	D501	STR												
△1	48	5	19'- 0"	D502	STR												
	814	5	22'- 8"	D503	STR												
	407	5	5'- 10"	D504	17		4'- 0"	0'- 5"	1'- 6"								
	5	5	28'- 0"	D506	STR												
	5	5	29'- 1"	D508	STR												
	5	5	22'- 7"	D510	STR												
	5	5	21'- 7"	D512	STR												
	64	5	5'- 4"	D514	17		2'- 1"	3'- 4"									
	32	5	5'- 1"	D515	S6	0'- 7"	0'- 5"	3'- 4"	0'- 5"			0'- 7"					
	84	5	9'- 6"	D516	17		3'- 7"	6'- 0"									
△1	84	5	6 | 4	D517	19			5'- 7"	0'- 9"				0'- 6"		0'- 7"		6'- 1"
				PHASE II													
△1	275	5	40'- 0"	D501	STR												
	55	5	19'- 0"	D502	STR												
	407	5	5'- 10"	D504	17		4'- 0"	0'- 5"	1'- 6"								
	814	5	22'- 5"	D505	STR												
	5	5	28'- 8"	D507	STR												
	5	5	27'- 7"	D509	STR												
	5	5	21'- 2"	D511	STR												
	5	5	22'- 2"	D513	STR												
	76	5	5'- 4"	D514	17		2'- 1"	3'- 4"									
	38	5	5'- 1"	D515	S6	0'- 7"	0'- 5"	3'- 4"	0'- 5"			0'- 7"					
	98	5	9'- 6"	D516	17		3'- 7"	6'- 0"									
△1	84	5	6 | 4	D517	19			5'- 7"	0'- 9"				0'- 6"		0'- 7"		6'- 1"
WINGWALL 1 REINFORCEMENT (ABUT. #1 PHASE #2)																	
	5	4	12'- 3"	1W401	17		6'- 0"	0'- 5"	6'- 0"								
	12	5	10'- 9"	1W501	STR												
	7	5	7'- 0"	1W502	2	2'- 3"	2'- 8"					2'- 3"					
	1	5	6'- 2"	1W503	22		3'- 11"	2'- 3"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	5'- 8"	1W504	22		3'- 11"	1'- 9"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	5'- 2"	1W505	22		3'- 11"	1'- 3"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
	1	5	4'- 8"	1W506	22		3'- 11"	0'- 9"	0'- 0"				0'- 10"	0'- 0"	3'- 10"	0'- 0"	
WINGWALL 2 REINFORCEMENT (ABUT. #1 PHASE #1)																	
	5	4	12'- 3"	2W401	17		6'- 0"	0'- 5"	6'- 0"								
	12	5	9'- 6"	2W501	STR												
	1	5	5'- 0"	2W502	STR												
	1	5	5'- 9"	2W503	STR												
	1	5	6'- 6"	2W504	STR												
	1	5	7'- 0"	2W505	STR												
	5	5	7'- 0"	2W506	2	2'- 3"	2'- 8"					2'- 3"					
	1	5	5'- 11"	2W507	22		5'- 6"	0'- 5"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	6'- 5"	2W508	22		5'- 6"	0'- 11"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	6'- 11"	2W509	22		5'- 6"	1'- 5"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	5	7'- 5"	2W510	22		5'- 6"	1'- 11"	0'- 0"				3'- 4.5"	0'- 0"	4'- 4.5"	0'- 0"	
	1	6	5'- 0"	2W601	STR												
	1	6	5'- 3"	2W602	STR												
	1	6	5'- 6"	2W603	STR												
	1	6	5'- 9"	2W604	STR												
	1	6	6'- 0"	2W605	STR												
	1	6	6'- 3"	2W606	STR												
	1	6	6'- 6"	2W607	STR												
	1	6	6'- 9"	2W608	STR												
WINGWALL 3 REINFORCEMENT (ABUT # 2 PHASE #1)																	
	5	4	12'- 3"	3W401	17		6'- 0"	0'- 5"	6'- 0"								
	12	5	9'- 6"	3W501	STR												
	1	5	6'- 6"	3W502	STR												
	1	5	7'- 0"	3W503	STR												
	1	5	5'- 7"	3W504	22		3'- 7"	2'- 0"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	5'- 1"	3W505	22		3'- 7"	1'- 6"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	4'- 6"	3W506	22		3'- 7"	0'- 11"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	5	4'- 0"	3W507	22		3'- 7"	0'- 5"	0'- 0"				1'- 4.5"	0'- 3"	3'- 4.5"	0'- 0"	
	1	6	6'- 6"	3W601	STR												
	1	6	6'- 8"	3W602	STR												
	1	6	6'- 10"	3W603	STR												
	1	6	7'- 0"	3W604	STR												

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
WINGWALL 4 REINFORCEMENT (ABUT. #2 PHASE #2)																	
	5	4	12'- 3"	4W401	17		6'- 0"	0'- 5"	6'- 0"								
	12	5	10'- 9"	4W501	STR												
	1	5	6'- 8"	4W502	STR												
	1	5	6'- 2"	4W503	STR												
	5	5	7'- 0"	4W504	2	2'- 3"	2'- 8"					2'- 3"					
	1	5	6'- 1"	4W505	22		5'- 5"	0'- 8"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	6'- 8"	4W506	22		5'- 5"	1'- 3"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	7'- 2"	4W507	22		5'- 5"	1'- 9"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	5	7'- 8"	4W508	22		5'- 5"	2'- 3"	0'- 0"				2'- 5"	0'- 0"	4'- 11"	0'- 0"	
	1	6	6'- 10"	4W601	STR												
	1	6	6'- 8"	4W602	STR												
	1	6	6'- 6"	4W603	STR												
	1	6	6'- 4"	4W604	STR												
	1	6	6'- 2"	4W605	STR												
ABUTMENT 1 REINFORCEMENT																	
				PHASE I													
	22	5	7'- 0"	1A501	STR												
	25	5	8'- 6"	1A502	17		3'- 0"	2'- 6"	3'- 0"								
	6	5	26'- 0"	1A503	STR												
△1	6	5	29'- 0"	1A504	STR												
	69	6	7'- 0"	1A601	STR												
				PHASE II													
	29	5	7'- 0"	1A501	STR												
	25	5	8'- 6"	1A502	17		3'- 0"	2'- 6"	3'- 0"								
	6	5	26'- 0"	1A503	STR												
△1	6	5	24'- 11"	1A504	STR												
	83	6	7'- 0"	1A601	STR												
ABUTMENT 2 REINFORCEMENT																	
				PHASE I													
	24	5	7'- 0"	2A501	STR												
	25	5	8'- 6"	2A502	17		3'- 0"	2'- 6"	3'- 0"								
	6	5	23'- 5"	2A503	STR												
	6	5	29'- 7"	2A504	STR												
	67	6	7'- 0"	2A601	STR												
				PHASE II													
	27	5	7'- 0"	2A501	STR												
	29	5	8'- 6"	2A502	17		3'- 0"	2'- 6"	3'- 0"								
	6	5	27'- 2"	2A505	STR												
	6	5	28'- 3"	2A506	STR												
	85	6	7'- 0"	2A601	STR												
APPROACH SLAB REINFORCEMENT																	
	42	5	18'- 9"	AS501	STR												
	42	5	21'- 2"	AS502	STR												
+	43	5	2'- 8"	AS503	STR												
+	89	9	20'- 11"	AS901	1	1'- 3"	19'- 8"					0'- 0"		0'- 10"			

~ 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.
10. △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
11. SUPERSTRUCTURE, ABUTMENT, AND PIER REINFORCEMENT SHALL BE LEVEL II. APPROACH SLAB REINFORCEMENTSHALL BE LEVEL I.



ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION DIAMETER INCHES	AREA INCHES²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME:
PROJECT MANAGER:
DESIGNED BY:
REINFORCING STEEL SCHEDULE

PLOT DATE:
DRAWN BY:
CHECKED BY:
SHEET 44 OF 69

CALDERWOOD ENGINEERING, ETC.
STRUCTURAL ENGINEERING • DETAILING SERVICES
222 RIVER RD, RICHMOND, ME 04357 PH/FX (207)737-2007/(207) 737-2008

PREPARED FOR:
COLD RIVER BRIDGES, LLC

CEE 106-BR-14

P.E. NUMBER

DATE:

BY	DATE
ETC	2014

DESIGN-DETAILED	
CHECKED-REVIEWED	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

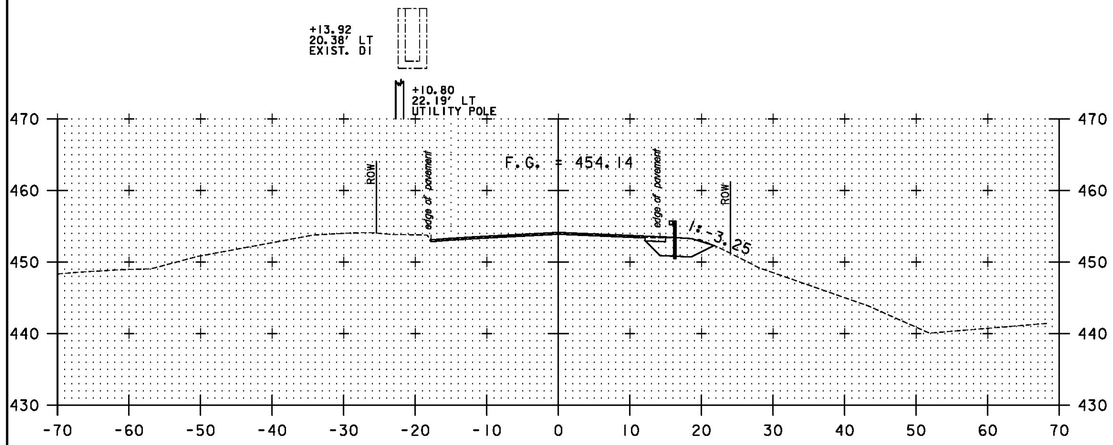
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ROCKINGHAM VT. BRF 0126 (12)

REINFORCING STEEL SCHEDULE

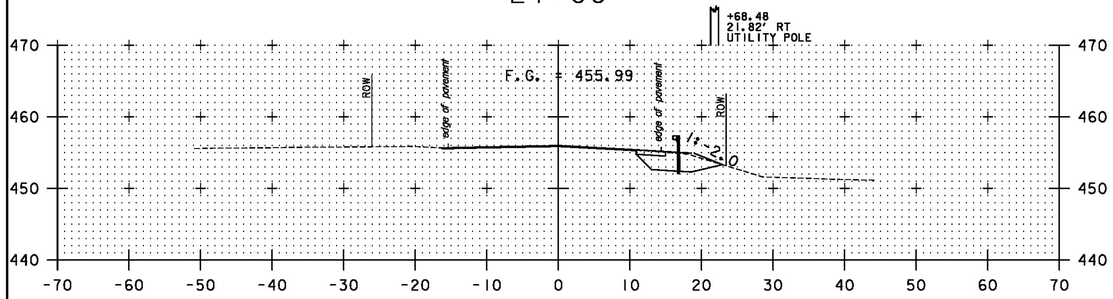
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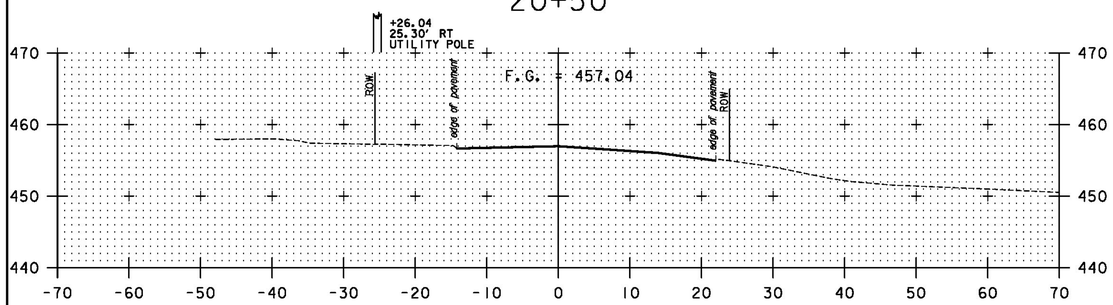
CALDERWOOD ENGINEERING
222 RIVER ROAD
RICHMOND, ME 04357
PH. (207) 737-2007 FAX (207) 737-2008



21+00



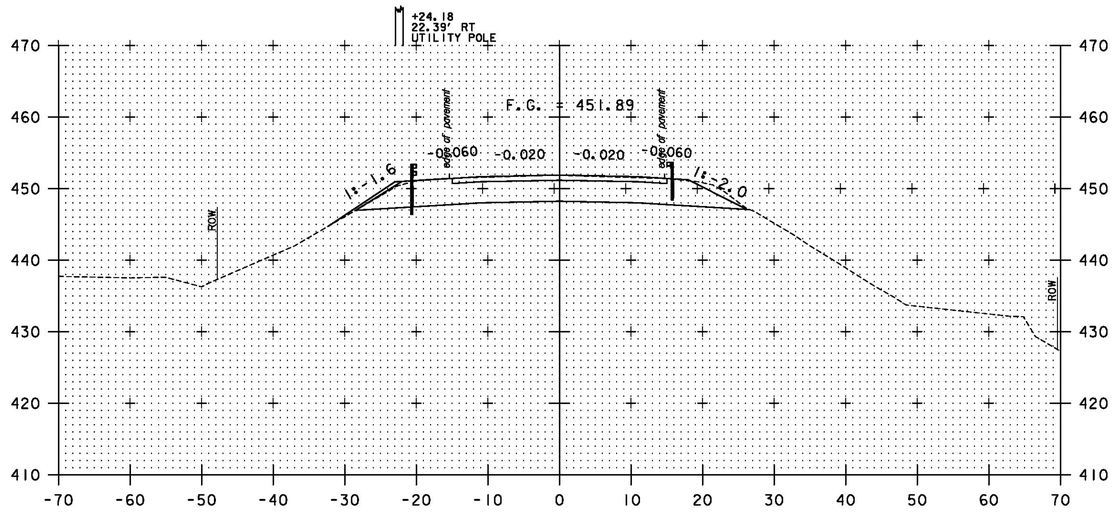
20+50



20+26

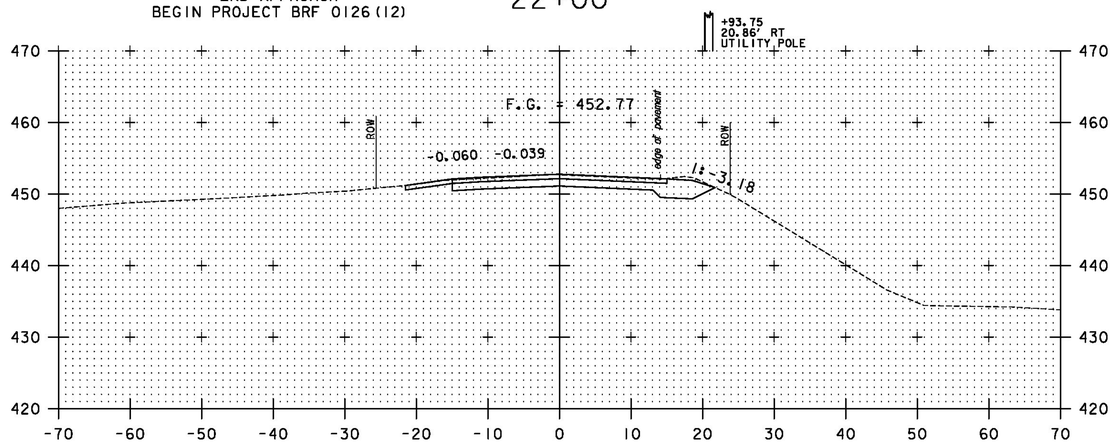
STA. 20+26.19
BEGIN APPROACH
MATCH EXISTING PAVEMENT

STA. 22+11.79
BEGIN BRIDGE



STA. 21+91.79
END APPROACH
BEGIN PROJECT BRF 0126(12)

22+00



21+50

SCALE 1" = 10'-0"

STA. 20+26 TO STA. 22+00

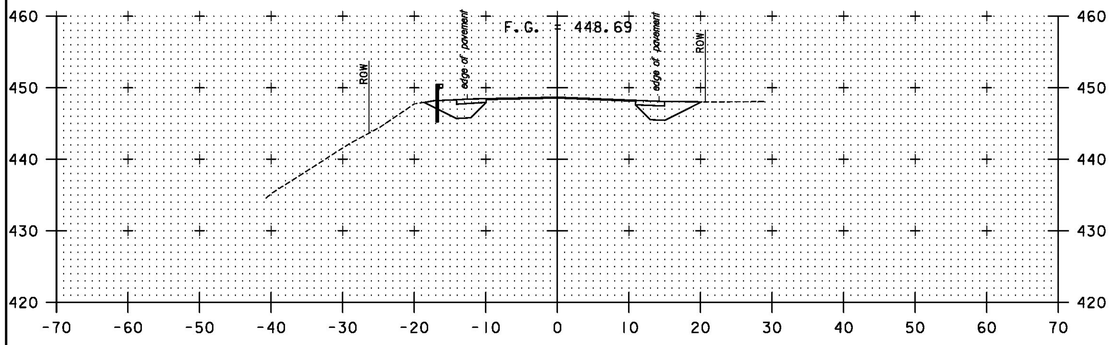
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T·Y LIN INTERNATIONAL

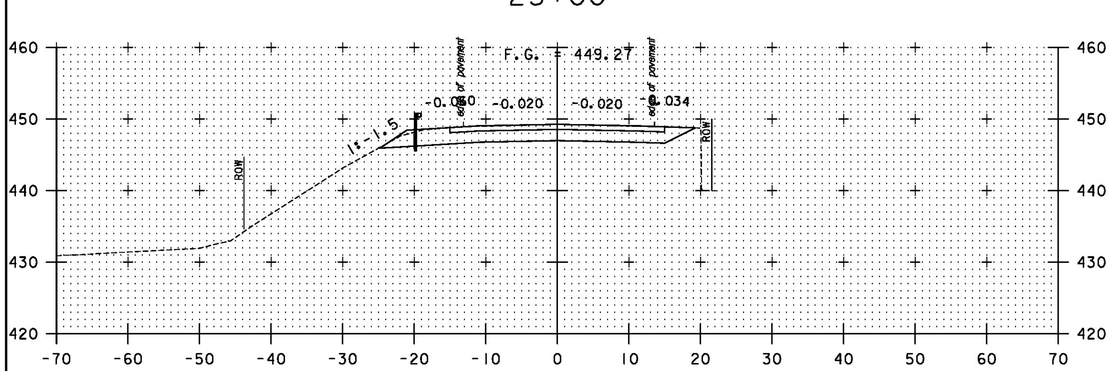
FILE NAME: z10j072bdr_xs.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BRYANT
VT ROUTE 121 - CROSS SECTIONS - 1

PLOT DATE: 8/26/2014
DRAWN BY: D. BRYANT
CHECKED BY: D. BURHANS
SHEET 45 OF 69

STA. 25+12.79
END APPROACH
MATCH EXISTING PAVEMENT



25+00



24+50

STA. 24+34.48
END PROJECT BRF 0126(12)
BEGIN APPROACH

STA. 24+14.48
END BRIDGE

SCALE 1" = 10'-0"

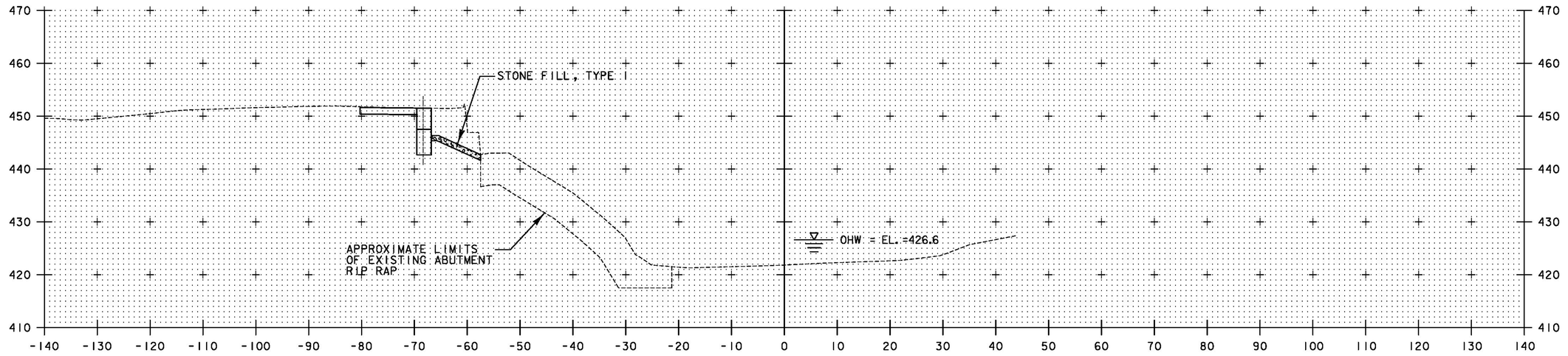
STA. 24+50 TO STA. 25+00

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T-Y LIN INTERNATIONAL

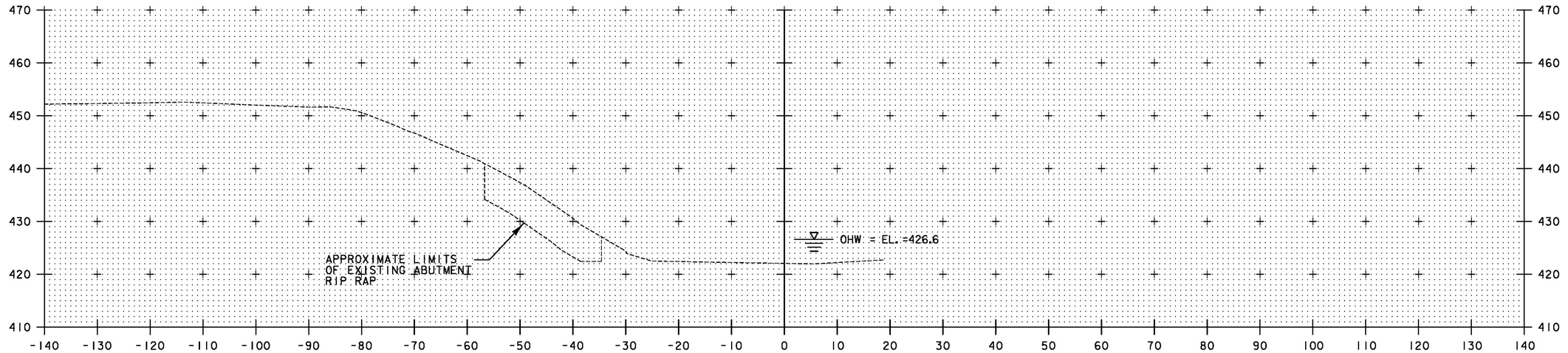
FILE NAME: z10J072bdr_xs.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BRYANT
VT ROUTE 121 - CROSS SECTIONS - 2

PLOT DATE: 8/26/2014
DRAWN BY: D. BRYANT
CHECKED BY: D. BURHANS
SHEET 46 OF 69



STA 61+07.38 LEFT
BEGIN GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I

61+25



61+00

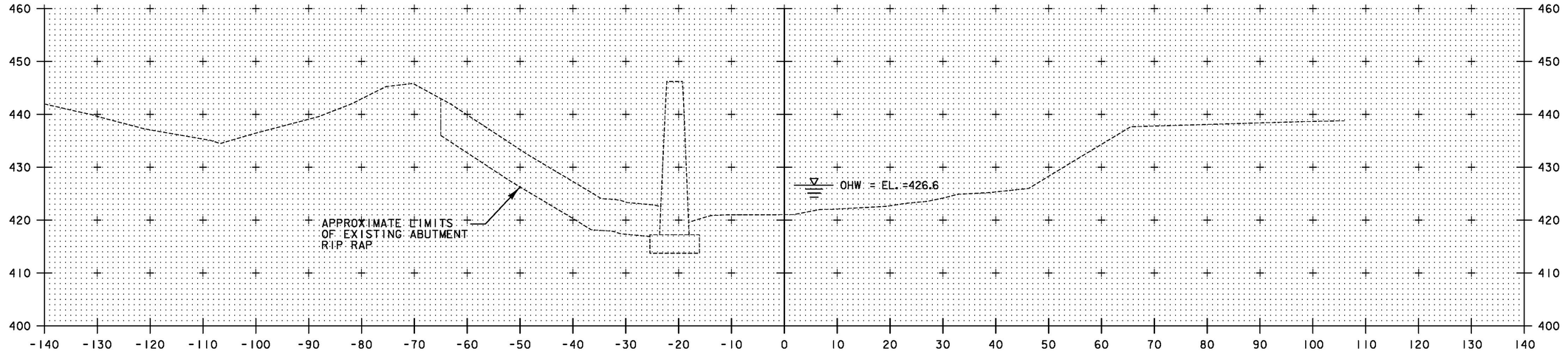
STA. 61+00 TO STA. 61+25

SCALE 1" = 10'-0"

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

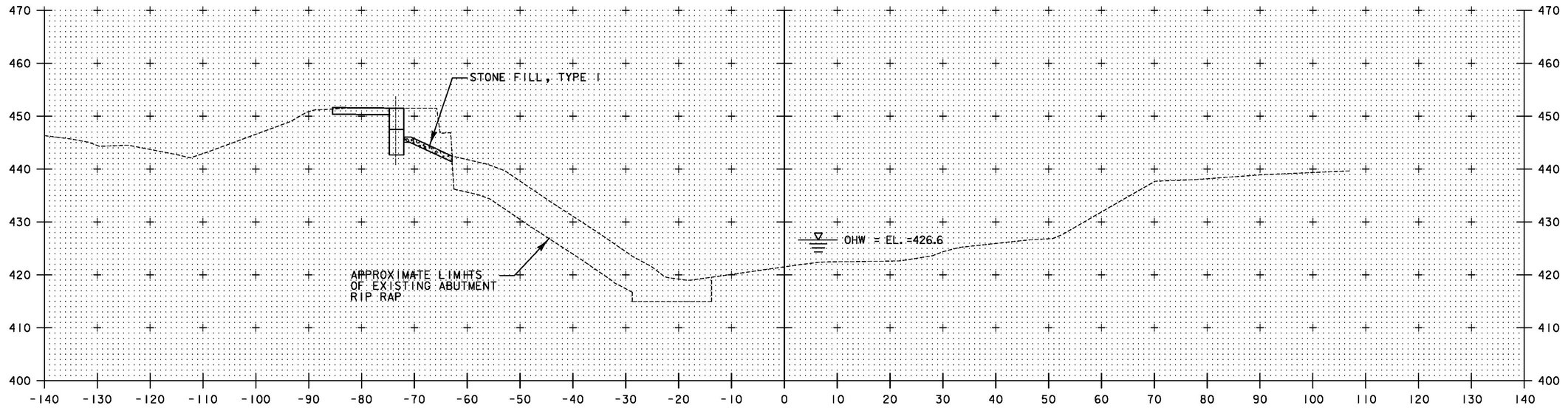
T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_xs02.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: D. BURHANS
DESIGNED BY: D. BURHANS	CHECKED BY: D. BRYANT
CHANNEL CROSS SECTIONS - 1	SHEET 47 OF 69



61+75

STA 61+74.48 LEFT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I



61+50

SCALE 1" = 10'-0"

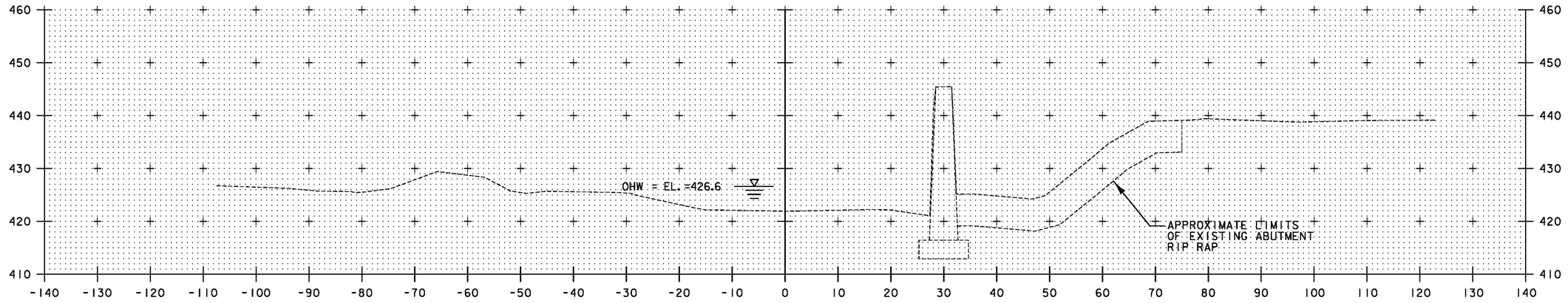
STA. 61+50 TO STA. 61+75

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

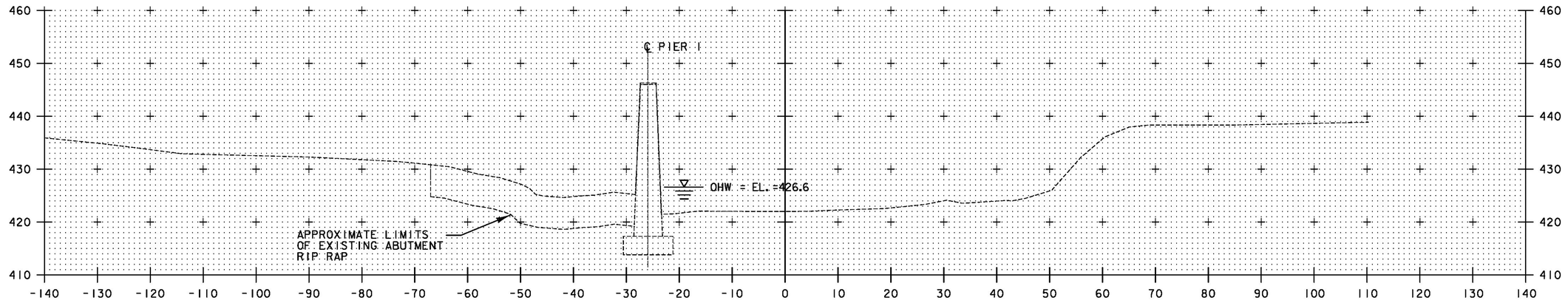
T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_xs02.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
CHANNEL CROSS SECTIONS - 2

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 48 OF 69



62+25



62+00

SCALE 1" = 10'-0"

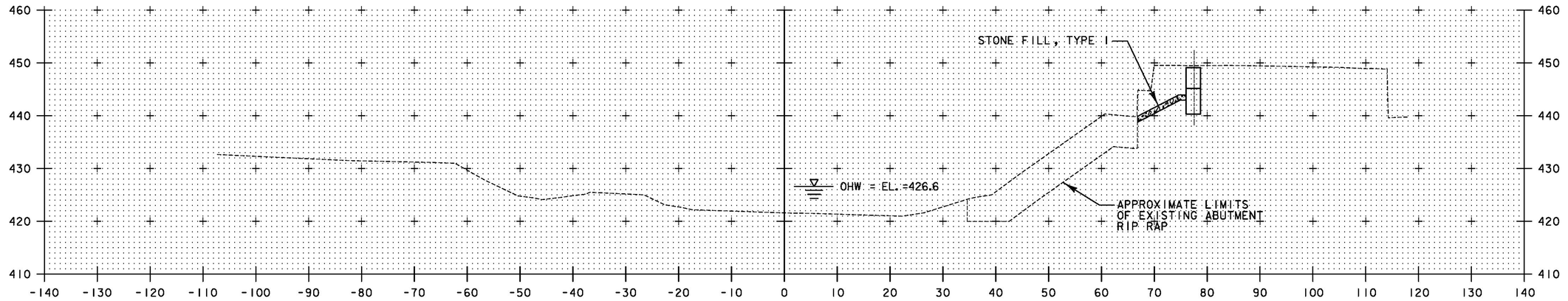
STA. 62+00 TO STA. 62+25

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

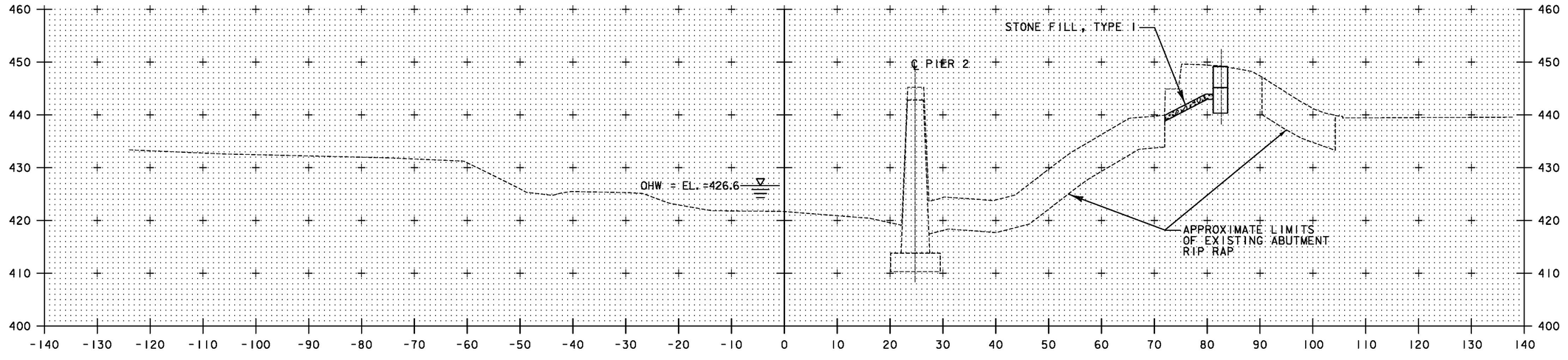
T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_xs02.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
CHANNEL CROSS SECTIONS - 3

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 49 OF 69



62+75



STA 62+37.05 RIGHT
BEGIN GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I

62+50

SCALE 1" = 10'-0"

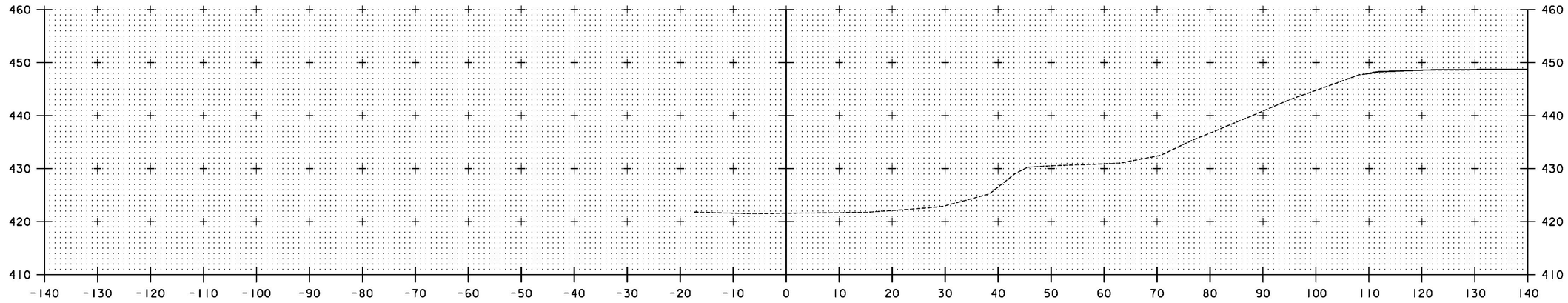
STA. 62+50 TO STA. 62+75

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T-Y LIN INTERNATIONAL

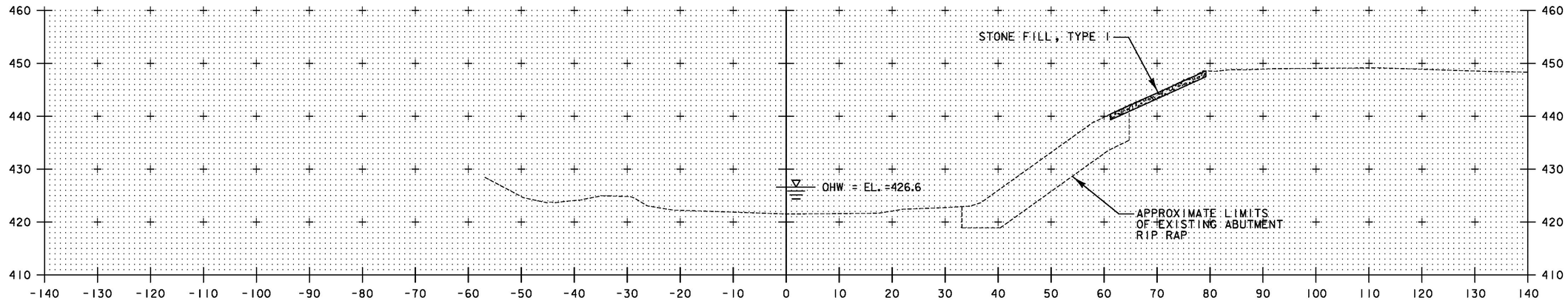
FILE NAME: z1010072bdr_xs02.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
CHANNEL CROSS SECTIONS - 4

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 50 OF 69



63+25

STA 63+12.02 RIGHT
END GEOTEXTILE UNDER STONE FILL
STONE FILL, TYPE I



63+00

SCALE 1" = 10'-0"

STA. 63+00 TO STA. 63+25

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_xs02.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: D. BURHANS
CHANNEL CROSS SECTIONS - 5

PLOT DATE: 8/26/2014
DRAWN BY: D. BURHANS
CHECKED BY: D. BRYANT
SHEET 51 OF 69

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF THE BRIDGE ON STATE ROUTE 121 SPANNING OVER THE BODY OF WATER KNOWN AS SAXTONS RIVER IN THE TOWN OF ROCKINGHAM. WORK WILL INVOLVE REPLACEMENT OF BOTH ABUTMENTS AND THE BRIDGE SUPERSTRUCTURE ON THE EXISTING ALIGNMENT. EXISTING ABUTMENTS WILL BE PARTIALLY REMOVED TO THE LIMITS SHOWN ON THE EARTHWORK TYPICAL SECTION SHEET. ALSO INCLUDED WILL BE RELATED CHANNEL AND APPROACH WORK. THE LENGTH OF THE PROJECT IS APPROXIMATELY 243 FEET ALONG VT ROUTE 121. THE SITE IS LOCATED, BASED ON NAD 83/92 AT 233073.66 N, 1639680.82 E (POINT HVCTRL #2- SEE TIE SHEET).

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA AS SHOWN ON THE ATTACHED EPSC PLAN. THE AREA OF DISTURBANCE DOES NOT INCLUDE WASTE, BORROW AND STAGING AREAS. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING TO VTRANS ENVIRONMENTAL SECTION FOR APPROVAL, THE LOCATION OF THE WASTE, BORROW AND STAGING AREAS, AS WELL AS THE MATERIAL STOCKPILE, REFUELING AND MAINTENANCE AREAS. A MAP SHALL BE ATTACHED IF NECESSARY.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 17,067 SF (0.39 ACRES).

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

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY, EXISTING ROADS, UTILITIES

THE TOPOGRAPHY SURROUNDING THE PROJECT SITE CONSISTS MOSTLY OF LIGHTY WOODED AREAS AND RESIDENTIAL PROPERTIES WITH WELL ESTABLISHED LAWNS. PORTIONS NEAR THE WATER BODY INCLUDE LIGHTLY WOODED AREAS WITH MODERATE SLOPES. THE GENERAL TOPOGRAPHY OF THE AREA SLOPES FROM THE SOUTH TO THE NORTH. ALL ROAD SURFACES IN THE PROJECT AREA ARE BITUMINOUS CONCRETE PAVEMENT. THERE IS ONE COMMERICAL BUILDING AND ONE RESIDENTIAL BUILDING ON THE SOUTH AND NORTH SIDES OF THE EAST APPROACH ROADWAY RESPECTIVELY. THERE IS ONE RESIDENTIAL BUILDING ON EACH SIDE OF THE WEST APPROACH ROADWAY.

THERE ARE OVERHEAD ELECTRICAL AND TELEPHONE LINES ON THE EAST AND WEST ENDS OF THE PROJECT THAT SPAN THE FULL LENGTH OF THE BRIDGE ON THE NORTH SIDE. OVERHEAD LINES ALSO CROSS ROUTE 121 ON THE EAST AND WEST ENDS OF THE PROJECT.

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

THE BRIDGE SPANS THE BODY OF WATER KNOWN AS SAXTONS RIVER. THE STREAM IS CHARACTERIZED AS STRAIGHT TO SINUOUS, ALLUVIAL, PROBABLY INCISED AND STABLE WITH A GRAVEL AND COBBLE STREAMBED. THERE IS ALSO AN UNNAMED STREAM NEAR THE NORTHWEST CORNER OF THE BRIDGE.

THE FOLLOWING DESCRIPTIONS ARE FOR THE EXISTING SITE PLANS: SURFACE DRAINAGE FROM STATE ROUTE 121 FLOWS DOWN EXISTING VEGETATED AND WOODED SIDESLOPES AND INTO SAXTONS RIVER.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS MOSTLY OF LIGHTLY WOODED AREAS. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS REQUIRED FOR REPLACEMENT OF THE EXISTING BRIDGE. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES OR REPLACED WITH STONE FILL.

1.2.4 SOILS

SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE FOR THE COUNTY OF WINDHAM, VERMONT. SOILS ON THE PROJECT SITE ARE:

THROUGHOUT THE PROJECT THE SOIL TYPE IS QUONSET AND WARWICK, 2 TO 8 PERCENT SLOPE, “K FACTOR” = 0.16. THE EROSION HAZARD IS “LOW” DUE TO ITS K FACTOR.

1.2.4 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: SAXTONS RIVER IS DEFINED AS ESSENTIAL FISH HABITAT.
HISTORICAL OR ARCHAEOLOGICAL AREAS: THERE ARE SEVERAL AREAS OF ARCHAEOLOGICAL SIGNIFICANCE ON BOTH THE EAST AND WEST ENDS OF THE PROJECT. THE WEST BANK OF THE RIVER IS A NATIONAL REGISTERED LANDMARK DESIGNATED HISTORIC VILLAGE DISTRICT.
PRIME AGRICULTURE LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: SAXTONS RIVER AND UNNAMED BROOK
WETLANDS: NO

1.3 RISK EVALUATION

THE PROJECT DOES NOT FALL UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. 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 CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT TO AVOID 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 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.

THE SITE BOUNDARIES SHALL BE PHYSICALLY MARKED. THE CONTRACTOR MAY CHOOSE PROJECT DEMARCATION FENCING (PDF) AND/OR BARRIER FENCE TO MARK THE 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 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 SHOULD BE INSTALLED PRIOR TO ANY UPSLOPE WORK.

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

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.

DIVERSION OF UPLAND RUNOFF NOT ANTICIPATED.

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 USE OF STONE CHECK DAMS IS NOT ANTICPATED FOR THIS PROJECT.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STOMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS.

SEED AND MULCH WILL BE USED AS PERMANENT CONTROLS TO STABILIZE EXPOSED SOIL. STONE FILL WILL BE USED TO STABILIZE THE STREAMBED SLOPES AROUND ABUTMENTS.

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.

TREATMENT OF DEWATERING COFFERDAM IS NOT ANTICIPATED.

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.

1.5.2 OFF-SITE ACTIVITIES

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

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T.Y. LIN INTERNATIONAL

FILE NAME: z10j072bdr_epscn.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. AMOROSO
DESIGNED BY: S. AMOROSO	CHECKED BY: D. BRYANT
EPSC NARRATIVE	SHEET 52 OF 69

N

VT STATE PLANE GRID

STA. 20+26.19
BEGIN APPROACH
MATCH EXISTING
PAVEMENT

STA. 21+91.79
END APPROACH
BEGIN PROJECT
BRF 0126(12)

STA. 22+11.79
BEGIN BRIDGE

OAK ST.

UNNAMED
STREAM

APPROXIMATE LIMITS
OF EXISTING RIPRAP
TO REMAIN (TYP)

CHANNEL LINE

SAXTONS
RIVER

63+25

63+00

EXISTING ROW (TYP.)

℄ VT 121

TO SAXTONS
VILLAGE

TO BELLOWS
FALLS

20+00

21+00

22+00

23+00

62+00

24+00

25+00

MILL ST.

MAPLE ST.
EXT.

60+50

61+00

VT 121
STA. 23+07.97=
CHANNEL
STA. 62+00.00

STA. 24+34.48
END PROJECT
BRF 0126(12)
BEGIN APPROACH

STA. 24+14.48
END BRIDGE

STA. 25+12.79
END APPROACH
MATCH EXISTING
PAVEMENT

SCALE 1" = 20'-0"
0 20 40
SCALE IN FEET

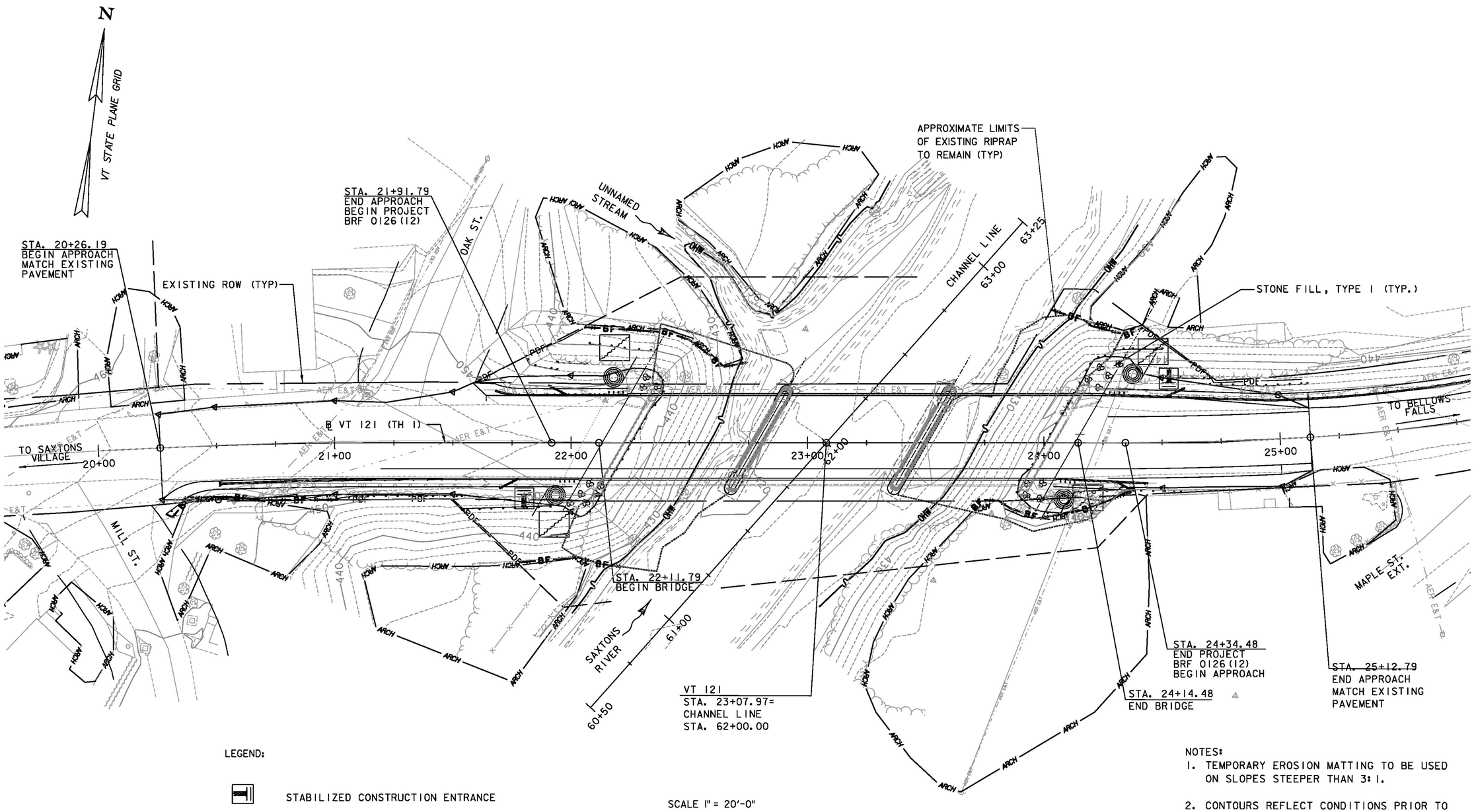
NOTES:
1. ORDINARY HIGH WATER ELEVATION = 426.6 FT

2. CONTOURS REFLECT CONDITIONS PRIOR TO TROPICAL STORM IRENE, AUGUST 2011.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T·Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_ece01.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. AMOROSO
DESIGNED BY: S. AMOROSO	CHECKED BY: D. BRYANT
EPSC EXISTING CONDITIONS SITE PLAN	SHEET 53 OF 69



LEGEND:

STABILIZED CONSTRUCTION ENTRANCE

SURFACE ROUGHENING

SCALE 1" = 20'-0"

0 20 40

SCALE IN FEET

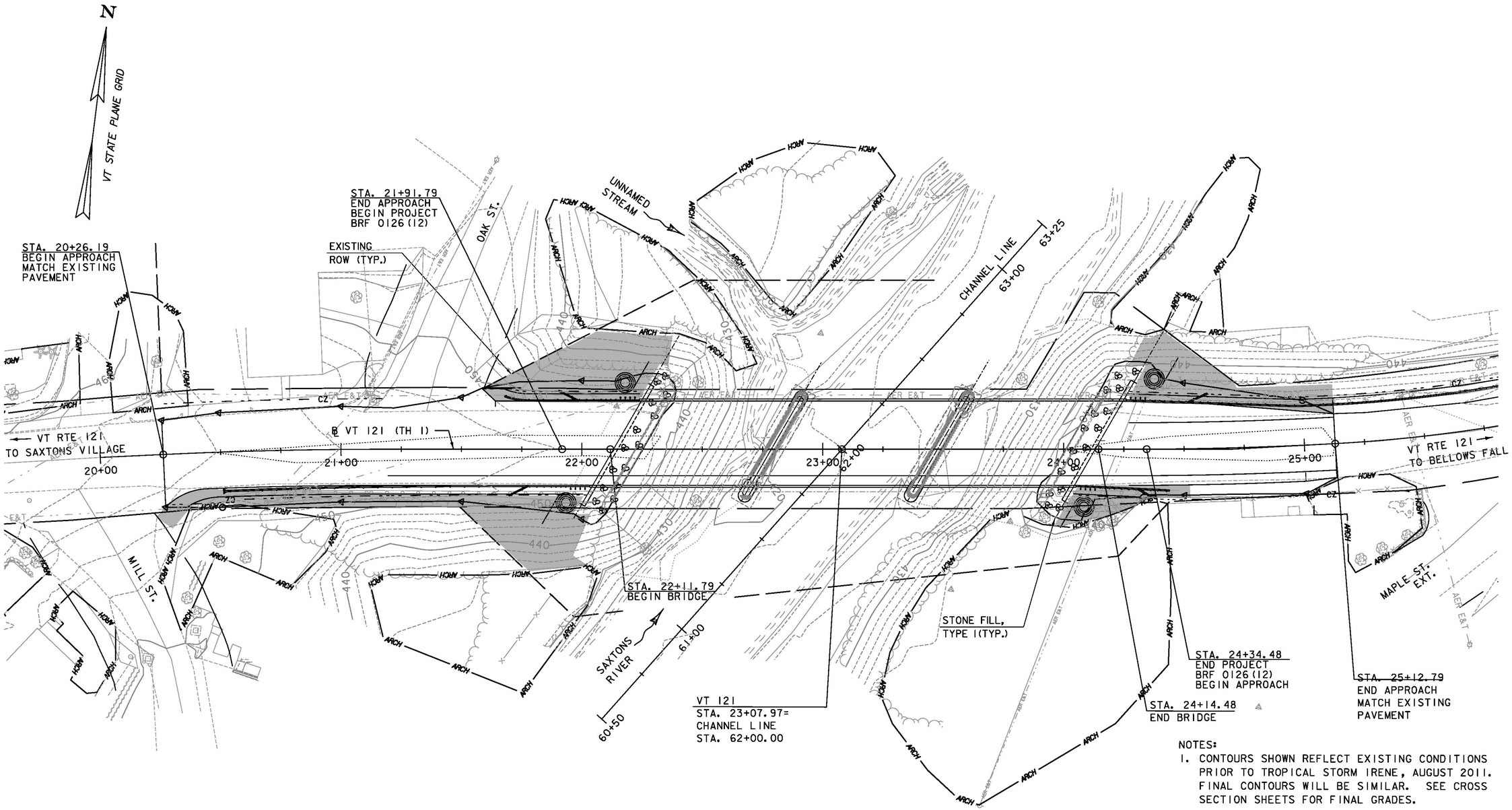
NOTES:

1. TEMPORARY EROSION MATTING TO BE USED ON SLOPES STEEPER THAN 3:1.
2. CONTOURS REFLECT CONDITIONS PRIOR TO TROPICAL STORM IRENE, AUGUST 2011.
3. ORDINARY HIGH WATER ELEVATION = 426.6 FT.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T·Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_ect01.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. AMOROSO
DESIGNED BY: S. AMOROSO	CHECKED BY: D. BRYANT
EPSC CONSTRUCTION CONDITIONS SITE PLAN	SHEET 54 OF 69



SCALE 1" = 20'-0"

0 20 40

SCALE IN FEET

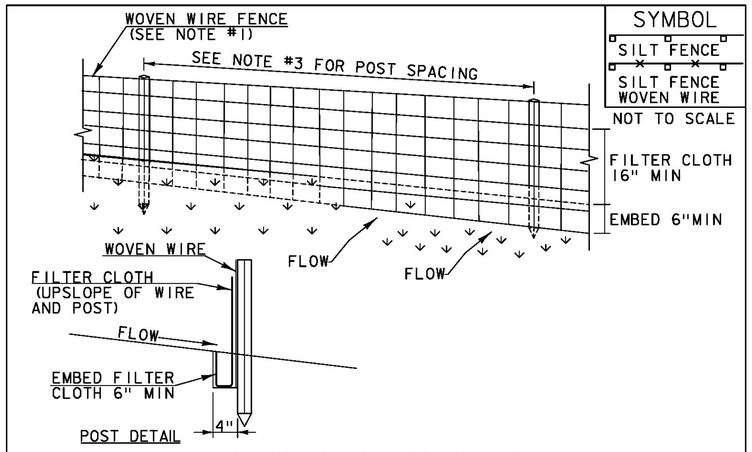
NOTES:

1. CONTOURS SHOWN REFLECT EXISTING CONDITIONS PRIOR TO TROPICAL STORM IRENE, AUGUST 2011. FINAL CONTOURS WILL BE SIMILAR. SEE CROSS SECTION SHEETS FOR FINAL GRADES.
2. TEMPORARY EROSION MATTING TO BE USED ON SLOPES STEEPER THAN 3:1.
3. ORDINARY HIGH WATER ELEVATION = 426.6 FT.

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	BRF 0126(12)

T-Y LIN INTERNATIONAL

FILE NAME: z10j072bdr_ecf01.dgn	PLOT DATE: 8/26/2014
PROJECT LEADER: R. HEBERT	DRAWN BY: S. AMOROSO
DESIGNED BY: S. AMOROSO	CHECKED BY: D. BRYANT
EPSC FINAL CONDITIONS SITE PLAN	SHEET 55 OF 69



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. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

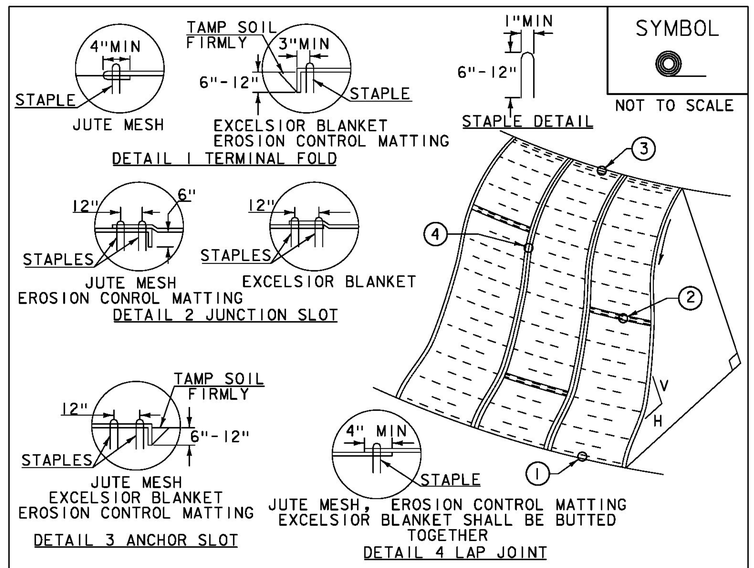
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA-NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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



CONSTRUCTION SPECIFICATIONS

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

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

ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

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

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF

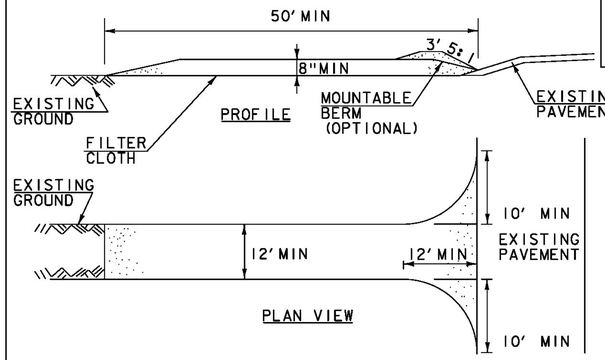
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_erodet.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: Const. Env. Section
EPSC DETAIL SHEET 1 OF 3

PLOT DATE: 8/26/2014
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 56 OF 69

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

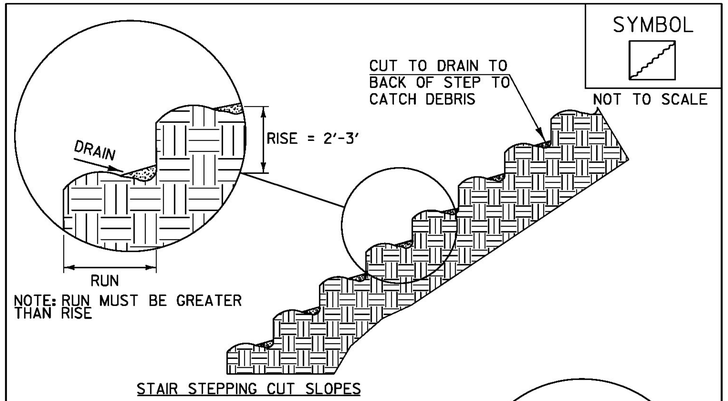
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

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

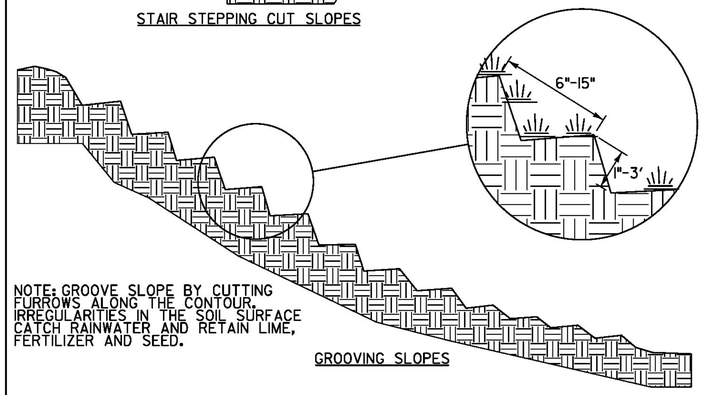
REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



STAIR STEPPING CUT SLOPES



GROOVING SLOPES

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

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10J072bdr_erodet.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: Const. Env. Section
EPSC DETAIL SHEET 2 OF 3

PLOT DATE: 8/26/2014
DRAWN BY: S. AMOROSO
CHECKED BY: D. BRYANT
SHEET 57 OF 69

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

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

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

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.

2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.

3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER

5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.

6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED

8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

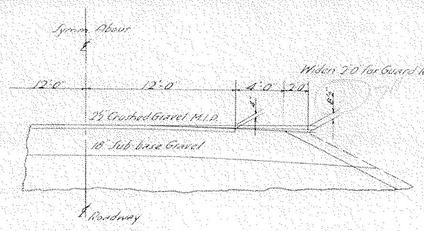
TURF ESTABLISHMENT

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

PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: BRF 0126(12)

FILE NAME: z10j072bdr_erodet.dgn
PROJECT LEADER: R. HEBERT
DESIGNED BY: Const. Env. Section
EPSC DETAIL SHEET 3 OF 3

PLOT DATE: 8/26/2014
DRAWN BY:
CHECKED BY:
SHEET 58 OF 69



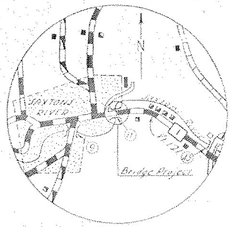
NEW HIGHWAY SECT. STA. TO STA.

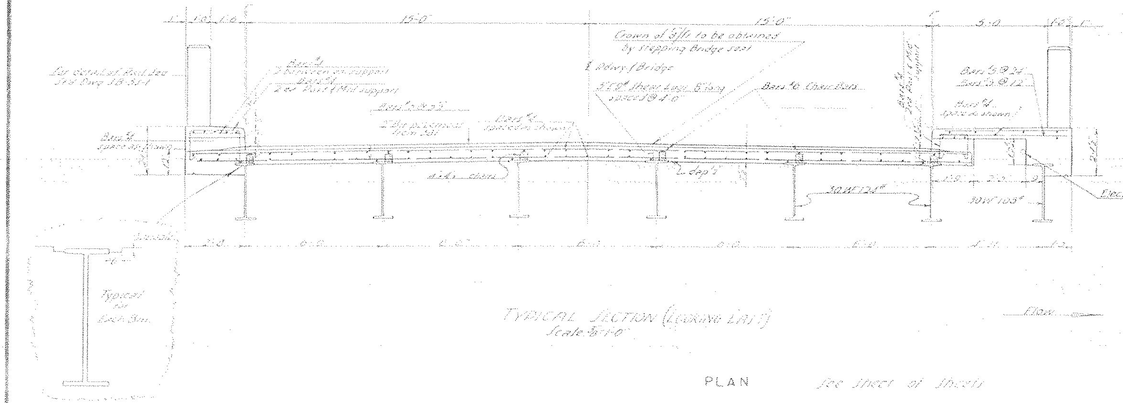
SCALE

See Plan & Profile Sheet

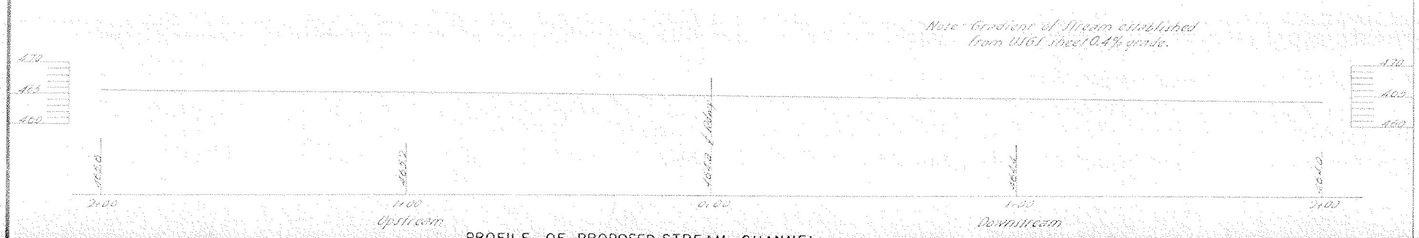
NEW HIGHWAY PROFILE ALONG ℄

SCALE





SCALE



PROFILE OF PROPOSED STREAM CHANNEL

SCALE

Highway No. VT. 121 Name of Highway
Structure No. 11 County WINDHAM Town ROCKINGHAM
Approved Date
Bridge Engineer, Dist. No. 9

EXISTING STRUCTURE

1. Posted loading of existing structure 20,000 lbs.
2. Location and type of existing structure 1.66 Miles from Westminster Town Line - Steel Truss
3. Underclearance elevation of existing structure 25'-0
4. What disposition should be made of the existing structure and probable cost of removal $400
5. Should existing structure be utilized to maintain traffic during construction of new structure No
6. Should new temporary structure be built Yes
7. Ordinary high water surface elevation at existing structure 479.0 ±
8. Extreme high water at existing structure 489.0 ±
9. Span and waterway area below ordinary high water surface elevation of existing structure on structures up or down stream Up Str. 3 spans @ 50'-0" = 1690 sq. ft. Dwn. Str. Single span 100' = 2100 sq. ft.
10. Type of foundation under existing abutments Gravel with Clay Filler - Nearly Hardpan
11. If existing structure is to be widened or extended, attach sketch containing complete data to prepare plans for widening or extending and to determine safe loading capacity, substructure, and superstructure No

NEW STRUCTURE

1. Recommended type of structure Standard WF Beam Bridge Continuous
2. Recommended clear span or spans
   Measured parallel to ℄ new highway 50'-1½", 65'-6½", 32'-1½"
   Measured at right angles to ℄ stream 49'-1½", 56'-9", 45'-1½"
3. Are there objections to a pier in the stream, answer yes or no No
4. Ordinary high water elevation at new structure 479.0 ±
5. Ordinary elevation of water at new structure 467.5 ±
6. Extreme high water elevation at new structure 489.0 ±
7. Does stream reach its maximum high water elevation rapidly No Is ordinary rise rapid No
8. Low water elevation at new structure 463.0 ±
9. Drainage area in acres above structure 45,440 Character of terrain Hilly
10. Is stream ever dry No
11. Velocity of stream at high water stage 6 ft/sec
12. Recommended waterway area below ordinary high water elevation, measured at ⊥ to ℄ of stream
13. Does erosion occur No
14. Does stream carry light, medium or heavy drift and ice Light
15. Should roadway be banked ? If so how much per foot No
16. Are abutments required ? If so, on what side, Downstream, both sides ? No
17. Recommended type of pavement Reinforced Conc. Slab with Bituminous Surface
18. Traffic to be maintained under what item no.? 401 One or two ways ? One Probable cost $3000.00
19. Probable cost of clearing and grubbing stream channel at structure site
20. Should provisions be made for public utilities Yes
21. Estimated allowable load on foundations 4 ton Should piles be used ? No If so length

FOUNDATION INFORMATION

Obtained for design purposes only and State assumes no responsibility whatsoever for sufficiency or accuracy of the information shown. Boulders may be encountered at either Abutment location.

See Sheet 7 of 49 Sheets for Boring Information

STATE OF VERMONT

DEPT. OF HIGHWAYS

RECOMMENDED FOR APPROVAL

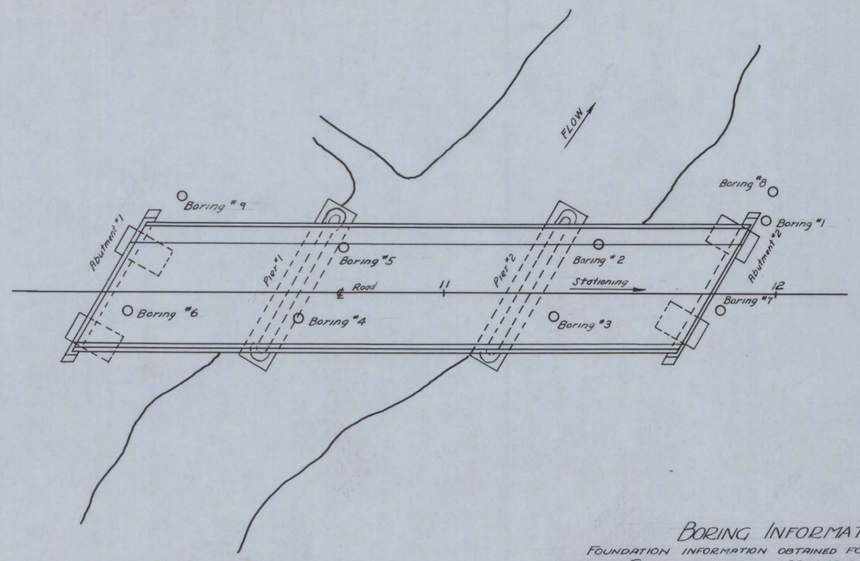
District Engineer
Public Roads Administration
Federal Works Agency

APPROVED

Public Roads Administration
Federal Works Agency

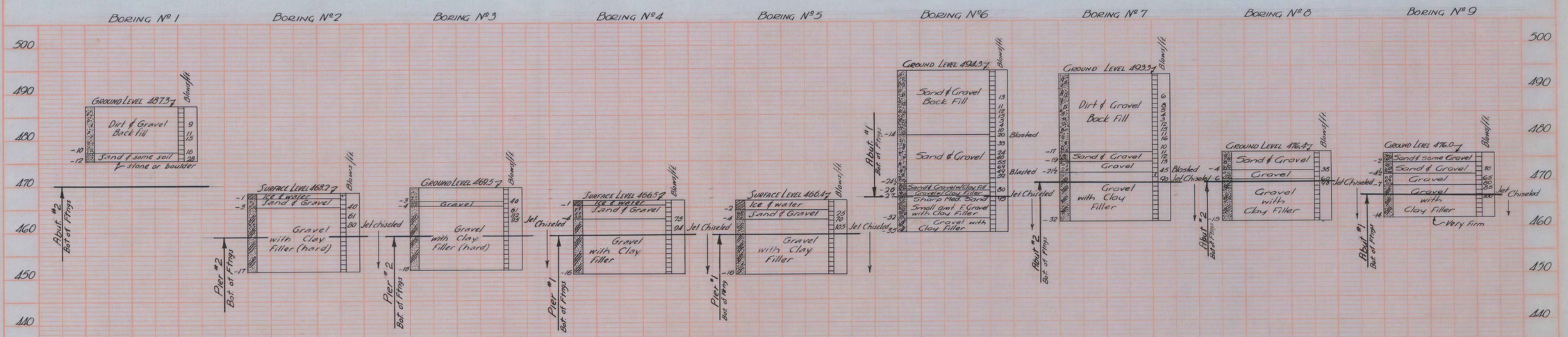
FOR REFERENCE ONLY

CORRECT	APPROVED	ROCKINGHAM F 156(3)
BRIDGE ENGINEER	CHIEF ENGINEER	Sheet 6 of 49



BORING INFORMATION

FOUNDATION INFORMATION OBTAINED FOR DESIGN PURPOSES ONLY, AND THE STATE ASSUMES NO RESPONSIBILITY WHATSOEVER FOR THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN. BOULDERS MAY BE ENCOUNTERED AT ANY PIER OR ABUTMENT LOCATION.

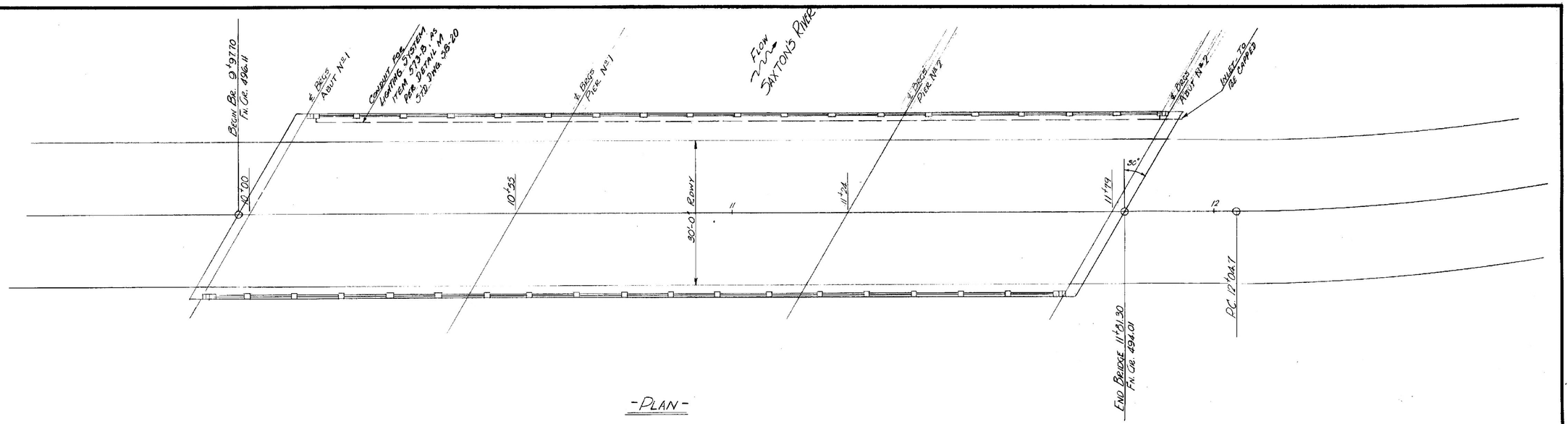


OUTSIDE DIAMETER OF PIPE CASING = 2½"
THICKNESS OF SHELL = ⅜"
WEIGHT OF HAMMER = 350#
DROP OF HAMMER = 24"

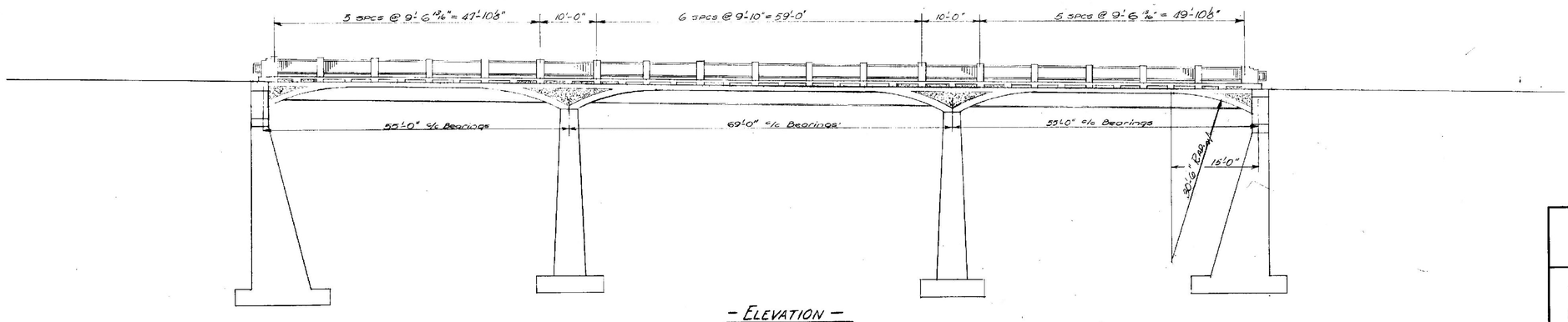
ROCKINGHAM
5-156 (3)

Sheet 7 of 49 Sheets

FOR REFERENCE ONLY



-PLAN-



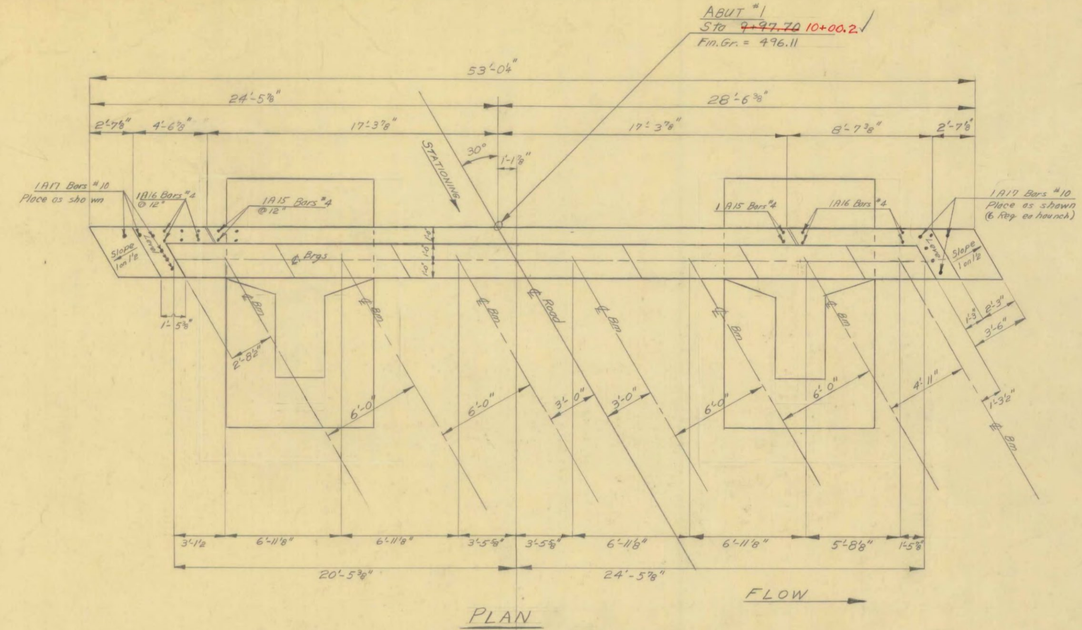
-ELEVATION-

FOR REFERENCE ONLY

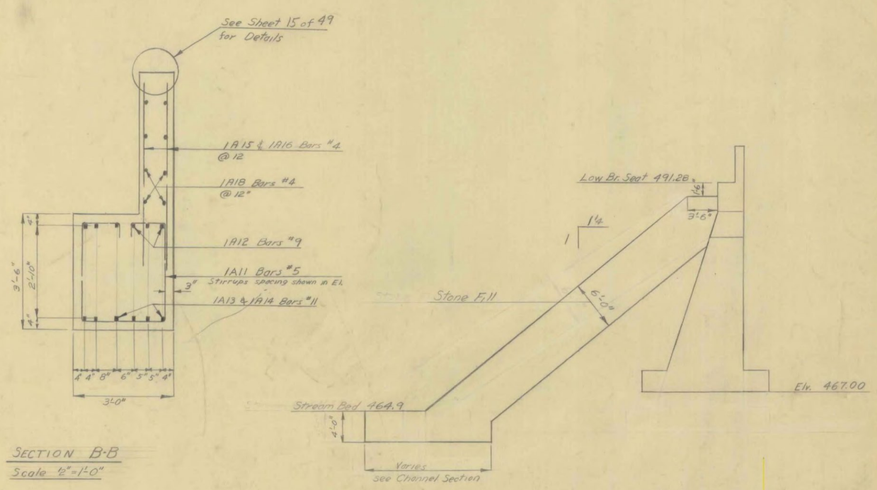
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM
ROAD NO. Vt 121 BRIDGE NO. 11
BRIDGE PLAN & ELEVATION

SCALE 1"=10'-0"
SURVEYED BY POGAR
DRAWN BY JRJ CHECKED BY E.F.P.
PROJECT NO. 5156(3)
SHEET 8 OF 49

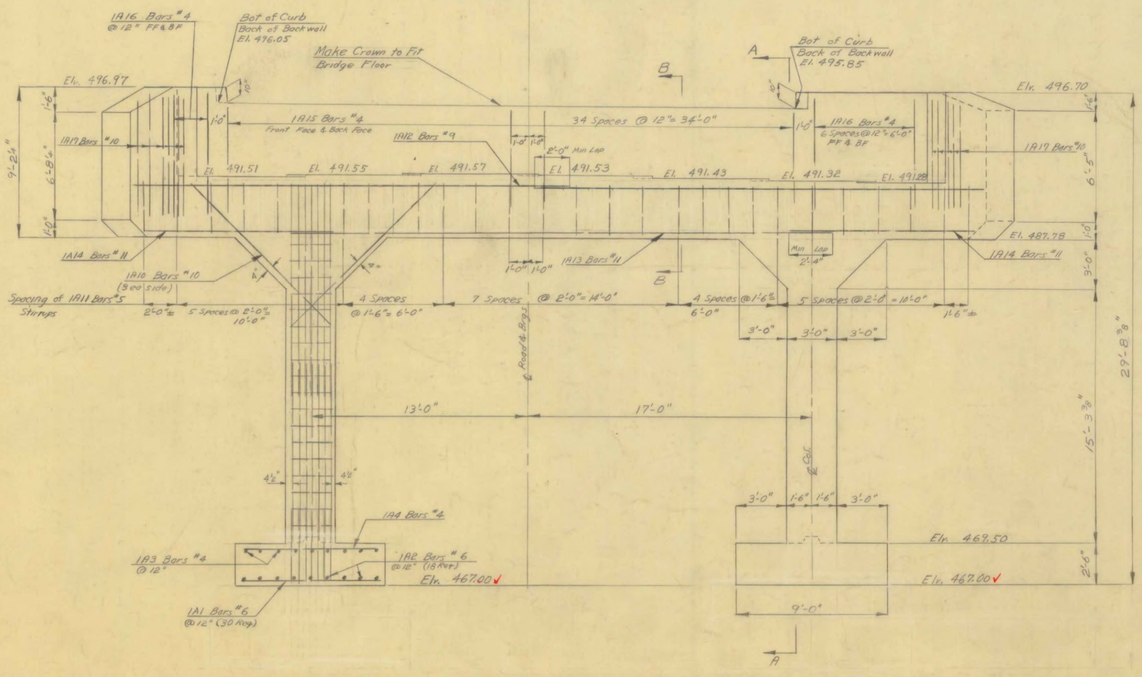


PLAN

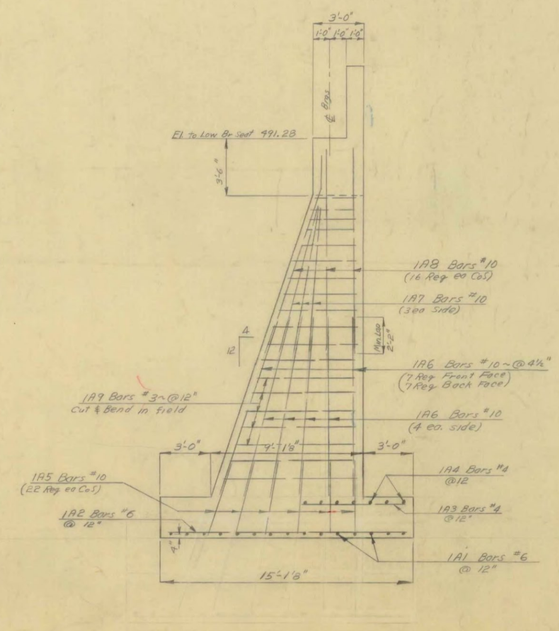


SECTION B-B
Scale ½"-1'-0"

TYPICAL SECTION
Scale ⅜"-1'-0"



ELEVATION



SECTION A-A

Note: All Laps 2'-0" except as noted.
Max. Foundation Pressure = 3.7 kips per sq. ft.

ESTIMATED QUANTITIES			
1060	Unclassified Channel Excavation	1,700	C.Y.
107	Structure Excavation	275	C.Y.
4018	Concrete Class B	86	C.Y.
521	Stone Fill	1,200	C.Y.

FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM
ROAD NO. Vt 121 BRIDGE NO. 11
DETAILS of ABUTMENT #1

SCALE 1/4"=1'-0" or as noted
SURVEYED BY Pegar
DRAWN BY C.F.H. CHECKED BY Asst. W.L.H.
PROJECT NO. S 156 (3)
SHEET 9 OF 49

STA. ~~10+55.0~~ 10+57.5 ✓ PIER 1 FN. GR. EL. 495.46 — EXPANSION JOINT
STA. ~~11+24.0~~ 11+26.5 ✓ PIER 2 FN. GR. EL. 494.67 — FIXED

ROADWAY STATIONING

PLAN

PIER 1 EL 490.63 | EL 490.66 | EL 490.76 | EL 490.86 | EL 490.90 | EL 490.88 | EL 490.86
PIER 2 EL 489.84 | EL 489.87 | EL 489.97 | EL 490.07 | EL 490.11 | EL 490.09 | EL 490.07

30°

℄ BEARING

Pier 1 2'-8 3/4"
Pier 2 2'-7 7/8"

4'-11" | 6'-0" | 6'-11 1/8" | 6'-0" | 6'-11 1/8" | 3'-0" | 3'-5 9/16" | 3'-0" | 6'-11 1/8" | 6'-0" | 6'-11 1/8" | 2'-0"

Pier 1 4'-10 5/8"
Pier 2 4'-9 3/4"
5'-8 5/8"
1'-2 1/4" | 3'-8 3/8" Pier 1 | 3'-7 7/8" Pier 2

℄ RDWY

PIER 1 ℄ 2 47'-3 3/4"
"A"
26'-5 7/8"
20'-9 7/8"

STEP MIDWAY BETWEEN BEAM SEATS
PIER 1 2'-4 5/8"
PIER 2 2'-3 3/4"

1'-6" | 1'-6" | 1'-6"

8"

SCORE MARKS SEE S.B. 20 — DETAIL "D"

"P13 & P14" BARS "6 (5)

"P15" BARS "5 2'-0" ℄" "P12" BARS "5 2'-0" ℄

"P10 & P11" BARS "4

"P4" Bars "9

"P6" BARS "4 1'-0" ℄

"P7, P8 & P9" BARS "4 1'-0" ℄

Const. Joint Elev. 470.00

PIER 1 28'-7 1/2"
PIER 2 27'-10 1/8"

"B" "B"

"P1" BARS "6 1'-0" ℄" "P2" BARS "6 1'-0" ℄"

"P5" BARS "4 1'-0" ℄" "P3" BARS "9 0'-9" ℄"

PIER 1 29'-10 1/2"
PIER 2 29'-9 5/8"

PIER 1 24'-2 1/2"
PIER 2 24'-1 5/8"

PIER 1 54'-1"
PIER 2 53'-11 1/4"
"A"

ELEVATION

PIER 1 1'-8 3/8" | 5'-8 1/4"
PIER 2 1'-7 7/8" | 5'-7 7/8"

"P3" BARS "9 0'-9" ℄"

"P7" BARS "4 1'-0" ℄"

"P5" BARS "4 1'-0" ℄"

4'-10"
2'-0"

SECTION "B-B"

FLOW

LOW BRIDGE SEAT ELEV.
PIER 1 490.63 PIER 2 489.84

3'-0"
1'-6" | 1'-6"
℄ BRG

"P12" BARS "5 2'-0" ℄"
"P13 & P14" BARS "6 (5)
"P10 & P11" BARS "4
"P15" BARS "5 2'-0" ℄"
"P6" BARS "4 1'-0" ℄"

4'-0"
45°

2'-6"

PIER 1 5'-4 3/4"
PIER 2 5'-3 3/4"

PIER 1 5'-4 3/4"
PIER 2 5'-3 3/4"

PIERS 1 & 2 EL 462.00
PIERS 1 & 2 EL ~~459.00~~ 458.5 ✓

3'-0"

1'-6"

2'-6"

"P5" BARS "4 1'-0" ℄"
"P2" BARS "6 1'-0" ℄"
"P1" BARS "6 1'-0" ℄"

9'-4 1/2"

SECTION "A-A"

NOTES
All reinforcing Steel to be Intermediate grade
All reinforcing Steel dimensions on this sheet to ℄ of bars
All concrete to be Class "B"
All concrete edges to be chamfered 3/4"
Pier 1 drawn here Pier 2 Similar
1P1 denotes reinforcing Steel bar in Pier 1
2P1 denotes reinforcing Steel bar in Pier 2
Construction Joints to be in accordance with Det "D" Dwg. S.B. 20 under direction of the Engineer
Max. foundation Pressure - 4.8 kips per sq. ft.

ESTIMATED QUANTITIES		PIER 1	PIER 2
107	Structure Excavation	140 c.y.	152 c.y.
4018	Concrete Class "B"	205 c.y.	200 c.y.

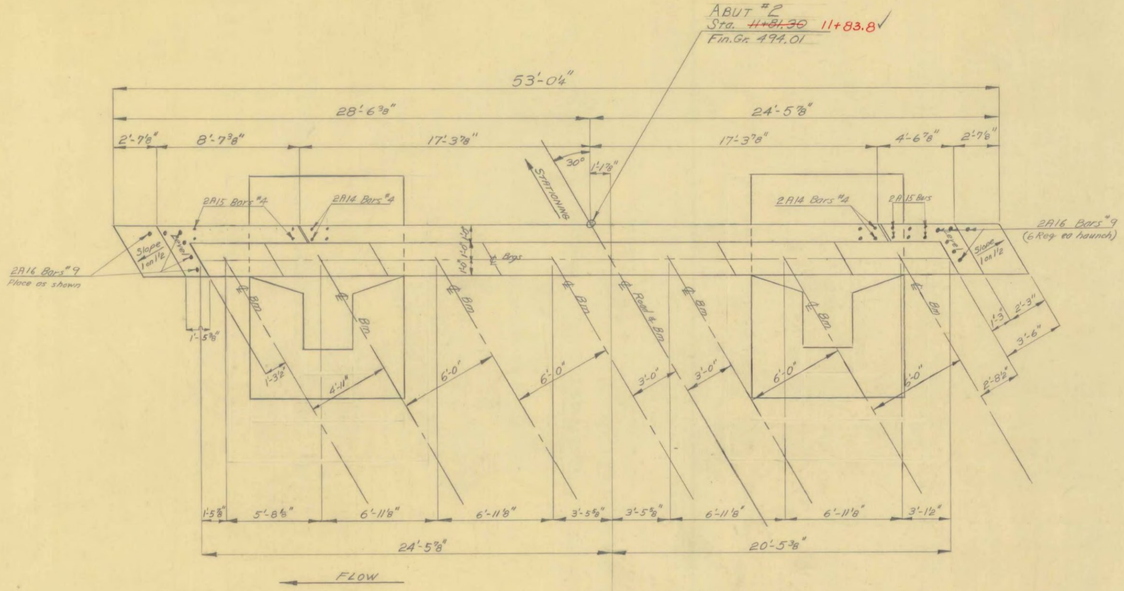
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM
ROAD NO. VT 121 BRIDGE NO. 11
DETAILS PIER 1
PIER 2 SIMILAR
SCALE 3/8" = 1'
SURVEYED BY POGAR
DRAWN BY WMS CHECKED BY E.F.P.
PROJECT NO. S 156(3)
SHEET 10 OF 49

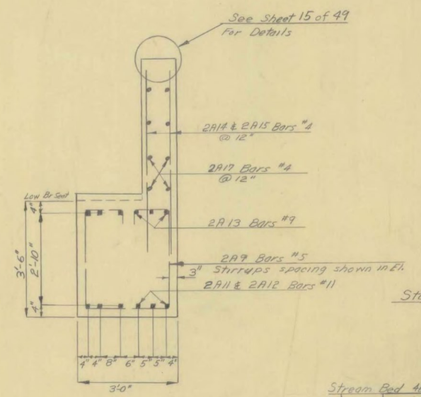
Rev. to show Construction Joint at 470.0 10/23/53 SMB.

FOR REFERENCE ONLY

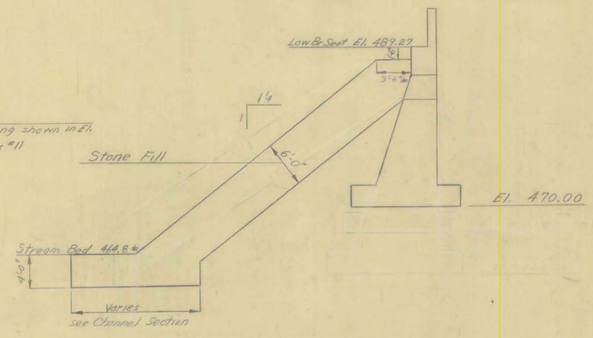
ABUT #2
Sta. ~~11+81.30~~ 11+83.8 ✓
Fin. Gr. 494.01



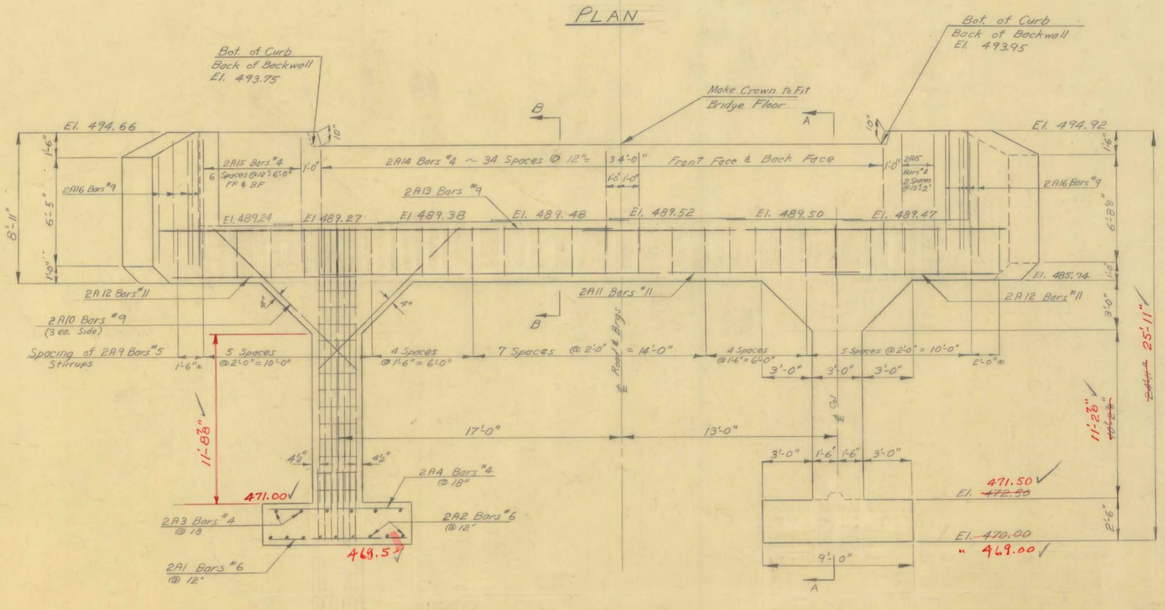
PLAN



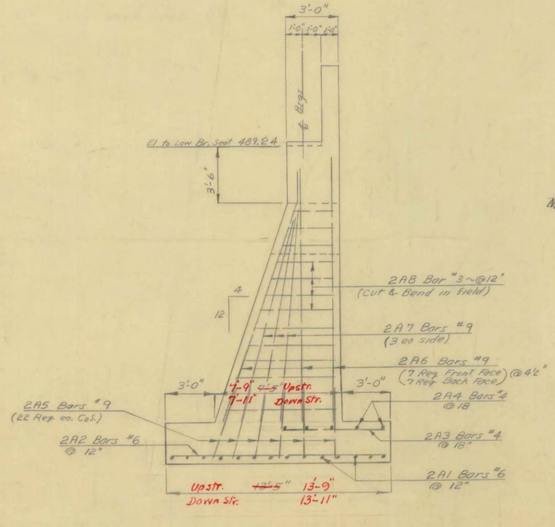
SECTION B-B
Scale ½"=1'-0"



TYPICAL SECTION
Scale ⅜"=1'-0"



ELEVATION



SECTION A-A

Max. Foundation Pressure - 3.7 kips per sq. ft.

ESTIMATED QUANTITIES

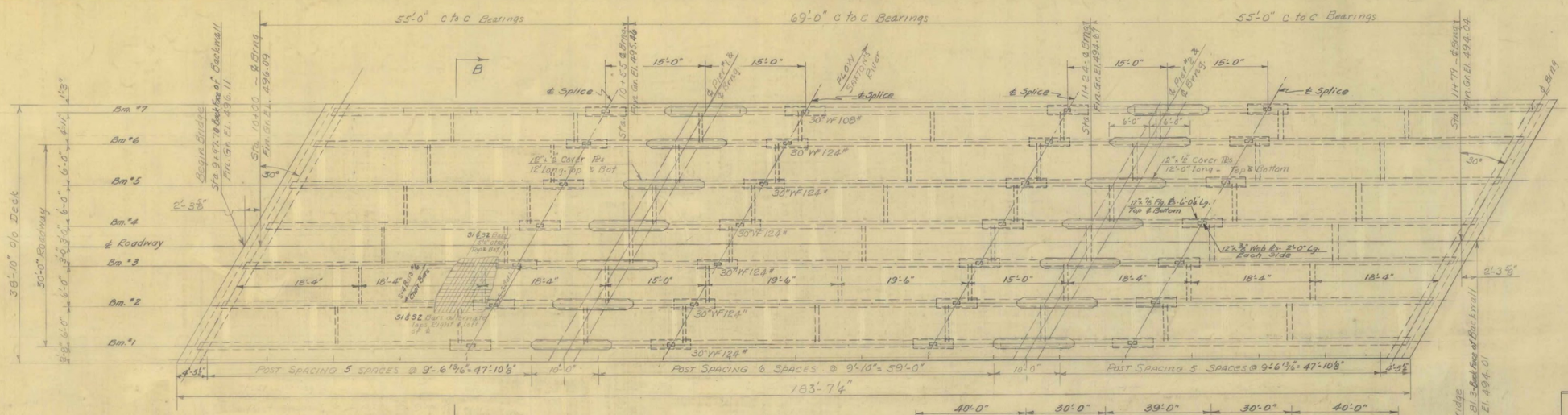
106-C	Unclassified Channel Excavation	715	C.Y.
107	Structure Excavation	196	C.Y.
401B	Concrete Class B	75	C.Y.
521	Stone Fill	1050	C.Y.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

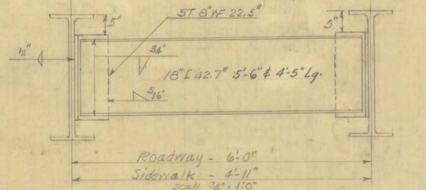
TOWN OF ROCKINGHAM
ROAD NO. Vt 121 BRIDGE NO. 11
DETAILS of ABUTMENT #2

SCALE 4"=1'-0" or as noted
SURVEYED BY Pegar
DRAWN BY C.F.H. CHECKED BY Quad 1 LLH
PROJECT NO. S-156 (3)
SHEET 11 OF 49

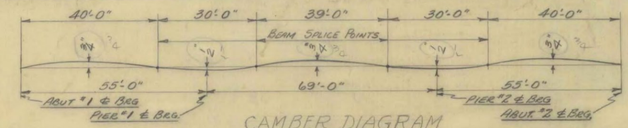
FOR REFERENCE ONLY



PLAN
Scale 1/8" = 1'-0"

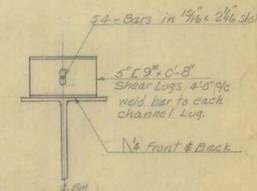


DIAPHRAGM DETAIL
Scale 3/8" = 1'-0"
(Span 1 x 3-16'-4" spacing)
(Span 2-15'-0" & 19'-6" spacing) As shown.

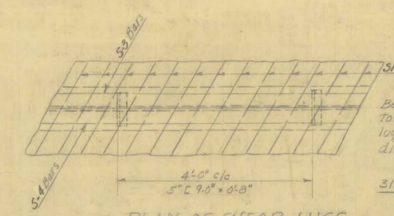


CAMBER DIAGRAM

Beams shall have true circular camber with middle ordinate as shown above. No change in the above camber will be allowed, except by written order of the Engineer.



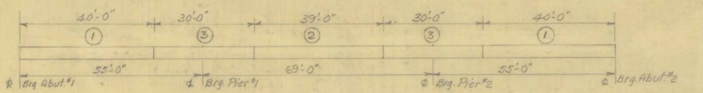
SHEAR LUG DETAILS



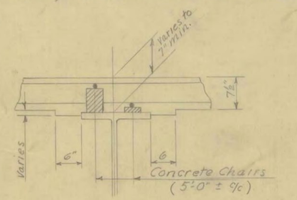
PLAN OF SHEAR LUGS
Scale 3/4" = 1'-0"

Begining at center line toe of Channel shear lugs shall face in direction of support.

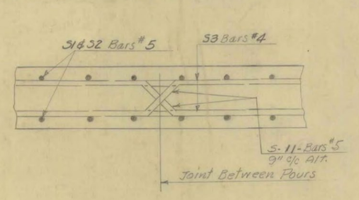
315 Lugs Req.



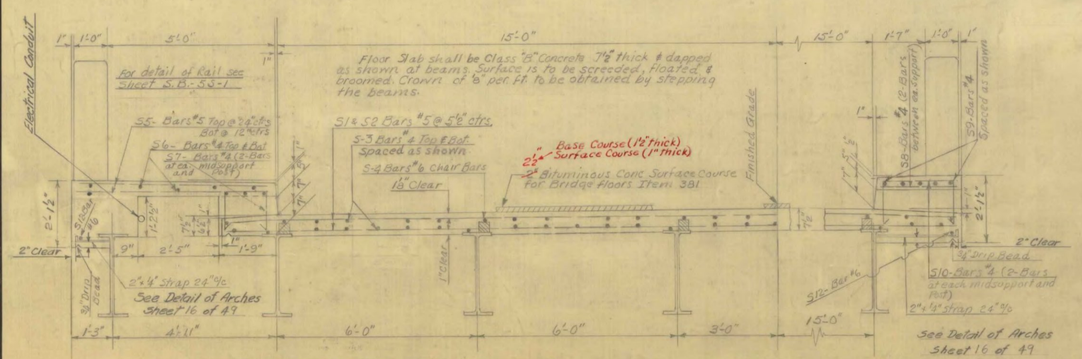
POURING SCHEDULE



TYPICAL DETAIL INTERIOR WITHOUT COVER PLS.
Scale 3/4" = 1'-0"



TYPICAL LONGIT. SECT. & POUR JOINTS



TYPICAL HALF SECTION B-B
Scale ½" = 1'-0"

Rev. 7/30/53 Amd3.
Cambers revised to conform with Min. Camber likely to remain permanent.

Estimated Quantities on this sheet for Structural Steel include Bearing Devices, Cover Plates and all Structural Steel on Expansion Plate Detail Sheet 16 of 49
Does Not include Bridge Railing Steel.

NOTE: ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, DEPT. OF HIGHWAYS, STD. SPEC. FOR ROAD & BRIDGE CONSTRUCTION, DATED NOVEMBER 1948 AND THE A.A.S.H.O. SPEC. FOR 1949. DESIGNED FOR H-20(44) LIVE LOADING, 25#/ft² PAVING ALLOWANCE; DEAD LOAD INCLUDES WEIGHT OF BEAMS, SLAB & RAIL

FOR REFERENCE ONLY

ESTIMATED QUANTITIES

Bituminous Conc. Pavement	68	Tons
Concrete Class "B"	224	C.Y.
Structural Steel	210,196	Lbs.*
Asphaltic Asbestos Coating	42	S.Y.
Bridge Railing	364	L.F.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM
ROAD NO. VT. 121 BRIDGE NO. 11
SUPERSTRUCTURE DETAILS

SCALE As shown
SURVEYED BY POGAR
DRAWN BY D.W.P. CHECKED BY E.F.P. J.L.M.
PROJECT NO. S-156(3)
SHEET 12 OF 49

SECTION "E-E"

PLAN

SECTION A-A

SECTION - "D-D"

SECTION B-B (ABUT #2 SIMILAR)

SECTION "C-C" (ABUT #1 SIMILAR)

Notes

Structural steel indicated on this sheet is included in the estimated quantities on superstructure Sheet No. 12 of 49

FOR REFERENCE ONLY

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

TOWN OF ROCKINGHAM
ROAD NO. VT. 121 BRIDGE NO. 11
EXPANSION PLATE DETAILS

SCALE 1" = 1'-0"
SURVEYED BY POGAA
DRAWN BY J.L.H. E.E.P. CHECKED BY E.T.B.
PROJECT NO. S-156 (3)
SHEET 15 OF 49

THREE CABLE GUARD RAIL WITH STEEL POSTS
Lt 9+42.4-10+06.4 Rt 8+98-9+89

GRANITE CURB
Lt 9+91.4-10+06.4 Rt 9+74-9+89

CONSTRUCT DRIVE
8+25 Lt

CONSTRUCT APPROACH
9+00 Lt

Geo. Lonou House

Helen Duplesses 2.5F House

BM #1
Elev. 500.00

POST. 9+00.0=
App POT. 0+00.0
Δ 64°49' Lt

P.I. 7+00
74.92

B.L. Clark "Hotpoint" Appliances

Drive

N71°03'E

59.82

24.56

N79°26'E

64°49'

Dr. F.L. Osgood

Stone Retaining Wall

Guide post

Stone Retaining Wall

Meadow

Drive

Side Road

Robert Gay

Δ 8°23' Rt
D 2°
R 2864.9
T 210.0
L 419.2
E 7.7
Do Not Bank

P.C. 5+00

Roscoe Olmstead

Ho.

Dr. F.L. Osgood

P.T. 9+19.2

REMOVE 2 Item 1.0

STA. 9+00.0
BEGIN PROJECT
S 156(3)

9+20
125' V.C.
497.00

Construct Satisfactory Approach

0.000%

-2.200%

-3.852%

-1.143%

5+50
100' V.C.
509.60

6+50
100' V.C.
507.40

9+00 - 9+97.7
18" Base

510
500
490

5026 5024 5023 5084 5074 5067 5045 5038 5028 5018 5005 4983 4983 4973 4964 4952 4942 4932

+25 +50 +50 +34 +30 +75 +25 +50 +75 +19 +50 +75

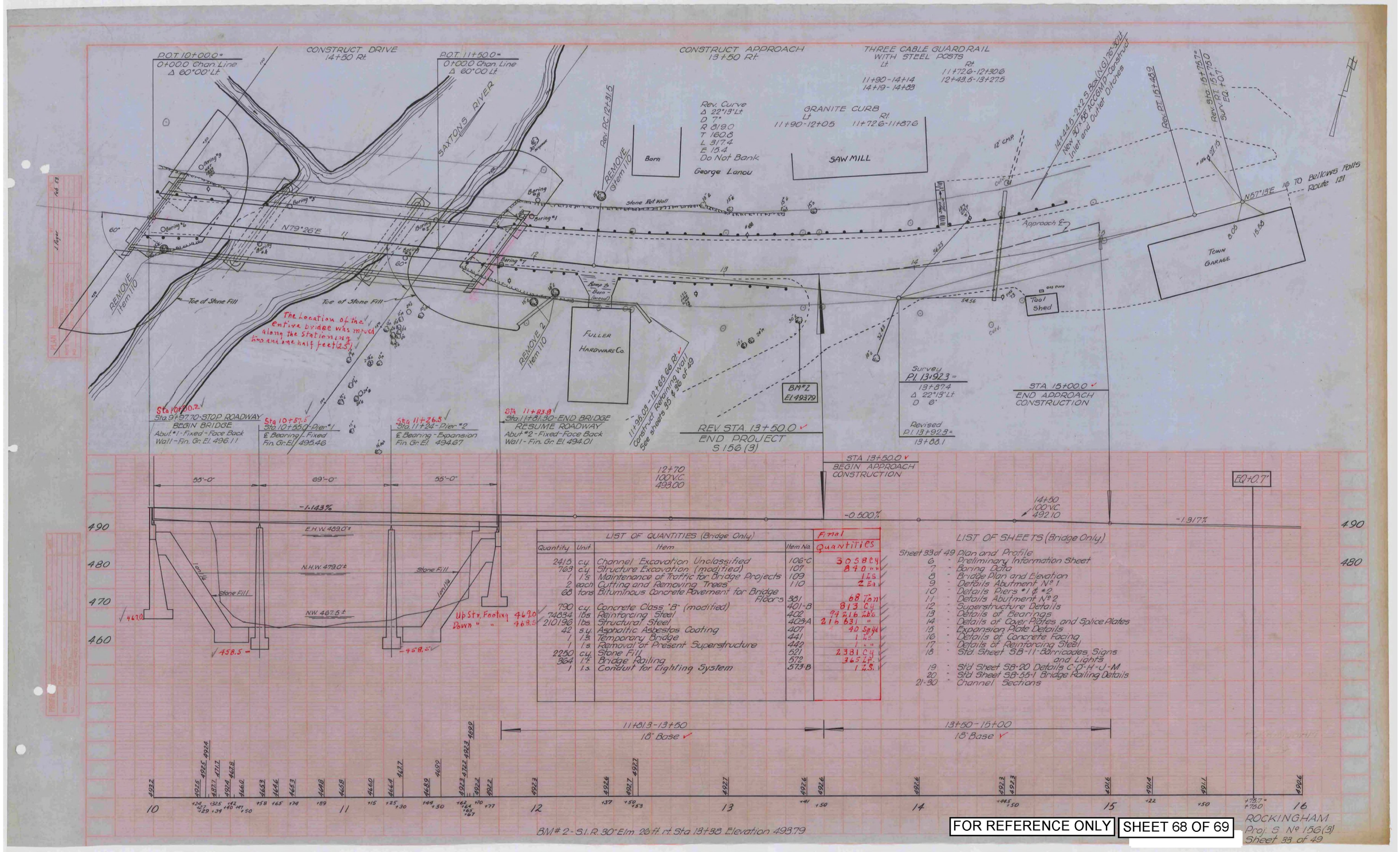
5 6 7 8 9 10

BM #1 - Chiseled square on concrete curb 17 ft. lt. Sta. 8+53. Elevation 500.00

ROCKINGHAM
Proj. S No 156(3)
Sheet 32 of 49

FOR REFERENCE ONLY

SHEET 67 OF 69



LIST OF QUANTITIES (Bridge Only)				Final
Quantity	Unit	Item	Item No	Quantities
2415	c.y.	Channel Excavation Unclassified	106-C	3058 C.Y.
769	c.y.	Structure Excavation (modified)	107	870 "
1	l.s.	Maintenance of Traffic for Bridge Projects	109	1 L.S.
2	each	Cutting and Removing Trees	110	2 Ea.
68	tons	Bituminous Concrete Pavement for Bridge Floors	381	68 Ton
790	c.y.	Concrete Class "B" (modified)	401-B	813 C.Y.
74834	lbs.	Reinforcing Steel	402	97,716 Lbs.
210,196	lbs.	Structural Steel	403-A	216,831 "
42	s.y.	Asphaltic Asbestos Coating	407	40 S.Y.
1	l.s.	Temporary Bridge	441	1 L.S.
1	l.s.	Removal of Present Superstructure	442	1 "
2250	c.y.	Stone Fill	521	2,381 C.Y.
364	l.f.	Bridge Railing	522	365 L.F.
1	l.s.	Conduit for Lighting System	573-B	1 L.S.

LIST OF SHEETS (Bridge Only)

Sheet 33 of 49 Plan and Profile
6 " Preliminary Information Sheet
7 " Boring Data
8 " Bridge Plan and Elevation
9 " Details Abutment № 1
10 " Details Piers #1 & #2
11 " Details Abutment № 2
12 " Superstructure Details
13 " Details of Bearings
14 " Details of Cover Plates and Splice Plates
15 " Expansion Plate Details
16 " Details of Concrete Facing
17 " Details of Reinforcing Steel
18 " Std. Sheet SB-11-Barricades, Signs and Lights
19 " Std. Sheet SB-20 Details C-O"H-4-M
20 " Std. Sheet SB-55-1 Bridge Railing Details
21-30 " Channel Sections

FOR REFERENCE ONLY

SHEET 68 OF 69

ROCKINGHAM
Proj. S № 156(3)
Sheet 33 of 49

Expansion Joints as shown on Std. Dwg. SC-21. (Sect. Thru Top Slab & Sidewalk) Copper Sealing Strip on back face of Wall to extend from footing to 6" from top

Warehouse.

Expansion Joint - See Note. Guard Rail Posts

Notch for Ramp 13'-0"

Guard Rail Posts Constn Joint

Expansion Joint See note above

L Bars See note at opposite wing

Ballast 4 in 12

Construction Joint

(20) J2-"7 @ 24"

(20) F2-"7 @ 24"

G-"4 @ 18" cut & bend in field as req.

(12) F1-"7 @ 20" (2 spc. @ 10)

(7) J1-"9 @ 20"

(2) F3-"6 @ 16"

(2) F3-"6 @ 18"

(3) F4-"4 @ 12"

(2) F3-"5 @ 12"

(4) F3-"6 @ 12"

(4) F3-"5 @ 12"

(4) F4-"4 @ 12"

(4) F4-"4 @ 12"

(21) F4-"5 spcs. (2) 12" (3) 20"

(3) V1-"7 @ 20"

L Bars: Two rows staggered 12" c/c. 1st row 5" from face & in bent plane. Wings end in ramp

12'-0"

30'-0"

24'-0"

46°

B1-"4 @ 12"

A1-"9 @ 12"

D1-"4 @ 18"

F1 & J1-"9 - Alternate @ 10'

C-"4 @ 18"

G-"4 @ 18"

E-"4 @ 18" (EF)

H-"6 (+)

El. 492.14

El. 478.0

12'-0"

SECTION E-E
DETAIL OF SEAT FOR RAMP INTO WAREHOUSE
Scale 1" = 1'-0"
(Ramp to be built by others)

This dimension varies: See Elevation for all sections

SECTION A-A
Scale 3/8" = 1'-0"

Floor of Warehouse El. 493.1

Building Line (Existg.)

B2-"4 @ 10"

D2-"4 @ 18"

E-"4 @ 18" (EF)

A2-"6 @ 10"

F2 & J2-"7 - Alternate @ 12"

El. 482.0

C-"4 @ 18"

G-"4 @ 18"

9'-0"

Sill of existg. Building. Not to be disturbed

SECTION B-B
Scale 3/8" = 1'-0"

B-"4 @ 12"

D-"4 @ 18"

E-"4 @ 18"

F4-"4 @ 12"

El. 478.0

C-"4 @ 12

Varies

SECTION D-D
Scale 3/8" = 1'-0"

F3-"5 @ 12"

A3-"5 @ 12"

C-"4 @ 18"

G-"4 @ 18"

Varies

SECTION C-C
Scale 3/8" = 1'-0"

Notes
All Concrete To be Class B (Mod)
Top edge along road to be rounded to 1½" radius. All other exposed edges to be chamfered ¾"
All footings to be poured on undisturbed earth.
Work to be in accordance with State of Vermont Standard Specs. for Road & Bridge Constn. Nov. 1948.

— PLAN —
Scale 4" = 1'-0"

NF (44) A2 & B2 Bars @ 10" : FF (23) C & D2 @ 18"
NF (10) A1 & B1 @ 12"
FF (7) C & D1 @ 18"
Top of Wall 7" above Shoulder except where notched for Ramp.
(FF) D10 to D11 @ 18"
(NF) B5 to B16 @ 12"
(FF) D3 To D18-"4 @ 18"
(NF) B3 To B18 @ 12"
(B) B1-"4 @ 12" NF
(11) E5, (2) E4, (2) E3, (4) E2 @ 18" (FF)
(41) L-"6 Thru Exp. Joint
(98) L-"6 @ 9" Staggered Thru Exp. Joint
4" Weep Holes @ 10' c/c
(2) E5, (2) E4 @ 18" (FF)
(32) E-"4 @ 18
(6) E1-"4 @ 18
(5) A3-"5 @ 12"
(7) C-"4 @ 12"
(5) K-"7 @ 18"
(5) K-"7 @ 18"
El. 480.0
El. 476.0
El. 492.35
Stationing of Wall - 18" Ft. on ℄ of Roadway
PC. 12+31.5

— ELEVATION —
ELEVATION NORMAL TO ALL FACES GIVING FULL LENGTH TO WINGS
Scale 4" = 1'-0"

℄ of Rdwy
T° Curve to Left.
℄ of Roadway

(1) A1-"7 @ 12" NF
(7) A3-"5 @ 12
(9) C-"4 @ 12" NF

Posts 6 U 8.5
Sta. 12+37
Holes for End Anchorage

DETAIL OF GUARD RAIL POSTS
Scale 4" = 1'-0"

Four 6 U 8.5 posts for Guard Rail to be supplied & installed under Retaining Wall participation. 2 posts to be drilled for dead end anchorage & 2 posts for offset brackets, all as shown on Std. Dwg. S 48-46, details of Steel Posts & Dead End Anchorage.
Guard Rail Cable, Brackets, Cable Ends & Hardware to be supplied & installed under Road participation. Spacing and height of posts may be changed by Engineer in field to correspond with guard rail on Roadway.

Tops of posts to be on even grade with top of guard rail posts along roadway

Top of Retaining Wall 7" above shoulder of Roadway

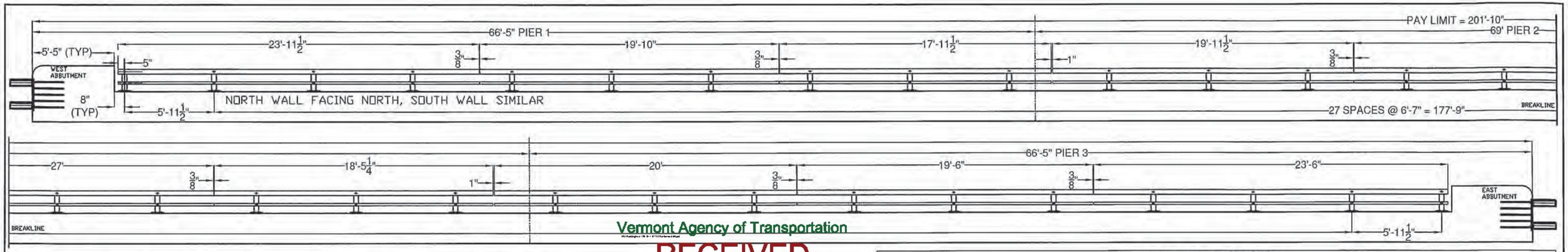
ESTIMATED QUANTITIES

Item 107	Structure Excavation (Mod)	250 CY
" 222	Gravel Backfill	280 CY
" 401-B	Concrete, Class B (Mod)	116 CY
" 403-A	Structural Steel (G.R. Posts)	128 Lbs.

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

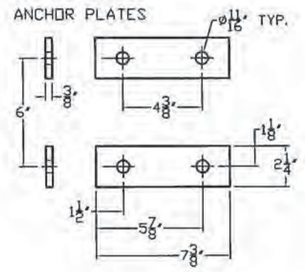
TOWN OF ROCKINGHAM
ROAD NO. Vt 121 BRIDGE NO.
RETAINING WALL
Between Stas. 11+95.03 & 12+65.66
SCALE As Noted.
SURVEYED BY
DRAWN BY Niven CHECKED BY EFP
PROJECT NO. S-156 (3)
SHEET 35 OF 49

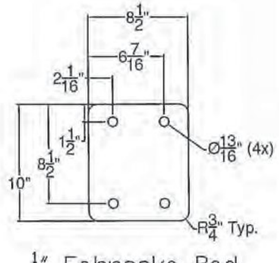
FOR REFERENCE ONLY



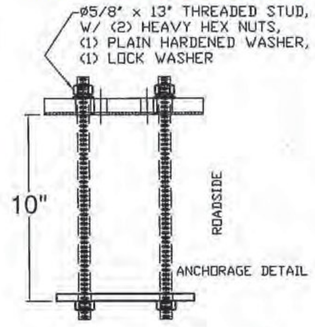
Vermont Agency of Transportation
RECEIVED
ON: December 29, 2014
and Checked for
CONFORMANCE
BY: TAS DATE: 01/20/2015

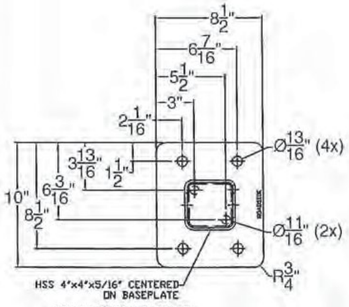
COATED BLACK - ASTM D7803

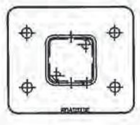


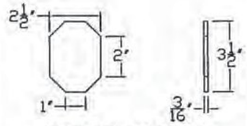


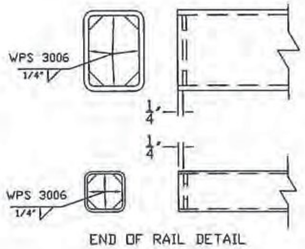
1/8" Fabreeka Pad

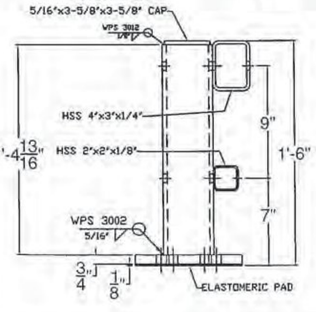


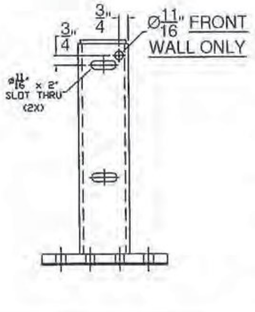












5/8"

NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING THE ASSEMBLED POST, GRIND ALL EDGES TO A MINIMUM RADIUS OF 1/16".
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO BRIDGE POSTS AND PREFERABLY TO AT LEAST 4 POSTS.
5. HOLES IN RAILS FOR TUBE ATTACHMENT, WALL BE SHOP-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
6. BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
7. RAIL TUBES SHALL BE ATTACHED USING FULL DIAMETER BODY ASTM A449 (TYPE I) ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE.
8. SEE STANDARD DRAWING G-1 FOR DETAILS OF DELINEATORS. A DELINEATOR SHALL BE INSTALLED AT 30 FOOT SPACING OR THE NEAREST POST. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT FOR DELINEATORS SHALL BE INCIDENTAL TO OTHER ITEMS.
9. AESTHETIC TREATMENT TYPE SHALL BE APPLIED AS SPECIFIED IN THE CONTRACT PLANS. IF NONE IS SPECIFIED IT SHALL NOT BE USED. AESTHETIC TREATMENT DETAILED ON THIS SHEET MAY ALSO BE APPLIED ON THE FASCIA SIDE OF THE RAIL, IF SPECIFIED IN THE CONTRACT PLANS.
10. BRIDGE RAILING SHALL HAVE A RUBBED FINISH IN ACCORDANCE WITH SECTION 501.
11. THIS RAILING MEETS THE REQUIREMENTS FOR A NCHRP REPORT 350 TL-4 SERVICE LEVEL.
12. HOLES FOR MOUNTING DELINEATORS TO BE FIELD DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
13. ALL STEEL COMPONENTS EXCEPT HARDWARE AND ANCHORAGE CAST IN CONCRETE SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.

BILL OF MATERIAL

ITEM #	QTY	PART #	DESCRIPTION	ASTM DESIGNATION
1	60	0033.90402	TWO RAIL POST & BASE PLATE ASSEMBLY	A572 Gr. 50, A500 Gr. B
2	2	0033.91331	4" X 3" X 1/4" RAIL @ 23'-11 1/2" W/ END PLATES	A500 Gr. B
3	2	0033.91332	4" X 3" X 1/4" RAIL @ 19'-10"	A500 Gr. B
4	2	0033.91333	4" X 3" X 1/4" RAIL @ 17'-11 1/2"	A500 Gr. B
5	2	0033.91334	4" X 3" X 1/4" RAIL @ 19'-11 1/2"	A500 Gr. B
6	2	0033.91335	4" X 3" X 1/4" RAIL @ 27'-0"	A500 Gr. B
7	2	0033.91336	4" X 3" X 1/4" RAIL @ 18'-5 1/4"	A500 Gr. B
8	2	0033.91337	4" X 3" X 1/4" RAIL @ 20'-0	A500 Gr. B
9	2	0033.91338	4" X 3" X 1/4" RAIL @ 19'-6"	A500 Gr. B
10	2	0033.91339	4" X 3" X 1/4" RAIL @ 23'-6" W/ END PLATES	A500 Gr. B
11	2	0033.91340	2" X 2" X 1/8" RAIL @ 23'-11 1/2" W/ END PLATES	A500 Gr. B
12	2	0033.91341	2" X 2" X 1/8" RAIL @ 19'-10"	A500 Gr. B
13	2	0033.91342	2" X 2" X 1/8" RAIL @ 17'-11 1/2"	A500 Gr. B
14	2	0033.91343	2" X 2" X 1/8" RAIL @ 19'-11 1/2"	A500 Gr. B
15	2	0033.91344	2" X 2" X 1/8" RAIL @ 27'-0"	A500 Gr. B
16	2	0033.91345	2" X 2" X 1/8" RAIL @ 18'-5 1/4"	A500 Gr. B
17	2	0033.91346	2" X 2" X 1/8" RAIL @ 20'-0"	A500 Gr. B
18	2	0033.91347	2" X 2" X 1/8" RAIL @ 19'-6"	A500 Gr. B
19	2	0033.91348	2" X 2" X 1/8" RAIL @ 23'-6" W/ END PLATES	A500 Gr. B
20	12	0033.90405	1-1/2" X 1-1/2" FIX. SPL BAR @ 2' 4"	A572 Gr. 50
21	12	0033.90406	2-1/4" X 3-1/4" FIX. SPL. BAR @ 2' 4"	A572 Gr. 50
22	4	0033.90407	1-1/2" X 1-1/2" EXP. SPL BAR @ 1' 5"	A572 Gr. 50
23	4	0033.90408	2-1/4" X 3-1/4" EXP. SPL. BAR @ 1' 5"	A572 Gr. 50
24	120	0033.00295	3/8" X 2 1/4" X 7 3/8" ANCHOR PLATES	A36
25	242*	0042.05813	ø 5/8" X 13" ANCHOR STUDS	A449
26	482*	0080.15901	ø 5/8" HEAVY HEX NUTS	A563
27	240	0080.15911	ø 5/8" FLAT WASHERS	F436
28	240	0080.15920	ø 5/8" LOCK WASHERS	ASME D18.2
29	60	0080.05565	ø 5/8" X 7 1/2" SLOTTED, ROUND HEAD BOLT, NU	
30	60	0080.05585	ø 5/8" X 8 1/2" SLOTTED, ROUND HEAD BOLT, NU	
31	64	0080.03103	ø 3/8" X 3" HEX BOLT, NUT, F.W., & L.W.	
32	64	0080.07330	ø 7/8" X 5 1/2" HEX BOLT, NUT, F.W., & L.W.	
33	60	0033.90068	1/8" ELASTOMERIC PAD	
34	2	0033.90403	APPROACH WALL CONNECTORS	
35	2	0033.90404	TRAILING WALL CONNECTORS	
36	14	-	DELINEATORS (SUPPLIED BY F.R. LaFAYETTE)	

HARDWARE

ITEM #	
29	BOLT BOTTOM RAIL TO POST
30	BOLT TOP RAIL TO POST (I
31	BOLT BOTTOM SPLICE BARS
32	BOLT TOP SPLICE BARS TO TOP RAIL

T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

___ APPROVED
_X_ APPROVED AS NOTED
___ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

THIS REVIEW IS FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS NOT CLEARLY NOTED BY THE CONTRACTOR HAS NOT BEEN REVIEWED. REVIEW BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF THE CONTRACTUAL RESPONSIBILITY FOR ANY ERRORS OR DEVIATION FROM THE CONTRACT REQUIREMENTS.

RICK HEBERT — REVIEWER — 1/16/2015 — DATE

ITEM #: 525.45

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

SHEET 1 OF 3

BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R
ROCKINGHAM, PROJECT BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.

R E V	NO.	DATE	DESCRIPTION	BY

R E V	NO.	DATE	DESCRIPTION	BY

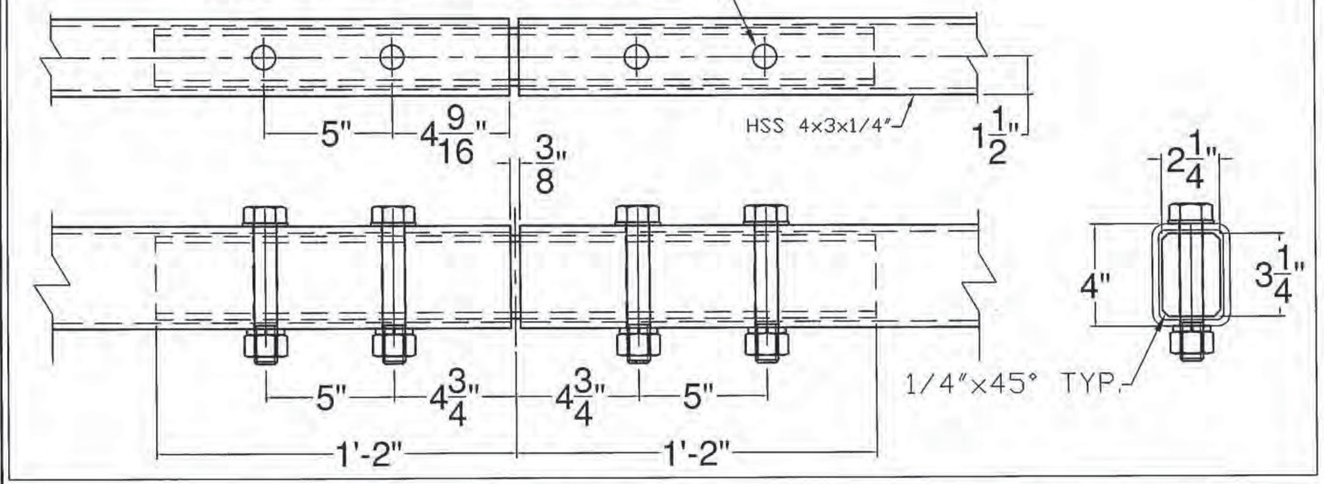
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

AISC CERTIFIED FABRICATOR

DRAWN	E.P.	12/19/14
CHECKED	D.L.	12/19/14
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM	

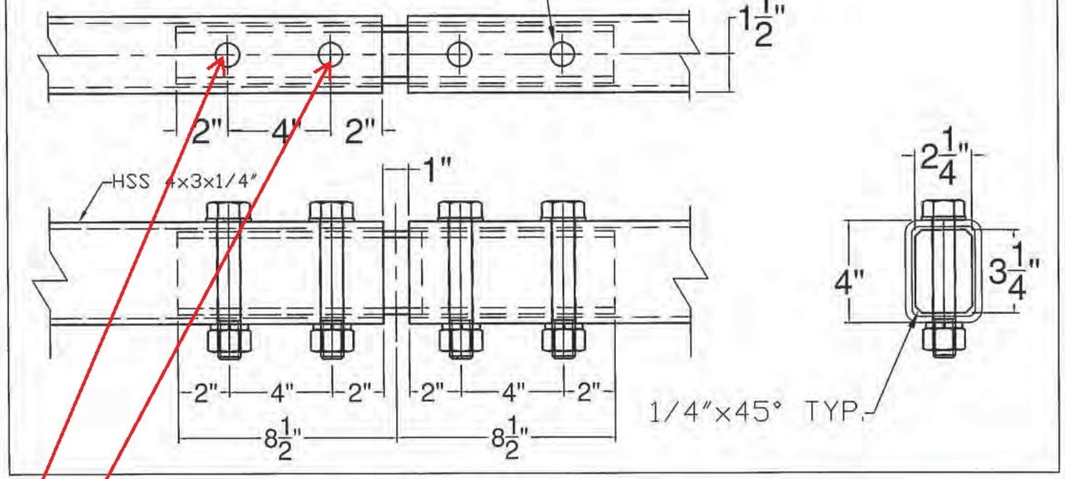
ø15/16" THRU TUBE & SPLICE BAR,
ø7/8"X5 1/2" HEX BOLT & NUT,
W/ (1) PLAIN HARDENED WASHER &
(1) LOCK WASHER (4 PLACES)

TOP RAIL FIXED SPLICE DETAIL



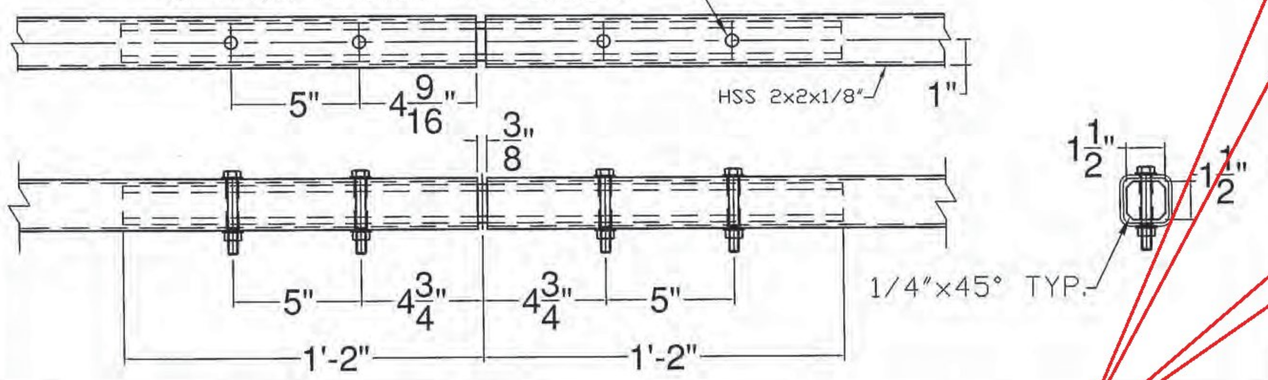
ø15/16" THRU TUBE & SPLICE BAR,
ø7/8"X5 1/2" HEX BOLT & NUT,
W/ (1) PLAIN HARDENED WASHER
& (1) LOCK WASHER (4 PLACES)

TOP RAIL EXPANSION SPLICE DETAIL



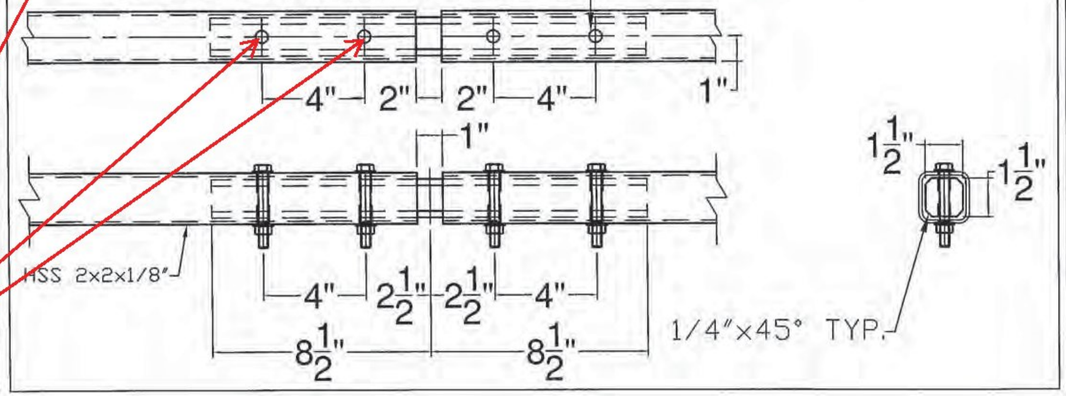
ø1/2" THRU TUBE & SPLICE BAR,
ø3/8"X3" HEX BOLT & NUT,
W/ (1) PLAIN HARDENED WASHER &
(1) LOCK WASHER (4 PLACES)

BOTTOM RAIL FIXED SPLICE DETAIL



ø1/2" THRU TUBE & SPLICE BAR,
ø3/8"X3" HEX BOLT & NUT,
W/ (1) PLAIN HARDENED WASHER &
(1) LOCK WASHER (4 PLACES)

BOTTOM RAIL EXPANSION SPLICE DETAIL



Provide 15/16" x 2" slotted holes in top rail splice bar and 1/2" x 1 1/2" slotted holes in bottom rail splice bars to accommodate movements at expansion rail splices. (Typ)

T.Y. LIN INTERNATIONAL

THE STAMPED DOCUMENTS ARE HEREBY:

____ APPROVED
__X__ APPROVED AS NOTED
____ REVISE AND RESUBMIT

SEE TRANSMITTAL FOR ADDITIONAL INFORMATION AS APPLICABLE.

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RICK HEBERT — REVIEWER
1/16/2015 — DATE

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

ITEM #: 525.45

SHEET 2 OF 3

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R
ROCKINGHAM, PROJECT BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.

REV	NO.	DATE	DESCRIPTION	BY

REV	NO.	DATE	DESCRIPTION	BY

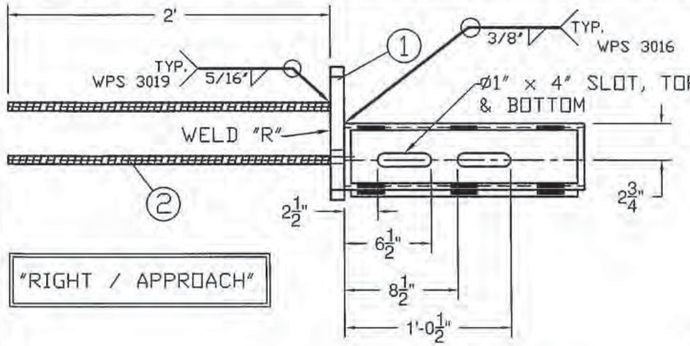
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

CERTIFIED FABRICATOR

DRAWN	E.P.	12/19/14
CHECKED	D.L.	12/19/14
APPROVED		
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM	

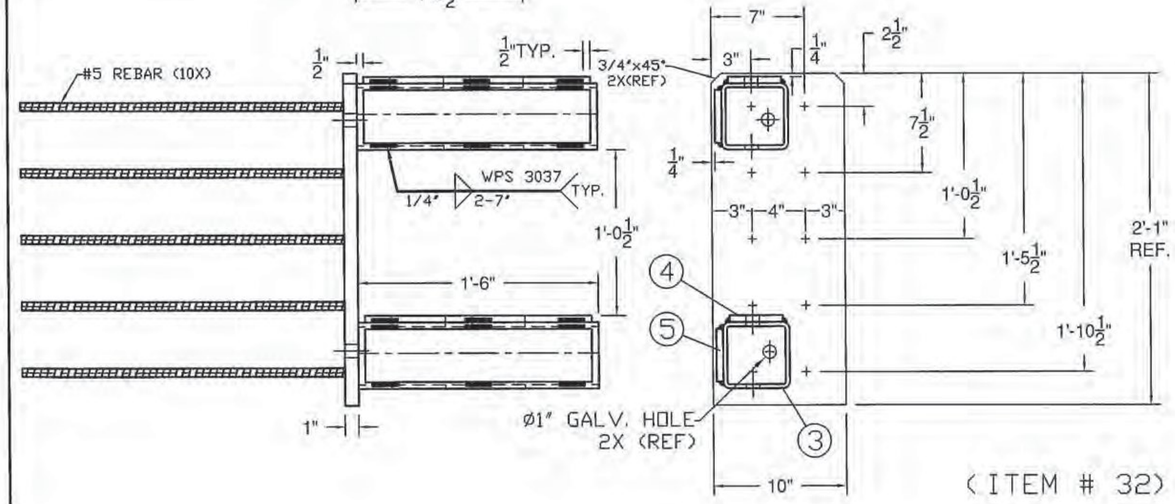
BILL OF MATERIALS

ITEM #	QTY	DESCRIPTION	ASTM #
1	1	DBL TUBE WALL PLATE - 1" X 10" x 25"	ASTM A572 Gr. 50
2	10	RAW, ø5/8" REBAR @ 36"	A615, Gr. 60
3	2	5" X 5" X 5/16" TUBE W/ SLOTS @ 18"	ASTM A500 Gr. B
4	2	SHIM PL 1/2" X 4" X 17" W/ SLOTS	ASTM A36(ASTM A709 Gr. 36)
5	2	SHIM PL 1/2" X 4" X 17" (W/O SLOTS)	ASTM A36(ASTM A709 Gr. 36)



"RIGHT / APPROACH"

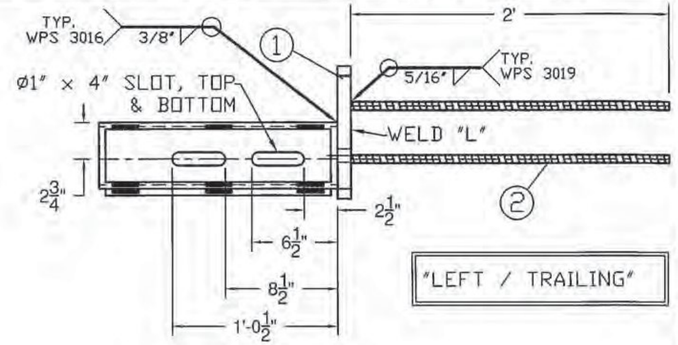
PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE SPLICE TUBES AND FILL PLATES



(ITEM # 32)

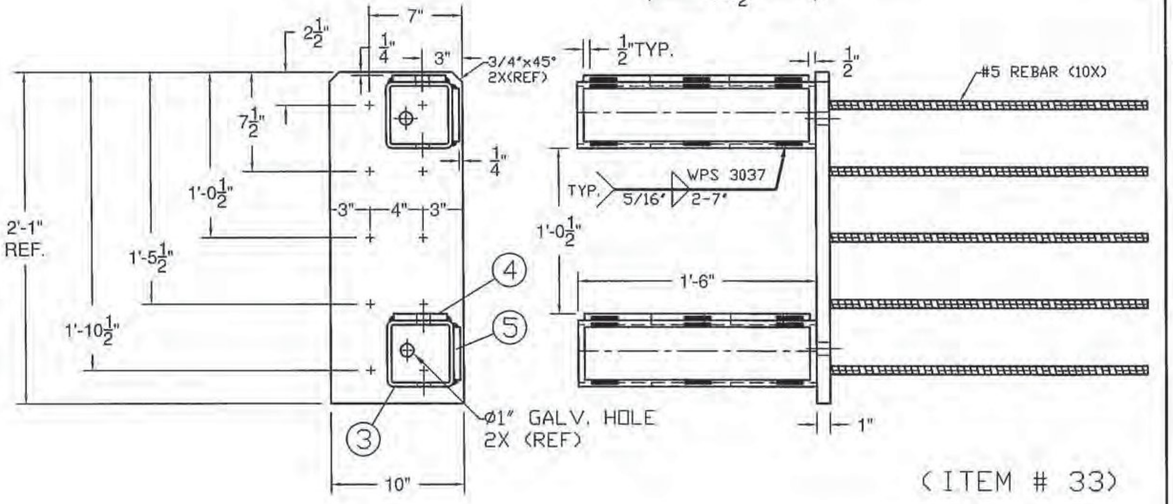
BILL OF MATERIALS

ITEM #	QTY	DESCRIPTION	ASTM #
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4	2	SHIM PL 1/2" X 4" X 17" W/ SLOTS	ASTM A709 Gr. 36
5	2	SHIM PL 1/2" X 4" X 17" (W/O SLOTS)	ASTM A709 Gr. 36



"LEFT / TRAILING"

PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE SPLICE TUBES AND FILL PLATES



(ITEM # 33)

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

T.Y. LIN INTERNATIONAL

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___ APPROVED
X APPROVED AS NOTED
___ REVISE AND RESUBMIT

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RICK HEBERT (REVIEWER) 1/16/2015 (DATE)

ITEM #: 525.45

SHEET 3 OF 3

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

BRIDGE RAIL DETAILS SHEET

VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE 11R
ROCKINGHAM, PROJECT BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT.

R E V	NO.	DATE	DESCRIPTION	BY

R E V	NO.	DATE	DESCRIPTION	BY

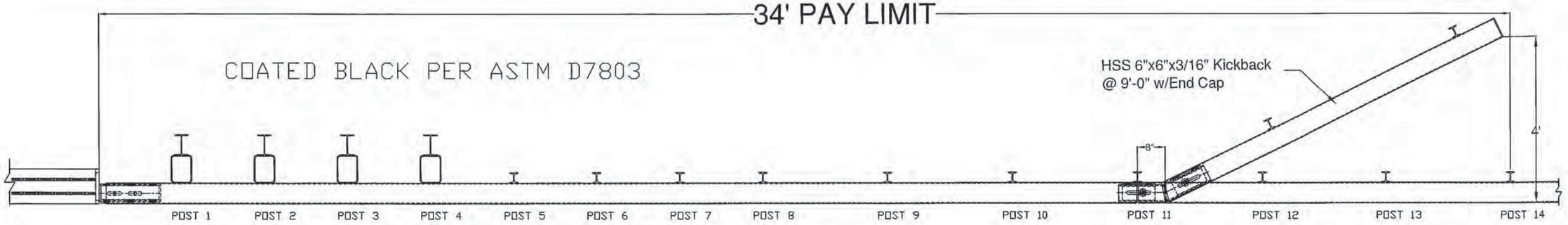
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6615

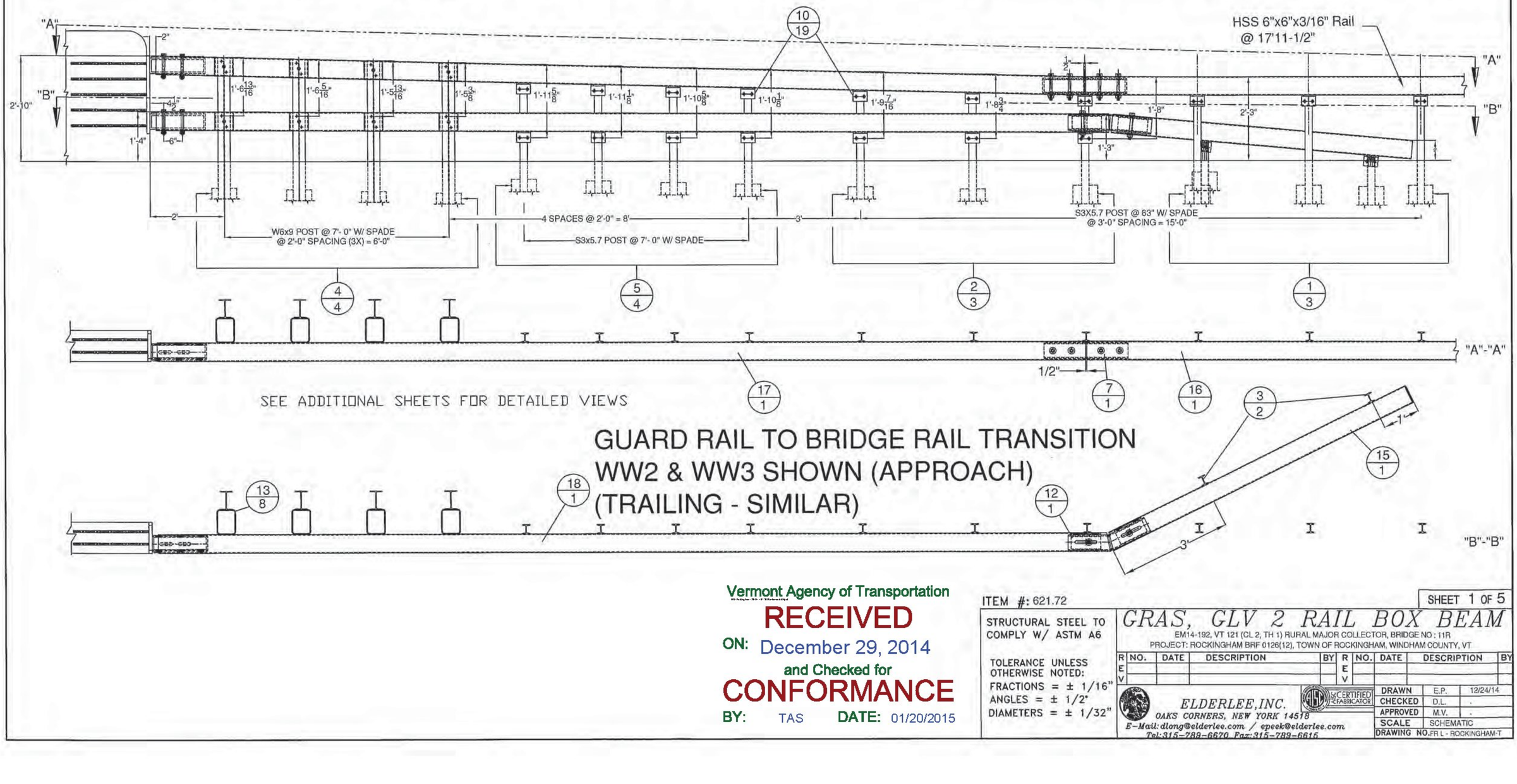
CERTIFIED FABRICATOR

DRAWN	E.P.	12/19/14
CHECKED	D.L.	12/19/14
APPROVED	.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM	

34' PAY LIMIT

COATED BLACK PER ASTM D7803





SEE ADDITIONAL SHEETS FOR DETAILED VIEWS

GUARD RAIL TO BRIDGE RAIL TRANSITION
WW2 & WW3 SHOWN (APPROACH)
(TRAILING - SIMILAR)

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

ITEM #: 621.72

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

SHEET 1 OF 5

GRAS, GLV 2 RAIL BOX BEAM

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO : 11R
PROJECT: ROCKINGHAM BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

REV	NO.	DATE	DESCRIPTION	BY	REV	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
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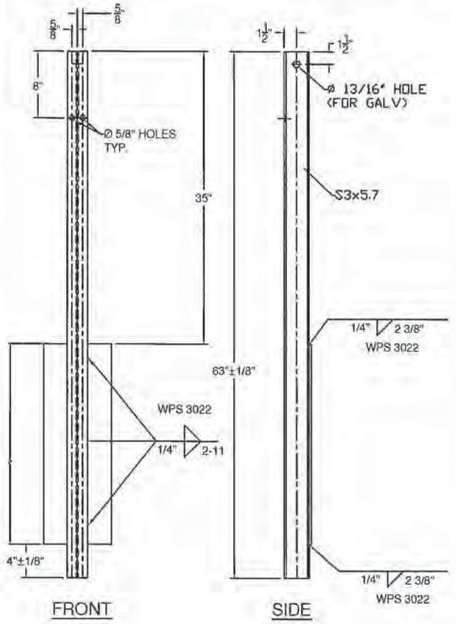
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DRAWN	E.P.	12/24/14
CHECKED	D.L.	.
APPROVED	M.V.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM-T	

PLAN VIEW

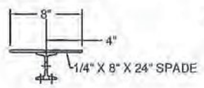


(ITEM # 1)

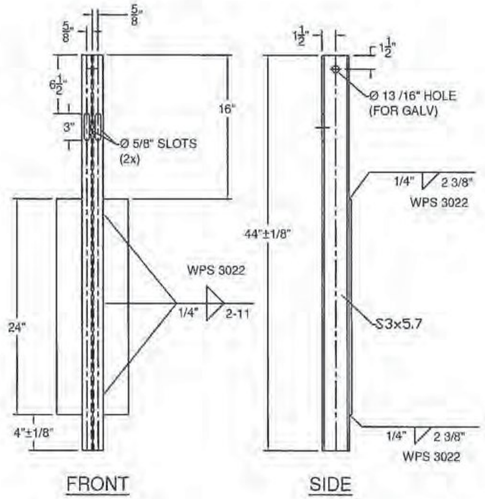


FRONT SIDE

PLAN VIEW

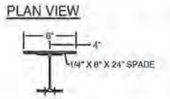


(ITEM # 3)

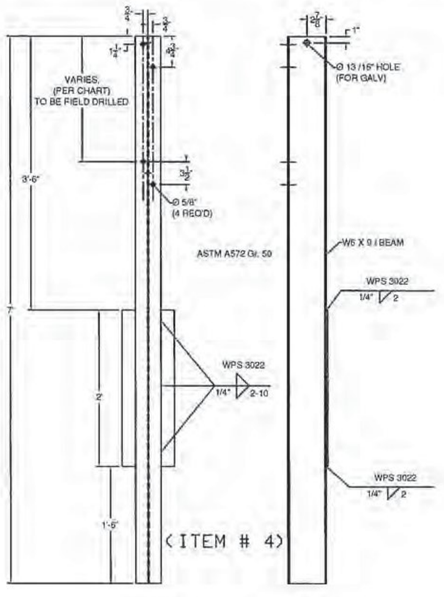


FRONT SIDE

PLAN VIEW



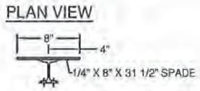
HOLE POSITION CHART	
POST	LENGTH
1	1'-6 13/16"
2	1'-6 5/16"
3	1'-5 13/16"
4	1'-5 3/8"



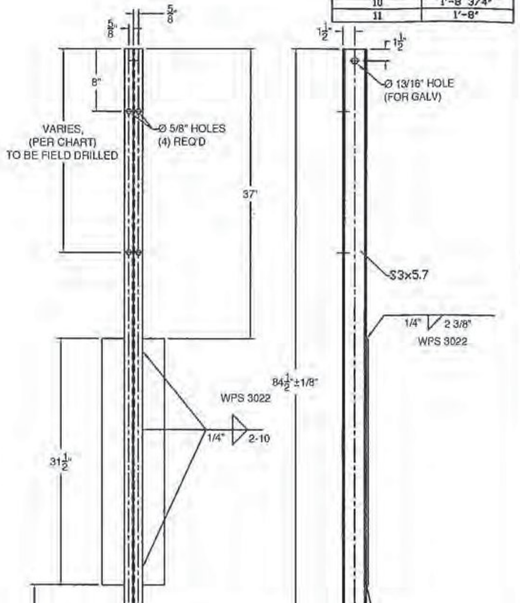
(ITEM # 4)

FRONT SIDE

PLAN VIEW



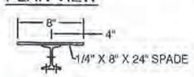
HOLE POSITION CHART	
POST	LENGTH
5	1'-11 5/8"
6	1'-11 1/8"
7	1'-10 5/8"
8	1'-10 1/8"
9	1'-9 7/16"
10	1'-8 3/4"
11	1'-8"



(ITEM # 5)

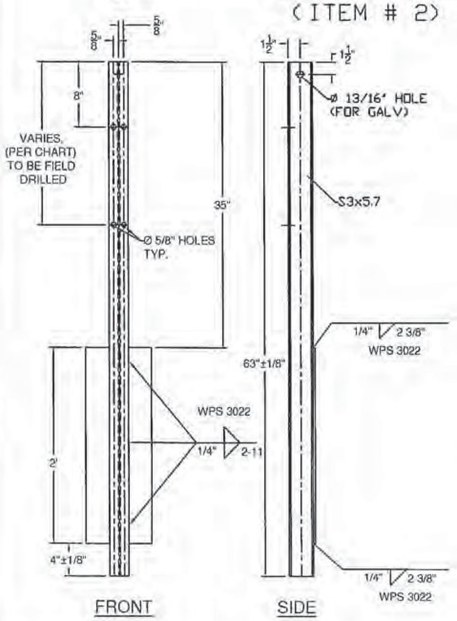
FRONT SIDE

PLAN VIEW



HOLE POSITION CHART	
POST	LENGTH
9	1'-9 7/16"
10	1'-8 3/4"
11	1'-8"

(ITEM # 2)



FRONT SIDE

GENERAL NOTES:

1) ALL RAILING IS TO BE FABRICATED AND ERECTED ACCORDING TO SECTION 525 OF THE STANDARD SPECIFICATIONS.
2) BOLTS SHALL BE TORQUED SNUG TIGHT (APPROXIMATELY 100 FT-LB).
3) PROTRUSIONS CAUSED BY WELDING OR GALVANIZING ARE NOT PERMITTED ON THE ADJOINING SURFACES OF THE BOX BEAM RAILS, SPLICE TUBES AND FILL PLATES.
4) BOX BEAM TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL, UNLESS OTHERWISE NOTED.
5) ANY BENDING OF RAIL SHALL BE DONE AT THE FABRICATION PLANT. RADII GREATER THAN 16' TO BE CURVED ON A TUBE BENDING MACHINE, RADII LESS THAN 16' TO BE "PIE CUT" AND WELDED. CURVED RAILING WILL HAVE AN 18" LENGTH ON EACH END STRAIGHT TO ACCOMADATE SPLICES.
6) ALL STEEL COMPONENTS SHALL BE COATED BLACK IN ACCORDANCE WITH ASTM D7803 FOLLOWING GALVANIZING.

BILL OF MATERIALS, EACH CORNER

ITEM #	QTY.	COMPONENT #	DESCRIPTION	MATERIAL (ASTM)
1	3	0013.57021	3' I-POST, PUNCH 8' W/SPD @ 63' LG	ASTM A572 Gr. 50
2	3	0013.57025	3' I-POST W/SPD @ 63', PUNCH 8', & 20' & HOLES @ VARIOUS	ASTM A572 Gr. 50
3	2	0013.57060	3' I-END POST W/SPD @ 3'-8' LG	ASTM A572 Gr. 50
4	4	-	W6X9 POST @ 7' W/SPD & 5/8' HOLES @ VARIOUS	ASTM A572 Gr. 50
5	4	-	3' I-POST, PUNCH 8' & VARIOUS', W/8X32' SPADE @ 7'	ASTM A572 Gr. 50
7	1	0033.00640	HSS 5X5 TUBE SPLICE @ 27' LG W/ 1/4' SHIMS	A500 Gr. B / A572 Gr 50
10	19	0054.00050	REG BB SHELF ANGLES @ 4-1/2'	ASTM A36
12	1	-	HSS 5X5 DBL BEND TUBE SPL @ 27' LG	A500 Gr. B / A572 Gr 50
13	8	0054.00563	6X8' TRANS. TUBE B/O @ 6' LG	A500 Gr. B
15	1	0054.09000	6X6' BB @ 9'-0' KICKBACK, W/ CAP	A500 Gr. B / A36
16	1	0054.18000	6X6' BB @ 17'-11 1/2', DRILL 3' CC	A500 Gr. B
17	1	-	6X6' BB TOP TRANS @ 24'-9 3/4' LG W/EXP END	A500 Gr. B
18	1	-	6X6' BB BTM TRANS @ 25'-5 1/2' LG W/EXP END	A500 Gr. B
19	18	0080.03355	Ø3/8' X 7 1/2' BOLT, NUT, & 2 FW	A307
20	19	0080.04100	Ø1/2' x 1-1/2' BOLT, NUT, & FW	A307
21	16	0080.04120	Ø1/2' x 1-1/2' BOLT, NUT, 2 FW & LW	A307
23	10	0080.06340	Ø3/4' X 7-1/2' BOLT, NUT, 2 FW	A325, A563, F436
24	8	0080.06370	Ø3/4' X 8' CARR BOLT, NUT, FW & LW	A307
25	1		Ø3/4' THREADED ROD @ 14', NUT & FW (S.E. CORNER TURNBACK)	A449, A563, F436

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

HARDWARE NOTES	
ITEM #	FUNCTION
19	BOLT RAIL TO SHELF ANGLE (ITEM #10)
20	BOLT SHELF ANGLE (ITEM # 10) TO POST
21	BOLT BLOCK-OUTS (ITEM # 13) TO HEAVY POST (ITEM # 4)
23	SPLICE TUBING (ITEM #'S 7 & 12), & (4) PER PARAPET WALL CONNECTION
24	BOLT RAIL (ITEMS #'S 17, & 18 TO BLOCK-OUTS (ITEM # 13)

ITEM #: 621.72

SHEET 2 OF 5

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2"
DIAMETERS = ± 1/32"

GRAS, GLV 2 RAIL BOX BEAM

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO : 11R
PROJECT: ROCKINGHAM BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

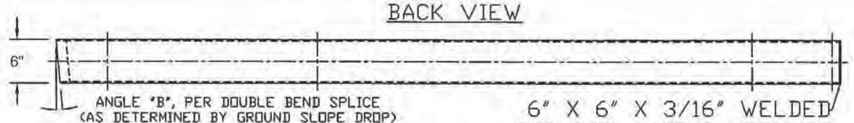
R E V	NO.	DATE	DESCRIPTION	BY	R E V	NO.	DATE	DESCRIPTION	BY

ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
E-Mail: dlong@elderlee.com / epeek@elderlee.com
Tel: 315-789-6670 Fax: 315-789-6616

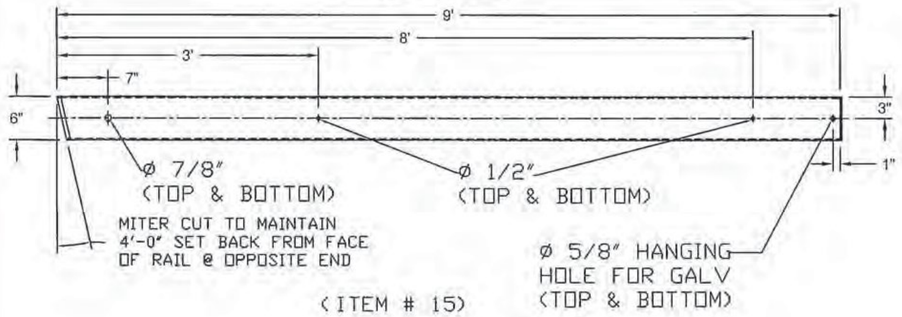
AISC CERTIFIED FABRICATOR

DRAWN	E.P.	12/24/14
CHECKED	D.L.	.
APPROVED	M.V.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM-T	

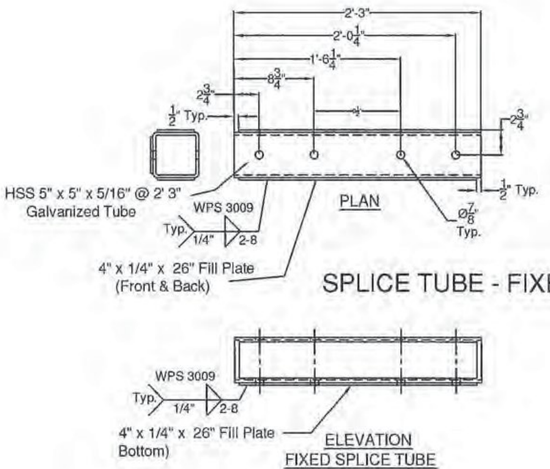
BACK VIEW



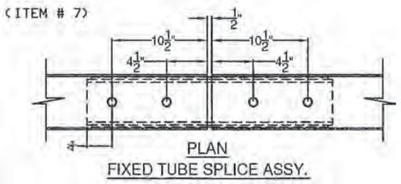
TOP VIEW



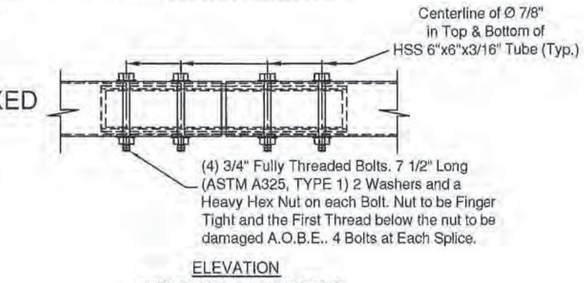
(ITEM # 15)



(ITEM # 7)

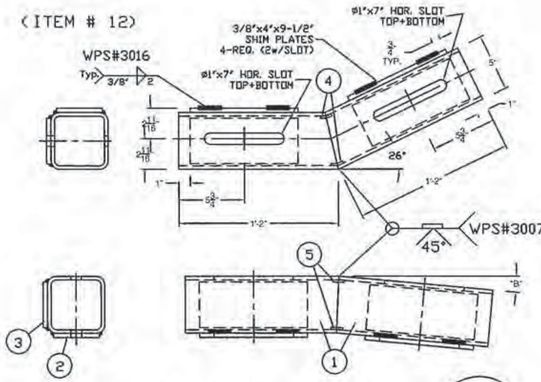


PLAN
FIXED TUBE SPLICE ASSY.



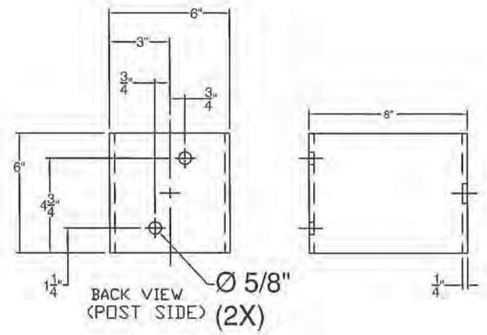
ELEVATION
FIXED TUBE SPLICE ASSY.

(ITEM # 12)

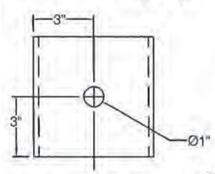


DOUBLE BEND TUBE SPLICE		
ITEM#	QTY.	DESCRIPTION
1	1	5" X 5" X 5/16" TUBE @ 26 3/4"
2	2	3/8" X 4" X 9 1/8" W/ SLOTS-ASTM A709 Gr.36
3	2	3/8" X 4" X 9 1/8" V/O SLOTS-ASTM A709 Gr.36
4	2	3/16" X 1" X 3 5/8" BACKER PLATE, FORMED
5	2	3/16" X 1" X 4" BACKER PLATE

"B" - TURN DOWN ANGLE SET BY THE 9" MEASURMENT AT THE END OF THE BOX BEAM.

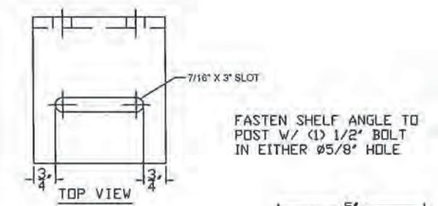


BACK VIEW
(POST SIDE) (2X)



FRONT VIEW
(RAIL SIDE)

(ITEM # 13)



(ITEM # 10)

Vermont Agency of Transportation

RECEIVED

ON: December 29, 2014

and Checked for

CONFORMANCE

BY: TAS DATE: 01/20/2015

ITEM #: 621.72

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
FRACTIONS = ± 1/16"
ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

SHEET 3 OF 5

GRAS, GLV 2 RAIL BOX BEAM

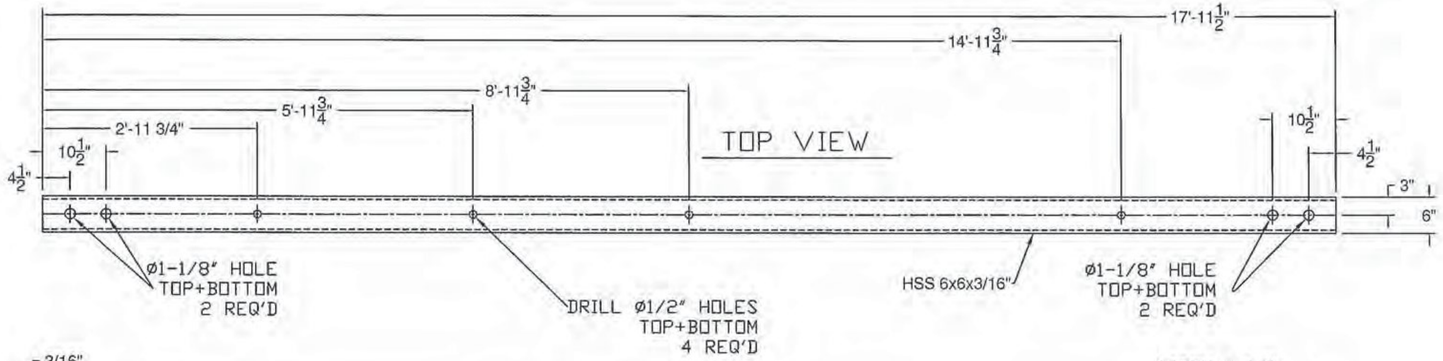
EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO : 11R
PROJECT: ROCKINGHAM BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

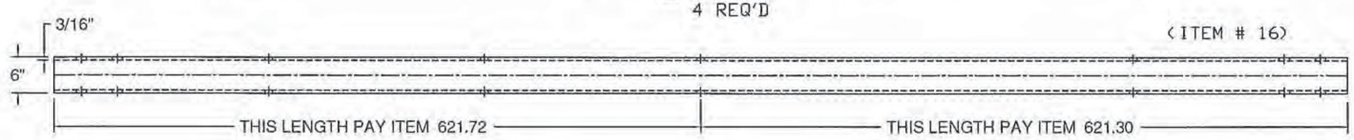
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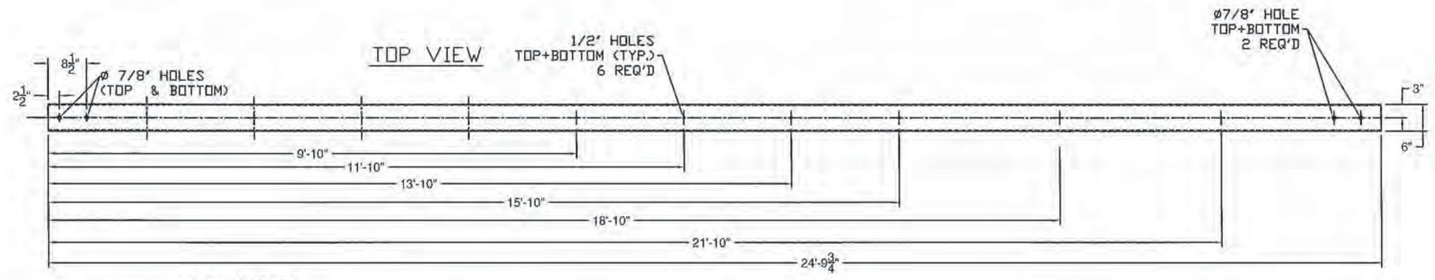
ELDERLEE, INC.
OAKS CORNERS, NEW YORK 14518
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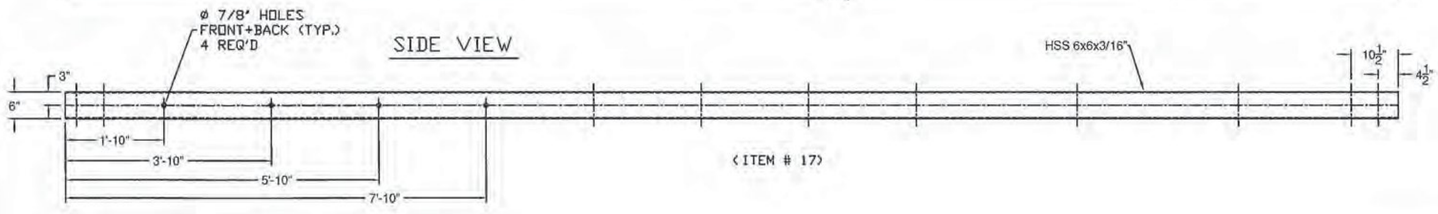
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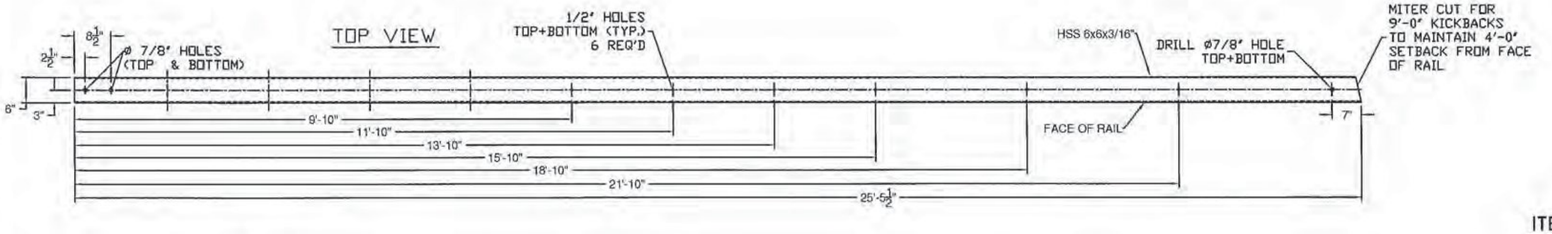
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CHECKED	D.L.	
APPROVED	M.V.	
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM-T	

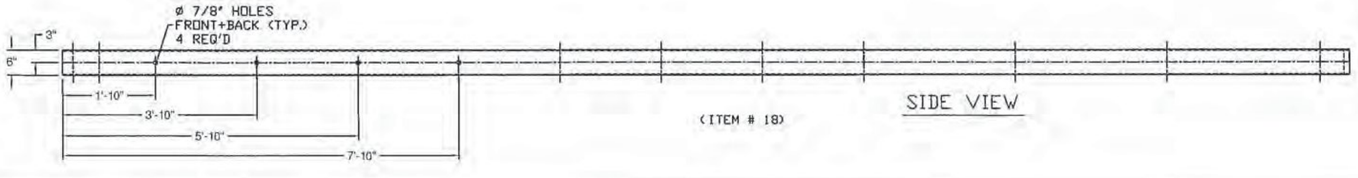












Vermont Agency of Transportation

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SHEET 4 OF 5

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

TOLERANCE UNLESS OTHERWISE NOTED:
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DIAMETERS = ± 1/32"

GRAS, GLV 2 RAIL BOX BEAM

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO : 11R
PROJECT: ROCKINGHAM BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

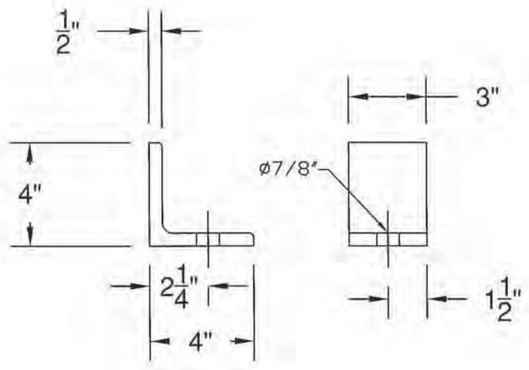
REV	NO.	DATE	DESCRIPTION	BY	REV	NO.	DATE	DESCRIPTION	BY

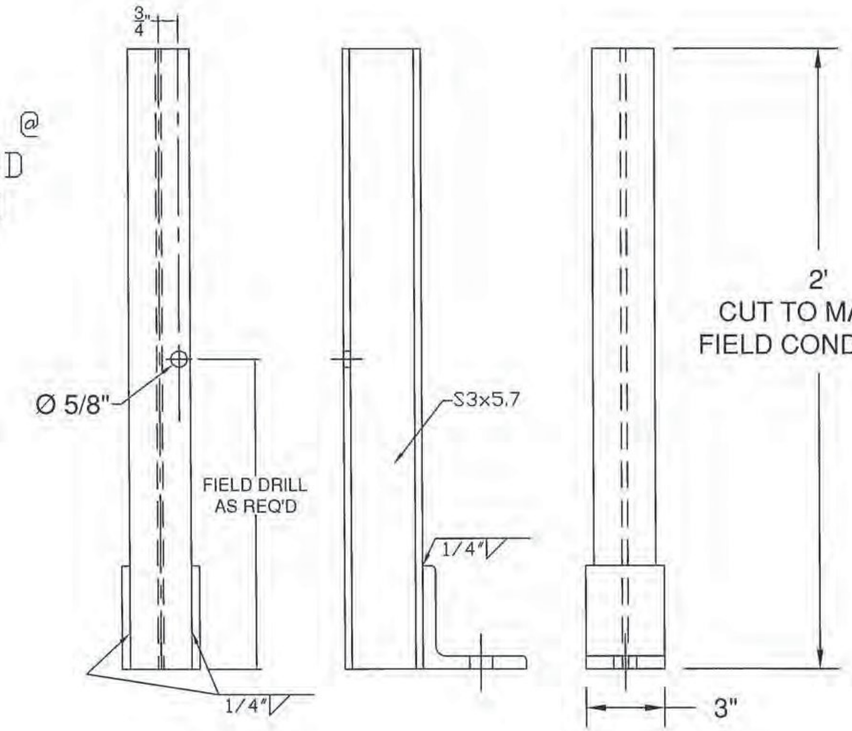
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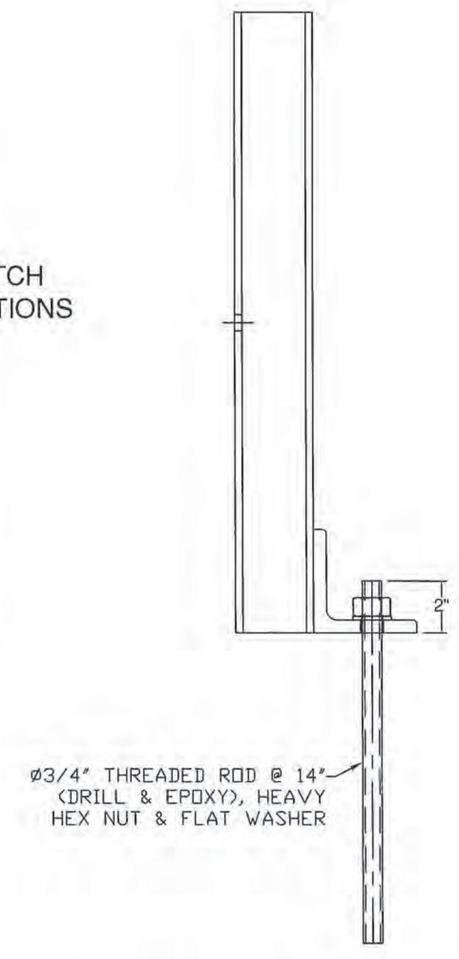
CERTIFIED FABRICATOR

DRAWN	E.P.	12/24/14
CHECKED	D.L.	.
APPROVED	M.V.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM-T	

NOTE: S.E. CORNER, BOTTOM RAIL TURNBACK (ITEM #15) - SUPPLIED @ STD 9'-0" LENGTH W/ WELDED END CAP. CUT & DRILL SPLICE END TO MATCH FIELD REQUIREMENTS.







SPECIAL POST DETAIL FOR WW3 (S.E. CORNER) BOTTOM RAIL TURNBACK

Vermont Agency of Transportation
RECEIVED
ON: December 29, 2014
and Checked for
CONFORMANCE
BY: TAS DATE: 01/20/2015

ITEM #: 621.72

SHEET 5 OF 5

STRUCTURAL STEEL TO COMPLY W/ ASTM A6

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ANGLES = ± 1/2°
DIAMETERS = ± 1/32"

GRAS, GLV 2 RAIL BOX BEAM

EM14-192, VT 121 (CL 2, TH 1) RURAL MAJOR COLLECTOR, BRIDGE NO : 11R
PROJECT: ROCKINGHAM BRF 0126(12), TOWN OF ROCKINGHAM, WINDHAM COUNTY, VT

REV	NO.	DATE	DESCRIPTION	BY

REV	NO.	DATE	DESCRIPTION	BY

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APPROVED	M.V.	.
SCALE	SCHEMATIC	
DRAWING NO.	FR L - ROCKINGHAM-T	

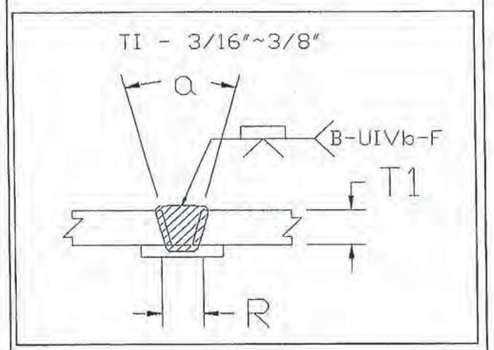
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE#3

Material Specification	A500 GR B to A572 GR 50		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	FLAT/HORIZONTAL		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point -40DEG F Flow Rate 50CFH	
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE ELECTRODE POSITIVE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER D1.5		
Postheat Temperature	NONE		
Heat Input	Min	Max	

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3007
Revision No.

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 7/28/2014

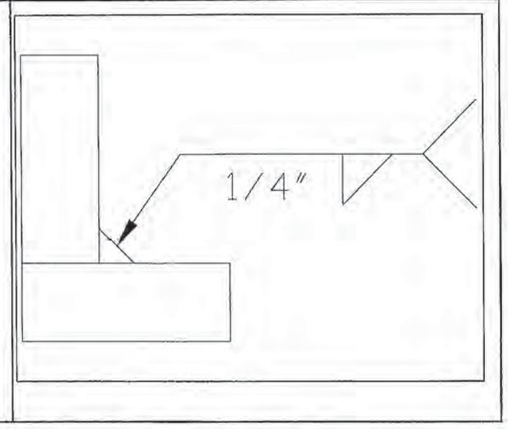
Vermont Agency of Transportation
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BY: TAS DATE: 01/20/2015

WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A709 TO A500 GR B
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	D1.5
Preheat and Interpass Temperature	D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	

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

Procedure No. 3009
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 3/20/2014

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BY: TAS DATE: 01/20/2015

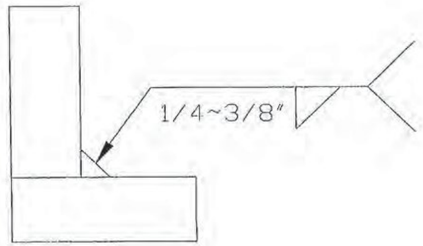
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A500 TO A572 GR 50
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3016

Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

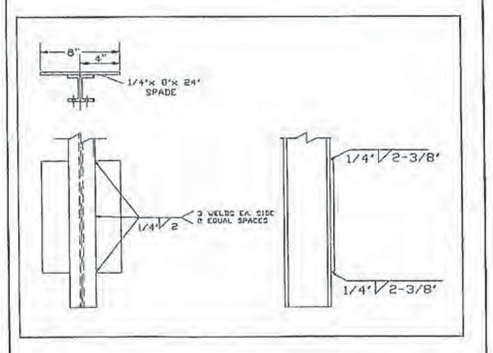
Date 8/4/2014

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ON: December 29, 2014
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CONFORMANCE
BY: TAS DATE: 01/20/2015

WELDING PROCEDURE SPECIFICATION

Material Specification	A572 GR 50
Welding Process	GMAW
Manual or Machine	SEMIAUTOMATIC/ROBOTIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.18
Filler Metal Classification	L-56 LINCOLN
Flux	N/A
Shielding Gas	90% ARGON /10% CO2 Dew Point -40DEG F Flow Rate 45CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
Variable	.045 LIMITS	190 171 TO 209	22 20 TO 24	19 17 TO 21	

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

Procedure No. 3022
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 3/20/2014

Vermont Agency of Transportation
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BY: TAS DATE: 01/20/2015

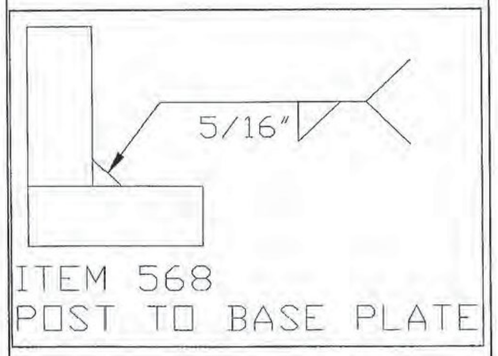
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A572 TO A572
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC ELECTRODE POSITIVE
Polarity	REVERSE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3002
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 3/20/2014

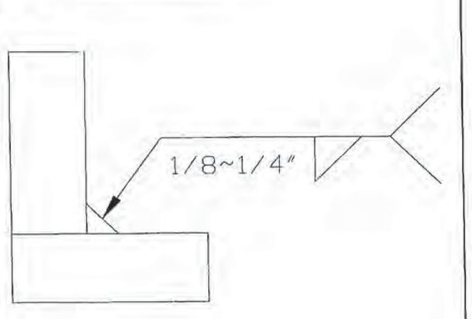
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BY: TAS DATE: 01/20/2015

WELDING PROCEDURE SPECIFICATION

Material Specification	A36 TO A500
Welding Process	FCAW
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT / HORIZONTAL
Filler Metal Specification	A5.20 - 95
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	300	26	14	
Variable	LIMITS	270 TO 330	24 TO 28	12.6 TO 15.4	



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

Procedure No. 3006
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 8/4/2014

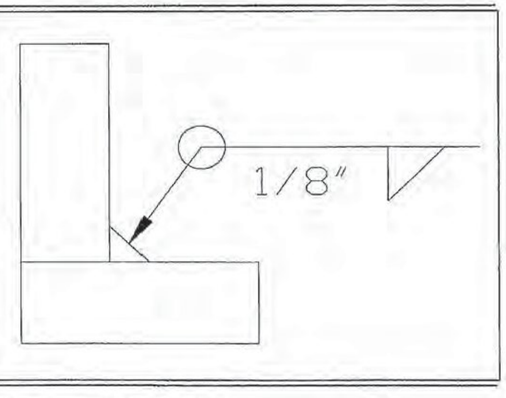
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BY: TAS DATE: 01/20/2015

WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	ASTM-A500-A53-GRADE B TO A36		
Welding Process	FCAW-G		
Manual or Machine	SEMAUTOMATIC		
Position of Welding	1G		
Filler Metal Specification	A5.29		
Filler Metal Classification	E81T1-Ni1C-JH4		
Flux	N/A		
Shielding Gas	CO 2	Dew Point -40DEG F	FLOW RATE 50 CFH
Single or Multiple Pass	SINGLE		
Single or Multiple Arc	SINGLE		
Welding Current	DC		
Polarity	REVERSE ELECTRODE POSITIVE		
Welding Progression	STRINGER		
Root Treatment	PER D1.5		
Preheat and Interpass Temperature	PER. D1.5		
Postheat Temperature	NONE		
Heat Input	Min	Max	

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	

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

Procedure No. 3012
Revision No.

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 3/20/2014

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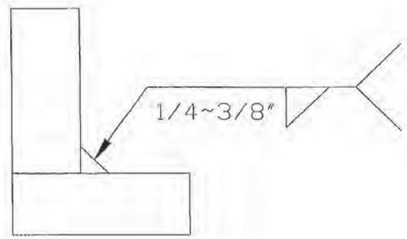
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	A500 TO A572 GR 50
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3016

Revision No. _____

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 8/4/2014

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BY: TAS DATE: 01/20/2015

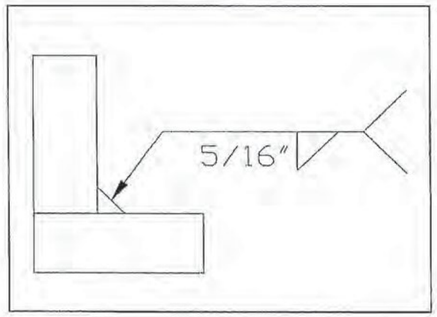
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	ASTM A572 GR. 50 TO A325
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	CLEAN PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current Amperes	Welding Current Volts	Travel speed	Joint detail
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3019
Revision No. _____

Contractor Elderlee, Inc.
Authorized By RANDY SCOTT
Date 7/28/2014

Vermont Agency of Transportation
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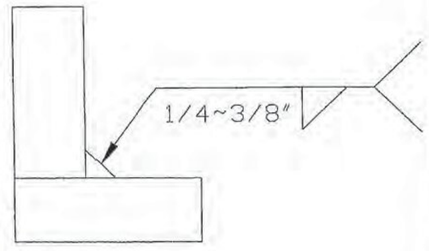
WELDING PROCEDURE SPECIFICATION

PQR ELDERLEE #3

Material Specification	ASTM A572 GR. 50 CVN TO A500 GR B
Welding Process	FCAW-G
Manual or Machine	SEMAUTOMATIC
Position of Welding	FLAT/HORIZONTAL
Filler Metal Specification	A5.29
Filler Metal Classification	E81T1-Ni1C-JH4
Flux	N/A
Shielding Gas	CO 2 Dew Point -40DEG F Flow Rate 50CFH
Single or Multiple Pass	SINGLE
Single or Multiple Arc	SINGLE
Welding Current	DC
Polarity	REVERSE ELECTRODE POSITIVE
Welding Progression	STRINGER
Root Treatment	PER D1.5
Preheat and Interpass Temperature	PER D1.5
Postheat Temperature	NONE
Heat Input	Min _____ Max _____

WELDING PROCEDURE

Pass no.	Electrode size	Welding Current		Travel speed	Joint detail
		Amperes	Volts		
1	1/16	310	25	11	
Variable	LIMITS	341 TO 269	27 TO 23	12 TO 10	



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

Procedure No. 3037

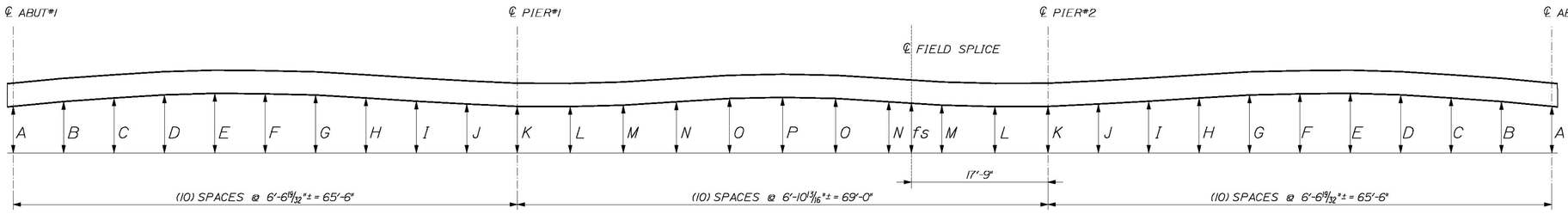
Revision No.

Contractor Elderlee, Inc.

Authorized By RANDY SCOTT

Date 12/1/2014

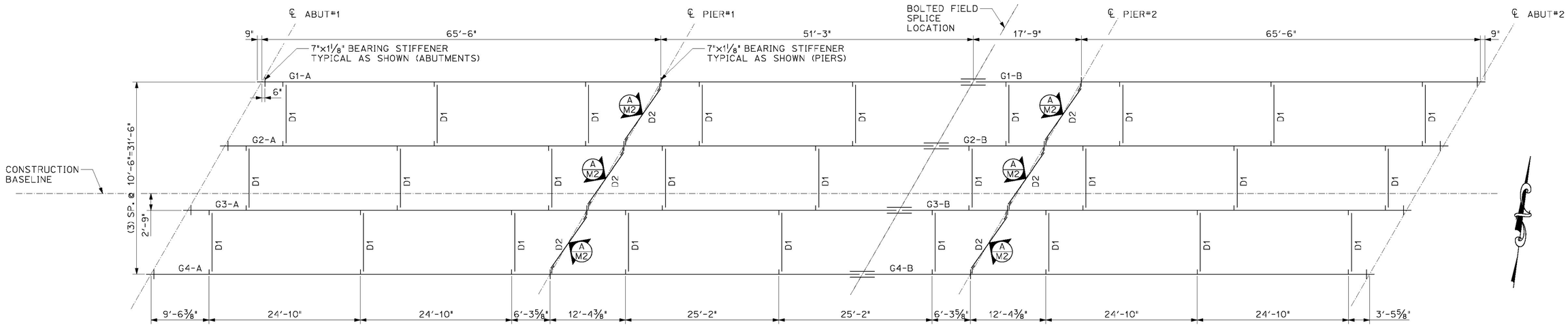
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GIRDER LINE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	fs*
G1 & G4	6"	6 5/8"	7 1/16"	7 1/2"	7 11/16"	7 5/8"	7 1/2"	7 1/16"	6 11/16"	6 5/16"	6"	5 15/16"	6 3/16"	6 5/8"	7 1/16"	7 3/16"	5 15/16"
G2 & G3	6"	6 11/16"	7 3/16"	7 5/8"	7 7/8"	7 13/16"	7 5/8"	7 3/16"	6 3/4"	6 5/16"	6"	5 15/16"	6 3/16"	6 5/8"	7 1/16"	7 3/16"	5 15/16"

* BLOCKING DIMENSION IS TAKEN AS A DIMENSION FROM THE REFERENCE LINE IN THE ASSEMBLED BEAM TO THE BOTTOM OF THE BOTTOM FLANGE EXCEPT AT THE FIELD SPLICE LOCATION WHERE THE DIMENSION IS TO THE OUTSIDE OF THE BOTTOM OF THE FIELD SPLICE PLATE

1/1 ROCKINGHAM BLOCKING ELEVATION
SCALE: 1/8" = 1'-0"



2/1 ROCKINGHAM FRAMING PLAN VIEW
SCALE: 1/8" = 1'-0"

Field splice plates should require CVN testing.

GENERAL FABRICATION NOTES

MATERIAL SPECIFICATIONS

1.) ALL MATERIAL SHALL BE ASTM A709 GRADE 50W (UNO)

2.) ALL A709 GRADE 50 MATERIAL DENOTED "CVN" SHALL MEET THE CHARPY V-NOTCH TESTING REQUIREMENTS OF ZONE 2, H FREQUENCY: 15 FT-LB AT 40° (UP TO 2" WELDED)

ITEMS SHALL CALL OUT "CVN" FOR EACH APPLICABLE ITEM IN THE BILL OF MATERIALS

3.) BOLTS SHALL BE HIGH STRENGTH BOLTS ASTM A325, TYPE 3
NUTS SHALL BE A563 GRADE C3 OR DH3
WASHERS SHALL BE ASTM F436, TYPE 3

BOLTS AND NUTS SHALL BE ROTATIONAL CAPACITY TESTED. DO NOT MIX NUTS AND BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL NUTS AND BOLTS HAVE THE SAME LOT NUMBER.

FABRICATION

1.) DIE STAMPING IS ALLOWED IN SPECIFIC LOCATIONS WITH THE APPROVAL OF THE ENGINEER.

2.) ALL EDGES OF FLAME CUT MATERIAL SUBJECTED TO CALCULATED STRESSES SHALL BE ROUNDED TO A MINIMUM RADIUS OF 1/16", OR AN EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE.

3.) ALL PLATES, FLAME CUT FROM LARGER PLATES, SHALL BE CUT SO THAT THE PRIMARY DIRECTION OF ROLLING IS PARALLEL TO THE MAIN TENSILE OR COMPRESSIVE STRESS.

4.) FLANGE PLATE MATERIAL, SHALL HAVE AN EDGE HARDNESS NOT GREATER THAN HRc 30, ALLOWED per STANDARD SPEC. 506.09.

WELDING

1.) ALL WELDING PROCEDURES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF SUBSECTION 506.10.

2.) NON DESTRUCTIVE TESTING OF WELDS SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.5 – SECTION 6. FLANGE WELDS WILL BE CALLED OUT AS BEING IN EITHER COMPRESSION OR TENSION. WEB WELDS WILL LABEL EITHER TOP OR BOTTOM AS BEING IN COMPRESSION, OR BE LABELED AS BEING IN A STRESS REVERSAL AREA.

FLANGE SPLICES SHALL BE TESTED AS FOLLOWS:
FLANGE SPLICES IN TENSION ~ TESTED 100%
FLANGE SPLICES IN STRESS REVERSAL AREAS ~ TESTED 100%
FLANGE SPLICES IN COMPRESSION ~ TESTED 25%

WEB SPLICES SHALL BE TESTED AS FOLLOWS:
FOR 1/6 THE DEPTH OF THE WEB (TENSION AREA) ~ TESTED 100%
FOR THE REMAINING DEPTH OF WEB (COMPRESSION AREA) ~ TESTED 25 %

FOR 1/6 DEPTH OF THE WEB @ TOP & BTM. (STRESS REVERSAL) ~ TESTED 100%
THE REMAINING 2/3 OF THE WEB ~ TESTED 25%

3.) TERMINATE STIFFENER WELDS AS SHOWN IN THE "WELD TERMINATION DETAILS" ON SHEET M2

FIELD CONNECTIONS

1.) FIELD BOLTS SHALL HAVE A HEAVY HEX NUT, HEX HEAD, AND ONE HARD WASHER EACH.

Direct Tension Indicator Washers?

2.) PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS. ALL ERECTION MARKS, MATCH MARKS, AND WEIGHT MARKS MUST NOT BE EXPOSED IN THE FINISHED STRUCTURE.

3.) HARDENED WASHERS ARE REQUIRED OVER OVERSIZED HOLES.

SP-10

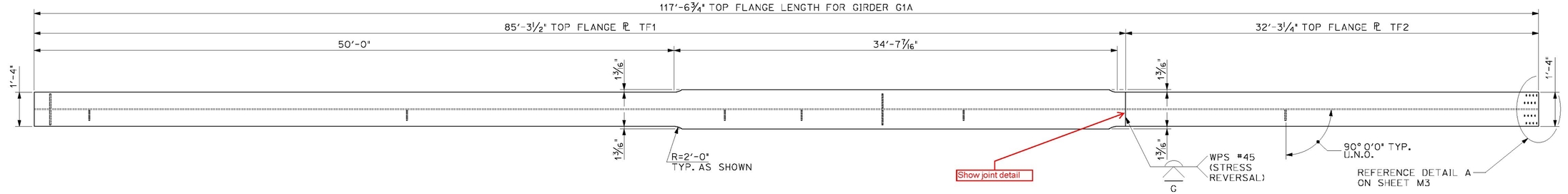
CLEANING AND PAINTING

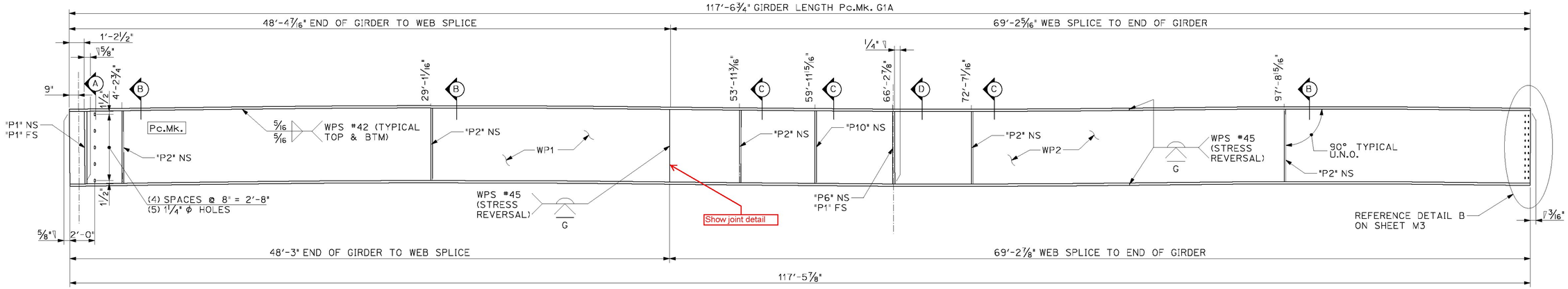
1.) UNPAINTED STEEL SHALL BE BLAST CLEANED TO SSPC SP-6 TO ACHIEVE A UNIFORM WEATEHERED APPEARANCE.

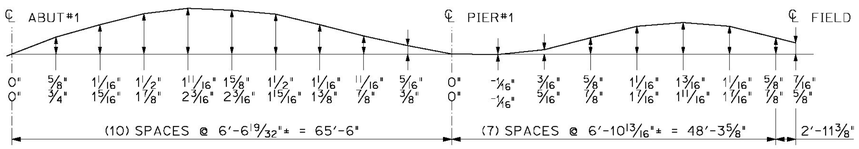
FINISH	N/A			
MATERIAL	SEE DETAIL SHEETS			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	correct t.b. & fab note 4 ETC
		NO	DATE	DESCRIPTION BY
		REVISIONS		

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC	FRAMING PLAN & BLOCKING ELEVATION	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	CC: Cold River Bridges, LLC	DWG. NO. 1
DATE FEB 2015		



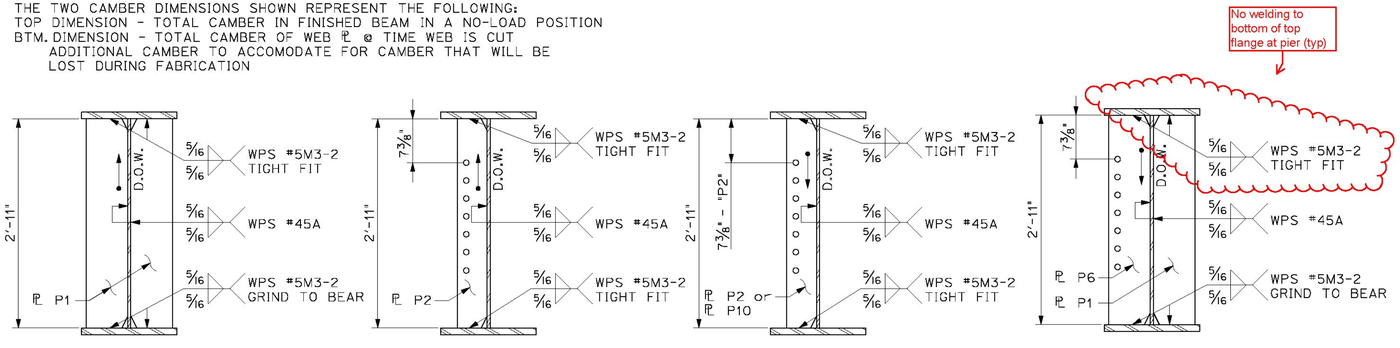




GIRDER G1A CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION

(1/2) DIMENSIONAL PLANS & ELEVATIONS - GIRDER G1A
SCALE: N.T.S



(A/2) DIMENSIONAL SECTION SCALE: 1"=1'-0"
(B/2) DIMENSIONAL SECTION SCALE: 1"=1'-0"
(C/2) DIMENSIONAL SECTION SCALE: 1"=1'-0"
(D/2) DIMENSIONAL SECTION SCALE: 1"=1'-0"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G1A			GIRDER G1A	117'-6¾"	22,700#	
		1	WP1	WEB PLATE 35"x½"	48'-4 7/16"	2,900#	CVN
		1	WP2	WEB PLATE 35"x½"	69'-2⅞"	4,150#	CVN
		1	TF1	FLANGE ℄ 1⅛"x18⅜"	85'-3½"	5,550#	CVN
		1	TF2	FLANGE ℄ 1⅛"x16"	32'-3¼"	2,000#	CVN
		1	BF1	FLANGE ℄ 1⅛"x18⅜"	85'-3"	5,550#	CVN
		1	BF2	FLANGE ℄ 1⅛"x16"	32'-2⅞"	2,000#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		5	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH	SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	add pl P10 correct t.b. ETC
		NO	DATE	DESCRIPTION BY

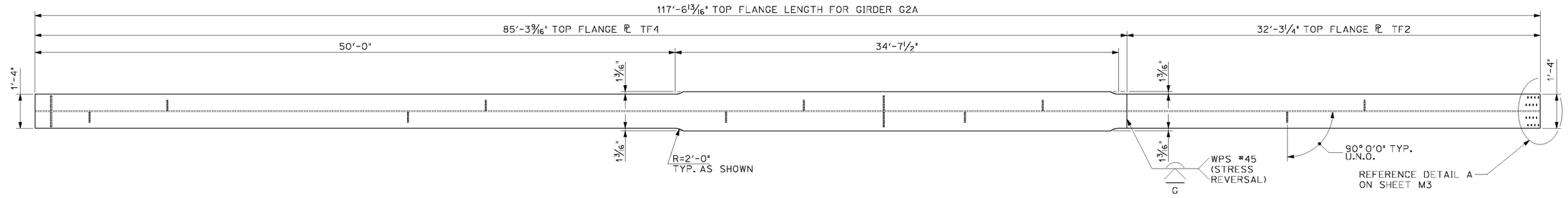
REVISIONS

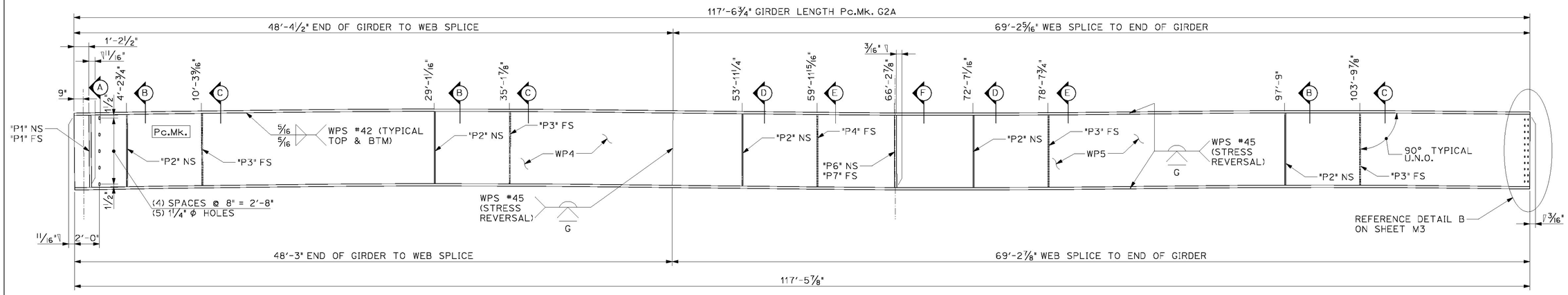
ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4054

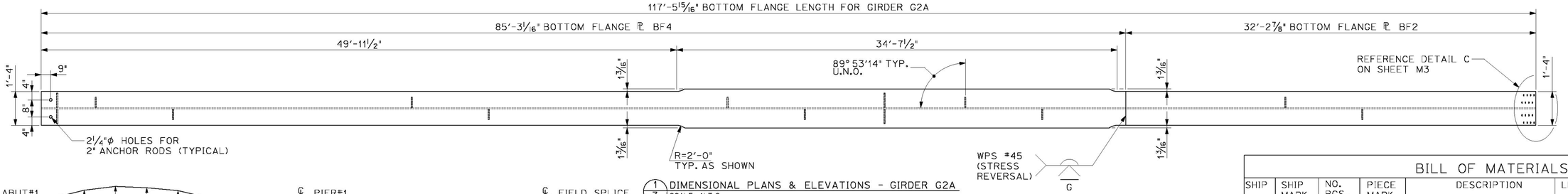
DRAFTER ETC
DATE FEB 2015
CHECKED GNM
DATE FEB 2015

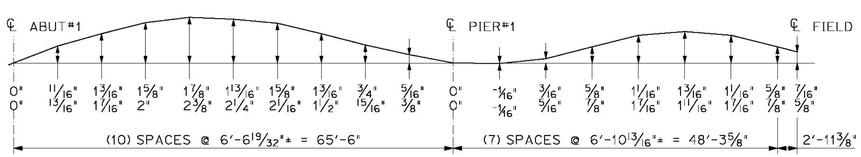
GIRDER G1A
VT Rte 121 over Saxtons River
Rockingham Vermont VTRANS - BRF 0126(12)
SC: Cold River Bridges, LLC

PROJECT NO. 14-178
DWG. NO. 2









GIRDER G2A CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION

1/3 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G2A
SCALE: N.T.S

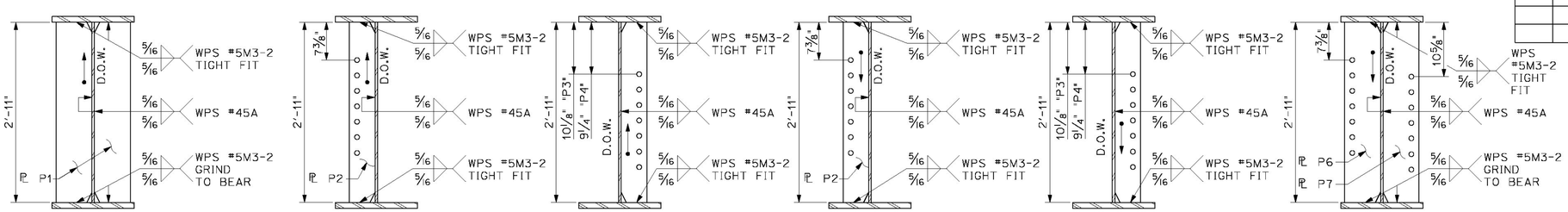
BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G2A			GIRDER G2A	117'-6 3/4"	22,800#	
		1	WP4	WEB PLATE 35"x1/2"	48'-4 1/2"	2,900#	CVN
		1	WP5	WEB PLATE 35"x1/2"	69'-2 5/16"	4,150#	CVN
		1	TF4	FLANGE ℄ 1 1/8"x18 3/8"	85'-3 9/16"	5,550#	CVN
		1	TF2	FLANGE ℄ 1 1/8"x16"	32'-3 1/4"	2,000#	CVN
		1	BF4	FLANGE ℄ 1 1/8"x18 3/8"	85'-3 1/16"	5,550#	CVN
		1	BF2	FLANGE ℄ 1 1/8"x16"	32'-2 7/8"	2,000#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		1	P7	SEE SHEET M1		25#	
		5	P2	SEE SHEET M1		25#	
		4	P3	SEE SHEET M1		25#	
		1	P4	SEE SHEET M1		25#	

FINISH	SSPC SP-10		
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W		
HOLES			
ELECTRODES	PER WELD PROCEDURE		
WELDS	PER WELD PROCEDURE		
SURFACE PREP			

REVISIONS

NO	DATE	DESCRIPTION	BY
1	FEB 2015	correct t.b.	ETC



1/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"
2/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"
3/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"
4/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"
5/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"
6/3 DIMENSIONAL SECTION SCALE: 1"=1'-0"

ARC ENTERPRISES, INC.
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DRAFTER	ETC
DATE	FEB 2015
CHECKED	GNM
DATE	FEB 2015

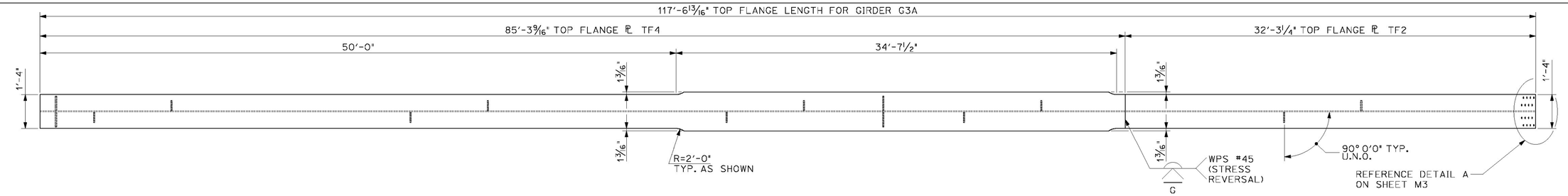
GIRDER G2A

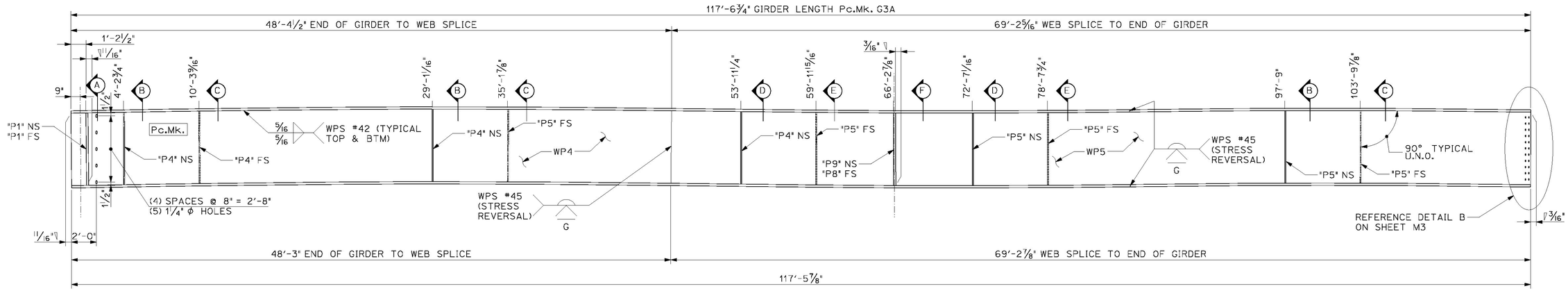
VT Rte 121 over Saxtons River
Rockingham Vermont VTRANS - BRF 0126(12)

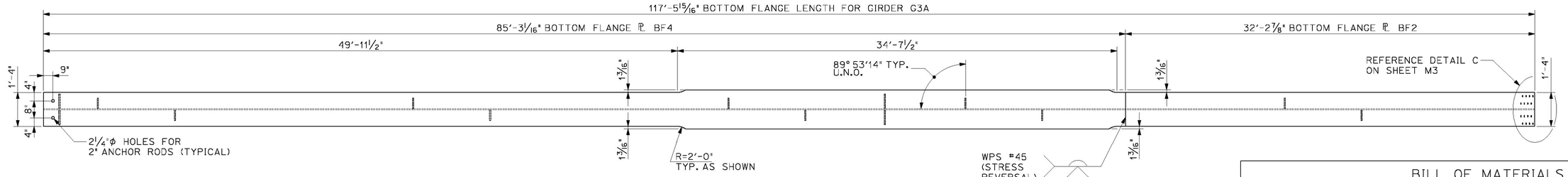
CC: Cold River Bridges, LLC

PROJECT NO. 14-178

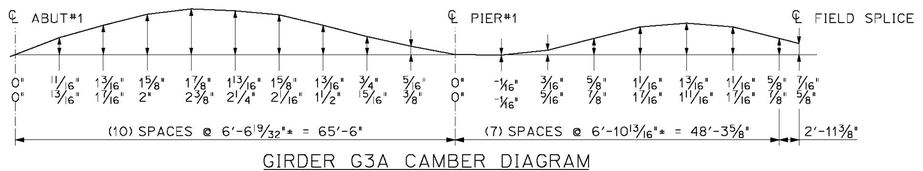
DWG. NO. 3





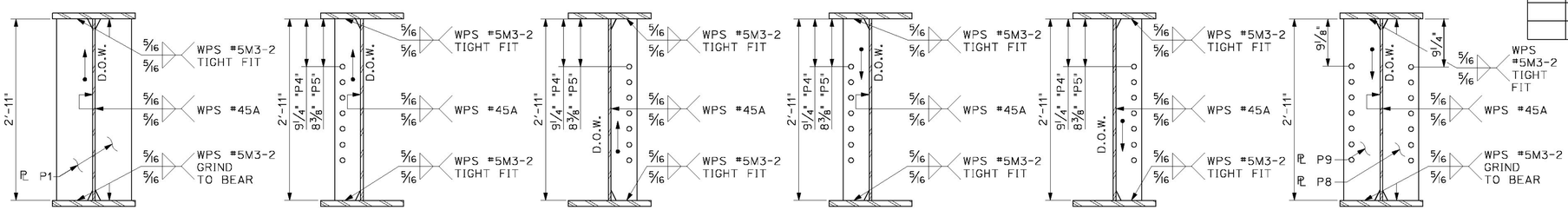


1/4 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G3A
SCALE: N.T.S



GIRDER G3A CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION



A/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"
B/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"
C/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"
D/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"
E/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"
F/4 DIMENSIONAL SECTION — SCALE: 1"=1'-0"

BILL OF MATERIALS

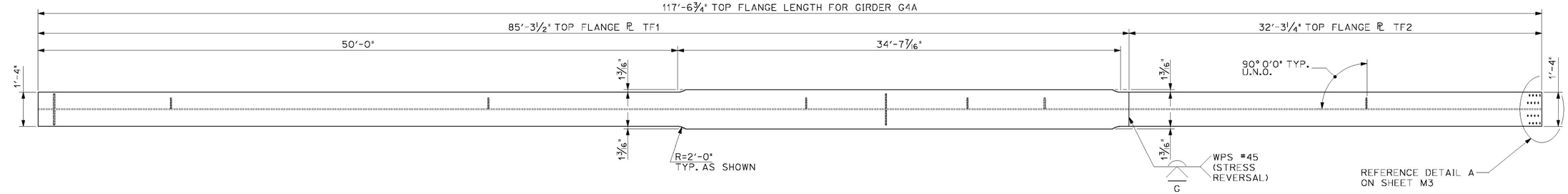
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G3A			GIRDER G3A	117'-6 3/4"	22,800#	
		1	WP4	WEB PLATE 35"x1/2"	48'-4 1/2"	2,900#	CVN
		1	WP5	WEB PLATE 35"x1/2"	69'-2 5/16"	4,150#	CVN
		1	TF4	FLANGE ℄ 1 1/8"x18 3/8"	85'-3 9/16"	5,550#	CVN
		1	TF2	FLANGE ℄ 1 1/8"x16"	32'-3 1/4"	2,000#	CVN
		1	BF4	FLANGE ℄ 1 1/8"x18 3/8"	85'-3 1/16"	5,550#	CVN
		1	BF2	FLANGE ℄ 1 1/8"x16"	32'-2 7/8"	2,000#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P8	SEE SHEET M1		80#	
		1	P9	SEE SHEET M1		25#	
		4	P4	SEE SHEET M1		25#	
		6	P5	SEE SHEET M1		25#	

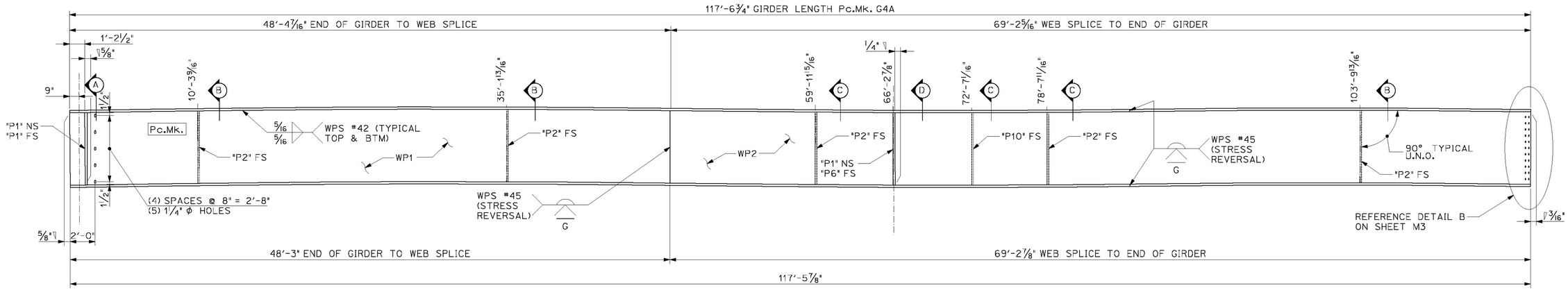
FINISH SSPC SP-10				
MATERIAL AASHTO M270 (ASTM A709) GR. 50W				
HOLES				
ELECTRODES PER WELD PROCEDURE				
WELDS PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	correct t.b.	ETC
	NO	DATE	DESCRIPTION	BY

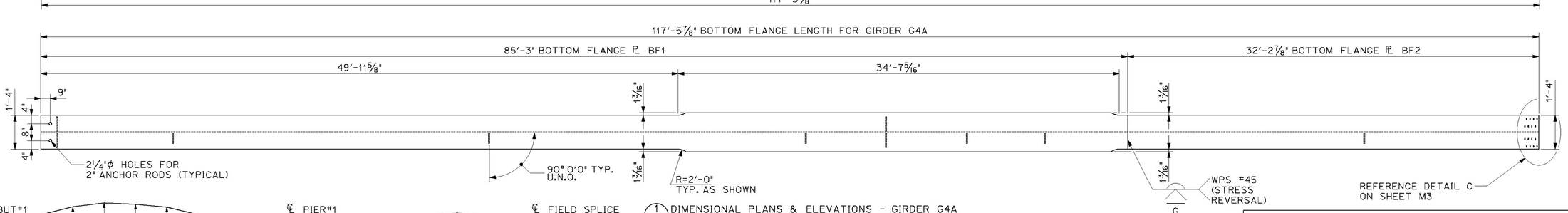
REVISIONS

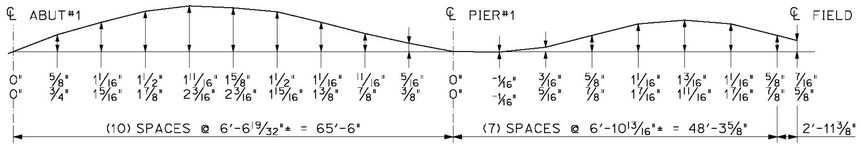
ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4054

DRAFTER ETC	GIRDER G3A	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	CC: Cold River Bridges, LLC	DWG. NO. 4
DATE FEB 2015		





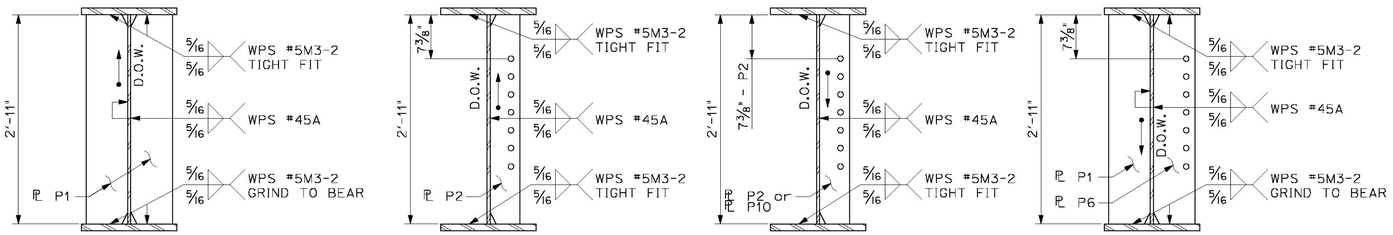




GIRDER G4A CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION

1/5 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G4A
SCALE: N.T.S



A 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

B 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

C 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

D 5 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

BILL OF MATERIALS

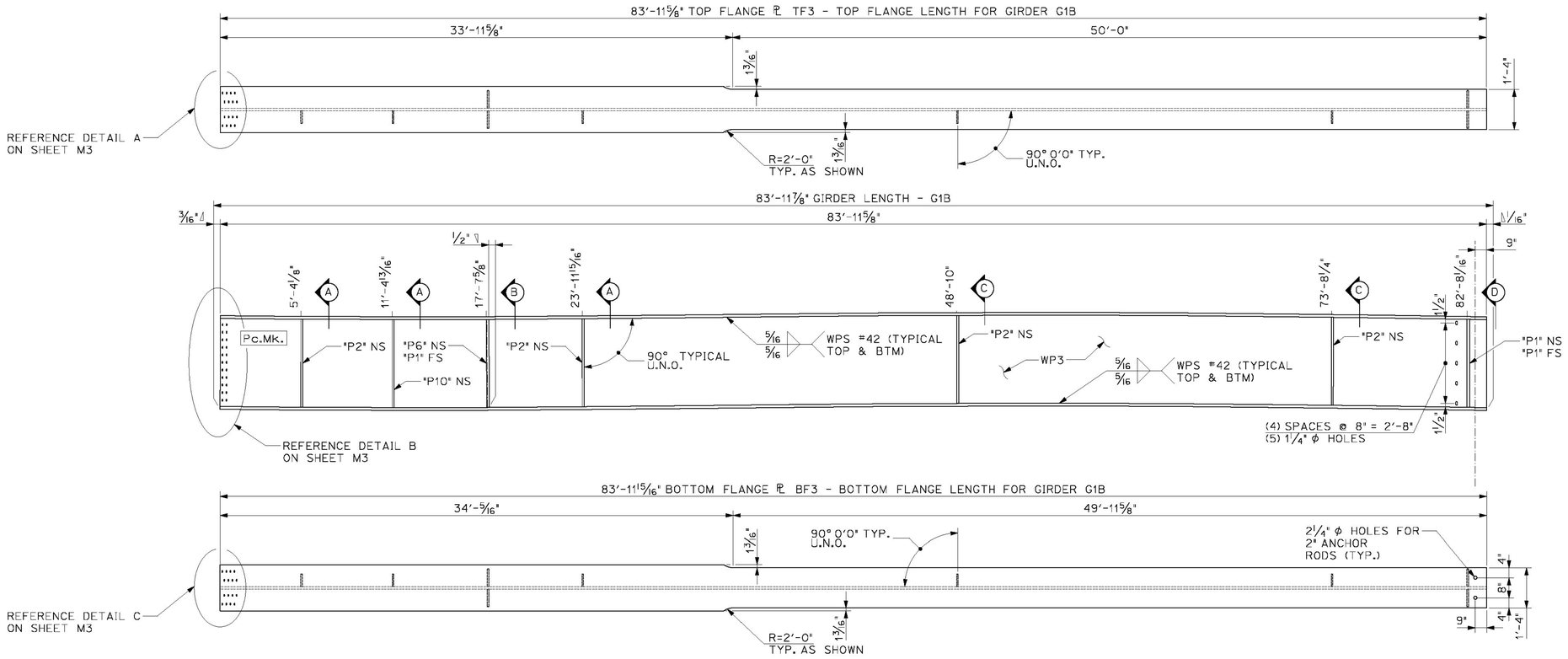
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G4A			GIRDER G4A	117'-6¾"	22,700#	
		1	WP1	WEB PLATE 35"x½"	48'-4 7/16"	2,900#	CVN
		1	WP2	WEB PLATE 35"x½"	69'-2⅞"	4,150#	CVN
		1	TF1	FLANGE ℄ 1⅛"x18⅜"	85'-3½"	5,550#	CVN
		1	TF2	FLANGE ℄ 1⅛"x16"	32'-3¼"	2,000#	CVN
		1	BF1	FLANGE ℄ 1⅛"x18⅜"	85'-3"	5,550#	CVN
		1	BF2	FLANGE ℄ 1⅛"x16"	32'-2⅞"	2,000#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		5	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH	SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	add pl P10 correct t.b. ETC
		NO	DATE	DESCRIPTION BY

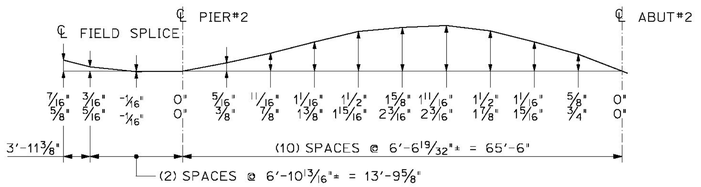
REVISIONS

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4054

DRAFTER ETC	GIRDER G4A	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	CC: Cold River Bridges, LLC	DWG. NO. 5
DATE FEB 2015		

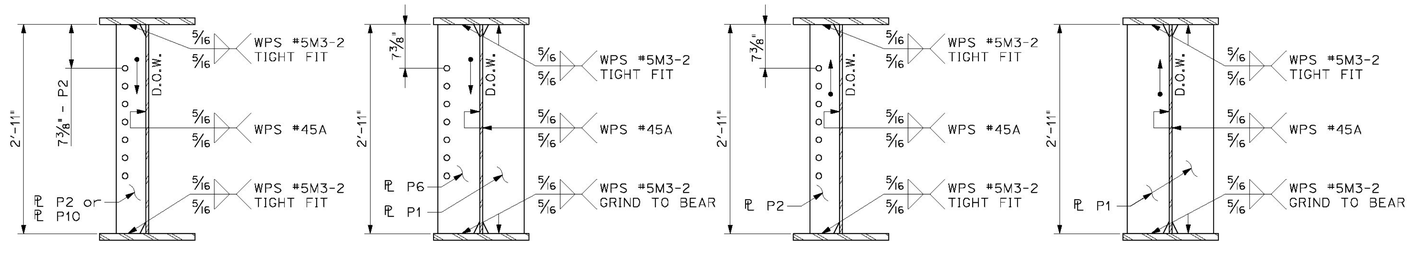


1/6 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G1B
SCALE: N.T.S



GIRDER G1B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION



A/6 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

B/6 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

C/6 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

D/6 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G1B			GIRDER G1B	83'-11⅞"	16,500#	
		1	WP3	WEB PLATE 35"x½"	83'-11⅞"	5,000#	CVN
		1	TF3	FLANGE ℄ 1⅛"x18⅜"	83'-11⅝"	5,500#	CVN
		1	BF1	FLANGE ℄ 1⅛"x18⅜"	83'-11 15/16"	5,500#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH	SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	add pl P10, correct t.b. ETC
		NO	DATE	DESCRIPTION BY

REVISIONS

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC
DATE FEB 2015
CHECKED GNM
DATE FEB 2015

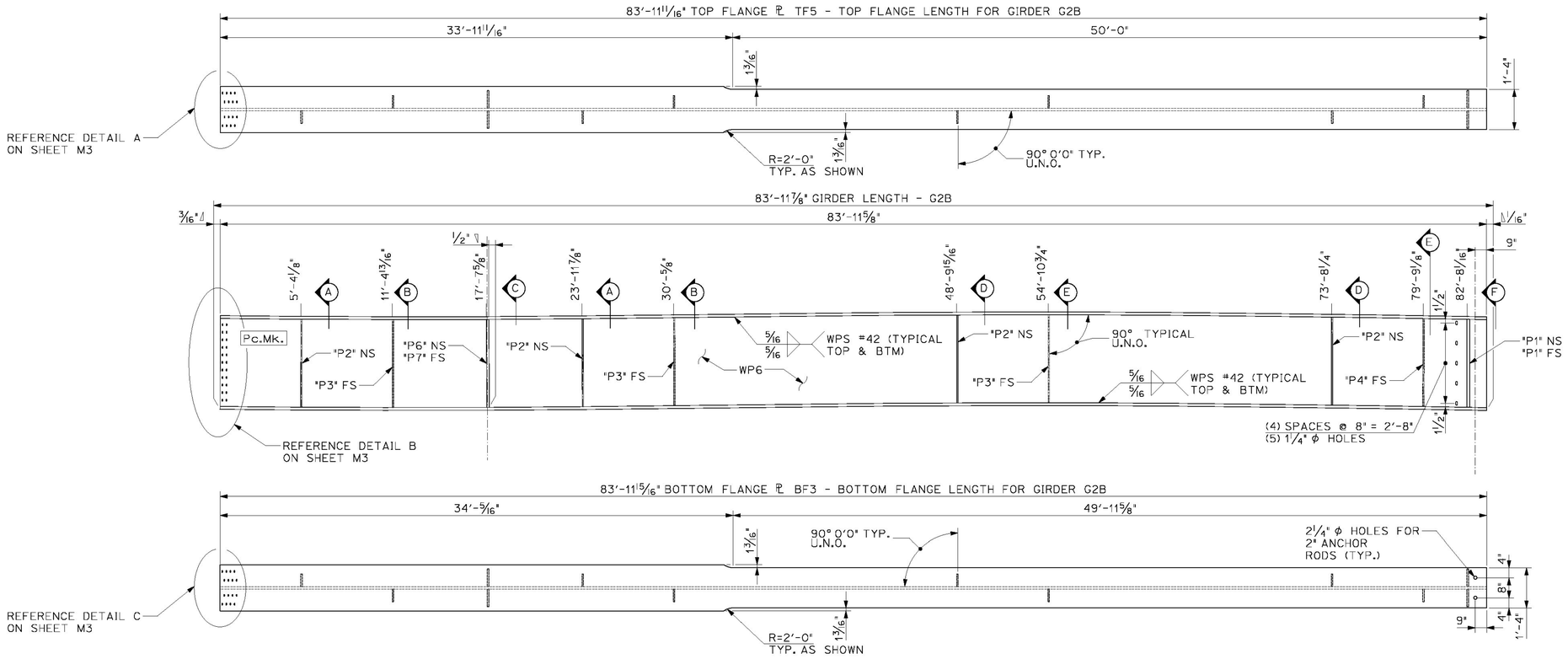
GIRDER G1B

VT Rte 121 over Saxtons River
Rockingham Vermont VTRANS - BRF 0126(12)

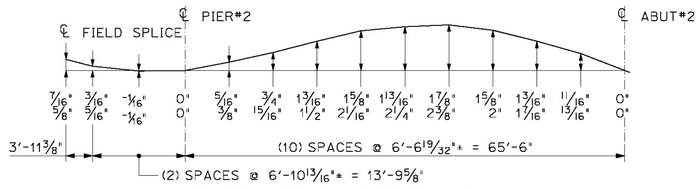
SC: Cold River Bridges, LLC

PROJECT NO. 14-178

DWG. NO. 6



1/7 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G2B
SCALE: N.T.S

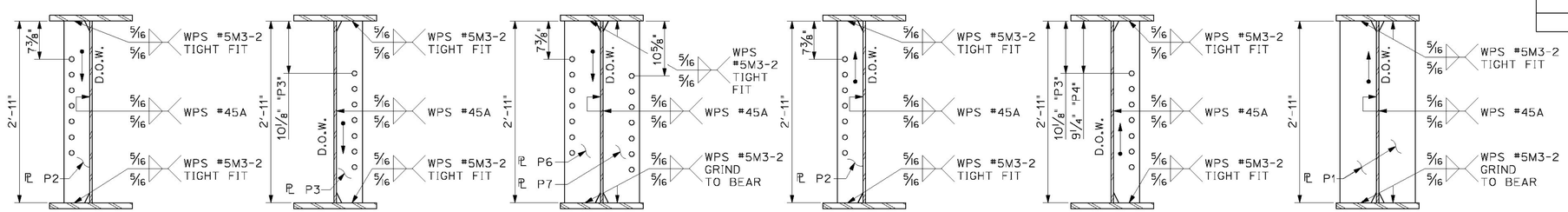


GIRDER G2B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G2B			GIRDER G2B	83'-11 7/8"	16,600#	
		1	WP6	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF5	FLANGE ℄ 1 1/8"x18 3/8"	83'-11 11/16"	5,500#	CVN
		1	BF3	FLANGE ℄ 1 1/8"x18 3/8"	83'-11 15/16"	5,500#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		1	P7	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		3	P3	SEE SHEET M1		25#	
		1	P4	SEE SHEET M1		25#	



A 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"
B 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"
C 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"
D 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"
E 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"
F 7 DIMENSIONAL SECTION SCALE: 1"=1'-0"

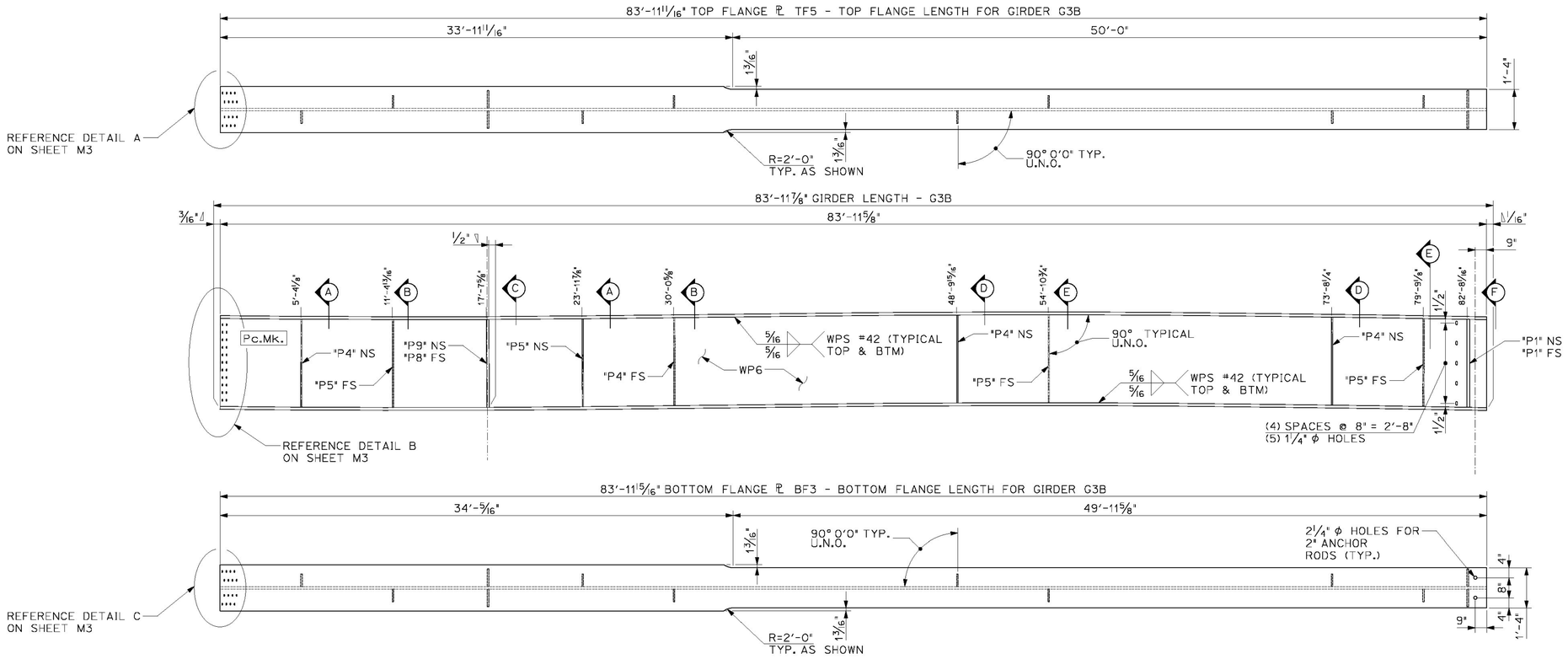
FINISH	SSPC SP-10			
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W			
HOLES				
ELECTRODES	PER WELD PROCEDURE			
WELDS	PER WELD PROCEDURE			
SURFACE PREP		1	FEB 2015	correct t.b. ETC

NO	DATE	DESCRIPTION	BY

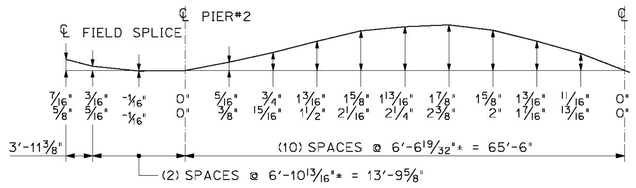
REVISIONS

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC	GIRDER G2B	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	CC: Cold River Bridges, LLC	DWG. NO. 7
DATE FEB 2015		



1/8 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G3B
SCALE: N.T.S

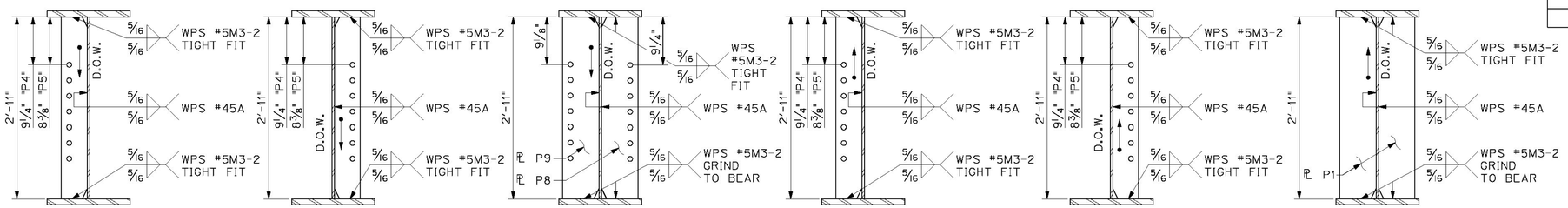


GIRDER G3B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G3B			GIRDER G3B	83'-11 7/8"	16,600#	
		1	WP6	WEB PLATE 35"x1/2"	83'-11 7/8"	5,000#	CVN
		1	TF5	FLANGE ℄ 1 1/8"x18 3/8"	83'-11 11/16"	5,500#	CVN
		1	BF3	FLANGE ℄ 1 1/8"x18 3/8"	83'-11 15/16"	5,500#	CVN
		2	P1	SEE SHEET M1		80#	
		1	P8	SEE SHEET M1		80#	
		1	P9	SEE SHEET M1		80#	
		4	P4	SEE SHEET M1		25#	
		4	P5	SEE SHEET M1		25#	



A 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"
B 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"
C 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"
D 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"
E 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"
F 8 DIMENSIONAL SECTION SCALE: 1"=1'-0"

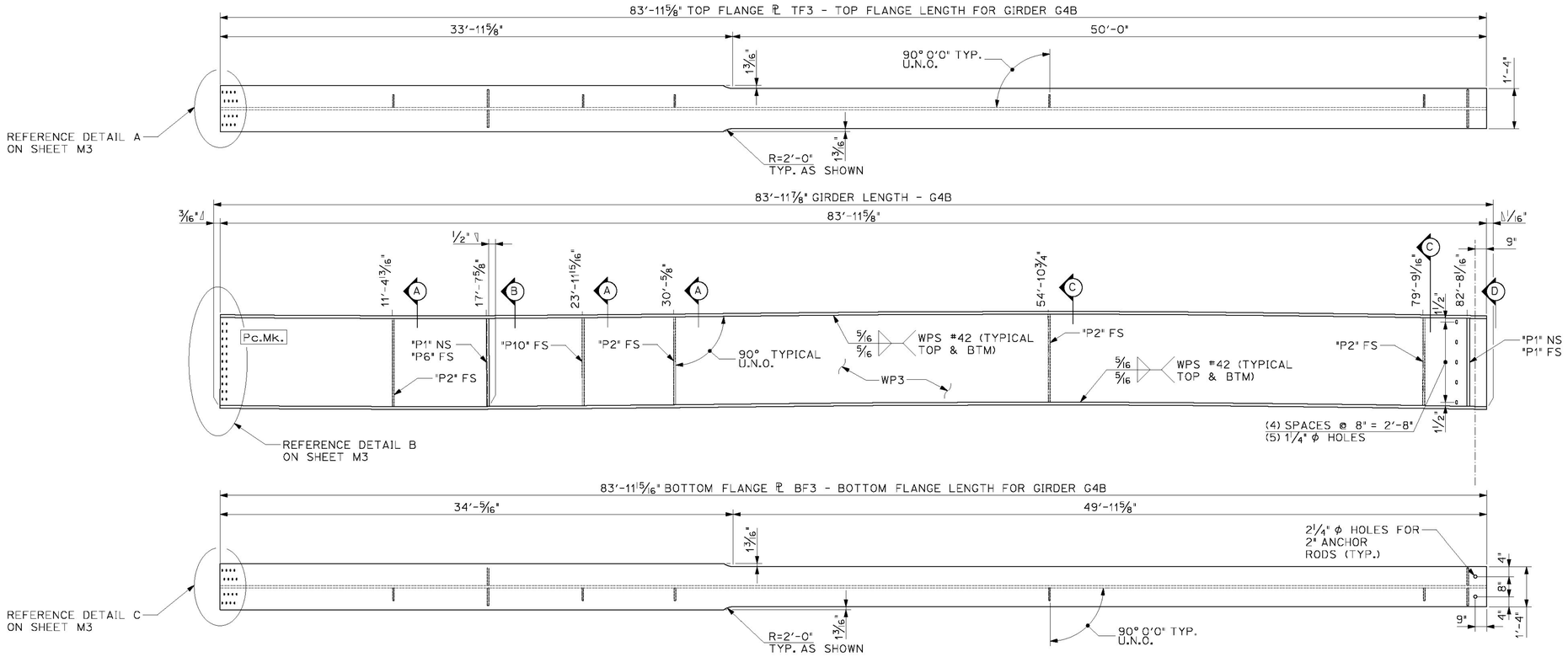
FINISH	SSPC SP-10		
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W		
HOLES			
ELECTRODES	PER WELD PROCEDURE		
WELDS	PER WELD PROCEDURE		
SURFACE PREP			

NO	DATE	DESCRIPTION	BY
1	FEB 2015	correct t.b.	ETC

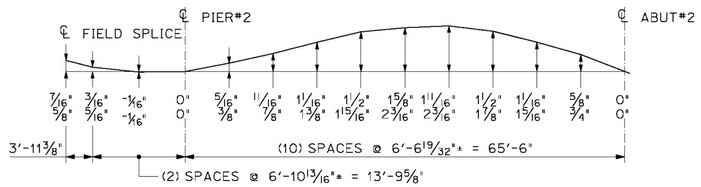
REVISIONS

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ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC	GIRDER G3B	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	SC: Cold River Bridges, LLC	DWG. NO. 8
DATE FEB 2015		

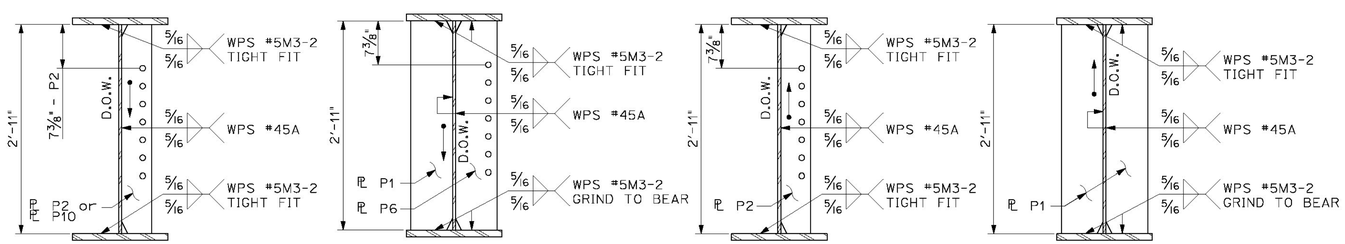


1/9 DIMENSIONAL PLANS & ELEVATIONS - GIRDER G4B
SCALE: N.T.S



GIRDER G4B CAMBER DIAGRAM

THE TWO CAMBER DIMENSIONS SHOWN REPRESENT THE FOLLOWING:
TOP DIMENSION - TOTAL CAMBER IN FINISHED BEAM IN A NO-LOAD POSITION
BTM. DIMENSION - TOTAL CAMBER OF WEB ℄ @ TIME WEB IS CUT
ADDITIONAL CAMBER TO ACCOMODATE FOR CAMBER THAT WILL BE LOST DURING FABRICATION



A/9 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

B/9 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

C/9 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

D/9 DIMENSIONAL SECTION
SCALE: 1"=1'-0"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
1	G4B			GIRDER G4B	83'-11⅞"	16,500#	
		1	WP3	WEB PLATE 35"x½"	83'-11⅞"	5,000#	CVN
		1	TF3	FLANGE ℄ 1⅛"x18⅜"	83'-11⅝"	5,500#	CVN
		1	BF1	FLANGE ℄ 1⅛"x18⅜"	83'-11 5/16"	5,500#	CVN
		3	P1	SEE SHEET M1		80#	
		1	P6	SEE SHEET M1		80#	
		4	P2	SEE SHEET M1		25#	
		1	P10	SEE SHEET M1		25#	

FINISH	SSPC SP-10		
MATERIAL	AASHTO M270 (ASTM A709) GR. 50W		
HOLES			
ELECTRODES	PER WELD PROCEDURE		
WELDS	PER WELD PROCEDURE		
SURFACE PREP			

REVISIONS

NO	DATE	DESCRIPTION	BY
1	FEB 2015	added pl P10, correct t.b.	ETC

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC	**GIRDER G4B**	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	SC: Cold River Bridges, LLC	DWG. NO. 9
DATE FEB 2015		

The cope doesnt match SD-602.00. Per that detail it should be 1" x 3" (typ)

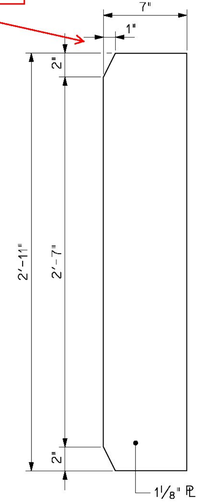


PLATE P1
(20) REQ'D

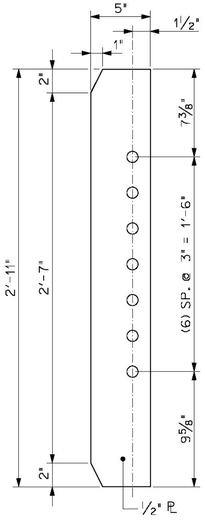


PLATE P2
(27) REQ'D

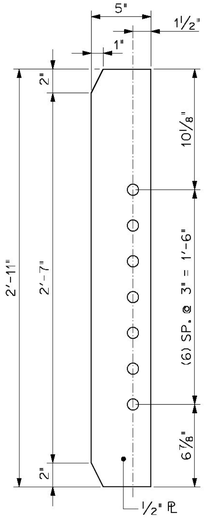


PLATE P3
(7) REQ'D

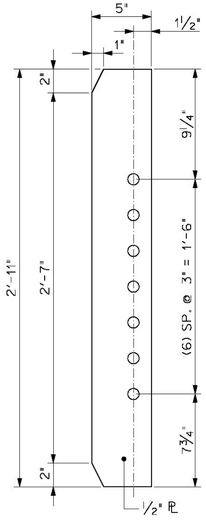


PLATE P4
(10) REQ'D

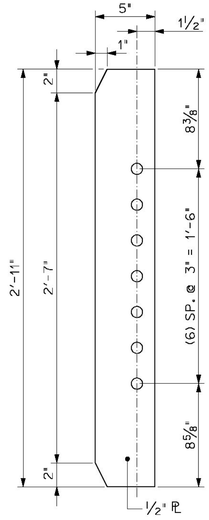


PLATE P5
(10) REQ'D

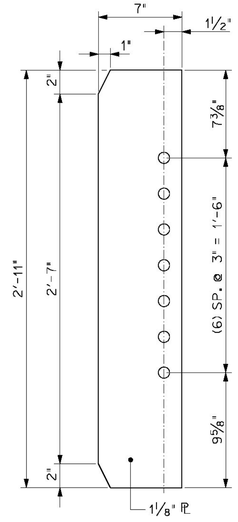


PLATE P6
(6) REQ'D

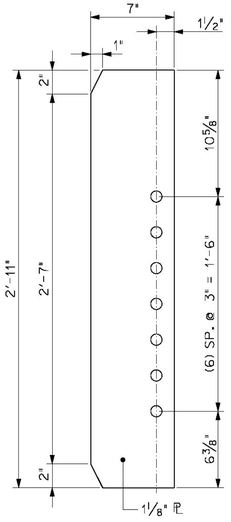


PLATE P7
(2) REQ'D

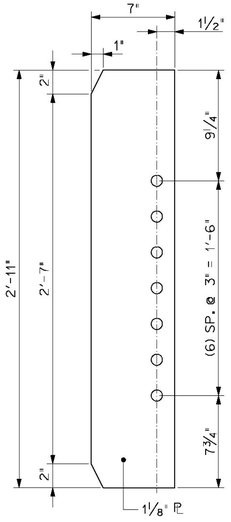


PLATE P8
(2) REQ'D

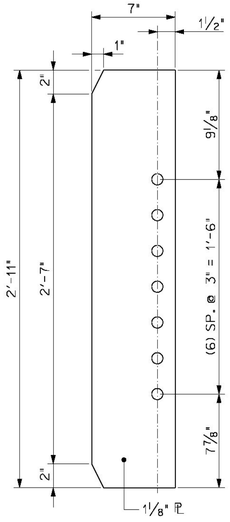


PLATE P9
(2) REQ'D

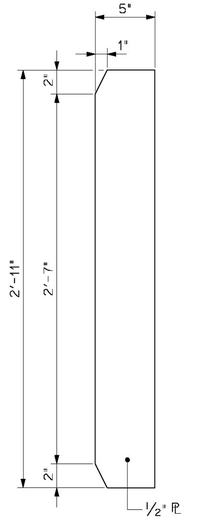
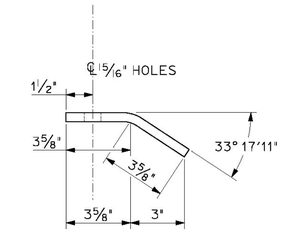
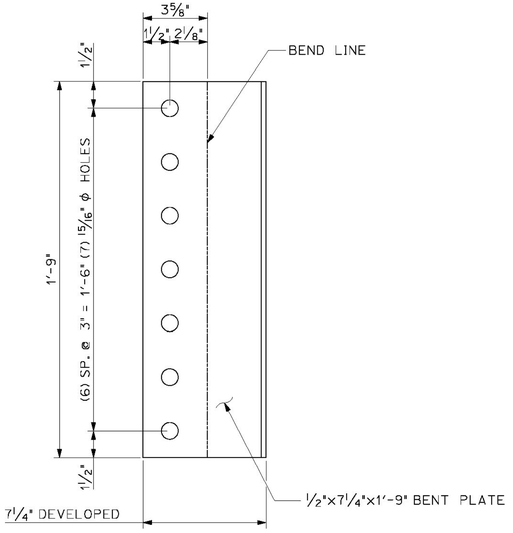


PLATE P10
(4) REQ'D



BP1 PLAN VIEW



BP1 ELEVATION VIEW
(12) REQUIRED

COMPLETE BOLT SCHEDULE

NO. BOLTS	PIECE MARK	LENGTH	DESCRIPTION	LOCATION
378	FB1	2¼"	⅞" ϕ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	DIAPHRAGM TYPE D1 TO CONNECTION PLATE
260	FB2	3"	⅞" ϕ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	DIAPHRAGM TYPE D2 TO CONN PL & WEB SPLICE PL BOLTS
256	FB3	3½"	⅞" ϕ ASTM A325, TYPE 3 BOLT (WEATHERING) W/ N&W	FLANGE SPLICE PL BOLTS

BILL OF MATERIALS

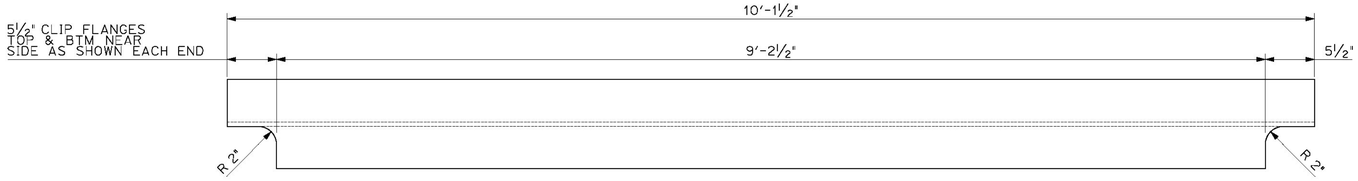
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
		20	P1	1⅛"x7" BRG STIFFENER	35"	80#	
		27	P2	½"x5" CONN. PL	35"	25#	
		7	P3	½"x5" CONN. PL	35"	25#	
		10	P4	½"x5" CONN. PL	35"	25#	
		10	P5	½"x5" CONN. PL	35"	25#	
		4	P10	½"x5" BLANK STIFFENER	35"	25#	
		6	P6	1⅛"x7" BRG STIFFENER	35"	80#	
		2	P7	1⅛"x7" BRG STIFFENER	35"	80#	
		2	P8	1⅛"x7" BRG STIFFENER	35"	80#	
		2	P9	1⅛"x7" BRG STIFFENER	35"	80#	
		12	BP1	½"x7¼" BENT PL	21"	25#	

FINISH SSPC SP-10				
MATERIAL AASHTO M270 (ASTM A709) GR. 50W				
HOLES				
ELECTRODES PER WELD PROCEDURE				
WELDS PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	add pl P10, correct t.b.	ETC
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

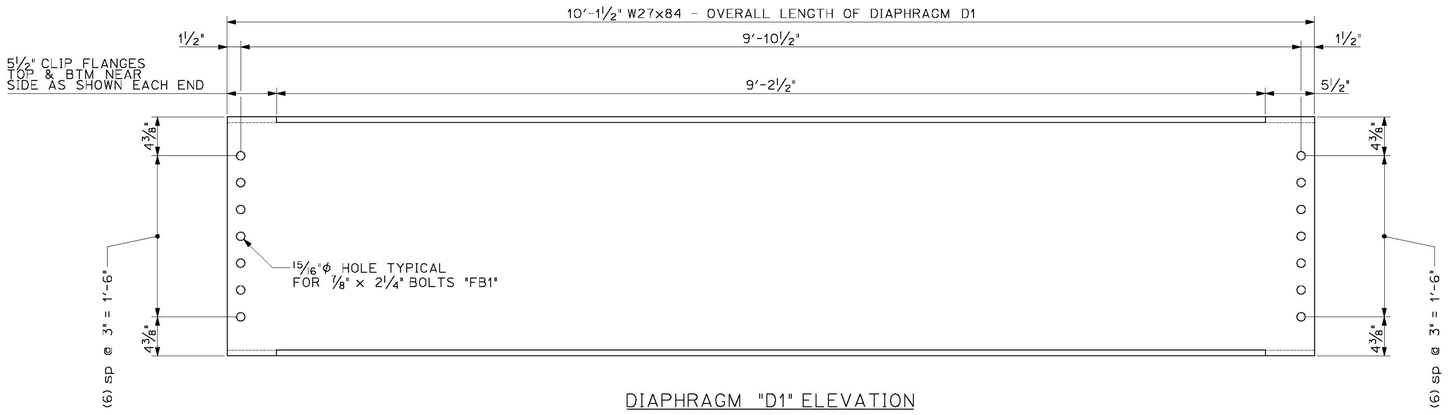
ARC ENTERPRISES, INC.

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P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

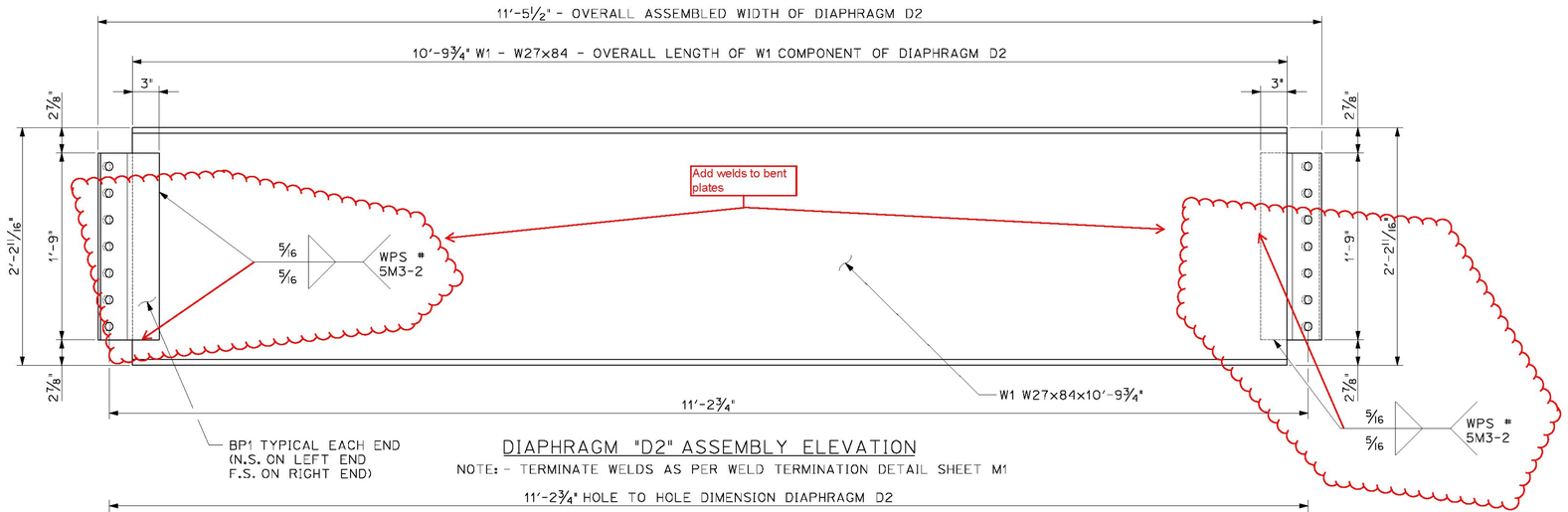
DRAFTER ETC	MISC DETAILS - CONN. PL. & BRG STIFF.	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	SC: Cold River Bridges, LLC	DWG. NO. M1
DATE FEB 2015		



DIAPHRAGM "D1" PLAN
(27) DIAPHRAGM D1 REQ'D



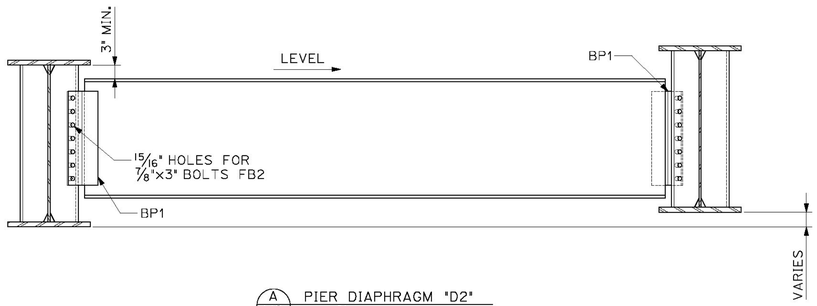
DIAPHRAGM "D1" ELEVATION
(27) DIAPHRAGM D1 REQ'D



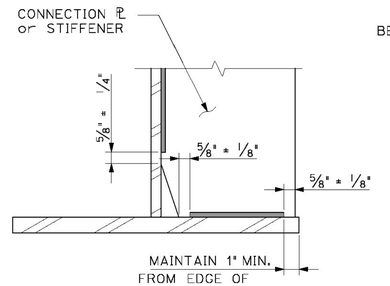
DIAPHRAGM "D2" ASSEMBLY ELEVATION
NOTE: - TERMINATE WELDS AS PER WELD TERMINATION DETAIL SHEET M1

DIAPHRAGM "D2" ASSEMBLY PLAN
(6) W1 REQUIRED
(12) BP1 REQUIRED

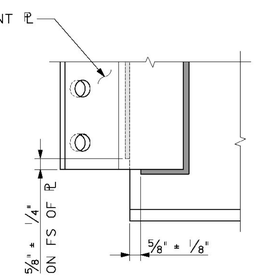
(6) D2 ASSEMBLIES



A / M2 PIER DIAPHRAGM "D2"
SCALE: ¾" = 1'-0"



TYPICAL CONNECTION ℄ WELD TERMINATION DETAIL
N.T.S.



BENT ℄ WELD TERMINATION DETAIL
N.T.S.

BILL OF MATERIALS

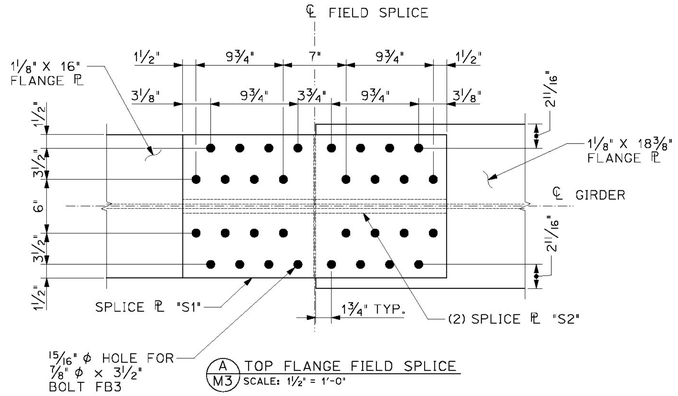
SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
27	D1			W27x84 INT. DIAPHRAGMS	10'-1½"	900#	
6	D2			W27x84 PIER DIAPHRAGMS	11'-5½"	1000#	
		6	W1	W27X84	10'-9¾"	910#	
		12	BP1	SEE SHT M1 (WELD TO W1)	21#	25#	

FINISH SSPC SP-10				
MATERIAL AASHTO M270 (ASTM A709) GR. 50W				
HOLES				
ELECTRODES PER WELD PROCEDURE				
WELDS PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	correct t.b.	ETC
	NO	DATE	DESCRIPTION	BY

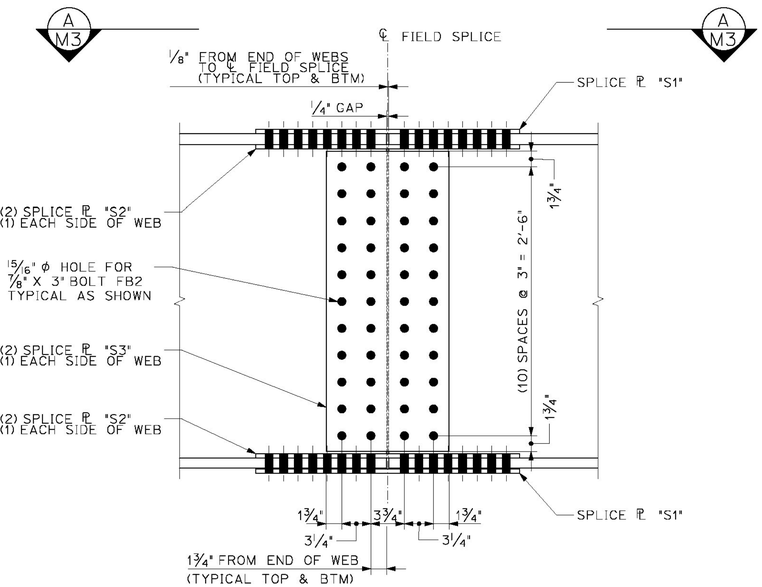
REVISIONS

ARC ENTERPRISES, INC.
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P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 - FAX: (207) 265-4054

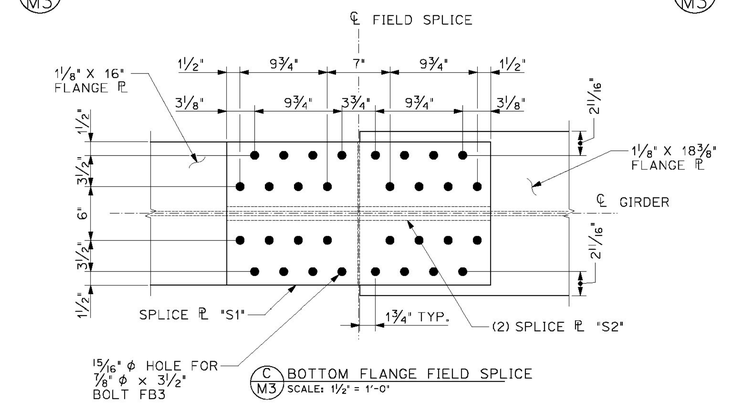
DRAFTER ETC	MISC. DETAILS - DIAPHRAGMS	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	SC: Cold River Bridges, LLC	DWG. NO. M2
DATE FEB 2015		



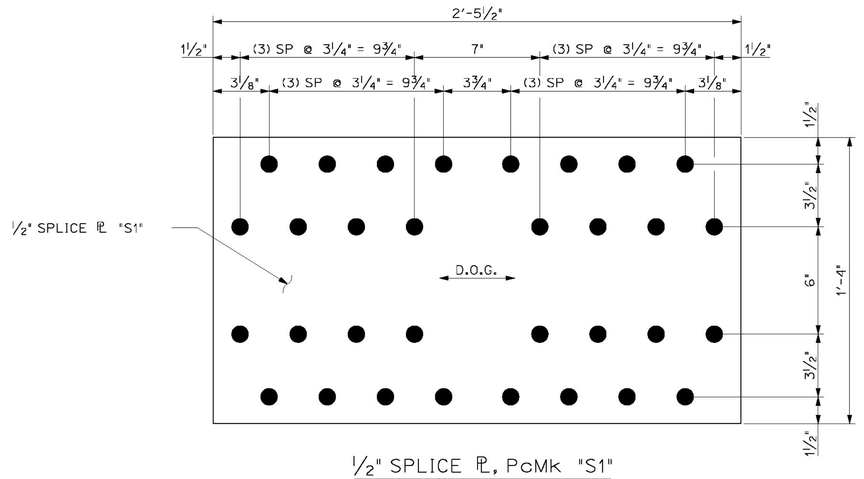
A M3 TOP FLANGE FIELD SPLICE
SCALE: 1½" = 1'-0"



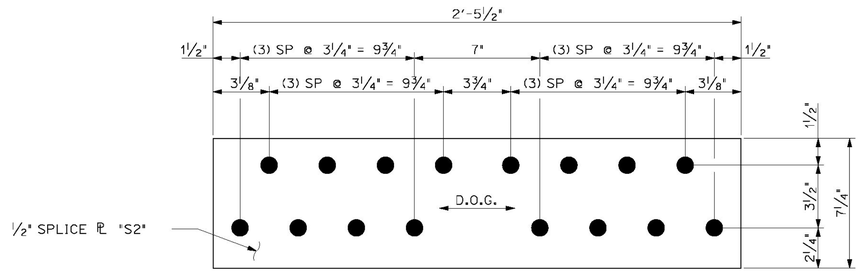
B M3 WEB FIELD SPLICE
SCALE: 1½" = 1'-0"



C M3 BOTTOM FLANGE FIELD SPLICE
SCALE: 1½" = 1'-0"

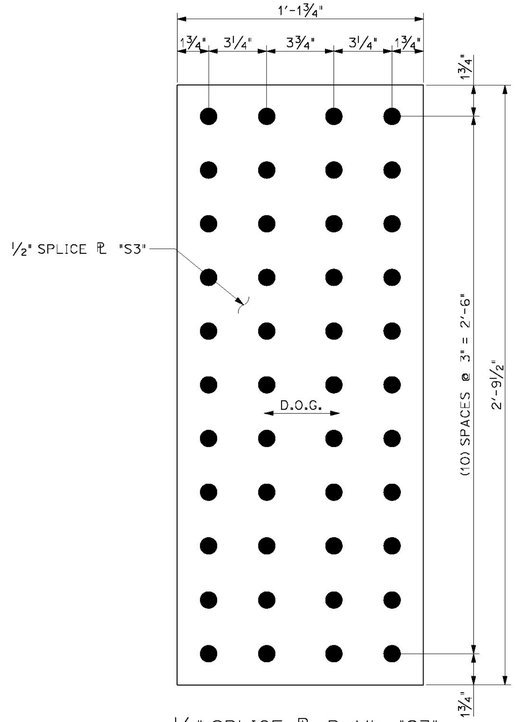


½" SPLICE PL, PcMk "S1"



½" SPLICE PL, PcMk "S2"

LEVELING PL LP1



½" SPLICE PL, PcMk "S3"

BILL OF MATERIALS

SHIP	SHIP MARK	NO. PCS.	PIECE MARK	DESCRIPTION	LENGTH	WEIGHT	MATERIAL
		8	S1	½"x16" FLANGE SP PL(T&B)	2'-5½"	70#	
		16	S2	½"x7¼" FLANGE SP PL(T&B)	2'-5½"	30#	
		8	S2	½"x1'-1¾" WEB SPLICE PL	2'-9½"	70#	
		8	LP1	⅛"x8" LEVELING PLATE	1'-4"	40#	

FINISH SSPC SP-10				
MATERIAL AASHTO M270 (ASTM A709) GR. 50W				
HOLES				
ELECTRODES PER WELD PROCEDURE				
WELDS PER WELD PROCEDURE				
SURFACE PREP	1	FEB 2015	correct t.b.	ETC
	NO	DATE	DESCRIPTION	BY
	REVISIONS			

ARC ENTERPRISES, INC.
ADVANCED RESOURCES & CONST. ENTERPRISES, INCORPORATED
P.O. BOX 120 KINGFIELD, ME. 04947
PHONE: (207) 265-2646 – FAX: (207) 265-4054

DRAFTER ETC	MISC DETAILS - SPLICES & SPLICE PL.	PROJECT NO. 14-178
DATE FEB 2015	VT Rte 121 over Saxtons River Rockingham Vermont VTRANS - BRF 0126(12)	
CHECKED GNM	CC: Cold River Bridges, LLC	DWG. NO. M3
DATE FEB 2015		