

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

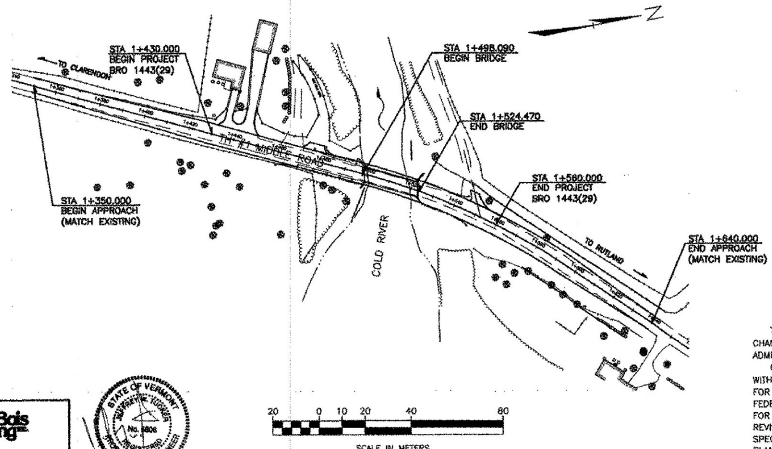
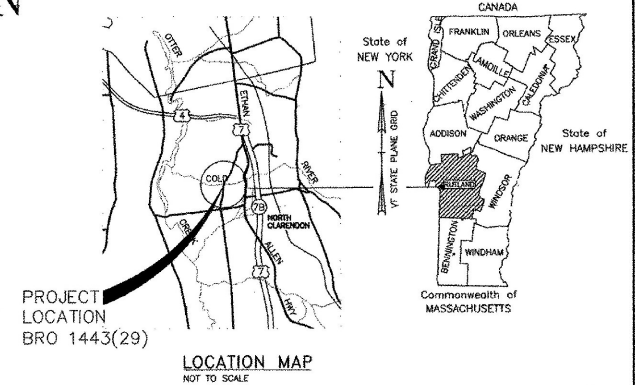
TOWN OF CLARENDON
COUNTY OF RUTLAND

ROUTE NO: TH 1, CLASS 2 BRIDGE NO: 14
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR

PROJECT LOCATION: BEGINNING AT POINT ON TH #1 (MIDDLE ROAD)
0.35 km SOUTH OF THE JUNCTION OF U.S. ROUTE
7 AND TH #1 AND EXTENDING NORTHERLY ALONG TH #1
FOR 0.13 km.

PROJECT DESCRIPTION: REMOVAL OF THE EXISTING BRIDGE, CONSTRUCTION OF NEW
PRECAST CONCRETE BOX BEAM SUPERSTRUCTURE ON NEW
CAST-IN-PLACE ABUTMENTS WITH RELATED ROADWAY AND
CHANNEL WORK.

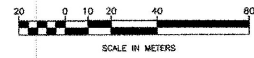
LENGTH OF STRUCTURE : 26.380 m 0.0264 km
LENGTH OF ROADWAY : 103.620 m 0.1036 km
LENGTH OF PROJECT : 130.000 m 0.1300 km



RECORD PLANS	
CONTRACTOR:	F.W. WHITCOMB CONSTRUCTION CORP. - WALPOLE, NH
RESIDENT ENGINEER:	MARK MACKINTOSH
CONSTRUCTION BEGAN:	SEPTEMBER 16, 2005
CONSTRUCTION COMPLETE:	NOVEMBER 30, 2005
RECORD PLANS BY:	MARK MACKINTOSH & AMOS KEMPTON
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	RESIDENT ENGINEER
DATE:	Nov. 29, 2011
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.	

CONVENTIONAL SIGNS	
COUNTY LINE	---
TOWN LINE	- - - -
LIMITS OF ACCESS	○---○
POINT OF ACCESS	X
FENCE LINE	—x—x—
STONE WALL	○○○○○○○○○○
TRAVELED WAY	=====
GUARD RAIL	—o—o—o—o—
SURVEY LINE	—+—+—+—+—
CULVERT	— — — — —
POWER POLE	□
TELEPHONE POLE	○
TREES	●
CONTROL OF ACCESS	///
PROPERTY LINE	— — — — —
R.O.W. TAKING LINE	—+—+—+—+—
SLOPE RIGHTS	—○—○—
TOP OF CUT	—△—△—
TOE OF SLOPE	—○—○—

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROGRAM DEVELOPMENT. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 04, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

UNLESS OTHERWISE NOTED, ALL STATIONS ARE IN KILOMETERS, ALL ELEVATIONS ARE IN METERS, AND ALL DIMENSIONS ARE IN MILLIMETERS.	
APPROVED:	DATE: 11-29-11
DIRECTOR OF PROGRAM DEVELOPMENT	
PROJECT:	CLARENDON
PROJECT NO.:	AC BRO 1443(29)
SHEET 1	OF 41 SHEETS

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STANDARDS

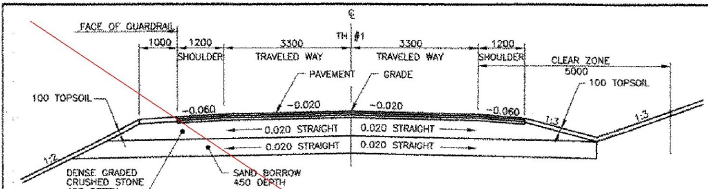
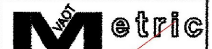
B-5M	EMBANKMENT ON EARTH SLOPE, EMBANKMENT ON ROCK SLOPE, MUCK EXCAVATION, TYPICAL SLOPE ROUNDING	01-03-00
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E-100A	SIDE ROAD CONSTRUCTION APPROACH SIGNS	01-02-04
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E-102	CONSTRUCTION SIGN DETAILS	06-30-03
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E-106	TRAFFIC CONTROL - MISCELLANEOUS DETAILS	03-01-04
E-107	DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS	06-30-03
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E-108	CONSTRUCTION ZONE LONGITUDINAL DROP OFFS	08-18-95
E-121	STANDARD SIGN PLACEMENT - CONVENTIONAL ROADS	08-08-95
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G-1cM	STEEL BEAM GUARDRAIL APPROACH END TERMINAL STEEL BEAM GUARDRAIL TRAILING END TERMINAL ANCHOR FOR STEEL BEAM GUARDRAIL STEEL BEAM MEDIAN BARRIER	01-03-00
G-17aM	MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)	09-27-02
G-17bM	MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)	09-27-02
G-18M	PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER	06-13-97
G-18AM	POSITIVE CONNECTION DETAILS BETWEEN TEMPORARY BARRIER RAIL AND EXISTING STEEL BEAM GUARD RAIL	07-10-97
J-3M	MAILBOX SUPPORT DETAIL (SINGLE & MULTIPLE SUPPORT)	06-13-97

PROJECT NAME: CLARENDON
PROJECT NUMBER: BRO 1443(29)

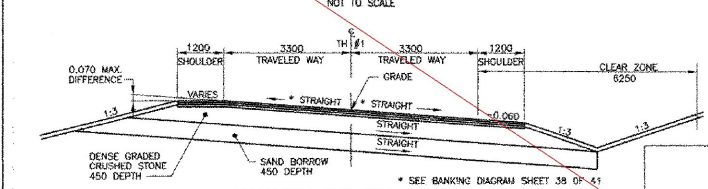
FILE NAME: 93j09ind.dgn
PROJECT LEADER: R. WHITCOMB
DESIGNED BY: DUBOIS & KING
93j09ind.j

PLOT DATE: 14-JUN-2005
DRAWN BY: L. BULLOCK
CHECKED BY: C. CARLSON
SHEET 2 OF 41

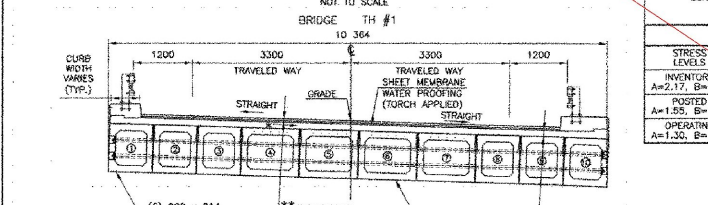
FINAL HYDRAULICS REPORT



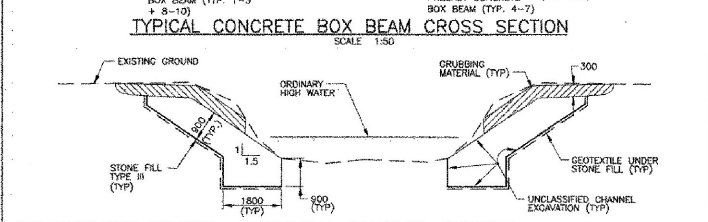
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NOT TO SCALE



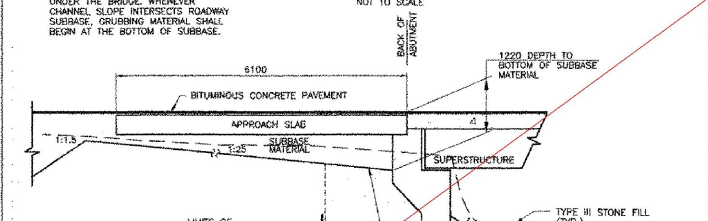
MAXIMUM BANKED SECTION
NOT TO SCALE



TYPICAL CONCRETE BOX BEAM CROSS SECTION
SCALE 1:50



TYPICAL CHANNEL SECTION
NOT TO SCALE



TYPICAL ABUTMENT SECTION
NOT TO SCALE

TRAFFIC DATA

1995	ADT = 1815
1995	DHV = 252
2015	ADT = 2685
2015	DHV = 374
	T = 5%

DESIGN SPEED = 64 km/h
ESALS (FLEXIBLE) TOTAL BOTH DIRECTIONS (1995-2015) 196,000

TYPICAL SECTIONS ROADWAY

- 40 BITUMINOUS CONCRETE PAVEMENT (TYPE III OR IV) OVER
 - 40 BITUMINOUS CONCRETE PAVEMENT (TYPE III OR IV) OVER
 - 70 BITUMINOUS CONCRETE PAVEMENT (TYPE II OR III) OVER
 - 450 DENSE GRADED CRUSHED STONE
 - 450 SAND BORROW
- SHOULDER:
150 BITUMINOUS CONCRETE PAVEMENT
(40 TYPE II OVER 50 TYPE II OVER 60 TYPE I)

MATERIAL ITEM **THICKNESS TOLERANCE IN MILLIMETERS**

PAVEMENT (TOTAL DEPTH)	± 5
SUBBASE	± 25
GRANULAR BORROW	± 25
SAND BORROW	± 25

STRENGTH $R_f = \frac{W_{max} - 1.3W_{min}}{A \times M_{(1+I)}}$

*SERVICEABILITY $R_f = B \left[\frac{.95F_{S_{(1+I)}} - M_{(1+I)} - M_{(1+I)}}{1.87 M_{(1+I)}} \right]$

LOAD RATING (METRIC TONS)

STRESS LEVELS	TRUCK					
	H	HS	SS2	3A STR	4A STR	5A SEM
INVENTORY	A=2.17, B=1.00	33	58			
POSTED	A=1.95, B=1.40	73	101	119	93	94
OPERATING	A=1.30, B=1.67	140	164	195		

TYPICAL SECTION BRIDGE

- * TOP OF CONCRETE BOX BEAMS STRAIGHT -0.04
- ** 30 BIT. CONC. PAW. TYPE IV - 1st LIFT
- 40 BIT. CONC. PAW. TYPE III - 2nd LIFT

SEEDING FORMULA RURAL AREAS

% WT.	KG/HA	NAME	PURITY %	CEM %
37.1	26	CREeping RED FESCUE	98	85
37.1	26	TALL FESCUE	95	90
5.7	4	RED TOP	95	90
14.4	10	BIRDFOOT TREFOL	98	85
5.7	4	ANNUAL RYE GRASS	95	85
100.0	76			

THE SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 4.0% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS WEED SEED.

SEED TO BE APPLIED PER SEEDING FORMULA OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 KG/HA. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 KG/HA, OR AS DIRECTED BY THE ENGINEER.

MAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 KG/HA OR AS DIRECTED BY THE ENGINEER.

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

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.0679 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AT THE DISCRETION OF THE ENGINEER.

- NOTES**
- COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
 - THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600 OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
 - 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
 - IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

HYDROLOGIC DATA

DRAINAGE AREA= 92,720 sq km
CHARACTER OF TERRAIN: RURAL, MOUNTAINOUS
CHANNEL & TYPE OF STREAM: RURAL, HIGH ENERGY
NATURE OF STREAMBED: 2.0% GRADIENT, COBBLE BED

DATE OF FLOOD OF RECORD: NOVEMBER 1927
WATER SURFACE ELEV.: NOT AVAILABLE, ESTIMATED DISCHARGE: NOT AVAILABLE
NATURAL STREAM VELOCITY @ Q 25: 3.4 m/s
ICE CONDITIONS: MODERATE DEBRIS: LIGHT
DOES THE STREAM REACH MAXIMUM HIGH WATER ELEVATION RAPIDLY? YES
IS ORDINARY RISE RAPID? YES
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
IF YES, DESCRIBE:

WATERSHED STORAGE YES HEADWATERS: UNIFORM THROUGHOUT WATERSHED X
IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: STEEL PONY TRUSS W/ CONCRETE DECK BRIDGE YEAR BUILT: 1928
CLEAR SPAN (NORMAL TO STREAM): 22.800
VERTICAL CLEARANCE ABOVE STREAMBED: VARIES 3200 MIN. TO 3600 MAX.
DISPOSITION OF FULL OPENING: 23,850 sq m
DISPOSITION OF STRUCTURE: TO BE REMOVED AND DISPOSED OF

TYPE OF MATERIAL UNDER SUBSTRUCTURE: DENSE, GRANULAR WITH Boulders
WATER SURFACE ELEV. @ Q2.33= 172.3 VELOCITY= 2.3 m/s
Q10= 172.8 " " = 3.2 m/s
Q25= 172.9 " " = 3.5 m/s
Q50= 173.1 " " = 3.8 m/s
Q100= 173.3 " " = 4.0 m/s

LONG TERM STREAM BED CHANGES: AGGRADATION AND DEPOSITION OF MATERIAL WITHIN THE UPSTREAM APPROACH
IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ Q100: N/A

UPSTREAM STRUCTURE: TOWN: CLAREMONT DISTANCE: 700.000
HIGHWAY NO.: US 7 STRUCTURE NO.: 98
STRUCTURE TYPE: SINGLE SPAN PLATE GIRDER
CLEAR SPAN: 37.500 CLEAR HEIGHT: 3.100
YEAR BUILT: 1968 FULL WATERWAY: 100.3 sq m

DOWNSTREAM STRUCTURE: TOWN: CLAREMONT DISTANCE: 255.000
HIGHWAY NO.: VERMONT RAILWAY STRUCTURE NO.: N/A
STRUCTURE TYPE: RAILROAD PLATE GIRDER
CLEAR SPAN: 33.200 CLEAR HEIGHT: 3.000
YEAR BUILT: N/A FULL WATERWAY: 100.3 sq m

PROPOSED STRUCTURE

STRUCTURE TYPE: PRECAST CONCRETE BOX BEAM & CONCRETE DECK SUPERSTRUCTURE
CLEAR SPAN (NORMAL TO STREAM): 23.500
VERTICAL CLEARANCE ABOVE STREAMBED: VARIES 3 200 MIN. TO 3 600 MAX.
WATERWAY OF FULL OPENING: 76.0 sq m

WATER SURFACE ELEV. @ Q2.33= 172.3 VELOCITY= 2.4 m/s
Q10= 172.7 " " = 3.1 m/s
Q25= 172.9 " " = 3.5 m/s
Q50= 173.1 " " = 3.8 m/s
Q100= 173.3 " " = 4.0 m/s

IS THE ROADWAY OVERTOPPED BELOW THE Q100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ Q100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 174.55
VERTICAL CLEARANCE @ Q100: 1260

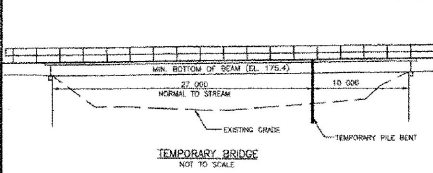
SCOUR: 1.0 m CONTRACTION SCOUR
REQUIRED CHANNEL PROTECTION: YES - TYPE III STONEFILL ON STREAM BED

PERMIT INFORMATION

AVERAGE DAILY FLOW: 2.1 cms DEPTH: 0.45
ORDINARY LOW WATER: 1.0 cms DEPTH: 0.34
ORDINARY HIGH WATER: 14.8 cms DEPTH: 0.92

ADDITIONAL COMMENTS

THERE IS EVIDENCE OF SCOUR ALONG THE LEFT DOWNSTREAM ABUTMENT



SEE VALUE ENGINEERING (FOLLOWING SHEET)

- DESIGN CRITERIA**
- DESIGN LIVE LOAD ASHTO MS 22.5
 - DESIGN SPAN 26.400 @ BRG TO @ BRG 478 kPa ON LEDGE N/A ESTIMATED LENGTH N/A
 - ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A
 - ALLOWABLE LOAD FOR PILLS N/A TYPE N/A
 - STRUCTURAL STEEL A570U 270M/270M GRADE N/A
 - REINFORCING STEEL GRADE 420 180 MPa
 - CONCRETE HIGH PERFORMANCE CLASS AA f_c 80 MPa
CONCRETE HIGH PERFORMANCE CLASS B f_c 55 MPa

- TRAFFIC MAINTENANCE:**
- IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
 - TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED NO
- MINIMUM CLEAR SPAN (NORMAL TO STREAM): 27.000 VERTICAL CLEARANCE ABOVE STREAMBED: 3.4 m
WATERWAY OF FULL OPENING: 103 sq m
ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? N/A
STRUCTURE TYPE: TWO SPAN BRIDGE

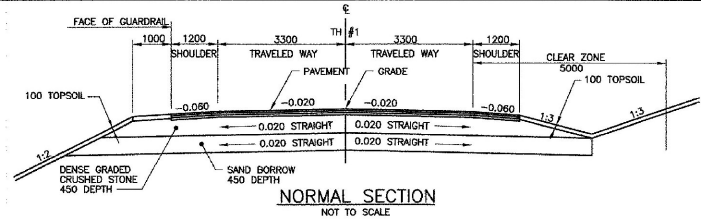
REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

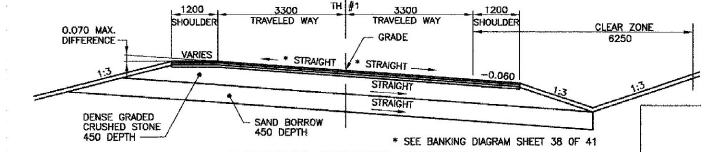
CLAREMONT, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sh. Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
PRELIMINARY INFORMATION SHEET	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMICK
Checked by: K.S. MARSHIA date 05/02	Bridge Design Supervisor J.W. LUCKER date 05/02
PROJECT: CLAREMONT	PROJECT NO: BRD 1443(29)
Bridge Sheet No.	SHEET 3 OF 41



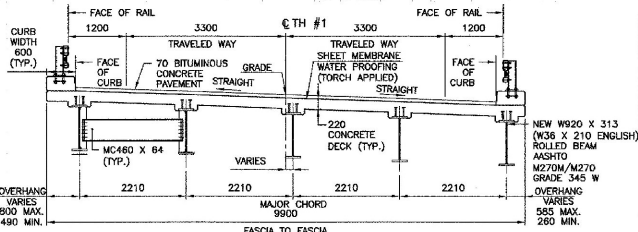
engineering planning management development



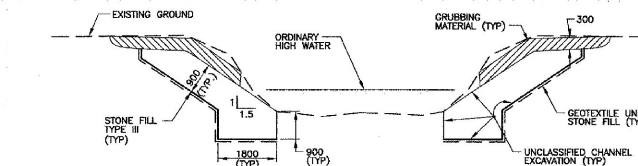
NORMAL SECTION
NOT TO SCALE



MAXIMUM BANKED SECTION
NOT TO SCALE

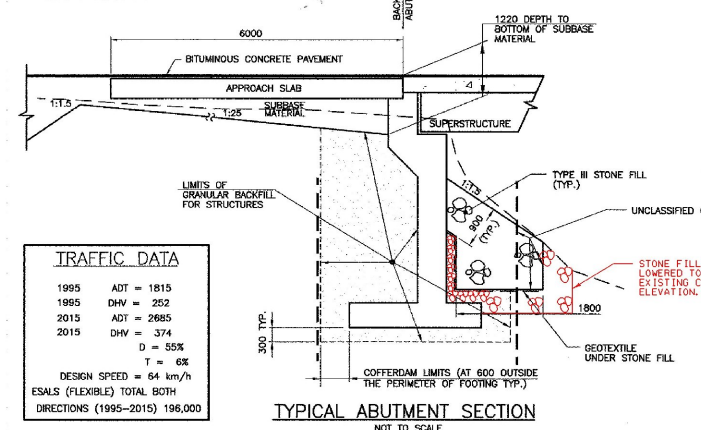


TYPICAL BRIDGE SECTION
SCALE 1:50



TYPICAL CHANNEL SECTION
NOT TO SCALE

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



TYPICAL ABUTMENT SECTION
NOT TO SCALE

TRAFFIC DATA	
1995	ADT = 1815
1985	DHV = 252
2015	ADT = 2685
2015	DHV = 374
D = 55%	
T = 6%	
DESIGN SPEED = 64 km/h	
ESALS (FLEXIBLE) TOTAL BOTH DIRECTIONS (1995-2015) 196,000	

TYPICAL SECTIONS ROADWAY

- 40 BITUMINOUS CONCRETE PAVEMENT (TYPE III)
 - 40.56 BITUMINOUS CONCRETE PAVEMENT (TYPE II)
 - 70.66 BITUMINOUS CONCRETE PAVEMENT (TYPE I)
 - 450 DENSE GRADED CRUSHED STONE
 - 450 SAND BORROW
- SHOULDERS:
150 BITUMINOUS CONCRETE PAVEMENT
(40 TYPE III OVER 50 TYPE II OVER 60 TYPE I)

MATERIAL ITEM	THICKNESS TOLERANCE IN MILLIMETERS
PAVEMENT (TOTAL DEPTH)	± 5
SUBBASE	± 25
GRANULAR BORROW	± 25
SAND BORROW	± 25

STRENGTH $RF = \frac{844 - 1.3M}{A \times M_{LL+1}}$

*SERVICEABILITY $RF = B \left[\frac{.95F_y S_{LL+1} - M_{LL+1}}{1.67 M_{LL+1}} \right]$

LOAD RATING (METRIC TONS)

STRESS LEVELS	TRUCK						
	M	MS	3S2	5 AXLE	3A STR	4A STR	5A SEMI
INVENTORY A=2.17, B=1.00	35	48					
POSTED A=1.55, B=1.40	49	68	94	62	64	73	
OPERATING A=1.30, B=1.67	81	95	112				

TYPICAL SECTION BRIDGE

30 BIT. CONC. PAV. TYPE IV - 1st LIFT
40 BIT. CONC. PAV. TYPE III - 2nd LIFT

SEEDING FORMULA RURAL AREAS

% WT.	KG/HA	NAME	PURITY %	GERM %
37.1	26	CREeping RED FESCUE	98	85
37.1	26	TALL FESCUE	95	90
5.7	4	RED TOP	95	90
14.4	10	BIRD'SFOOT TREFLOIL	98	85
5.7	4	ANNUAL RYE GRASS	95	85
100.0	70			

THE SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS WEED SEED.

SEED TO BE APPLIED PER SEEDING FORMULA OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 KG/HA. (NITRO SEEDERS MAY USE 19-19-18 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 KG/HA, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 KG/HA OR AS DIRECTED BY THE ENGINEER.

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

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.0679 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AT THE DISCRETION OF THE ENGINEER.

NOTES

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- THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600 OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
- 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
- IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THAT PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

FINAL HYDRAULICS REPORT



HYDROLOGIC DATA

DRAINAGE AREA= 92,720 sq km
CHARACTER OF TERRAIN: RURAL, MOUNTAINOUS
CHARACTER & TYPE OF STREAM: RURAL, HIGH ENERGY
NATURE OF STREAMBED: 2.0% GRADIENT, COBBLE BED

02-33= 33.7 cms 090= 128.3 cms
010= 74.2 cms 0100= 156.3 cms
025= 99.8 cms 050= 156.3 cms

DATE OF FLOOD OF RECORD: NOVEMBER 1927
WATER SURFACE ELEV.: NOT AVAILABLE, ESTIMATED DISCHARGE: NOT AVAILABLE
NATURAL STREAM VELOCITY @ Q 25 = 3.4 m/s
ICE CONDITIONS: MODERATE DEBRIS: LIGHT
DOES THE STREAM REACH MAXIMUM HIGH WATER ELEVATION RAPIDLY? YES
IS ORDINARY RISE RAPID? YES
IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO
IF YES, DESCRIBE:

WATERSHED STORAGE YES HEADWATERS: UNIFORM THROUGHOUT WATERSHED X
IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

STRUCTURE TYPE: STEEL PONY TRUSS W/ CONCRETE DECK YEAR BUILT: 1929
CLEAR SPAN (NORMAL TO STREAM): 22 800
VERTICAL CLEARANCE ABOVE STREAMBED: VARIES 3200 MIN. TO 3600 MAX.
WATERWAY OF FULL OPENING: 73,000 sq m
DISPOSITION OF STRUCTURE: TO BE REMOVED AND DISPOSED OF

TYPE OF MATERIAL UNDER SUBSTRUCTURE: DENSE GRANULAR WITH BOULDERS

WATER SURFACE ELEV. @ Q2.33= 172.3 VELOCITY= 2.3 m/s
010= 172.8 " 3.2 m/s
025= 172.9 " 3.5 m/s
050= 173.1 " 3.8 m/s
0100= 173.3 " 4.1 m/s

LONG TERM STREAM BED CHANGES: AGGRADATION AND DEPOSITION OF MATERIAL WITHIN THE UPSTREAM APPROACH

IS THE ROADWAY OVERTOPPED BELOW THE 0100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ 0100: N/A

UPSTREAM STRUCTURE: TOWN: CLARENDON DISTANCE: 700 000
HIGHWAY NO.: US 7 STRUCTURE NO.: 96
STRUCTURE TYPE: SINGLE SPAN PLATE GIRDER
CLEAR SPAN: 37 500 CLEAR HEIGHT: 3 100
YEAR BUILT: 1988 FULL WATERWAY: 100.3 sq m

DOWNSTREAM STRUCTURE: TOWN: CLARENDON DISTANCE: 255 000
HIGHWAY NO.: VERMONT RAILWAY STRUCTURE NO.: N/A
STRUCTURE TYPE: RAILROAD PLATE GIRDER
CLEAR SPAN: 33 200 CLEAR HEIGHT: 3 000
YEAR BUILT: N/A FULL WATERWAY: 100.0 sq m

PROPOSED STRUCTURE

STRUCTURE TYPE: SINGLE SPAN, NEW STEEL BEAMS WITH COMPOSITE CONCRETE DECK
CLEAR SPAN (NORMAL TO STREAM): 23 800
VERTICAL CLEARANCE ABOVE STREAMBED: VARIES 3 200 MIN. TO 3 600 MAX.
WATERWAY OF FULL OPENING: 78.0 sq m

WATER SURFACE ELEV. @ Q2.33= 172.3 VELOCITY= 2.4 m/s
010= 172.7 " 3.1 m/s
025= 172.9 " 3.5 m/s
050= 173.1 " 3.8 m/s
0100= 173.3 " 4.0 m/s

IS THE ROADWAY OVERTOPPED BELOW THE 0100? NO FREQUENCY: N/A
RELIEF ELEVATION: N/A DISCHARGE OVER ROAD @ 0100: N/A

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 174.498
VERTICAL CLEARANCE @ Q100 1181

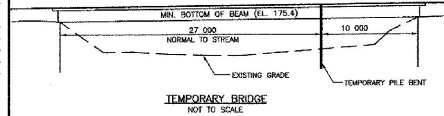
SCOUR: 1.0 m CONTRACTION SCOUR
REQUIRED CHANNEL PROTECTION: YES - TYPE III STONEFILL ON STREAM BED

PERMIT INFORMATION

AVERAGE DAILY FLOW: 2.1 cms DEPTH : 0.45
ORDINARY LOW WATER: 1.0 cms DEPTH : 0.34
ORDINARY HIGH WATER: 14.8 cms DEPTH : 0.92

ADDITIONAL COMMENTS

THERE IS EVIDENCE OF SCOUR ALONG THE LEFT DOWNSTREAM ABUTMENT



DESIGN CRITERIA:

- DESIGN LIVE LOAD (ASHTO) MS 22.5
- DESIGN SPAN 25 400 @ BRG TO @ BRG (MEASURED ALONG CENTERLINE OF ROAD)
DESIGN SPAN 25 392 @ BRG TO @ BRG (MEASURED ALONG MAJOR CHORD)
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL TYPE 478 MPa ON LEDGE N/A
- ALLOWABLE LOAD FOR PILING N/A
- STRUCTURAL STEEL AASHTO M270M / M270 GRADE 345W ESTIMATED LENGTH N/A
- REINFORCING STEEL GRADE 420 160 MPa
- CONCRETE HIGH PERFORMANCE CLASS A f'c 30 MPa
HIGH PERFORMANCE CLASS B f'c 25 MPa

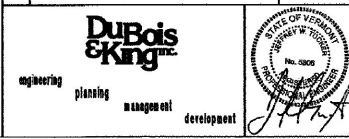
TRAFFIC MAINTENANCE:

- IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES
- TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED NO
MINIMUM CLEAR SPAN (NORMAL TO STREAM): 27 000 VERTICAL CLEARANCE ABOVE STREAMBED: 3.4 m
WATERWAY OF FULL OPENING: 103 sq m
ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE? N/A
STRUCTURE TYPE: TWO SPAN BRIDGE

REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT AGENCY OF TRANSPORTATION

CLARENDON, VERMONT Bridge No. 14
TOWN HIGHWAY NO. 1 Log Sto.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER
PRELIMINARY INFORMATION SHEET
Designed by: A.P. GUYETTE Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06 Bridge Design Supervisor: J.W. TUCKER date 1/06
PROJECT: CLARENDON PROJECT NO.: BRO 1443(29)
Bridge Sheet No. SHEET 3A OF 41



QUANTITY SHEET



SUMMARY OF ESTIMATED QUANTITIES											TOTALS				DESCRIPTIONS		DETAILED SUMMARY OF QUANTITIES		
SPRUE STRUCTURE	ABUT. NO. 1	ABUT. NO. 2	APPROACH SLAB	CHANNEL	ROADWAY	EROSION CONTROL	TRAINING	FULL E&C	BRIDGE QUANTITY	FOUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS	
											1		LS	CLEARING AND GRUBBING (INCL. ND. TREES & STUMPS)	201.10				
											1690		CM	COMMON EXCAVATION	203.15			TEMPORARY EROSION CONTROL ITEMS (INCLUDED IN EROSION CONTROL)	
											200		CM	UNCLASSIFIED CHANNEL EXCAVATION	203.27	50	CM	TRENCH EXCAVATION OF EARTH	
											1070		CM	SAND BORROW	203.31	20	CM	SUBBASE OF DENSE GRADED CRUSHED STONE	
											200		SM	FINE GRADING-SUBGRADE	203.40	1	HR	ALL PURPOSE EXCAVATOR RENTAL TYPE I	
											50		CM	TRENCH EXCAVATION OF EARTH	204.20	10	CM	STONE FILL TYPE I	
											930		CM	GRANULAR BACKFILL FOR STRUCTURES	204.50	750	SM	GEOTEXTILE FOR S&T FENCE	
											450		CM	COFFERDAM EXCAVATION EARTH	208.30	150	SM	GEOTEXTILE FOR FILTER CURTAIN	
											250		CM	COFFERDAM EXCAVATION ROCK	208.35	25	KG	SEED - WINTER RYE	
											1		LS	COFFERDAM (STA. 1+501.0)	208.40	100	SM	EROSION MATTING	
											1		LS	COFFERDAM (STA. 1+520.5)	208.40			FILL = 621 CM FACTOR X (0.15) = 93 CM TOTAL FILL (INCLUDING FACTOR) = 714 CM	
											195		SM	COLD PLANING-BIT PAVEMENT	210.10			MATERIALS AVAILABLE FOR FILL:	
											960		CM	SUBBASE OF DENSE GRADED CRUSHED STONE	301.35			COMMON EXCAVATION (0.75 X 1690) = 1269 CM	
											470		KG	EMULSIFIED ASPHALT	404.65			UNCLASSIFIED CHANNEL EXCAVATION (0.60 X 200 CM) = 120 CM	
											30		T	BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	406.25			STRUCTURE EXCAVATION (0.60 X 450 CM) = 270 CM	
											77		CM	CONCRETE, HIGH PERFORMANCE CLASS AA	501.32			TOTAL MATERIAL AVAILABLE FOR FILL = 1658 CM LESS FILL REQUIRED = 714 CM	
											310		CM	CONCRETE, HIGH PERFORMANCE CLASS B	501.34			EXCESS EXCAVATION = 944 CM	
											24990		KG	REINFORCNG STEEL	507.15				
											7845		KG	EPOXY COATED REINFORCNG STEEL	507.17				
											156		M	PRESTRESSED CONCRETE BOX BEAMS (690 X 914)	510.21				
											104		M	PRESTRESSED CONCRETE BOX BEAMS (690 X 1220)	510.21				
											234		M	GROUTING SHEAR KEYS	510.24				
											99		L	WATER REPELLENT (MOD. - SILANE)	514.10				
											12		M	BRIDGE EXPANSION JOINT (ASPHALTIC PLUG)	516.10				
											300		SM	SHEET MEMBRANE WATERPROOFING (MOD. - TORCH APPLIED)	519.20				
											66		M	BRIDGE RAILING - NETC 2 RAIL	525.33				
											1		LS	TWO-WAY TEMPORARY BRIDGE (270 SM - EST. MOD.)	526.11				
											160		SM	REMOVAL OF BRIDGE PAVEMENT	529.10				
											1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20				
											40		EACH	BEARING DEVICE ASSEMBLY (ELASTOMERIC)	531.10				
											1		HR	ALL PURPOSE EXCAVATOR RENTAL TYPE I	608.25				
											100		CM	DUST CONTROL WITH WATER	609.10				
											10		CM	STONE FILL TYPE I	613.10				
											10		CM	STONE FILL TYPE I (MOD. 1 - CHECK DAMS)	613.10				
											10		CM	STONE FILL TYPE I (MOD. 2 - STABILIZED CONSTRUCTION ENTRANCE)	613.10				
											200		CM	STONE FILL TYPE II	613.12				
											1		EACH	RELOCATE MAIL BOX, SINGLE SUPPORT	617.10				
											70		M	REMOVING AND RESETTING FENCE	620.50				
											85		M	SNOW FENCE (MOD. - ARCH)	620.70				
											420		M	SNOW FENCE (MOD. - PDF)	620.70				
											25		M	HEAVY DUTY STEEL BEAM GUARD RAIL (GALVANIZED)	621.21				
											3		EACH	MODIFIED ECCENTRIC LOADER TERMINAL	621.54				
											1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.80				

PROJECT NAME: **Clarendon**
 PROJECT NUMBER: **BRO 1443(29)**
 FILE NAME: 03/01/09.xls
 PROJECT MANAGER: R. Whitcomb
 DESIGNED BY: Dubois & King, Inc.
 QUANTITY SHEET #1
 PLOT DATE: 06/13/2005
 DRAWN BY: L. Bullock
 CHECKED BY: C. Carlson
 SHEET 4a OF 41

QUANTITY SHEET



SUMMARY OF ESTIMATED QUANTITIES											TOTALS			DESCRIPTIONS		DETAILED SUMMARY OF QUANTITIES		
SUPER STRUCTURE	ABUT. NO. 1	ABUT. NO. 2	APPROACH SLAB	CHANNEL	ROADWAY	EROSION CONTROL	TRAINING	FULL ESC	BRIDGE QUANTITY	ROUND	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	QUANTITIES	UNIT	ITEMS
					4						4		EACH	GUARD RAIL APPR SECTION, NETC 2 RAIL	621.72			
					80						80		M	TEMPORARY TRAFFIC BARRIER	621.90			
					200						200		HR	UNIFORMED TRAFFIC OFFICERS	630.10			
					600						600		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			
									1		1		LU	FIELD OFFICE - TELEPHONE (NAB)	631.25			N.A.B.I. = NOT A BID ITEM
									520		520		HR	EMPLOYEE TRAINEESHIP	634.10			
					1						1		LS	MOBILIZATION/DEMOBILIZATION	635.11			
					1						1		LS	TRAFFIC CONTROL	641.10			
					600						600		M	100 mm WHITE LINE	646.20			
					600						600		M	100 mm YELLOW LINE	646.21			
				200						200	200		SM	GEOTEXTILE UNDER STONE FLL	649.31			
										750	750		SM	GEOTEXTILE FOR SLT FENCE	649.51			
										150	150		SM	GEOTEXTILE FOR FILTER CURTAIN	649.61			
										25	25		KG	SEED	651.15			
										25	25		KG	SEED-WINTER RYE	651.17			
										120	120		KG	FERTILIZER	651.18			
										1	1		T	AGRICULTURAL LIMESTONE	651.20			
										1	1		T	HAYMULCH	651.25			
										200	200		CM	TOPSOIL	651.35			
				150						150	150		SM	GRUBBING MATERIAL	651.40			
										1	1		LS	EROSION PREVENTION & SEDIMENT CONTROL PLAN	652.10			
										50	50		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			
										100	100		SM	EROSION MATTING	654.10			
					1.12						1		SM	TRAFFIC SIGNS, TYPE A	675.20			
														BEGIN SIGN POST OPTION				
					9.2						9		M	FLANGED CHANNEL SIGN POST	675.301			
					9.2						9		M	SQUARE TUBE SIGN POSTS AND ANCHOR	675.341			
														END SIGN POST OPTION				
					4						4		EACH	REMOVING SIGNS	675.50			



TABLE OF PROJECT PROPERTY ACQUISITION

STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 RIGHT OF WAY PLANS
 DETAIL SHEET

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKING	REM.	RIGHTS	TITLE TAKEN	DATE	TOWN OR CITY RECORDED	BK.	PG.	REMARKS	REVISION NO.	SHEET	DESCRIPTION OF REVISION	DATE	MADE BY	APPROVED BY
4A	RUANE, ROBERT T. & MARY M.	8	1+510.8 LT.	1+560.0 LT.	272 S.M.±			WDDE	04-15-02	CLARENDON	106	168-171	2,328 S.F.±						
			1+509.0 LT.	1+526.7 LT.			CONST. (T) 96 S.M.±						603 S.F.±						
			1+509.2 LT.	1+544.4 LT.			DETOUR (T) 165 S.M.±						1,776 S.F.±						
			1+526.1 LT.	1+560.0 LT.			RESET (T)						FENCE						
			1+527.9 LT.	1+543.0 LT.			CLEAR & TRIM (P) 18 S.M.±						194 S.F.±						
			1+536.0 LT.	1+545.4 LT.			INSTALL (T)						SILT FENCE						
			1+552.5 LT.				DRIVE (T)						GRAVEL 3.0 M. (10') WIDE						
			1+560.0 LT.	1+613.4 LT.			CLEAR & TRIM (P) 44 S.M.±						474 S.F.±						
4B		8	1+522.2 RT.	1+548.7 RT.	119 S.M.±								1,270 S.F.±						
			1+523.4 RT.	1+548.7 RT.			CONST. (T) 66 S.M.±						710 S.F.±						
4C		7, 8	1+467.2 LT.	1+496.0 LT.	36 S.M.±								388 S.F.±						
			1+459.4 LT.	1+472.8 LT.			CONST. (T) 65 S.M.±						700 S.F.±						
			1+458.0 LT.	1+490.8 LT.			CONST. (T) 73 S.M.±						786 S.F.±						
			1+459.4 LT.	1+483.8 LT.			DETOUR (T) 178 S.M.±						1,916 S.F.±						
			1+463.8 LT.	1+493.8 LT.			UTILITY EASE. (P) 96 S.M.±						1,023 S.F.±						
			1+461.4 LT.	1+467.7 LT.			REMOVE & RESET (T)						GATE POSTS						
			1+475.0 LT.				DRIVE (T)						GRAVEL 3M. (10') WIDE						
5	HERRERA, FRANCISCO A. & LINDA M.	8	1+548.7 RT.	1+560.0 RT.	47 S.M.±					CLARENDON			506 S.F.±						
			1+548.7 RT.	1+627.5 RT.			CONST. (T) 150 S.M.±						1,615 S.F.±						
			1+560.0 RT.	1+610.6 RT.			SLOPE (T) 100 S.M.±						1,076 S.F.±						
6	CENTRAL VERMONT PUBLIC SERVICE CORP.												UTILITY						
7	NEW ENGLAND TELEPHONE												UTILITY						
8	ADELPHIA CABLE												UTILITY						

ACCT: MRYpr
 \\vwp01-cadd\Filing\cabin\193\03\RightOfWay\1093.dgn
 DATE PLOTTED: 07-MAY-2002

DR. (P)- DRAINAGE RIGHT
 DIT. (P)- DITCHING RIGHT
 CH. (P)- CHANNEL RT.
 DRIVE (T)- DRIVE RIGHT
 CUL. (P)- CULVERT RIGHT
 [W]- WATER SOURCES

--- PRESENT R.O.W.
 // P // TAKING WITHOUT ACCESS
 // L // TAKING WITHOUT ACCESS ALONG PROPERTY LINE
 (P) TAKING WITH ACCESS
 (T) PERMANENT EASEMENT
 (T) TEMPORARY EASEMENT

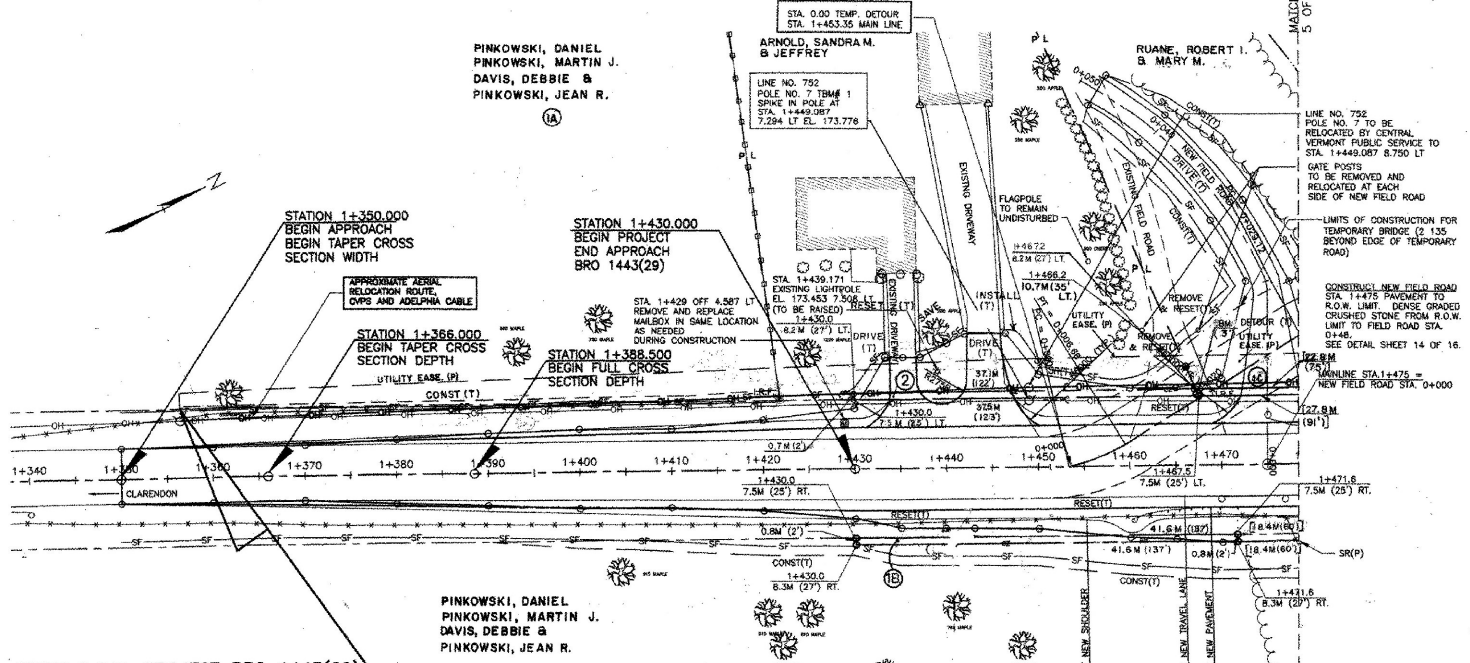
LEGEND
 --- C&T (P) --- CLEARING & TRIMMING
 ... CZ (P) ... CLEAR ZONE
 --- CONST. (T) --- CONSTRUCTION EASEMENT
 SR SR SLOPE RIGHTS
 P PROPERTY LINE
 L TOP OF CUT
 O O TDE OF SLOPE

--- UE (P) --- PERMANENT UTILITY EASEMENT

APPROVED: ROGER P. DUMAS, DATE: 02-29-00
 CHIEF, PLANS & TITLES

R. O. W. PLANS
 CLARENDON
 BRO 1443(29)
 R.O.W. SHEET 6 OF 8
 SHEET 6 OF 41

- LEGEND**
- DECIDUOUS TREE
 - CONIFEROUS TREE
 - STUMP
 - EXISTING TREE LINE
 - NEW TREE LINE
 - EDGE OF NEW PAVEMENT
 - EXISTING OVERHEAD LINE
 - PROPOSED OVERHEAD LINE
 - EXISTING GRAVEL ROAD
 - PROPOSED GRAVEL ROAD
 - SURVEY CONTROL LOCATION
 - BUILDINGS
 - UTILITY POLE
 - GUY WIRE
 - MAIL BOX
 - STONE WALL
 - R.O.W. (EXISTING)
 - GUARD RAIL
 - EDGE OF RIVER
 - CLEAR ZONE
 - TEMPORARY BRIDGE CONSTRUCTION LIMITS
 - PROPERTY LINE
 - I.R.F. IRON ROD FOUND
 - R.O.W. TAKE LINES
 - SILT FENCE



BEGIN R.O.W. PROJECT BRO 1443(29)
STA. 1+356.5 7.5M. (25')LT

RIGHT OF WAY PLAN
 SCALE 1:250
 SCALE IN METERS

NOTES:

1. THE TOE OF SLOPE, UNLESS OTHERWISE NOTED WILL BE THE LIMITS OF CONSTRUCTION. ALL WORK MUST BE DONE FROM THE CENTER OF THE ROAD SO AS TO MINIMIZE THE IMPACT ON PROPERTY OWNERS.
2. ALL TREES OUTSIDE THE LIMITS OF CONSTRUCTION ARE TO REMAIN UNTOUCHED. ALL OTHER TREES ARE AS NOTED.
3. A MINIMUM RADIUS DRIVEWAY WILL BE CONSTRUCTED AS NOTED ON THE PLANS AT THE ENTRANCE OF EACH AFFECTED DRIVEWAY AND FIELD ROAD.
4. TEMPORARY BENCHMARKS BASED OFF U.S.G.S. DISC J-18.
5. DRIVE AT STATION 1+435.250 LT SHALL BE OVERLAYED WITH 40 MM OF BITUMENOUS CONCRETE PAVEMENT, TYPE III, TO THE LIMITS AS SHOWN.
6. DRIVE AT STATION 1+444.900 LT SHALL HAVE THE EXISTING BITUMENOUS CONCRETE PAVEMENT REMOVED UNDER THE ITEM COMMON EXCAVATION AND REPAVED WITH 50 MM OF BITUMENOUS CONCRETE PAVEMENT, TYPE III, TO THE LIMITS AS SHOWN.

UTILITY RELOCATION PLAN:

1. EXISTING UTILITY POLE NO. 752 STA. 1+449.067 7.294 LT TO BE RELOCATED OUTSIDE THE CLEAR ZONE TO STA. 1+449.067 8.750 LT BY CENTRAL VERMONT PUBLIC SERVICE.
2. EXISTING CABLE TV POLE STA. 1+535.545 7.892 LT TO BE RELOCATED OUTSIDE THE CLEAR ZONE BY ADELPHI CABLE AFTER THE TEMPORARY ROAD IS REMOVED.

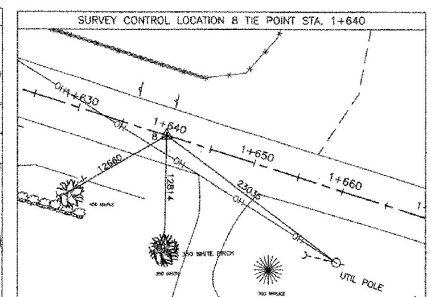
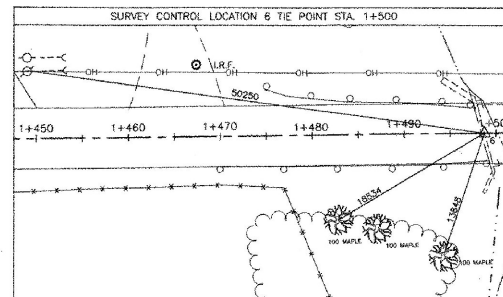
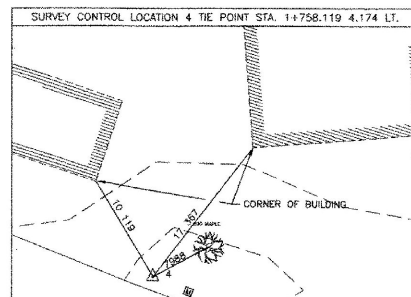
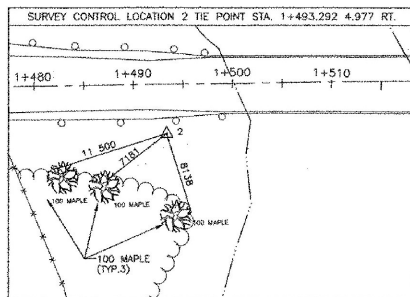
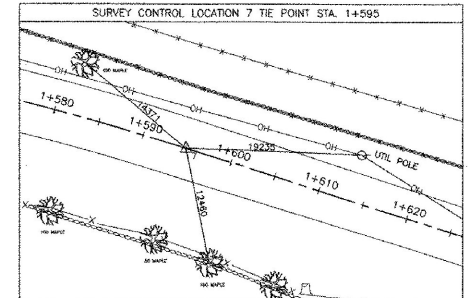
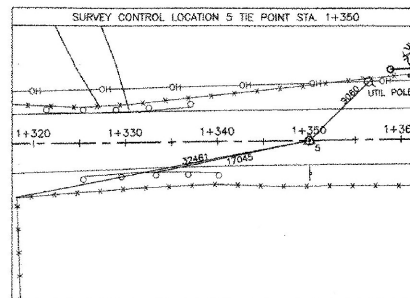
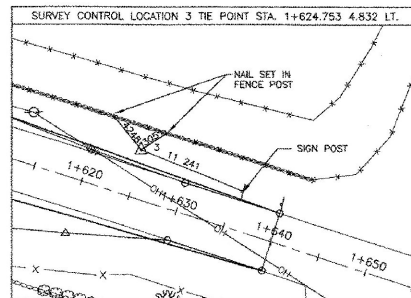
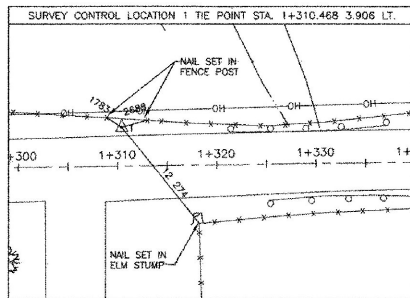
FOR R.O.W. INFORMATIONAL PURPOSES ONLY

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

REVISIONS		
NO.	DESCRIPTION	BY & DATE

engineering planning management development

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
RIGHT OF WAY SHEET	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMICK
Checked by: W.S. CHESBROUGH	Bridge Design Supervisor
DATE	DATE
VAOT PROJECT NO. BRO 1443(29)	OK PROJECT NO. R13567E
R.O.W. SHEET 7 OF 8	SHEET 7 OF 41



TIE SHEET
SCALE 1:250

NOTE:
THE DISTANCES ARE IN MILLIMETERS

REVISIONS		
NO.	DESCRIPTION	BY & DATE

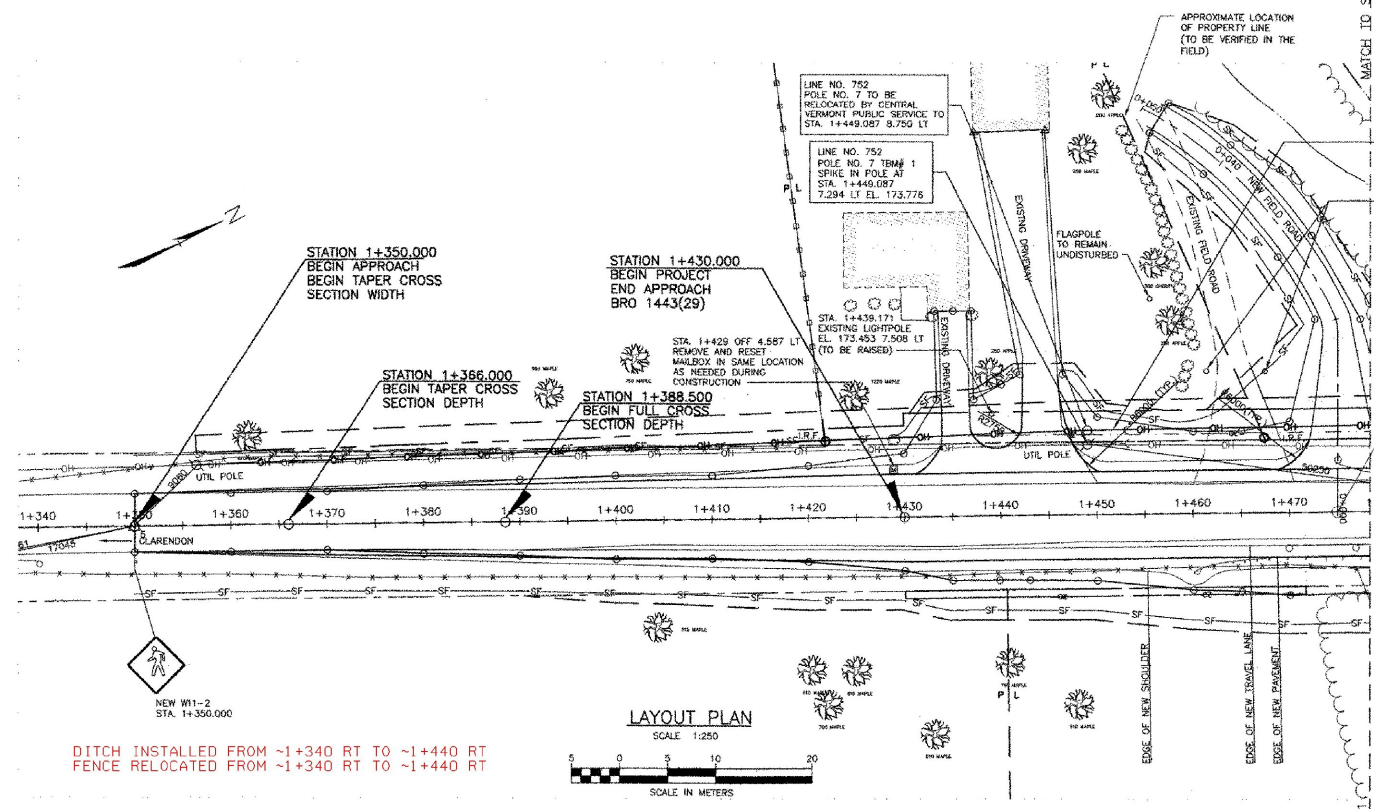


STATE OF VERMONT
AGENCY OF TRANSPORTATION

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Leg. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
TIE SHEET	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMICK
Checked by: K.S. MARSHIA, date 05/02	Bridge Design Supervisor: J.W. TUCKER, date 05/02
PROJECT: CLARENDON	PROJECT NO. BRO 144(29)
Bridge Sheet No.	SHEET 9 OF 41

LEGEND

- DECIDUOUS TREE
- CONIFEROUS TREE
- STUMP
- EXISTING TREE LINE
- NEW TREE LINE
- EDGE OF NEW PAVEMENT
- OVERHEAD LINE
- EXISTING GRAVEL ROAD
- PROPOSED GRAVEL ROAD
- SURVEY CONTROL LOCATION
- BUILDINGS
- UTILITY POLE
- GUY WIRE
- MAIL BOX
- STONE WALL
- R.O.W.
- GUARD RAIL
- EDGE OF RIVER
- CLEAR ZONE
- TEMPORARY BRIDGE CONSTRUCTION LIMITS



APPROXIMATE AERIAL RELOCATION ROUTE, CVP'S AND ADELPHIA CABLE

DATE POSTS TO BE REMOVED AND RELOCATED AT EACH SIDE OF NEW FIELD ROAD PAYMENT FOR RESET SHALL BE INCIDENTAL TO ITEM 620.50.

CONSTRUCT NEW FIELD ROAD STA. 1+475 PAVEMENT TO R.O.W. LIMIT. DENSE GRADED CRUSHED STONE FROM R.O.W. LIMIT TO FIELD ROAD STA. 0+D48. SEE DETAIL SHEET 39.

MAINLINE STA 1+475 = NEW FIELD ROAD STA. 0+000

REMOVE AND RESET FENCE STA. 1+433 6,000 RT TO RIVER REMOVE AS NECESSARY, AND TEMPORARILY RESET AS DIRECTED BY ENGINEER IN FIELD ADJACENT TO ROAD. THEN RESET WHEN CONSTRUCTION IS COMPLETED. PAYMENT FOR TEMPORARY RESET SHALL BE PAID UNDER ITEM 620.50. REMOVING AND RESETTING FENCE

NOTES:

1. THE TOE OF SLOPE, UNLESS OTHERWISE NOTED WILL BE THE LIMITS OF CONSTRUCTION. ALL WORK MUST BE DONE FROM THE CENTER OF THE ROAD SO AS TO MINIMIZE THE IMPACT ON PROPERTY OWNERS.
2. ALL TREES OUTSIDE THE LIMITS OF CONSTRUCTION ARE TO REMAIN UNTOUCHED. ALL OTHER TREES ARE AS NOTED.
3. A MINIMUM 10' DRIVEWAY WILL BE CONSTRUCTED AS NOTED ON THE PLANS AT THE ENTRANCE OF EACH AFFECTED DRIVEWAY AND FIELD ROAD.
4. TEMPORARY BENCHMARKS BASED OFF U.S.G.S. DEC 4-16.
5. DRIVE AT STATION 1+436,250 LT SHALL BE OVERLAYED WITH 40 MM OF BITUMINOUS CONCRETE PAVEMENT, TYPE III, TO THE LIMITS AS SHOWN.
6. DRIVE AT STATION 1+444,900 LT SHALL HAVE THE EXISTING BITUMINOUS CONCRETE PAVEMENT REMOVED UNDER THE ITEM COMMON EXCAVATION AND REPAVED WITH 80 MM OF BITUMINOUS CONCRETE PAVEMENT, TYPE III, TO THE LIMITS AS SHOWN.

UTILITY RELOCATION PLAN:

1. EXISTING UTILITY POLE NO. 752 STA. 1+449.087 7.294 LT TO BE RELOCATED OUTSIDE THE CLEAR ZONE TO STA. 1+449.087 8.750 LT BY CENTRAL VERMONT PUBLIC SERVICE.
2. EXISTING CABLE TV POLE STA. 1+443.545 7.862 LT TO BE RELOCATED OUTSIDE THE CLEAR ZONE BY ADELPHIA CABLE AFTER THE TEMPORARY ROAD IS REMOVED.

REVISIONS		
NO.	DESCRIPTION	BY & DATE

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

CLARENDON, VERMONT		Bridge No. 14
TOWN HIGHWAY NO. 1		Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER		Stn. Sta.
LAYOUT SHEET		
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMICK	
Checked by: K.S. MARSHALL date 05/03	Bridge Design Supervisor J.W. TUCKER date 05/03	
PROJECT CLARENDON	PROJECT NO. BRO 1443(29)	
Bridge Sheet No.	SHEET 10 OF 41	



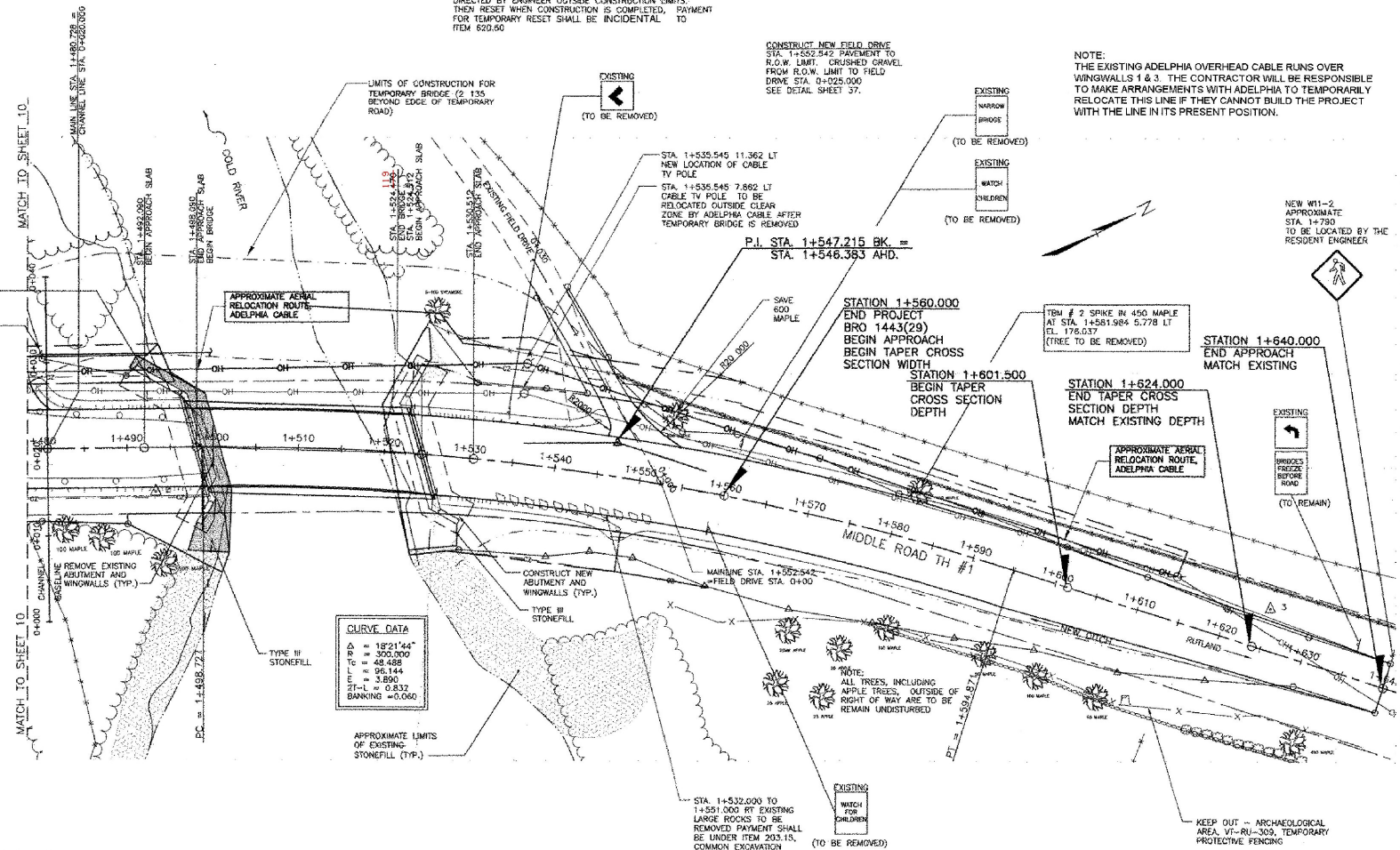
LEGEND

- DECIDUOUS TREE
- CONIFEROUS TREE
- STUMP
- EXISTING TREE LINE
- NEW TREE LINE
- EDGE OF NEW PAVEMENT
- OVERHEAD LINE
- EXISTING GRAVEL ROAD
- PROPOSED GRAVEL ROAD
- SURVEY CONTROL LOCATION
- UTILITY POLE
- GUY WIRE
- MAIL BOX
- STONE WALL
- R.O.W.
- EXISTING GUARD RAIL
- EDGE OF RIVER
- CLEAR ZONE
- TEMPORARY BRIDGE CONSTRUCTION LIMITS
- EXISTING STONEFILL
- TEMPORARY PROTECTIVE FENCING

REMOVE AND RESET FENCE
 STA. 1+452.153 LT TO 1+454.117 LT
 REMOVE AS NECESSARY, AND TEMPORARILY RESET AS FENCE REMOVED
 DIRECTED BY ENGINEER OUTSIDE CONSTRUCTION LIMITS.
 THEY RESET WHEN CONSTRUCTION IS COMPLETED. PAYMENT
 FOR TEMPORARY RESET SHALL BE INCIDENTAL TO
 ITEM 620.50

CONSTRUCT NEW FIELD DRIVE
 STA. 1+552.542 PAVEMENT TO
 R.O.W. LIMIT. CRUSHED GRAVEL
 FROM R.O.W. LIMIT TO FIELD
 DRIVE STA. 0+035.000
 SEE DETAIL SHEET 37.

NOTE:
 THE EXISTING ADELPHIA OVERHEAD CABLE RUNS OVER
 WINGWALLS 1 & 3. THE CONTRACTOR WILL BE RESPONSIBLE
 TO MAKE ARRANGEMENTS WITH ADELPHIA TO TEMPORARILY
 RELOCATE THIS LINE IF THEY CANNOT BUILD THE PROJECT
 WITH THE LINE IN ITS PRESENT POSITION.

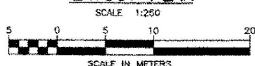


EXISTING BRIDGE DATA

STRUCTURE TYPE : STEEL PONY TRUSS W/ CONCRETE DECK BRIDGE
 CLEAR SPAN : 22.8 ft
 DISPOSITION OF STRUCTURE : TO BE REMOVED AND DISPOSED OF

- REMOVE AND RESET FENCE**
 STA. 1+433.000 TO STA. 1+477.000 RT
 STA. 1+525.153 TO STA. 1+545.117 LT
- RELOCATE MAILBOX SINGLE SUPPORT**
 STA. 1+429.000 LT
- CONSTRUCT DRIVES**
 STA. 1+435.250 LT
 STA. 1+444.903 LT
 STA. 1+479.000 LT
 STA. 1+552.542 LT
- CONSTRUCT DITCH**
 STA. 1+528.000 TO STA. 1+625.000 RT
- BRIDGE RAILING**
 STA. 1+494.173 TO STA. 1+525.725 LT
 STA. 1+498.457 TO STA. 1+529.074 RT
- GUARDRAIL APPROACH SECTION, NETIC 2 RAIL**
 STA. 1+486.553 TO STA. 1+494.173 LT
 STA. 1+488.837 TO STA. 1+498.457 RT
 STA. 1+525.725 TO STA. 1+533.346 LT
 STA. 1+529.074 TO STA. 1+536.694 RT
- MODIFIED ECCENTRIC LOAD TERMINAL**
 STA. 1+533.345 TO STA. 1+544.745 LT
 STA. 1+460.268 TO STA. 1+471.668 RT
 STA. 1+536.894 TO STA. 1+546.094 RT
- HEAVY DUTY STEEL BEAM GUARDRAIL**
 STA. 1+471.668 TO STA. 1+488.837 RT
 STA. 1+479.614 TO STA. 1+489.553 LT
- ANCHOR FOR GUARDRAIL**
 STA. 1+490.883 LT

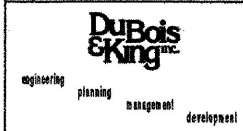
LAYOUT PLAN

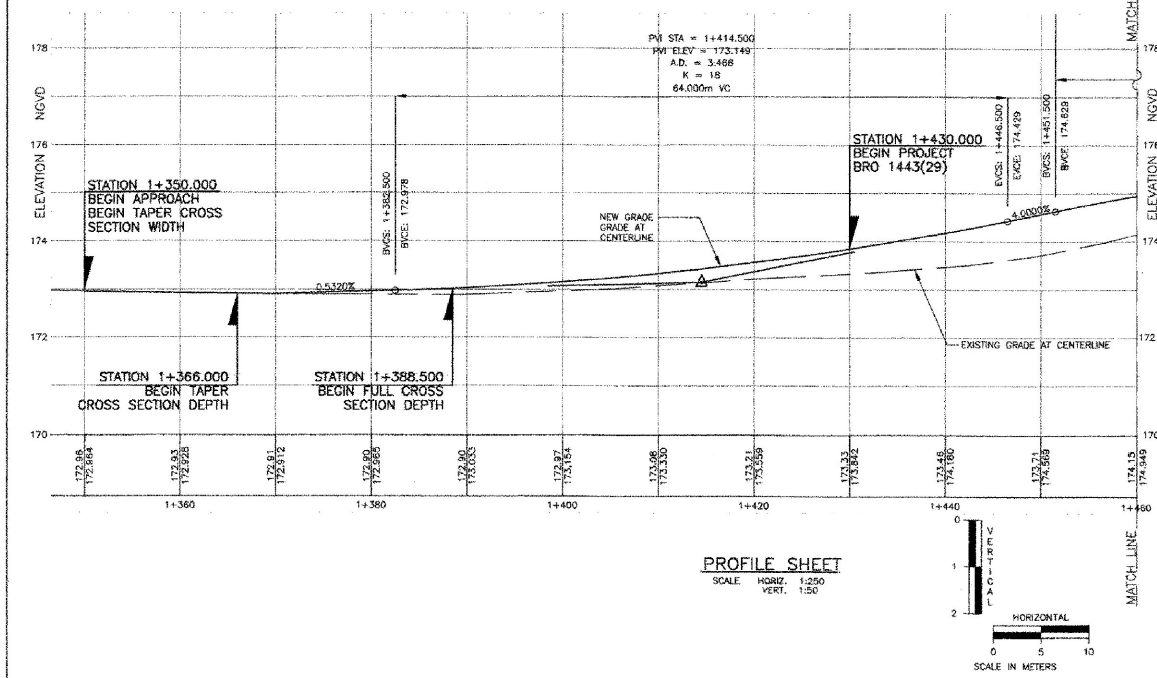
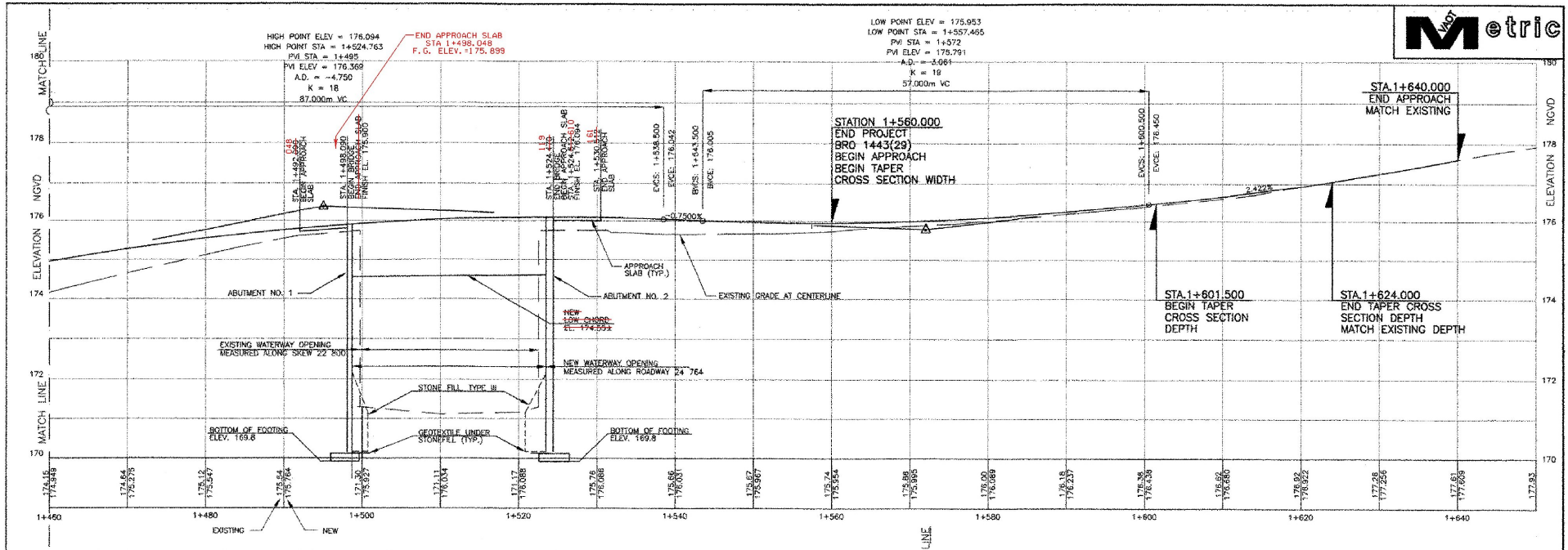


REVISIONS		
NO.	DESCRIPTION	BY & DATE

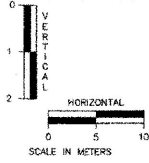
**STATE OF VERMONT
 AGENCY OF TRANSPORTATION**

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
LAYOUT SHEET	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMCK
Checked by: E.S. MARSHALL date 05/02	Bridge Design Supervisor: J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO.: BRO 1443(29)
Bridge Sheet No.	SHEET 11 OF 41





PROFILE SHEET
 SCALE HORIZ. 1:250
 VERT. 1:50



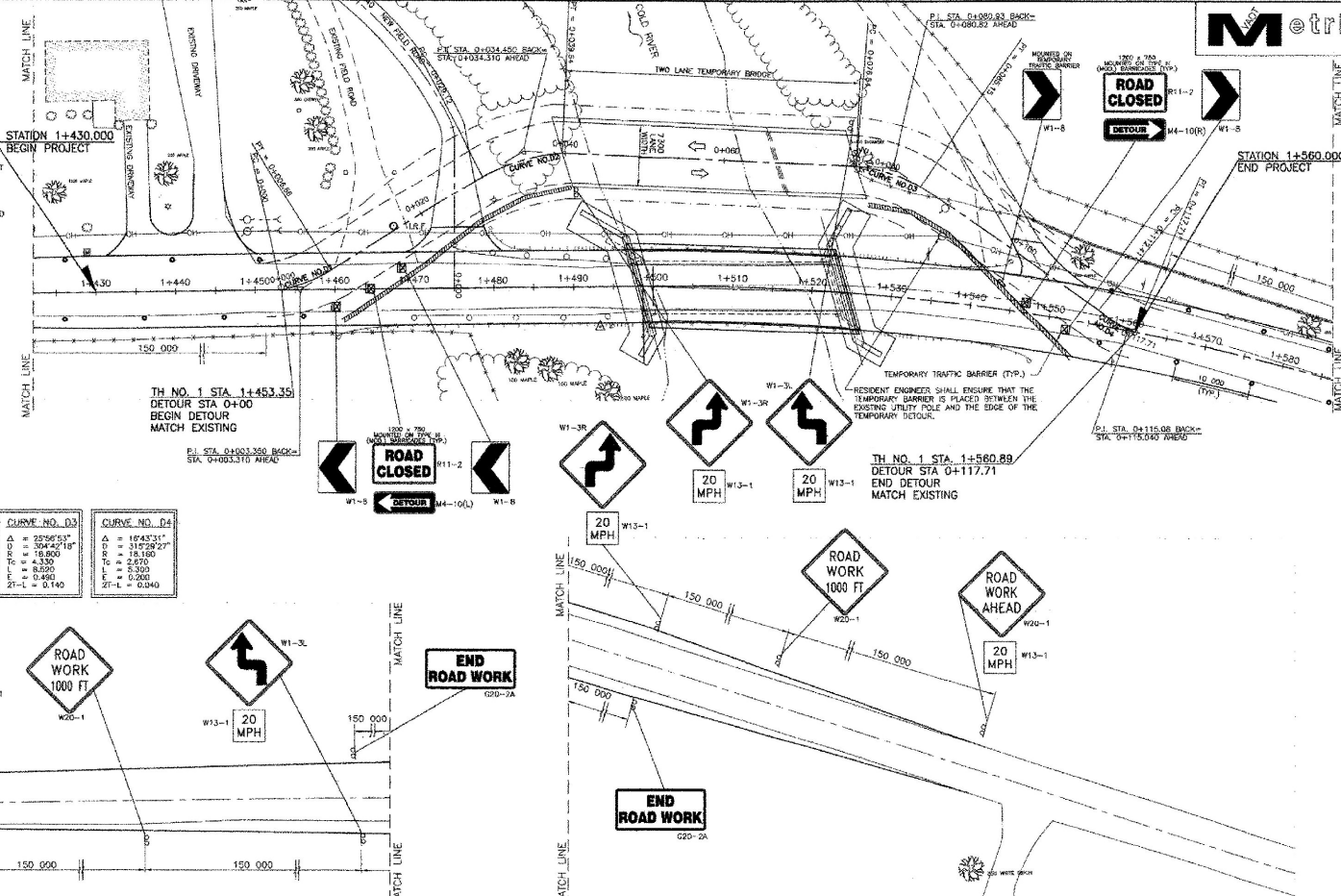
REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
PROFILE SHEET	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DMICK
Checked by: S. MARSHIA date 05/02	Bridge Design Supervisor: J.W. TUCKER date 05/02
PROJECT NO. CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 12 OF 41



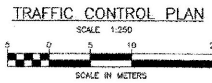


- LEGEND**
- DECIDUOUS TREE
 - CONIFEROUS TREE
 - STUMP
 - EXISTING TREE LINE
 - NEW TREE LINE
 - EDGE OF NEW PAVEMENT
 - OVERHEAD LINE
 - EXISTING GRAVEL ROAD
 - PROPOSED GRAVEL ROAD
 - SURVEY CONTROL LOCATION
 - BUILDINGS
 - UTILITY POLE
 - GUY WIRE
 - NAIL, BOX
 - STONE WALL
 - R.O.W.
 - GUARD RAIL
 - EDGE OF RIVER



CURVE NO. D1	CURVE NO. D2	CURVE NO. D3	CURVE NO. D4
$\Delta = 1742'25"$	$\Delta = 2293'01"$	$\Delta = 2575'53"$	$\Delta = 1943'31"$
$D = 26933'00"$	$D = 31928'41"$	$D = 3584'18"$	$D = 18192'27"$
$R = 21540$	$R = 26110$	$R = 16800$	$R = 18100$
$Tc = 1356$	$Tc = 6300$	$Tc = 4300$	$Tc = 2970$
$L = 8460$	$L = 10230$	$L = 8920$	$L = 5300$
$E = 0.290$	$E = 0.440$	$E = 0.460$	$E = 0.260$
$2T-L = 0.940$	$2T-L = 0.140$	$2T-L = 0.140$	$2T-L = 0.040$

- NOTES:**
- ALL DETAILS NOT SHOWN SHALL BE IN ACCORDANCE WITH PART 6 OF MUTCD AND VAOT STANDARDS E-100, E-100A, E-101, E-102, E-102A, E-106, E-107 AND E-107A.
 - THE EXISTING BRIDGE IS TO BE CLOSED TO TRAFFIC DURING CONSTRUCTION. THE CONTRACTOR SHALL INSTALL A TEMPORARY TWO-WAY BRIDGE AND ASSOCIATED DETOUR DOWNSTREAM OF THE EXISTING BRIDGE AS SHOWN IN THESE PLANS. THE CONTRACTOR SHALL NOTIFY THE TOWN CLERK'S OFFICE (802-755-4274) IN WRITING AT LEAST TWO WEEKS PRIOR TO CLOSURE OF THE EXISTING BRIDGE.
 - ALL WORK ASSOCIATED WITH THE INSTALLATION AND REMOVAL OF THE TEMPORARY BRIDGE, APPROACHES, RAILINGS, TEMP. WHITE AND YELLOW LINES, BITUMINOUS PAVEMENT AND ALL OTHER NECESSARY ITEMS EXCEPT FOR TEMPORARY TRAFFIC BARRIERS SHALL BE PAID UNDER ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE (270 SM-EST./MOD.)".
 - THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL SIGNS AND BARRICADES AS SHOWN ON THIS SHEET AND AS REQUIRED ON THE NOTED VAOT E SERIES STANDARD DRAWINGS. PAYMENT SHALL BE UNDER ITEM 641.10, "TRAFFIC CONTROL".
 - THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVES DURING CONSTRUCTION. COST SHALL BE PAID UNDER ITEM 528.11, "TWO-WAY TEMPORARY BRIDGE (270SM-EST./MOD.)".



TEMPORARY 100mm YELLOW LINE (DOUBLE CENTERLINE)
STA. 0+000.00 TO STA. 0+117.71

TEMPORARY 100mm WHITE LINE (RT AND LT)
STA. 0+000.00 TO STA. 0+117.71

- LEGEND**
- PROPOSED
- SIGN AND POSTS
 - TYPE III BARRICADES (MOD.)
 - TEMP. TRAFFIC BARRIER
 - INDICATES TRAFFIC DIRECTION
 - REFL. PLASTIC DRUM

REVISIONS	
NO.	DESCRIPTION

BY & DATE

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CLARENDON, VERMONT

TOWN HIGHWAY NO. 1

TOWN HIGHWAY NO. 1 OVER THE COLD RIVER

Bridge No. 14

Log Sta. _____

Supv. Sta. _____

TRAFFIC CONTROL SHEET

Designed by: W.S. CHESBROUGH

Checked by: G.S. WARDHA

PROJECT: CLARENDON

Drawn by: N.B. DIMICK

Bridge Design Supervisor: J.M. BLASER

PROJECT NO.: BRD 1443(39)

Bridge Sheet No. _____

SHEET 13 OF 41



EROSION CONTROL NARRATIVE

DESCRIPTION OF PROJECT

This project involves the reconstruction of a bridge in the town of Clarendon. The project is on Middle Road, a paved, Class I town highway, over the Cold river. A new two lane, single span, concrete box beam bridge will be constructed along the existing alignment while traffic is maintained on a temporary bridge during construction. As part of construction of the new bridge, the existing bridge and abutments will be removed. The final grade of the roadway through the bridge will be approximately 3000s higher than the existing roadway. Total roadway approach work, including both approaches and detour, is approximately 313 meters.

No 'Threatened & Endangered Species, Wetlands, or Historic Resources' have been identified within the project area.

The site is located, based upon NAD 83 at 4269001.00 N, 461874.00 E.

It is anticipated that the duration of this project will include installation of the temporary bridge during the fall months with bridge construction beginning the following construction season. Some work including removal of the existing bridge and approaches may take place during the winter months. Approval of an 'Erosion Prevention and Sediment Control Plan' supplied by the contractor specifically addressing construction during the winter months is a requirement before this type of work can take place.

Total disturbed area (excluding works, borrow and staging areas):
0.54 ha (1.33 ac.)

SITE INVENTORY & ANALYSIS

OFF SITE DRAINAGE CHARACTERISTICS:

The property surrounding the project site consists of gently to moderately sloping land with brush and small shrubs being the predominant vegetation. Due to the nature of the project site, water running off from the site will be quickly slowed by brush and low shrubs, greatly reducing erosion potential.

DRAINAGE, WATERWAYS, BODIES OF WATER:

Cold River bisects the project site. There are no other water bodies or wetlands within the project area. The river bed is primarily comprised of gravel with many cobbles and small boulders at the bridge site. The contributing drainage area at the bridge crossing is 92.7 sq. km.

TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES:

The topography of the project site is gently rolling mature agricultural land with some residential development. Middle road is a paved 'rural major collector' road with an average daily traffic volume of approximately 2000. Overhead utility service follows along Middle Road on the north side with the relocation of the utility poles slightly to the north.

VEGETATION:

Fields of pasture and agricultural crops are the dominant vegetation near the bridge. Impacts to vegetation will be limited to that which are affected by the construction of the temporary bridge and roadway slopes. Some mature maple and sycamore trees will be removed to accommodate the detour.

SOILS:

The Natural Resource Conservation Service has mapped the soils throughout Rutland County. The soil type identified for this project site is sandy loam Gravelly Lomby Fine Sand found at sites generally sloping from 0-8%. The hazard of erosion for this soil type is 'potentially highly erodible'.

The listed Soil Erodibility Coefficient (K-value) for this soil type is 0.29. Generally, K-values indicate the following: 0.0 - 0.23 = low erodibility; 0.24 - 0.36 = moderate erodibility; 0.37 and higher = higher erodibility.

SENSITIVE RESOURCE AREAS:

No 'Threatened & Endangered Species' have been identified within the project limits and there will be no adverse effect to wetlands or archaeological resources.

PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES:

Disturbance of soils near natural or man-made waterways consists of that which is necessary to construct two new concrete bridge abutments and approach roadway approaches as well as the temporary detour. Stabilization of disturbances to stream banks will be accomplished with Stone Fill, Type III.

TEMPORARY EROSION PREVENTION & SEDIMENT CONTROL

Temporary erosion prevention measures to be utilized include:

"Project Demarcation Pencing," denoted -PDE- on the plans, to delineate the limits the contractor can access with construction equipment. This measure limits the area that can be disturbed and exposed to erosion.

Seeding and biodegradable erosion control matting, or an equivalent product, will be utilized on all slopes steeper than 1:3 that are not lined with stone fill. Slopes from stations 1+50 - 1+496 and 1+525 - 1+590 will require this technique. All slopes shall be stabilized within 48 hours of reaching final grade or between intermittent phases of construction activity.

Tracking of all exposed slopes, combined with temporary mulching, will also be utilized on a regular basis. Any slopes to be exposed for several days prior to final grading shall be tracked and mulched. The forecast of rainfall events shall also trigger protection of exposed slopes.

Temporary stone check dams will be placed in ditches to reduce flow velocities and thus reduce the potential for erosion. Check dams will be placed along the ditches such that the elevation of the top of each check dam corresponds with the elevation of the toe of the preceding upslope - check dam. See "Erosion Controls Details" sheet. The check dams may be removed once the vegetation in the ditches is well established and the surrounding area stabilized.

Temporary measures to control sediment transport include:

Silt fence will be installed a distance of 1800 - 3000 (5'-10') from the toe of slopes to prevent sediment transport to down gradient areas. Each line of silt fence will be placed along the contour with ends turned slightly uphill to create a ponding effect should water try to run along the fencing and around the ends. The maximum slope length between separate runs of silt fence is 30 000 (100'). Silt fence shall be installed prior to any upslope earthwork.

Measures such as temporary stone check dams, silt fence, and sand bags shall be checked regularly for accumulation of sediment. Sediment build-up shall be removed when the level of sediment reaches one half the height of the control measure. Sediments shall be disposed of in an approved area such that they will not be subject to erosion.

Stabilized construction entrances to the project site, staging areas, as well as to waste and borrow areas shall be established. The minimum size of a stabilized construction entrance is 3000 x 15 000 (12' x 50'). All surface water flowing to, or diverted towards a construction entrance shall be piped under the stone. Pipes shall be appropriately sized for the contributing area, however, no pipe smaller than 150mm diameter shall be used.

Temporary sediment settling basins will be utilized for dewatering cofferdams and shall be sized based upon the pumping rate and target particle size to be settled out for the project site. The follow sizing criteria is based upon a target particle size of 0.01 mm and is provided as general guidance. (See Sediment Settling Basin Sizing Criteria.)

PERMANENT EROSION CONTROL MEASURES

Several permanent erosion control measures will be utilized:

Roadway ditches will be grass lined to slow runoff velocities helping prevent erosion during storm events.

Stone lining of the stream banks with Stone Fill, Type III will protect stream bank erosion during design storm events.

Grass, or other suitable ground cover will be established outside of the roadway limits where stone fill has not been specified.

GENERAL EROSION & SEDIMENT CONTROL GUIDELINES

The Erosion Control Plans are meant as a guideline for preventing erosion and controlling sediment transport. The work outlined in this narrative consists of applying measures throughout the life of the project to control erosion and minimize the sedimentation of receiving waters. The measures include stabilization and structural practices, stormwater controls and other pollution prevention controls.

Coordinate the installation, use, and removal of erosion and sediment control measures with construction activities to ensure economical, effective and continuous erosion and sediment control. Employ temporary stabilization practices in incremental stages as construction proceeds. The contractor will use additional erosion control measures as necessitated by the sequence of construction. And as directed by the Engineer and On-site Coordinator. See section 105.23 of the Vermont AOT Standard Specifications for Construction, dated 2001.

Install all erosion and sediment control measures as shown in the Erosion Control Plan or as directed by the Engineer and On-site Coordinator. Do not modify the type, size or location of any control or practice without approval of the Engineer and On-site Coordinator. Any changes shall be noted on the plans, in the weekly inspection report, and reported to the appropriate authority in a timely manner. Inspect all control measures weekly and after each rainfall event. Repair measures promptly once damage is discovered.

Preventing initial soil erosion is much more effective than treating eroded sediment. Therefore, stabilize all disturbed areas promptly after construction activity has temporarily or permanently ceased. Temporary vegetation shall be established if the area is to be without construction activity for a period of 14 days. Perimeter control measures shall be installed following clearing, but prior to the start of any grubbing or grading activity, install other temporary controls in incremental stages as construction proceeds.

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.

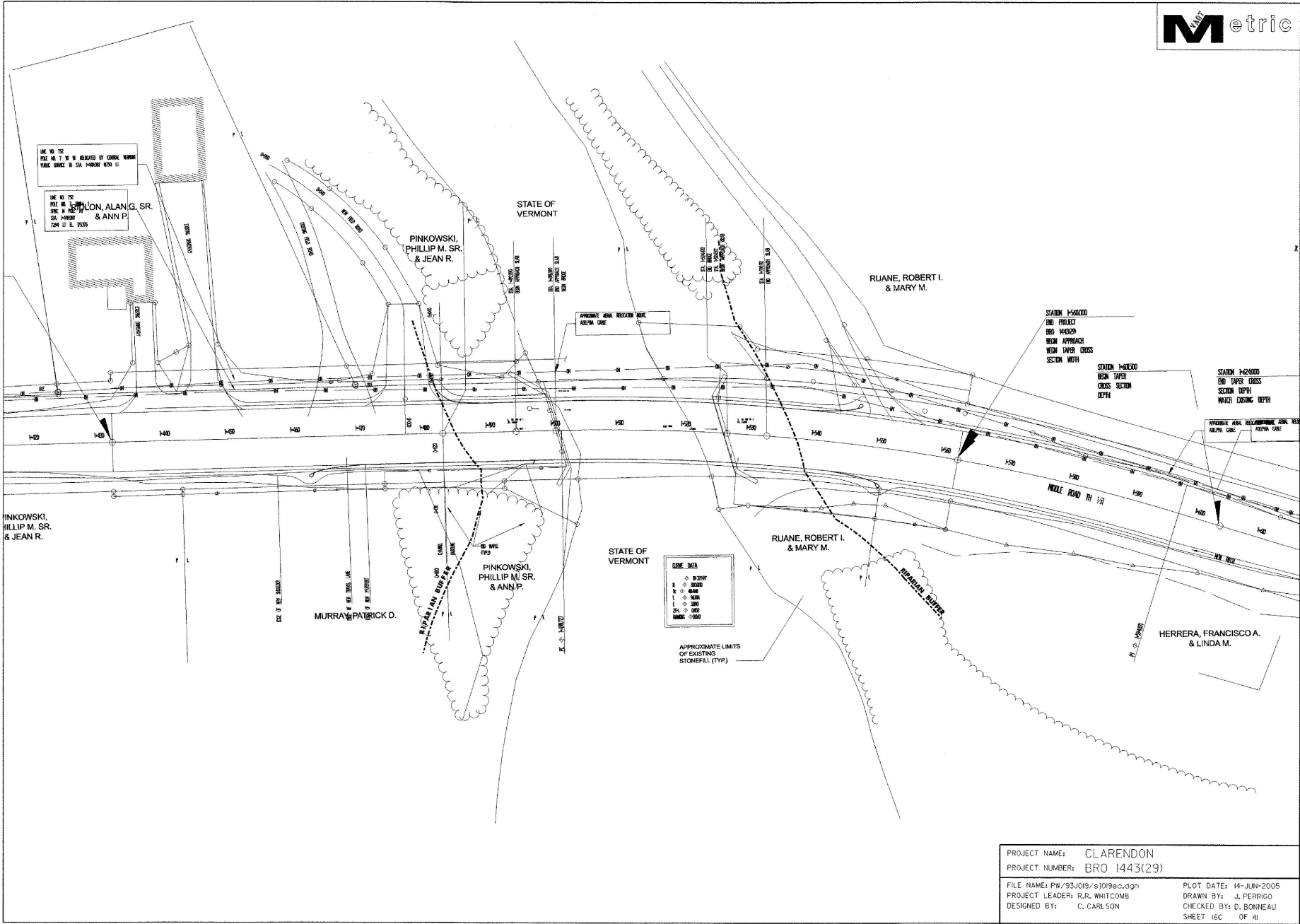
Control only sediment-laden runoff generated by the project site. Collect and route clean off-site runoff around or through the project site using diversion berms, diversion channels, culverts and/or temporary pipes.

Do not allow construction equipment to operate on the down slope side of perimeter control measures.

SEDIMENT SETTLING BASIN SIZING CRITERIA

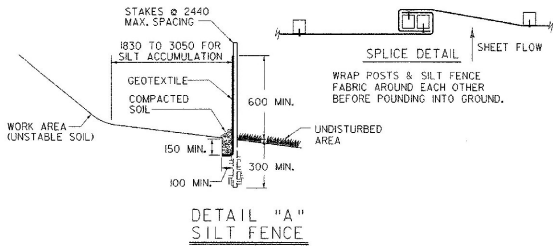
PUMP FLOW RATE	REQUIRED SURFACE AREA	LENGTH WIDTH = 2:1					
		L (ft)	W (m)	W (ft)			
Q (gpm)	Q (m ³ /s)	A (ft ²)	A (m ²)				
50	0.0032	95	55	35.0	17.0	10.6	5.3
100	0.0063	1200	111	49.0	24.5	15.0	7.5
150	0.0095	1776	165	59.0	29.6	16.2	9.1
200	0.0126	2369	220	68.8	34.4	21.0	10.5
250	0.0158	2970	276	77.0	38.5	23.4	11.7
300	0.0189	3560	330	84.4	42.2	25.8	12.9
350	0.0221	4155	386	91.2	45.6	27.8	13.9

PROJECT NAME:	CLARENDON		
PROJECT NUMBER:	BRO 1443(29)		
FILE NAME:	PROJECTS\B3\019\g\019enc.xt	PLOT DATE:	8/10/2004
PROJECT LEADER:	R. R. WHITCOMB	DRAWN BY:	D. BONNEAU
DESIGNED BY:	D. BONNEAU	CHECKED BY:	C. CARLSON
EROSION CONTROL NARRATIVE		SHEET	16A OF 50



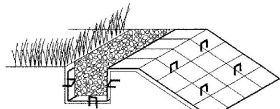
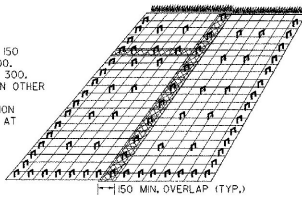
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PROJECT NUMBER:	BRO 1443(29)		
FILE NAME:	PW/93/09/s10/9ac.dgn	PLOT DATE:	14-JUN-2005
PROJECT LEADER:	R.R. WHITCOMB	DRAWN BY:	J. PERRICO
DESIGNED BY:	C. CARLSON	CHECKED BY:	D. BONNEAU
		SHEET	16C OF 41

NOTE: REFER TO THE "VERMONT HANDBOOK FOR SOIL EROSION AND SEDIMENT CONTROL FOR CONSTRUCTION SITES" FOR ADDITIONAL EROSION CONTROL MEASURES.
HAY BALES AND SILT FENCE ARE NOT TO BE USED ACROSS AREAS OF CONCENTRATED FLOW.

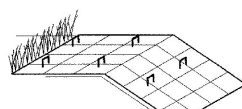


NOTES:
1. DO NOT USE SILT FENCE IN STREAMS, DRAINAGE DITCHES, OR AREAS OF CONCENTRATED FLOW.
2. BACK WITH STAKED-IN PLACE HAY BALES OR WIRE FENCE IF ADDITIONAL SUPPORT IS NEEDED.
3. MUST BE REMOVED WHEN SOIL IS STABILIZED.

NOTES:
1. ALL FABRIC OVERLAPS SHALL BE 150 MINIMUM WITH STAPLES EVERY 500.
2. STAPLE EDGES OF FABRIC EVERY 300.
3. USE 1000 MAX. STAPLE SPACING IN OTHER AREAS.
4. SEE "ANCHOR DETAILS FOR EROSION MATTING" DETAIL FOR ANCHORING AT TOPS OF SLOPES.

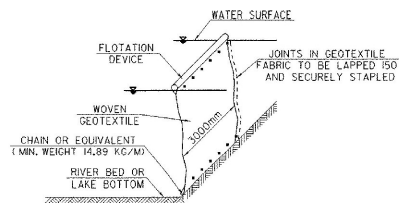


INSERT & STAPLE FABRIC INTO 150 X 150 TRENCH PRIOR TO BACKFILLING & COMPACTING SOIL. USE 3 STAPLE PATTERN EVERY 500.

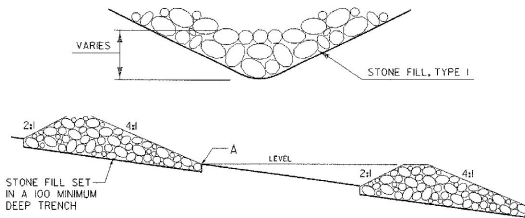


IF THE TOP OF SLOPE IS RELATIVELY FLAT EXTEND MATERIAL APPROXIMATELY 600 AND STAPLE EVERY 500 MINIMUM.

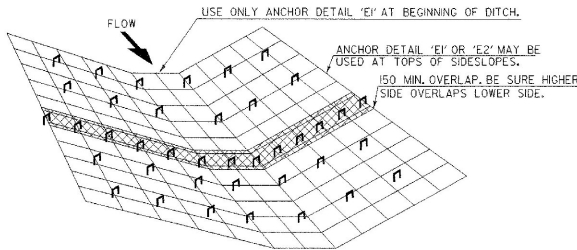
DETAIL "E" ANCHOR DETAILS FOR EROSION MATTING



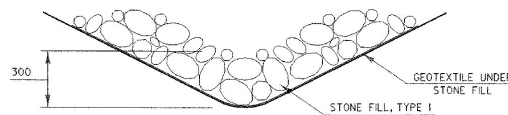
1. NOT TO BE USED ACROSS THE FLOW OF WATER
2. HEIGHT SHOULD BE SUFFICIENT TO ALLOW FOR FLUCTUATIONS IN WATER SURFACE ELEVATION
3. ANCHOR FIRMLY IN PLACE AS NEEDED
4. INSTALL PRIOR TO EARTH DISTURBING ACTIVITIES AND/OR INSTALLATION OF COFFERDAM WHERE APPLICABLE
5. LEAVE IN PLACE UNTIL UP-SLOPE AREAS ARE STABLE AND/OR COFFERDAM IS REMOVED
6. USE CARE DURING REMOVAL TO PREVENT THE RELEASE OF CAPTURED SEDIMENT AS MUCH AS POSSIBLE



NOTES:
1. CHECK DAMS TO BE USED PRIOR TO COMPLETION OF STONE LINING IN DITCHES.
2. LOCATE DOWNSTREAM STRUCTURE SUCH THAT POINT "B" IS APPROXIMATELY LEVEL WITH THE LOWEST GROUND ELEVATION "A" OF THE UPSTREAM STRUCTURE.
3. PAYMENT FOR STONE CHECK DAMS WILL BE MADE FOR THE QUANTITY OF STONE FILL USED. REMOVAL OF STONE CHECK DAMS WILL BE INCIDENTAL TO THE STONE FILL ITEM USED.



1. TO BE USED WHERE SLOPE OF DITCHLINE RANGES FROM 1% - 2.5%. SLOPES EXCEEDING 2.5% SHALL BE LINED WITH STONE FILL, TYPE I.
2. OVERLAPS SHALL BE 150 MINIMUM IN THE DIRECTION OF FLOW AND STAPLED EVERY 500 MIN. THROUGH BOTH FABRICS.
3. USE 1000 MAX STAPLE SPACING IN OTHER AREAS.



SEEDING FORMULA RURAL AREAS



% WT.	Kg/ha	NAME	PUR %	GERM %
37.5	26.0	CREeping RED FESCUE	98	85
37.5	26.0	TALL FESCUE	95	90
5.0	4.0	RED TOP	95	90
15.0	10.0	BIRD'SFOOT TREFOLI	98	85
5.0	4.0	ANNUAL RYE GRASS	95	85
100.0	70.0			

GENERAL NOTES

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

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

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

EROSION CONTROL DETAILS

PROJECT NAME:	CLARENDON
PROJECT NUMBER:	BRO 1443 (29)
FILE NAME:	93J019\Structures\ej09ec.dgn
DESIGNED BY:	C. CARLSON
PLOT DATE:	14-JUN-2005
PROJECT MANAGER:	R. WHITCOMB
CHECKED BY:	C. CARLSON
SHEET	16 OF 41

NOTE: DETAILS NOT TO SCALE

GENERAL NOTES



1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2001, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SEVENTEENTH EDITION, AND ITS LATEST REVISIONS.

2. A RECONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO ANY WORK BEING DONE. AT THAT TIME, THE CONTRACTOR SHALL SUBMIT AN EROSION/SEDIMENT CONTROL PLAN WITH A SCHEDULE OF EVENTS. THIS PLAN SHALL BE SITE SPECIFIC.

3. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 20 DEGREES ZEUSIUS.

4. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND ALL APPLICABLE ENVIRONMENTAL PERMITS AND ENSURE THAT ALL CONSTRUCTION CONDITIONS ARE MET.

5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 BY 25, EXCEPT AS OTHERWISE INDICATED.

6. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS.

7. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. ANY UPWARD KEY SHALL BE PLACED INTERIALLY WITH THE CONCRETE BELOW THE JOINT.

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

9. MINIMUM COVER FOR REINFORCING STEEL SHALL BE 75 UNLESS OTHERWISE NOTED ON THE PLANS.

10. REINFORCEMENT STEEL PLACEMENT TOLERANCES SHALL BE: SPACINGS - +/- 25, CLEARANCE - +/- 6.

11. REINFORCING STEEL SHALL CONFORM TO AASHTO M31/M31.1 GRADE 42C. REINFORCING STEEL IN SUPERSTRUCTURES AND APPROACH SLABS SHALL BE EPOND COATED. ALL EXPOSED REINFORCING STEEL TO BE CUT IN THE FIELD SHALL BE SAW CUT AND THE EXPOSED ENDS TREATED AS PER SECTION 507.04.

12. AFTER THE SUPERSTRUCTURE HAS BEEN ERRECTED, ELEVATIONS SHALL BE TAKEN ALONG THE TOP OF THE PRECAST CONCRETE MEMBERS, AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING THE FINISHED GRADE. THIS SHOULD NOT BE DONE UNTIL AT LEAST 24 HOURS AFTER THE MEMBERS HAVE BEEN SET.

13. NO CONCRETE IN THE ABUTMENTS OR WINGWALLS SHALL BE PLACED ABOVE THE BRIDGE SEAT ELEVATIONS UNTIL THE PRECAST CONCRETE MEMBERS HAVE BEEN ERECTED AND THE FINISHED GRADE OF THE DECK HAS BEEN DETERMINED.

14. THE SURFACE OF THE BRIDGE SEAT WILL BE LEVEL FROM FRONT TO BACK AND WILL BE A UNIFORM SLOPE FROM ONE FASCIA TO THE OTHER. THE BRIDGE SEAT SURFACE SHALL BE SMOOTHED WITH A MAGNESIUM FLOOR FINISH.

15. THE PRECAST CONCRETE MEMBERS SHALL BE OVERLAPPED WITH CONCRETE, HIGH PERFORMANCE CLASS AA. THE OVERLAY IS DESIGNED TO BE A MINIMUM OF 120.

16. THE CONCRETE DECK OVERLAY SHALL BE PLACED IN ONE CONTINUOUS POUR, NOT TO EXCEED 8 HOURS. NO COLD JOINTS WILL BE ALLOWED. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED. A 96 HOUR DELAY BETWEEN THE COMPLETION OF THE ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER POUR SHALL ALSO BE OBSERVED.

17. THE CONCRETE CURES AND THE CONCRETE OVERLAY SHALL BE ITEM 501.32, "CONCRETE, HIGH PERFORMANCE CLASS AA AND ALL OTHER CONCRETE SHALL BE ITEM 501.34, "CONCRETE, HIGH PERFORMANCE CLASS B" UNLESS OTHERWISE NOTED ON THESE PLANS.

18. THE CONTRACTOR, AT THE EXPENSE OF THE CONTRACTOR, SHALL REPAIR ANY DAMAGE TO CONCRETE WALLS RESULTING FROM IMPROPER BACK FILLING.

19. THIS BRIDGE HAS BEEN PHOTO DOCUMENTED AS REQUIRED IN SECTION A-3 OF THE MOD DATED 0-3-97.

20. REMOVAL OF THE EXISTING SUPERSTRUCTURES SHALL BE UNDER ITEM 529.20 "PARTIAL REMOVAL OF STRUCTURE". THIS WORK SHALL INCLUDE REMOVAL AND DISPOSAL OF THE BRIDGE DECK, SUPERSTRUCTURE, BRIDGE AND APPROACH BALKINGS AND BEARINGS. REMOVAL OF THE BRIDGE PAVEMENT SHALL BE UNDER ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT".

21. REMOVAL OF ABUTMENT NO. 1 & 2 SHALL BE PAID FOR UNDER ITEM 208.35, "CONFERMATION EXCAVATION, ROCK". EXCAVATION OF SOILS SURROUNDING THE ABUTMENTS NECESSARY FOR CONSTRUCTION OF THE NEW ABUTMENTS SHALL BE PAID FOR UNDER ITEM 208.30, "CONFERMATION EXCAVATION, EARTH". ANY PORTION OF THE ABUTMENTS THAT EXTENDS BEYOND THE LIMITS OF THE CONFERMATION SHALL BE REMOVED IN ITS ENTIRETY AND SHALL BE INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE".

22. THE EXISTING STRUCTURAL STEEL ON THE PROJECT WAS PAINTED WITH A MATERIAL WHICH MAY CONTAIN LEAD. THE REMOVED STRUCTURAL STEEL IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE, ITS OFFICERS, AND EMPLOYERS HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE STRUCTURAL STEEL.

23. NOT USED.

24. THE HEIGHT OF BACKFILL BEHIND THE ABUTMENTS SHALL BE LIMITED TO THE BRIDGE SEAT ELEVATIONS UNTIL THE NEW PRECAST CONCRETE MEMBERS HAVE BEEN SET.

25. NOT USED.

26. DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS SHOWN ON THE PLANS HAVE BEEN OBTAINED FROM SURVEY WHEN THE RIVER WAS FULL AND AS SUCH, MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS.

27. THE CONTRACTOR SHALL MAKE FIELD MEASUREMENTS OF ALL EXISTING CONDITIONS AFFECTING THE WORK. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER, OR EXTENT OF EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE RESIDENT ENGINEER BEFORE ADVANCING THE WORK. SHOP DRAWINGS REQUIRED FOR VARIOUS ITEMS OF THE WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS BY THE CONTRACTOR PRIOR TO SUBMITTAL FOR THE RESIDENT ENGINEER'S REVIEW AND SHALL BE SO NOTED.

28. WATER REPELLENT (MOD. - SILANE) SHALL BE APPLIED TO ALL EXPOSED BRIDGE CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE PRESTRESSED CONCRETE MEMBERS BETWEEN THE TRIP NOTCHES. NO WATER REPELLENT SHALL BE APPLIED TO THE PRE-STRESSED JOINTS PRIOR TO THE PLACEMENT OF THE OVERLAY AND CURE.

PRECAST CONCRETE MEMBER NOTES

1. THE FABRICATION DRAWINGS SHALL BE SEALED BY A VERMONT LICENSED PROFESSIONAL ENGINEER REFERENCED IN THE DESIGN OF PRECAST CONCRETE MEMBERS AND WILL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW. CONJOINT ACTION BETWEEN THE 130 OVERLAY AND THE PRECAST CONCRETE MEMBERS WILL BE ALLOWED.

2. THE PRECAST CONCRETE MEMBERS SHALL BE DESIGNED FOR AASHTO MS 22.5 LIVE LOADS. THE PRECAST CONCRETE MEMBERS SHALL ALSO BE DESIGNED FOR APPROPRIATE DEAD LOADS AS SHOWN ON SHEET 20.

3. ALL EXPOSED CORNERS OF THE PRECAST CONCRETE MEMBERS SHALL BE CHAMFERED 19.

4. THE TOPS OF THE PRECAST CONCRETE MEMBERS SHALL RECEIVE A SMOOTH FLOAT FINISH.

5. NOT USED.

6. THE PRECAST CONCRETE MEMBERS WILL BE DESIGNED TO MATCH THE OVERALL GEOMETRY AS SHOWN IN THESE PLANS. THE EDGE OF THE STRANDE SHALL BE RECESSED AND SMOOTHED.

7. VOID DRAINING ARE REQUIRED AT THE LOW POINT IN THE VOID OF EACH PRECAST CONCRETE MEMBER. THE VOID DRAIN SHALL BE 1/2 INCH DIAMETER AND NON-PERFORATED, AND SHALL BE CLEANED AFTER ERECTION.

8. MATERIAL SPECIFICATION AND CONCRETE MIX DESIGN SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION SECTION 519.05A AND 519.05B.

9. THE PRECAST CONCRETE MEMBERS SHALL BE FABRICATED AT A NOT CERTIFIED AND NOT APPROVED PLANT.

10. THE VOIDS MUST BE VENTED DURING THE CURING PERIOD. CURING PROCEDURES SHALL BE SUBMITTED TO THE RESIDENT ENGINEER FOR REVIEW.

11. THE CONCRETE DESIGN MIX SHALL HAVE A 28 DAY STRENGTH (F'CD) OF 41.1 MPa. THE MINIMUM CONCRETE STRENGTH AT STRIKE TRANSFER SHALL BE 31.2 MPa. REINFORCING STEEL SHALL BE AASHTO M31/M31.1 GRADE 42C, AND SHALL BE EPOND COATED.

12. THE PRECAST CONCRETE MEMBERS SHALL BE DESIGNED TO CONTAIN PRESTRESSING STRANDES. PRESTRESSING STRANDES SHALL CONFORM TO AASHTO M203M/M203 AND SHALL CONSIST OF 1,860 MPa, 15 DIA. 7 WIRE LO RELAXATION STEEL STRANDES CONFORMING TO SECTION 119.06, PULVER TO 75% OF THEIR YIELD.

13. THE 20 DIAMETER TRANSVERSE TENDONS SHALL BE POLYESTER OR EQUIVALENT. THE 20 PLATE SHALL CONFORM TO AASHTO M270/M270M, GRADE 250 STEEL. THE 20 PLATE AND CHECKS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M317. ALL WORK COVERED IN THIS NOTE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEMS 510.21 "PRESTRESSED CONCRETE BOX BEAMS (990 X 914)" AND 510.21 "PRESTRESSED CONCRETE BOX BEAMS (990 X 1220)".

14. THE JOINTS BETWEEN THE PRECAST CONCRETE MEMBERS SHALL BE FILLED WITH MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 511.11(A). THIS WORK WILL BE PAID FOR UNDER THE ITEM 510.24, "MORTARING SHEAR KEYS".

15. THE CONTRACTOR MUST SUBMIT A DESIGN TO THE RESIDENT ENGINEER FOR REVIEW WHICH IS DIFFERENT FROM THE INFORMATION SHOWN IN THESE PLANS TO MEET THE FABRICATOR'S SPECIFIC PLANT OPERATIONS, PROVIDED THAT THE ALTERNATE DESIGN MEETS ALL APPLICABLE DESIGN AND MATERIAL REQUIREMENTS AND DOES NOT AFFECT THE GEOMETRY OF THE REMAINING COMPONENTS OF THE PROJECT.

16. THE COST FOR PERFORMING ALL DESIGN WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCIDENTAL TO ITEM NO. 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 914)" AND 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 1220)".

17. ALL COSTS ASSOCIATED WITH FABRICATION, HANDLING, AND DELIVERY TO THE PROJECT SITE AND ERECTION OF EACH MEMBER SHALL BE PAID FOR UNDER ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAM (990 X 914)" AND 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 1220)".

18. ALL COMPONENTS OF EACH MEMBER, INCLUDING (BUT NOT LIMITED TO) THE 13 DIAMETER TRANSVERSE TENDONS, GALVANIZED CHECKS AND 13 PLATE, ALL ANCHOR BOLTS AND THE HOT Poured JOINT SEALER AND ANY OTHER HARDWARE OR FIELD CONNECTION REQUIREMENTS SHALL BE PAID SEPARATELY TO ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 914)" AND 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 1220)".

19. MATERIALS, LABOR AND EQUIPMENT FOR GROUTING OF JOINTS AT ABUTMENT NO.1 AND 2 AND THE VOID BETWEEN JOINTS SHALL BE PAID FOR UNDER ITEM NO. 2 SHALL BE INCIDENTAL TO ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 914)" AND 510.21, "PRESTRESSED CONCRETE BOX BEAMS (990 X 1220)". THE GROUT SHALL CONFORM TO MORTAR, TYPE IV.

20. (A) THE ELASTOMERIC BEARING PADS SHALL CONFORM TO SECTION 531.03 AND AASHTO M251 AND SHALL BE PAID FOR UNDER ITEM 531.10, "BEARING DEVICE (ELASTOMERIC)".

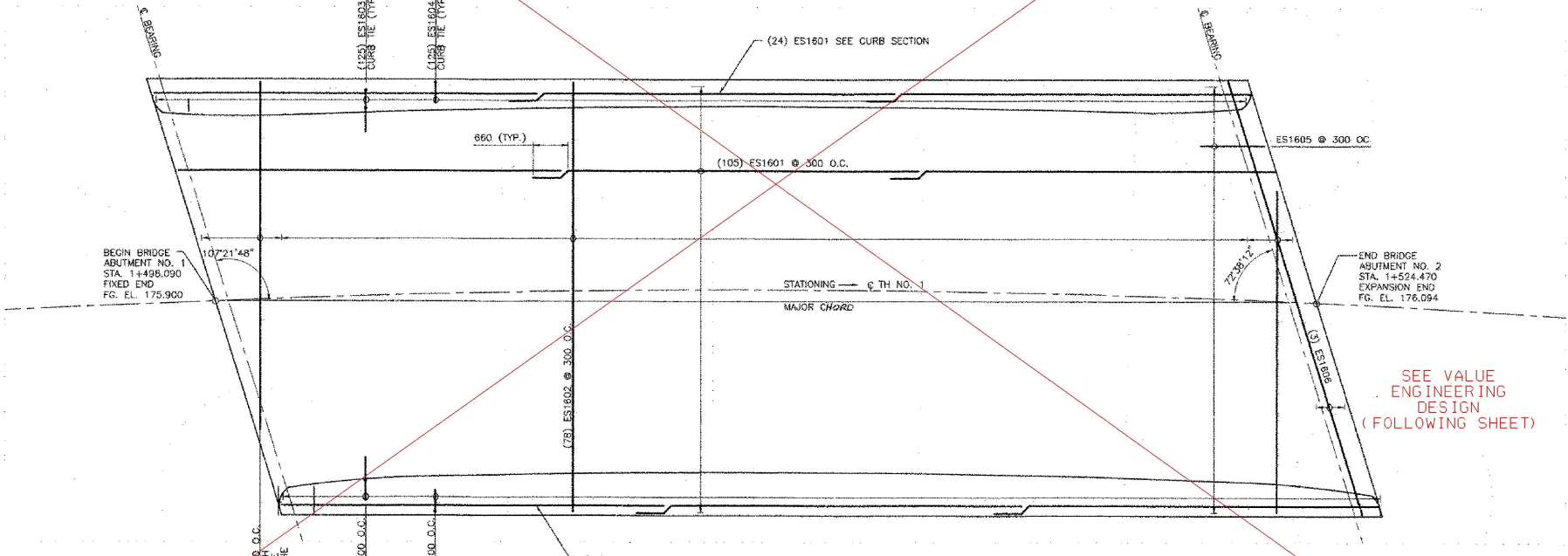
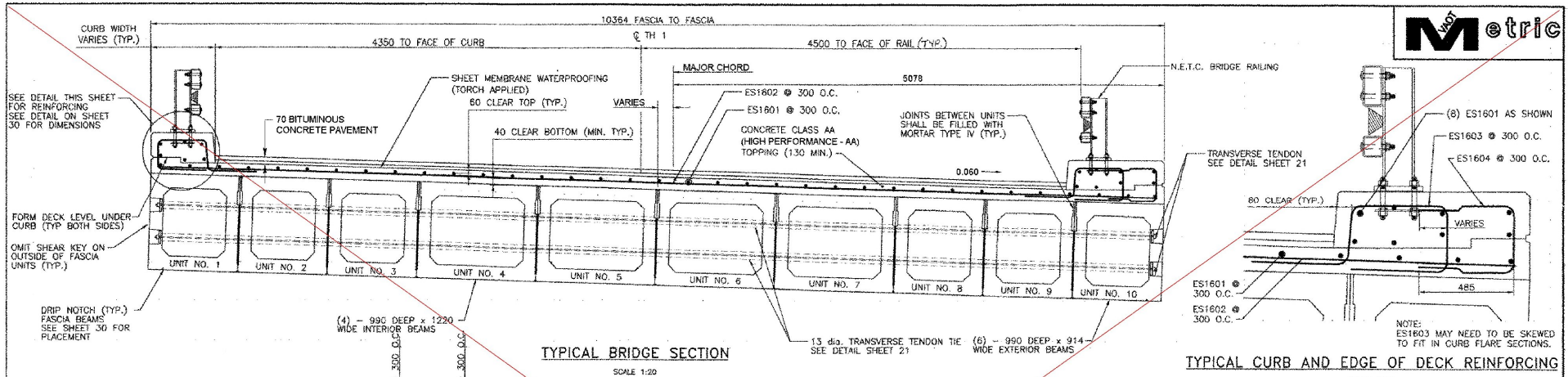
(B) THE BOX BEAMS SHALL SET FULLY ON ALL OF THE BEARINGS. OCCASIONALLY, TOLERANCES IN THE CONSTRUCTION OF THE BRIDGE SEAT OR PRECAST BEAMS WILL CAUSE THE BEAMS TO BEAR ON ONLY 3. THE CONTRACTOR SHALL HAVE ON-SITE A QUANTITY OF ACCEPTABLE SHIMS OF VARIOUS THICKNESSES THAT MAY BE USED TO FIT THE BEARINGS. THE COST OF THE SHIMS SHALL BE INCIDENTAL TO THE ITEM 531.10.

21. THE CONTRACTOR SHALL GIVE THE VAND MATERIALS AND RESEARCH SECTION TWO WEEKS NOTICE PRIOR TO THE PRESTRESS FABRICATOR CONSTRUCTING THE BEAMS.

SEQUENCE OF CONSTRUCTION FOR PRESTRESSED VOIDED BOX BEAMS

- (A) LAYOUT WORKING LINES
 - * LAY OUT WORKING LINES FOR THE BRIDGE'S ENTIRE WIDTH ON THE BRIDGE SEAT. MARKERS ALL WORKING LINES FROM A COMMON WORKING POINT.
 - * THE WORKING LINES ARE TO BE BASED ON THE NOMINAL BEAM WIDTHS.
- (B) VERIFY BEAM SEAT ELEVATIONS
 - * TAKE ELEVATIONS AT BEAM SEATS.
 - * IF SEATS ARE HIGH, GRIND TO CORRECT ELEVATIONS.
 - * IF SEATS ARE LOW, ADD GRUET.
 - * LOCATE AND DRILL 7/8 DIA HOLES FOR ANCHOR BOLTS.
 - * INSTALL BEARINGS.
- (C) ERECT BEAMS
 - * BEAMS SHALL BE PLACED TO FIT WITHIN THE WORKING LINES.
 - * AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH LATERAL TIE).
 - * PLACE ANCHOR BOLTS.
 - * GROUT ANCHOR BOLTS IN ABUTMENT.
- (D) INSTALL BACKER ROD
 - * FILLER SHALL BE PLACED BELOW THE KEY'S BOTTOM AS SHOWN ON THE PLANS.
- (E) INSTALL TRANSVERSE TIES
 - * A SEAMLESS POLYETHYLENE SHEATH SHALL COVER TIES (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND).
 - * FIT TIES THROUGH DUCTS.
 - * VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT BULGING OF BEAMS.
 - * USING CALIBRATED JACK, POST-TENSION TIE TO APPROXIMATELY 22.2 IN TO REMOVE SAG IN THE TIE AND TO SEAT THE CHECK.
- (F) GROUT SEAR KEYS
 - * CLEAR JOINT WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. THEN VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
 - * ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
 - * CAREFULLY ROD CLEAN TO ELIMINATE ANY POSSIBILITY OF VOIDS.
- (G) POST-TENSION TRANSVERSE TIES
 - * GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 10.3 MPa, BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
 - * USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL, POST-TENSION TIE TO 133.6 KN.
- (H) END DETAILS
 - * GROUT ANCHOR BOLT ENDS AT THE FIXED ENDS AT BRIDGE SEATS AND PLACE COLD Poured JOINT SEALER AT EXPANSION END.
 - * BEFORE GROUT CURING, PLACE WEDGES PLATE AND INSTALL HOLD DOWN NUTS. -FIXED END, NUT TIGHTENED.
 - EXPANSION END, NUT HAND TIGHTENED AND LOCKWASHED BY 1/2 TURN.
 - * GROUT OVER NUT AND BOLT ON FIXED END, PLACE COLD Poured JOINT SEALER OVER NUT AND BOLT ON EXPANSION END.
- (I) FINISH WORK
 - * REMOVE WEDGES, AND PATCH DECK AND FASCIA BEAMS AT TRANSVERSE TIES.
 - * PLACE AN OVERLAY.

PROJECT NAME:	Clarendon	
PROJECT NUMBER:	BRO 1443(29)	
FILE NAME:	93p19gen.xls	PLOT DATE: 10/19/2004
PROJECT LEADER:	R. Whitcomb	DRAWN BY: L. Bullock
DESIGNED BY:	DuBois & King, Inc.	CHECKED BY: C. Carlson
GENERAL NOTES SHEET		SHEET 17 OF 41



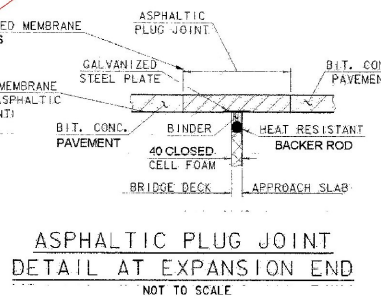
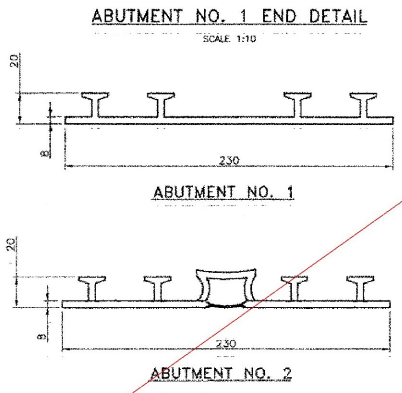
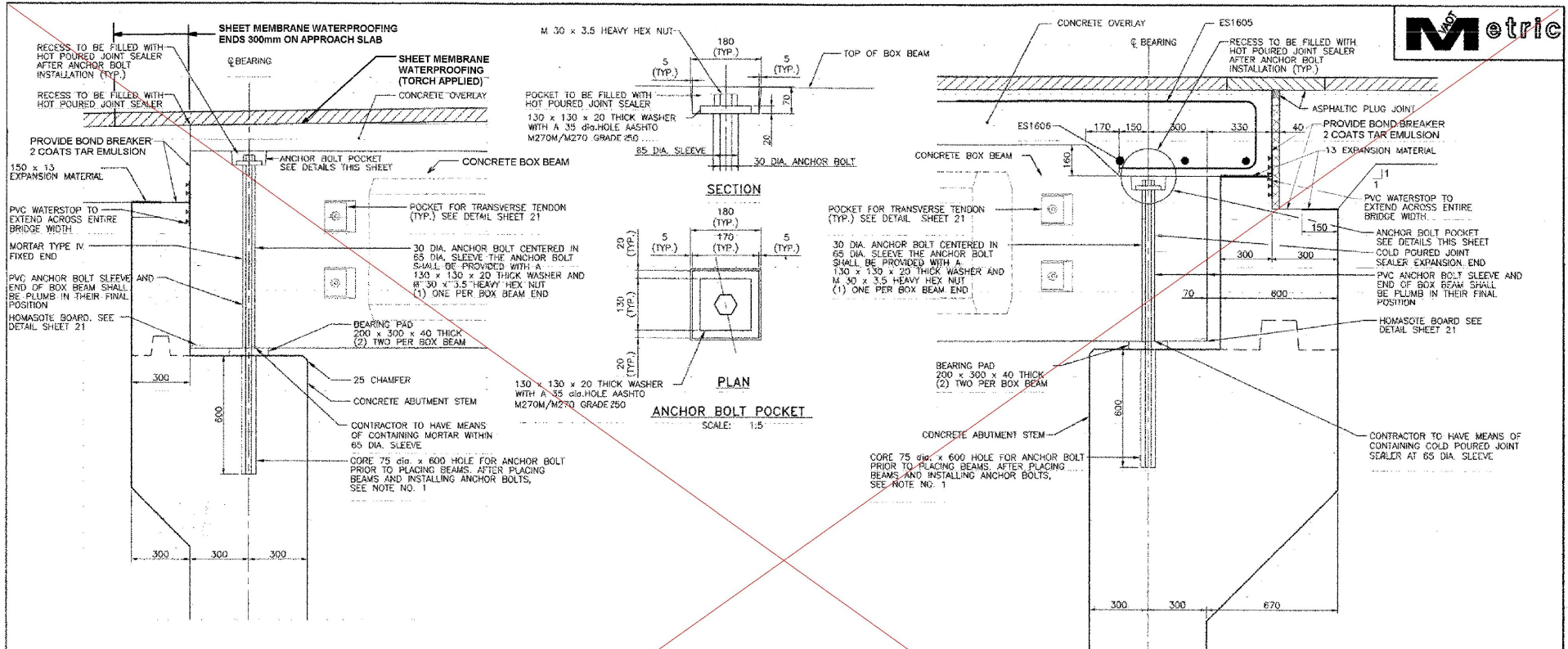
NOTES:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 T+B = TOP AND BOTTOM
 OC = ON CENTER
 MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

NOTES:
 1. UNLESS OTHERWISE NOTE ALL STEEL SHALL HAVE A CLEAR OF 80
 2. "E" DENOTES EPOXY COATED BARS. ALL NON-PRESTRESSING REINFORCING STEEL SHALL BE EPOXY COATED
 3. TRANSVERSE REINFORCING SHALL BE ONE CONTINUOUS BAR NO SPLICING

SEE VALUE ENGINEERING DESIGN (FOLLOWING SHEET)

REVISIONS		
NO.	DESCRIPTION	BY & DATE

		STATE OF VERMONT AGENCY OF TRANSPORTATION	
		CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1		Log Sta.	
		Surv. Sta.	
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER			
DECK REINFORCING PLAN AND DETAILS			
Designed by: B. C. ALSTIN	Drawn by: E. B. SMALL		
Checked by: K. S. MARSHIA	date 05/02	Bridge Design Supervisor: J. W. TUCKER	date 05/02
PROJECT: CLARENDON	BRO 1443(29)	PROJECT NO.	
Bridge Sheet No.		SHEET	18 OF 47



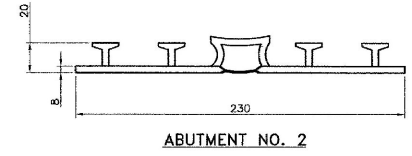
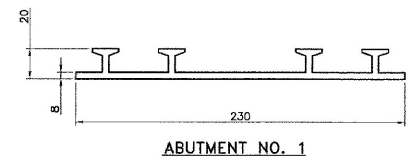
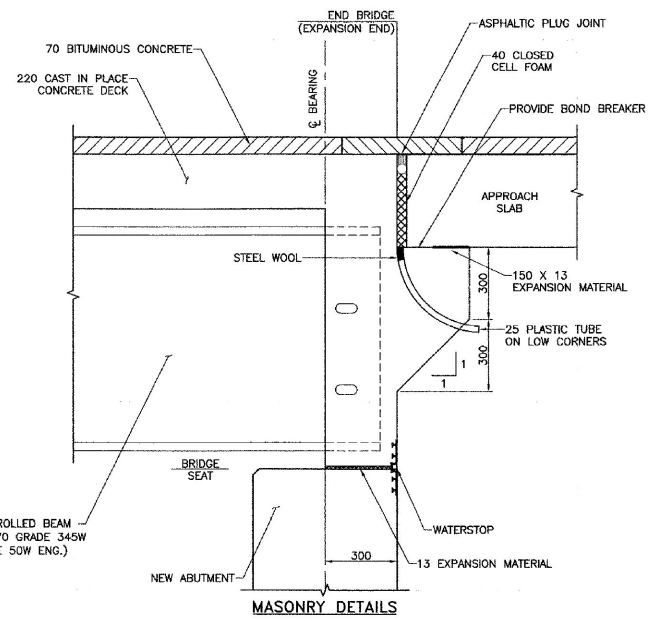
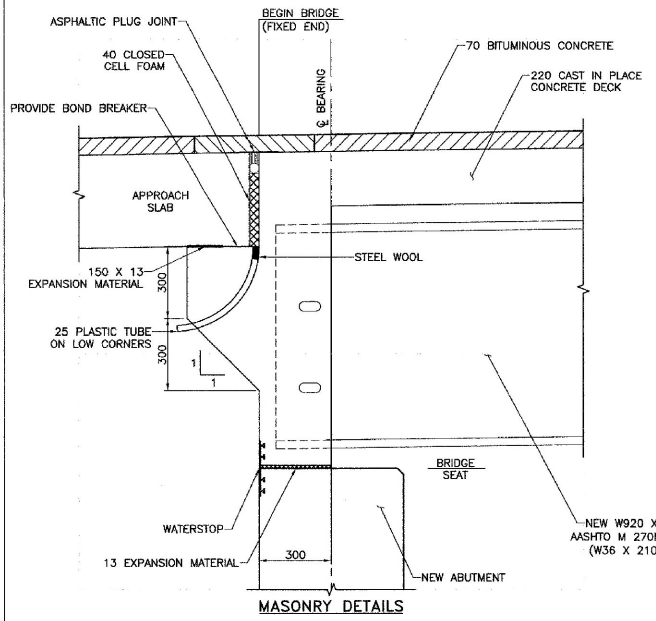
P. V. C. WATERSTOP FOR JOINT AT BACKWALL
THE COST FOR P. V. C. WATERSTOPS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE ENGINEER.

NOTE:

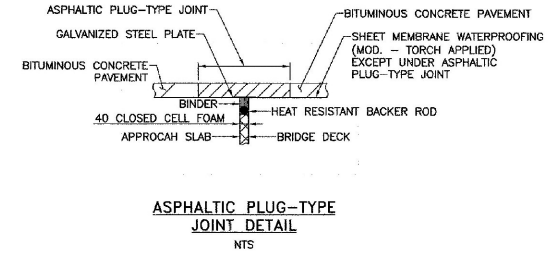
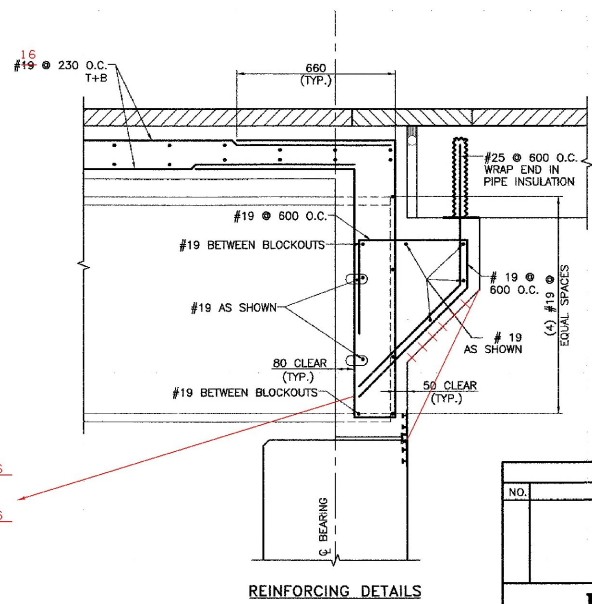
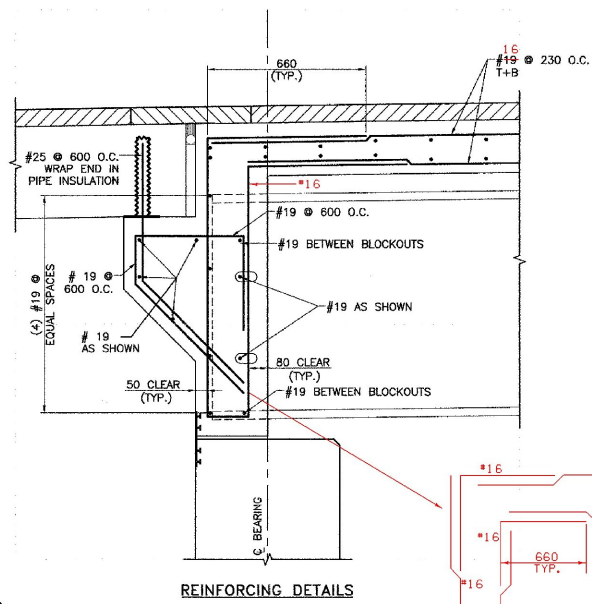
- UPON APPROVAL THE CONTRACTOR SHALL DRILL AND THOROUGHLY CLEAN ALL HOLES. THE ANCHOR RODS SHALL BE SET USING A VARIETY MATERIALS AND RESEARCH APPROVED EPOXY BASED ADHESIVE IN ACCORDANCE WITH SPECIFICATION SECTION 530. APPLICATION OF THE ADHESIVE AND INSTALLATION OF THE ANCHOR RODS SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND AS APPROVED BY THE ENGINEER.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND CONFORM TO SECTION 714.07.
- ALL COSTS TO SUPPLY AND INSTALL THE ANCHOR BOLTS, INCLUDING ALL ASSOCIATED DRILLING AND HARDWARE, AND MATERIALS SHALL BE INCLUDED IN THE COSTS OF ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAM (990 X 914)" AND ITEM 510.21, "PRESTRESSED CONCRETE BOX BEAM (990 X 1220)".

REVISIONS		
NO.	DESCRIPTION	BY & DATE

		STATE OF VERMONT AGENCY OF TRANSPORTATION	
PROJECT		TOWN HIGHWAY NO. 1	
CLARENDON		Surv. Sta.	
BRIDGE SHEET NO.		TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
BRIDGE END DETAILS			
Designed by: B. G. AUSTIN		Drawn by: E. B. SMALL	
Checked by: K. S. WARSHA		Bridge Design Supervisor	
date 05/02		J.W. TUCKER	
PROJECT		PROJECT NO.	
CLARENDON		BRD 1443(23)	
Bridge Sheet No.		SHEET 19 OF 41	



P. V. C. WATERSTOP FOR JOINT AT BACKWALL
 THE COST FOR P. V. C. WATERSTOPS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE ENGINEER.



NOTE:
 1. ALL REINFORCEMENT IN DECK AND CURTAIN WALLS SHALL BE EPOXY COATED.
 2. CONTRACTOR SHALL VERIFY ALL REINFORCING STEEL LENGTHS AND DIMENSIONS PRIOR TO ORDERING REINFORCEMENT. THE CURRENT REINFORCING STEEL SCHEDULE IS NOT ACCURATE AND SHALL NOT BE USED AS THE BASIS FOR ORDERING REINFORCEMENT.

NOTES:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 T+B = TOP AND BOTTOM
 OC = ON CENTER
 MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

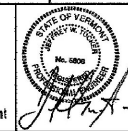
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 SCALE: 1:10

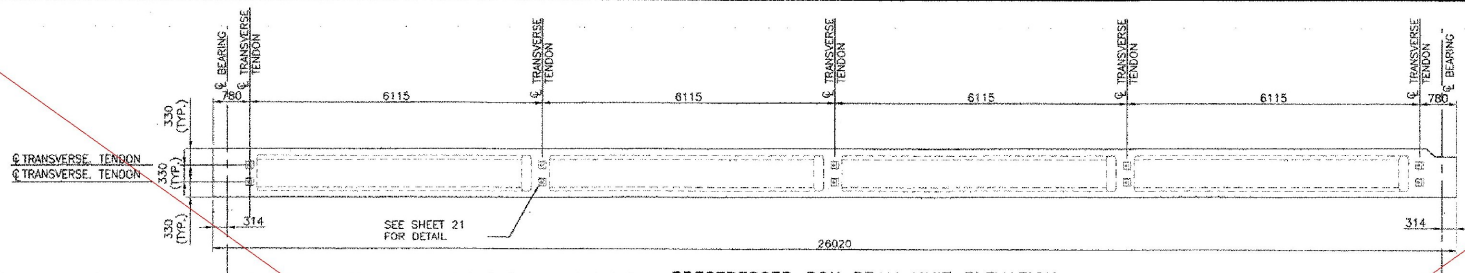
NOTE:
 SECTIONS ARE PERPENDICULAR TO FACE OF ABUTMENT.

ABUTMENT NO. 2 DECK END DETAIL (EXPANSION END)
 SCALE: 1:10

REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
BRIDGE END DETAILS	
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06	Bridge Design Supervisor: J.W. TUCKER date 1/06
PROJECT: CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 18A OF 41



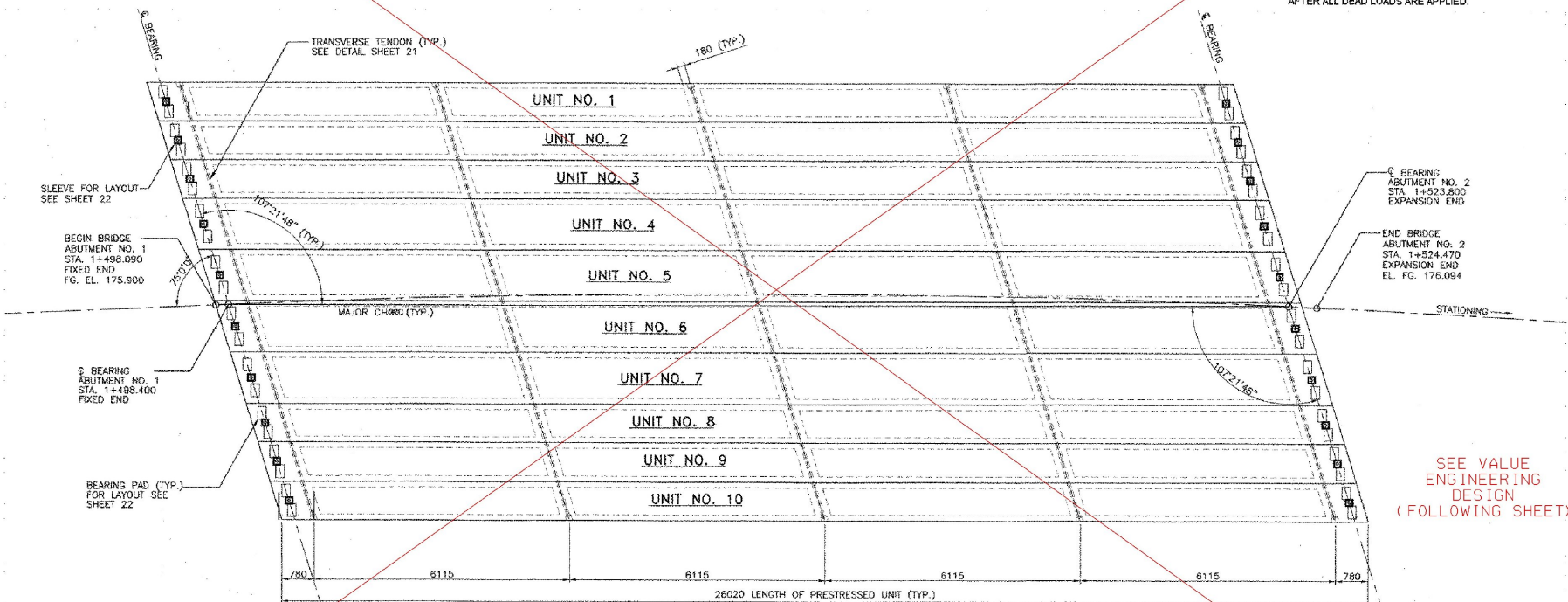


PRESTRESSED BOX BEAM UNIT ELEVATION

SCALE 1:50

NOTES:

1. BOX BEAMS SHALL HAVE POSITIVE CAMBER AFTER ALL DEAD LOADS ARE APPLIED.



PRESTRESSED BOX BEAM UNIT PLAN

SCALE 1:50

NOTES:

1. UNIT NO. 1, 2, 3, 8, 9, AND 10 ARE 914 WIDE x 990 DEEP
2. UNIT NO. 4, 5, 6 AND 7 ARE 1220 WIDE x 990 DEEP
3. SEE SHEET 18 FOR MORE DETAIL AT ABUTMENTS
4. PROVIDE 20 dia. WEEP HOLE AT BOTH ENDS OF ALL VOIDS

SERVICE LOADS PER UNIT (UNIT NO. 1, 2, 3, 8, 9 AND 10)

MEMBER MOMENT, kNm (NON-COMPOSITE)	834	AT MIDSPAN
DECK MOMENT, kNm (NON-COMPOSITE)	361	AT MIDSPAN
SUPERIMPOSED DEAD LOAD MOMENT, kNm (COMPOSITE)	197	AT MIDSPAN
LIVE LOAD + IMPACT MOMENT, kNm (POSITIVE)	748	AT MIDSPAN
DEAD LOAD REACTION, kN AT ABUTMENTS	231	N/A
LIVE LOAD REACTION, kN AT ABUTMENTS	129	N/A
TOTAL REACTION, kN AT ABUTMENTS	360	N/A

SERVICE LOADS PER UNIT (UNIT NO. 4, 5, 6, AND 7)

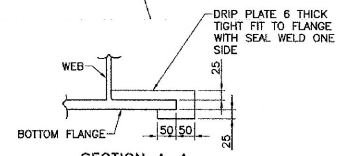
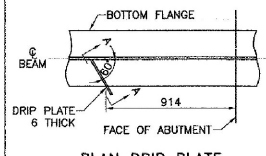
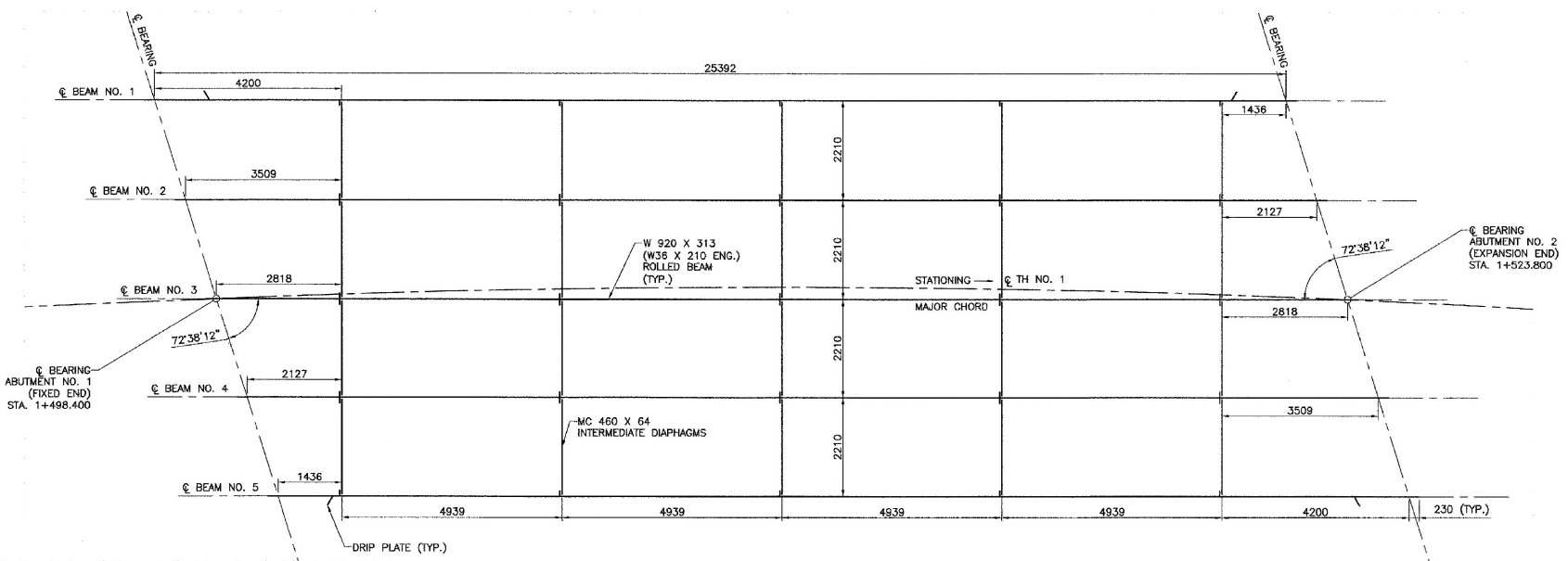
MEMBER MOMENT, kNm (NON-COMPOSITE)	995	AT MIDSPAN
DECK MOMENT, kNm (NON-COMPOSITE)	479	AT MIDSPAN
SUPERIMPOSED DEAD LOAD MOMENT, kNm (COMPOSITE)	233	AT MIDSPAN
LIVE LOAD + IMPACT MOMENT, kNm (POSITIVE)	748	AT MIDSPAN
DEAD LOAD REACTION, kN AT ABUTMENTS	276	N/A
LIVE LOAD REACTION, kN AT ABUTMENTS	129	N/A
TOTAL REACTION, kN AT ABUTMENTS	405	N/A

REVISIONS		
NO.	DESCRIPTION	BY & DATE

DuBois & King INC.	
engineering	planning
management	development

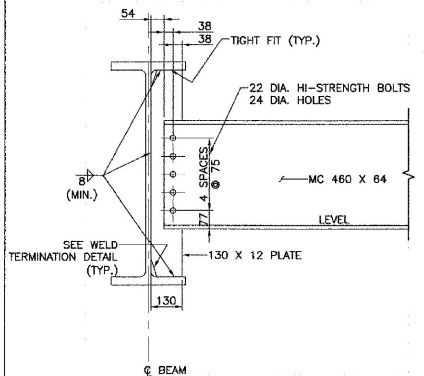
STATE OF VERMONT
AGENCY OF TRANSPORTATION

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
PRESTRESSED UNIT DETAILS	
Designed by: R. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHALL date 05/02	Bridge Designer: J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO.: BRO 1443(29)
Bridge Sheet No.	SHEET 20 OF 41

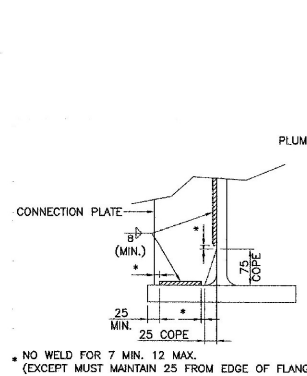


FRAMING PLAN
SCALE 1:50

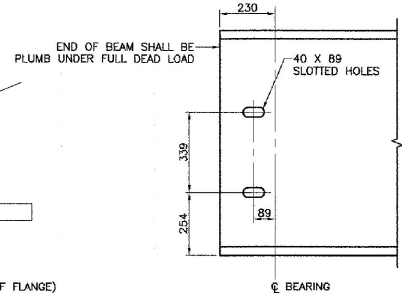
NOTE:
DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGES OF FASCIA CORNERS, AND ON THE HIGH SIDE OF ALL ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



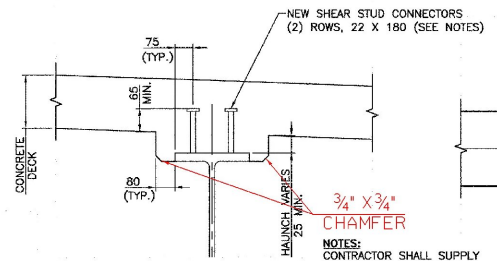
INTERMEDIATE DIAPHRAGMS
SCALE 1:10



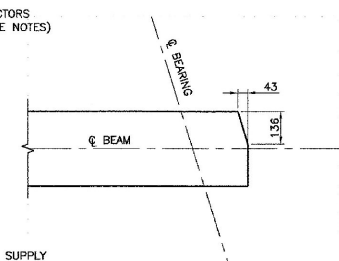
WELD TERMINATION AND COPING DETAILS FOR STEEL BEAMS
SCALE 1:5



ELEVATION - END OF BEAM
SCALE 1:10



HAUNCH DETAIL
SCALE 1:10



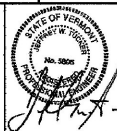
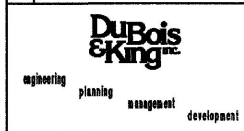
FLANGE CLIP
SCALE 1:10

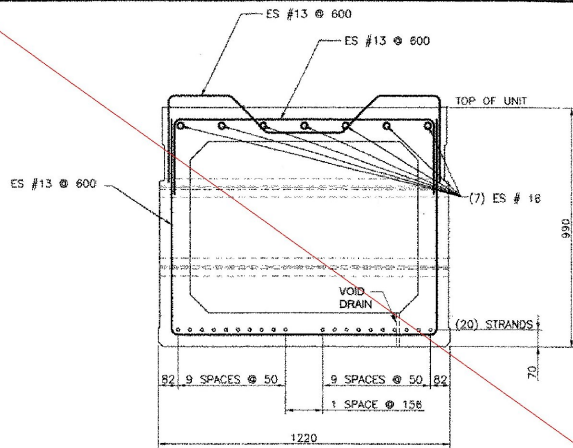
NOTES:
CONTRACTOR SHALL SUPPLY LONGER SHEAR STUDS WHERE NEEDED TO COMPLY WITH MINIMUM EMBEDMENT OF 65 ABOVE THE BOTTOM OF THE DECK.

REVISIONS		
NO.	DESCRIPTION	BY & DATE

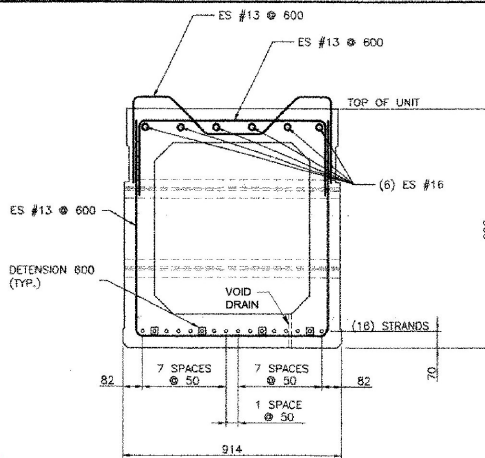
STATE OF VERMONT AGENCY OF TRANSPORTATION

CLARENDON, VERMONT		Bridge No. 14
TOWN HIGHWAY NO. 1		Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER		Surv. Sta.
FRAMING PLAN AND STEEL DETAILS		
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE	
Checked by: J.W. TUCKER	date 1/06	Bridge Design Supervisor J.W. TUCKER date 1/06
PROJECT CLARENDON	PROJECT NO. BRO 1443(29)	
Bridge Sheet No.	SHEET 20A OF 41	

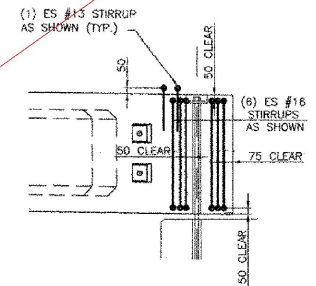




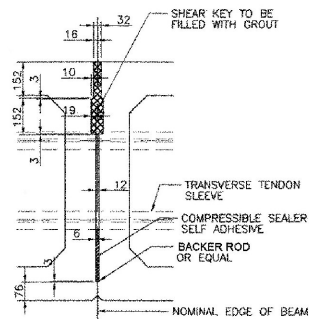
UNIT NO. 4, 5, 6 AND 7 SECTION
SCALE: 1 : 10



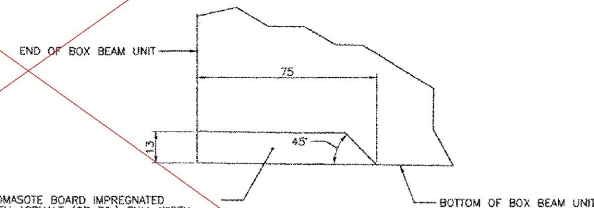
UNIT NO. 1, 2, 3, 8, 9 AND 10 SECTION
SCALE: 1 : 10



PRESTRESSED BOX BEAM UNIT
END DETAIL ELEVATION
SCALE: 1:20

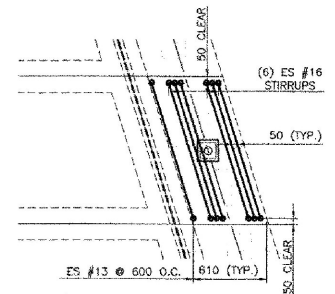


TYPICAL SHEAR KEY DETAIL
SCALE: 1 : 10

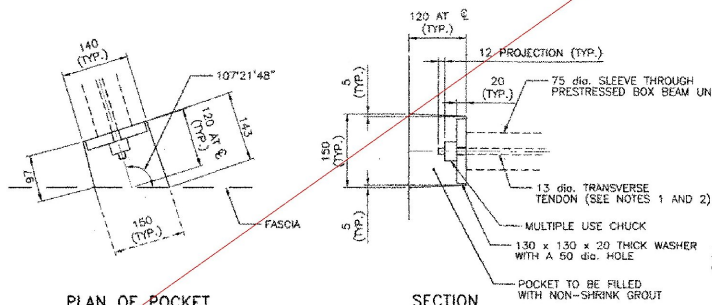


HOMASOTE BOARD IMPREGNATED WITH ASPHALT (OR EQ.) FULL WIDTH OF END OF PRECAST UNIT FASTENED TO PRECAST UNIT TYP. EACH END. PAYMENT SHALL BE INCIDENTAL TO ITEM 610.21, "PRESTRESSED CONCRETE BOX BEAM (990 X 914)" AND ITEM 610.21, "PRESTRESSED CONCRETE BOX BEAM (990 X 1220)".

HOMASOTE DETAIL
FULL SCALE:



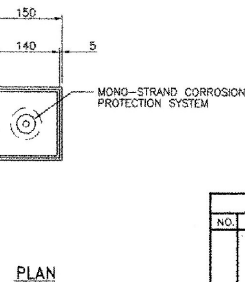
PRESTRESSED BOX BEAM UNIT
END DETAIL PLAN
SCALE: 1:20



PLAN OF POCKET

SECTION
SCALE: 1:5

130 x 130 x 20 THICK WASHER WITH A 50 dia. HOLE



PLAN

SHEET NOT USED

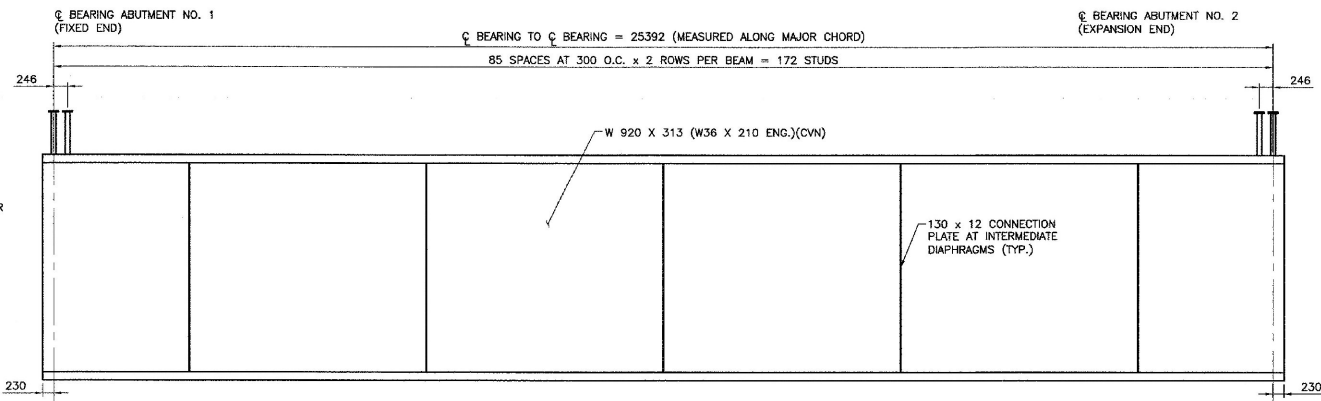
NOTES:

- TRANSVERSE TIES SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF STRAND, EXCEPT AT ANCHORAGE LOCATIONS, TIES SHALL BE TENSIONED TO 133.5 kN
- THE 20 THICK BAR SHALL CONFORM TO AASHTO M270/M270M GRADE 250, GALVANIZED AFTER FABRICATION, ACCORDING TO AASHTO M232. THE CHUCK SHALL ALSO BE GALVANIZED PER AASHTO M232.

REVISIONS		
NO.	DESCRIPTION	BY & DATE

engineering planning management development

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log. Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
PRESTRESS UNIT DETAILS	
Designed by: B. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHIA	Bridge Design Supervisor
date 05/02	J.W. TUCKER
PROJECT	CLARENDON
CLARENDON	BRG 1443(29)
Bridge Sheet No.	SHEET 21 OF 41

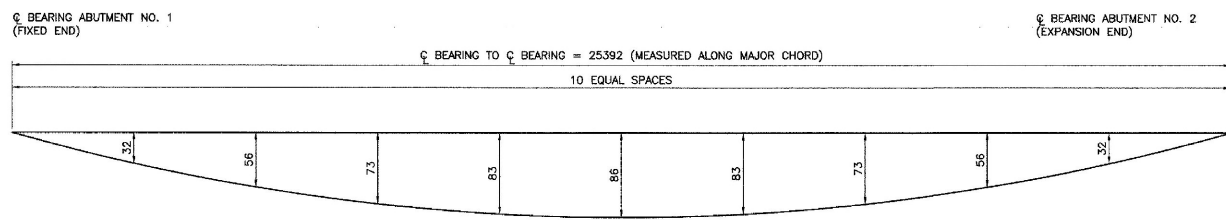


TYPICAL BEAM ELEVATION

SCALE: H: 1:50
V: 1:10

- NOTES:**
1. CONNECTION PLATES SHALL BE PERPENDICULAR TO THE FLANGES AND THE WEB.
 2. ENDS OF THE BEAMS SHALL BE FABRICATED SO THAT THEY WILL BE PLUMB UNDER FULL DEAD LOAD.

- NOTES:**
1. CONNECTION PLATES AND DIAPHRAGMS TO BE LOCATED AS SHOWN ON FRAMING PLAN.
 2. CVN = CHARPY V-NOTCH TEST REQUIRED PER SPECIFICATION.



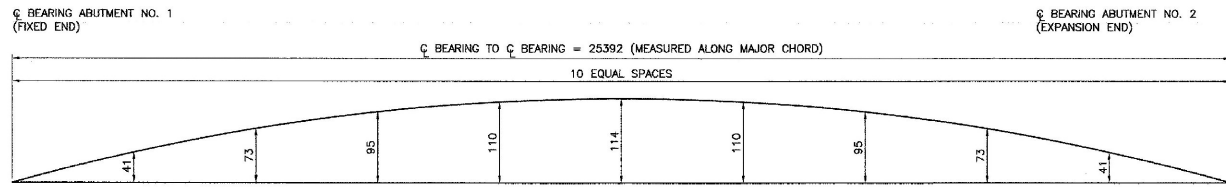
DEAD LOAD DEFLECTION DIAGRAM

SCALE: H: 1:50
V: NTS

- NOTES:**
1. DEAD LOAD DEFLECTIONS INCLUDE ALL DEAD LOADS AND SUPERIMPOSED DEAD LOADS INCLUDING BEAM SELF WEIGHT AND DIAPHRAGM WEIGHT.

☉ BEARING TABLE

BEAM	1	2	3	4	5
☉ BEARING ABUT. NO. 1	1+497.201	1+497.801	1+498.400	1+499.001	1+499.612
☉ BEARING ABUT. NO. 2	1+522.255	1+523.022	1+523.800	1+524.589	1+525.391



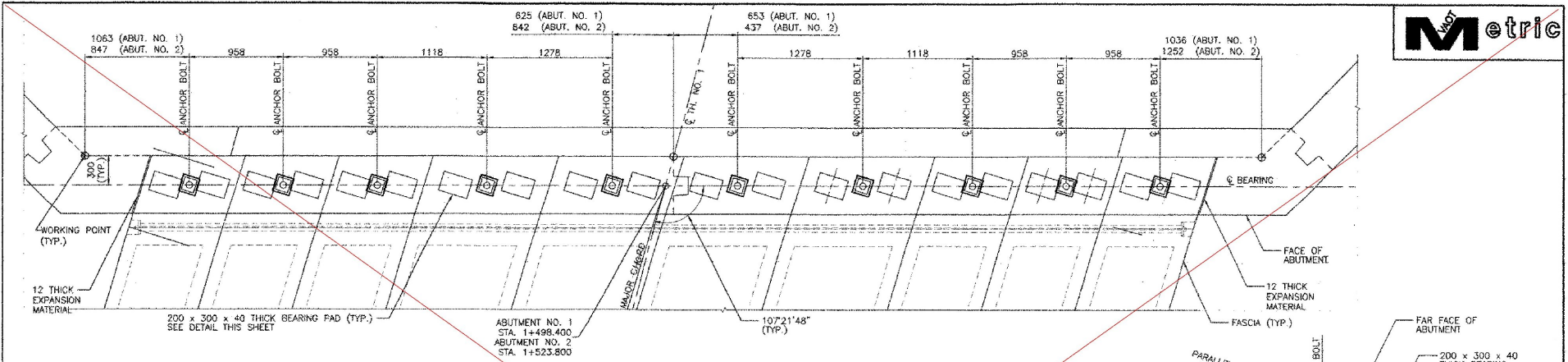
BEAM CAMBER DIAGRAM

SCALE: H: 1:50
V: NTS

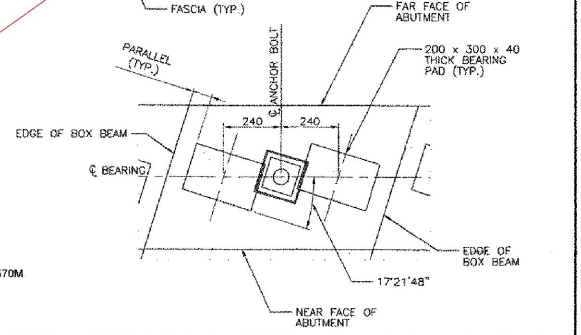
REVISIONS		
NO.	DESCRIPTION	BY & DATE

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

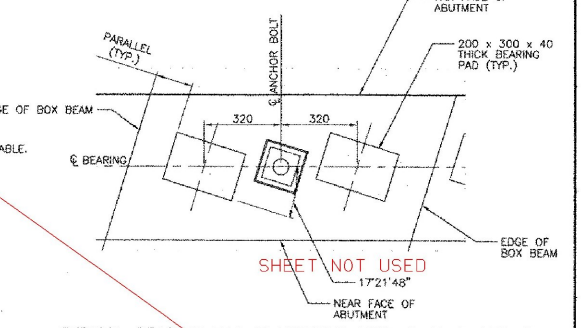
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
STRUCTURAL STEEL DETAILS	
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06	Bridge Design Supervisor: J.W. TUCKER date 1/06
PROJECT: CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 21A OF 41



TYPICAL BEARING PAD PLACEMENT PLAN
SCALE 1:20



TYPICAL BEARING PAD PLACEMENT UNIT 1, 2, 3, 8, 9 AND 10
SCALE: 1:10



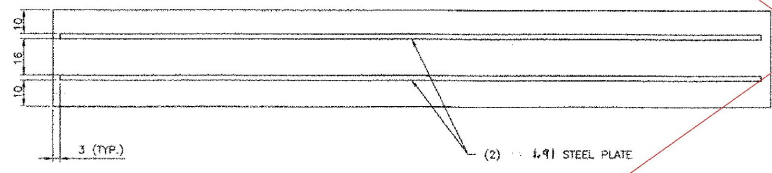
TYPICAL BEARING PAD PLACEMENT UNIT 4, 5, 6 AND 7
SCALE: 1:10

BEARING NOTES:

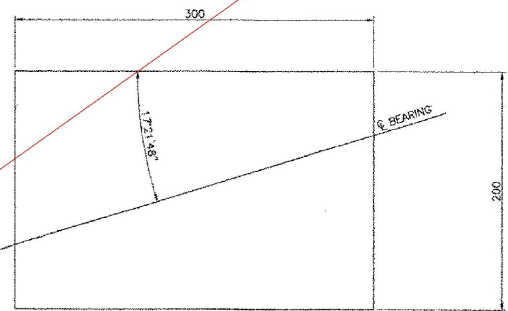
1. BEARING PADS ARE TO BE SET PARALLEL TO THE EDGES OF THE PRESTRESSED UNITS.
2. THERE WILL BE 40 BEARING PADS REQUIRED.
3. A TOTAL OF 20 ANCHOR BOLT ASSEMBLIES WILL BE REQUIRED.
4. ALL REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL GRADE 250-ASTM A670/A670M. NO FABRIC REINFORCEMENT WILL BE PERMITTED.
5. ELASTOMERIC BEARINGS REINFORCED WITH STEEL SHALL HAVE A 3 EDGE SEAL OF ELASTOMERIC, INTEGRAL WITH THE BEARING OVER ALL PLATES.
6. ALL MATERIALS AND FABRICATION SHALL BE PER AASHTO DIVISION II SECTION 18.2 AND AASHTO MATERIAL SPECIFICATION M251.
7. DESIGN CRITERIA:
 - A) TEMPERATURE RANGE: 26.95 c
 - B) 60 DUROMETER ELASTOMERIC
 - C) MAXIMUM BEARING STRESS: 6.89 MPa
 - D) DESIGN ROTATION: 0.014 RADIANS
 - D) BEARING SHAPE FACTOR
8. WITH APPROVAL ALTERNATE CONFIGURATION ARE ALLOWABLE.

NOTE:

ALL WORK AND MATERIALS REQUIRED FOR BEARINGS SHALL BE PAID UNDER PAY ITEM NO. 531.10 BEARING DEVICE ASSEMBLY (ELASTOMERIC)



BEARING PAD DETAIL (CROSS SECTION)
FULL SCALE



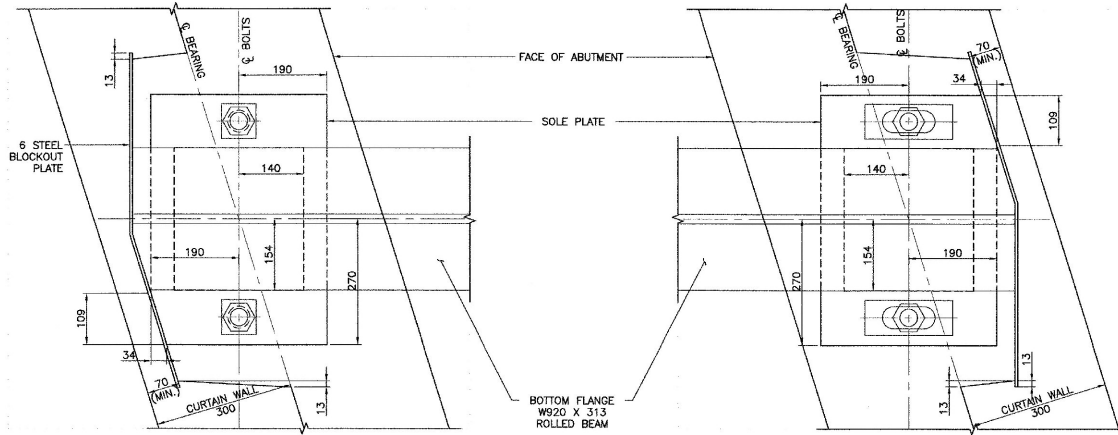
BEARING PAD DETAIL (PLAN)
SCALE: 1:2

REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log. Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
BEARING DETAILS	
Designed by: B. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHIA date 05/02	Bridge Design Supervisor: J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO.: BRD 144.3(29)
Bridge Sheet No.	SHEET 22 OF 41



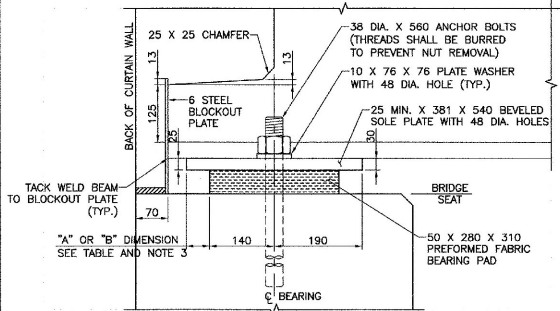
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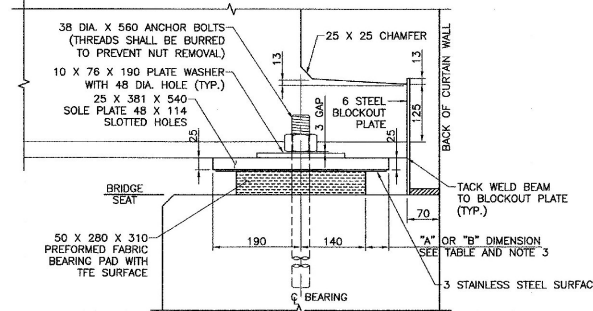
PLAN
SCALE: 1:50

PLAN
SCALE: 1:50

- NOTES:**
- BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 531 AND 731.
 - SHOP DRAWINGS CONFORMING TO SUBSECTION 531.03 SHALL BE SUBMITTED TO INCLUDE WELDING AND BONDING PROCEDURES.
 - THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DECK SYSTEM, CURB, PAVEMENT AND BRIDGE RAIL ARE PLACED. THE "B" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE BEAM SELFWEIGHT. THE FINAL "A" DISTANCE, AS SHOWN IN THE TABLE, MUST BE ATTAINED TO WITHIN 3 MM.
 - DESIGN CRITERIA:
 - ALLOWABLE BEARING PRESSURE ON CONCRETE = 7 MPa
 - MINIMUM ALLOWABLE DESIGN ROTATION = 0.015 RADIAN
 - HORIZONTAL CAPACITY SHALL BE 6% OF THE VERTICAL LOAD
 - DESIGN LOAD PER BEARING = 60 Mg (DEAD LOAD + LIVE LOAD)
 - ALL STEEL IN BEARING DEVICES (EXCEPT STAINLESS) SHALL BE AASHTO M270, GRADE 250, AND GALVANIZED PER SPECIFICATION.
 - ANCHOR BOLTS SHALL HAVE A MINIMUM OF 381 MM EMBEDMENT INTO THE CONCRETE AND SHALL CONFORM TO SUBSECTION 714.08 IN THE "VERMONT SPECIFICATIONS"
 - ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. ALL WASHERS SHALL BE 10 MM PLATE (MINIMUM). PAYMENT FOR ANCHOR BOLTS, NUTS AND WASHERS SHALL BE INCIDENTAL TO ITEM 531.10.

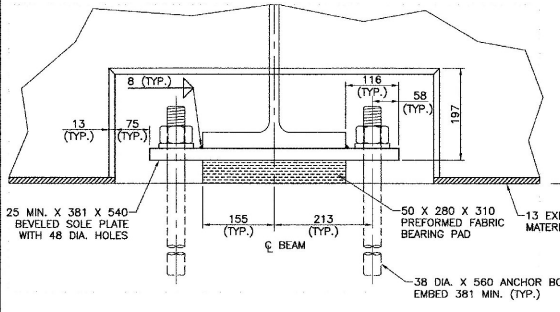


SIDE ELEVATION
SCALE: 1:50

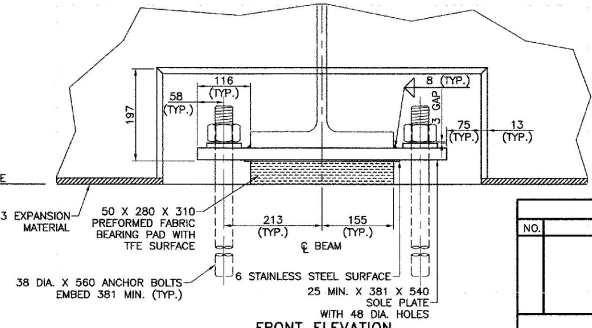


SIDE ELEVATION
SCALE: 1:50

TEMP (F)	"A" DIST. (MM)	"B" DIST. (MM)
120	35	48
105	38	51
90	41	54
75	44	57
60	48	60
45	51	64
30	54	67
15	57	70
0	60	73
-15	64	76
-30	67	79



FRONT ELEVATION
SCALE: 1:50
FIXED BEARING DETAILS AT ABUT. NO. 1



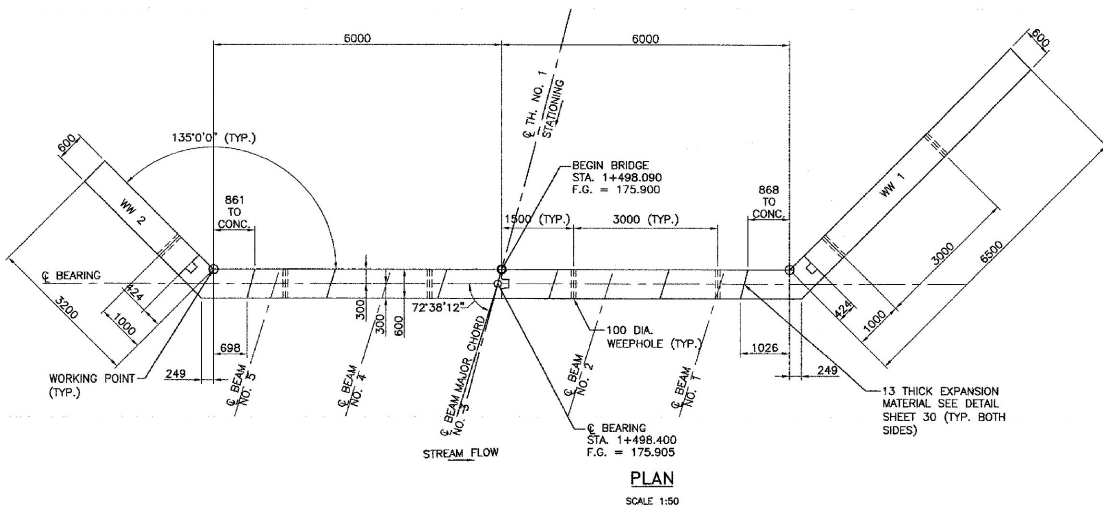
FRONT ELEVATION
SCALE: 1:50
EXPANSION BEARING DETAILS AT ABUT. NO. 2

REVISIONS		STATE OF VERMONT AGENCY OF TRANSPORTATION
NO.	DESCRIPTION	
		CLARENDON, VERMONT
		TOWN HIGHWAY NO. 1
		TOWN HIGHWAY NO. 1 OVER THE COLD RIVER
		BEARING DETAILS
		Designed by: A.P. GUYETTE
		Checked by: J.W. TUCKER date 1/06
		PROJECT: CLARENDON
		Bridge Sheet No.

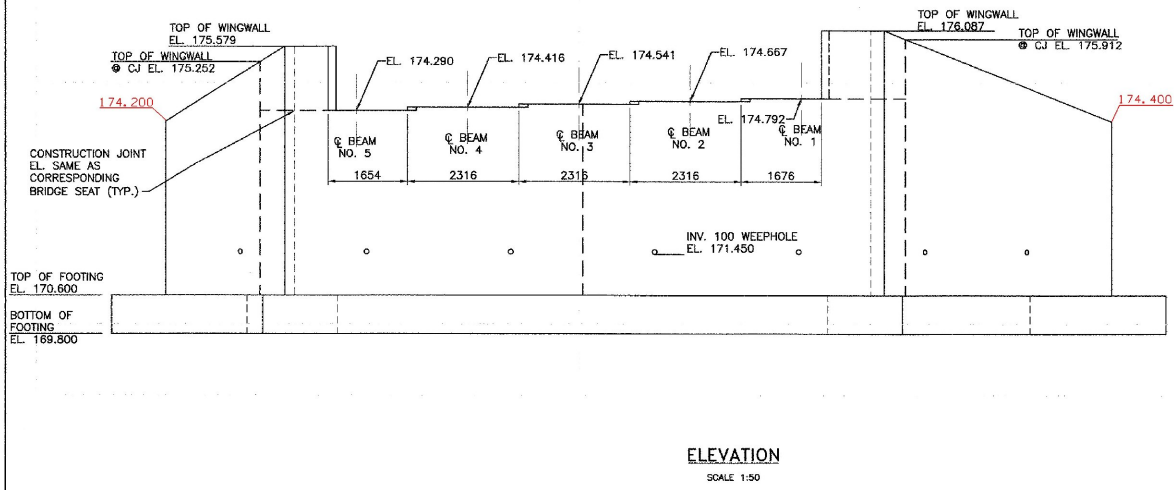
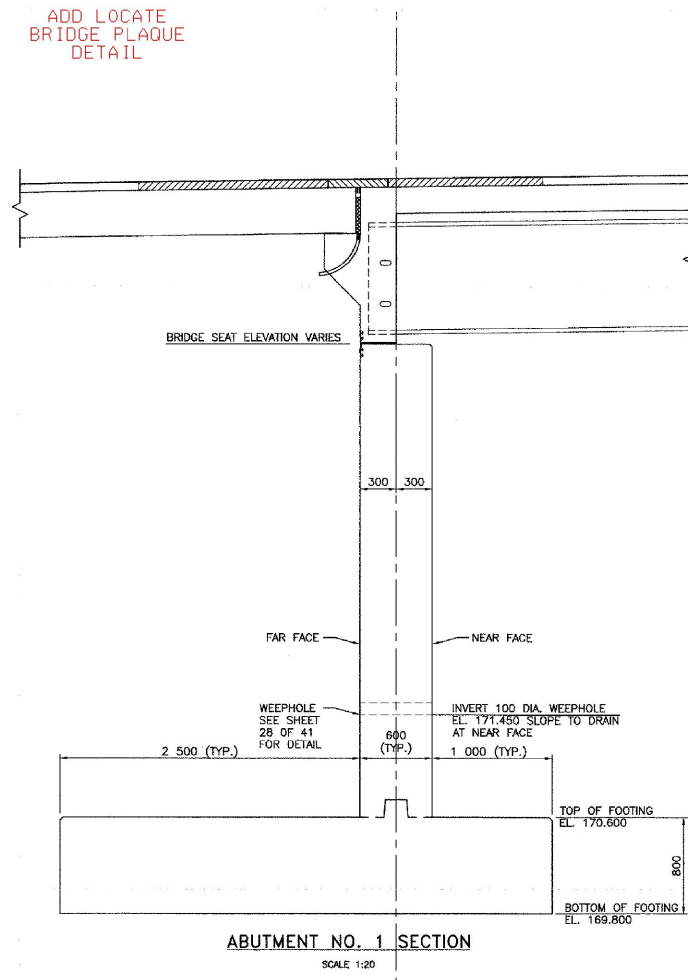
engineering planning management development

STATE OF VERMONT
AGENCY OF TRANSPORTATION
No. 5209

Bridge No. 14
Log Sta.
Surv. Sta.
Drawn by: A.P. GUYETTE
Bridge Design Supervisor
J.W. TUCKER date 1/06
PROJECT NO. BRO 1443(29)
SHEET 22A OF 41



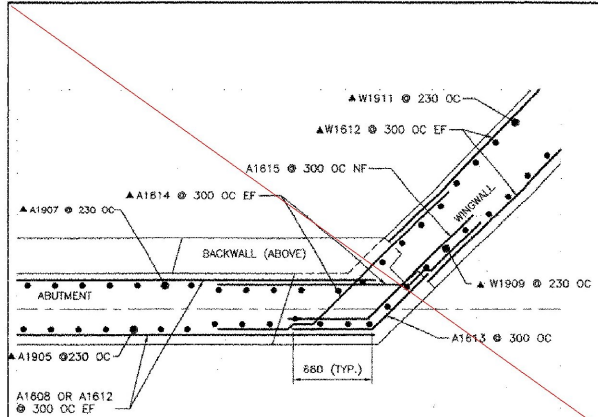
ADD LOCATE
BRIDGE PLAQUE
DETAIL



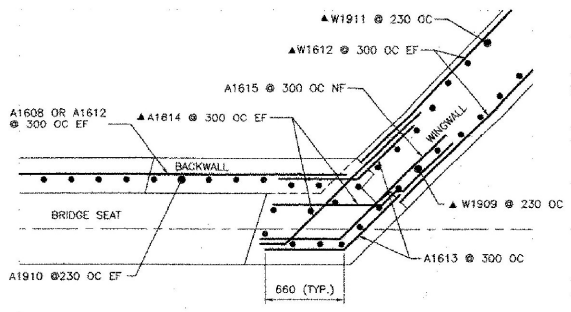
REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ABUTMENT NO. 1 MASONRY	
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06	Bridge Design Supervisor J.W. TUCKER date 1/06
PROJECT CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 23A OF 41

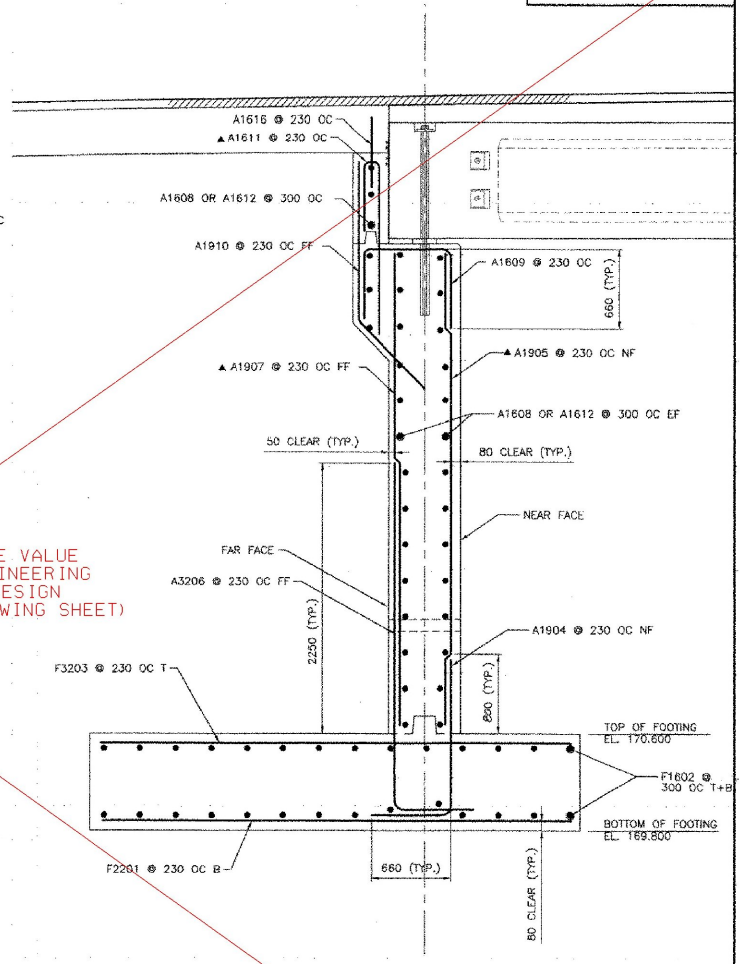




TYPICAL CORNER DETAIL ABUTMENT NO 1
BELOW HAUNCH
SCALE 1:20

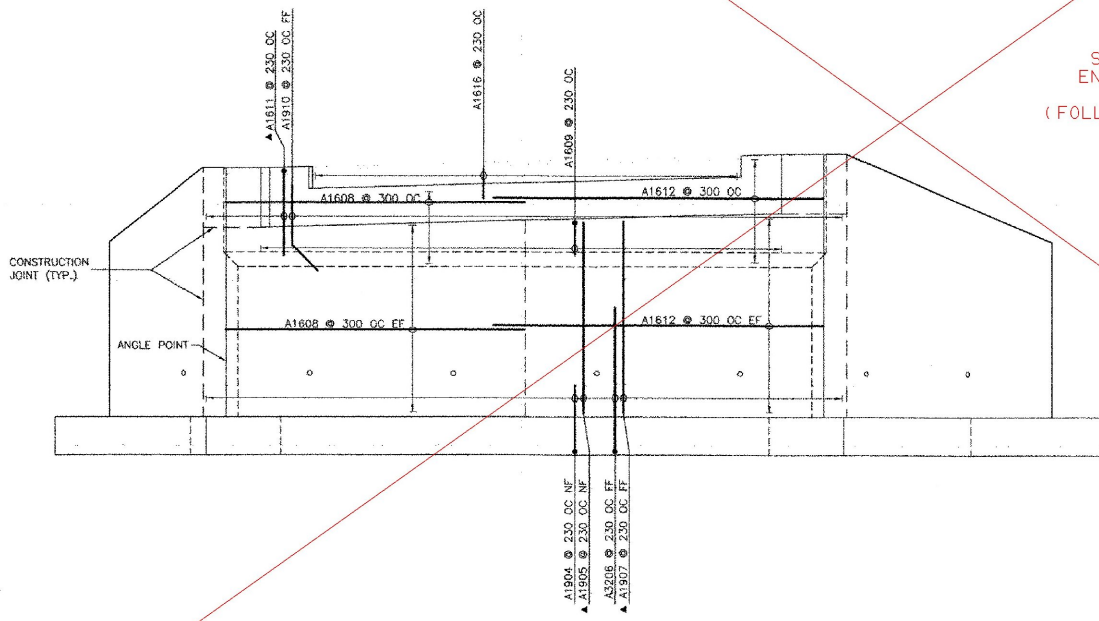


TYPICAL CORNER DETAIL ABUTMENT NO 1
ABOVE BRIDGE SEAT
SCALE 1:20



ABUTMENT NO. 1 SECTION
SCALE 1:20

SEE VALUE
ENGINEERING
DESIGN
(FOLLOWING SHEET)



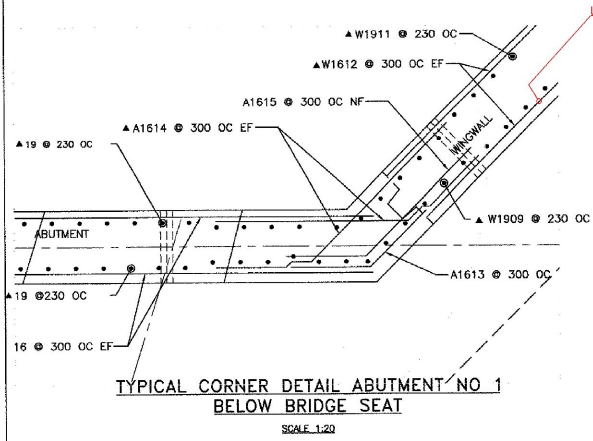
ELEVATION
SCALE 1:50

NOTES:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
T+B = TOP AND BOTTOM
OC = ON CENTER
MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

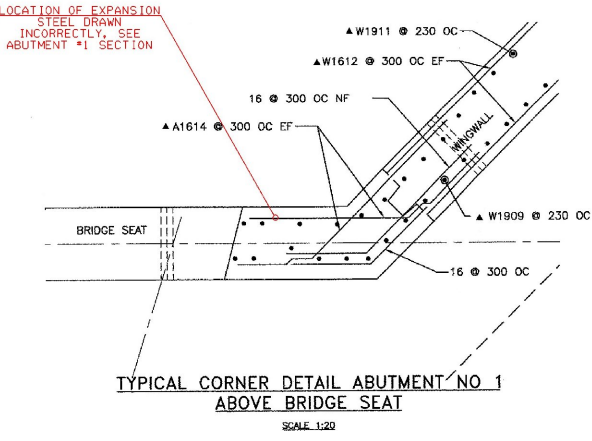
REVISIONS		
NO.	DESCRIPTION	BY & DATE



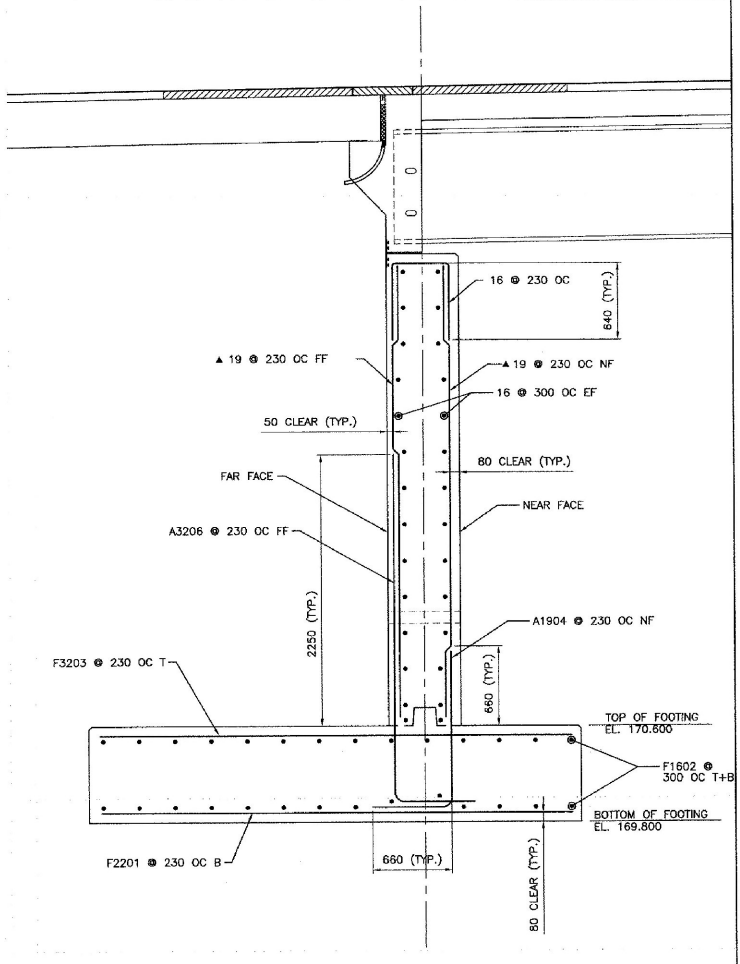
STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ABUTMENT NO. 1 REINFORCING	
Designed by: B. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHIA date 05/02	Bridge Design Supervisor: J. W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO.: BR0 1443(29)
Bridge Sheet No.	SHEET 24 OF 41



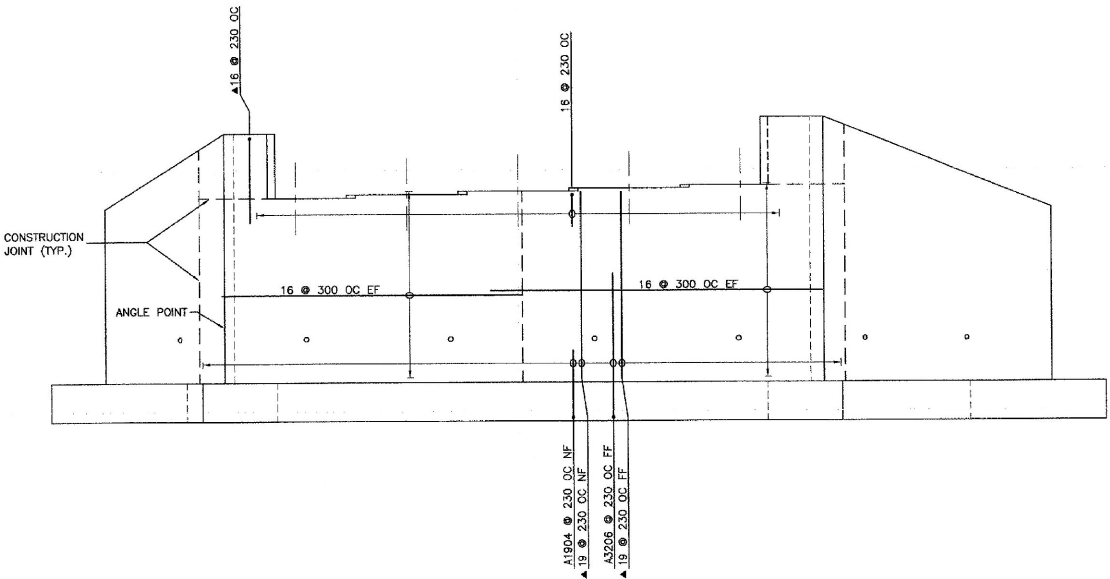
TYPICAL CORNER DETAIL ABUTMENT NO 1
BELOW BRIDGE SEAT
SCALE 1:20



TYPICAL CORNER DETAIL ABUTMENT NO 1
ABOVE BRIDGE SEAT
SCALE 1:20



ABUTMENT NO. 1 SECTION
SCALE 1:20



ELEVATION
SCALE 1:50

NOTES:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 A = CUT TO FIT IN FIELD
 T+B = TOP AND BOTTOM
 OC = ON CENTER
 MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

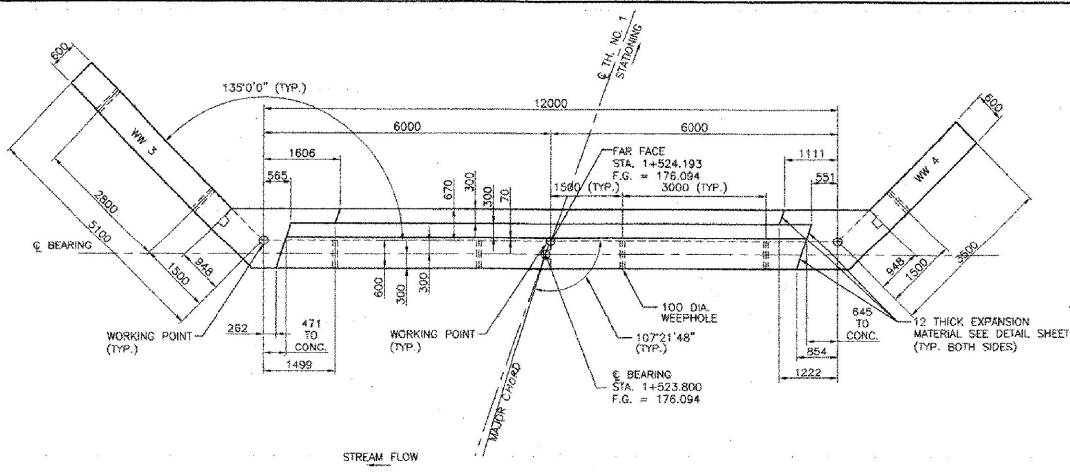
NOTE:
 CONTRACTOR SHALL VERIFY ALL REINFORCING STEEL LENGTHS AND DIMENSIONS PRIOR TO ORDERING REINFORCEMENT. THE CURRENT REINFORCING STEEL SCHEDULE IS NOT ACCURATE AND SHALL NOT BE USED AS THE BASIS FOR ORDERING REINFORCEMENT.

REVISIONS		
NO.	DESCRIPTION	BY & DATE

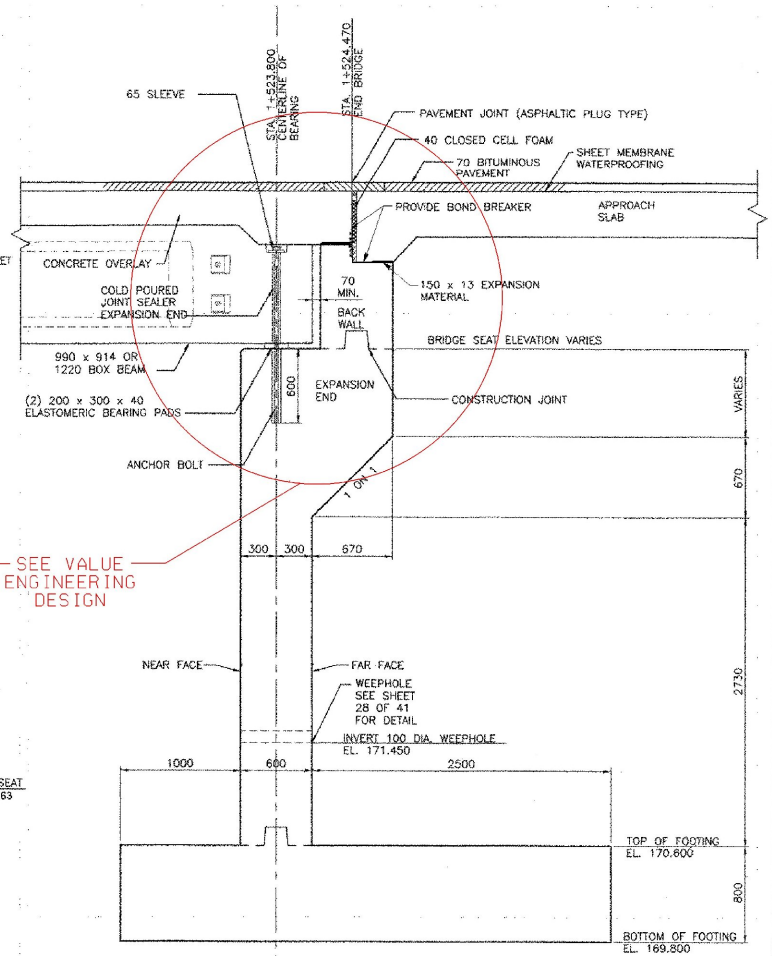
**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ABUTMENT NO. 1 REINFORCING	
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06	Bridge Design Supervisor J.W. TUCKER date 1/06
PROJECT CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 24A OF 41



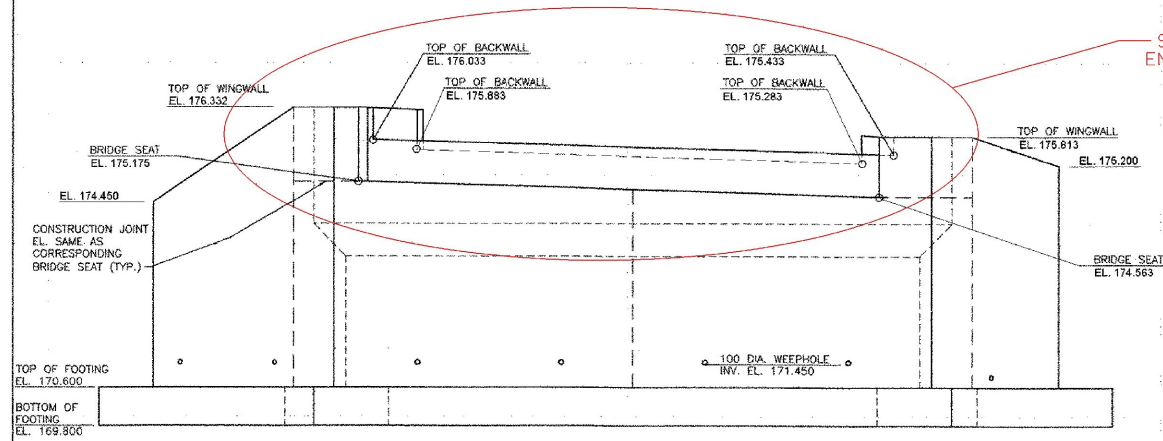


PLAN
SCALE 1:50



ABUTMENT NO. 2 SECTION
SCALE 1:20

SEE VALUE ENGINEERING DESIGN



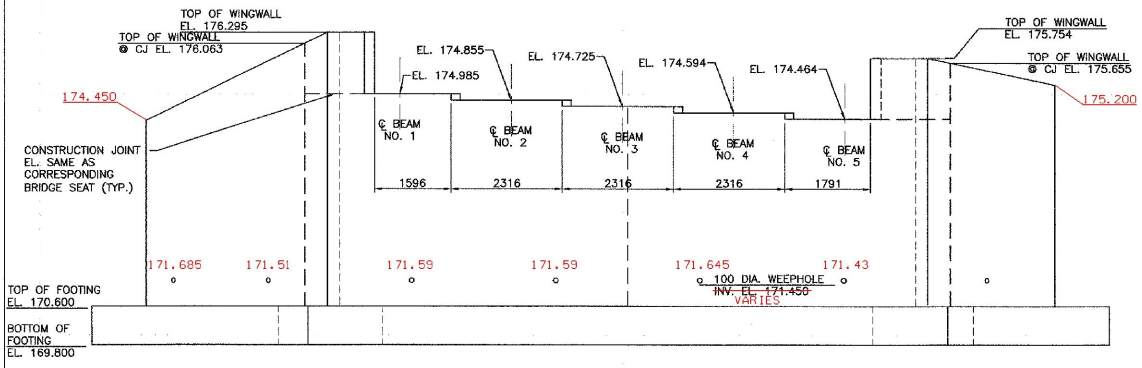
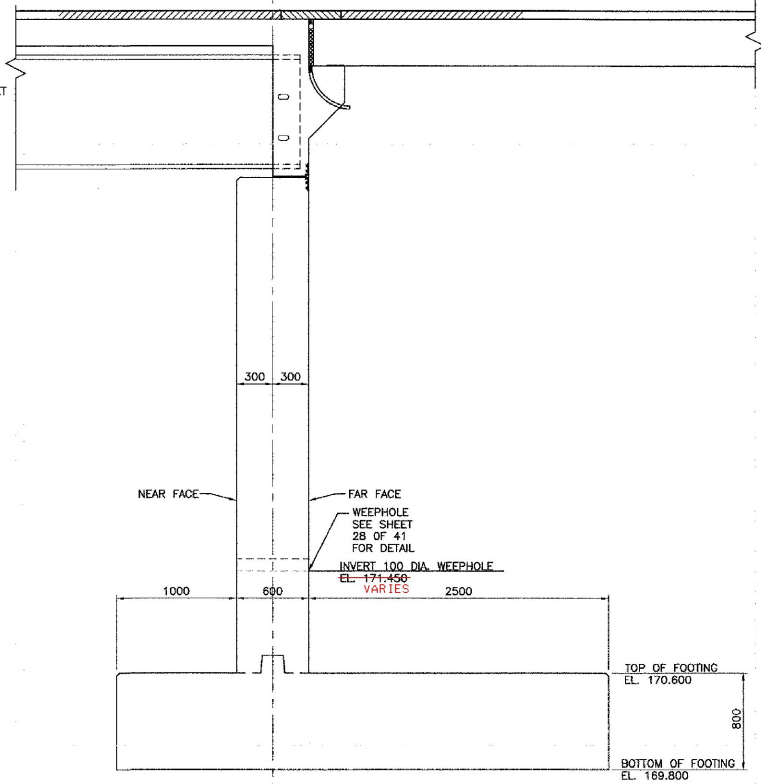
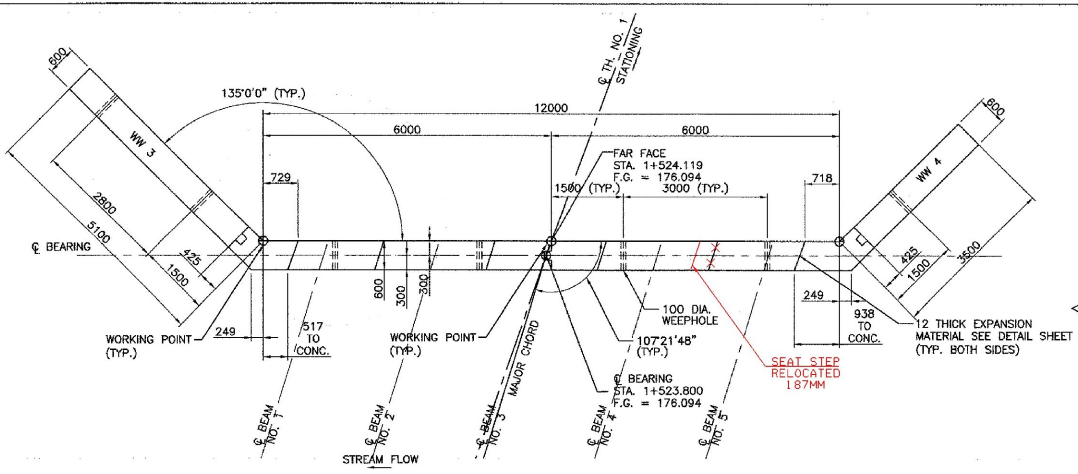
ELEVATION
SCALE 1:50

REVISIONS		
NO.	DESCRIPTION	BY & DATE



STATE OF VERMONT
AGENCY OF TRANSPORTATION

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ABUTMENT NO. 2 MASONRY	
Designed by: B. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHIA date 05/02	Bridge Design Supervisor: J. W. TUCKER date 05/02
PROJECT CLARENDON	PROJECT NO. BRD 1443(29)
Bridge Sheet No.	SHEET 25 OF 41

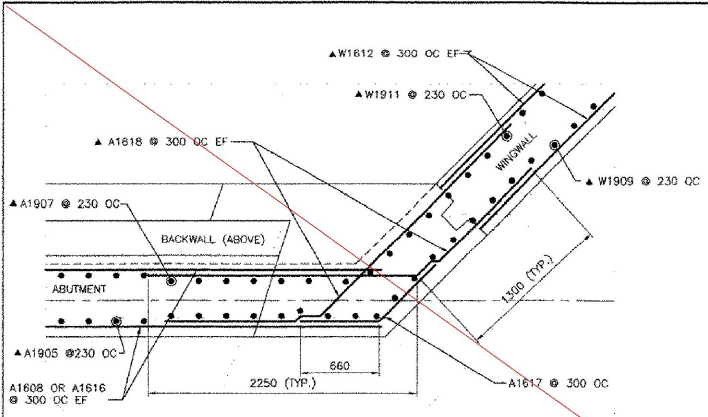


REVISIONS		
NO.	DESCRIPTION	BY & DATE

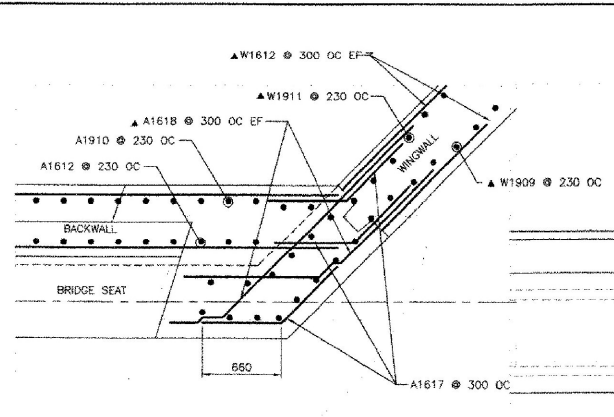
STATE OF VERMONT AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER ABUTMENT NO. 2 MASONRY	
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
Checked by: J.W. TUCKER date 1/06	Bridge Design Supervisor J.W. TUCKER date 1/06
PROJECT CLARENDON	PROJECT NO. BRD 1443(29)
Bridge Sheet No.	SHEET 25A OF 41

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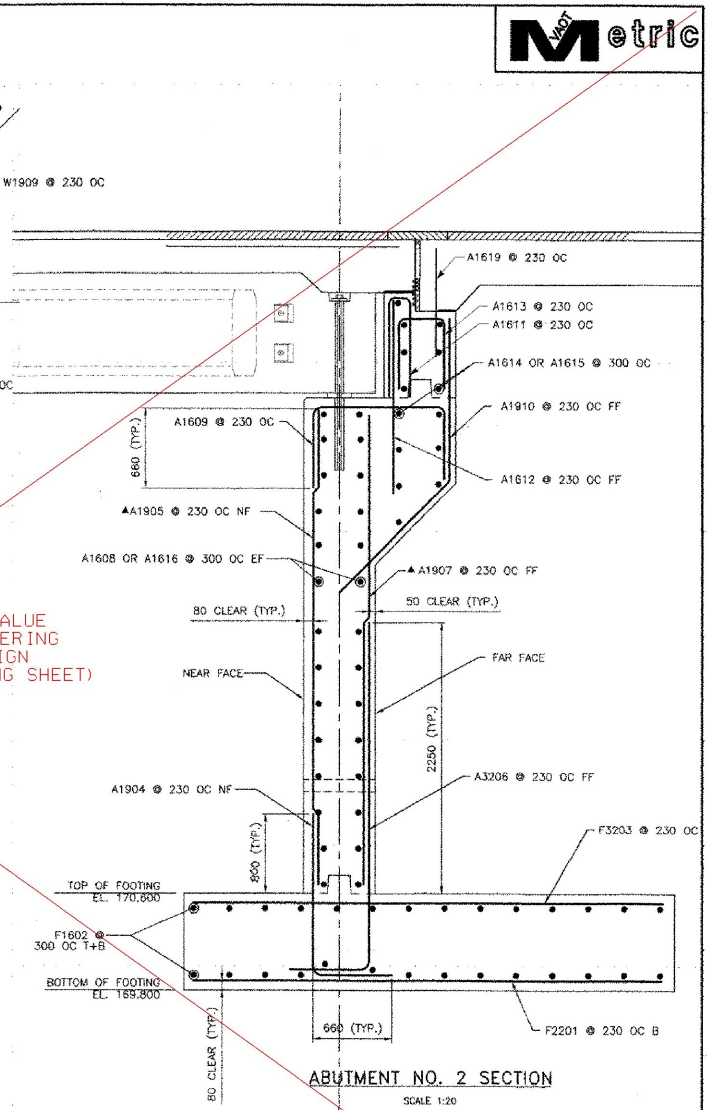
STATE OF VERMONT AGENCY OF TRANSPORTATION No. 1000



TYPICAL CORNER DETAIL ABUTMENT NO. 2
(BELOW HAUNCH)
SCALE 1:20

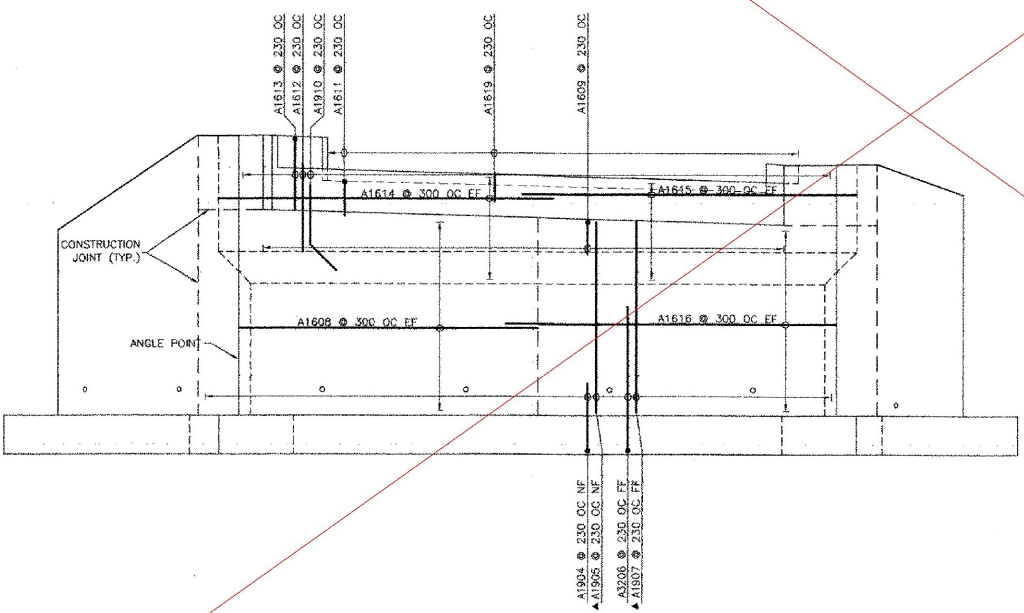


TYPICAL CORNER DETAIL ABUTMENT NO. 2
(ABOVE BRIDGE SEAT)
SCALE 1:20



ABUTMENT NO. 2 SECTION
SCALE 1:20

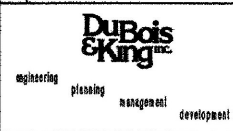
SEE VALUE
ENGINEERING
DESIGN
(FOLLOWING SHEET)

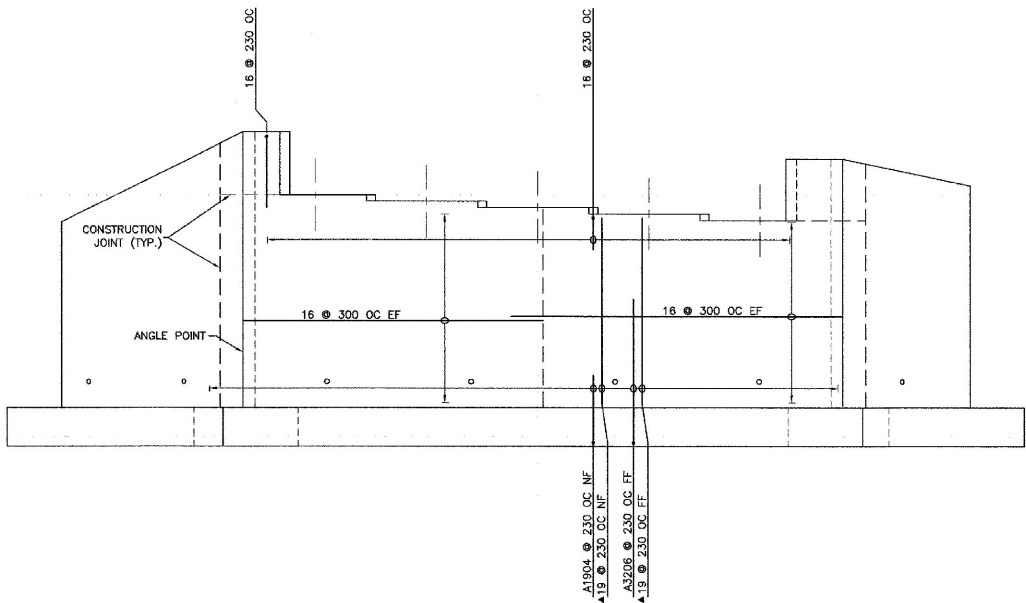
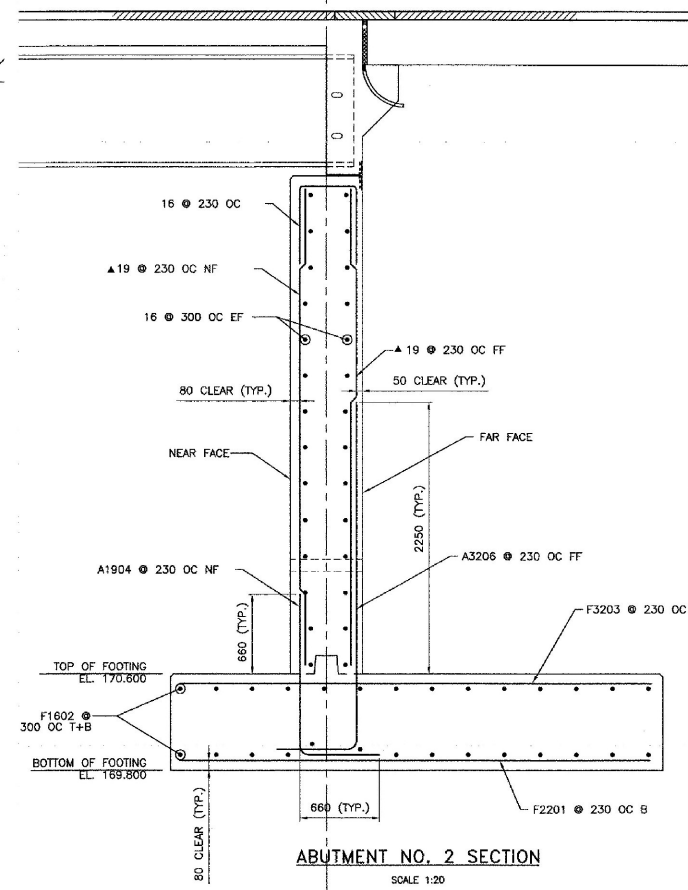
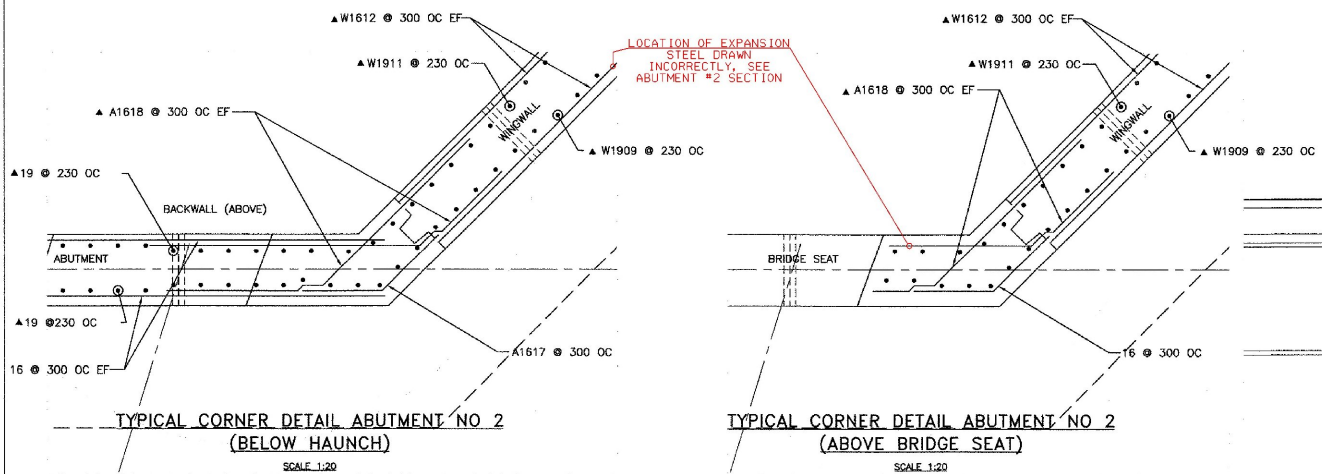


ELEVATION
SCALE 1:50

NOTES:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT-TO FIT IN FIELD
T+8 = TOP AND BOTTOM
OC = ON CENTER
MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

REVISIONS			STATE OF VERMONT AGENCY OF TRANSPORTATION	
NO.	DESCRIPTION	BY & DATE		
			CLARENDON, VERMONT	Bridge No. 14
			TOWN HIGHWAY NO. 1	Log. Sta.
				Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER				
ABUTMENT NO. 2 REINFORCING				
Designed by: A. C. MUSTIN			Drawn by: E. B. SMALL	
Checked by: K. S. MARSHIA			Bridge Design Supervisor: J.W. TUCKER	
PROJECT: CLARENDON			date 05/02	
PROJECT NO.:			PROJECT NO.:	
CLARENDON			SRO 1443(29)	
Bridge Sheet No.			SHEET 26 OF 41	





REVISIONS		
NO.	DESCRIPTION	BY & DATE

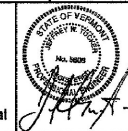
**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

CLARENDON, VERMONT		Bridge No. 14
TOWN HIGHWAY NO. 1		Log Sta.
		Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER		
ABUTMENT NO. 2 REINFORCING		
Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE	
Checked by: J.W. TUCKER	date 1/06	Bridge Design Supervisor: J.W. TUCKER
PROJECT: CLARENDON		PROJECT NO.: BRO 1443(28)
Bridge Sheet No.		SHEET 26A OF 41

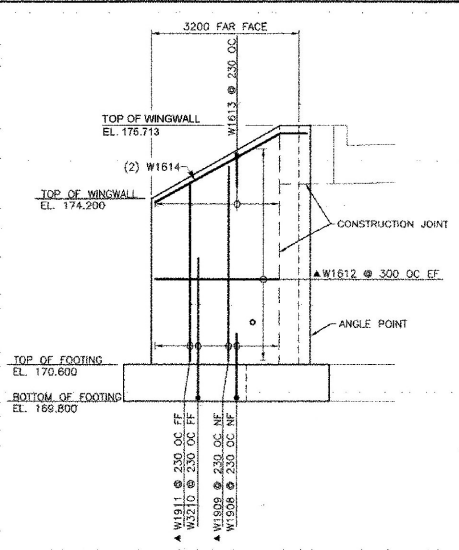
NOTES:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 T+B = TOP AND BOTTOM
 OC = ON CENTER
 MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

ELEVATION
SCALE 1:50

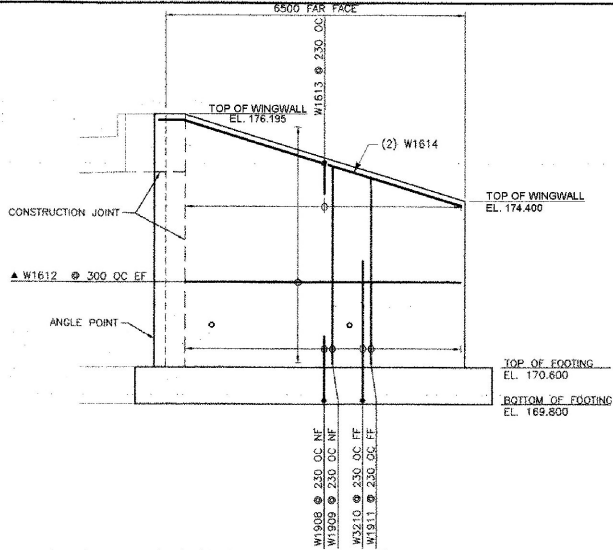
NOTE:
 CONTRACTOR SHALL VERIFY ALL REINFORCING STEEL LENGTHS AND DIMENSIONS PRIOR TO ORDERING REINFORCEMENT. THE CURRENT REINFORCING STEEL SCHEDULE IS NOT ACCURATE AND SHALL NOT BE USED AS THE BASIS FOR ORDERING REINFORCEMENT.



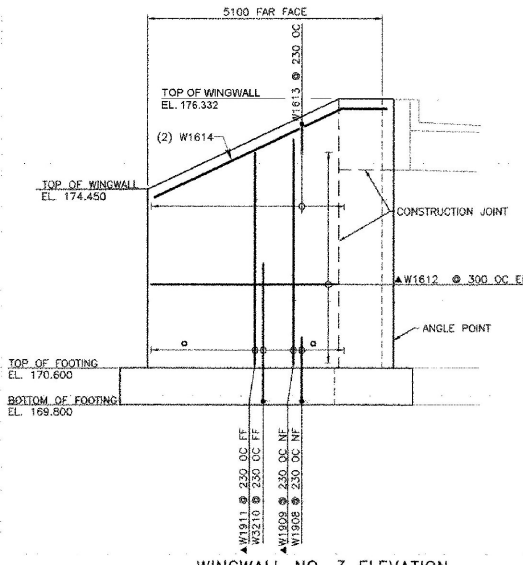
DuBois & King
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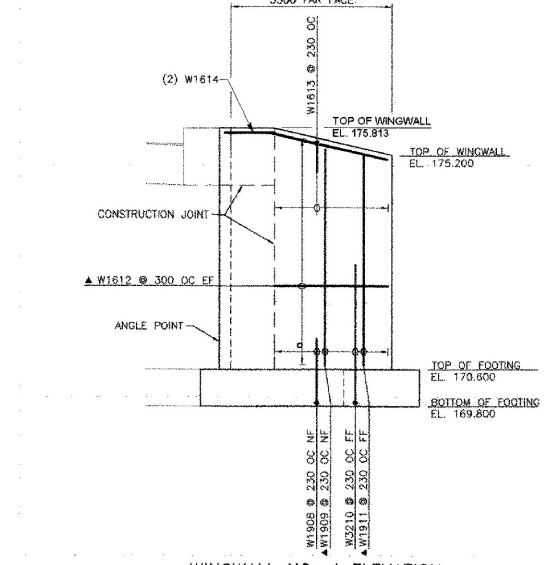
WINGWALL NO. 2 ELEVATION
SCALE 1 : 50



WINGWALL NO. 1 ELEVATION
SCALE 1 : 50

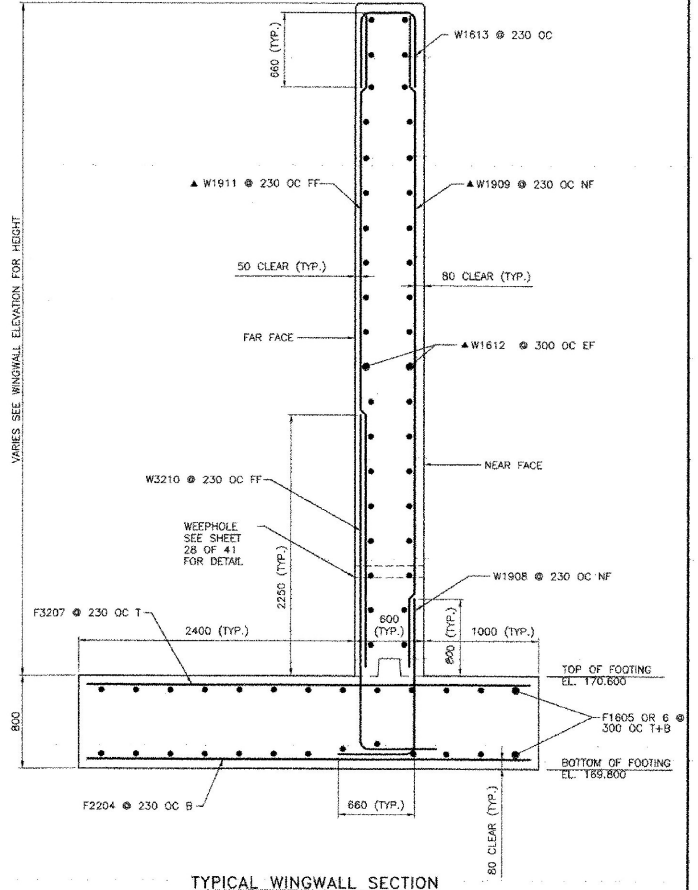


WINGWALL NO. 3 ELEVATION
SCALE 1 : 50



WINGWALL NO. 4 ELEVATION
SCALE 1 : 50

NOTES:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
T+B = TOP AND BOTTOM
OC = ON CENTER
MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

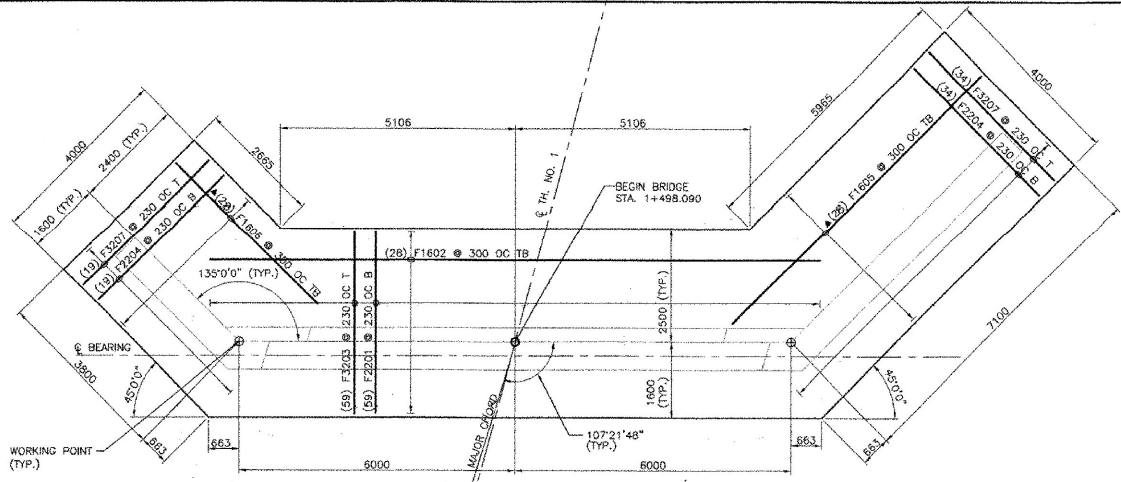


TYPICAL WINGWALL SECTION
SCALE: 1:20

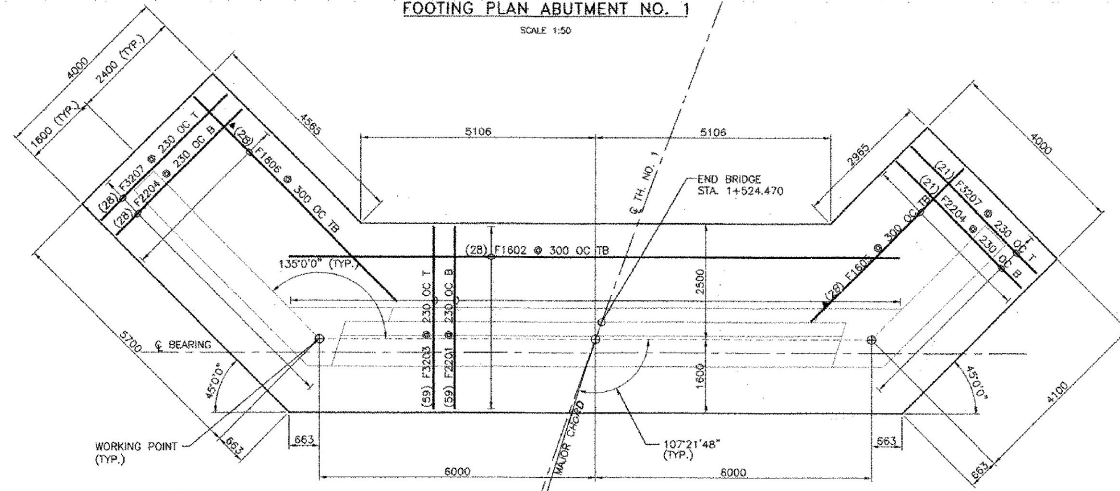
REVISIONS	
DESCRIPTION	BY & DATE

STATE OF VERMONT AGENCY OF TRANSPORTATION	
TOWN HIGHWAY NO. 1	Supv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
WINGWALL -- DETAILS	
Designed by: E. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHA date 05/02	Bridge Design Supervisor: J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO. BRO 1443(29)
Bridge Sheet No.	SHEET 27 OF 40

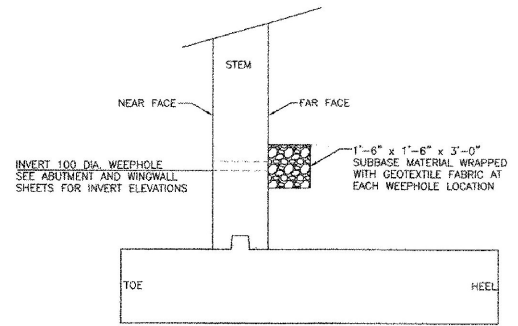




FOOTING PLAN ABUTMENT NO. 1
SCALE 1:50



FOOTING PLAN ABUTMENT NO. 2
SCALE 1:50



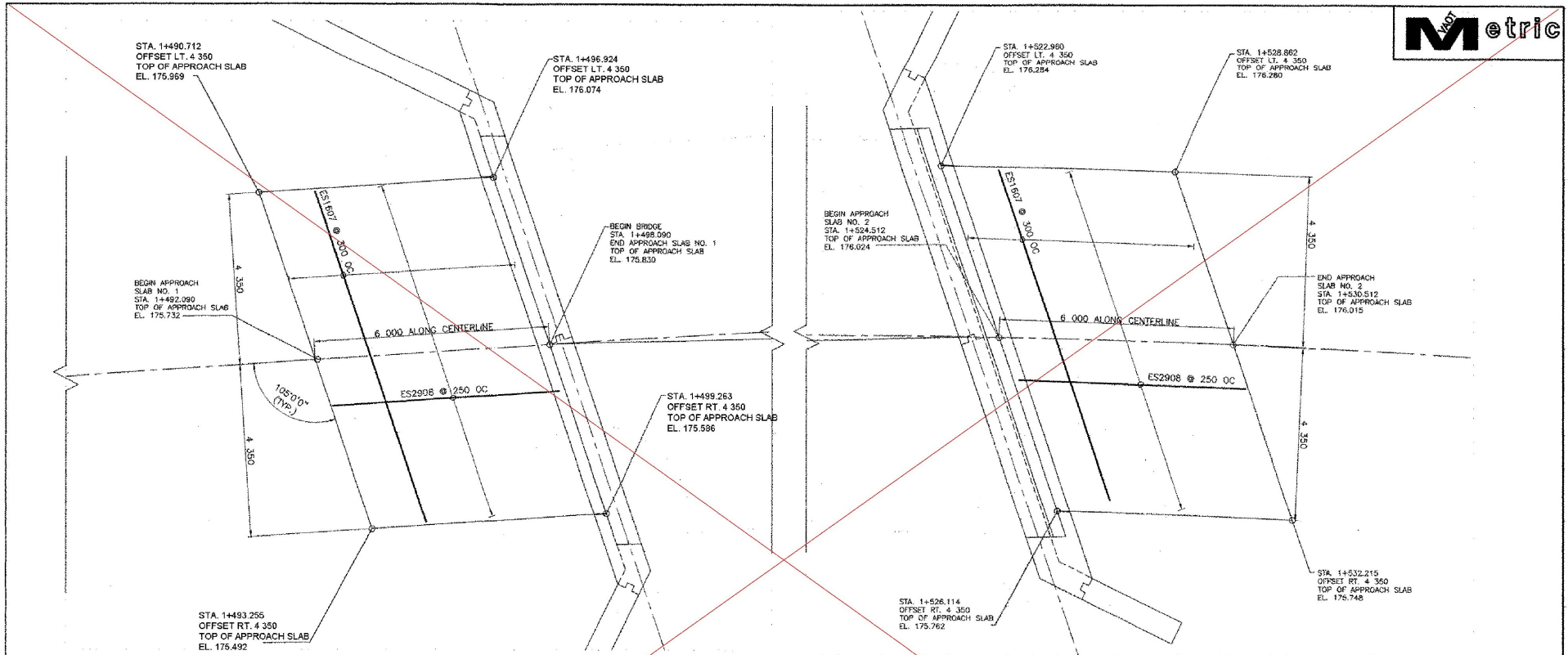
TYPICAL WEEPHOLE DETAIL
NOT TO SCALE

NOTES:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- T+B = TOP AND BOTTOM
- OC = ON CENTER
- MINIMUM LAP LENGTH NOT DETAILED SHALL BE 660

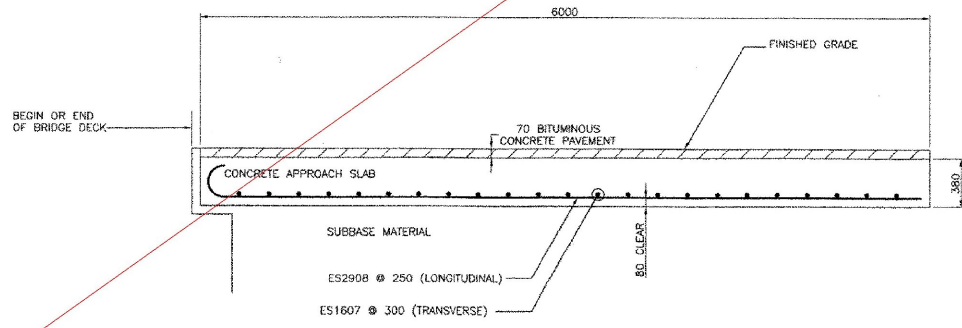
REVISIONS		STATE OF VERMONT AGENCY OF TRANSPORTATION
NO.	DESCRIPTION	
		CLARENDON, VERMONT
		TOWN HIGHWAY NO. 1
		TOWN HIGHWAY NO. 1 OVER THE COLD RIVER
		FOOTING DETAILS
		Designed by: B. C. AUSTIN
		Checked by: K. S. MARSHA date 05/02
		PROJECT: CLARENDON
		Bridge Sheet No.
		Drawn by: E. B. SMALL
		Bridge Design Supervisor: J.W. TUCKER date 05/02
		PROJECT NO. BRO 1443(29)
		SHEET 28 OF 41





APPROACH SLAB PLAN VIEW
SCALE 1:50

SEE VALUE
ENGINEERING
DESIGN
(FOLLOWING SHEET)

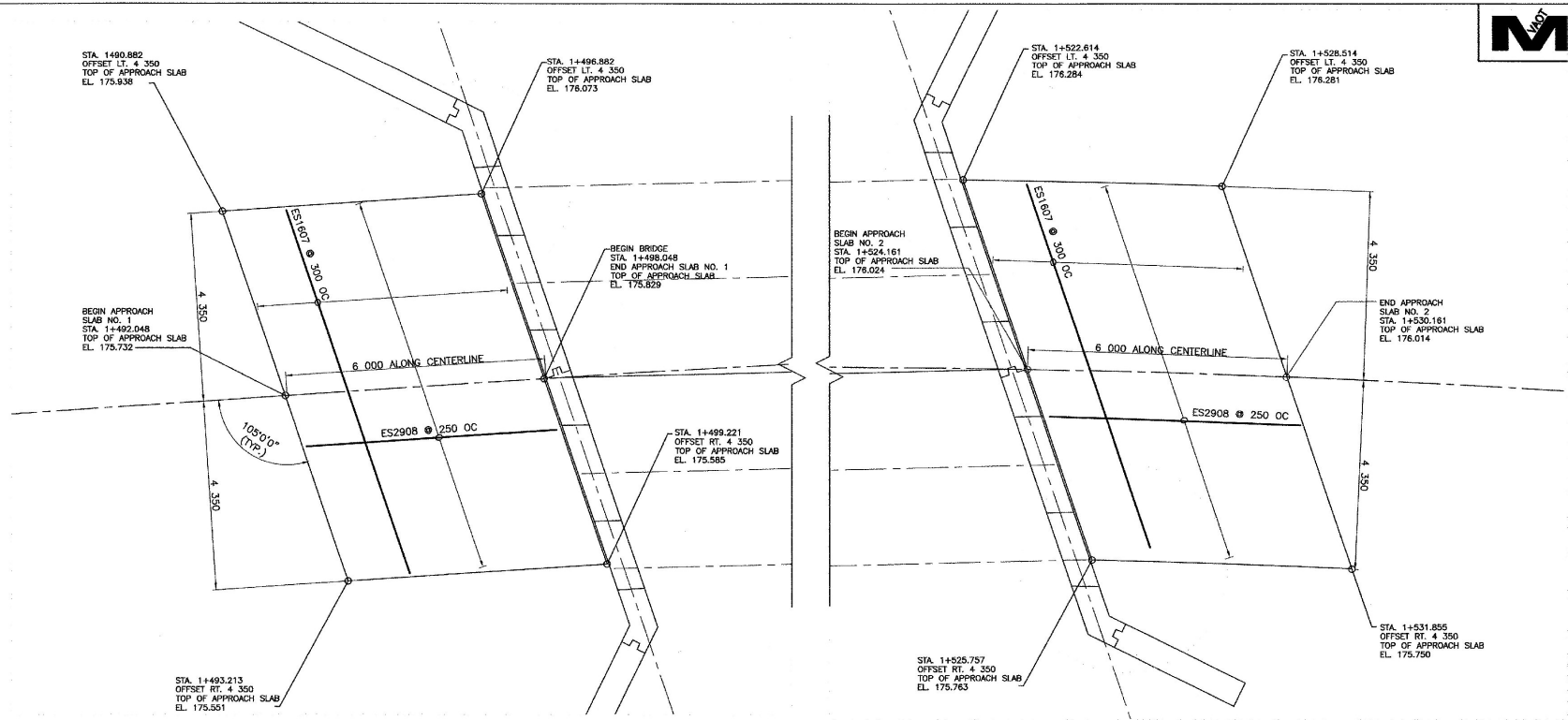


APPROACH SLAB DETAIL
SCALE 1:20

REVISIONS		
NO.	DESCRIPTION	BY & DATE

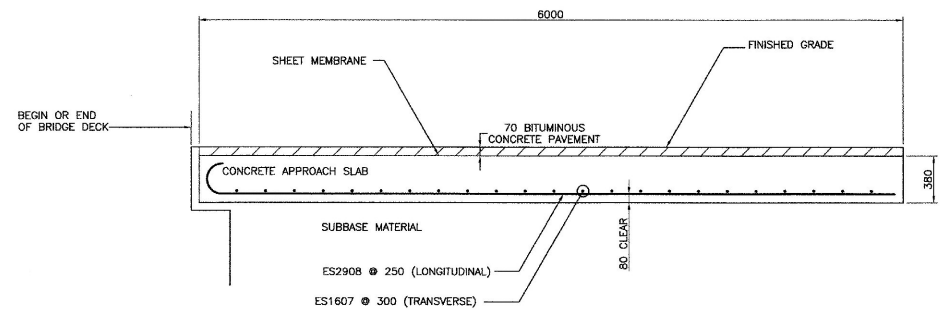


STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Leg. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
APPROACH SLAB DETAILS	
Designed by: B. C. JUSTIN	Drawn by: E. B. SMALL
Checked by: K. S. MARSHALL date 05/02	Bridge Design Supervisor: J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO. BR0 1443(29)
Bridge Sheet No.	SHEET 29 OF 41



APPROACH SLAB PLAN VIEW

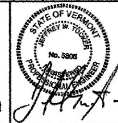
SCALE 1:50

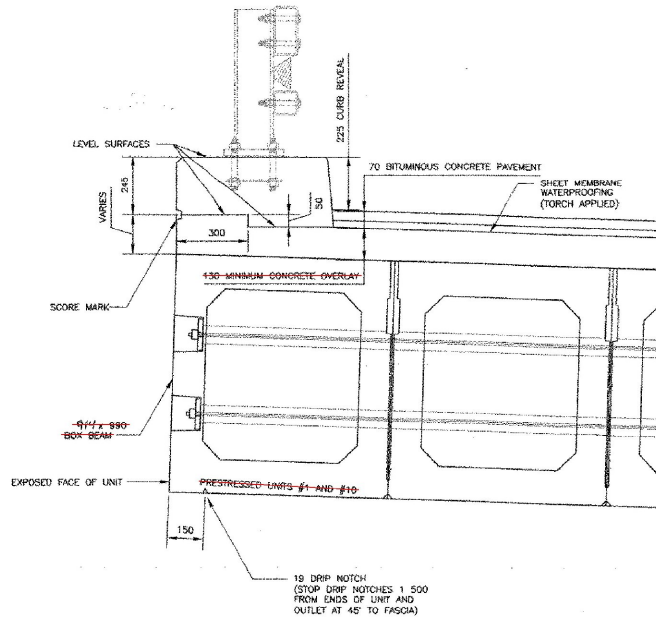


APPROACH SLAB DETAIL

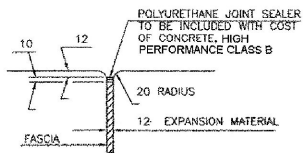
SCALE 1:20

REVISIONS			STATE OF VERMONT AGENCY OF TRANSPORTATION	
NO.	DESCRIPTION	BY & DATE		
			CLARENDON, VERMONT	
			TOWN HIGHWAY NO. 1	
			TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
			APPROACH SLAB DETAILS	
			Designed by: A.P. GUYETTE	Drawn by: A.P. GUYETTE
			Checked by: J.W. TUCKER	Bridge Design Supervisor: J.W. TUCKER
			PROJECT NO. CLARENDON	PROJECT NO. BRO 1443(29)
			Bridge Sheet No.	SHEET 29A OF 41

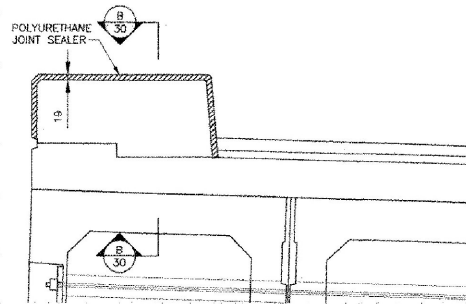




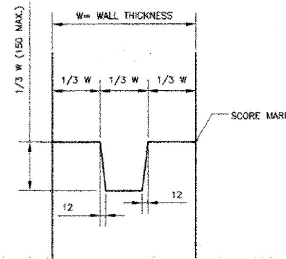
TYPICAL CURB SECTION
SCALE 1:10



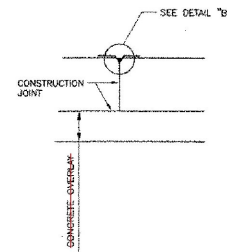
JOINT BETWEEN
FASCIA AND WINGWALL



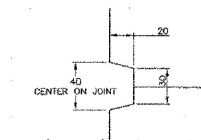
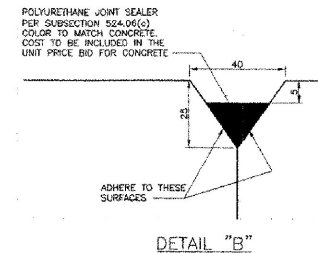
TYPICAL SECTION THROUGH CONCRETE
CONSTRUCTION JOINT
SCALE 1:10



TYPICAL CONCRETE CONSTRUCTION JOINT



SECTION B-30



SCORE MARK DETAIL
NOT TO SCALE

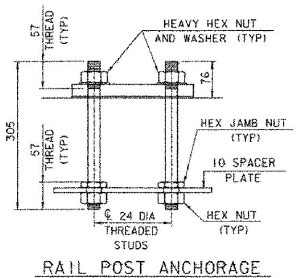
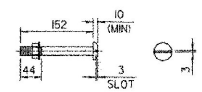
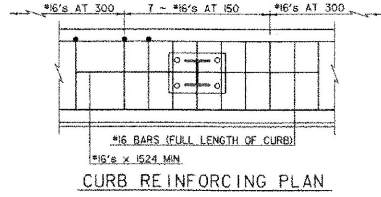
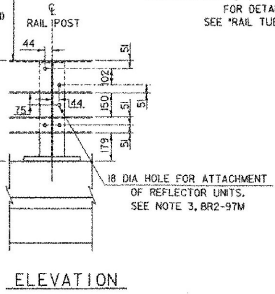
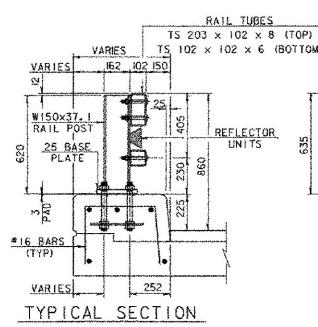
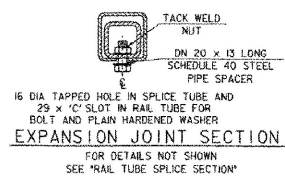
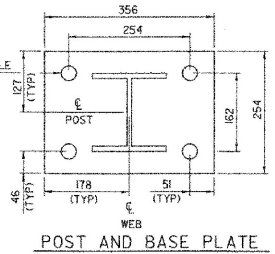
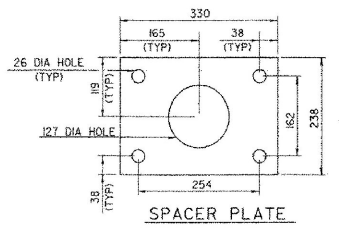
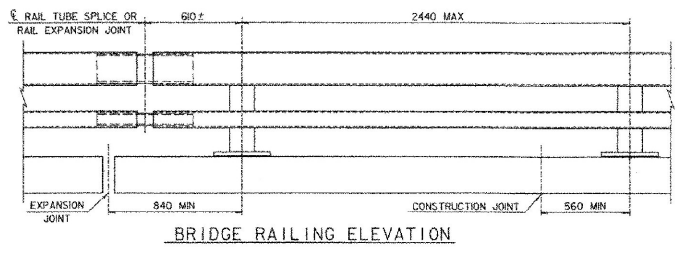
NOTES:

1. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING (TORCH APPLIED).
2. SHEET MEMBRANE WATERPROOFING (TORCH APPLIED) SHALL EXTEND TO FACE OF CURB.
3. "E" DENOTES EPOXY COATED BARS.
4. CONSTRUCTION JOINTS IN THE CURBS SHALL BE PROVIDED AS SHOWN ABOVE. JOINTS SHALL BE SPACED MAXIMUM OF 4500 CENTER TO CENTER AND SHALL BE 460 MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE AND SHALL BE 460 MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
5. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CONSTRUCTION JOINTS.
6. ALL EPOXY COATED STEEL THAT NEEDS TO BE CUT IN THE FIELD IS TO BE SAW CUT AND THE EXPOSED END IS TO BE TREATED AS PER SECTION 507.04.

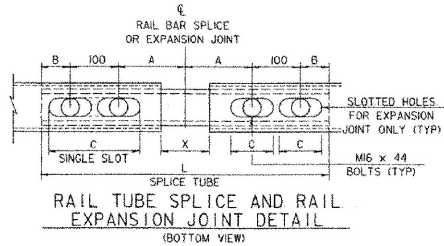
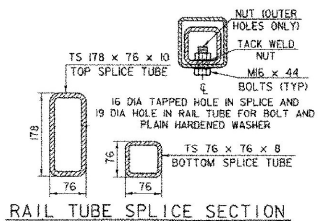
REVISIONS	
DESCRIPTION	BY & DATE

DuBois & King
INC.
engineering planning management development

STATE OF VERMONT AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
CURB DETAILS	
Designed by: B. C. AUSTIN	Drawn by: E. B. SMALL
Checked by: R. S. MARSHIA date 05/01	Bridge Design Supervisor: J.W. LOCKER date 05/01
PROJECT NO. CLARENDON	PROJECT NO. BR0 1443(29)
Bridge Sheet No.	SHEET 30 OF 40



M20 DIA M164 (TYPE 1) ROUND HEAD BOLT
 WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT (SEE NOTE #9)
 ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.



NOTES

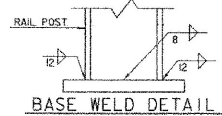
1. ALL WORK AND MATERIALS SHALL CONFORM TO THE PROVISIONS OF SECTION 525, "RAILINGS OF THE STANDARD SPECIFICATION FOR CONSTRUCTION."
2. TUBING AND POSTS SHALL MEET THE REQUIREMENTS OF SECTION 732, "RAILING MATERIALS OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION," EXCEPT THAT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING IN THIS STANDARD.
3. ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2mm RADIUS AND BE FREE OF BURRS.
4. RAIL POSTS SHALL BE SET NORMAL TO GRADE.
5. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
6. RAIL TUBE EXPANSION JOINTS SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT. EXPANSION JOINT WIDTH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
7. ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT THAT HARDWARE SHALL MEET THE REQUIREMENTS OF AASHTO M232M.
8. RAIL POSTS ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
9. RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLTS (INSERTED THROUGH THE FACE OF THE TUBE, HOLES IN POSTS SHALL BE 2mm LARGER THAN THE BOLT SIZE).
10. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
11. IF THERE IS A CONFLICT BETWEEN THESE STANDARD DETAILS AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.
12. ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
13. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH THE PROVISION OF 506.04, SHOP DRAWINGS. ALL WELDING SHALL CONFORM WITH SECTION 506.10.
14. RAIL POST AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARNY IMPACT TESTING USING TYPE A SPECIMENS.

MATERIALS

RAIL TUBES.....ASTM A500, GRADE B OR ASTM A501
 RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 50
 ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GRADE 36
 ANCHOR STUDS.....ASTM A307, GRADE A (ASTM A449)
 ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164M, TYPE 1
 NUTS FOR AASHTO M164 BOLTS AND ANCHOR STUDS SHALL COMPLY WITH AASHTO M291M (ASTM A563M).
 WASHERS SHALL COMPLY WITH AASHTO M293M (ASTM F436M) SPECIFICATIONS.
 3mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

SPLICE TABLE						
T	A	B	C	L	X	
NA	100	50	--	S10	20	
EXPANSION JOINT TABLE						
<100	100	50	65	S10	65	
>100 <165	140	60	90	S05	105	
>165 <230	165	85	230*	705	130	
>230 <330	215	110	280*	860	180	

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6
 * = SINGLE SLOT

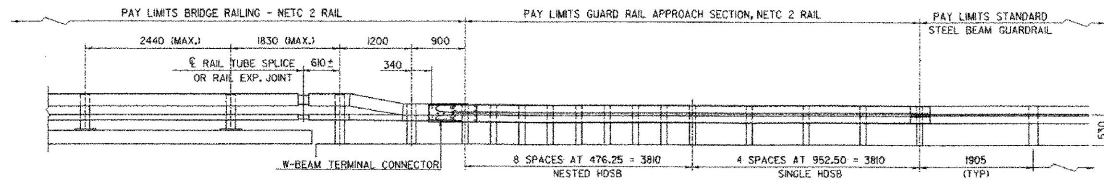


REVISIONS		
NO.	DESCRIPTION	BY & DATE

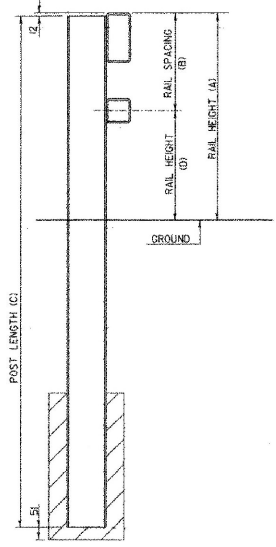
ENGINEERING: PLANNING, MANAGEMENT, DEVELOPMENT

DuBois & King

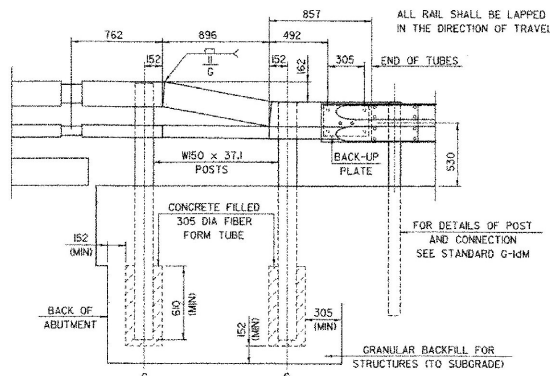
STATE OF VERMONT AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta. 8+77.51a
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
N.E.T.C. BRIDGE AND APPROACH RAIL DETAILS	
Designed By: B.C. AUSTIN	Drawn By: E.B. SMALL
Checked By: Date	Bridge Design Supervisor
K. S. MARSHIA 05/02	J.W. TUCKER Date 05/02
PROJECT NO. CLARENDON	PROJECT NO. BRO H443 (29)
D & K DWG. NO.	Sheet 31 of 41



RAILING TRANSITION ELEVATION

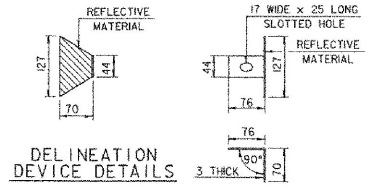
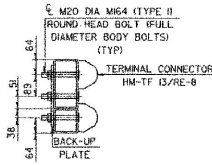


TYPICAL SECTION

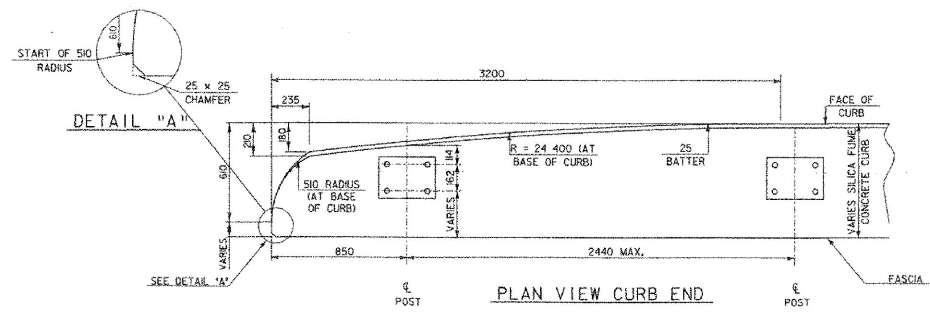


ELEVATION

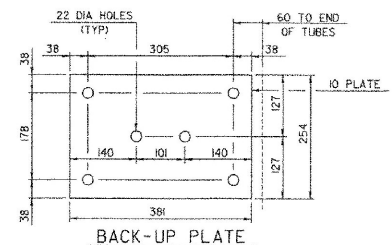
SECTION THROUGH GUARD RAIL CONNECTION AT TERMINAL CONNECTOR



DELINEATION DEVICE DETAILS



PLAN VIEW CURB END



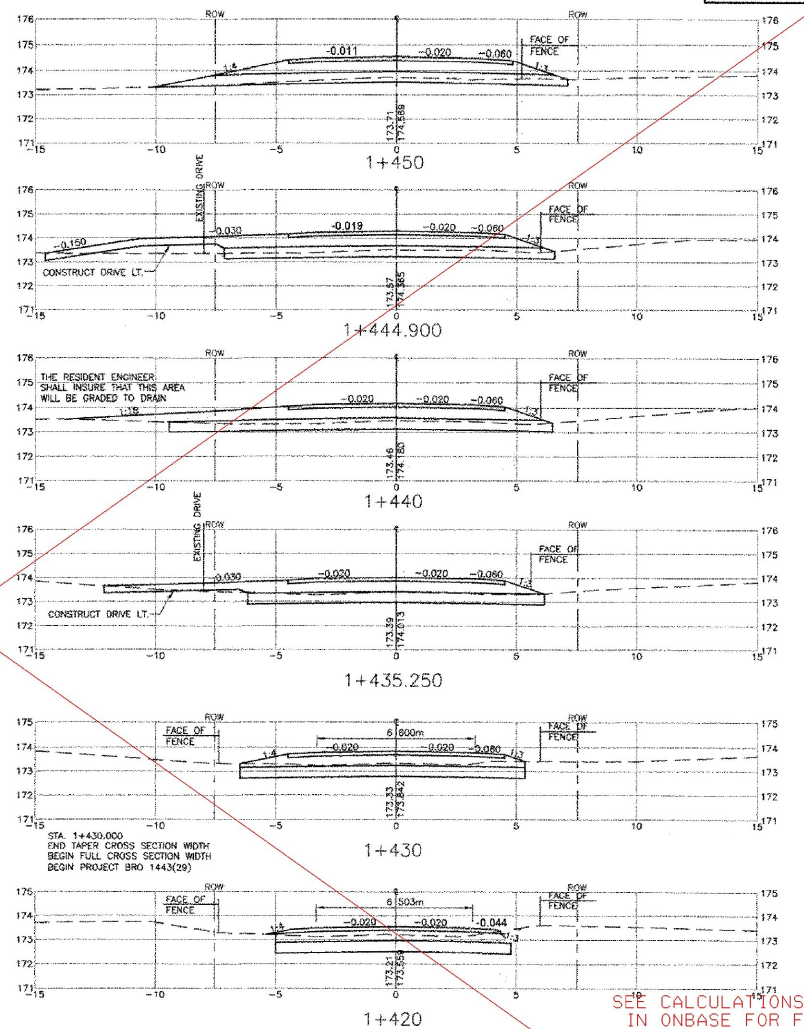
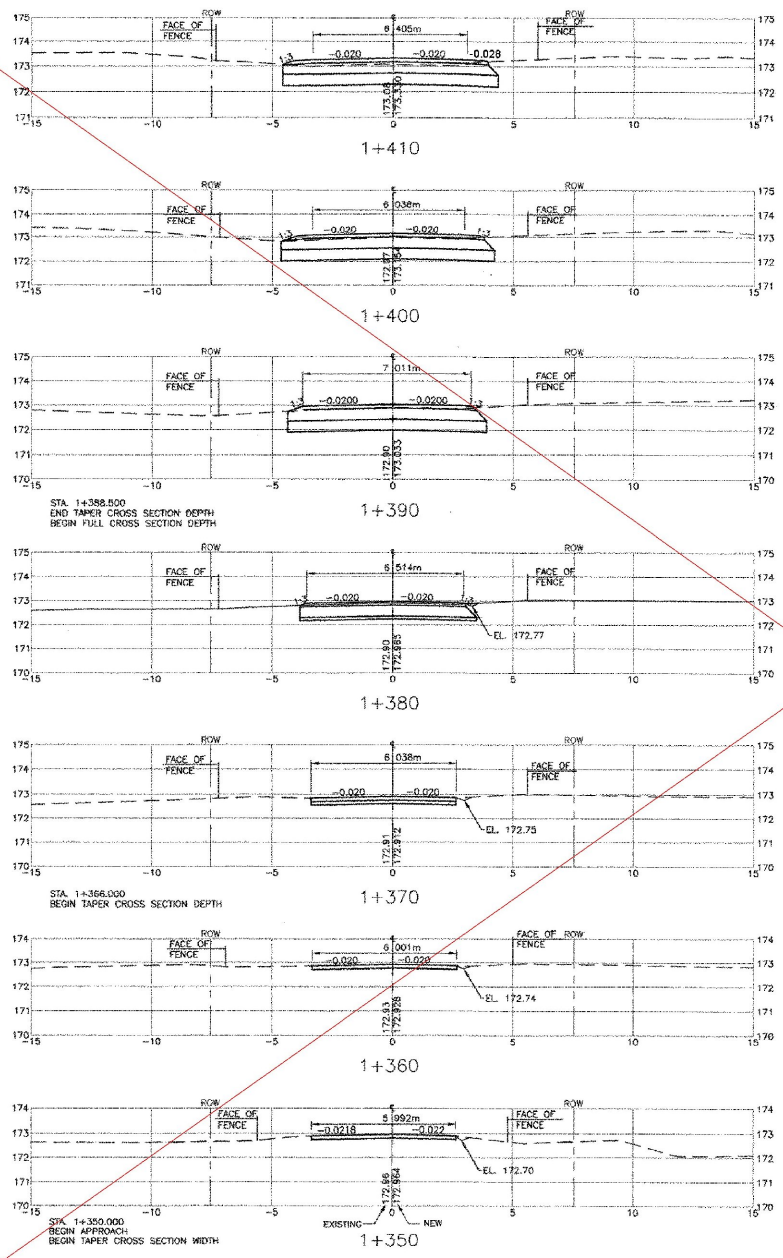
BACK-UP PLATE

POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	POST LENGTH (C)	RAIL HEIGHT (D)
1	860	405	2134	455
2	702	254	1956	448

NOTES:

- REFER TO SHEET 31 OF 41 FOR ADDITIONAL DETAILS, NOTES AND MATERIAL SPECIFICATIONS.
- TO FACILITATE FIELD FIT - UP OF THE TRANSITION RAILING, POSTS SHALL BE SET LOOSELY INTO FIBER FORM TUBES WHILE TRANSITION PARTS ARE BEING ASSEMBLED. POST HOLES SHALL BE BACKFILLED WITH A CONCRETE MIX APPROVED BY THE ENGINEER. PAYMENT FOR COMPONENTS, INCLUDING BACKUP PLATE AND END TERMINAL CONNECTOR FOR GUARD RAIL, ANCHERING, FIBER FORM TUBES AND CONCRETE, AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO BRIDGE RAILING, N.E.T.C. 2 RAIL.
- THE REFLECTORIZED ALUMINUM DELINEATION IS TO BE ERRECTED EVERY 9m (OR CLOSEST POST) WITH A W16 BOLT. DELINEATORS SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.
- REFLECTIVE MATERIAL SHALL MEET REQUIREMENTS OF SUBSECTION 750.08 AND SHALL BE OF ENCAPSULATED LENS SILVER OR AMBER. AMBER IS TO BE INSTALLED ON THE DRIVER'S LEFT AND SILVER ON THEIR RIGHT.
- ON BRIDGES WITH A SIDEWALK, DELINEATORS ARE NOT TO BE INSTALLED ON THE SIDEWALK SIDE OF THE BRIDGE (I.E. DELINEATORS INSTALLED ONLY ON THE CURB SIDE AND ON THE APPROACH ON THE CURB SIDE). PAYMENT SHALL BE INCIDENTAL TO ALL OTHER ITEMS.
- ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD G-1M AND G-1M FOR ADDITIONAL INFORMATION.

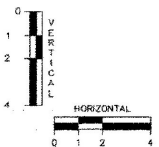
REVISIONS			STATE OF VERMONT	
NO.	DESCRIPTION	BY & DATE	AGENCY OF TRANSPORTATION	
			CLARENDON, VERMONT	Bridge No. 14
			TOWN HIGHWAY NO. 1	Log Sta. Surv. Sta.
			TOWN HIGHWAY NO. 10 OVER THE COLD RIVER	
			N.E.T.C. BRIDGE AND APPROACH RAIL DETAIL	
Designed By	B. C. AUSTIN	Drawn By	E. B. SMALL	
Checked By	Date	Bridge Design Supervisor		
PROJECT		CLARENDON	PROJECT NO.	BRO 1443 (29)
D & K DWG. NO.			Sheet	32 of 41



SEE CALCULATIONS FILE
IN ONBASE FOR FINAL
CROSS SECTIONS

ROADWAY CROSS SECTIONS

SCALE: HORIZ. 1:100
VERT. 1:100

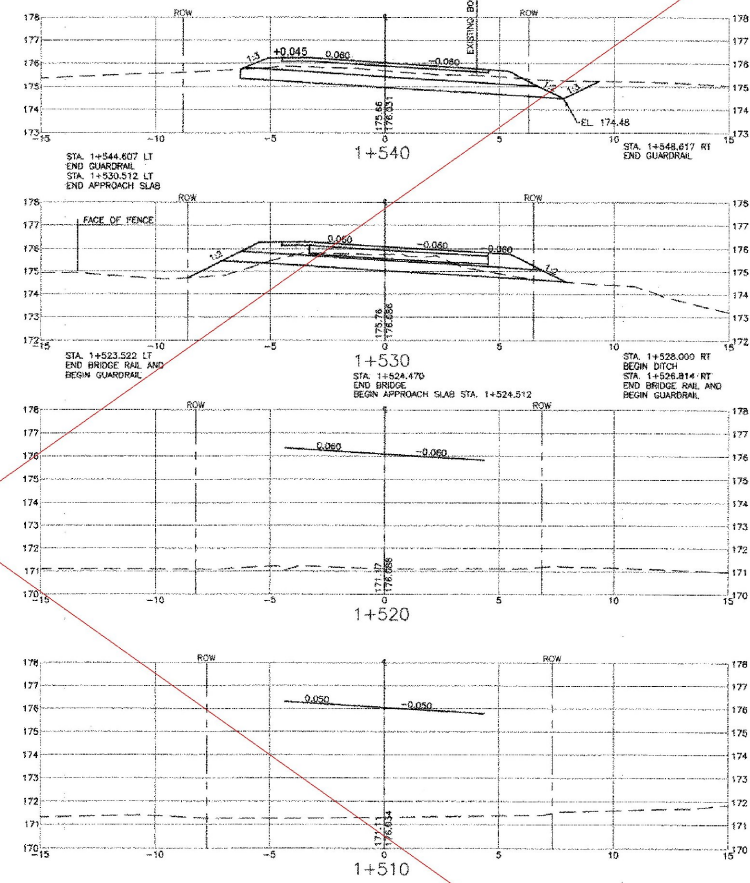
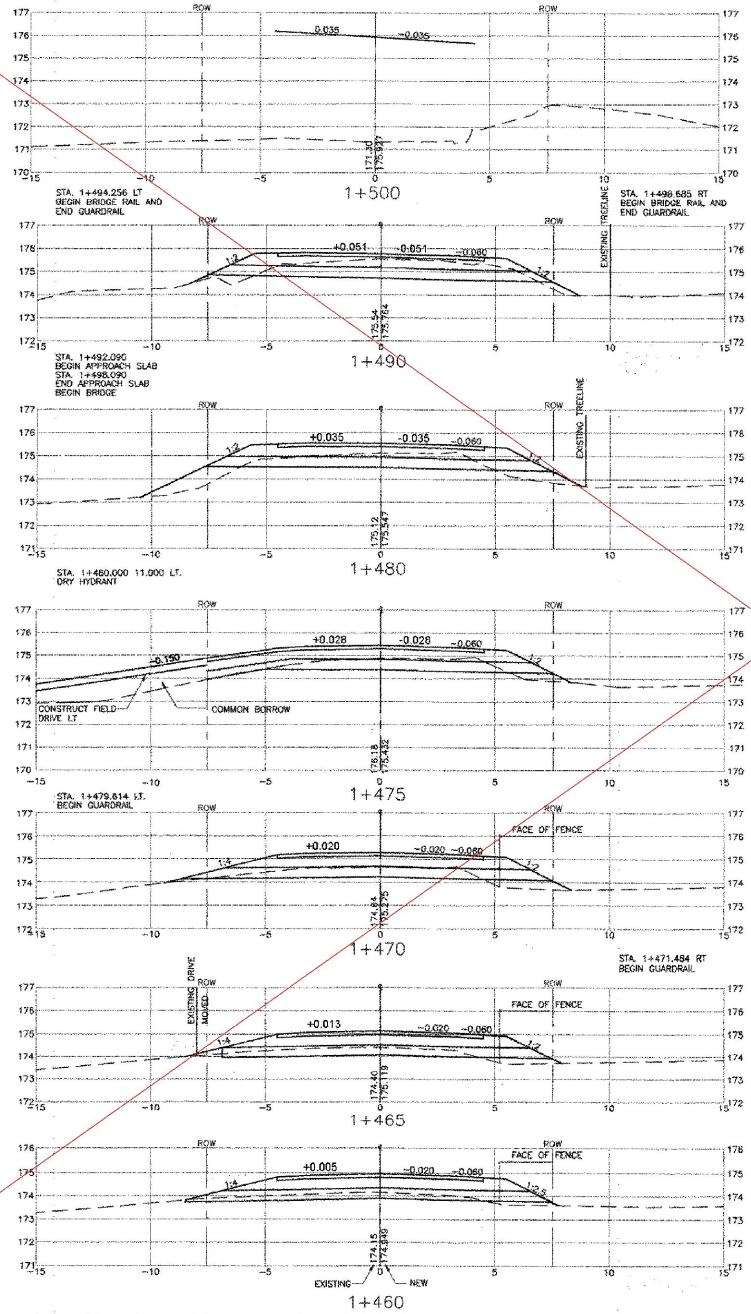


REVISIONS		
NO.	DESCRIPTION	BY & DATE

	engineering planning management development
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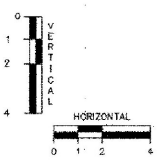
**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ROADWAY CROSS SECTIONS	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DIMICK
Checked by: K.S. MARSHALL date 08/02	Bridge Design Supervisor: J.W. TUCKER date 08/02
PROJECT: CLARENDON	PROJECT NO.: BRO 1443(29)
Bridge Sheet No.	SHEET 35 OF 41



ROADWAY CROSS SECTIONS

SCALE: HORIZ. 1"=100
VERT. 1"=100

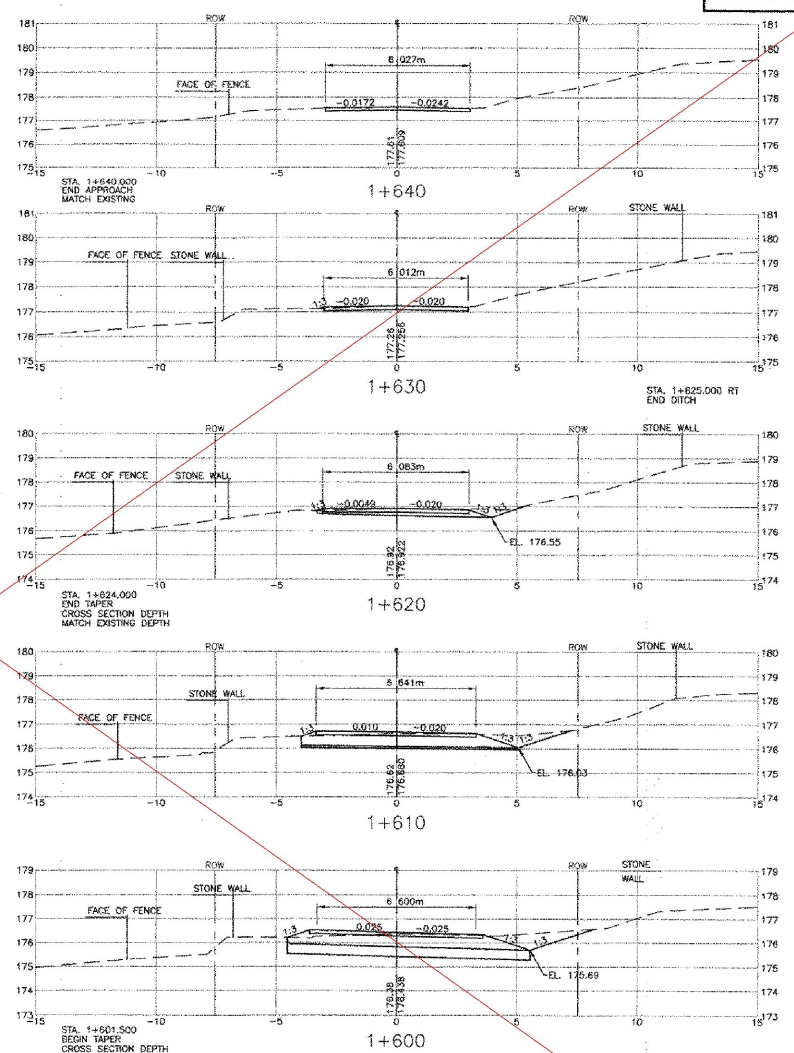
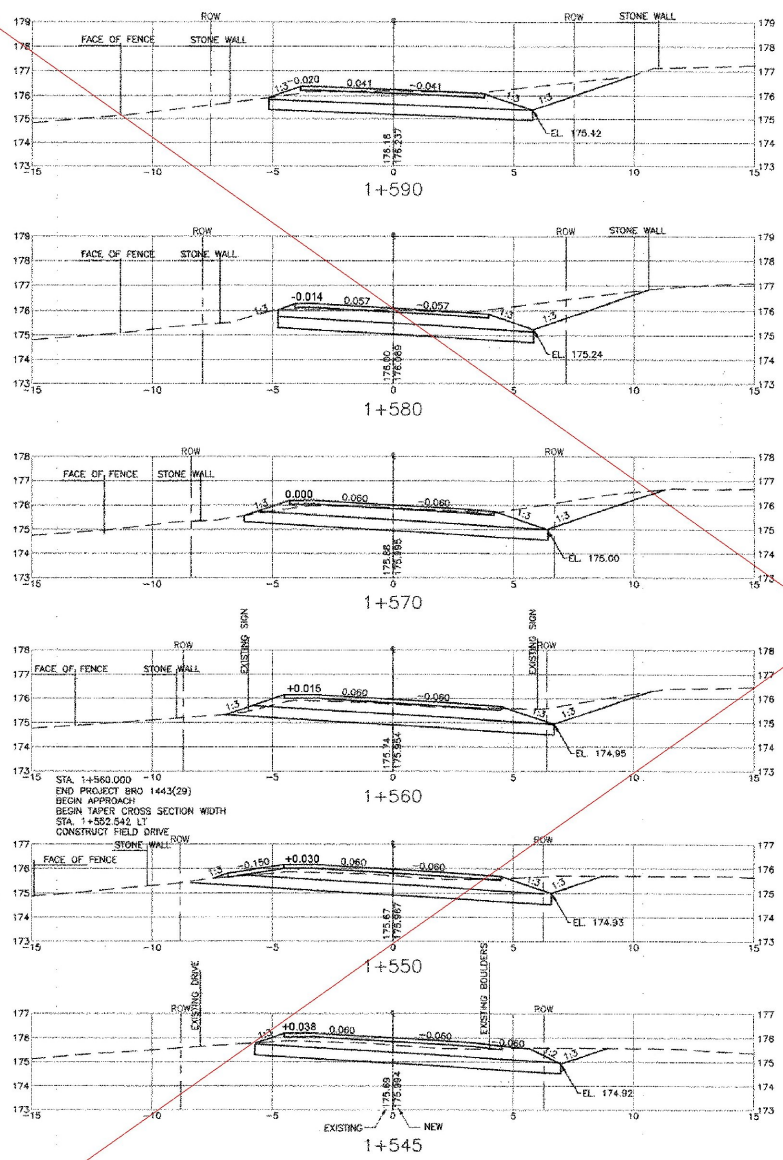


REVISIONS		
NO.	DESCRIPTION	BY & DATE

 engineering planning management development	

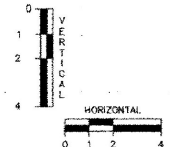
STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Log Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
ROADWAY CROSS SECTIONS	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. QMICK
Checked by: K.S. MARSHA	Bridge Design Supervisor: J.W. TUCKER
date 05/02	date 05/02
PROJECT: CLARENDON	PROJECT NO.: BRD 1443(29)
Bridge Sheet No.	SHEET 36 OF 41

SEE CALCULATIONS FILE IN ONBASE FOR FIANL CROSS SECTIONS

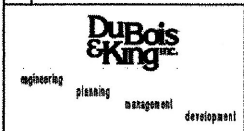


SEE CALCULATIONS FILE
IN ONBASE FOR FINAL
CROSS SECTIONS

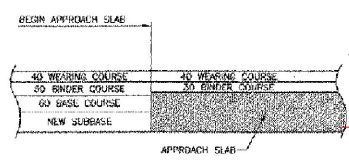
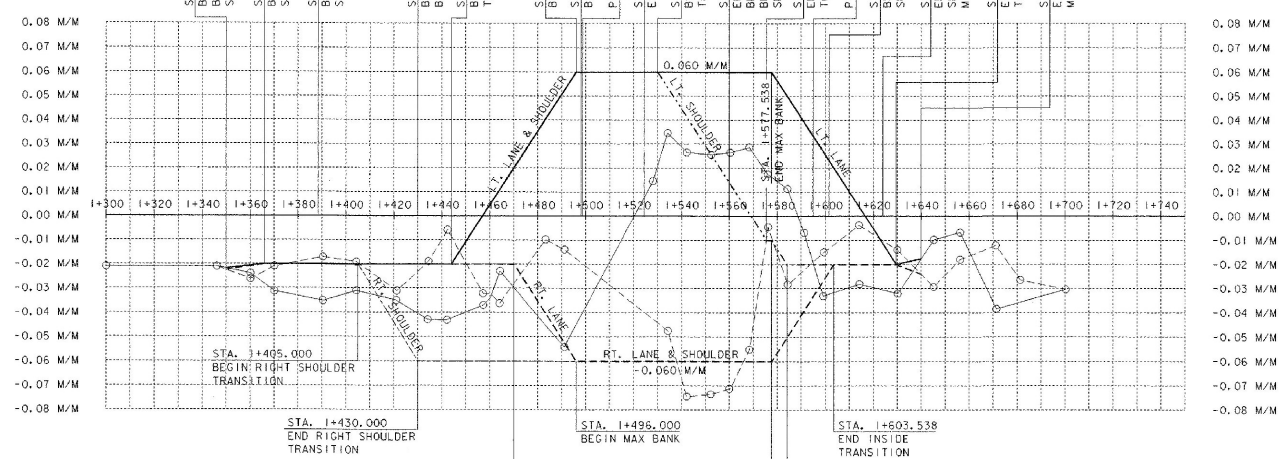
ROADWAY CROSS SECTIONS
SCALE: HORIZ. 1:100
VERT. 1:100



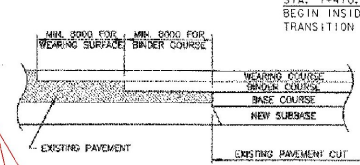
REVISIONS			STATE OF VERMONT AGENCY OF TRANSPORTATION	
NO.	DESCRIPTION	BY & DATE		
			CLARENDON, VERMONT	
			TOWN HIGHWAY NO. 1	
			TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
			ROADWAY CROSS SECTIONS	
			Designed by: W.S. CHESBROUGH	
			Checked by: K.S. MARSHIA date 05/02	
			PROJECT: CLARENDON	
			PROJECT NO. BRO 1443(29)	
			Bridge Sheet No. SHEET 37 OF 41	



- LEGEND**
- RIGHT EDGE OF EXISTING ROAD
 - LEFT EDGE OF EXISTING ROAD
 - RIGHT EDGE OF PROPOSED TRAVEL LANE
 - LEFT EDGE OF PROPOSED TRAVEL LANE
 - RIGHT EDGE OF PROPOSED SHOULDER
 - LEFT EDGE OF PROPOSED SHOULDER

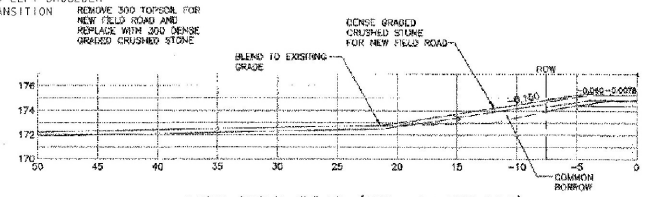


TYPICAL PAVEMENT TRANSITION AT BRIDGE SECTION
NOT TO SCALE

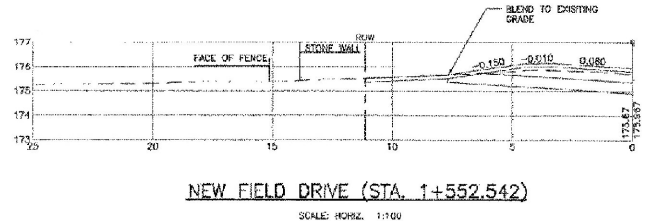


TYPICAL COLD PLANING SECTION
NOT TO SCALE

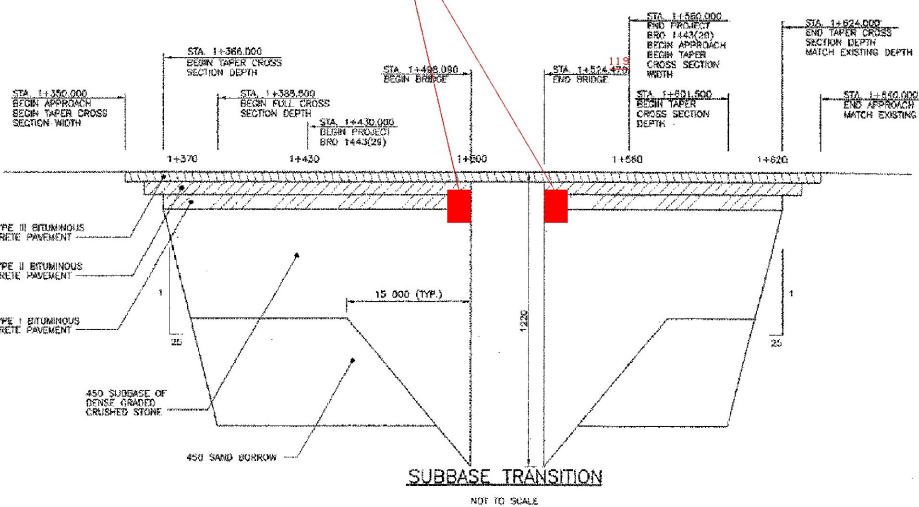
BANKING DIAGRAM
SCALE: HORIZ. 1:100
VERT. 0.01 M/M



NEW FIELD ROAD (STA. 1+475.000)
SCALE: HORIZ. 1:200

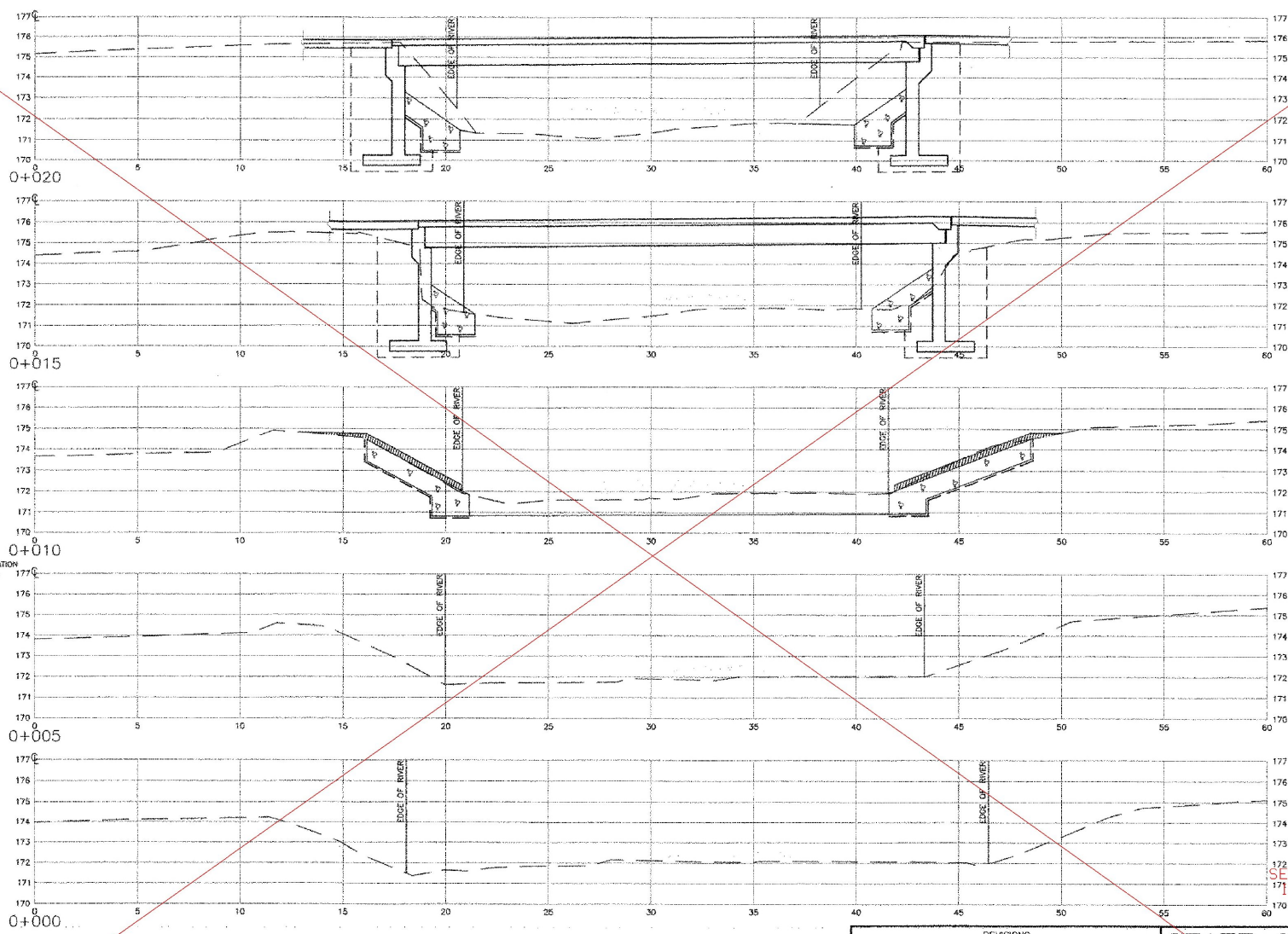


NEW FIELD DRIVE (STA. 1+552.542)
SCALE: HORIZ. 1:100



SUBBASE TRANSITION
NOT TO SCALE

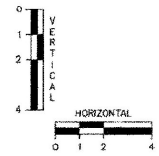
REVISIONS			STATE OF VERMONT AGENCY OF TRANSPORTATION
NO.	DESCRIPTION	BY & DATE	
			CLARENDON, VERMONT Bridge No. 14 TOWN HIGHWAY NO. 1 Log Sta. Stone Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER BANKING DIAGRAM AND PAVEMENT TRANSITION Designed by: W.S. CHESBROUGH Drawn by: E.J. SMALL Checked by: J.P. COOPER Bridge Design Supervisor Date: 05/20/02 Date: 05/02/02			
PROJECT: CLARENDON BHO 1442(26) Bridge Sheet No. SHEET 38 OF 41			



STA. 0+014.9 LT
END GRUBBING MATERIAL
STA. 0+014.1 RT
END GRUBBING MATERIAL

STA. 0+007.9 LT AND RT
BEGIN UNCLASSIFIED CHANNEL EXCAVATION
BEGIN GEOTEXTILE UNDER STONE FILL
BEGIN STONE FILL TYPE B
BEGIN GRUBBING MATERIAL

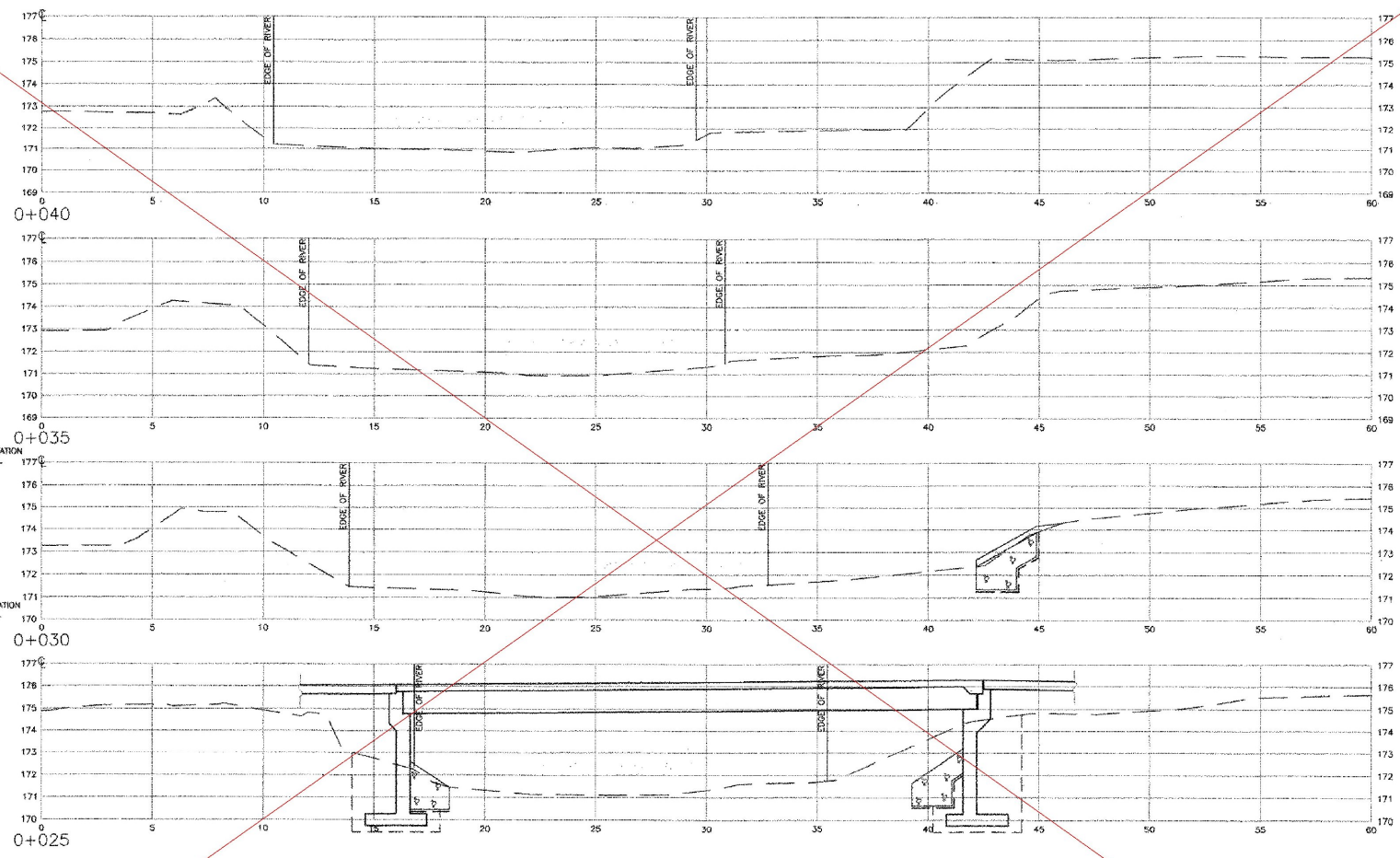
CHANNEL CROSS SECTIONS
SCALE: HORIZ. 1:100
VERT. 1:100



SEE CALCULATIONS FILE
171 IN ONBASE FOR FINAL
CROSS SECTIONS

REVISIONS			STATE OF VERMONT AGENCY OF TRANSPORTATION	
NO.	DESCRIPTION	BY & DATE		
			CLARENDON, VERMONT	Bridge No. 14
			TOWN HIGHWAY NO. 1	Log. Sta.
				Surv. Sta.
			TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
			CHANNEL CROSS SECTIONS	
Designed by: W.S. CHESBROUGH		Drawn by: N.B. DAMICK		
Checked by: K.S. MARSH		date 05/02	Bridge Design Supervisor J.W. TUCKER date 05/02	
PROJECT: CLARENDON			PROJECT NO. BRO 1443(29)	
Bridge Sheet No.			SHEET 40 of 41	





STA. 0+034.3 RT
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL
 END STONE FILL TYPE III
 END GRUBBING MATERIAL

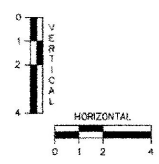
 STA. 0+029.8 LT
 END UNCLASSIFIED CHANNEL EXCAVATION
 END GEOTEXTILE UNDER STONE FILL
 END STONE FILL TYPE III
 END GRUBBING MATERIAL

 STA. 0+025.1 LT
 BEGIN GRUBBING MATERIAL

 STA. 0+024.2 RT
 BEGIN GRUBBING MATERIAL

SEE CALCULATIONS FILE
IN ONBASE FOR FINAL
CROSS SECTIONS

CHANNEL CROSS SECTIONS
 SCALE: HORIZ. 1:100
 VERT. 1:100



REVISIONS		
NO.	DESCRIPTION	BY & DATE

STATE OF VERMONT	
AGENCY OF TRANSPORTATION	
CLARENDON, VERMONT	Bridge No. 14
TOWN HIGHWAY NO. 1	Leg Sta.
	Surv. Sta.
TOWN HIGHWAY NO. 1 OVER THE COLD RIVER	
CHANNEL CROSS SECTIONS	
Designed by: W.S. CHESBROUGH	Drawn by: N.B. DMICK
Checked by: K.S. MARGHA date 05/02	Bridge Design Supervisor J.W. TUCKER date 05/02
PROJECT: CLARENDON	PROJECT NO.: BR0 1443(29)
Bridge Sheet No.	SHEET 41 of 41

engineering planning management development

V-T A.O.T.
PROJ. No. BRB 1443(29)
CLARENDON COUNTY

COSMEC, INC.
70 SOUTH STREET
WALPOLE, MA 02081
PH# 508-668-6600
FAX# 508-660-1022

EMS-QC-110
VTRANS
RECEIVED
CK'D BY _____ CK'D BY JWC
MAR 9 2 2006
RESUBMIT _____ APPROVED ✓
BY RRW DATE 3/9/06

ENGINEERING AND MANUFACTURING STANDARD
PTFE FACING AND STEEL
OR PREFORMED FABRIC SUBSTRATE
SURFACE PREPARATION AND ADHESIVE PROCEDURE

The PTFE facing shall be prepared for bonding to a substrate material by chemically etching the face to be bonded using the sodium ammonia process.

The mating surface of the substrate shall be prepared for bonding using a three-step process as follows:

1. preliminary degrease using methyl ethyl ketone.
2. mechanically roughen to approx. 125 RMS and thoroughly brush and clean for final degreasing.
3. final degrease using methyl ethyl ketone

The PTFE and substrate mating surfaces shall be clean and dry with final degreasing performed within 30 minutes of bonding. Adhesive shall consist of a two-part epoxy adhesive system conforming to Military Specification MMM-A-134

The adhesive shall be applied to the full area of the contact surface in an even manner so as to establish a glue line not less than .002 inch nor more than .010 inch thick. Surfaces being bonded are to be assembled immediately with open assembly time not to exceed 20 minutes.

The PTFE material shall be greater in width and length than the substrate material by at least 1/2 inch when bonded. The PTFE shall be applied with contact starting at one edge and with contact progressing across entire bonded surface to eliminate air entrapment. The PTFE is to be in full contact with the steel or preformed fabric substrate. Curing of the bond shall be done under pressure of approx. 2-100 psi for 10-12 hours at approx. 70°F or other schedules as established by the manufacturer of the adhesive.

The PTFE shall be carefully trimmed to the same size as the substrate after bond curing and all bonds shall be visually inspected for bond retention.

VT A.O.T.
PROJ. No. BRO 1443 (29)
CLARENDON COUNTY

COSMEC INC.
WELDING PROCEDURE SPECIFICATION

SPECIFICATIONS AND CODE: D1.6 (D1.3)
MATERIAL SPECIFICATION ASTM A240 TYPE 304 TO ASTM A709 GR 50W
WELDING PROCESS----- GTAW
MANUAL OR MACHINE----- MANUAL
POSITION OF WELDING----- 1F & 2F
FILLER METAL SPECIFICATION ER309L CLASSIFICATION: A5.9
MANUFACTURER: HARRIS WELCO TRADENAME:
FLUX----- INTERNAL
SHIELDING GAS----- ARGON FLOW RATE 45 CFH
SINGLE OR MULTIPLE PAS S SINGLE
SINGLE OR MULTIPLE ARC SINGLE
WELDING CURRENT----- DC
POLARITY: REVERSE (EN)
WELDING PROGRESSION-----
ROOT TREATMENT----- CLEANED & PREPARED BRIGHT METAL
PREHEAT AND INTERPASS TEMPERATURE----- SEE BELOW
POSTHEAT TEMPERATURE N/A
HEAT IMPUT MIN.----- MAX.---

WELDING PROCEDURE

PASS NO.	ELECTRODE SIZE	WELDING CURRENT AMPERES	VOLTS	TRAVEL SPEED	JOINT DETAIL
ALL	3/32"	130--155	14-17	6.75--8.5	LAP JOINT
16 GA THRU 10 GA BM THICKNESS					

PREHEAT TEMPS. ***PREHEAT UNTIL NO MOSITURE PRESENT
THICKNESS T TEMP.
UP TO 3/4" 100 DEG.
OVER 3/4" TO 1 1/2" 100 DEG.
OVER 1 1/2" TO 2 1/2" 100 DEG.
OVER 2 1/2" 100 DEG.

THIS PROCEURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT-UP, PASS SIZE, ETC.
WITHIN THE LIMITATION OF VARIABLES GIVEN IN SECTION 5.

SUPPORTING PQR: GTAW-WF-05
PROCEDURE NO. GTAW-WF

CONTRACTOR: COSMEC INC.
AUTHORIZED BY: DONALD VOSE
CW#:01100651 *Donald Vose*

REVISION NO. 1

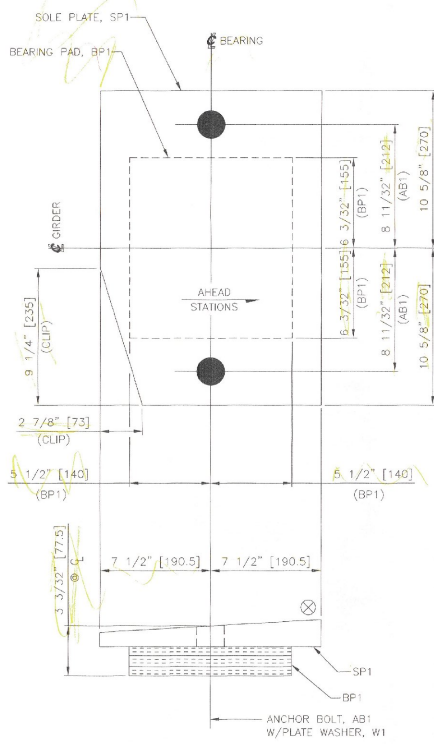
DATE:--- 2/1/2005

VTRANS RECEIVED
JWC
MAR 9 2006
✓
3/9/06

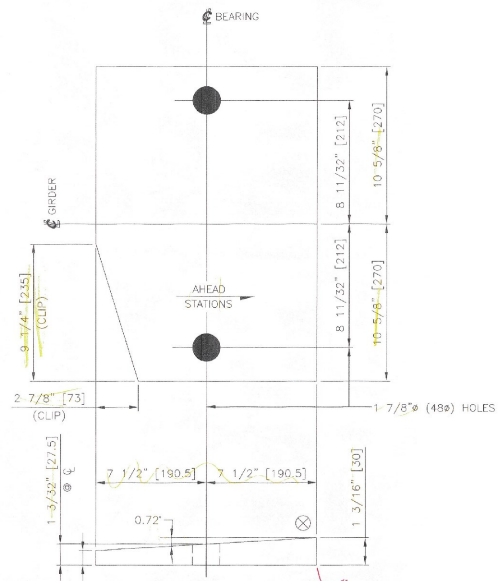


MARK	QTY	DESCRIPTION	IN	16ths	P&H	WLL	WEIGHT
FBA-1	5	FIXED BEARING ASSEMBLIES					
SP1	5	PL 1 3/16" (30) x 15" (381)	21 (540)	4		DALV AASHTO 18.4.9.1	537
BP1	5	PREF. PAD 2" (50) x 11" (280)	12 (310)	3			69
TOTAL =							606

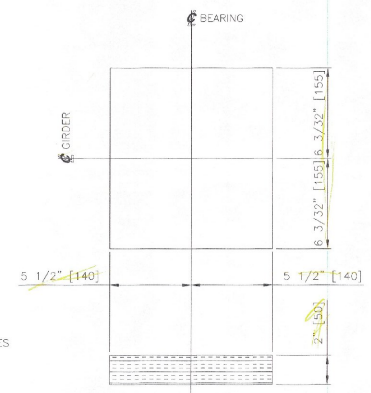
ENGLISH EQUIVALENT MATERIAL FURNISHED.
METRIC EQUIVALENT IN PARENTHESIS.



5 FIXED BEARING ASSEMBLIES, FBA-1
LOCATE AT
ABUTMENT 1
GIRDERS 1 THRU 5



5 FIXED SOLE PLATES, SP1
PL 1 3/16" (30) X 15" (381) X 21 1/4" (540)
(GALV.)
USE WITH
FIXED BEARING ASSEMBLY, FBA-1



5 BEARING PADS, BP1
PREFORMED FABRIC PAD 2" (50) X 11" (280) X 1 3/16" (30)
FABRICATED IN ACCORDANCE WITH AASHTO 18.4.9.1
USE WITH
FIXED BEARING ASSEMBLY, FBA-1

SHOP NOTES:

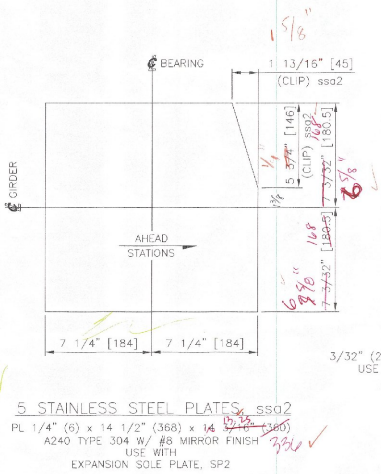
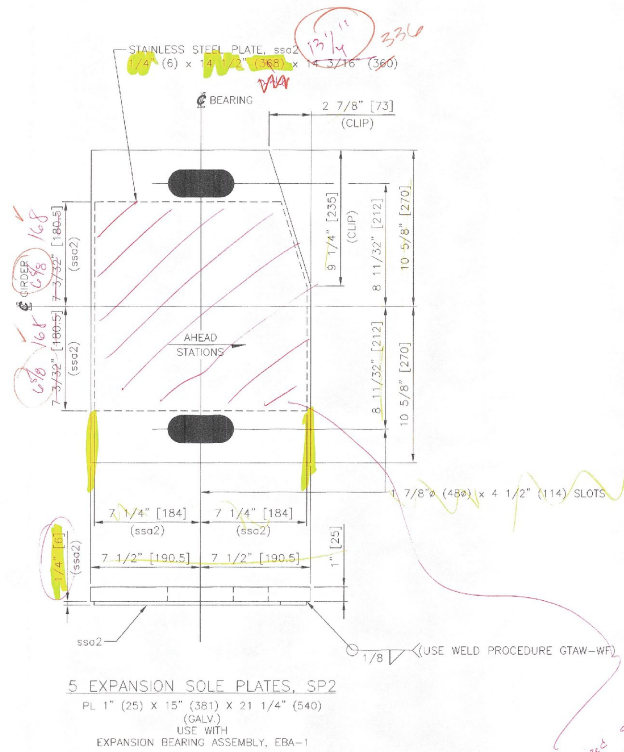
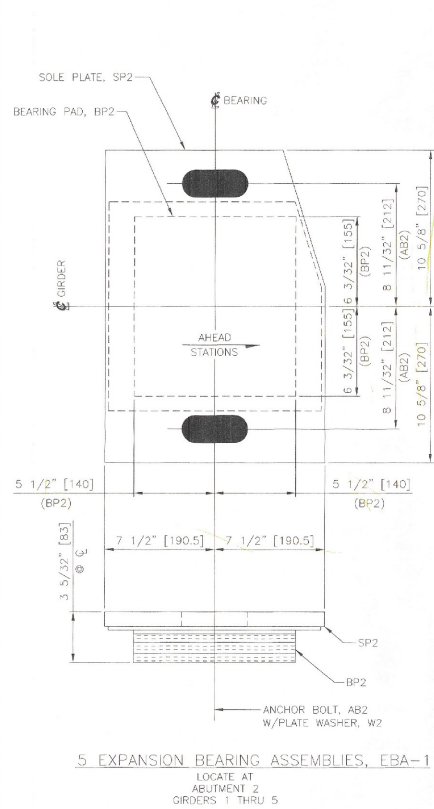
- SOLE PLATES: AASHTO-M270, GR. 250, GALVANIZED.
- PREFORMED FABRIC PADS SHALL BE IN ACCORDANCE WITH AASHTO 18.4.9.1.
- STAINLESS STEEL: ASTM 240, TYPE 304, #8 MIRROR FINISH.
- PTFE: ASTM D1457, VIRGIN, UNFILLED.
- ANCHOR BOLTS: F1554, GR. 55, GALVANIZED.
- NUTS: HWY HEX, ASTM A563-DH1, GALVANIZED.
- BEARINGS SHALL CONFORM TO THE APPLICABLE SUBSECTIONS OF 531 AND 731 OF THE "VERMONT SPECIFICATIONS".
- ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH SUBSECTION 714.08 OF THE "VERMONT SPECIFICATIONS".
- MATERIAL NOTED AS M270, GR. 250 MAY BE AASHTO M270, GR. 250, ASTM A709, GR. 50 OR ASTM A572 GR. 50.
- MATERIAL NOTED AS GALVANIZED SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111 (ASTM A123) OR AASHTO M232 (ASTM A153) AS APPLICABLE.
- ALL SURFACES OF PLATES SHALL BE STRAIGHT AND SMOOTH.
- SHOP TO MARK HIGH SIDE OF PLATE.
- COSMEC, INC. REPRESENTATIVE: MR. MATT McANDREWS, (508) 666-6600

Structural Copy

STATE OF VERMONT
AGENCY OF TRANSPORTATION
TOWN HIGHWAY NO. 1
OVER THE COLD RIVER
CLARENDON, VERMONT
PROJECT NO. BRO 1443(29)
BRIDGE NO. 14

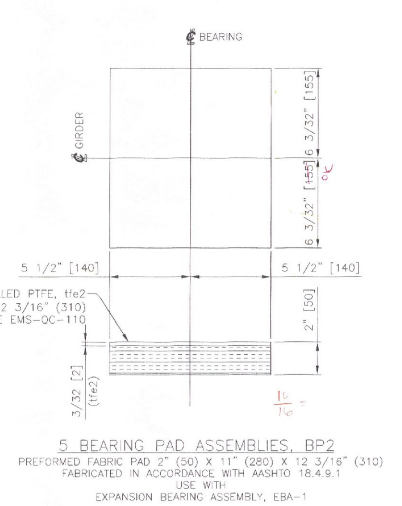
COSMEC, INC. 70 SOUTH STREET
WALPOLE, MA 02081
SCALE: 1/4" = 1" DRAWN BY: JEP CHECKED BY: PJM
SHEET 1 OF 3 DATE: 02/06 DATE: 02/06

COSMEC BEARING
CUSTOMER: FRANK W. WHITE/COMB CONSTRUCTION CORPORATION
SHEET NUMBER: 60518
DRAWING NUMBER: 4671
NO. 0



MARK	QTY	DESCRIPTION	IN	16ths	FAB MARK	MIL MARK	WEIGHT
EBA-1	5	EXPANSION BEARING ASSEMBLIES					
SP2	5	PL 1" (30) x 15" (381)	21 (540)	4		GALV.	447
	5	STAINLESS PL 1/4" (6) x 14 1/2" (368)	14 (360)	3	sso2	A240 TYPE 304 A387C (8.4.9.1)	124
BP2	5	PREF. PAD 2" (50) x 11 (280)	12 (310)	3			138
	5	UNFILLED PTFE 3/32" (2) x 11" (280)	12 (310)	3	the2		10
TOTAL =							749

ENGLISH EQUIVALENT MATERIAL FURNISHED.
METRIC EQUIVALENT IN PARENTHESIS.



SEE SHEET 1 FOR SHOP NOTES.

*Advanced surface
must be removed
prior to welding of
stainless steel plate
in area shown*

STATE OF VERMONT
AGENCY OF TRANSPORTATION
TOWN HIGHWAY NO. 1
OVER THE COLD RIVER
CLARENDON, VERMONT
PROJECT NO. BRO 1443(29)
BRIDGE NO. 14

RECEIVED
OCTOBER 1, 2008
MAR 02 2008
BY: [Signature]

COSMEC, INC. 70 SOUTH STREET
WALPOLE, MA 02081
SCALE: 1/4" = 1" DRAWN BY: JEP CHECKED BY: PJM
SHEET 2 OF 3 DATE: 02/06 DATE: 02/06

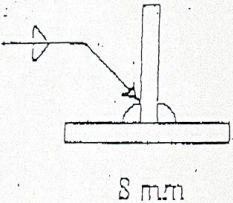
REV	BY	DATE	OK BY	DATE	CUSTOMER	DRAWING NUMBER	REV
1					FRANK W. WHITCOMB CONSTRUCTION CORPORATION	60518	4673

EASTERN BRIDGE, LLC
WELDING PROCEDURE SPECIFICATION

WPS NUMBER: 2005-3-2	ISSUE DATE: 3/1/06
PROJECT: VT AOT BRO 1443 (29)	EB JOB NO.: 6055
BASE METAL: ASTM A709 GR 345W	
WELDING PROCESS: SUBMERGED ARC WELDING	
FILLER METAL SPEC.: AWS A5.23 LINCOLN LA75	
FLUX / SHIELDING GAS: LINCOLN 960	
CURRENT AND POLARITY: DCEP	ELEC STICKOUT: 1" +/- 1/4"
WELDING POSITION: 2F	
PREHEAT AND INTERPASS TEMP.: AWS D1.5 TABLE 4.4	WPS QUALIFICATION: AWS D1.5 / 5.13
HEAT INPUT: 50.68 - 73.92 KILJOULES	SUPPORTING PQR#: 2005-3

ELECTRODE SIZE	WELDING AMPS	CURRENT VOLTS	TRAVEL SPEED
3/32"	396 - 440	28.8 - 31.5	11.25 - 13.5

8mm FILLET



VTRANS
RECEIVED

CK'D BY _____ OK'D BY JWC

MAR 02 2006

RESUBMIT _____ APPROVED ✓
 BY RRW DATE 3/10/06

MIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE AS FOLLOWS:
 MAXIMUM INTERPASS TEMPERATURE SHALL BE 450F

THICKNESS OF THICKEST PART AT POINT OF WELDING	TEMPERATURE, F ASTM A709 GR 345W STEEL
UP TO 3/4"	50F
3/4" TO 1 1/2"	125F
1 1/2" TO 2 1/2"	175F
OVER 2 1/2"	225F

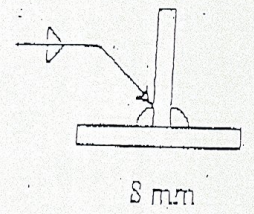
THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT UP, PASS SIZE, ETC. WITHIN THE LIMITS PROVIDED IN THE CONTRACT DOCUMENTS AND THE AWS D1.5 BRIDGE WELDING CODE

EASTERN BRIDGE, LLC
WELDING PROCEDURE SPECIFICATION

WPS NUMBER: SMAW PL#00-02	ISSUE DATE: 3/1/06
PROJECT: VT AOT BRO 1443 (29)	EB JOB NO.: 6055
BASE METAL: A709 GR 345W	
WELDING PROCESS: SMAW	
FILLER METAL SPEC.: A5.5, LINCOLN E8018 C3	
FLUX / SHIELDING GAS: N/A	
CURRENT AND POLARITY: DCEP	ELEC STICKOUT: N/A
WELDING POSITION: 2F	
PREHEAT AND INTERPASS TEMP.: AWS D1.5 TABLE 4.4	WPS QUALIFICATION: PREQUALIFIED
HEAT INPUT: 29.04 - 137.7 KILJOULES	SUPPORTING PQR#: N/A

ELECTRODE SIZE	WELDING AMPS	CURRENT VOLTS	TRAVEL SPEED
1/8"	110-130	22-26	3-5 IPM
5/32"	130-170	22-26	3-5 IPM
3/16"	170-255	24-27	3-5 IPM

8mm FILLET



NOTES:
 FOR WELDING
 GR 345W TO GR 345W

VTRANS
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RESUBMIT _____ APPROVED
 BY RLW DATE 3/10/06

MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE AS FOLLOWS:
 MAXIMUM INTERPASS TEMPERATURE SHALL BE 450F

THICKNESS OF THICKEST PART AT POINT OF WELDING	TEMPERATURE, F ASTM A709 GR 345W STEEL
UP TO 3/4"	50F
3/4" TO 1 1/2"	125F
1 1/2" TO 2 1/2"	175F
OVER 2 1/2"	225F

THIS PROCEDURE MAY VARY DUE TO FABRICATION SEQUENCE, FIT UP, PASS SIZE, ETC. WITHIN THE LIMITS PROVIDED IN THE CONTRACT DOCUMENTS AND THE AWS D1.5 BRIDGE WELDING CODE.

EASTERN BRIDGE, LLC

RR 2, BOX 302

CLAREMONT, NH 03743

PHONE (603) 542-5202

FAX (603) 542-5317

**HEAT CURVING AND SWEEP CORRECTION PROCEDURE
STRIP HEAT METHOD**

1. Support girder, with web in horizontal position, at girder ends and at intermediate points as necessary to produce a uniform curvature in the member.
2. Intermediate safety catch blocks shall be maintained at mid distance between supports of the member and not more than 2" below the flanges at all times.
3. Heating shall be performed using large (1") rosebud style MAPP gas heating torches. Heating shall be confined to areas described in Step 4 and shall be performed so as to bring the steel in these areas to a temperature between 1,000 F and 1,150 F as rapidly as possible without overheating the steel.
4. Heat shall be applied to those edges of the girder flanges, which shall be on the concave side after completion.
5. Heating shall be done beginning at the center of the girder and working out to either end. Care shall be taken to heat both top and bottom flange edges at the same time.
6. If heating torches are mounted on an automatic Bug-O type carriage; the torch head proximity and travel speed shall be set to achieve 1,000 F as measured on the flange edge at a distance of 6" behind the torch head. The steel temperature shall be checked frequently to see that the temperature achieves 1,000 F and does not exceed 1,150 F.
7. If heating is done manually, care shall be taken to ensure that the heating is done in a consistent manner to achieve predictable results. The torch operators shall monitor the steel temperature frequently to see that the temperature reaches 1000 F and does not exceed 1,150 F. The rate of progression along the flange edge shall likewise be carefully controlled.
8. Edge heats may be done continuously or intermittently, depending on the amount of final horizontal curvature required. If heats are done intermittently, the individual heats shall be allowed to cool below 200F before beginning the next heating cycle.
9. The heated areas shall be allowed to cool to below 600 F in ambient conditions. After which time, the areas may be cooled in an accelerated manner using dry, compressed air.
10. The intermediate safety catch blocks under the girder shall be monitored to maintain a space of no more than 2" during the heating process. It will be necessary to substitute different thickness catch blocks to maintain this space as the girder begins to contract and move.
11. The member being heated shall not be moved until the steel has reached ambient temperature.
12. The QA representative for the state shall be notified prior to implementation of this procedure.

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MAR 02 2006
RESUBMIT _____ APPROVED
BY PRW DATE 3/10/06

~~**VTRANS RECEIVED**
CK'D BY _____ OK'D BY JWC
MAY 13 2005
RESUBMIT _____ APPROVED
BY _____ DATE 5-23-05~~

EASTERN BRIDGE, LLC

RR 2, BOX 302

CLAREMONT, NH 03743

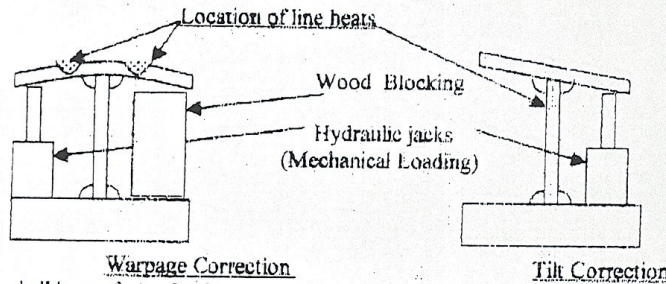
PHONE (603) 542-5202

FAX (603) 542-5317

Warpage and Tilt of Flange Correction Procedure, Rev. 1 NYS

SCOPE: This procedure is to be used to correct unacceptable amounts of warpage, (deviation from flatness) or flange tilt, (deviation of flanges from a line normal to the centerline of the web) in fabricated girders or rolled beams. Correction shall be achieved through the use of line heating on the girder web, or flanges, or both, in combination with the use of moderate mechanical loading if needed.

1. The area to be heated shall be determined by the correction required, see sketch below. Warpage shall be corrected through the use of line heats on the flanges. Flange tilt shall be corrected through the use of line heats on the appropriate surface of the web.



2. Heating shall be performed using appropriate sized rosebud style heating torches. Heating shall be confined to areas described in step 3 and shall be performed so as to bring the steel in those areas to a temperature between 1,000 F and 1,100 F as rapidly as possible without overheating the steel.
3. Heating patterns shall be marked on the steel prior to heating. Line heats shall be marked so as to avoid the areas of high restraint directly opposite fillet welds. The line heat length shall be determined by the amount of flange tilt or flange warpage requiring correction.
4. Heating shall begin at one end of the line and not proceed to the other end until the initial area is brought up to a temperature between 1,000 F and 1,100 F. The torch operator shall have 1,000 F, 1,100 F, & 1,150 F temperature indicating crayons. The steel surface temperature shall be monitored frequently during the heating process, and the temperature shall be controlled so as to achieve 1,100 F and not to exceed 1,150 F.
5. Apply mechanical loading until the bottom flange moves, but no more than 1/4". The force applied shall be a minimum to maintain and support position during the heating process. Mechanical loading shall be achieved using hydraulic jacks in the locations shown for the two types of correction being performed.
6. The QA representative for the state shall be notified prior to implementation of this procedure.

TRANS RECEIVED

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MAR 02 2006

RESUBMIT _____ APPROVED ✓

BY [Signature] DATE 3/10/06

~~TRANS RECEIVED~~

~~OK'D BY _____ OK'D BY [Signature]~~

~~MAY 19 2005~~

~~RESUBMIT _____ APPROVED [Signature]~~

~~BY _____ DATE 5-23-05~~

EASTERN BRIDGE, LLC

RR 2, BOX 302

CLAREMONT, NH 03743

PHONE (603) 542-5202

FAX (603) 542-5317

**HEAT CAMBERING AND
CORRECTIVE HEAT CAMBERING PROCEDURE**

1. Support girder, with web in vertical position, at girder ends and at intermediate points as necessary to produce a uniform curvature in the member.
2. Intermediate safety catch blocks shall be maintained at mid distance between supports of the member and not more than 2" below the flanges at all times.
3. The beam being cambered shall be supported or braced to prevent deflection laterally and overturning during the heating process.
4. Heating shall be performed using a properly sized rosebud style heating tip. Heating shall be confined to areas described in Step 5 and shall be performed so as to bring the steel in these areas to a temperature not exceeding 1,150F as rapidly as possible without overheating the steel.
5. Heating patterns shall be marked on the girders prior to heating. Heat patterns will be located at even distances in a quantity sufficient to produce the desired camber. Whenever possible heating patterns shall be centered on stiffener locations. Additional blank stiffeners may be required at panel midpoints to provide sufficient heating sites in an effort to prevent or reduce web distortion. Patterns shall be truncated triangles with the base of the triangle being that flange which shall be concave in the finished girder. The apex of the triangle shall be located in the web at a point not less than 75% of the depth of the beam from the base of the triangle. The total included angle of the triangle shall not exceed 20 degrees and the base of the triangle shall not exceed 10".
6. Heating shall begin at the apex of the triangle and not proceed toward the base until the truncated area is brought up to a temperature not exceeding 1,150F. Once heating begins to progress towards the base of the triangle it shall not return to the apex. The torch operator shall have 1,000 F, 1,100 F, and 1,150 F temperature indicating crayons. The steel surface temperature shall be monitored frequently during the heating process.
7. No weight shall be applied without prior approval of the state.
8. After application of heating patterns the member being cambered shall stay in the vertical position until the heated areas cool to below 200F, to check and record results.
9. The heated areas shall be allowed to cool to below 600F in ambient conditions. After which time, the areas may be cooled in an accelerated manner using dry, compressed air.
10. The QA representative for the state shall be notified prior to implementation of this procedure.

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BY RLW DATE 3/10/06

~~**VTRANS
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~~CK'D BY _____ OK'D BY JWC~~

~~**MAY 19 2005**~~

~~RESUBMIT _____ APPROVED~~

~~BY _____ DATE 5-23-05~~

GENERAL SHOP NOTES

SPECIFICATIONS

- MATERIAL AND WORKMANSHIP TO BE IN ACCORDANCE WITH THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001; GENERAL SPECIAL PROVISIONS, AND THE LATEST EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

*Design Specifications
1. American Assoc of State HW and Trans. Officials (AASHTO) standard spec. for
Highway Bridges, 2002 Edition with latest revisions.*

MATERIAL

- MATERIAL SHALL CONFORM TO AASHTO M270M, GRADE 345W (UN).
- MATERIAL NOTED (M270M-345WT2) ON DETAIL DRAWINGS SHALL REQUIRE CHARPY V-NOTCH TESTING (ZONE 2).
- HIGH STRENGTH BOLTS SHALL CONFORM TO AASHTO M164 TYPE 3 WITH ONE AASHTO M291 HVY. HEX NUT & ONE AASHTO M293 TYPE 3 WASHER.

FABRICATION & WORKMANSHIP

- "BEARING AREA" AS NOTED ON STRINGER DETAILS, INDICATES AREA THAT MUST BE FLAT AND TRUE TO RECEIVE SOLE PLATE.
- RE-ENTRANT CUTS TO HAVE A 25 MILLIMETER MIN. RADIUS (50mm ON MAIN MEMBERS).

SHOP WELDING AND TESTING NOTES:

- WELDING AND NON-DESTRUCTIVE TESTING SHALL BE IN ACCORDANCE WITH ANSI/AASHTO/AWS BRIDGE WELDING CODE, D1.5.
- FOR WELDING CONNECTION PLATES TO BEAMS SEE "TYP. WELD TERMINATION DETAIL".

DRAWING REFERENCE:

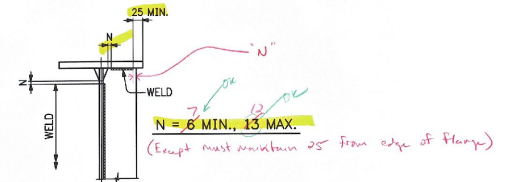
GIRDER JOB STANDARDS - PREFIXED "X"

SHOP CLEANING NOTES:

- BLAST CLEAN ALL STEEL TO SSPC-SP10 (NEAR WHITE) AFTER FABRICATION.

SHOP PAINTING NOTES:

- NO PAINT

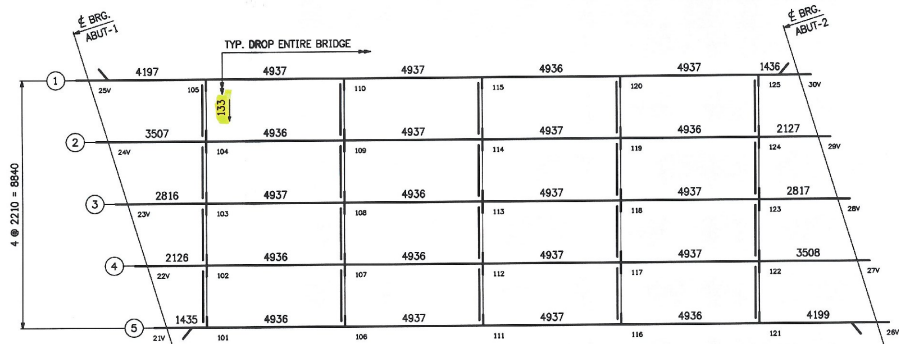


TYP. WELD TERMINATION DETAIL

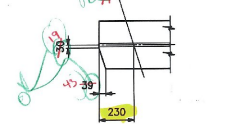
Structures
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MAR - 1 2006
FRANK W. WHITCOMB
CONSTRUCTION

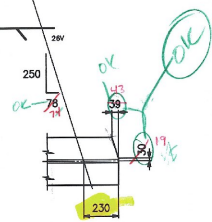
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REV.	DATE	DESCRIPTION																					
QTY.	DATE	ISSUED TO	FOR																				
8	2/27/06	F. W. Whitcomb	Approval																				
<p style="text-align: center;"> RECEIVED <small>CREATED BY: SLP, CHECKED BY: CUC</small> MAR 02 2006 <small>REQUESTED BY: SLP, APPROVED BY: ASHMAN</small> <small>DATE: 3/16/06</small> </p>																							
		<p> EASTERN BRIDGE LLC <small>RURAL RTE 2, BOX 392 CLARENDON, NH 03743 603-542-5602</small> </p>																					
<p> PROJECT: TH. NO. 1 OVER COLD RIVER (BRIDGE NO. 14) LOCATION: PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT ENGINEER: DUBOIS & KING, INC. CUSTOMER: FRANK W. WHITCOMB CONST. </p>		<p> DRAWING TITLE: GENERAL NOTES DRAWN BY: WCC 2-21-06 CHECKED BY: [Signature] 2-23-06 JOB NUMBER: 6055 SHEET NUMBER: GN1 </p>																					



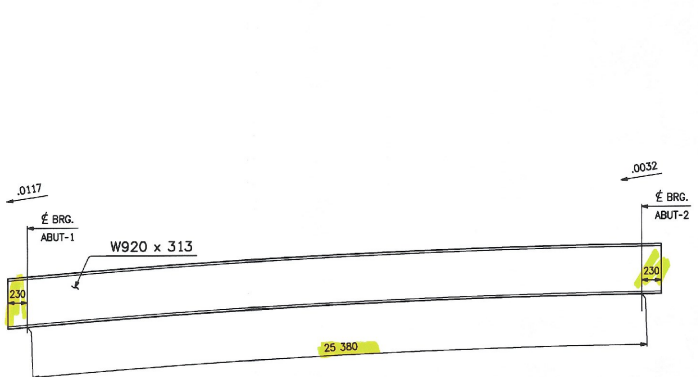
CALC. PLAN



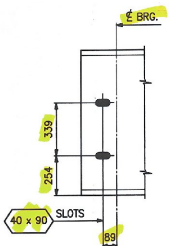
TOP & BOT. FLG. CLIP DETAIL



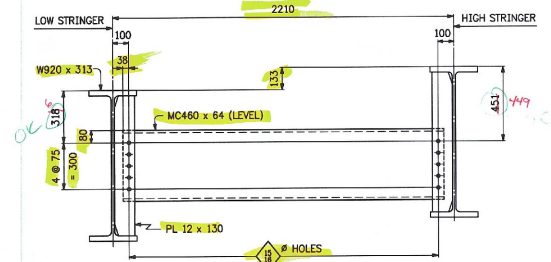
TOP & BOT. FLG. CLIP DETAIL



TYP. ELEVATION



GIRDER END DETAIL
(ABUT-1, SHOWN)
(ABUT-2, OPP. HAND)



TYP. DIAPHRAGM

NOTES:

1. LONGITUDINAL DIMS. ARE SLOPING ALONG BOTTOM OF STRINGER IN CAMBERED POSITION.
2. TRANSVERSE DIMS. ARE HORIZONTAL.
3. → DENOTES DROP (FINAL). ARROW POINTS TO LOW END.
4. ENDS OF GIRDERS ARE VERTICAL IN FINAL POSITION.
5. INT. CONN. PLATES ARE NORMAL TO BOTTOM FLANGE.

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 DWD BY: [Signature] DWD BY: [Signature]
 MAR 02 2006
 RESUBMIT APPROVED [Signature]
 BY: [Signature] DATE: 3/11/06

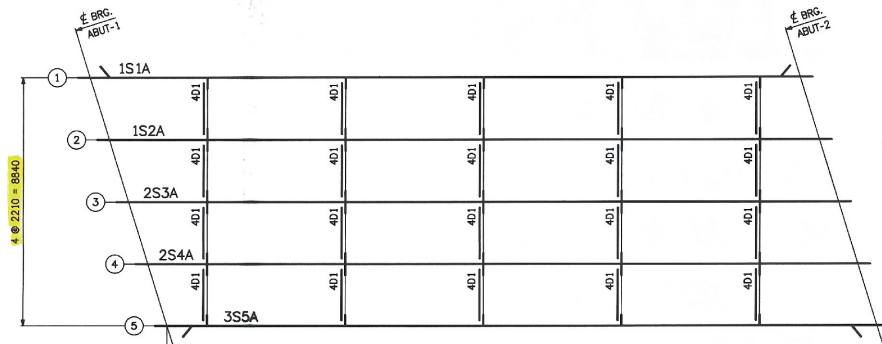
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1	2/28/06	F.W. Whitcomb	6	2/28/06	F.W. Whitcomb	Approval

PROJECT:	TH. NO. 1 OVER COLD RIVER (BRIDGE NO. 14)
LOCATION:	PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT
ENGINEER:	DUBOIS & KING, INC.
CUSTOMER:	FRANK W. WHITCOMB CONST.
DRAWING TITLE:	CALC. PLAN / LAYOUTS
DRAWN BY:	CPT 2-14-06
CHECKED BY:	[Signature] 2-20-06
JOB NUMBER:	6055
SHEET NUMBER:	WS1

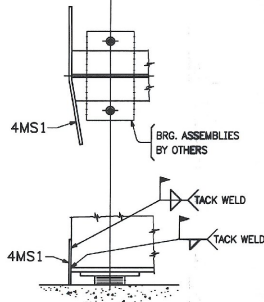
THIS IS A WORK DRAWING. ITS FUNCTION IS TO PROVIDE BASIC DIMENSIONS AND CONCEPTS FOR USE IN THE PREPARATION OF THE SHOP DETAILS. IT IS NOT INTENDED TO BE USED FOR ERECTION OR FABRICATION.



EASTERN BRIDGE LLC
 RURAL RTE 2, BOX 302
 CLARENDON, NH 03743
 603-548-5202



ERECTION PLAN



BLOCK OUT PL LOCATION
(ABUT. 1 - SHOWN)
(ABUT. 2 - ROTATE 180°)

FIELD BOLT SUMMARY				2% ADDED, MIN 2 EXTRA		
LINE	NO. OF BOLTS	BOLT DIAM.	TYPE	BOLT LENGTH	ACTUAL COUNT	REMARKS
1	204	7/8	ASHTO M164-3	2 1/2	200	w/1 M291-3 GR. C3 Hvy. HEX NUT
2						
3						
4	204		HARD, FLAT WASHERS FOR 7/8" BOLT			M293-3
5						
6						
7						
8						
9						
10						

FIELD BOLT LIST							M164 TYPE 3 BOLTS			PIECES CONNECTED AND REMARKS
LINE	ACTUAL NO. REQ'D	BOLT DIAM.	BOLT LENGTH/CORN	BOLTS OF CORNS	# OF GRIP	THICKNESS OF PCS CONNECTED	WASHER CODE			
1										
2										
3	200	7/8	2 1/2	10	20	1 1/8	11.4 12	1	DIAPHRAGMS TO STRINGERS	
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
							WASHER CODES			
1: 1 HARD FLAT WASHER										

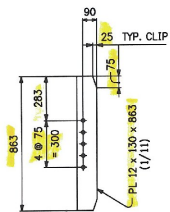
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			1	2/28/06	F.W. Whitcomb	Approved

EB LLC
 EASTERN BRIDGE LLC
 RURAL RTE 2, BOX 302
 CLARENDON, NH 03743
 603-542-5202

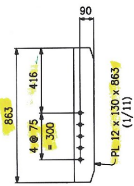
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 LOCATION: PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT
 ENGINEER: DUBOIS & KING, INC.
 CUSTOMER: FRANK W. WHITCOMB CONST.

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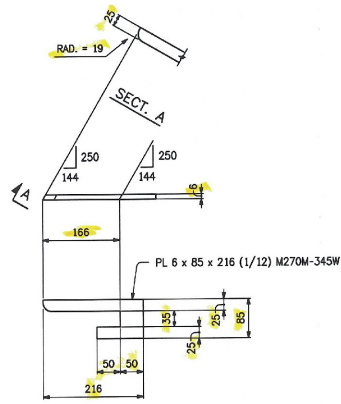
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 BY: [Signature] DATE: 3/16/06



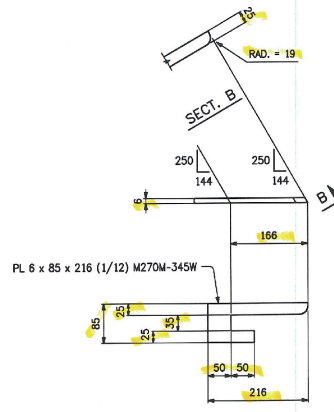
20 ~ x1a
(INT. LOW)



20 ~ x1b
(INT. HIGH)



2 ~ x1c



2 ~ x1d

NOTES:

HOLES: 18#
BOLTS: NONE
MATERIAL: M270M-345W
PAINT: NONE

REV.	DATE	DESCRIPTION

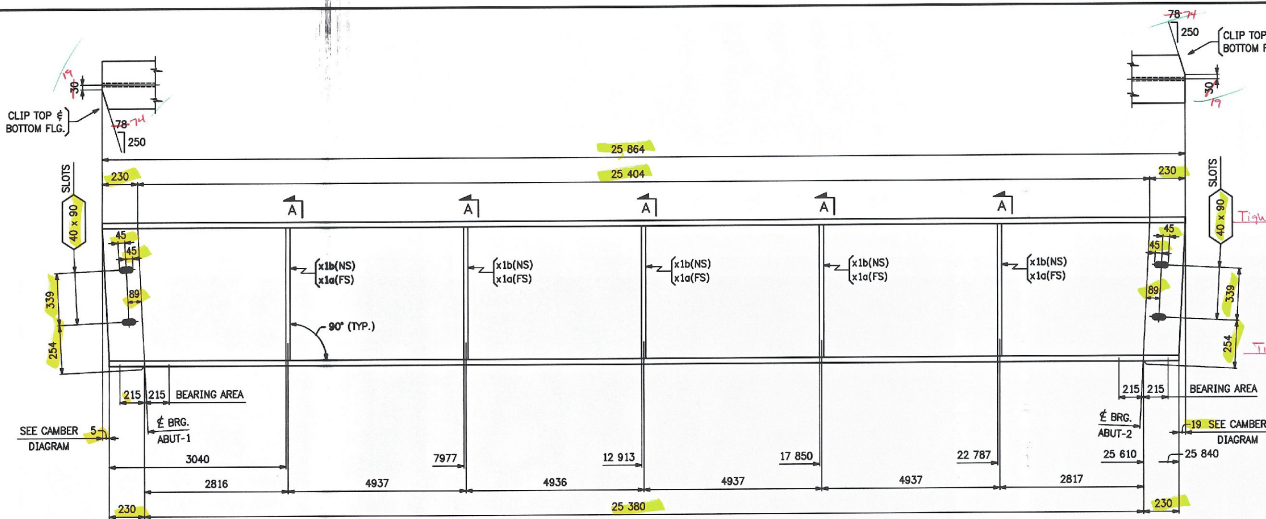
QTY.	DATE	ISSUED TO	FOR
1	2/28/06	F.W. Whitcomb	Approval

RECEIVED
 CHECKED BY: *[Signature]*
 MAR 02 2006
 RESUBMITTED APPROVED BY: *[Signature]*
 BY: *[Signature]* DATE: 3/16/06



EASTERN BRIDGE LLC
 RURAL RTE 2, BOX 302
 CLARENDON, NH 03743
 603-542-5202

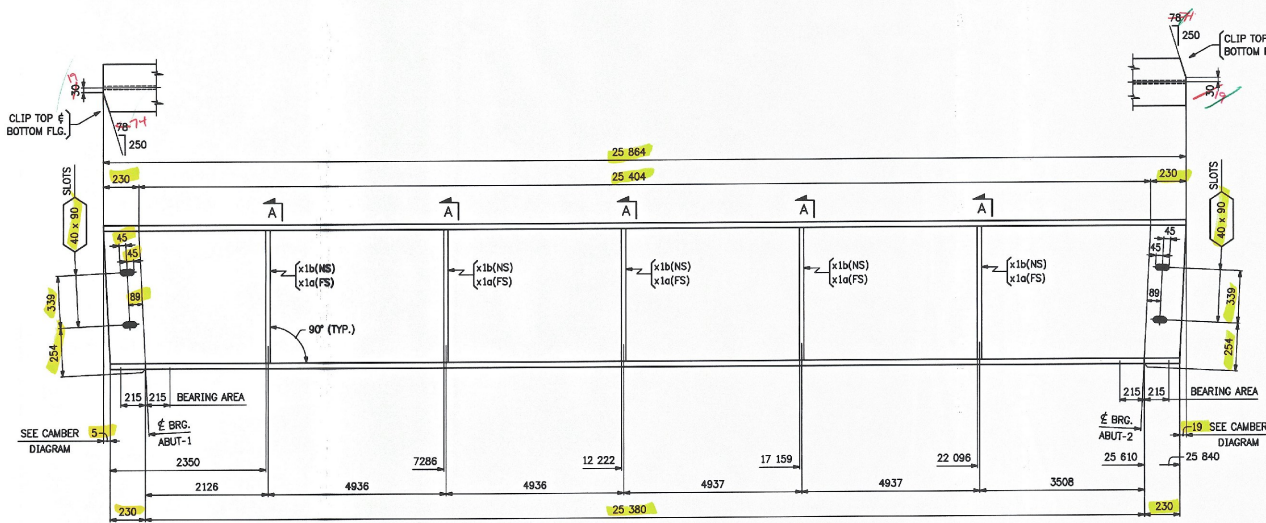
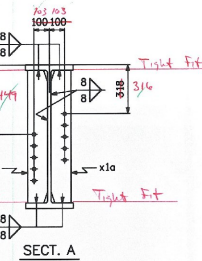
PROJECT:	TH. NO. 1 OVER COLD RIVER (BRIDGE NO. 14)
LOCATION:	PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT
ENGINEER:	DUBOIS & KINGS, INC.
CUSTOMER:	FRANK W. WHITCOMB CONST.
DRAWING TITLE:	STRINGER STANDARDS
DRAWN BY:	WCG 2-20-06
CHECKED BY:	2-22-06
JOB NUMBER:	6055
SHEET NUMBER:	X1



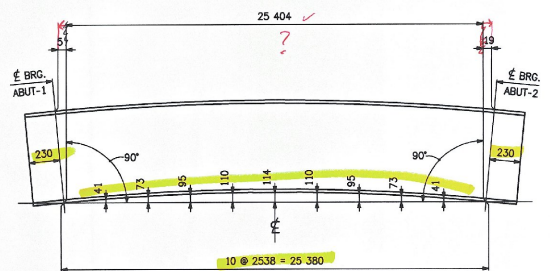
ONE ~ STRINGER ~ 2S3A

NOTES:
 HOLES: 1/8" (UN.).
 BOLTS: NONE
 MATL: M270M-345W (UN).
 PAINT: NONE
 FOR STRINGER STANDARD DETAILS SEE SHT. X1
 FOR GENERAL NOTES & TYPICAL DETAILS SEE SHT. G01

ABM INFO		SHIP		BILL OF MATERIAL				JOB No.	
PAGE	LINE	MARK	QTY.	MARK	MATERIAL	LENGTH (MILLIMETERS)	REMARKS	WEIGHT	PROCUREMENT NOTES
		2S3A	ONE		STRINGER			8202 kg	
1	10		1		W920 x 313	25 864	M270M-345W12		
1	11		5	x1a	PL 12 x 130	863			
1	11		5	x1b	PL 12 x 130	863			
		2S4A	ONE		STRINGER			8202 kg	
1	10		1		W920 x 313	25 864	M270M-345W12		
1	11		5	x1a	PL 12 x 130	863			
1	11		5	x1b	PL 12 x 130	863			



ONE ~ STRINGER ~ 2S4A



CAMBER DIAGRAM

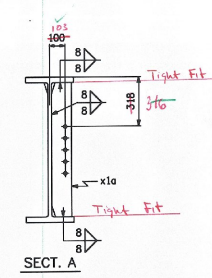
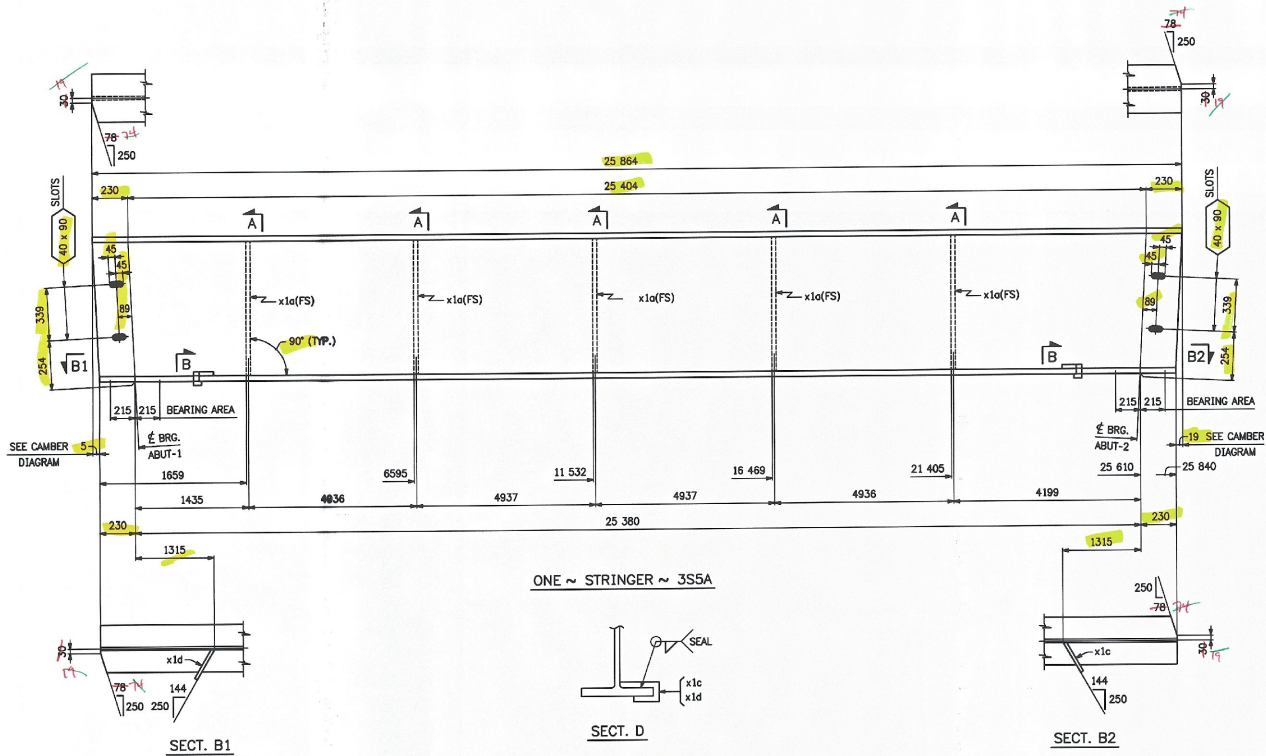
REV.	DATE	DESCRIPTION	QTY.	DATE	ISSUED TO	FOR
1	2/26/06	FW Whitcomb				Approval

PROJECT: TH. NO. 1 OVER COLD RIVER (BRIDGE NO. 14)
 LOCATION: PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT
 ENGINEER: DUBOIS & KING, INC.
 CUSTOMER: FRANK W. WHITCOMB CONST.
 DRAWING TITLE: STRINGERS ~ 2S3A & 2S4A
 DRAWN BY: WCG 2-20-08 JOB NUMBER: 6055 SHEET NUMBER: 2
 CHECKED BY: 2-23-08



RECEIVED
 ORDER BY: [Signature] ORDER BY: [Signature]
 MAR 02 2006
 REQUIRANT: [Signature] APPROVED: [Signature]
 BY: [Signature] DATE: 3/16/06

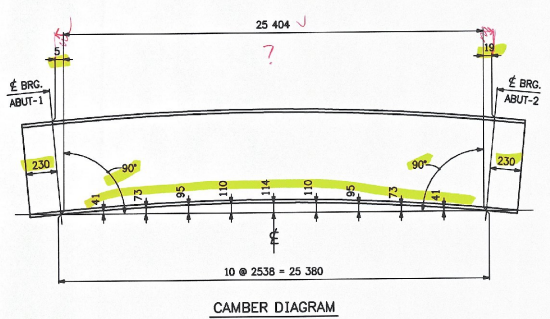
EASTERN BRIDGE LLC
 RURAL RTE 2, BOX 302
 CLARENDON, VT 05743
 803-542-5202



SECT. B1

SECT. D

SECT. B2



CAMBER DIAGRAM

NOTES:
 HOLES: 1/8" (UN).
 BOLTS: NONE
 MAT'L: M270M-345W (UN).
 PAINT: NONE
 FOR STRINGER STANDARD DETAILS SEE SHT. X1
 FOR GENERAL NOTES & TYPICAL DETAILS SEE SHT. G01

ABM INFO		SHIP		BILL OF MATERIAL				JOB No. 6055		REV.
PAGE	LINE	MARK	QTY.	MARK	MATERIAL	LENGTH FEET	REMARKS	WEIGHT	PROCUREMENT NOTES	
		JSSA	ONE		STRINGER			8150 kg		
1	10		1		W920 x 313	25 864	M270M-345W12			
1	11		5	x1a	PL 12 x 130	863				
1	12		1	x1c	PL 6 x 85	216				
1	12		1	x1d	PL 6 x 85	216				

REV.	DATE	DESCRIPTION	QTY.	DATE	ISSUED TO	FOR
8	2/28/06	F. W. Whitcomb			Approval	

PROJECT: TH. NO. 1 OVER COLD RIVER (BRIDGE NO. 14)
 LOCATION: PROJ. NO. BRO 1443 (29) CLARENDON, VERMONT
 ENGINEER: DUBOIS & KING, INC.
 CUSTOMER: FRANK W. WHITCOMB CONST.

EBC LLC
 EASTERN BRIDGE LLC
 RURAL RTE 2, BOX 302
 CLARENDON, VT 05743
 802-242-5202

DRAWN BY: WCG 2-21-06
 CHECKED BY: [Signature] 2-23-06

JOB NUMBER: 6055
 SHEET NUMBER: 3

RECEIVED
 CDD BY: [Signature]
 MAR 02 2006
 APPROVED BY: [Signature]
 BY: [Signature]

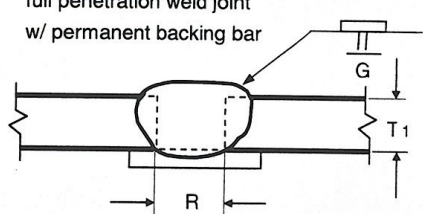
Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification ASTM A500 Gr B
 Welding process Shielded Metal Arc Welding (SMAW)
 Manual, semi-automatic, or automatic Manual
 Position of welding Flat (1G)
 Filler metal specification AWS A5.1
 Filler metal classification ER7018
 Electrode and manufacturer Lincoln Electric Jet LH 78 MR
 Flux and manufacturer N/A
 Shielding gas N/A Flow rate N/A
 Single or multiple pass Multiple
 Single or multiple arc Single
 Welding current AC
 Polarity N/A
 Welding progression Stringers
 Root treatment clean base metal
 Preheat and interpass temperature 50°F (min)
 Postheat treatment None
 Electrode extension N/A

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail
			Amperes	Volts		
	ALL	5/32"	150 A to 220 A		VARIES	B-L1a full penetration weld joint w/ permanent backing bar  <p>T 1 = 1/4" (max) R = T 1</p>

VTRANS RECEIVED

CK'D BY _____ OK'D BY JWC

JUN 21 2006

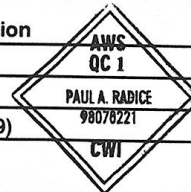
RESUBMIT _____ APPROVED

BY PLR DATE 6-29-06

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

WPS no. W-1552b
 Revision no. 0
 Supporting PQR no. Pre-Qualified
 Project Name Clarendon, VT

Fabricator Highway Safety Corporation
 Authorized by Paul Radice
 Date 6/14/06
 Project Number AC BRO 1443 (29)



Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification A572 gr 50, A709 Gr 50
 Welding process Gas Metal Arc Welding (GMAW)
 Manual, semi-automatic, or automatic Semi-Automatic
 Position of welding Flat (1F) or Horizontal (2F)
 Filler metal specification AWS A5.18
 Filler metal classification ER70S-3
 Electrode and manufacturer Lincoln Electric Lincoln Weld L-50
 Flux and manufacturer N/A
 Shielding gas 85% Argon / 15% CO2 Flow rate 19-27 L / min
 Single or multiple pass Single or Multiple
 Single or multiple arc Single or Multiple
 Welding current DCEP
 Polarity Reverse - electrode positive
 Welding progression Stringers
 Root treatment clean base metal
 Preheat and interpass temperature base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)
 Postheat treatment None
 Electrode extension 3/4" ± 1/4"

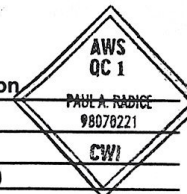
WELDING PROCEDURE

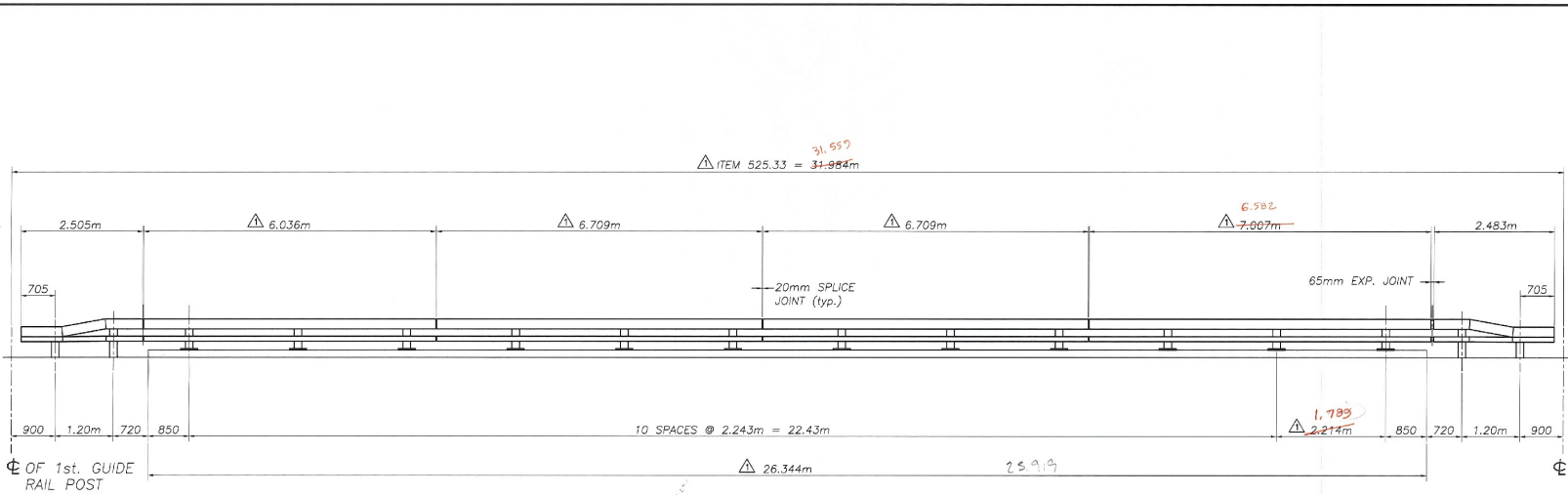
Weld size	Pass no.	Electrode size	Welding parameters		Travel speed	Joint detail	
			Amperes	Volts			
8mm	1	2 mm	275 A ± 25	25 V ± 2	200-250 mm / min		
5/16"	1	0.062"			8-10 ipm		
12 mm	1 & 2	2 mm			200-250 mm / min		
7/16"	1 & 2	0.062"			8-10 ipm		
		VTRANS RECEIVED CK'D BY _____ CK'D BY <u>JWC</u> JUN 2 2006 RESUBMIT _____ APPROVED <input checked="" type="checkbox"/> BY <u>RJC</u> DATE <u>6-29-06</u>					

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

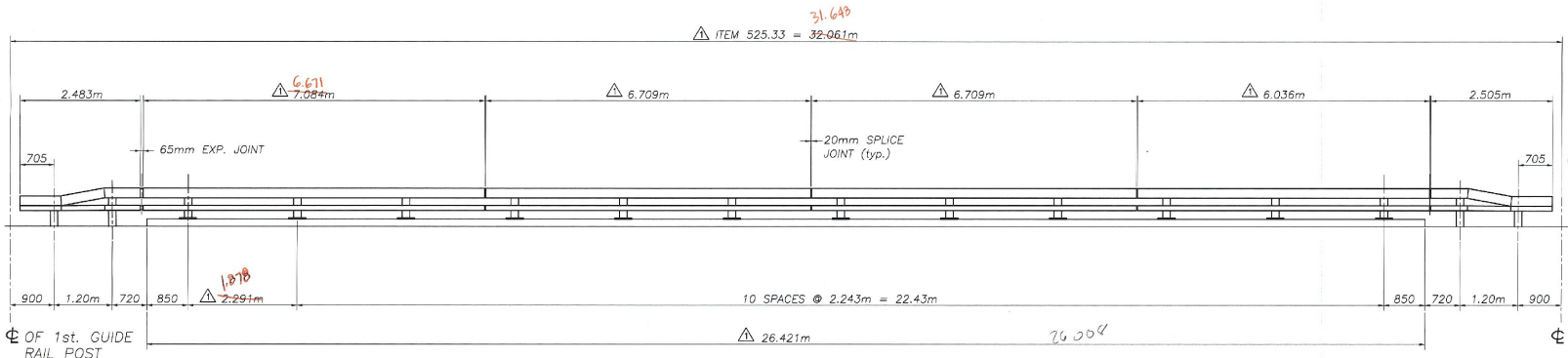
WPS no. W-1552a
 Revision no. 0
 Supporting PQR no. Pre-Qualified
 Project Name Clarendon, VT

Fabricator Highway Safety Corporation
 Authorized by Paul Radice
 Date 6/14/06
 Project Number AC BRO 1443 (29)





WEST RAIL ELEVATION



EAST RAIL ELEVATION

BILL OF MATERIAL (BOTH SIDES OF BRIDGE)

Qty.	Description	Material
24	W150x37.1 POST W/BASISPLATE (620mm) OAL	A709M Gr. 345
4	W150x37.1 DRIVEN POST (2.134m) OAL	A709M Gr. 345
4	W150x37.1 DRIVEN POST (1.956m) OAL	A709M Gr. 345
2	TS 203 x 102 x 8 (6.036m) OAL	A500 Gr. B
2	TS 102 x 102 x 5 (6.036m) OAL	A500 Gr. B
4	TS 203 x 102 x 8 (6.709m) OAL	A500 Gr. B
4	TS 102 x 102 x 5 (6.709m) OAL	A500 Gr. B
1	TS 203 x 102 x 8 (9.007m) OAL	A500 Gr. B
1	TS 102 x 102 x 5 (7.007m) OAL	A500 Gr. B
1	TS 203 x 102 x 8 (7.084m) OAL	A500 Gr. B
1	TS 102 x 102 x 5 (7.084m) OAL	A500 Gr. B
2	TS 203 x 102 x 8 (2.483) UPPER DROP END TUBE	A500 Gr. B
2	TS 102 x 102 x 5 (2.483) LOWER DROP END TUBE	A500 Gr. B
2	TS 203 x 102 x 8 (2.505) UPPER DROP END TUBE	A500 Gr. B
2	TS 102 x 102 x 5 (2.505) LOWER DROP END TUBE	A500 Gr. B
10	TS 178 x 75 x 10 SPLICE TUBE 510 LONG	A500 Gr. B
10	TS 76 x 76 x 6 SPLICE TUBE 510 LONG	A500 Gr. B
24	3mm BEARING PAD	NEOPRENE
4	BACK UP PLATE	A709M Gr. 250
4	TERMINAL CONNECTOR	#189 B2
152	M20 ROUND HEAD BOLT, 152 LONG	A325M
152	M20 HEX NUT	A563 CH
152	M20 WASHER	F436M
80	M16 SPLICE BOLT, 44 LONG	A307
80	M16 PLAIN HARDENED WASHER	F436M
80	M16 NUT WELDED TO SPLICE TUBE	A307
16	M20 x 13 SQ.H. 40 PIPE SPACER	A53 Gr. B
96	M24 ANCHOR STUD, 305 LONG	F569 D. 5.0
96	M24 WASHER	F436M
96	M24 JAMB NUT	A563 DH
192	M24 HEX NUT	A563 DH
24	SPACER PLATE	A709M Gr. 250

NOTES:
 1. ITEMS MARKED "*" ARE NOT SUPPLIED BY HIGHWAY SAFETY CORPORATION, AND THEY ARE SHOWN ONLY FOR REFERENCE.

FINAL APPROVED PRINTS
 AFTER CHANGES HAD BEEN
 COMPLETED

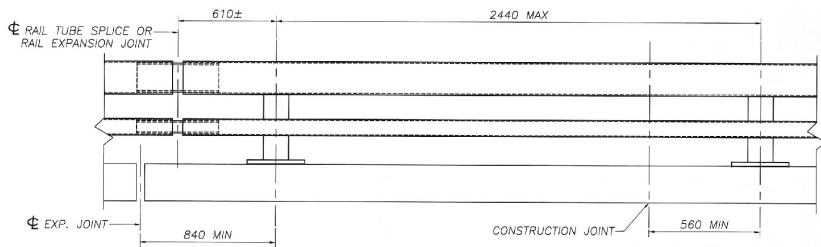
VTrans - PDD
 JUL 17 2006
 Structures Design
 Section



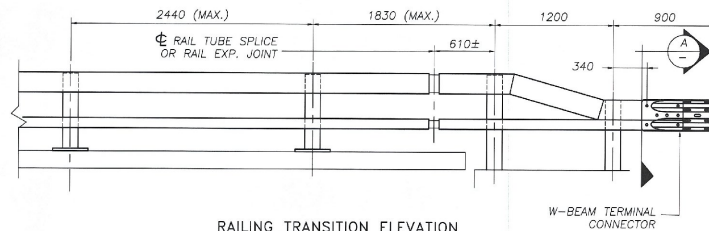
HIGHWAY SAFETY CORP.
 GLASTONBURY, CT

ITEM 525.33 - BRIDGE RAILING-NETC 2 RAIL	DRAWN	MHM
PROJECT No. AC BRO 1443(29)	CHECKED	
TOWN OF CLARENDON Br. No. 14	DATE	6-10-06
RUTLAND COUNTY, ROUTE No: TH 1, CLASS 2	SCALE	NONE
	FIG. REFERENCE NO.	1555
GENERAL CONTRACTOR	SHEET NO.	1
SUB CONTRACTOR	REVISION	
F.R. LAFAYETTE, INC.	SHEET NO.	1 of 2

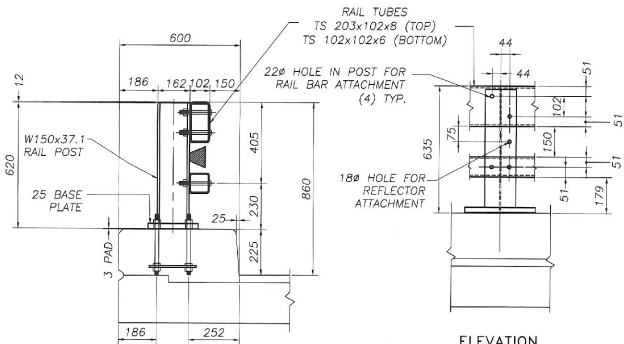
REVISIONS		
No.	Remarks	Date
0	Initial submittal	6/15/06
1	As Built Revisions	7/11/06



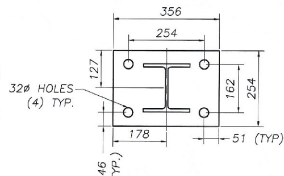
BRIDGE RAILING ELEVATION



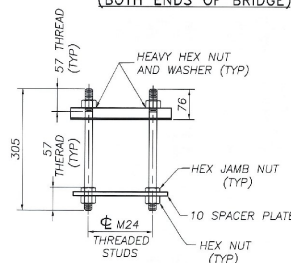
RAILING TRANSITION ELEVATION (BOTH ENDS OF BRIDGE)



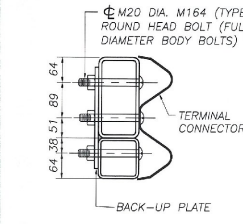
TYPICAL SECTION



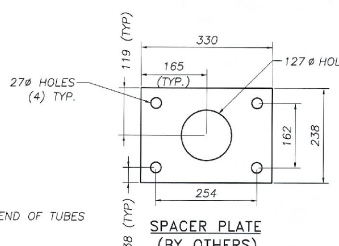
POST AND BASE PLATE



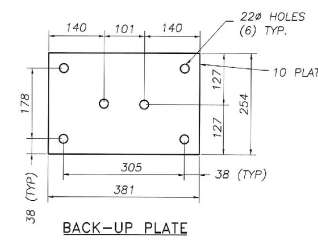
RAIL POST ANCHORAGE (BY OTHERS)



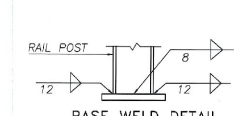
SECTION



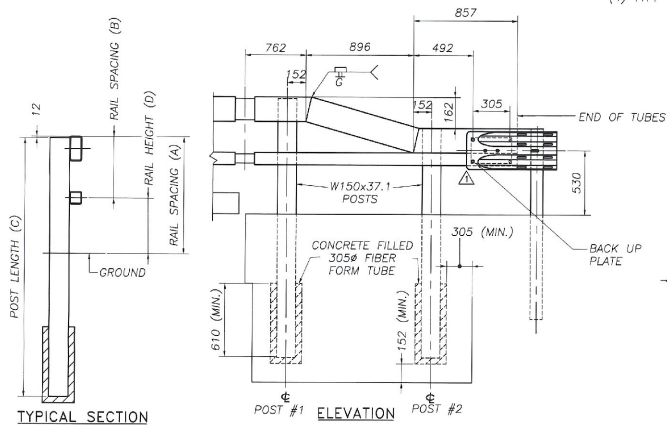
SPACER PLATE (BY OTHERS)



BACK-UP PLATE

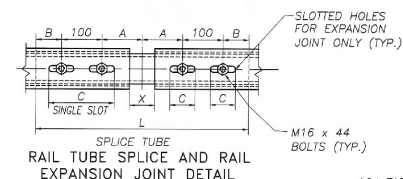


BASE WELD DETAIL



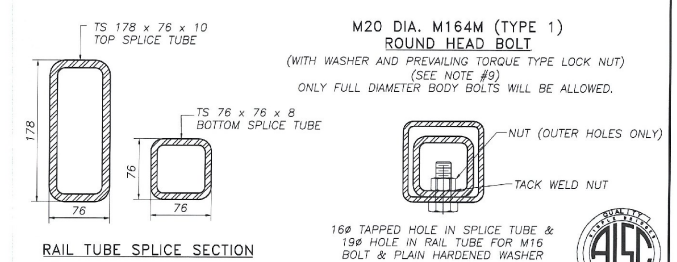
TYPICAL SECTION

ELEVATION



RAIL TUBE SPLICE AND RAIL EXPANSION JOINT DETAIL

16Ø TAPPED HOLE IN SPLICE TUBE AND 29 x 'C' SLOT IN RAIL TUBE FOR M16 BOLT AND PLAIN HARDENED WASHER
EXPANSION JOINT SECTION
 FOR DETAILS NOT SHOWN, SEE "RAIL TUBE SPLICE SECTION."



RAIL TUBE SPLICE SECTION

- NOTES:**
- ALL RAILINGS AND MATERIALS SHALL CONFORM TO THE PROVISION OF SECTION 525, "RAILINGS OF THE STANDARD SPECIFICATION FOR CONSTRUCTION".
 - TUBING AND POSTS SHALL MEET THE REQUIREMENTS OF SECTION 732, "RAILING MATERIALS OR THE STANDARD SPECIFICATION FOR CONSTRUCTION," EXCEPT THAT THE DROP-WEIGHT TEAR TEST IN SECTION 732 SHALL NOT APPLY TO THE STRUCTURAL TUBING SHOWN ON THIS SHEET.
 - ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 2mm RADIUS AND BE FREE OF BURRS.
 - RAIL POSTS SHALL BE SET NORMAL TO GRADE.
 - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
 - RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING A SUPERSTRUCTURE EXPANSION JOINT WITH SHALL BE "X" AT 7°C AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
 - ALL PARTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111, EXCEPT HARDWARE, WHICH SHALL MEET THE REQUIREMENTS OF AASHTO M233M.
 - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
 - RAIL TUBES SHALL BE ATTACHED USING M20 FULL DIAMETER BODY AASHTO M164 (TYPE 1) ROUND HEAD BOLT INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 3MM LARGER THAN THE BOLT SIZE.
 - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT MAY BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO ERECTION.
 - IF THERE IS A CONFLICT BETWEEN THE DETAILS SHOWN ON THIS SHEET AND THE DESIGN, THE REQUIREMENTS OF THE DESIGN DRAWINGS SHALL BE FOLLOWED.
 - ANY BENDING OF RAIL SHALL BE BY SHOP PROCEDURE ONLY.
 - THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES TO THE STRUCTURES SECTION FOR APPROVAL IN ACCORDANCE WITH THE PROVISION OF 506.04, SHOP DRAWINGS. ALL WELDING SHALL CONFORM WITH SECTION 506.10.
 - RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMENS.
 - TO FACILITATE FIELD FIT - UP OF THE TRANSITION RAILING, POSTS SHALL BE SET LOOSELY INTO FIBER FORM TUBES WHILE TRANSITION PARTS ARE BEING ASSEMBLED. POST HOLES SHALL BE BACKED FILLED WITH A CONCRETE MIX APPROVED BY THE ENGINEER. PAYMENT FOR COMPONENTS, INCLUDING BACKUP PLATE AND END TERMINAL CONNECTOR FOR GUARD RAIL, ALUMINUM FIBER FORM TUBES AND CONCRETE, AND INSTALLATION SHALL BE CONSIDERED INCIDENTAL TO ITEM 525.33, "BRIDGE RAILING - NETC 2 RAILING".
 - ALL APPROACH RAIL SPLICES SHALL BE LAPPED ON THE DIRECTION OF TRAFFIC FLOW.
- MATERIALS**
- RAIL TUBES: ASTM A500, GRADE B OR ASTM A501
 - RAIL POSTS AND BASE PLATES: ASTM A709/A709M, GRADE 345
 - ALL OTHER SHAPES AND PLATES: ASTM A709/A709M, GRADE 250
 - ANCHOR STUDS: ASTM F568M CLASS 8.8
 - ALL OTHER BOLTS (UNLESS NOTED): ASTM F568M CLASS 8.8
 - ANCHOR STUDS (UNLESS NOTED): AASHTO M164M, TYPE 1
- NUTS FOR AASHTO M164M (ASTM A325M) BOLTS AND ANCHOR STUDS SHALL COMPLY WITH AASHTO M291M (ASTM A563M).
 WASHERS SHALL COMPLY WITH AASHTO M293M (ASTM F436M) SPECIFICATIONS.
 3mm PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.

POST NUMBER	RAIL HEIGHT (A)	RAIL SPACING (B)	POST LENGTH (C)	RAIL HEIGHT (D)
1	860	405	2134	455
2	702	254	1956	448

SPLICE TABLE					
T	A	B	C	L	X
N/A	100	50	--	510	20
EXPANSION JOINT TABLE					
<100	100	50	65	510	65

T = TOTAL MOVEMENT BETWEEN BRIDGE EXPANSION JOINTS. SEE NOTE 6
 * = SINGLE SLOT

REVISIONS		
No.	Remarks	Date
0	Initial submittal	6/15/06
1	As built Revisions	7/11/06

HIGHWAY SAFETY CORP.
 GLASTONBURY, CT

ITEM 525.33 - BRIDGE RAILING-NETC 2 RAIL
 PROJECT No. AC BR0 1443(2) (9)
 TOWN OF CLarendON Br. No. 14
 RUTLAND COUNTY, ROUTE No. TH 1, CLASS 2

DATE 6-10-06
 SCALE NONE
 PERS. REFERENCE NO. 1555
 SHEET 0 OF 2
 SUB CONTRACTOR F.R. LAFAYETTE, INC. 2 of 2

