

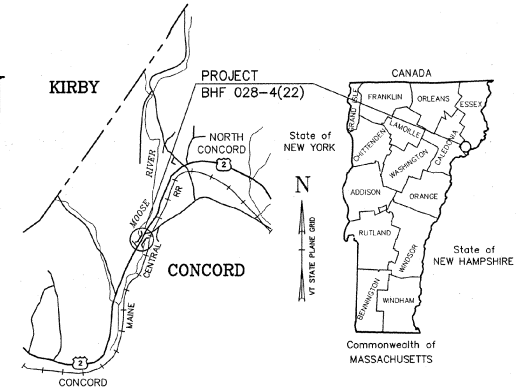
# STATE OF VERMONT AGENCY OF TRANSPORTATION



## PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF CONCORD  
COUNTY OF ESSEX

ROUTE NO. US 2 (RURAL PRINCIPAL ARTERIAL), BRIDGE NO. 117



### INDEX OF SHEETS

1	TITLE SHEET
2	PRELIMINARY INFORMATION SHEET
3	QUANTITY SHEET (1 OF 2)
4	QUANTITY SHEET (2 OF 2)
5	TIE SHEET AND TYPICAL DETAILS
6	PLAN (1 OF 3)
7	PLAN (2 OF 3)
8	PLAN (3 OF 3)
9	PROFILE
10	DETOUR PLAN AND PROFILE
11	TRAFFIC CONTROL PLAN
12	PLAN AND ELEVATION
13	EROSION CONTROL SHEET
14	CONSTRUCTION NOTES
15	DECK DETAILS
16	DECK REINFORCEMENT (1 OF 3)
17	DECK REINFORCEMENT (2 OF 3)
18	DECK REINFORCEMENT (3 OF 3)
19	CURTAIN WALL & DECK END HAUNCH
20	FRAMING PLAN
21	SUPERSTRUCTURE DETAILS (1 OF 2)
22	SUPERSTRUCTURE DETAILS (2 OF 2)
23	ABUTMENT BEARING DETAILS
24	PIER BEARING DETAILS
25	EXPANSION JOINT (1 OF 2)
26	EXPANSION JOINT (2 OF 2)
27	DOWNSPOUT DETAILS
28	APPROACH SLABS (1 OF 2)
29	APPROACH SLABS (2 OF 2)
30	ABUTMENT REMOVAL AND REPAIR
31	ABUTMENT NO. 1
32	ABUTMENT NO. 2
33	SUBSTRUCTURE DETAILS
34	WINGWALL DETAILS
35	PIER REMOVAL AND REPAIR
36	PIER NO. 1 AND PIER NO. 2
37	REINFORCING STEEL SCHEDULE
38 - 47	ROADWAY CROSS SECTIONS
48 - 50	CHANNEL CROSS SECTIONS

### STANDARDS

A-76M	06-13-97	E-102AM	06-13-97	E-193M	06-13-97
B-5M	06-13-97	E-106M	06-13-97	G-1M	06-13-97
B-71M	06-13-97	E-107M	06-13-97	G-10M	06-13-97
BR1-97M	08-06-98	E-107AM	06-13-97	G-4M	06-13-97
BR2-97M	08-06-98	E-108M	06-13-97	G-18M	06-13-97
C-1M	06-13-97	E-121M	06-13-97	G-18AM	07-10-97
D-3M	06-13-97	E-140M	06-13-97	G-19M	10-21-98
D-4M	06-13-97	E-150M	06-13-97	T-1M	06-13-97
D-16M	06-13-97	E-160M	06-13-97	T-2M	06-13-97
E-100M	06-13-97	E-164M	06-13-97		
E-101M	06-13-97	E-175M	06-13-97		
E-102M	06-13-97	E-191M	06-13-97		

PROJECT LOCATION: BEGINNING AT A POINT ON US ROUTE 2, 6.86 km NORTHEAST OF THE KIRBY - CONCORD TOWN LINE AND EXTENDING NORTHEAST 0.11 km.

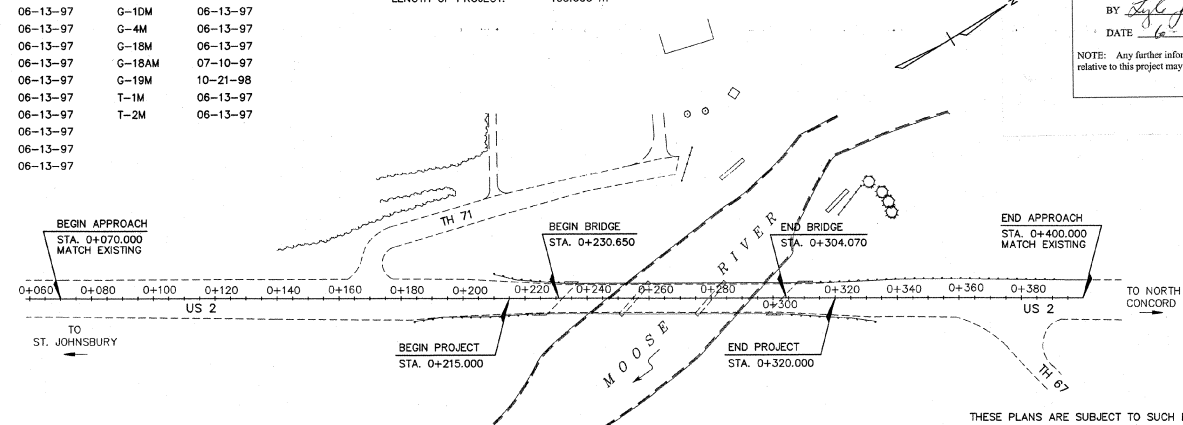
PROJECT DESCRIPTION: REMOVAL OF EXISTING SUPERSTRUCTURE, CONSTRUCTION OF A NEW STEEL BEAM, CONCRETE DECK SUPERSTRUCTURE, REHABILITATION OF SUBSTRUCTURE AND RELATED ROADWAY WORK.

LENGTH OF STRUCTURE: 73.420 m  
LENGTH OF ROADWAY: 31.580 m  
LENGTH OF PROJECT: 105.000 m

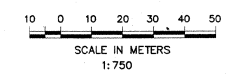
RECORD PLANS	
CONTRACTOR:	BECK AND BELLUCCI INC. - FRANKLIN N.H.
RESIDENT ENGINEER:	R. CLARK
CONSTRUCTION BEGAN:	FEBRUARY 24, 2000
CONSTRUCTION COMPLETE:	JANUARY 21, 2002
RECORD PLANS BY:	R. RICHERT
I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.	
BY:	<i>Roger J. Thayer</i> RESIDENT ENGINEER
DATE:	6-30-03
NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found on microfilm in Central Files.	

### CONVENTIONAL SIGNS

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



DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83-92



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

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1995, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON AUGUST 21, 1995 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

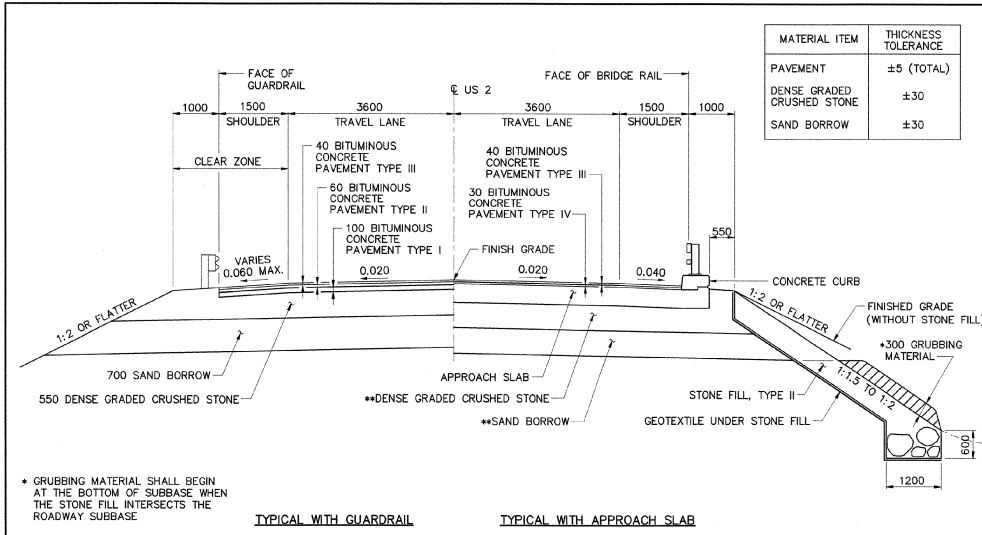


UNLESS OTHERWISE NOTED, ALL STATIONS ARE IN KILOMETERS, ALL ELEVATIONS ARE IN METERS, AND ALL DIMENSIONS ARE IN MILLIMETERS

APPROVED: *[Signature]* DATE 4/4/99  
DIRECTOR OF PROJECT DEVELOPMENT

VANASSE HANGEN BRUSTLIN, INC.

PROJECT CONCORD  
BHF 028-4(22)  
SHEET 1 OF 50 SHEETS  
93b067/sb067f14

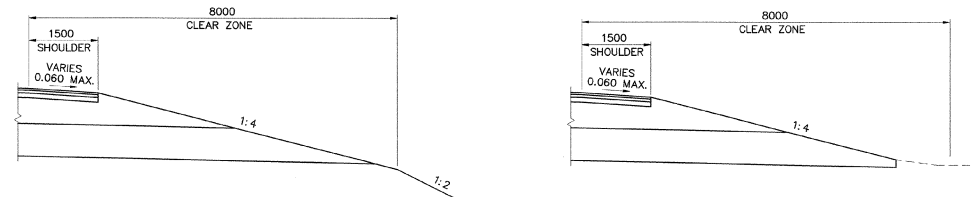


MATERIAL ITEM	THICKNESS TOLERANCE
PAVEMENT	±5 (TOTAL)
DENSE GRADED CRUSHED STONE	±30
SAND BORROW	±30

\* GRUBBING MATERIAL SHALL BEGIN AT THE BOTTOM OF SUBBASE WHEN THE STONE FILL INTERSECTS THE ROADWAY SUBBASE  
 \*\* SEE SUBBASE DETAIL ON SHEET 5

TYPICAL WITH GUARDRAIL TYPICAL WITH APPROACH SLAB

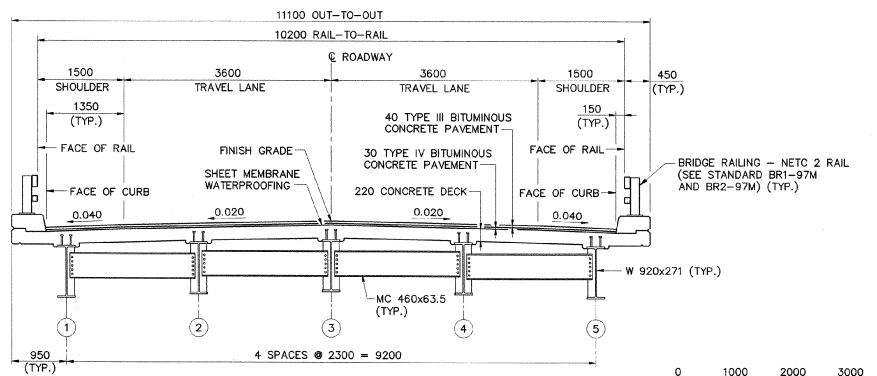
ROADWAY TYPICAL SECTIONS



TYPICAL VARIABLE SIDESLOPE

TYPICAL FILL SECTION

SCALE IN MILLIMETERS  
1:50



TRANSVERSE SECTION

SCALE IN MILLIMETERS  
1:40

FINAL HYDRAULICS REPORT



HYDROLOGIC DATA

DRAINAGE AREA = 230 km<sup>2</sup> (SEE NOTE 6)  
 CHARACTER OF TERRAIN: MOUNTAINOUS & SWAMPY, FORESTED & RESIDENTIAL  
 CHARACTER & TYPE OF STREAM: SMALL TO MEDIUM, MEANDERING, SEMI-ALLUVIAL  
 PROBABLY INCISED FLOODPLAIN  
 NATURE OF STREAMBED: SEE NOTE 2

Q2.33 = 103 m <sup>3</sup> /s	Q50 = 139 m <sup>3</sup> /s
Q10 = 155 m <sup>3</sup> /s	Q100 = 195 m <sup>3</sup> /s
Q25 = 155 m <sup>3</sup> /s	Q500 = 195 m <sup>3</sup> /s

DATE OF FLOOD OF RECORD: NOVEMBER 1927, MARCH 1936, JUNE 1973  
 WATER SURFACE ELEV.: UNKNOWN ESTIMATED DISCHARGE: UNKNOWN  
 NATURAL STREAM VELOCITY @ Q: \_\_\_\_\_  
 ICE CONDITIONS: LIGHT - MODERATE DEBRIS: LIGHT - MODERATE  
 DOES THE STREAM REACH MAXIMUM HIGHWATER ELEVATION RAPIDLY? NO  
 IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? NO  
 IF YES, DESCRIBE: \_\_\_\_\_

PROPOSED STRUCTURE

STRUCTURE TYPE: 3-SPAN STEEL STRINGER WITH CONCRETE DECK  
 CLEAR SPAN (NORMAL TO STREAM): \_\_\_\_\_  
 VERTICAL CLEARANCE ABOVE STREAMBED: \_\_\_\_\_  
 WATERWAY OF FULL OPENING: \_\_\_\_\_

WATER SURFACE ELEV. @ Q2.33 = _____	VELOCITY = _____
Q10 = _____	Q100 = _____
Q25 = _____	Q500 = _____
Q50 = _____	Q1000 = _____

IS THE ROADWAY OVERTOPPED BELOW THE Q100? \_\_\_\_\_ FREQUENCY: \_\_\_\_\_  
 RELIEF ELEVATION: \_\_\_\_\_ DISCHARGE OVER ROAD @ Q100: \_\_\_\_\_

AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: \_\_\_\_\_  
 VERTICAL CLEARANCE @ Q: \_\_\_\_\_  
 SCOUR: \_\_\_\_\_  
 REQUIRED CHANNEL PROTECTION: \_\_\_\_\_

EXISTING STRUCTURE

STRUCTURE TYPE: 3-SPAN STEEL STRINGER W/CONCRETE DECK YEAR BUILT: 1981  
 CLEAR SPAN (NORMAL TO STREAM): 69 m  
 VERTICAL CLEARANCE ABOVE STREAMBED: 7.0 m  
 WATERWAY OF FULL OPENING: 224 m<sup>2</sup>  
 DISPOSITION OF STRUCTURE: SUPERSTRUCTURE TO BE REPLACED

WATER SURFACE ELEV. @ Q2.33 = _____	VELOCITY = _____
(SEE NOTE 7) Q25 = 284.84	Q100 = 1.62 m/s
Q50 = 285.25	Q250 = 1.77 m/s
Q100 = 285.42	Q500 = 1.84 m/s

PERMIT INFORMATION

AVERAGE DAILY FLOW: \_\_\_\_\_  
 ORDINARY LOW WATER: \_\_\_\_\_ DEPTH: \_\_\_\_\_  
 ORDINARY HIGH WATER: \_\_\_\_\_ DEPTH: \_\_\_\_\_

ADDITIONAL COMMENTS

- PEAK DISCHARGES, STAGES AND VELOCITIES FOR 10-YEAR, 50-YEAR, 100-YEAR AND 500-YEAR EVENTS WERE OBTAINED FROM CONCORD FIS (SEPTEMBER 1992) AT SECTION "A".
- BORINGS DETAILED ON EXISTING (1958) PLANS INDICATE "SAND AND SILT" CHANNEL MATERIAL. "STONE FILL (HEAVY TYPE) 5'-0" DEEP" WAS SPECIFIED FOR APPROACH SPANS (BETWEEN ABUTMENTS AND PIERS).
- EXISTING 1958 PLANS INDICATE THAT THE EXISTING ABUTMENTS ARE FOUNDED ON STEEL BEARING H-PILES, AND EXISTING PIERS ARE FOUNDED ON LEDGE.
- HYDRAULIC CONDITIONS FOR PROPOSED STRUCTURE ARE COMPARABLE TO EXISTING STRUCTURE.
- PERMIT REQUIREMENTS CONTROL CONFIGURATION OF TEMPORARY BRIDGE. SEE DETOUR SHEET AND SPECIAL PROVISIONS.
- DRAINAGE AREA OBTAINED AT FIS CORPORATE LIMITS LOCATED 8.1 km DOWNSTREAM OF THE BRIDGE.
- WATER SURFACE ELEVATIONS AND VELOCITIES ARE PROVIDED AT BRIDGE. ELEVATIONS HAVE BEEN CORRECTED FROM FIS (NOV. 24) TO NAVD 88.

DESIGN CRITERIA:

- DESIGN LIVE LOAD AASHTO MS 22.5
- DESIGN SPANS: 23,910 m - 24,280 m - 23,880 m
- ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE N/A
- ALLOWABLE LOAD FOR PILING N/A TYPE ESTIMATED LENGTH
- STRUCTURAL STEEL AASHTO M270M GRADE 345W
- REINFORCING STEEL GRADE 420
- CONCRETE CLASS A f<sub>c</sub> 30 MPa  
 CLASS B f<sub>c</sub> 25 MPa  
 SILICA FUME f<sub>c</sub> 35 MPa

TRAFFIC MAINTENANCE: \* (ADDITIONAL COMMENTS - SEE NOTE 5 ABOVE)  
 IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE NO OR ON TEMPORARY BRIDGE YES  
 TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY TWO WAY TRAFFIC CONTROL SIGNALS REQUIRED NO  
 MINIMUM CLEAR SPAN (NORMAL TO STREAM): \* VERTICAL CLEARANCE ABOVE STREAMBED: \*  
 WATERWAY OF FULL OPENING: ARE SIDEWALKS REQUIRED? NO IF SO, ON WHAT SIDE?  
 STRUCTURE TYPE: \*

LOAD FACTOR LOAD RATING (METRIC TONNES)

LOADING LEVELS (LOAD FACTORS)	TRUCK						
	M	MS	3S2	6 AXLE	3A STR	4A STR	5A SEMI
INVENTORY A=217 B=1.00	25	45					
POSTED A=1.55 B=1.40	36	64	78		58	59	70
OPERATING A=1.30 B=1.67	76	93	109	69	71		

STRENGTH R<sub>F</sub> =  $\frac{R_n - 1.3M_n}{A \times M_{U1}}$  \* SERVICEABILITY R<sub>F</sub> =  $\frac{R_n - M_n}{1.57 M_{U1}}$

TRAFFIC DATA  
 1997 ADT = 3500 1997 % T = 8 1997-2017 ESAL'S 3,414,000  
 1997 DHV = 485 2017 % T = 10 1997-2037 ESAL'S 8,337,000  
 1997 ADTT = 325 % D = 53 DESIGN SPEED = POSTED SPEED 80 km/h  
 2017 ADTT = 4790 2017 DHV = 650 ADVISORY SPEED (EXISTING) = 65 km/h  
 2017 ADTT = 545

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of CONCORD Bridge No. 117  
 Highway No. US 2 Log Sta. \_\_\_\_\_  
 Surv. Sta. \_\_\_\_\_  
 US 2 OVER MOOSE RIVER

PRELIMINARY INFORMATION SHEET  
 Designed By S.M.G./R.L.J. Drawn By R.F. CLARK  
 Checked By \_\_\_\_\_ Date \_\_\_\_\_ Bridge Design Supervisor  
 M.A. COLGAN/R.L. JOY 9/99 S.M. GUNN Date 9/99  
 PROJECT CONCORD PROJECT NO. BHF 028-4(22)  
 I.G.C. Info. 93b067/sb067pi  
 Bridge Sheet No. 50541PIS Sheet 2 of 50

VANASSE HANGEN BRUSTLIN, INC.



ITEM NO.	ITEM DESCRIPTION	UNIT	ROADWAY	CHANNEL	SUPER-STRUCTURE	APPROACH SLAB 1	ABUTMENT NO.1	PIER NO.1	PIER NO.2	ABUTMENT NO.2	APPROACH SLAB 2	EROSION CONTROL	TRAINING	FULL E&C	TOTAL	FINAL
203.15	COMMON EXCAVATION	M <sup>3</sup>	2895												2895	
203.31	SAND BORROW	M <sup>3</sup>	1870												1870	
204.20	TRENCH EXCAVATION OF EARTH	M <sup>3</sup>	60									30			90	
204.21	TRENCH EXCAVATION OF ROCK	M <sup>3</sup>	1												1	
204.25	STRUCTURE EXCAVATION	M <sup>3</sup>					42			28					70	
204.30	GRANULAR BACKFILL FOR STRUCTURES	M <sup>3</sup>					35			22					57	
210.10	COLD PLANING - BITUMINOUS PAVEMENT	M <sup>2</sup>	920												920	
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	M <sup>3</sup>	1560										140		1700	
404.65	EMULSIFIED ASPHALT	KG	330		50	5					5				390	
406.25	BITUMINOUS CONCRETE PAVEMENT (PG 58-34)	T	1230		121 *	13 *					13 *				1377	
501.22	CONCRETE, CLASS A	M <sup>3</sup>			300										300	
501.25	CONCRETE, CLASS B	M <sup>3</sup>				34	44	27	24	12	34				175	
501.60	SILICA-FUME CONCRETE	M <sup>3</sup>			30		2								32	
506.65	STRUCTURAL STEEL (ROLLED BEAM) (.107650 KG)	LS			1										1	
506.80	DRAIN TROUGH	M			16										16	
507.15	REINFORCING STEEL	KG					1830	2240	2240	580					6890	
507.16	DRILLING & GROUTING DOWELS	M					22	6	6	7					41	
507.17	EPOXY COATED REINFORCING STEEL	KG			34050	2750	150			170	2710				39830	
508.15	SHEAR CONNECTORS (.3510 - 22 mm x 180 mm)	LS			1										1	
513.25	STRUCTURAL PAINTING, SHOP APPLIED	LS			1										1	
513.40	SURFACE PREPARATION, SHOP	LS			1										1	
514.10	WATER REPELLENT	L			112		18	40	40	10					220	
516.10	BRIDGE EXPANSION JOINT	M			16										16	
519.20	SHEET MEMBRANE WATERPROOFING	M <sup>2</sup>			727	76					76				879	
525.33	BRIDGE RAILING - NETC 2 RAIL	M			188										188	
528.11	TWO-WAY TEMPORARY BRIDGE	LS	1												1	
529.10	REMOVAL OF BRIDGE PAVEMENT	M <sup>2</sup>			680										680	
529.20	PARTIAL REMOVAL OF STRUCTURE	EA			0.60		0.15	0.05	0.05	0.15					1	
531.10	BEARING DEVICE ASSEMBLY	EA					5	5	5	5					20	
580.13	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	M <sup>2</sup>						1	1						2	
580.14	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	M <sup>2</sup>						5	5	5					10	
580.15	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS III	M <sup>3</sup>						1	1						2	
	** BEGIN OPTION **															
601.0005	300 mm CSP 1.63 mm (68 mm x 12 mm)	M	10												10	
601.0205	300 mm CAAP 1.52 mm (68 mm x 12 mm)	M	10												10	
	** END OPTION **															
	** BEGIN OPTION **															
601.0215	450 mm CAAP 1.52 mm (68 mm x 12 mm)	M	18												18	
601.0415	450 mm PCCSP 1.63 mm (68 mm x 12 mm)	M	18												18	
601.0815	450 mm RCP, CLASS III	M	18												18	
	** END OPTION **															
601.0825	600 mm RCP, CLASS III	M	4												4	
	** BEGIN OPTION **															
601.5005	300 mm CSP ELBOW 1.63 mm (68 mm x 12 mm)	EA	2												2	
601.5205	300 mm CAAP ELBOW 1.52 mm (68 mm x 12 mm)	EA	2												2	
	** END OPTION **															
601.6825	600 mm RCPES, CLASS III	EA	1												1	
604.30	PRC CURB DROP INLET W/CAST IRON GRATE	EA	2												2	
608.25	ALL PURPOSE EXCAVATOR RENTAL, TYPE I (N.A.B.I.)	HR										1			1	
608.26	ALL PURPOSE EXCAVATOR RENTAL, TYPE II (N.A.B.I.)	HR	1												1	
608.37	TRUCK RENTAL (N.A.B.I.)	HR	1												1	
608.41	LOADER RENTAL, TYPE II (N.A.B.I.)	HR	1												1	
613.10	STONE FILL, TYPE I	M <sup>3</sup>	20									15			35	
613.11	STONE FILL, TYPE II	M <sup>3</sup>		100											100	
616.35	TREATED TIMBER CURB	M	9												9	
619.17	YIELDING MARKER POST	EA	4												4	
621.21	HEAVY DUTY STEEL BEAM GUARD RAIL	M	153												153	

N.A.B.I. = NOT A BID ITEM  
\* = ROADWAY ITEM

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>QUANTITY SHEET (1 OF 2)</b>			
Designed By	M.A. COLGAN	Drawn By	C.S. MERCER
Checked By	C.R. WILSON	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb667g31		
Bridge Sheet No.	50541QNT	Sheet	3 of 50

ITEM NO.	ITEM DESCRIPTION	UNIT	ROADWAY	CHANNEL	SUPER-STRUCTURE	APPROACH SLAB 1	ABUTMENT NO.1	PIER NO.1	PIER NO.2	ABUTMENT NO.2	APPROACH SLAB 2	EROSION CONTROL	TRAINING	FULL E&C	TOTAL	FINAL
621.505	MANUFACTURED TERMINAL SECTION	EA	3												3	
621.72	GUARD RAIL APPROACH SECTION, NETC 2 RAIL	EA	4												4	
621.80	REMOVAL AND DISPOSAL OF GUARD RAIL	M	179												179	
630.10	UNIFORMED TRAFFIC OFFICERS	HR	100												100	
630.15	FLAGGERS	HR	200												200	
631.10	FIELD OFFICE - ENGINEERS	LS														
631.16	TESTING EQUIPMENT - CONCRETE	LS												1	1	
631.17	TESTING EQUIPMENT - BITUMINOUS	LS												1	1	
631.25	FIELD OFFICE - TELEPHONE (N.A.B.I.)	LU												1	1	
634.10	EMPLOYEE TRAINEESHIP	HR												1	1	
635.10	MOBILIZATION	LS	1										520		520	
641.10	TRAFFIC CONTROL	LS	1												1	
641.15	PORTABLE CHANGEABLE MESSAGE SIGN	LS	2												1	
646.40	DURABLE 100 mm WHITE LINE	M	1348												2	
646.41	DURABLE 100 mm YELLOW LINE	M	1238												1348	
646.46	DURABLE 600 mm STOP BAR	M	15												1238	
646.50	DURABLE LETTER OR SYMBOL	EA	8												15	
646.60	TEMPORARY 100 mm WHITE LINE	M	700												8	
646.61	TEMPORARY 100 mm YELLOW LINE	M	650												700	
646.66	TEMPORARY 600 mm STOP BAR	M	8												650	
646.76	LINE STRIPING TARGETS	EA	185												8	
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SM	50												185	
649.31	GEOTEXTILE UNDER STONE FILL	M <sup>2</sup>		140											50	
649.51	GEOTEXTILE FOR SILT FENCE	M <sup>2</sup>													140	
651.15	SEED	KG										1050			1050	
651.18	FERTILIZER	KG										50			50	
651.20	AGRICULTURAL LIMESTONE	T										350			350	
651.25	HAY MULCH	T										2			2	
651.26	HAY BALES FOR EROSION CONTROL	EA										2			2	
651.35	TOPSOIL	M <sup>3</sup>										30			30	
651.40	GRUBBING MATERIAL	M <sup>2</sup>										310			310	
654.10	EROSION MATTING	M <sup>2</sup>										115			115	
675.20	TRAFFIC SIGNS, TYPE A	M <sup>2</sup>	1									60			60	
675.50	REMOVING SIGNS	EA	11												1	
675.60	ERECTING SALVAGED SIGNS	EA	11												11	
	** BEGIN OPTION **														11	
675.301	FLANGED CHANNEL SIGN POSTS	M	42													
675.341	SQUARE TUBE STEEL POST AND ANCHOR		42												42	
	** END OPTION **														42	
678.41	TEMPORARY FLASHING BEACON	EA	4												4	

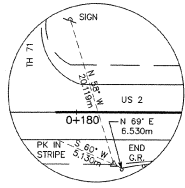
N.A.B.I. = NOT A BID ITEM

EARTHWORK SUMMARY		
DESCRIPTION	UNIT	TOTAL
FILL REQUIRED:		
PLANIMETERED FILL	M <sup>3</sup>	100
FILL FACTOR (0.15)	M <sup>3</sup>	15
FACTORED FILL	M <sup>3</sup>	115
MATERIAL AVAILABLE FOR FILL:		
COMMON EXCAVATION (x 1.0)	M <sup>3</sup>	2895
TOTAL MATERIAL AVAILABLE FOR FILL		
LESS FACTORED FILL	M <sup>3</sup>	2895
BORROW	M <sup>3</sup>	115
EXCESS FILL	M <sup>3</sup>	0
		2780

TEMPORARY EROSION CONTROL (INCLUDED UNDER EROSION CONTROL)			
ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL
204.20	TRENCH EXCAVATION OF EARTH	M <sup>3</sup>	30
301.35	SUBBASE OF DENSE GRADED CRUSHED STONE	M <sup>3</sup>	140
608.25	ALL PURPOSE EXCAVATOR RENTAL, TYPE I	HR	1
613.10	STONE FILL, TYPE I	M <sup>3</sup>	15
649.51	GEOTEXTILE FOR SILT FENCE	M <sup>2</sup>	1050
651.15	SEED	KG	5
651.26	HAY BALES FOR EROSION CONTROL	EA	30
654.10	EROSION MATTING	M <sup>2</sup>	60

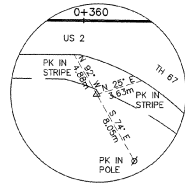
**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>QUANTITY SHEET (2 OF 2)</b>			
Designed By	M.A. COLGAN	Drawn By	C.S. MERCER
Checked By	C.R. WILSON	Bridge Design Supervisor	S.M. GUNN
Date	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 02B-4(22)
I.G.C. Info.	93b067/sb067q.52		
Bridge Sheet No.	50541QNT	Sheet	4 of 50



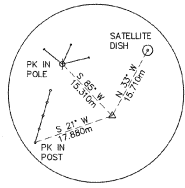
TR #1  
REBAR & CAP  
NORTHING = 217229.987  
EASTING = 550159.605  
ELEVATION = 299.758

TR #1  
N.T.S.



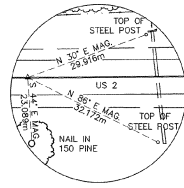
TR #2  
REBAR & CAP  
NORTHING = 217382.248  
EASTING = 550254.054  
ELEVATION = 298.744

TR #2  
N.T.S.



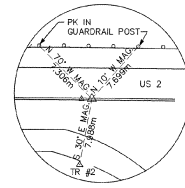
TR #3  
REBAR & CAP  
NORTHING = 217345.284  
EASTING = 550170.630  
ELEVATION = 298.042

TR #3  
N.T.S.



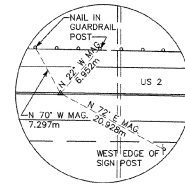
POT STA. O+105.000  
PK SET  
NORTHING = 217168.924  
EASTING = 550112.711

POT STA. O+105.000  
N.T.S.



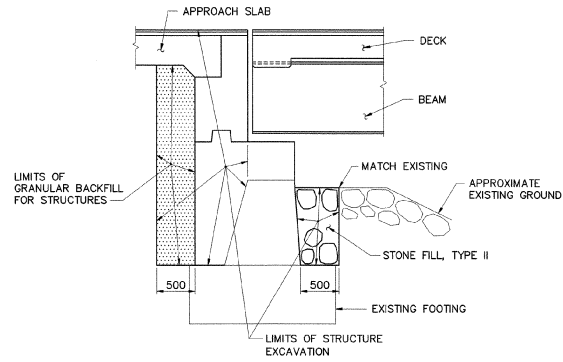
PC STA. O+363.904  
PK SET  
NORTHING = 217387.585  
EASTING = 550248.119

PC STA. O+363.904  
N.T.S.

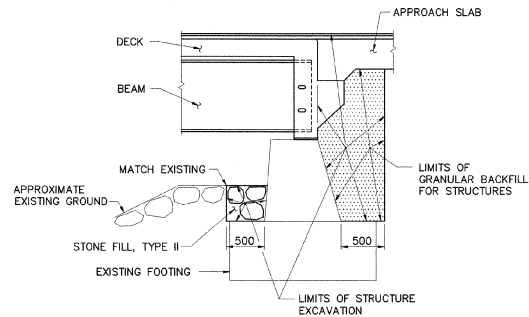


POC STA. O+400.000  
PK SET  
NORTHING = 217418.162  
EASTING = 550287.314

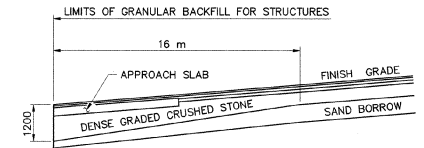
POC STA. O+400.000  
N.T.S.



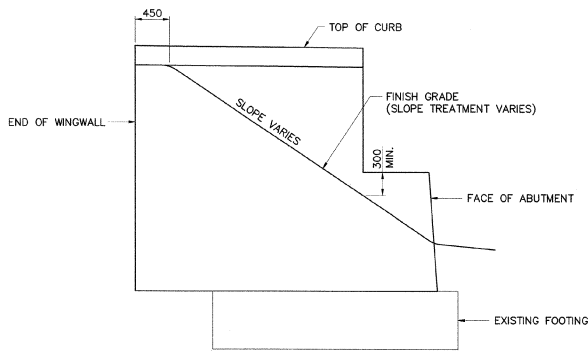
ABUTMENT NO. 1 EARTHWORK TYPICAL  
N.T.S.



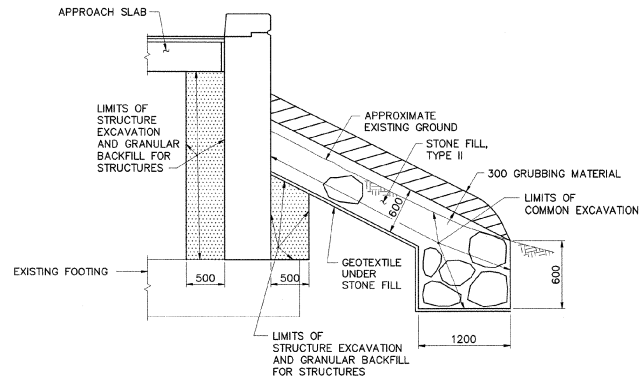
ABUTMENT NO. 2 EARTHWORK TYPICAL  
N.T.S.



SUBBASE DETAIL AT ABUTMENTS  
(ELEVATION IN CUT AND FILL)  
N.T.S.



WINGWALL GRADING TYPICAL  
N.T.S.



WINGWALL EARTHWORK TYPICAL  
N.T.S.

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83-92

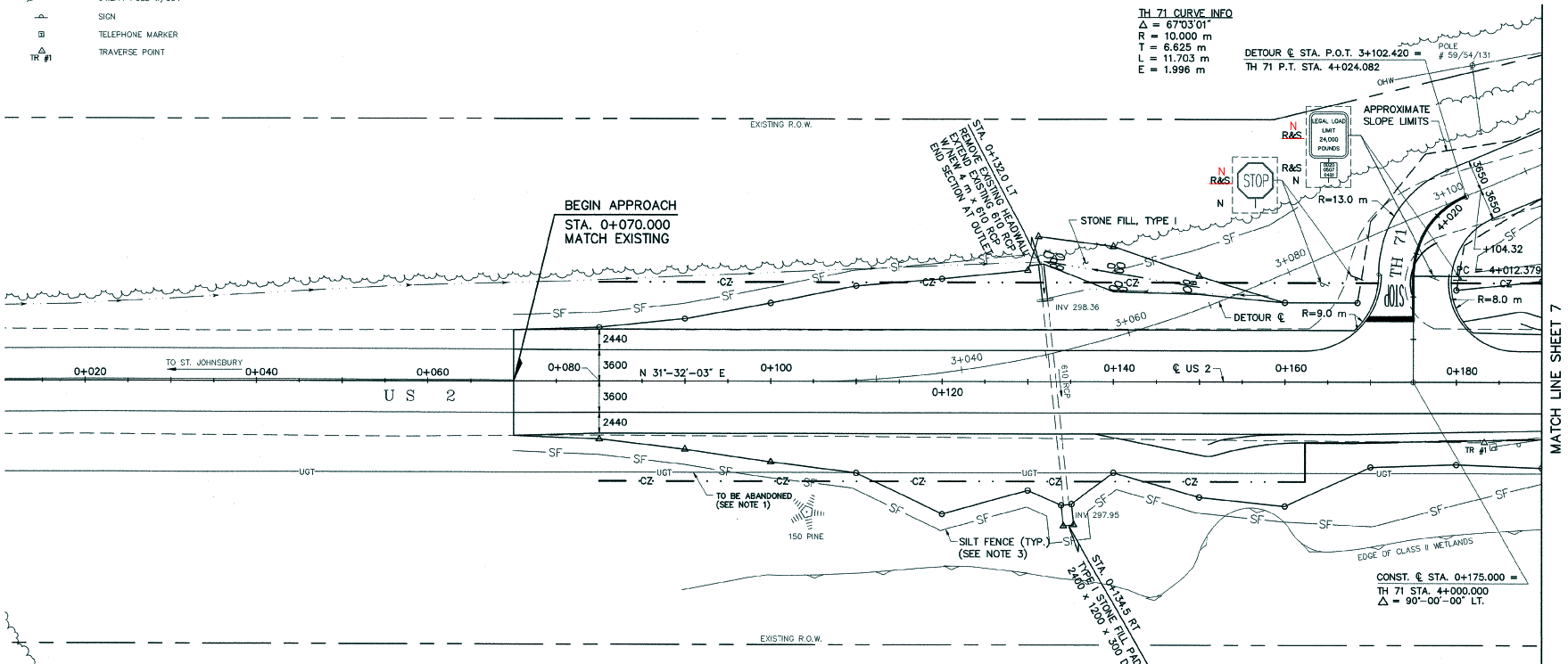
<b>STATE OF VERMONT AGENCY OF TRANSPORTATION</b>			
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>TIE SHEET AND TYPICAL DETAILS</b>			
Designed By	EIV/M.A. COLGAN	Drawn By	R.F. CLARK
Checked By	S.M.G./M.A.C.	Bridge Design Supervisor	S.M. GUNN
Date	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sboc7tp		
Bridge Sheet No.	50541TE	Sheet	5 of 50

**EXISTING LEGEND**

- EXISTING GUARDRAIL
- TREELINE
- OHW OVERHEAD UTILITY
- UGT UNDERGROUND TELEPHONE
- CENTERLINE DITCH
- CULVERT
- UTILITY POLE W/GUY
- SIGN
- TELEPHONE MARKER
- TR #1 TRAVERSE POINT

**TH 71 CURVE INFO**  
 $\Delta = 67^{\circ}03'01''$   
 $R = 10.000 \text{ m}$   
 $T = 6.625 \text{ m}$   
 $L = 11.703 \text{ m}$   
 $E = 1.996 \text{ m}$

DETOUR @ STA. P.O.T. 3+102.420 = POLE #59/54/131  
 TH 71 P.T. STA. 4+024.082



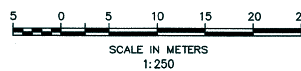
MATCH LINE SHEET 7

**CONSTRUCTION NOTES**

- REMOVAL AND DISPOSAL OF GUARD RAIL**  
 STA. 0+184.4 - 0+190.0 RT.
- HEAVY DUTY STEEL BEAM GUARD RAIL**  
 STA. 0+162.4 - 0+190.0 RT.
- MANUFACTURED TERMINAL SECTION**  
 STA. 0+151.1 - 0+162.4 RT.
- COLD PLANING BIT CONCRETE PAVEMENT**  
 STA. 0+070.0 - 0+085.0
- YIELDING MARKER POSTS**  
 STA. 0+133.0 LT. & RT.
- REMOVE & RESET SIGN**  
 STA. 4+012.1 LT.  
 STA. 4+012.1 RT.

- DURABLE 100 mm WHITE LINE**  
 STA. 0+070.0 - 0+190.0 RT.  
 STA. 0+070.0 - 0+171.2 LT.  
 STA. 0+179.1 - 0+190.0 LT.
- DURABLE 100 mm YELLOW LINE (DOUBLE CENTER LINE)**  
 STA. 0+070.0 - 0+163.0  
 STA. 0+187.0 - 0+190.0  
 STA. 0+175.0 - 0+181.0 LT. (TH 71)
- DURABLE 600 mm STOP BAR**  
 STA. 0+169.5 - 0+175.0 LT.
- DURABLE LETTER OR SYMBOL = "STOP"**  
 TH71 STA. 4+010.0 LT.
- SHOULDER TAPERS**  
 0+170.0 LT. (2400 mm) TO 0+220.0 LT. (1500 mm)  
 0+170.0 RT. (2400 mm) TO 0+220.0 RT. (1500 mm)  
 0+320.0 LT. (1500 mm) TO 0+370.0 LT. (2440 mm)  
 0+320.0 RT. (1500 mm) TO 0+350.0 RT. (2100 mm)

**PLAN**  
 SCALE: 1:250



- SIGN LEGEND**
- N = NEW
  - R = REMOVE
  - RET. = RETAIN
  - R&S = REMOVE & SALVAGE

**NOTES:**

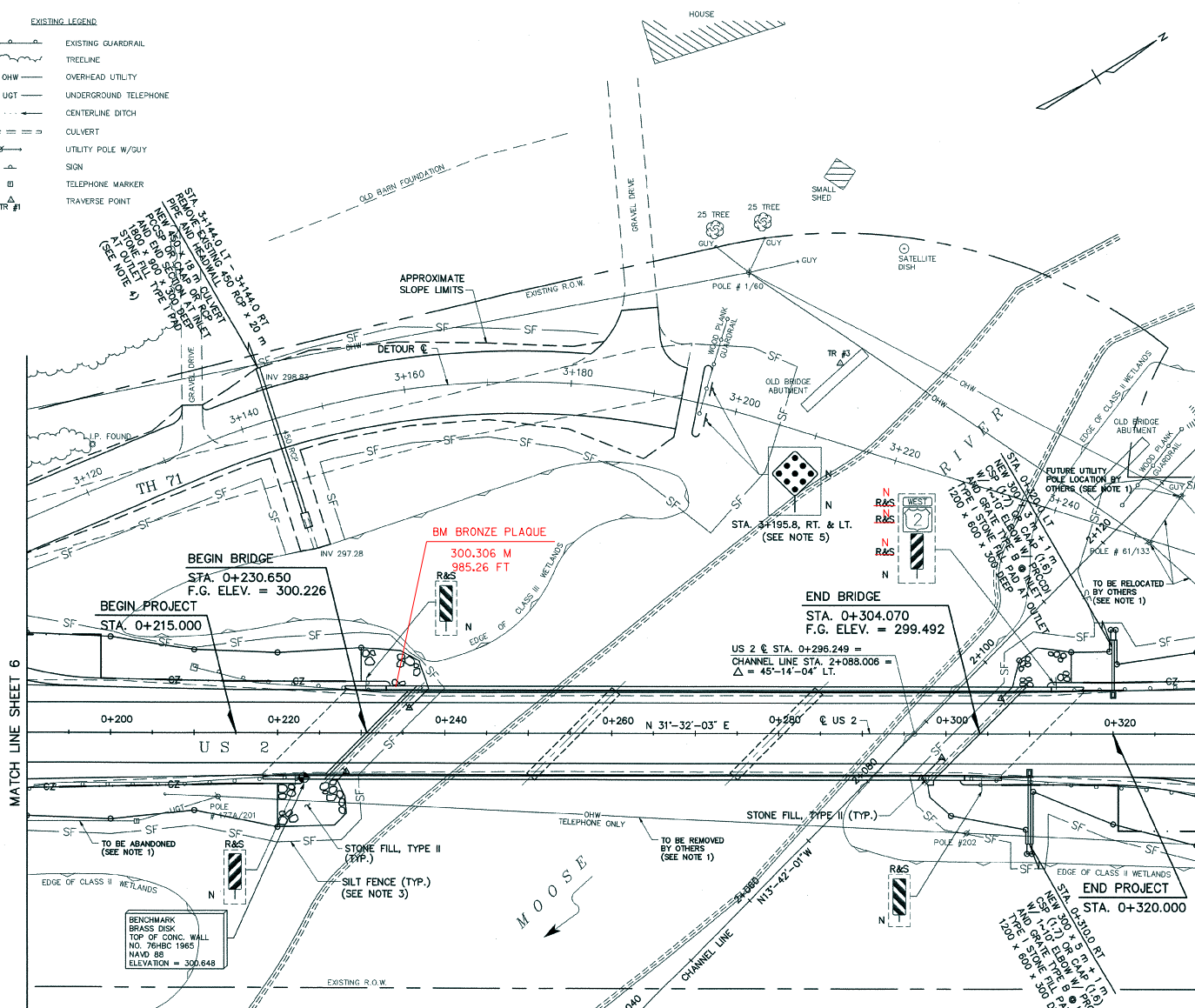
1. UTILITY POLE #61/133 WILL BE RELOCATED AND OVERHEAD WIRES WILL BE REMOVED FROM POLE #177A/201 TO POLE #203/1 PRIOR TO COMMENCEMENT OF WORK.
2. SEE DETOUR SHEET FOR DETOUR ALIGNMENT.
3. SEE SHEET 13 FOR TEMPORARY EROSION CONTROL.

**STATE OF VERMONT**  
**AGENCY OF TRANSPORTATION**

Town Of CONCORD	Bridge No. 117
Highway No. US 2	Log Sta. Surv. Sta.
US 2 OVER MOOSE RIVER	
<b>PLAN (1 OF 3)</b>	
Designed By S. GUNN/R. CLARK	Drawn By R.F. CLARK
Checked By S.M. GUNN	Date 9/99
S.M. GUNN	Bridge Design Supervisor
S.M. GUNN	Date 9/99
PROJECT CONCORD	PROJECT NO. BHF 028-4(22)

**EXISTING LEGEND**

- EXISTING GUARDRAIL
- TREELINE
- OVERHEAD UTILITY
- UNDERGROUND TELEPHONE
- CENTERLINE DITCH
- CULVERT
- UTILITY POLE W/GUY
- SIGN
- TELEPHONE MARKER
- TRAVERSE POINT



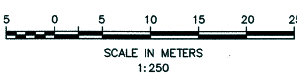
MATCH LINE SHEET 6

MATCH LINE SHEET 8

**SIGN LEGEND**  
 N = NEW  
 R = REMOVE  
 RET = RETAIN  
 R&S = REMOVE & SALVAGE

**EXISTING STRUCTURE**  
 3 SPAN STEEL BEAMS, CONCRETE DECK  
 OVERALL LENGTH = 73.0 m  
 CONCRETE STUB ABUTMENTS ON PILES  
 CONCRETE PIERS ON LEDGE  
 BRIDGE WIDTH CURB TO CURB = 9.1 m  
 BUILT IN 1961

**PLAN**  
 SCALE: 1:250



**CONSTRUCTION NOTES**

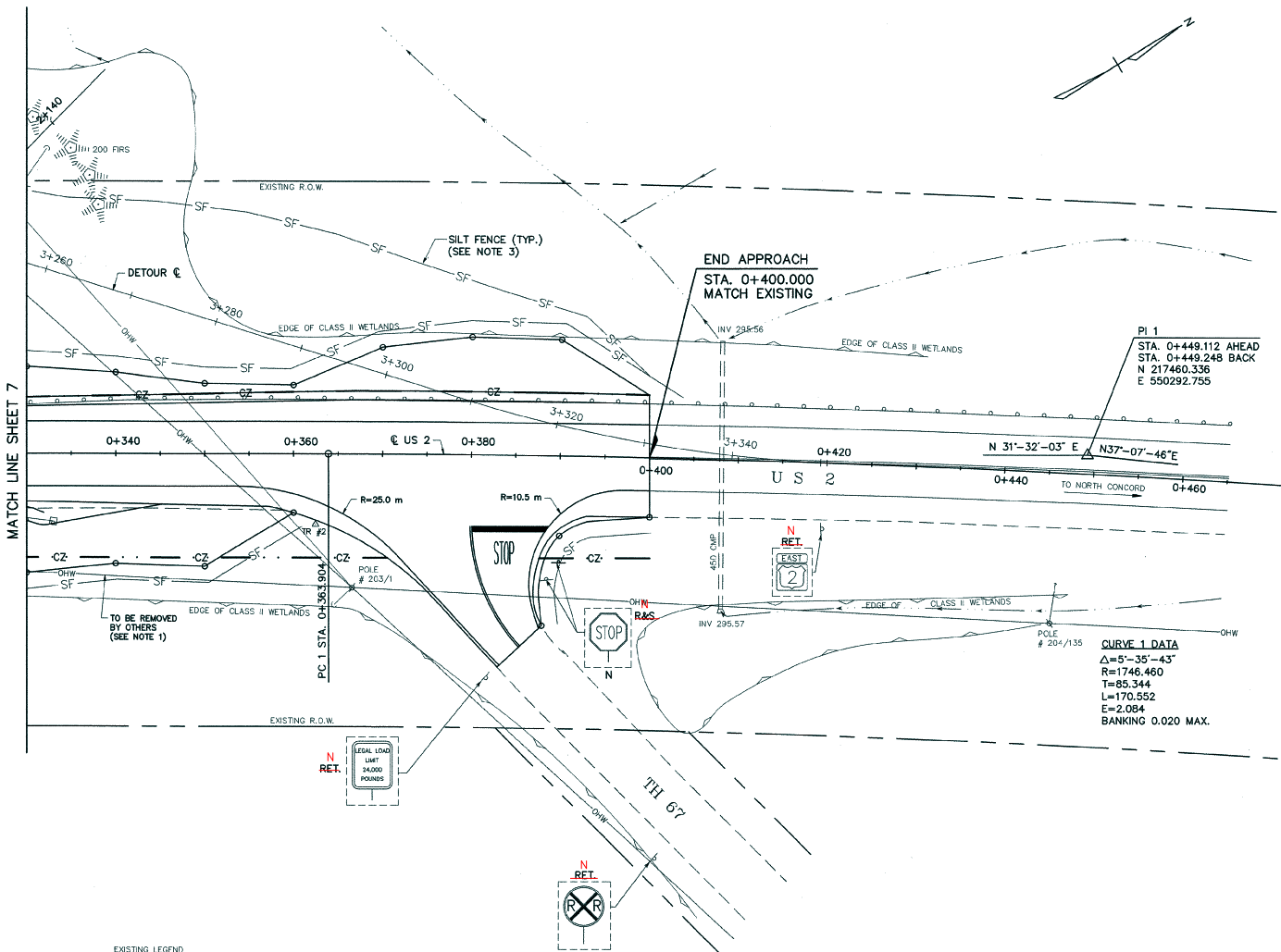
- REMOVAL AND DISPOSAL OF GUARD RAIL**  
 STA. 0+210.0 - 0+233.0 LT.  
 STA. 0+190.0 - 0+222.5 RT.  
 STA. 0+313.0 - 0+330.0 LT.  
 STA. 0+302.6 - 0+330.0 RT.
- HEAVY DUTY STEEL BEAM GUARD RAIL**  
 STA. 0+198.8 - 0+217.9 LT.  
 STA. 0+190.0 - 0+208.1 RT.  
 STA. 0+328.6 - 0+330.0 LT.  
 STA. 0+316.8 - 0+320.6 RT.  
 STA. 3+195.5 LT. - RT.
- ROUNDED "W" BEAM END SECTION**  
 STA. 3+195.5 LT. & RT.
- GUARD RAIL APPROACH SECTION, NETC 2 RAIL**  
 STA. 0+217.9 - 0+225.5 LT.  
 STA. 0+208.1 - 0+215.7 RT.  
 STA. 0+319.0 - 0+326.6 LT.  
 STA. 0+309.2 - 0+316.8 RT.
- BRIDGE RAILING - NETC 2 RAIL**  
 STA. 0+225.5 - 0+319.0 LT.  
 STA. 0+215.7 - 0+309.2 RT.
- MANUFACTURED TERMINAL SECTION**  
 STA. 0+320.6 - 0+331.9 RT.  
 STA. 0+187.5 - 0+198.8 LT.
- DURABLE 100 mm WHITE LINE**  
 STA. 0+190.0 - 0+330.0 LT. & RT.
- DURABLE 100 mm YELLOW LINE (DOUBLE CENTER LINE)**  
 STA. 0+190.0 - 0+330.0
- YIELDING MARKER POSTS**  
 STA. 3+144.0 LT. & RT.
- REMOVE & RESET SIGN**  
 STA. 0+222.0 RT.  
 STA. 0+231.0 LT.  
 STA. 0+304.0 RT.  
 STA. 0+313.0 LT.
- TREATED TIMBER CURB**  
 STA. 0+316.3 - 0+321.3 RT.  
 STA. 0+306.5 - 0+310.5 LT.
- SHOULDER TAPERS**  
 0+170.0 LT. (2400 mm) TO 0+220.0 LT. (1500 mm)  
 0+170.0 RT. (2400 mm) TO 0+220.0 RT. (1500 mm)  
 0+320.0 LT. (1500 mm) TO 0+370.0 LT. (2440 mm)  
 0+320.0 RT. (1500 mm) TO 0+350.0 RT. (2100 mm)

**NOTES:**

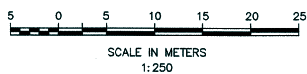
1. UTILITY POLE #61/133 WILL BE RELOCATED AND OVERHEAD WIRES WILL BE REMOVED FROM POLE #177A/201 TO POLE #203/1 PRIOR TO COMMENCEMENT OF WORK.
2. SEE DETOUR SHEET FOR DETOUR ALIGNMENT.
3. SEE SHEET 13 FOR TEMPORARY EROSION CONTROL.
4. THE CONTRACTOR SHALL ADJUST PIPE LENGTH AND LOCATION AS NECESSARY IF AN ALTERNATE DETOUR ALIGNMENT IS PROPOSED. ALL COSTS TO BE INCLUDED IN ITEM 528.11, TWO-WAY TEMPORARY BRIDGE.
5. OBJECT MARKERS SHALL CONFORM TO STD. E-150M, OM-1 450 mm x 450 mm, WITH RED REFLECTORS AND A RED BACKGROUND.

**STATE OF VERMONT  
 AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>PLAN (2 OF 3)</b>			
Designed By	S. GUNN/R. CLARK	Drawn By	R.F. CLARK
Checked By	S.M. GUNN	Date	9/99
		Bridge Design Supervisor	
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sb067p12		Sheet 7 of 50	
Bridge Sheet No. 50541PLN		VANASSE HANGEN BRUSTLIN, INC.	

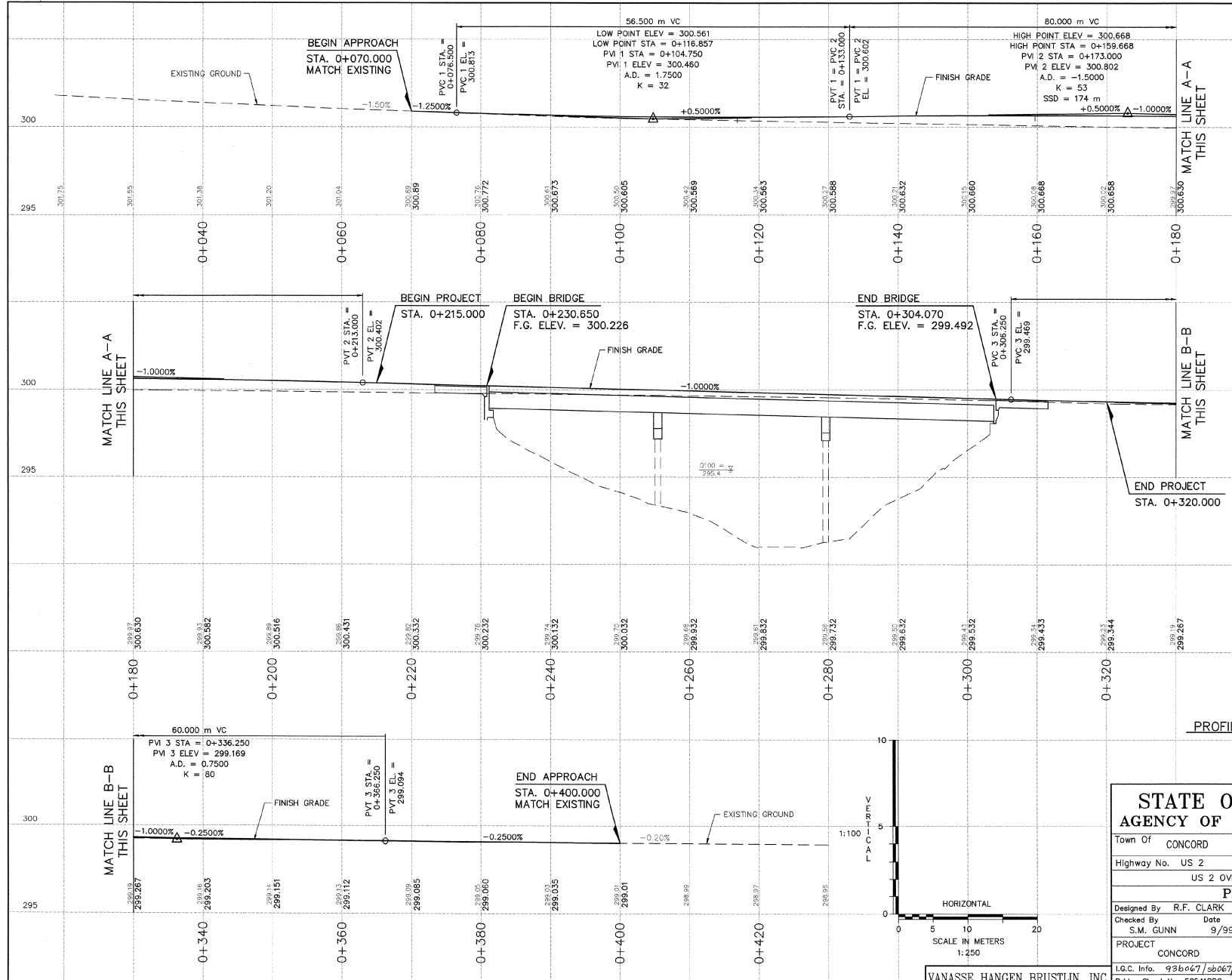


PLAN  
SCALE: 1:250



STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
PLAN (3 OF 3)			
Designed By	S. GUNN/R. CLARK	Drawn By	R.F. CLARK
Checked By	S.M. GUNN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN Date 9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067p13		
Bridge Sheet No.	50541PLN	Sheet	8 of 50



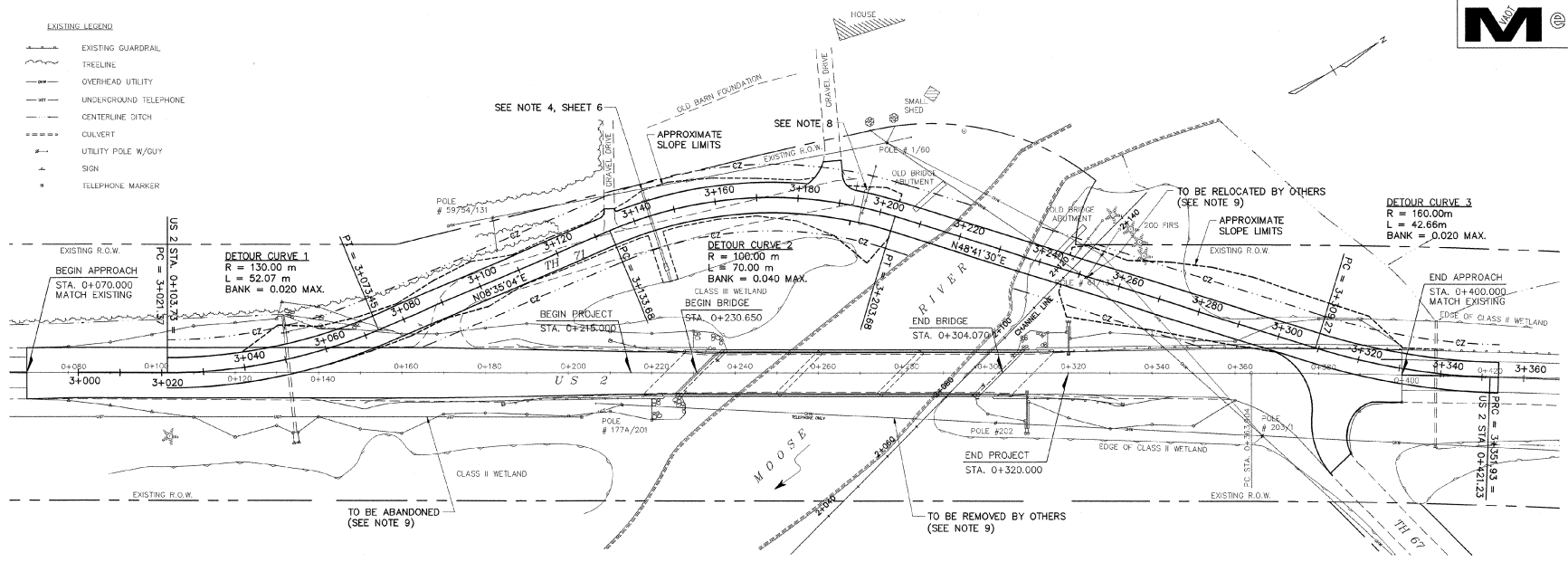
**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of CONCORD Bridge No. 117  
 Highway No. US 2 Log Sta. \_\_\_\_\_  
 Surv. Sta. \_\_\_\_\_  
 US 2 OVER MOOSE RIVER

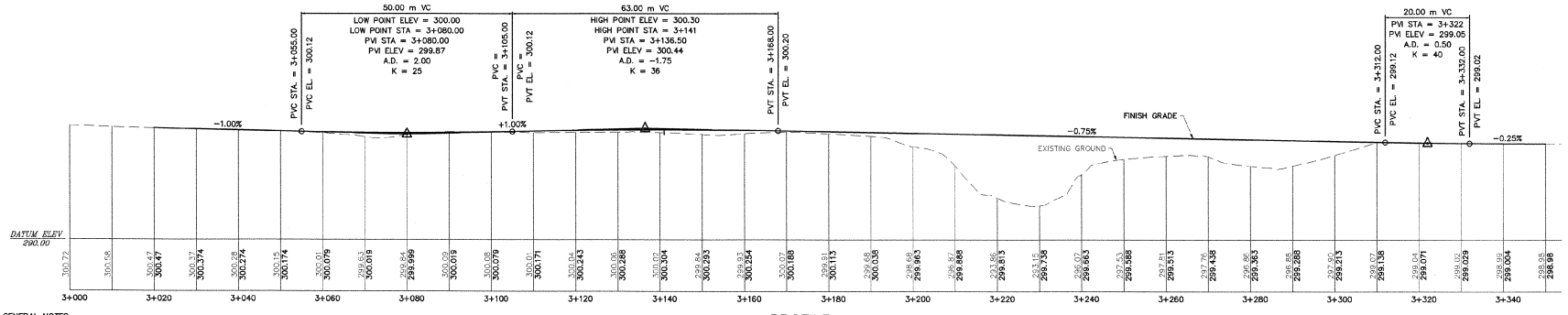
**PROFILE**

Designed By R.F. CLARK	Drawn By R.F. CLARK
Checked By S.M. GUNN	Date 9/99
S.M. GUNN	Bridge Design Supervisor
S.M. GUNN	Date 9/99
PROJECT CONCORD	PROJECT NO. BHF 028-4(22)

- EXISTING LEGEND**
- EXISTING GUARDRAIL
  - TREELINE
  - OVERHEAD UTILITY
  - UNDERGROUND TELEPHONE
  - CENTERLINE DITCH
  - CULVERT
  - UTILITY POLE W/GUY
  - SIGN
  - TELEPHONE MARKER



**PLAN**  
SCALE: 1:500

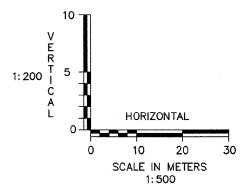


**PROFILE**  
HORZ. SCALE: 1:500  
VERT. SCALE: 1:200

**GENERAL NOTES**

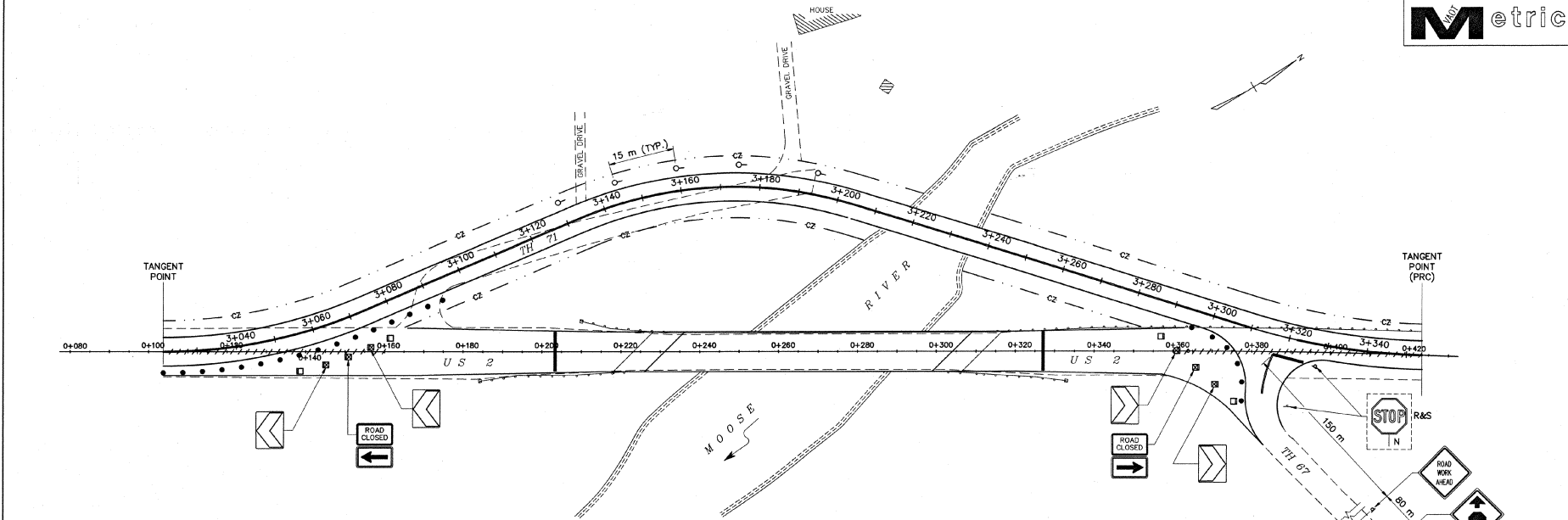
1. TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION WITH A DETOUR AND TEMPORARY BRIDGE. THE DETOUR AND BRIDGE SHALL BE IN ACCORDANCE WITH AND PAID AS ITEM 528.11, TWO WAY TEMPORARY BRIDGE. THE CONTRACTOR SHALL SUBMIT THE DETOUR SIGNAGE AND ALIGNMENT PACKAGE TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK. THE TEMPORARY BRIDGE SHALL BE DESIGNED TO STAY IN PLACE OVER THE WINTER.
2. ADVANCE WARNING SIGNS WITH FLASHING BEACONS SHALL BE USED ON US 2 APPROACHES. FLASHING BEACONS SHALL BE OPERATIONAL 24 HOURS PER DAY FOR THE ENTIRE PROJECT DURATION AND SHALL BE PAID AS ITEM 678.41, TEMPORARY FLASHING BEACON.
3. THE PURPOSE OF THE DETOUR PLAN AND PROFILE IS TO DEFINE APPROXIMATE SLOPE LIMITS. APPROXIMATE SLOPE LIMITS ARE BASED ON A 7.3 M WIDE TRAVELED WAY WITH 1 ON 3 SIDESLOPES WITH THE EXCEPTION OF STA. 3+180 RT. TO BEGIN OF BRIDGE APPROACH RAIL RT. AND FROM END BRIDGE APPROACH RAIL LEFT TO THE END OF THE DETOUR WHICH HAVE A 1 M SHELFF BEHIND FACE OF GUARDRAIL AND 1:2 SIDESLOPES. THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE ALIGNMENT FOR THE ENGINEER'S APPROVAL. THE DETOUR SHALL MEET THE REQUIREMENTS OF AASHTO POLICY ON GEOMETRIC DESIGN (1994). THE MUTCD, VERMONT SPECIFICATION 528 AND STANDARD E-107M. ADDITIONAL PERMITS OR RIGHT-OF-WAY REQUIRED FOR AN ALTERNATIVE DETOUR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. DETOUR DESIGN SPEED IS 50 KM/H.
5. THE TEMPORARY DETOUR AND RECONSTRUCTED TH 71 INTERSECTION SHALL BE PAVED TO A DEPTH OF 50 MM, AND A WIDTH OF 7.3 M. THE PAVEMENT SHALL BE PAID UNDER ITEM 406.26, BITUMINOUS CONCRETE PAVEMENT. ALL OTHER COSTS ASSOCIATED WITH THE TEMPORARY BRIDGE, DETOUR AND TH 71 INTERSECTION RECONSTRUCTION SHALL BE PAID FOR UNDER ITEM 528.11, TWO WAY TEMPORARY BRIDGE. SEE PLAN SHEETS 'B', 'C', 'Z', AND 'S' FOR FINAL TH 71 LAYOUT.
6. THE DETOUR SHALL BE REMOVED AS PER SPECIFICATION 528 EXCEPT FROM STA. 3+104 TO 3+163 WHICH WILL BE LEFT IN PLACE. THE NEW TH 71 INTERSECTION SHALL BE CONSTRUCTED AS SHOWN ON THE PLAN SHEETS AND CROSS SECTIONS AND PAVED TO A DEPTH OF 50 MM. PERMANENT SLOPES STEEPER THAN 1 ON 3 SHALL BE SHIELDED WITH GUARDRAIL AND A TERMINAL APPROVED BY THE ENGINEER.
7. PERMIT REQUIREMENTS:  
ALL TEMPORARY FILLS WILL BE PLACED ON A GEOTEXTILE MAT. UPON COMPLETION OF THE NEW STRUCTURE, THE TEMPORARY BRIDGE AND FILLS FOR THE DETOUR WILL BE REMOVED DOWN TO THE ORIGINAL WETLAND GRADE. ALL AREAS OF DISTURBANCE WILL BE IMMEDIATELY SEEDED AND MULCHED UPON COMPLETION OF THE FINAL GRADE TO PREVENT SOIL EROSION AND TO DISCOURAGE INVASION BY NUISANCE PLANTS LIKE PURPLE LOOSESTRIFE.

7. (CONT.) PERMIT REQUIREMENTS:  
NO EXCAVATION IS ALLOWED ALONG THE RIVERBANK BETWEEN THE FORMER AND EXISTING US 2 ROADBEDS. FILL MAY BE PLACED IN THIS AREA. TEMPORARY ABUTMENTS SHALL BE NO CLOSER THAN THE TOP OF BANK. (ELEVATION = 296.5)  
PILE BENTS MAY BE INSTALLED OUTSIDE THE WETTED PERIMETER (ORDINARY HIGH WATER) OF THE RIVER.  
SEE PERMITS FOR ADDITIONAL REQUIREMENTS.
8. HEAVY DUTY STEEL BEAM GUARDRAIL, WITH ROUNDED END SECTIONS AND OBJECT MARKERS SHALL BE CONSTRUCTED AT THE END OF TH 71 AS SHOWN ON THE PLAN SHEET AFTER REMOVAL OF THE DETOUR.
9. UTILITY POLE #61/133 WILL BE RELOCATED AND OVERHEAD WIRES WILL BE REMOVED FROM POLE #177/201 TO POLE #203/1 PRIOR TO COMMENCEMENT OF WORK.
10. SEE SHEET 11 OF 50 FOR TRAFFIC CONTROL PLAN.

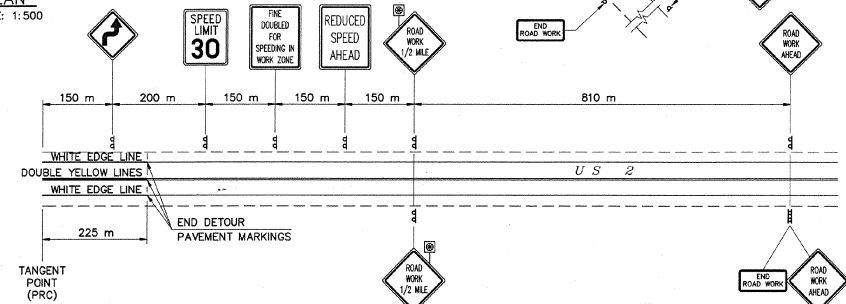
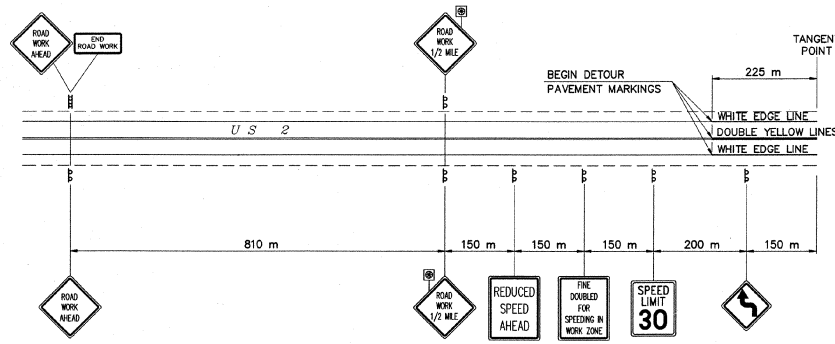


**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>DETOUR PLAN &amp; PROFILE</b>			
Designed By	S.M. GUNN	Drawn By	R.F. CLARK
Checked By	S.M. GUNN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 43b6675bc67de4			
Bridge Sheet No. 50541DIR		Sheet 10 of 50	



PLAN  
SCALE: 1:500



**LEGEND**

- REFLECTORIZED PLASTIC DRUM (SEE TABLE ON STD. E-106M FOR PLACEMENT)
- TYPE III BARRICADES (SEE STD. E-107AM)
- ▣ TYPE III BARRICADES (MOD.) (SEE STD. E-107AM)
- +++ PAVEMENT MARKING REMOVAL
- Ⓢ FLASHING BEACON
- TEMPORARY TRAFFIC BARRIER
- DELINEATOR (SEE STD. E-107M)

**CONSTRUCTION NOTES**

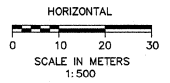
- REMOVAL OF EXISTING PAVEMENT MARKINGS  
STA. 0+103 - 0+160  
STA. 0+360 - 0+421
- TEMPORARY STOP BAR  
STA. 3+320 RT. (8 m)
- REMOVE AND RESET SIGN  
STA. 0+390 RT.
- DURABLE 100 mm WHITE LINE  
STA. 2+796 - 3+577 LT.  
STA. 2+796 - 3+320 RT.  
STA. 3+323 - 3+577 RT.
- DURABLE 100 mm YELLOW LINE (DOUBLE CENTER LINE)  
STA. 2+796 - 3+310  
STA. 3+322 - 3+577  
STA. 3+317, RT

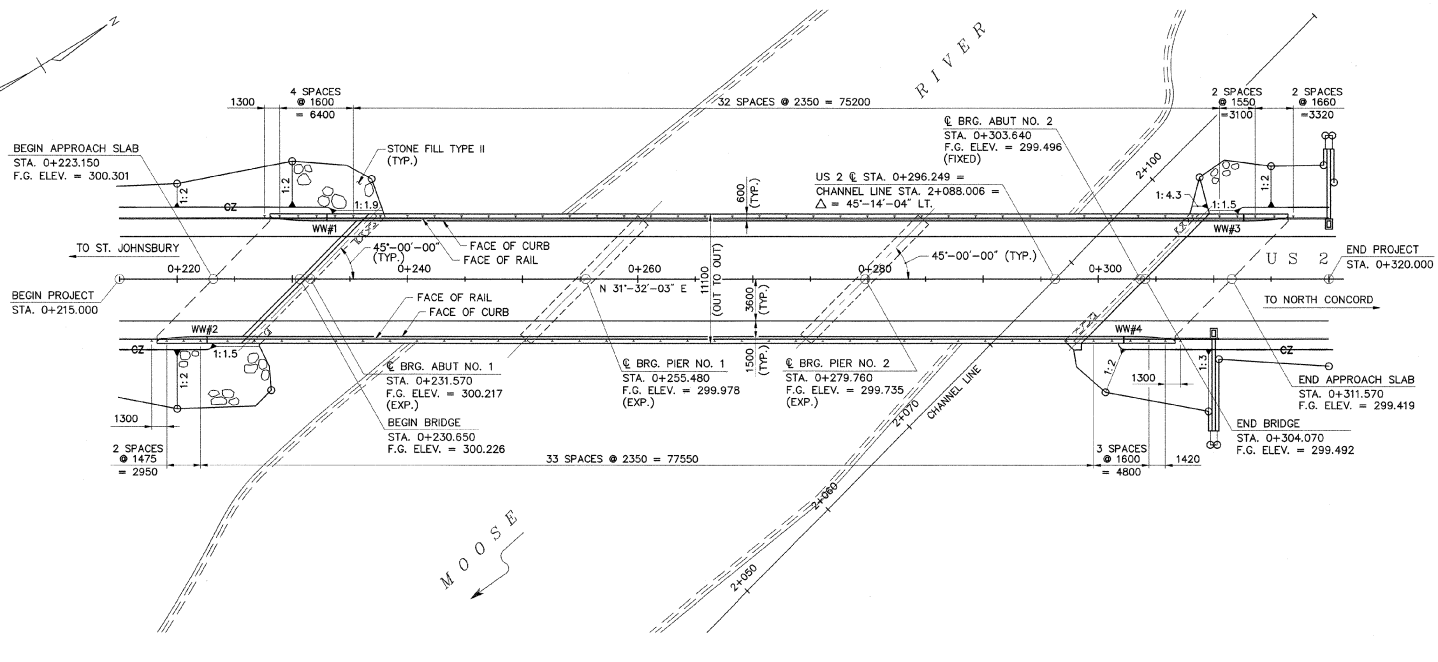
**DETOUR SIGNING AND STRIPING PLAN**

- NOTES:**
1. SEE DETOUR NOTES AND DETAILS ON SHEET 10 OF 50.
  2. THIS TRAFFIC CONTROL SHEET TO BE USED IN CONJUNCTION WITH VERMONT AGENCY OF TRANSPORTATION STANDARD SHEETS E-100M, E-101M, E-102M, E106M, E107M AND E107AM.

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

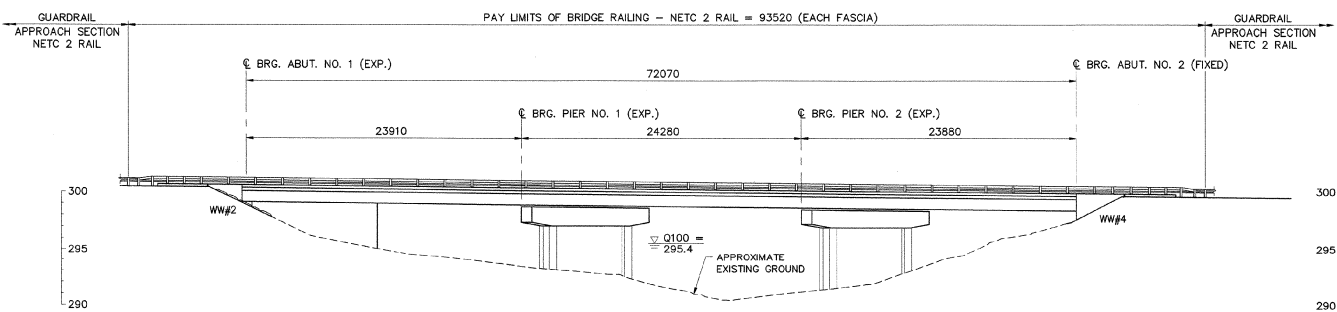
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>TRAFFIC CONTROL PLAN</b>			
Designed By	S.M. GUNN/VAOT	Drawn By	R.F. CLARK
Checked By	S.M. GUNN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
PROJECT	CONCORD	Date	9/99
		PROJECT NO.	BHF 02B-4(22)
I.G.C. Info. 93b067/sb067tr-f			
Bridge Sheet No. 50541TCP		Sheet 11 of 50	





**PLAN**  
SCALE: 1:200

SCALE IN METERS  
1:200



**ELEVATION**  
SCALE: 1:200

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

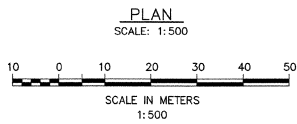
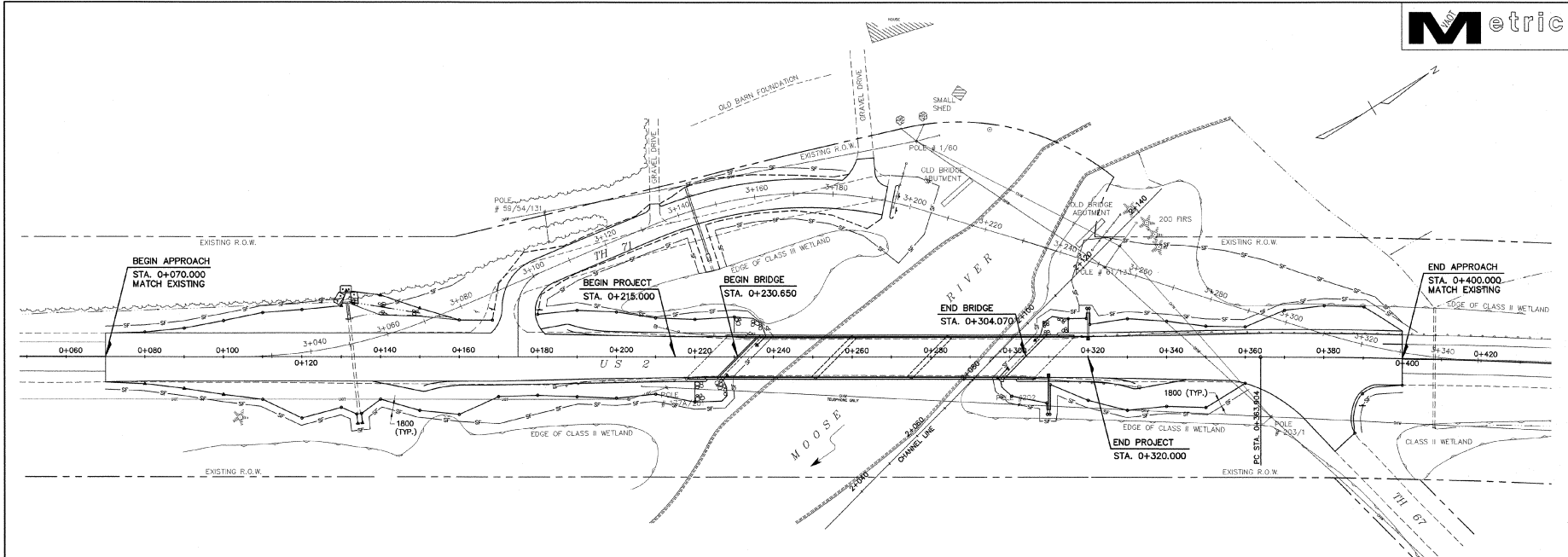
Town Of CONCORD Bridge No. 117  
Highway No. US 2 Log Sta.             
Surv. Sta.           

**US 2 OVER MOOSE RIVER**

**PLAN AND ELEVATION**  
Designed By S.M. GUNN Drawn By R.F. CLARK  
Checked By M.A. COLGAN Date 9/99 Bridge Design Supervisor  
S.M. GUNN Date 9/99

PROJECT CONCORD PROJECT NO. BHF 028-4(22)

I.G.C. Info. 93b067/sb067pe  
Bridge Sheet No. 50541ELV Sheet 12 of 50



- NOTE:**
1. AN ALTERNATIVE TEMPORARY EROSION CONTROL PLAN MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
  2. REFER TO VAOT STANDARDS T-1M AND T-2M FOR ADDITIONAL DETAILS.
  3. THE CONTRACTOR SHALL USE OTHER TEMPORARY OR PERMANENT EROSION CONTROL MEASURES AS NECESSITATED BY THE SEQUENCE OF CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. SEE SECTION 105.23.

**LEGEND**

—#— SILT FENCE

□ HAY BALE

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of CONCORD		Bridge No. 117	
Highway No. US 2		Log Sta. Surv. Sta.	
US 2 OVER MOOSE RIVER			
EROSION CONTROL SHEET			
Designed By	R.F. CLARK	Drawn By	R.F. CLARK
Checked By	S.M. GUNN	Bridge Design Supervisor	S.M. GUNN
Date	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sb067ero		Sheet 13 of 50	
Bridge Sheet No. 50541ERO			

**GENERAL NOTES:**

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 1995, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 16TH EDITION, DATED 1996, AND ITS LATEST REVISIONS.
- DESIGN CRITERIA:  
DESIGN LIVE LOAD FOR EXISTING STRUCTURE: H-20-S16-44  
DESIGN LIVE LOAD FOR NEW SUPERSTRUCTURE: MS22.5  
SEISMIC PERFORMANCE CATEGORY: A
- THE FOLLOWING MATERIAL CRITERIA, DESIGNATIONS AND UNIT WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES:  
CONCRETE: CLASS "A"  $f_c = 30$  MPa  
CLASS "B"  $f_c = 25$  MPa  
SILICA FUME  $f_c = 35$  MPa  
STRUCTURAL STEEL: AASHTO M 270M GRADE 345W  
REINFORCING STEEL: AASHTO M 31M GRADE 420  
UNIT WEIGHT OF SOIL: 2243 kg/m<sup>3</sup>
- DIMENSIONS, ANGLES, BEARINGS, AND ELEVATIONS OF THE EXISTING BRIDGE SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND LIMITED FIELD INVESTIGATION AND MAY NOT ACCURATELY REFLECT ACTUAL FIELD CONDITIONS.  
EXISTING PLANS INDICATE THAT THE CENTERLINE OF THE EXISTING ABUTMENT AND PIER MASONRY COINCIDES WITH THE CENTERLINE OF EXISTING ROADWAY. THE CENTERLINE OF ROADWAY DOES NOT CHANGE AS A RESULT OF THE NEW CONSTRUCTION. SURVEY INFORMATION INDICATES THE CENTERLINE OF THE EXISTING MASONRY IS OFFSET FROM THE CENTERLINE OF THE ROADWAY. THE SUBSTRUCTURE REMOVAL LIMITS AND NEW MASONRY DETAILS HAVE BEEN DEVELOPED BASED UPON SURVEY AND THE LIMITED FIELD INVESTIGATION. WHERE THERE WERE CONFLICTS BETWEEN EXISTING PLAN INFORMATION AND THE SURVEY AND FIELD INVESTIGATION INFORMATION, THE SURVEY AND FIELD INVESTIGATION INFORMATION WAS HELD.  
THE CONTRACTOR WILL BE RESPONSIBLE FOR MAKING FIELD MEASUREMENTS OF ALL EXISTING STRUCTURE COMPONENTS IMPACTED BY THE NEW WORK TO ASSURE CONSISTENCY WITH THE PROPOSED MODIFICATIONS. ANY DISCREPANCIES IN DIMENSIONS, CHARACTER, OR EXTENT OF THE EXISTING FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ADVANCING THE WORK.
- WORKING DRAWINGS REQUIRED FOR VARIOUS ITEMS OF WORK SHALL INDICATE THE ACTUAL FIELD MEASUREMENTS AND SHALL BE SO NOTED.
- DIMENSIONS OF THE EXISTING BRIDGE HAVE BEEN CONVERTED TO METRIC UNITS IN ACCORDANCE WITH THE VERMONT AGENCY OF TRANSPORTATION'S METRIC POLICY AND ROUNDED TO THE NEAREST MILLIMETER.
- PLANS OF THE EXISTING BRIDGE ARE AVAILABLE FOR REVIEW DURING THE BIDDING PERIOD AT THE CONTRACT ADMINISTRATION OFFICE OF THE VERMONT AGENCY OF TRANSPORTATION.
- ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 20 DEGREES CELSIUS, UNLESS NOTED OTHERWISE.
- SEE SHEET 30 FOR REMOVAL NOTES.
- SEE SHEET 35 FOR CONCRETE REPAIR NOTES.
- SEE SHEET 10 FOR DETOUR AND TEMPORARY BRIDGE NOTES.

**CONSTRUCTION NOTES:**

- THE CONTRACTOR SHALL CALL "DIG-SAFE" PRIOR TO PERFORMING ANY EXCAVATION, IN ACCORDANCE WITH DIG-SAFE'S RULES OF NOTIFICATION. THE COST OF COORDINATING WITH "DIG-SAFE" AND THE UTILITY COMPANIES SHALL BE SUBSIDIARY TO ITEM 635.10, MOBILIZATION.
- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION, POLLUTION, AND DISCHARGE OF RAW CONCRETE INTO THE MOOSE RIVER, AS DIRECTED BY THE ENGINEER.
- IN-STREAM CONSTRUCTION SHALL BE CONDUCTED DURING THE PERIOD OF JUNE 1 THROUGH OCTOBER 1. THE AGENCY OF NATURAL RESOURCES MUST APPROVE ANY DEVIATION FROM THIS PERIOD IN WRITING.
- ITEM 204.25, STRUCTURE EXCAVATION SHALL BE USED TO EXCAVATE TO THE LIMITS SHOWN ON THE PLANS. SEE EARTHWORK TYPICALS ON SHEET 3.
- THE BRIDGE PLAQUE AND BENCH MARK SHALL BE FURNISHED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AS SHOWN ON THE PLANS. ALL COSTS SHALL BE INCLUDED IN ITEM 501.25, CONCRETE CLASS B.
- THE CONTRACTOR SHALL ERECT, MAINTAIN, REMOVE, AND/OR RESET AS REQUIRED ALL ON-PROJECT SIGNS AND BARRICADES. THE COST OF ALL CONSTRUCTION SIGNS AND BARRICADES SHALL BE INCLUDED IN ITEM 635.10, MOBILIZATION.
- ANY EXISTING SIGNS NOT REUSED SHALL REMAIN THE PROPERTY OF THE STATE. THESE SIGNS SHALL BE REMOVED BY THE CONTRACTOR AND STOCKPILED AS DIRECTED BY THE ENGINEER FOR REMOVAL BY THE STATE AND SHALL BE PAID AS ITEM 675.50, REMOVING SIGNS.
- GRUBBING MATERIAL SHALL NOT BE PLACED ON THE STONE FILL IN THE AREA UNDER THE BRIDGE.
- A QUANTITY OF ITEM 204.21, TRENCH EXCAVATION OF ROCK HAS BEEN INCLUDED FOR REMOVING EXISTING HEADWALLS AT U.S. 2 STA. 0+132.0 LT. AND TH 71 STA. 3+144.0 LT.

**STRUCTURAL STEEL NOTES:**

- ALL NEW STRUCTURAL STEEL SHALL BE AASHTO M 270M, GRADE 345W UNLESS OTHERWISE NOTED.
- ITEM 506.65, STRUCTURAL STEEL (ROLLED BEAM), SHALL INCLUDE ROLLED BEAMS CONNECTION PLATES, DIAPHRAGMS, AND ALL REQUIRED FASTENERS.
- ALL BOLTED FIELD CONNECTIONS SHALL BE MADE WITH 22 MILLIMETER DIAMETER HIGH STRENGTH BOLTS IN 24 MILLIMETER DIAMETER HOLES UNLESS OTHERWISE NOTED.
- FIELD SPLICES ARE OPTIONAL. COST OF FIELD SPLICES SHALL BE INCLUDED IN ITEM 506.65, STRUCTURAL STEEL (ROLLED BEAM). FOUR BOLTED FIELD SPLICES WERE INCLUDED FOR ESTIMATION OF LUMP SUM STRUCTURAL STEEL WEIGHT.
- CONNECTIONS NOT DESIGNATED SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL.
- SHEAR STUD CONNECTORS SHALL BE FIELD WELDED USING AUTOMATICALLY TIMED STUD WELDING EQUIPMENT AND SHALL BE PAID AS ITEM 508.15, SHEAR CONNECTORS.
- AFTER THE SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE BEAM SHALL BE TAKEN, AS DIRECTED BY THE ENGINEER, FOR USE IN DETERMINING THE FINAL GRADE AND HAUNCH DEPTHS.
- ANY HOLES IN FASCIA BEAM WEBS NOT OTHERWISE FILLED SHALL BE FITTED WITH BUTTON HEAD OR HEX HEAD BOLTS.
- THE ENDS OF BEAMS SHALL BE VERTICAL UNDER FULL DEAD LOAD DEFLECTION.
- A CLASS B CONTACT SURFACE IS REQUIRED AT ALL BOLTED FIELD SPlice CONNECTIONS.
- ALL STRUCTURAL STEEL WITHIN 1600 MILLIMETERS OF THE END OF BEAMS AT ABUTMENT NO. 1 SHALL BE PAINTED. ALL COSTS SHALL BE INCLUDED IN ITEM 513.40, SURFACE PREPARATION, SHOP AND ITEM 513.25, STRUCTURAL PAINTING, SHOP APPLIED.

**BEARING NOTES:**

- PREFORMED FABRIC PAD DESIGN CRITERIA:  
MAXIMUM ALLOWABLE BEARING PRESSURE ON CONCRETE = 6.9 MPa  
MINIMUM ALLOWABLE DESIGN ROTATION = 0.015 RADIANS.  
HORIZONTAL CAPACITY SHALL BE A MINIMUM OF 6% VERTICAL LOAD  
DESIGN LOAD PER BEARING:  
ABUTMENT NO. 1: 494 kN  
PIER NO.1 & 2: 953 kN  
ABUTMENT NO. 2: 494 kN
- BEARINGS SHALL BE PAID AS ITEM 531.10, BEARING DEVICE ASSEMBLY.
- ALL STEEL IN BEARING DEVICES (EXCEPT STAINLESS) SHALL BE AASHTO M 270M, GRADE 250.
- DRILL AND SET ANCHOR BOLTS WITH A MINIMUM OF 400 MILLIMETERS EMBEDMENT INTO CONCRETE. HOLES SHALL BE SEVENTY (70) MILLIMETERS IN DIAMETER AND BOLTS SHALL BE SET IN A TYPE IV MORTAR. ALL COSTS TO BE INCLUDED UNDER ITEM 531.10, BEARING DEVICE ASSEMBLY.
- ANCHOR BOLTS SHALL BE SWEDGED WITH 100 MILLIMETERS OF THREAD. EXPANSION BEARING NUTS ARE TO BE DRAWN UP FINGER TIGHT AND THEN BACKED OFF FIVE (5) MILLIMETERS. THREADS SHALL BE BURRED ABOVE NUT TO PREVENT NUT REMOVAL.
- THE CONTRACTOR SHALL TAKE ELEVATIONS OF EACH INTERIOR ABUTMENT NO. 2 BEARING SEAT AND ORDER SHIM PLATES OF SUFFICIENT THICKNESS TO EQUAL THE DIFFERENCE BETWEEN THE EXISTING BEARING SEAT ELEVATION AND THE NEW BOTTOM OF PREFORMED FABRIC PAD ELEVATION. THE BOTTOM OF PREFORMED FABRIC PAD ELEVATIONS ARE AS SHOWN ON SHEET 23. ALL COSTS SHALL BE INCLUDED IN ITEM 531.10, BEARING DEVICE ASSEMBLY. SHIM PLATE DETAILS SHALL BE SUBMITTED WITH THE BEARING FABRICATION DRAWINGS.
- ADJUSTMENT OF THE EXISTING ABUTMENT NO. 2 BEARING SEATS MAY BE REQUIRED TO PROVIDE A LEVEL SURFACE FOR THE NEW BEARINGS. ADJUSTMENTS TO THE BEARING SEATS SHALL BE AS DIRECTED BY THE ENGINEER AND ALL COSTS SHALL BE INCLUDED IN ITEM 531.10, BEARING DEVICE ASSEMBLY.
- ANY OUTLET (V-GROOVE) SHALL BE PROVIDED FOR ANY BEARING RECESSED INTO THE BRIDGE SEAT TO PREVENT WATER FROM PONDING NEAR THE BEARING. OUTLETS SHALL BE AS DIRECTED BY THE ENGINEER AND ALL COSTS SHALL BE INCLUDED IN ITEM 531.10, BEARING DEVICE ASSEMBLY.

**REINFORCING STEEL NOTES:**

- REINFORCING STEEL IN THE DECK, BACKWALL, CURTAIN WALL, APPROACH SLABS, AND BRUSH CURBS SHALL BE EPOXY COATED AND PAID AS ITEM 507.17, EPOXY COATED REINFORCING STEEL. ALL OTHER REINFORCING STEEL SHALL BE PAID AS ITEM 507.15, REINFORCING STEEL.
- DRILLING AND GROUTING DOWELS SHALL BE PAID AS ITEM 507.16, DRILLING AND GROUTING DOWELS. ALL DRILLED HOLES SHALL HAVE A MINIMUM OF 150 MILLIMETERS CLEAR COVER.
- MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:  
ALONG BACK FACES OF WALLS AGAINST EARTH: FIFTY (50) MILLIMETERS  
ALONG TOP SURFACE OF DECK SLAB: SIXTY-FIVE (65) MILLIMETERS  
ALONG BOTTOM SURFACE OF DECK SLAB: FORTY (40) MILLIMETERS  
ELSEWHERE UNLESS OTHERWISE INDICATED: EIGHTY (80) MILLIMETERS
- REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE:  
SPACING:  $\pm 25$  MILLIMETERS  
CLEARANCE:  $\pm 5$  MILLIMETERS

NOTE: SHIM PLATES NOT USED  
R.E. ORDERED EXIST CONC. TAKE DOWN @ A-2  
(ON TOTAL WIDTH OF 150-200 MM  
WITH NEW BEARING PEDISTAL SEATS

**DOWNSPOUT NOTES:**

- PAYMENT FOR ALL MATERIALS AND LABOR RELATED TO THE HOPPER AND DOWNSPOUT ASSEMBLY SHALL BE INCLUDED IN ITEM 506.65, STRUCTURAL STEEL (ROLLED BEAM).
- ALL PLATES, BARS AND ANGLES SHALL CONFORM TO AASHTO M 270M, GRADE 250.
- BOLTS AND RELATED HARDWARE SHALL CONFORM TO ASTM A 307 GRADE A.
- THE HOPPER AND DOWNSPOUT ASSEMBLY SHALL BE INSTALLED AFTER THE BRIDGE EXPANSION JOINT IS IN PLACE.
- ALL HOPPER AND DOWNSPOUT COMPONENTS AND HARDWARE SHALL BE GALVANIZED UNLESS OTHERWISE NOTED.

**EXPANSION JOINT NOTES:**

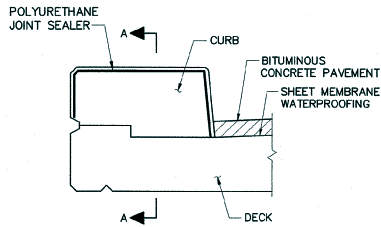
- BRIDGE EXPANSION JOINT SHALL BE PAID AS ITEM 516.10, BRIDGE EXPANSION JOINT.
- PREFORMED FABRIC MATERIAL SHALL BE CONTINUOUS. ALL COST SHALL BE INCLUDED IN ITEM 506.80, DRAIN TROUGH.
- BUTYL RUBBER TAPE SHALL CONFORM TO AASHTO SPECIFICATION M 198, TYPE II.
- THE FINAL FINISH OF THE EXPANSION DEVICE SHALL BE COVERED AND PROTECTED DURING THE PLACING OF CONCRETE.
- ALL STEEL COMPONENTS SHALL BE AASHTO M 270M GRADE 250.
- THE ANGLES SHALL BE FURNISHED AS ONE CONTINUOUS PIECE. THE BARS EACH SIDE OF THE JOINT SHALL BE PROVIDED IN TWO EQUAL LENGTHS.
- FILL COUNTERBORED HOLES WITH HOT POURED JOINT SEALER AFTER BOLT INSTALLATION. ALL COSTS SHALL BE INCLUDED IN ITEM 516.10, BRIDGE EXPANSION JOINT.
- FABRIC TROUGH SHALL BE THOROUGHLY CLEANED AND FLUSHED AFTER PAVING OPERATIONS.
- A DRIP BEAD OF 8 MILLIMETERS x 150 MILLIMETERS OF PREFORMED MATERIAL SHALL BE CEMENTED TO THE BOTTOM OF THE FABRIC TROUGH USING AN ADHESIVE APPROVED BY THE MANUFACTURER. THE DRIP BEAD SHALL BE 25 MILLIMETERS WIDE STARTING FROM THE DOWNSPOUT END OF THE TROUGH. ALL COSTS SHALL BE INCLUDED IN ITEM 516.10, BRIDGE EXPANSION JOINT.
- THE DRAIN TUBES SHALL BE EXTENDED BELOW THE BOTTOM OF THE ADJACENT BEAM AND FASTENED TO THE BEAMS USING A METHOD APPROVED BY THE ENGINEER.
- FINAL JOINT PROFILE SHALL MATCH THE NEW DECK AND CURB PROFILE.

**CONCRETE NOTES:**

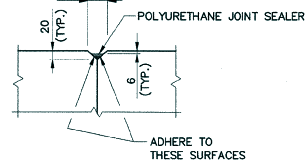
- CONCRETE PAYMENT AND CLASSIFICATION SHALL BE AS FOLLOWS:  
ITEM 501.22, CONCRETE, CLASS A: DECK AND CURTAIN WALL  
ITEM 501.60, SILICA-FUME CONCRETE: CURBS AND THE TOP OF BACKWALL ABOVE CONSTRUCTION JOINT  
ITEM 501.25, CONCRETE, CLASS B: ALL OTHER COMPONENTS
- ITEM 514.10, WATER REPELLENT, SHALL BE APPLIED TO ALL EXPOSED CONCRETE ON BRIDGE SUPERSTRUCTURE EXCEPT THE BOTTOM OF THE DECK BETWEEN THE DRIP NOTCHES. WATER REPELLENT SHALL ALSO BE APPLIED TO THE EXPOSED CONCRETE ON ALL NEW AND EXISTING SUBSTRUCTURES.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25 MILLIMETERS BY 25 MILLIMETERS, UNLESS OTHERWISE NOTED. A 15 MILLIMETER RADIUS SHALL BE USED ON THE TOP INSIDE CORNER OF CURBS.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- SURFACES OF THE ABUTMENT AND PIER BRIDGE SEATS UNDER THE BEARING DEVICE SHALL BE LEVEL. OTHER NEW BRIDGE SEAT AREAS SHALL BE SLOPED 6 MILLIMETERS PER 300 MILLIMETERS.
- THE KEY ON CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT UNLESS OTHERWISE INDICATED. ANY UPWARD KEY SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
- PAYMENT FOR WATERSTOPS SHALL BE INCLUDED IN ITEM 501.25, CONCRETE, CLASS B. OTHER CONFIGURATIONS THAN THOSE SHOWN MAY BE USED UPON APPROVAL OF THE ENGINEER.
- SEE SHEET 15 FOR DECK PLACEMENT SEQUENCE AND NOTES.

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

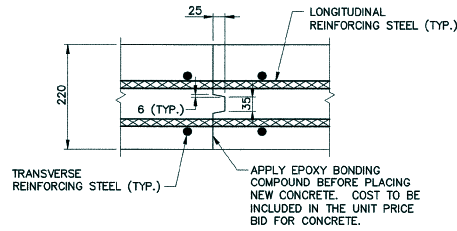
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>CONSTRUCTION NOTES</b>			
Designed By	M.A. COLGAN	Drawn By	C.S. MERCER
Checked By	S.M. SAREAULT	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067net		
Bridge Sheet No.	50541NOT	Sheet	14 of 50



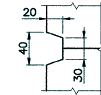
**TYPICAL SECTION**



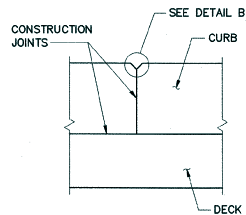
**DETAIL B**



**TRANSVERSE DECK CONSTRUCTION JOINT DETAIL**  
N.T.S.



**SCORE MARK DETAIL**  
N.T.S.

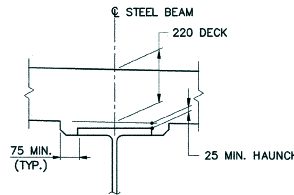


**SECTION A-A**

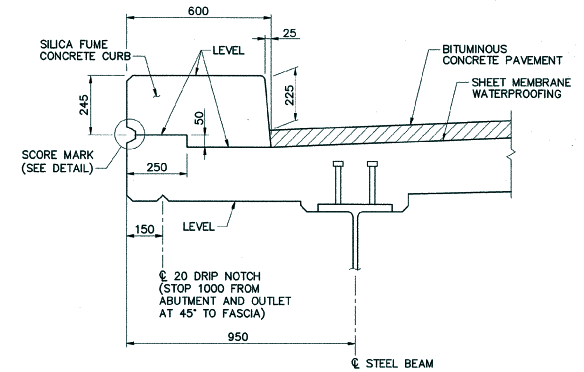
**CURB CONSTRUCTION JOINT NOTES:**

1. CONCRETE CURB CONSTRUCTION JOINTS SHALL BE SPACED A MAXIMUM OF 6000 mm CENTER TO CENTER AND SHALL BE 450 mm MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS BETWEEN ADJACENT POURS.
2. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN.
3. POLYURETHANE JOINT SEALER, PER SUBSECTION 524.06(c), SHALL MATCH THE CONCRETE COLOR. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE

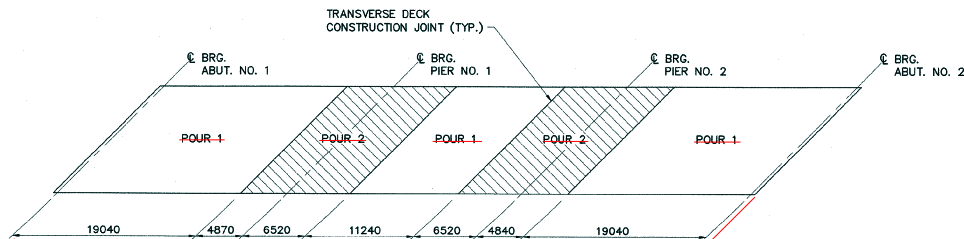
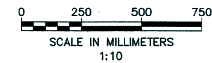
**CONCRETE CURB CONSTRUCTION JOINT**  
N.T.S.



**TYPICAL HAUNCH DETAIL**  
N.T.S.



**TYPICAL CURB DETAIL**  
(BRIDGE RAIL NOT SHOWN)  
SCALE: 1:10



**DECK PLACEMENT SEQUENCE**  
N.T.S.

**NOTES:**

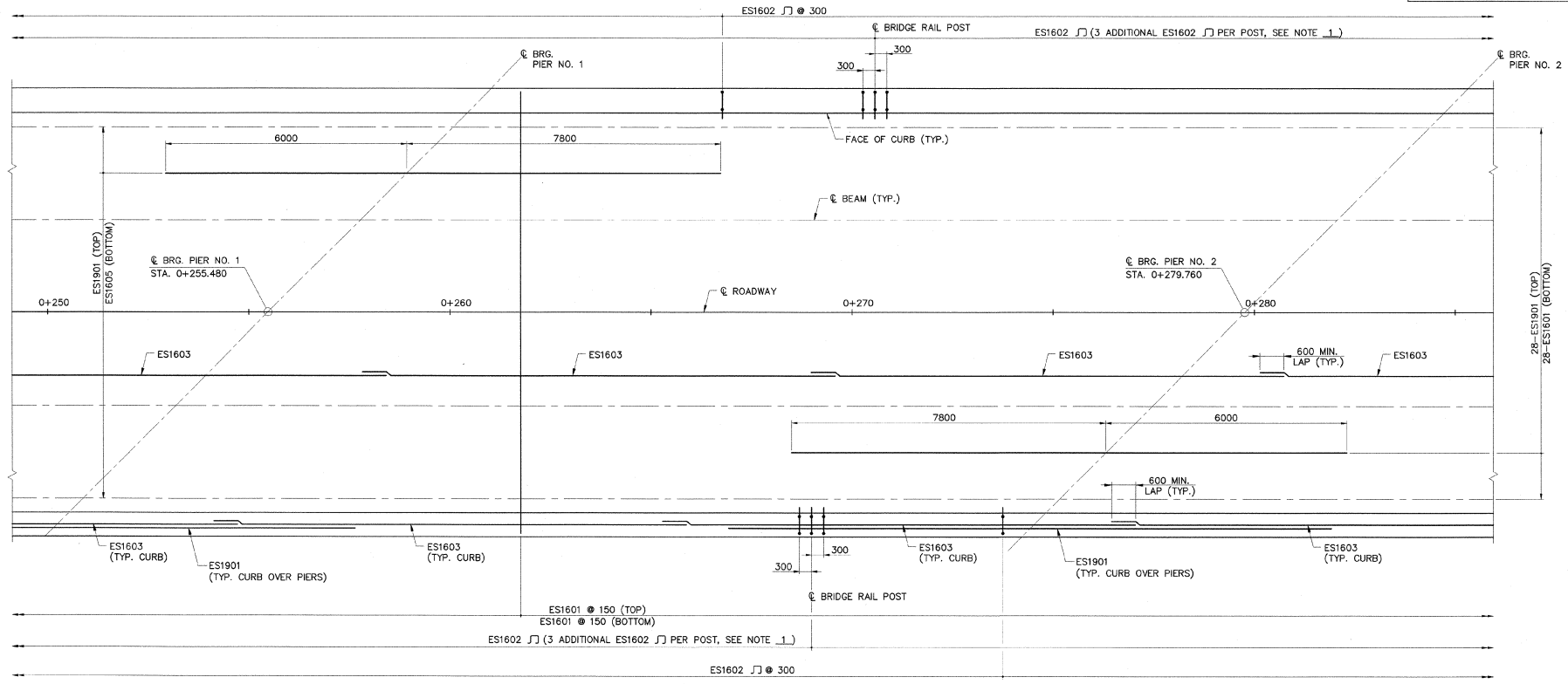
1. EACH CONCRETE DECK POUR SHALL BE PLACED CONTINUOUSLY WITHIN ONE EIGHT HOUR WORKING DAY. THERE SHALL BE A MINIMUM DELAY PERIOD OF 96 HOURS AFTER COMPLETION OF EACH POUR BEFORE BEGINNING ANOTHER POUR. INDIVIDUAL POUR NUMBERS AS SHOWN MAY BE COMBINED INTO A SINGLE POUR IF APPROVED BY THE ENGINEER.
2. THE DECK CONCRETE SHALL BE RETARDED SUFFICIENTLY TO REMAIN PLASTIC UNTIL EACH DAY'S PLACEMENT IS COMPLETE. THE QUANTITY OF RETARDER SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. ANY DEVIATIONS FROM THIS PROCEDURE MUST BE APPROVED BY THE ENGINEER IN WRITING BEFORE THE POUR BEGINS.

NOTE: DECK POURED IN ONE POUR

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Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
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US 2 OVER MOOSE RIVER			
<b>DECK DETAILS</b>			
Designed By	M.A. COLGAN	Drawn By	R.F. CLARK
Checked By	C.R. WILSON	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067dk1		





PLAN  
SCALE: 1:50



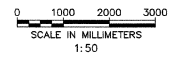
- NOTES:**
- SEE STANDARD SHEET BR1-97M FOR REINFORCING STEEL DETAIL AT BRIDGE RAIL POSTS.

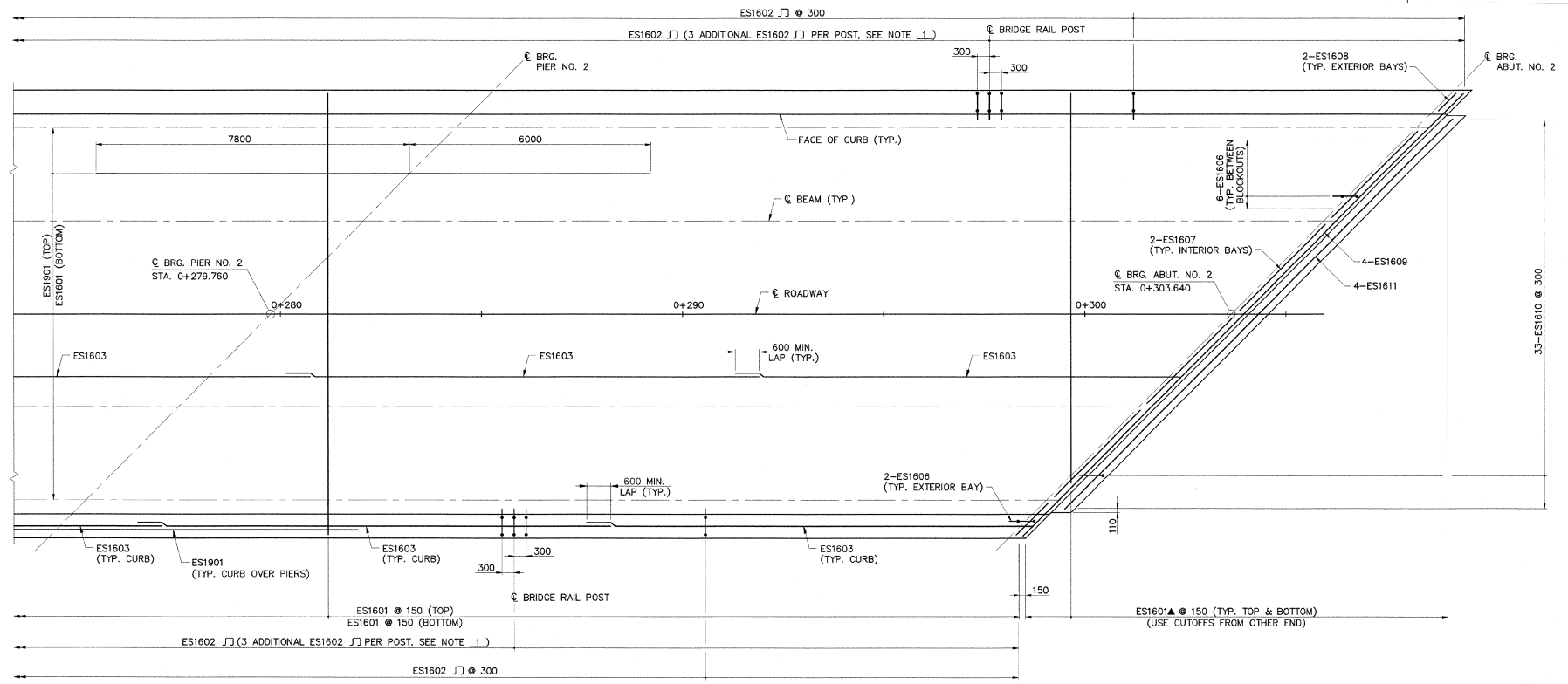
**STATE OF VERMONT  
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Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			

**DECK REINFORCEMENT (2 OF 3)**

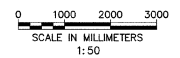
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)





PLAN  
SCALE: 1:50

- NOTES:
- SEE STANDARD SHEET BR1-97M FOR REINFORCING STEEL DETAIL AT BRIDGE RAIL POSTS.



STATE OF VERMONT  
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Town Of CONCORD Bridge No. 117  
Highway No. US 2 Log Sta.  
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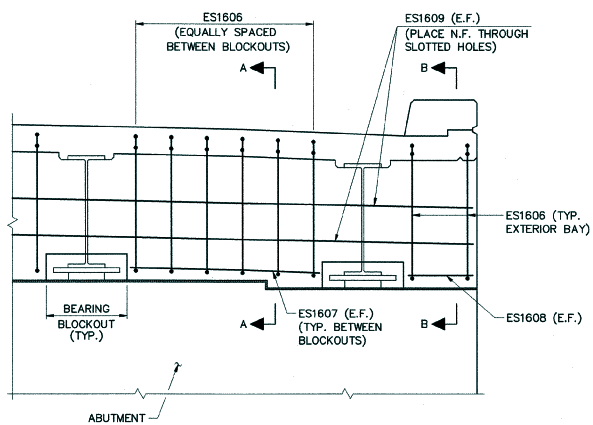
US 2 OVER MOOSE RIVER

DECK REINFORCEMENT (3 OF 3)

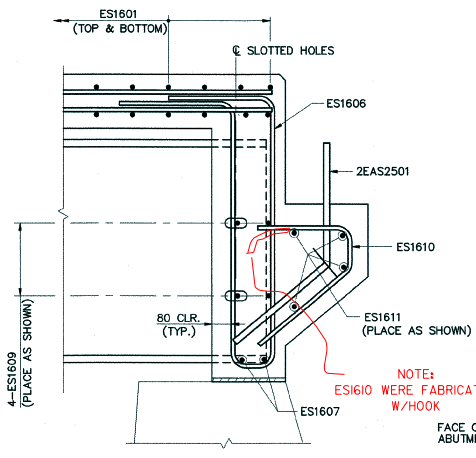
Designed By C.R. WILSON Drawn By R.F. CLARK  
Checked By M.A. COLGAN Date 9/99 Bridge Design Supervisor S.M. GUNN Date 9/99

PROJECT CONCORD PROJECT NO. BHF 028-4(22)

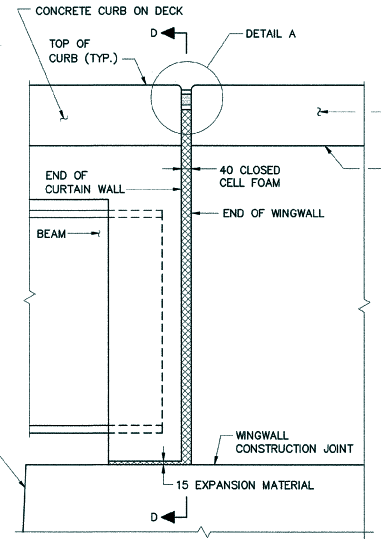
I.G.C. Info. 93b067/sb067dk4  
Bridge Sheet No. 50541DR Sheet 18 of 50



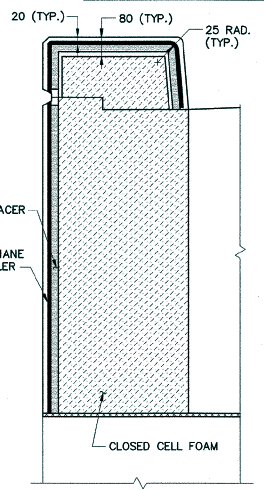
**CURTAIN WALL ELEVATION**  
(PERPENDICULAR TO CENTERLINE BEAM)  
SCALE: 1:20



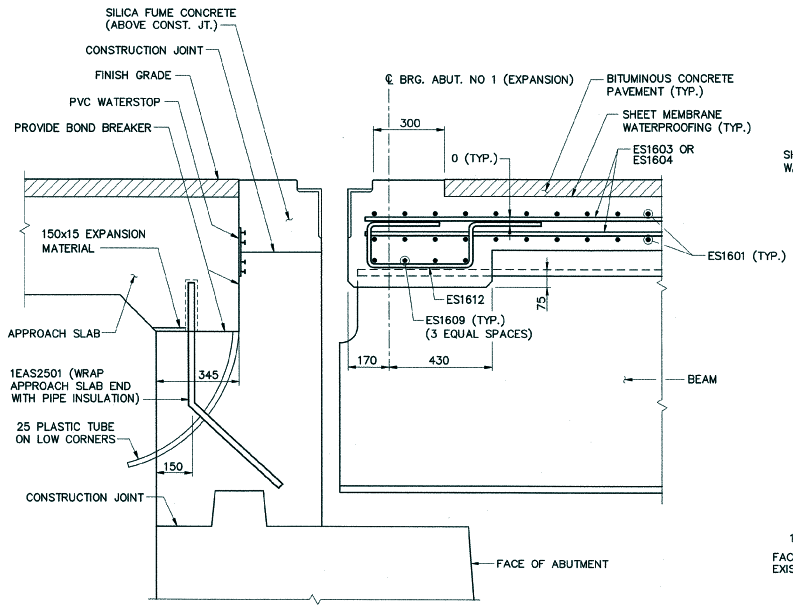
**SECTION A-A**  
(PERPENDICULAR TO CENTERLINE BEARING)  
SCALE: 1:10



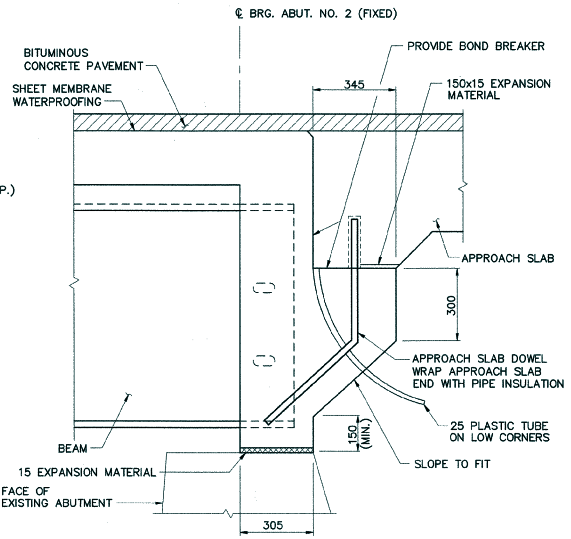
**SECTION B-B**  
SCALE: 1:10



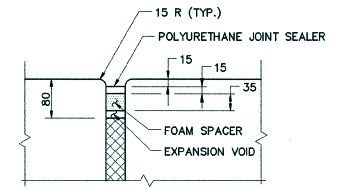
**SECTION D-D**  
SCALE: 1:10



**DECK END HAUNCH DETAIL**  
(PERPENDICULAR TO CENTERLINE BEARING)  
SCALE: 1:10



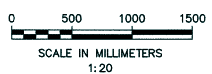
**TYPICAL CURTAIN WALL SECTION**  
(PERPENDICULAR TO CENTERLINE BEARING)  
SCALE: 1:10



- NOTES:**
- POLYURETHANE JOINT SEALER, PER SECTION 524, SHALL MATCH THE CONCRETE COLOR.
  - ALL COSTS TO BE INCLUDED IN ITEM 501.25, CONCRETE CLASS B.

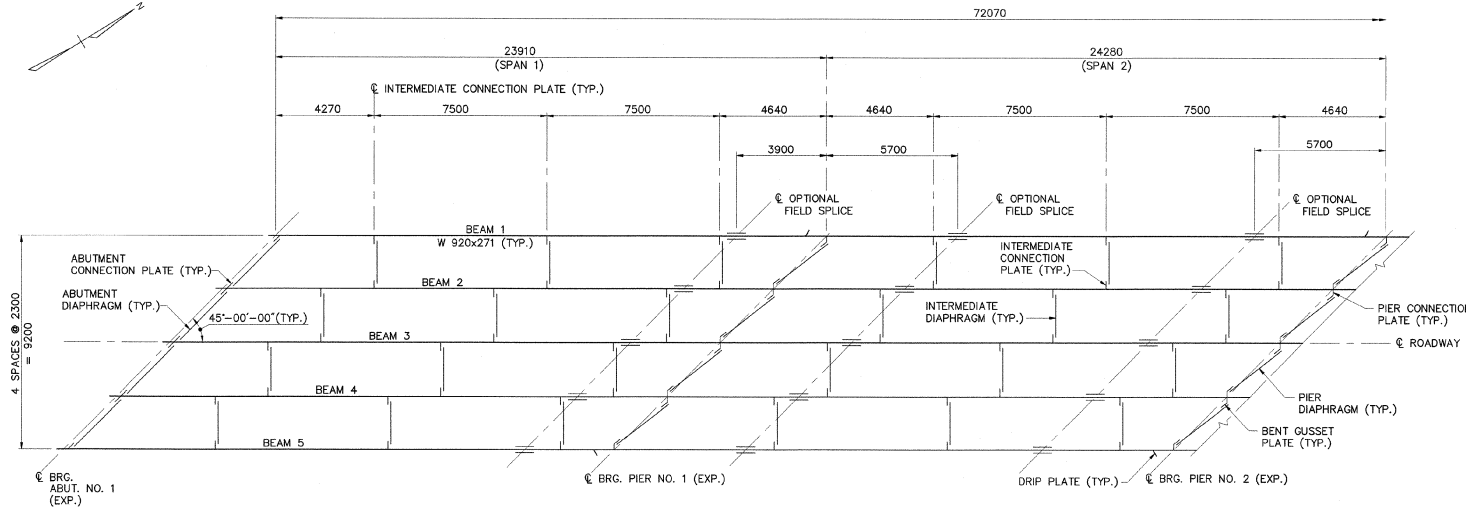
**DETAIL A**  
N.T.S.

- KEY**
- N.F. = NEAR FACE
  - F.F. = FAR FACE
  - E.F. = EACH FACE
  - ▲ = CUT TO FIT IN FIELD



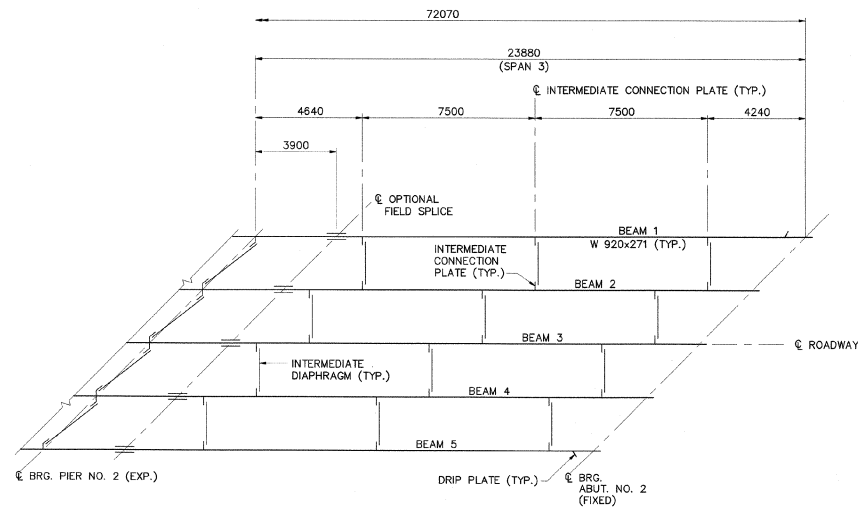
**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>CURTAIN WALL &amp; DECK END HAUNCH</b>			
Designed By	M.A. COLGAN	Drawn By	C.S. MERCER
Checked By	C.R. WILSON	Date	9/99
		Bridge Design Supervisor	S.M. GUNN Date 9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/9b067cur			
Bridge Sheet No. 50541D74		Sheet 19 of 50	



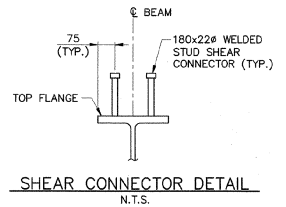
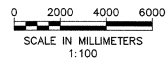
**FRAMING PLAN (SPANS 1 & 2)**

SCALE: 1:100

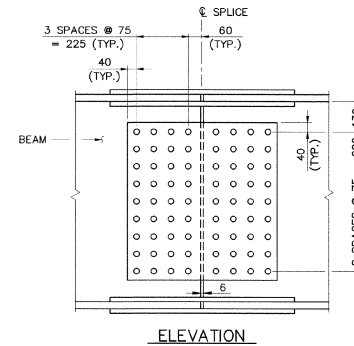


**FRAMING PLAN (SPAN 3)**

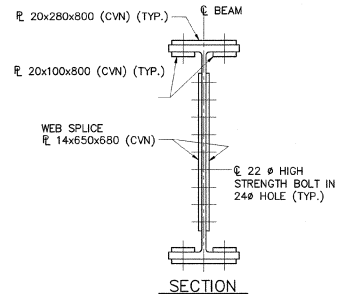
SCALE: 1:100



**SHEAR CONNECTOR DETAIL**  
N.T.S.

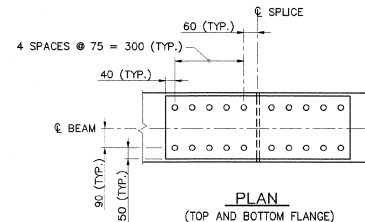


**ELEVATION**



**SECTION**

CVN = CHARY V NOTCH TESTING REQUIRED PER SPECIFICATION

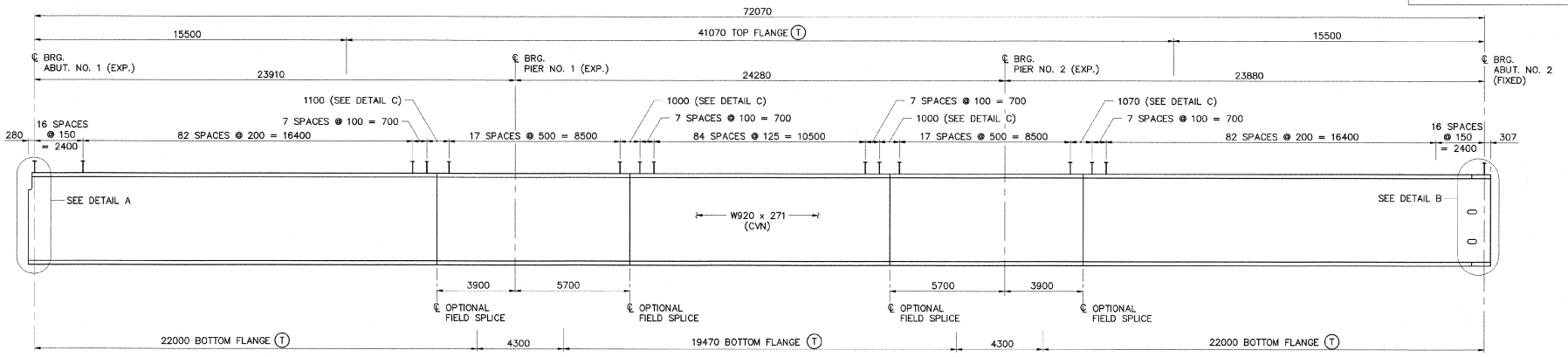


**PLAN**  
(TOP AND BOTTOM FLANGE)

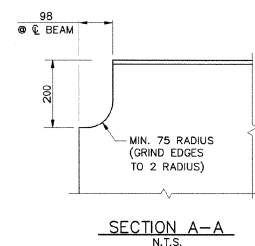
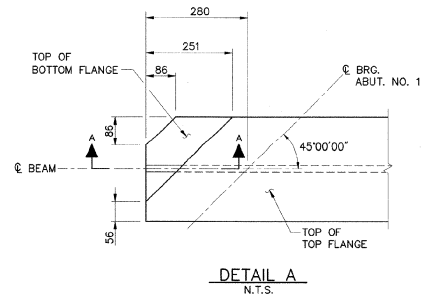
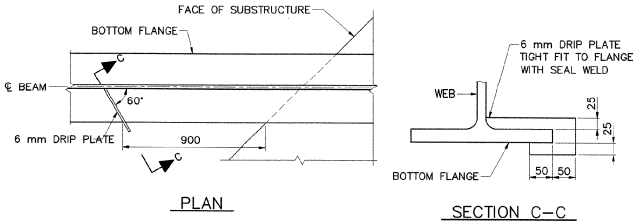
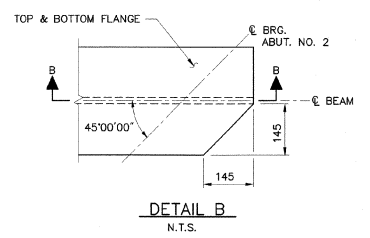
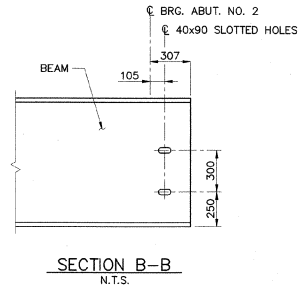
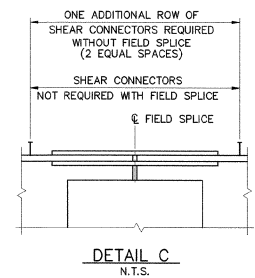
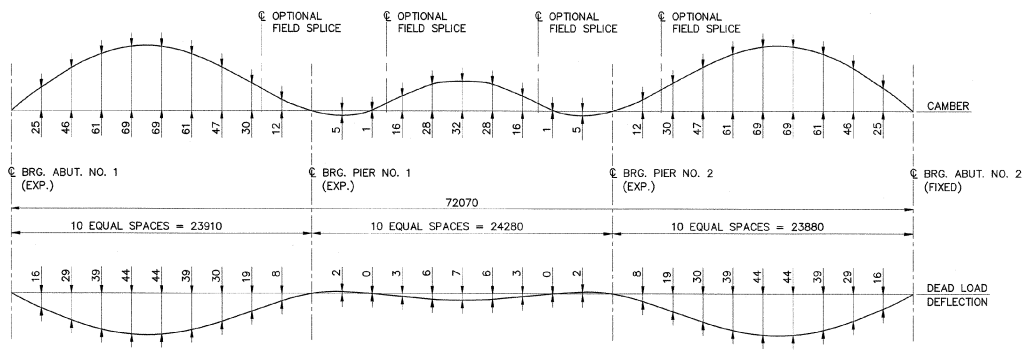
**SPLICE DETAILS**  
N.T.S.

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

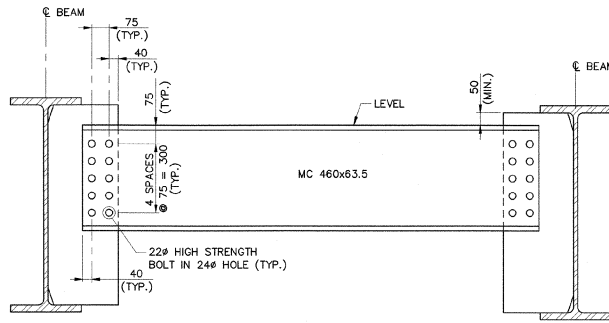
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>FRAMING PLAN</b>			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067fra		
Bridge Sheet No.	50541FRM	Sheet	20 of 50



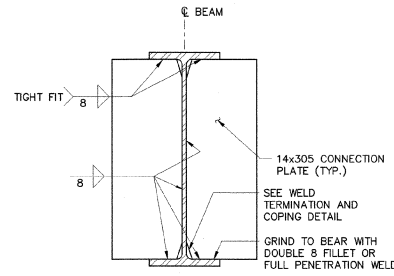
(T) = INDICATES RANGE OF TENSION ZONE  
CVN = CHARPY V NOTCH TESTING REQUIRED PER SPECIFICATION



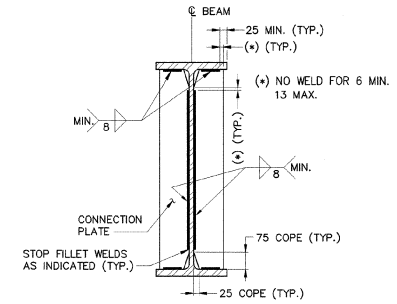
<b>STATE OF VERMONT AGENCY OF TRANSPORTATION</b>	
Town Of CONCORD	Bridge No. 117
Highway No. US 2	Log Sta. Surv. Sta.
US 2 OVER MOOSE RIVER	
<b>SUPERSTRUCTURE DETAILS (1 OF 2)</b>	
Designed By C.R. WILSON	Drawn By R.F. CLARK
Checked By M.A. COLGAN	Bridge Design Supervisor S.M. GUNN
Date 9/99	Date 9/99
PROJECT CONCORD	PROJECT NO. BHF 028-4(22)
I.G.C. Info. 93b067/sb067su1	
Bridge Sheet No. 50541DT3	Sheet 21 of 50



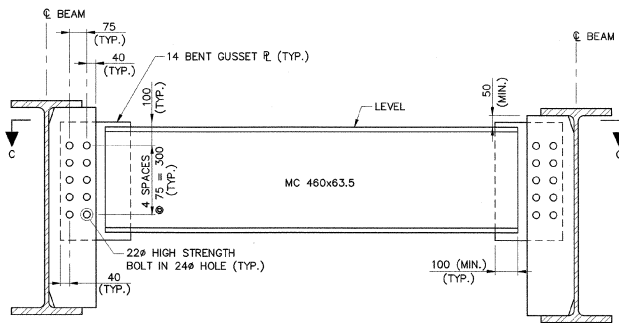
**ABUTMENT NO. 1 DIAPHRAGM**  
N.T.S.



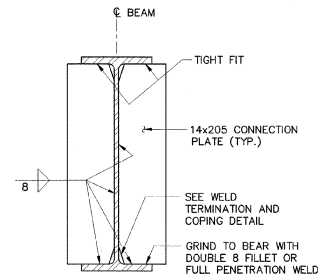
**ABUTMENT NO. 1 CONNECTION PLATE DETAIL**  
N.T.S.



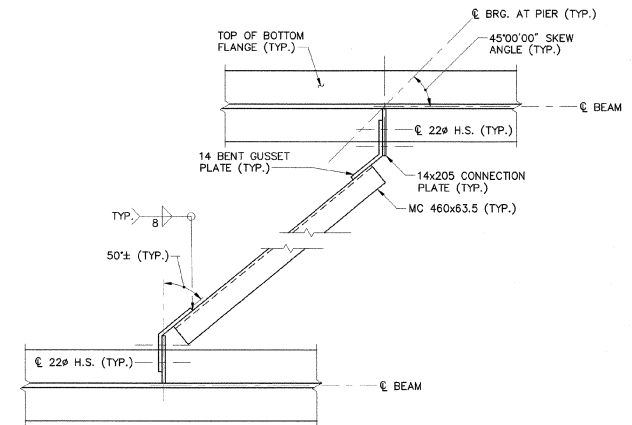
**WELD TERMINATION AND COPING DETAIL**  
N.T.S.



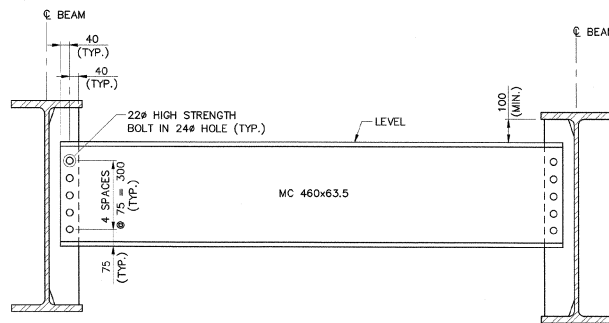
**PIER DIAPHRAGM**  
N.T.S.



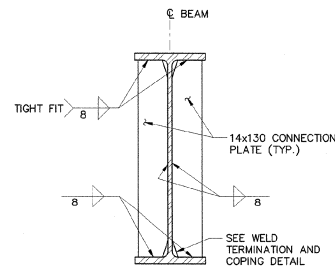
**PIER CONNECTION PLATE DETAIL**  
N.T.S.



**SECTION C-C**  
N.T.S.

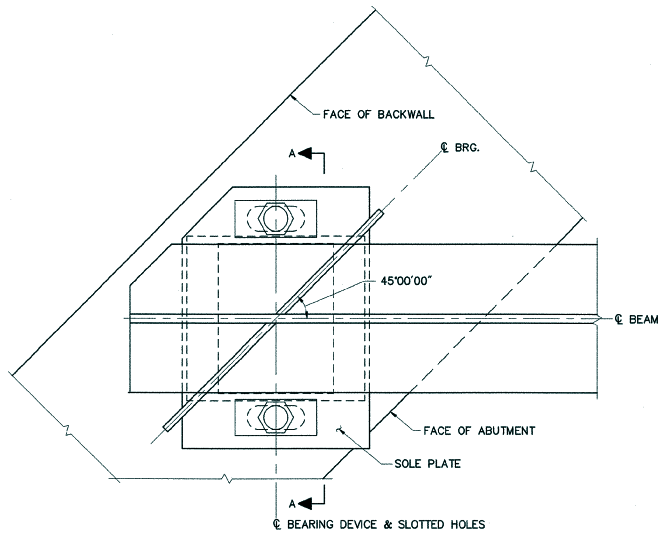


**INTERMEDIATE DIAPHRAGM**  
N.T.S.

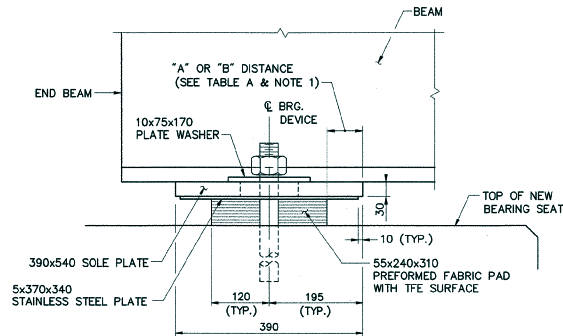


**INTERMEDIATE CONNECTION PLATE DETAIL**  
N.T.S.

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>SUPERSTRUCTURE DETAILS (2 OF 2)</b>			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Bridge Design Supervisor	S.M. GUNN
	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067 / sp067su2			
Bridge Sheet No. 50541DT2		Sheet 22 of 50	



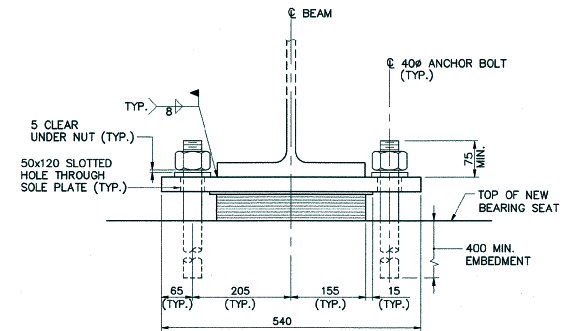
PLAN A-1



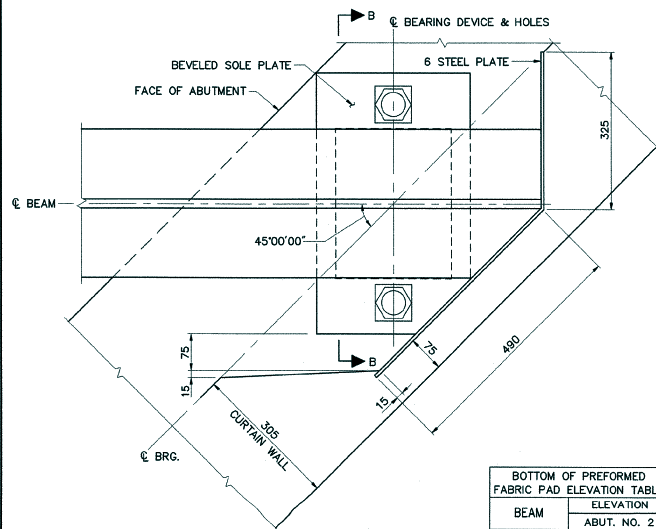
ELEVATION

EXPANSION BEARINGS (ABUT. NO. 1)

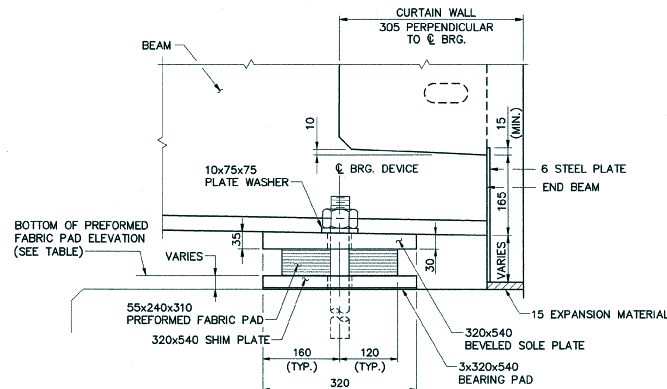
SCALE: 1:5



SECTION A-A



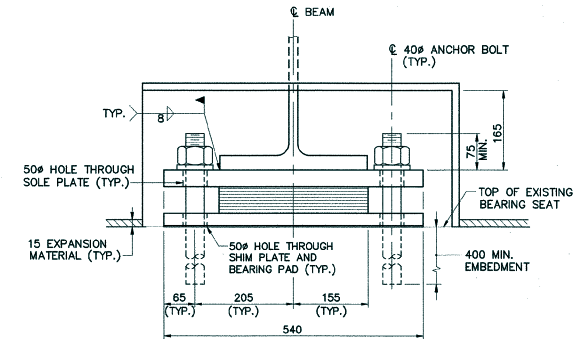
PLAN A-2



ELEVATION

FIXED BEARINGS (ABUT. NO. 2)

SCALE: 1:5



SECTION B-B

NOTES:

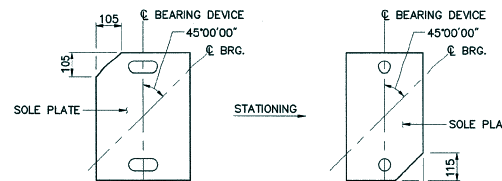
1. THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DEAD LOAD HAS BEEN APPLIED. THE "B" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE BEAM SELFWEIGHT. THE DIFFERENCE IS THE ELONGATION DUE TO DEAD LOAD DEFLECTION OF THE SLAB, BRUSH CURB, BRIDGE RAIL, AND PAVEMENT.

TEMPERATURE ADJUSTMENT TABLE A		
TEMPERATURE	ABUT. NO. 1 "A"	"B"
-18° C	96	104
-9° C	89	97
-1° C	82	90
7° C	75	83
16° C	68	76
24° C	61	69
32° C	54	62
41° C	47	55

BOTTOM OF PREFORMED FABRIC PAD ELEVATION TABLE	
BEAM	ABUT. NO. 2 ELEVATION
1	297 * 95B
2	298.047
3	298.116
4	298.093
5	298 * 050

\* SHIM PLATE NOT REQUIRED

NOTE: SHIM PLATES NOT USED



ABUT. NO. 1

ABUT. NO. 2

CLIPPING DETAILS

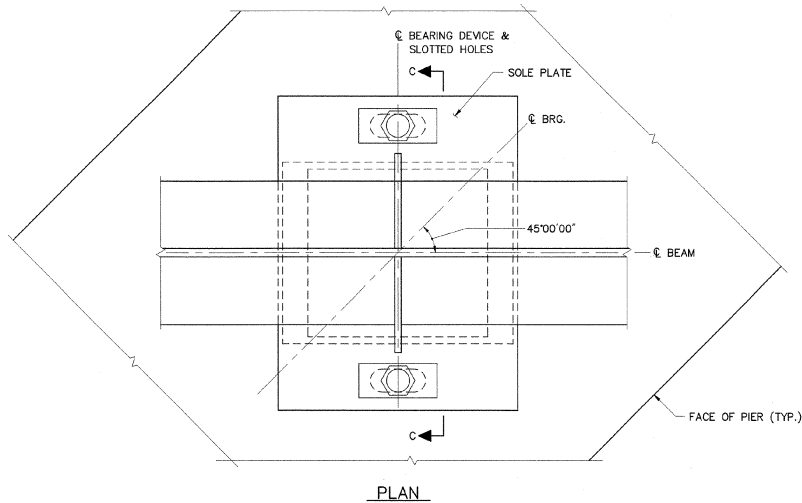
N.T.S.



VANASSE HANGEN BRUSTLIN, INC.

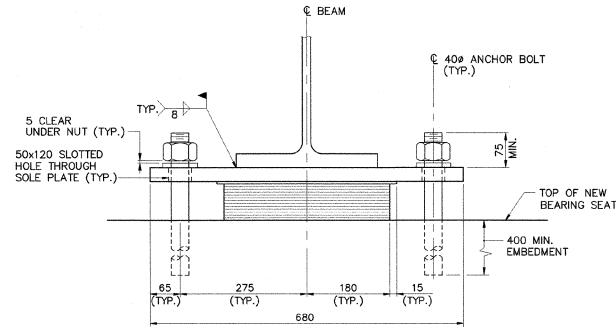
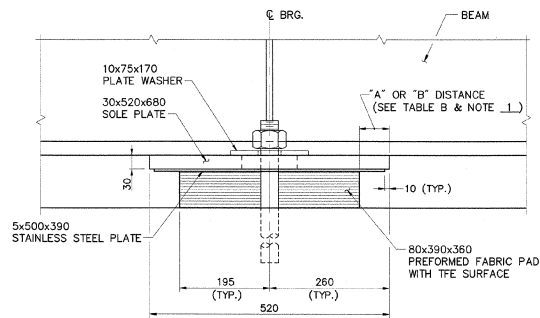
STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>ABUTMENT BEARING DETAILS</b>			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067abf		
Bridge Sheet No.	50541BRG	Sheet	23 of 50



TEMPERATURE ADJUSTMENT - TABLE B

TEMPERATURE	PIER #1		PIER #2	
	"A" OR "B"	"A" OR "B"	"A" OR "B"	"A" OR "B"
-18° C	79	72		
-9° C	74	70		
-1° C	70	67		
7° C	65	65		
16° C	60	63		
24° C	56	60		
32° C	51	58		
41° C	46	56		



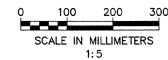
ELEVATION

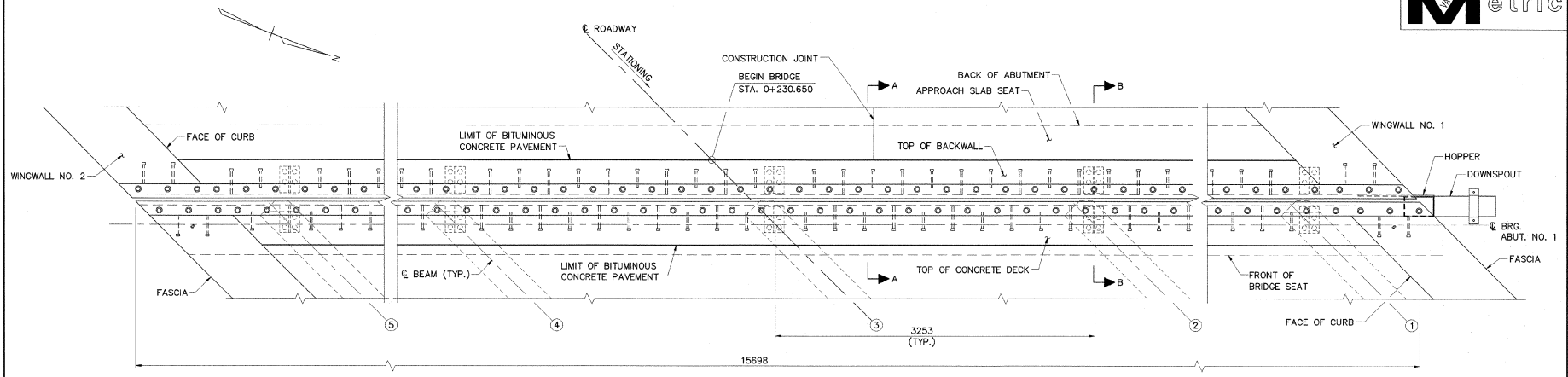
SECTION C-C

EXPANSION BEARINGS  
(PIER NO. 1 & PIER NO. 2)  
SCALE: 1:5

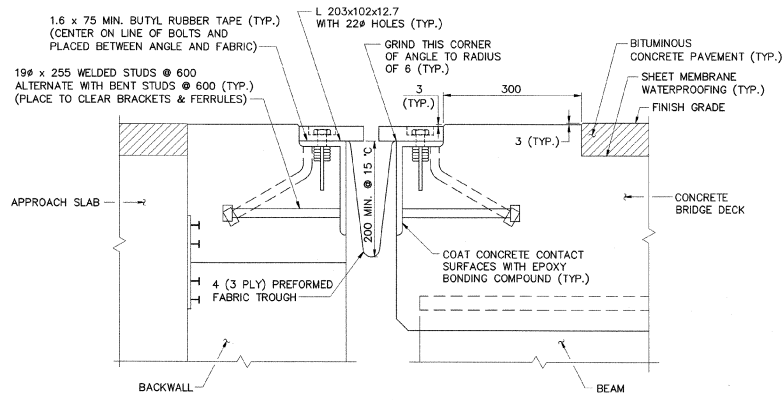
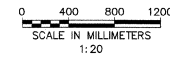
NOTE:  
1. THE "A" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DEAD LOAD HAS BEEN APPLIED. THE "B" DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE BEAM SELFWEIGHT. THE DIFFERENCE IS THE ELONGATION DUE TO DEAD LOAD DEFLECTION OF THE SLAB, BRUSH CURB, BRIDGE RAIL, AND PAVEMENT.

STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
PIER BEARING DETAILS			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Bridge Design Supervisor	S.M. GUNN
Date	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067pie	Sheet	24 of 50
Bridge Sheet No.	50541BRG		

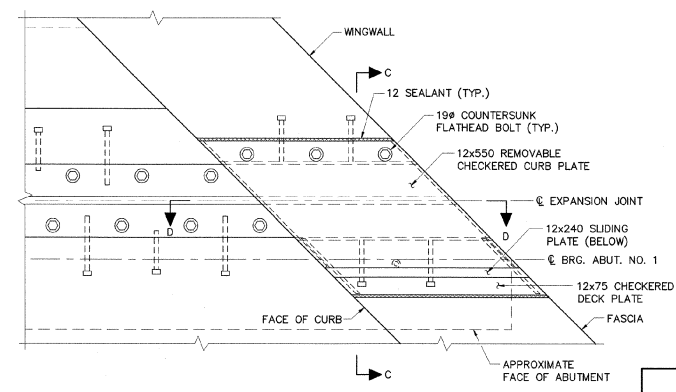
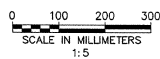




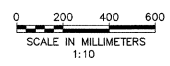
**PLAN**  
(SHOWN AT ROADWAY ELEVATION)  
(DRAIN TROUGH NOT SHOWN FOR CLARITY)  
SCALE: 1:20



**SECTION A-A**  
(REINFORCING STEEL NOT SHOWN)  
SCALE: 1:5

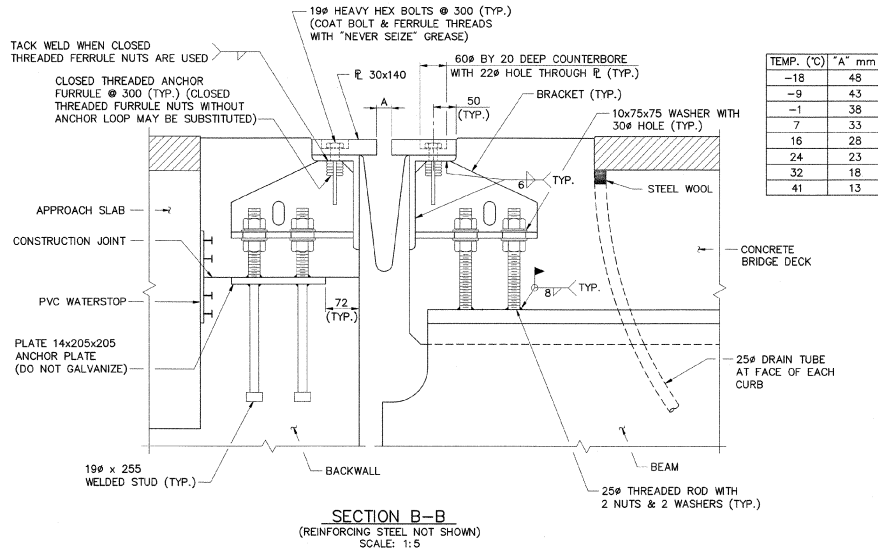


**TYPICAL CURB PLAN**  
(SHOWN AT TOP OF CURB ELEVATION)  
(DRAIN TROUGH AND DOWNSPOUT NOT SHOWN FOR CLARITY)  
SCALE: 1:10

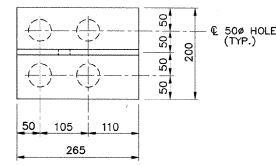
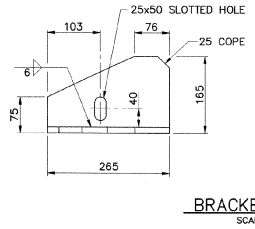
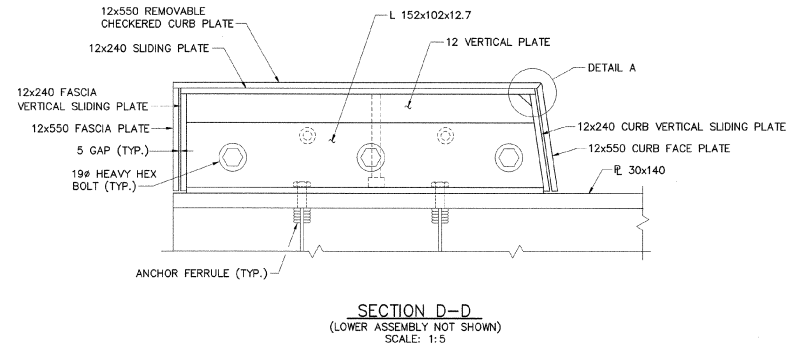
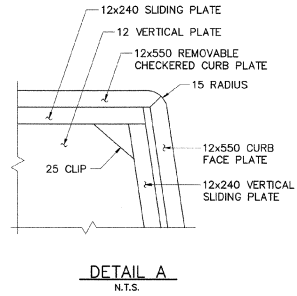
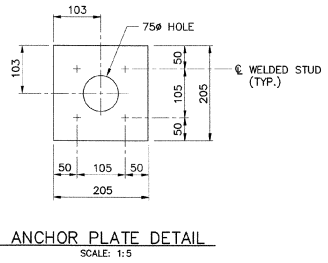
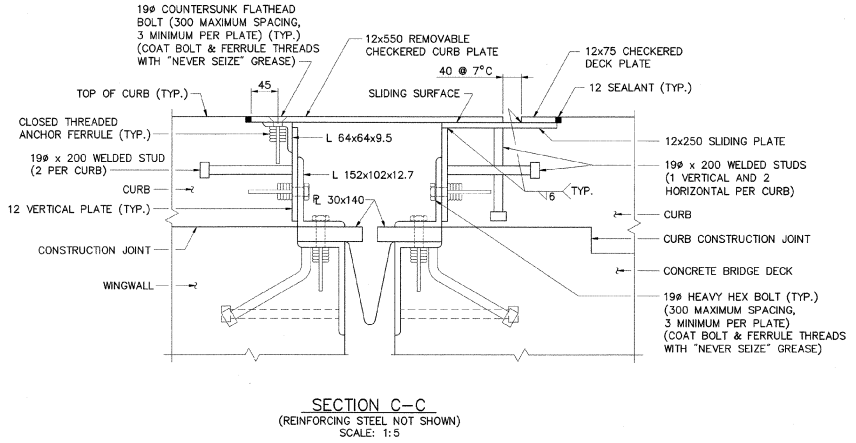


**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

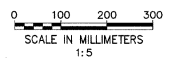
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>EXPANSION JOINT (1 OF 2)</b>			
Designed By	M.A. COLGAN	Drawn By	B.J. MASSE
Checked By	Date	Bridge Design Supervisor	
S.M. SAREAULT	9/99	S.M. GUNN	Date 9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)



TEMP. (°C)	"A" mm
-18	48
-9	43
-1	38
7	33
16	28
24	23
32	18
41	13

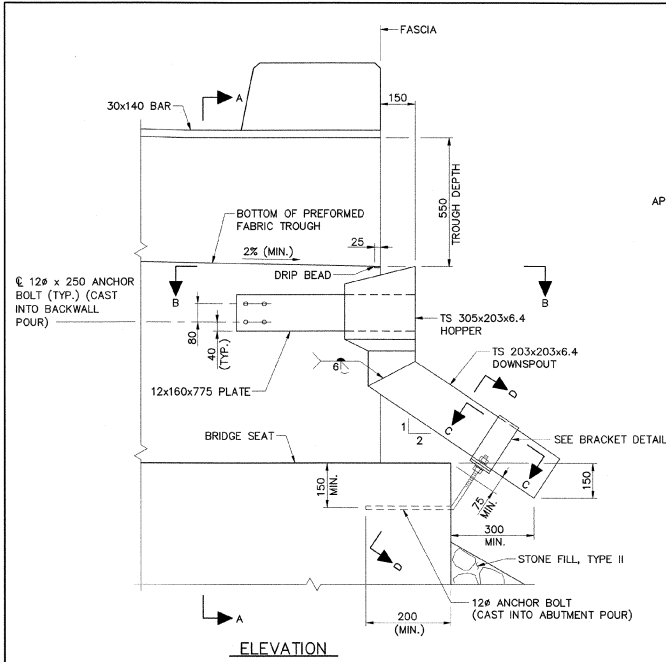


ANCHOR FERRULE DETAIL  
SCALE: 1:5

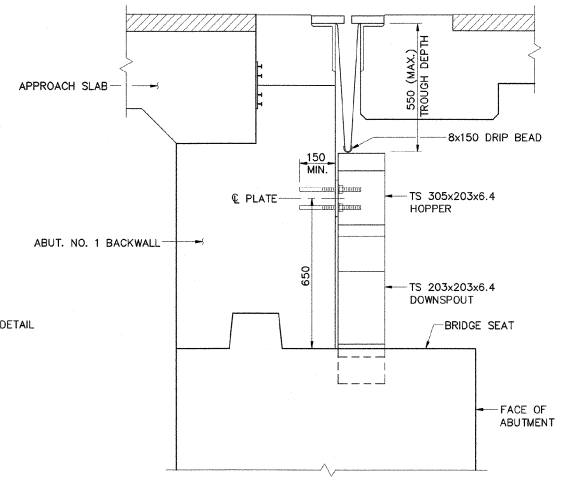


STATE OF VERMONT  
AGENCY OF TRANSPORTATION

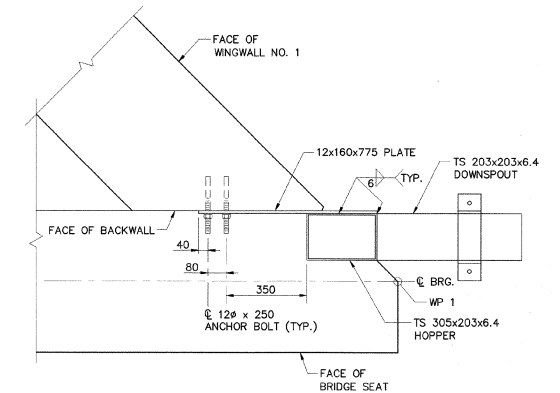
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
EXPANSION JOINT (2 OF 2)			
Designed By	M.A. COLGAN	Drawn By	B.J. MASSE
Checked By	S.M. SAREAULT	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sb067ej2			
Bridge Sheet No. 50541JA		Sheet 26 of 50	



ELEVATION

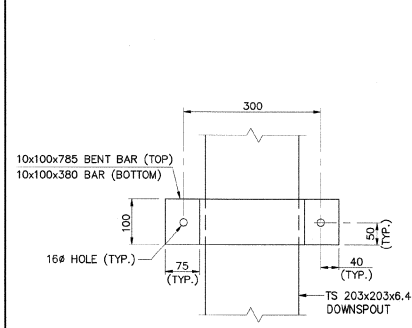


SECTION A-A

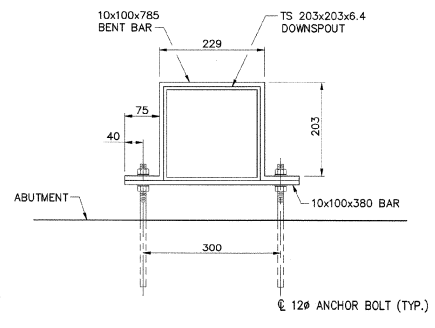


SECTION B-B

DOWNSPOUT DETAIL  
SCALE: 1:10

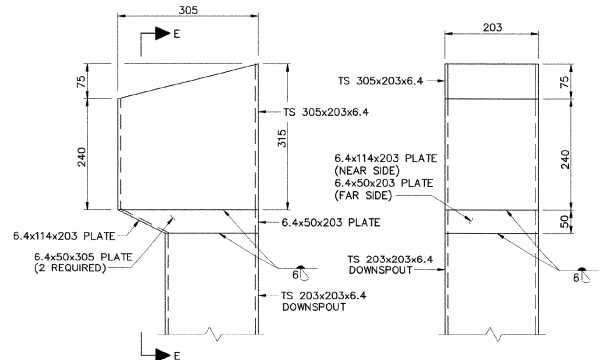


SECTION C-C



SECTION D-D

BRACKET DETAIL  
SCALE: 1:5

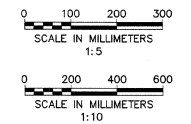


ELEVATION

SECTION E-E

HOPPER DETAILS  
SCALE: 1:5

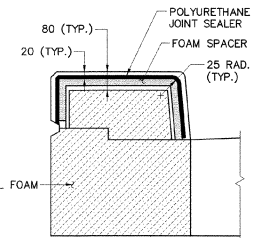
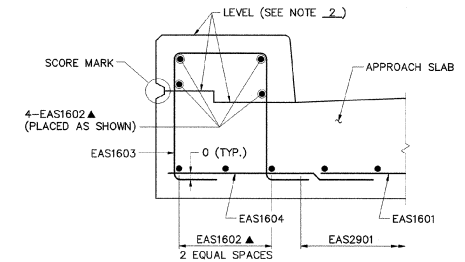
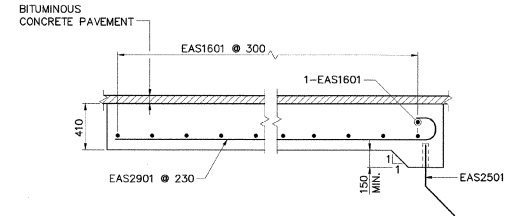
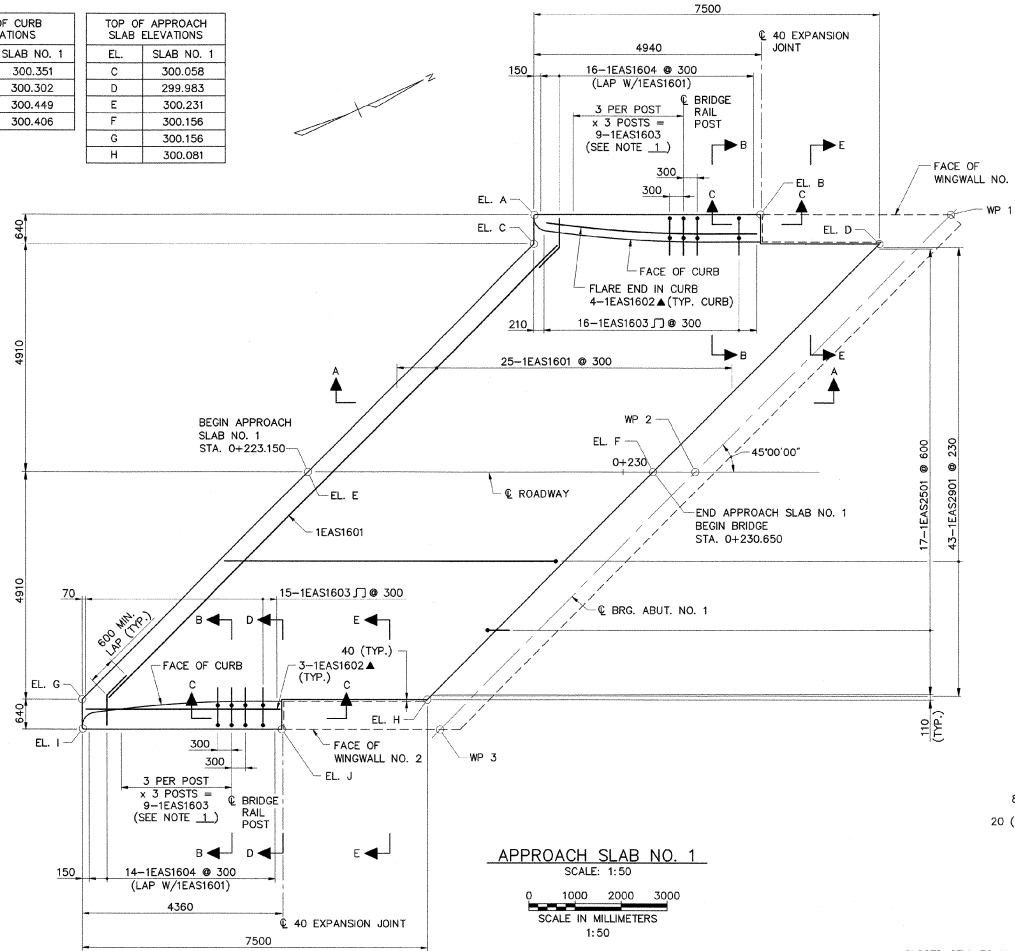
NOTE:  
1. SEE SHEET 14 FOR DOWNSPOUT NOTES.



STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
DOWNSPOUT DETAILS			
Designed By	M.A. COLGAN	Drawn By	C.N. CATE
Checked By	S.M. SAREAULT	Date	9/99
		Bridge Design Supervisor	
		S.M. GUNN	Date 9/99
PROJECT	CONCORD	PROJECT NO.	BHF-028-4(22)

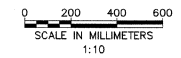
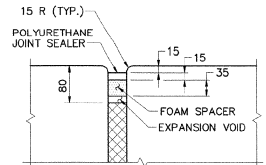
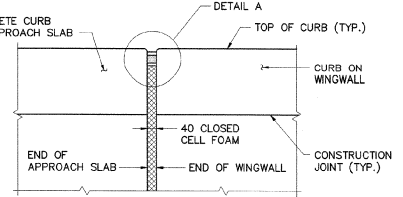
TOP OF CURB ELEVATIONS		TOP OF APPROACH SLAB ELEVATIONS	
EL.	SLAB NO. 1	EL.	SLAB NO. 1
A	300.351	C	300.058
B	300.302	D	299.983
I	300.449	E	300.231
J	300.406	F	300.156
		G	300.156
		H	300.081



- NOTE:**
- BRIDGE RAIL NOT SHOWN FOR CLARITY. SEE STANDARD SHEET BR1-97M FOR REINFORCING STEEL DETAIL AT BRIDGE RAIL POSTS.
  - SEE SHEET 15 FOR TYPICAL CURB DETAIL.

**KEY**  
N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE  
▲ = CUT TO FIT IN FIELD

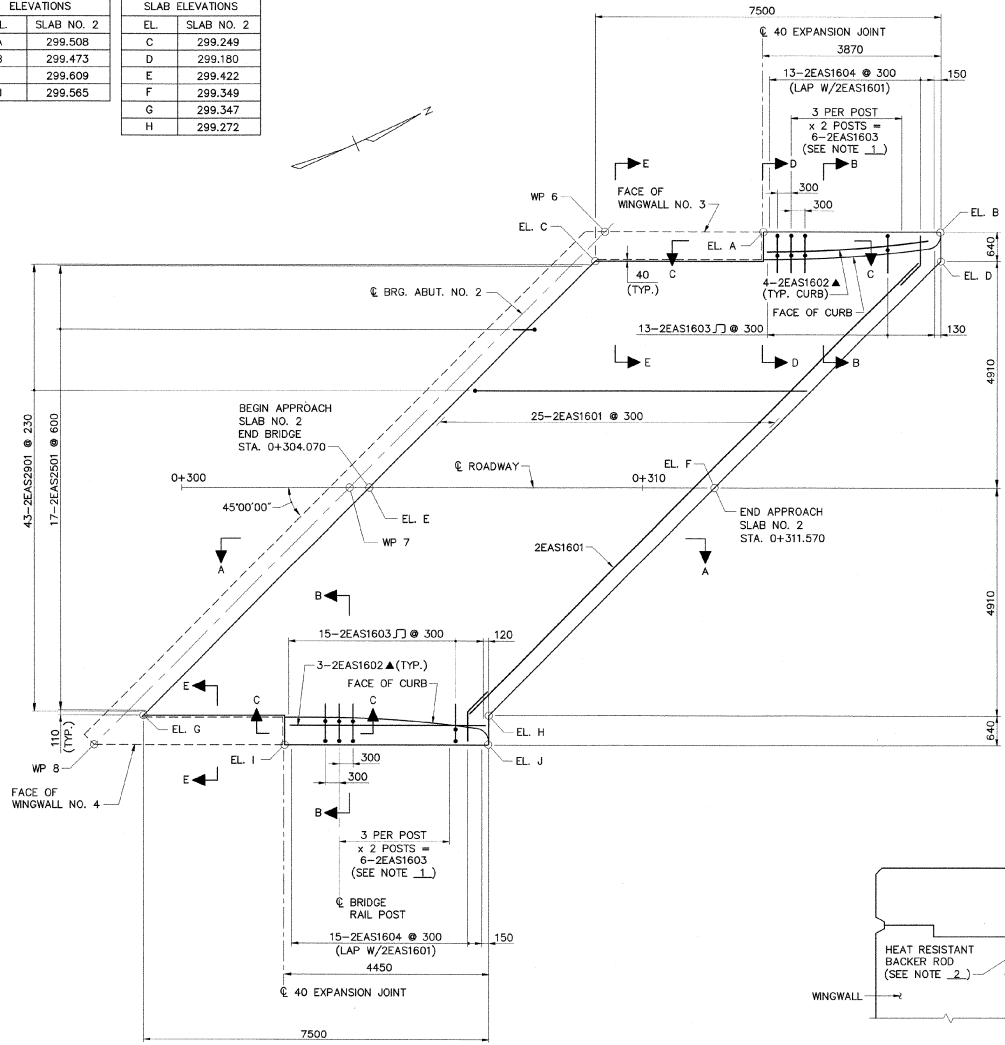
- EXPANSION JOINT NOTES:**
- LONGITUDINAL REINFORCING SHALL NOT PASS THROUGH EXPANSION JOINTS.
  - POLYURETHANE JOINT SEALER, PER SECTION 524, SHALL MATCH THE CONCRETE COLOR.
  - ALL COST TO BE INCLUDED IN ITEM 501.25, CONCRETE CLASS B.



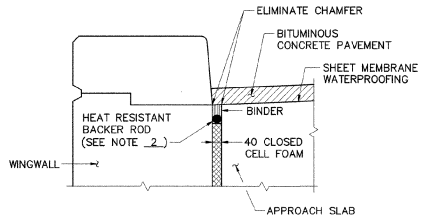
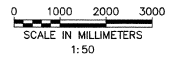
**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>APPROACH SLABS (1 OF 2)</b>			
Designed By	M.A. COLGAN	Drawn By	R.F. CLARK
Checked By	C.R. WILSON	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sb067as1		Bridge Sheet No. 50541AS1	
		Sheet 28 of 50	

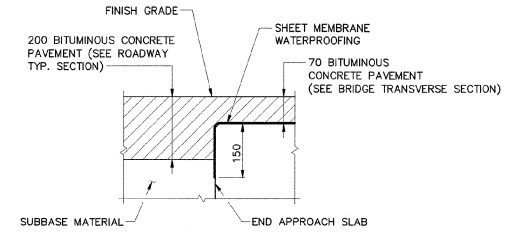
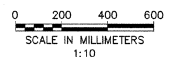
TOP OF CURB ELEVATIONS		TOP OF APPROACH SLAB ELEVATIONS	
EL.	SLAB NO. 2	EL.	SLAB NO. 2
A	299.508	C	299.249
B	299.473	D	299.180
I	299.609	E	299.422
J	299.565	F	299.349
		G	299.347
		H	299.272



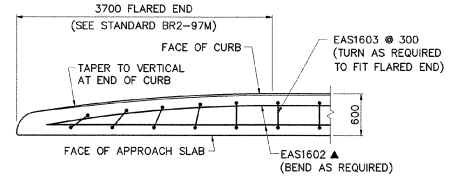
**APPROACH SLAB NO. 2**  
SCALE: 1:50



**SECTION E-E**  
SCALE: 1:10



**DETAIL FOR SHEET MEMBRANE AT APPROACH SLAB ENDS**  
N.T.S.



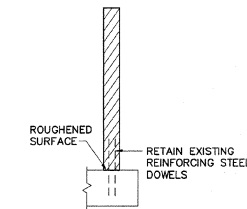
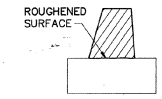
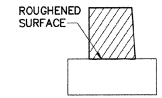
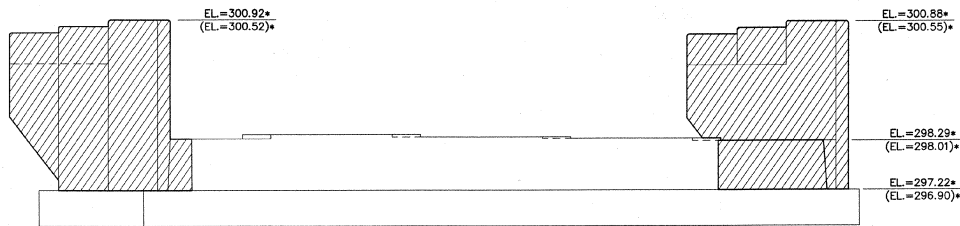
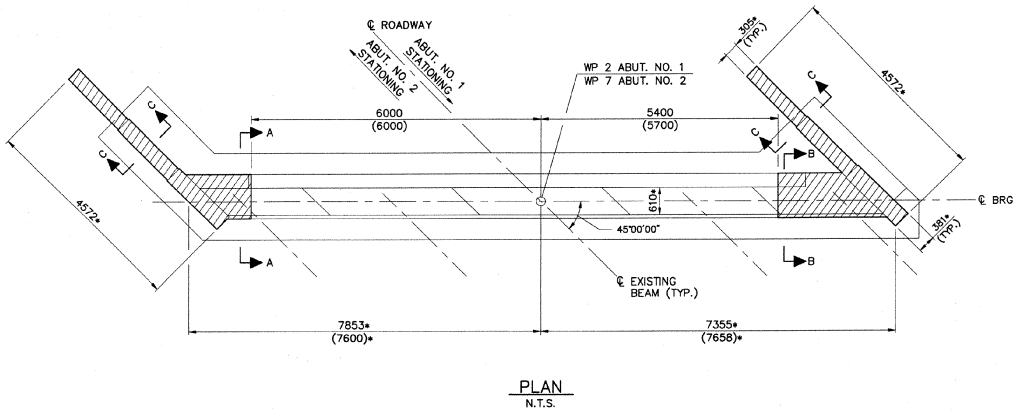
**TYPICAL CURB FLARED END DETAIL**  
N.T.S.

- KEY**
- N.F. = NEAR FACE
  - F.F. = FAR FACE
  - E.F. = EACH FACE
  - ▲ = CUT TO FIT IN FIELD

- NOTES:**
- SEE STANDARD SHEET BR1-97M FOR REINFORCING STEEL DETAIL AT BRIDGE RAIL POSTS.
  - HEAT RESISTANT BACKER ROD SHALL BE AS PER SUBSECTION 707.04(c). ALL COSTS FOR MATERIALS AND LABOR TO SEAL JOINT SHALL BE INCLUDED IN ITEM 501.25, CONCRETE, CLASS B.

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>APPROACH SLABS (2 OF 2)</b>			
Designed By	M.A. COLGAN	Drawn By	R.F. CLARK
Checked By	Date	Bridge Design Supervisor	Date
C.R. WILSON	9/99	S.M. GUNN	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)



**REMOVAL NOTES:**

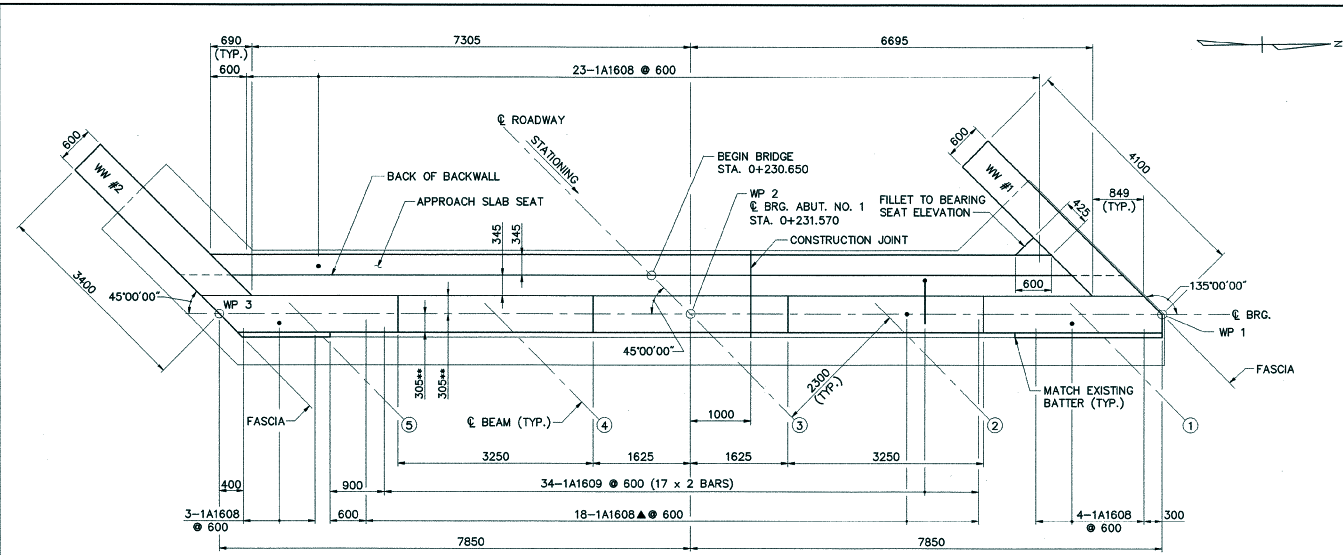
1. REMOVAL OF EXISTING BRIDGE PAVEMENT SHALL BE PAID AS ITEM 529.10, REMOVAL OF BRIDGE PAVEMENT.
2. ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE SHALL INCLUDE:
  - a. REMOVAL OF THE EXISTING BRIDGE RAILING, CONCRETE BRUSH CURBS, CONCRETE BRIDGE DECK, CURTAIN WALLS AND APPROACH SLABS.
  - b. REMOVAL OF THE EXISTING CONCRETE BARRIER. THE EXISTING CONCRETE BARRIER SHALL REMAIN THE PROPERTY OF THE STATE. THE CONTRACTOR SHALL REMOVE AND STOCKPILE THE EXISTING CONCRETE BARRIER AS DIRECTED BY THE ENGINEER.
  - c. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE BEAMS FROM THE BRIDGE AND LOADING THEM ON TRUCKS SUPPLIED BY OTHERS. NO OTHER WORK IS NECESSARY.
  - d. REMOVAL OF ALL THE BEARING DEVICES.
  - e. REMOVAL OF PORTIONS OF THE EXISTING ABUTMENTS, WINGWALLS, AND PIERS AS SHOWN ON THE PLANS AND DIRECTED BY THE ENGINEER.
  - f. ERECTION, MAINTENANCE, AND REMOVAL OF TEMPORARY STRUCTURES TO PREVENT DEBRIS FROM FALLING INTO THE MOOSE RIVER.
3. THE CONTRACTOR'S METHODS FOR PARTIAL REMOVAL OF THE EXISTING STRUCTURES SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY REMOVAL WORK.
4. LIMITS OF REMOVAL ARE APPROXIMATE. THE ENGINEER SHALL ESTABLISH ACTUAL LIMITS AFTER A COOPERATIVE INSPECTION BY THE CONTRACTOR AND THE ENGINEER. EXISTING ELEVATIONS SHALL BE FIELD VERIFIED TO ENSURE THE REMOVAL LIMITS ARE ADEQUATE TO OBTAIN THE REQUIRED DIMENSIONS AND ELEVATIONS OF THE NEW CONSTRUCTION.
5. SAWCUTS SHALL BE 25 MILLIMETERS DEEP ALONG ALL EXPOSED REMOVAL LINES WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE. ALL COSTS SHALL BE INCLUDED IN ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE.
6. EXISTING REINFORCING STEEL EXPOSED DURING REMOVAL OPERATIONS, WITHIN THE LIMITS OF THE NEW MASONRY, SHALL BE RETAINED AND INCORPORATED INTO THE NEW MASONRY. EXISTING REINFORCING STEEL TO BE RETAINED SHALL BE CLEANED OF ALL CONCRETE, DIRT, SCALE, PAINT, OIL, AND OTHER FOREIGN SUBSTANCES. ALL COSTS SHALL BE INCLUDED IN ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE.
7. EXISTING REINFORCING STEEL THAT WILL NOT BE INCORPORATED INTO THE NEW MASONRY SHALL BE REMOVED A MINIMUM OF 25 MILLIMETERS BEYOND THE MASONRY SURFACE. CAVITIES PRODUCED BY REMOVAL SHALL BE REPAIRED IN ACCORDANCE WITH REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I. ALL COSTS SHALL BE INCLUDED IN ITEM 529.20, PARTIAL REMOVAL OF STRUCTURE.
8. EXISTING ANCHOR BOLTS SHALL BE PARTIALLY REMOVED OR INCORPORATED INTO THE NEW WORK AS DIRECTED BY THE ENGINEER. PARTIAL REMOVAL DETAILS FOR OR INCORPORATION INTO THE NEW WORK SHALL BE SIMILAR AS REQUIRED FOR REINFORCING STEEL.
9. SEE SHEET 35 FOR CONCRETE REPAIR DETAILS AND NOTES.

**NOTE:**

1. ABUTMENT NO. 1 IS SHOWN. ABUTMENT NO. 2 ELEVATIONS AND DIMENSIONS ARE SHOWN IN PARENTHESES.

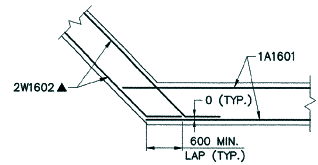
**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of CONCORD	Bridge No. 117
Highway No. US 2	Log Sta. Surv. Sta.
US 2 OVER MOOSE RIVER	
<b>ABUTMENT REMOVAL AND REPAIR</b>	
Designed By C.R. WILSON	Drawn By B.J. MASSE
Checked By M.A. COLGAN	Bridge Design Supervisor S.M. GUNN
Date 9/99	Date 9/99
PROJECT CONCORD	PROJECT NO. BHF 028-4(22)
I.G.C. Info. 93b067/sb067abr	
Bridge Sheet No. 50541AR	Sheet 30 of 50

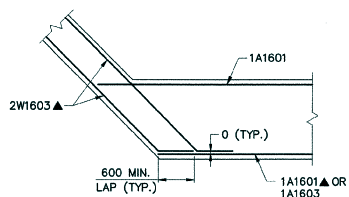


**ABUTMENT NO. 1 PLAN**  
SCALE: 1:40

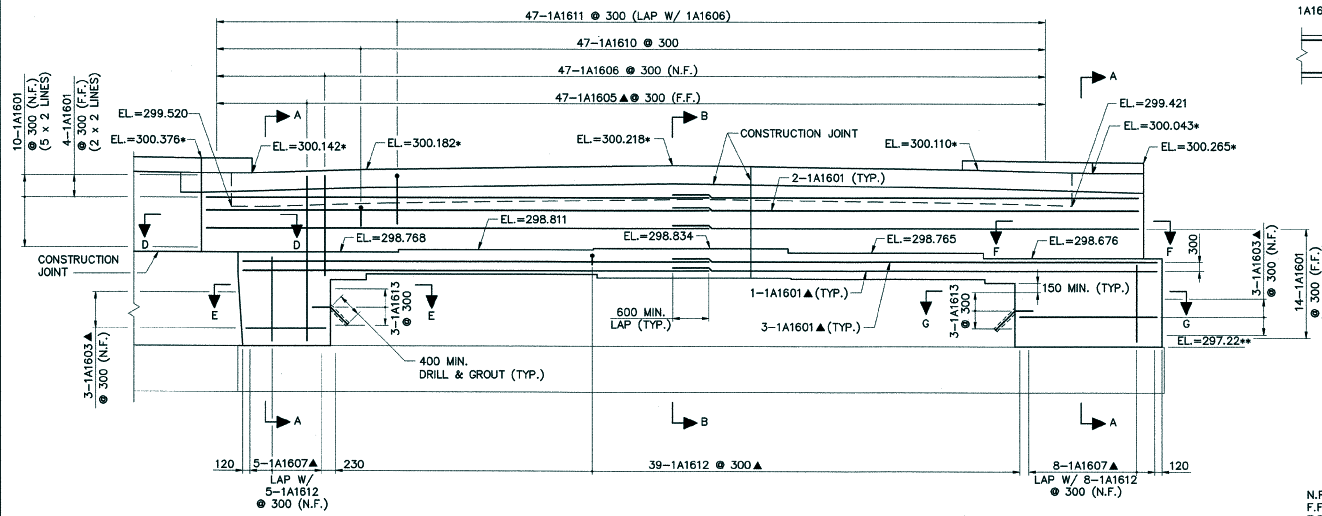
\* ELEVATIONS ARE AT FACE OF BACKWALL  
\*\* APPROXIMATE EXISTING ELEVATION OR DIMENSION



**SECTION D-D**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
SCALE: 1:40

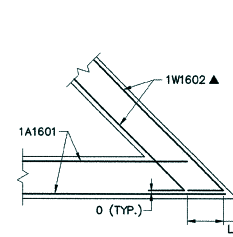


**SECTION E-E**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
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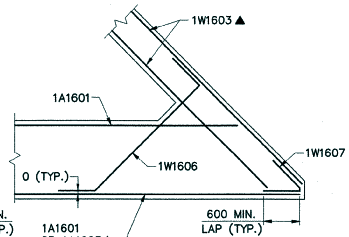


**ABUTMENT NO. 1 ELEVATION**  
SCALE: 1:40

NOTE: ABUTMENT ELEVATION FIGURES AS PER PLAN



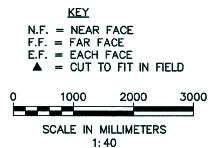
**SECTION F-F**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
SCALE: 1:40



**SECTION G-G**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
SCALE: 1:40

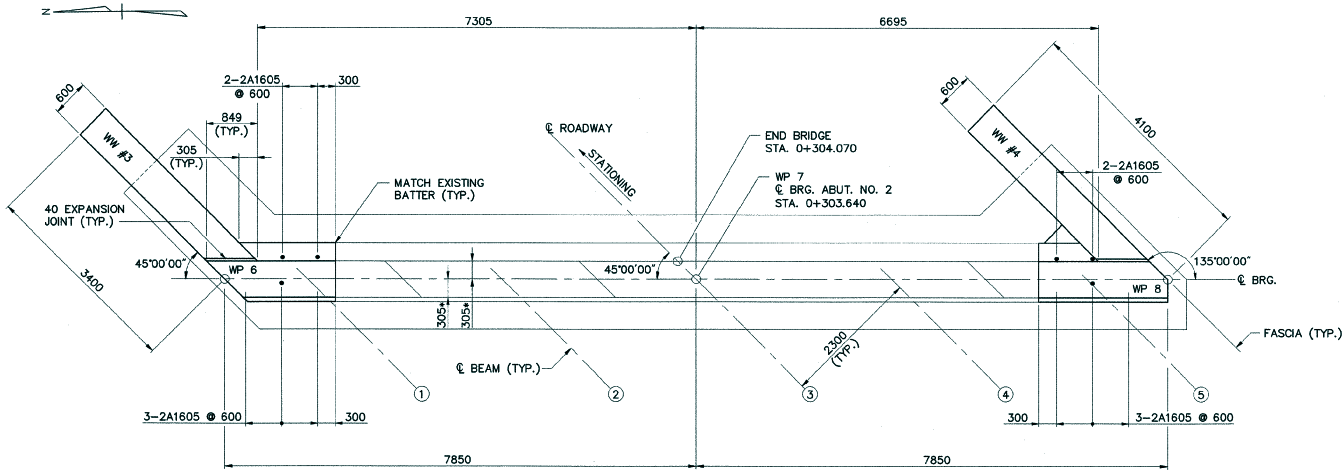
**NOTES:**

- ELEVATIONS SHOWN AT TOP OF BACKWALL ARE 3 MILLIMETERS BELOW FINISH GRADE.

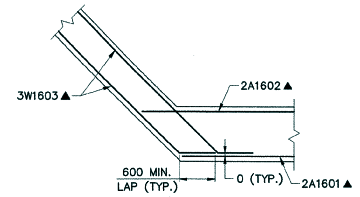


**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

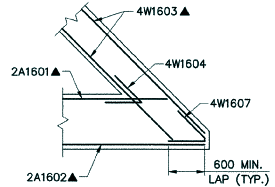
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>ABUTMENT NO. 1</b>			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sb067ab1			
Bridge Sheet No.	50541AB1	Sheet	31 of 50



**ABUTMENT NO. 2 PLAN**  
SCALE: 1:40



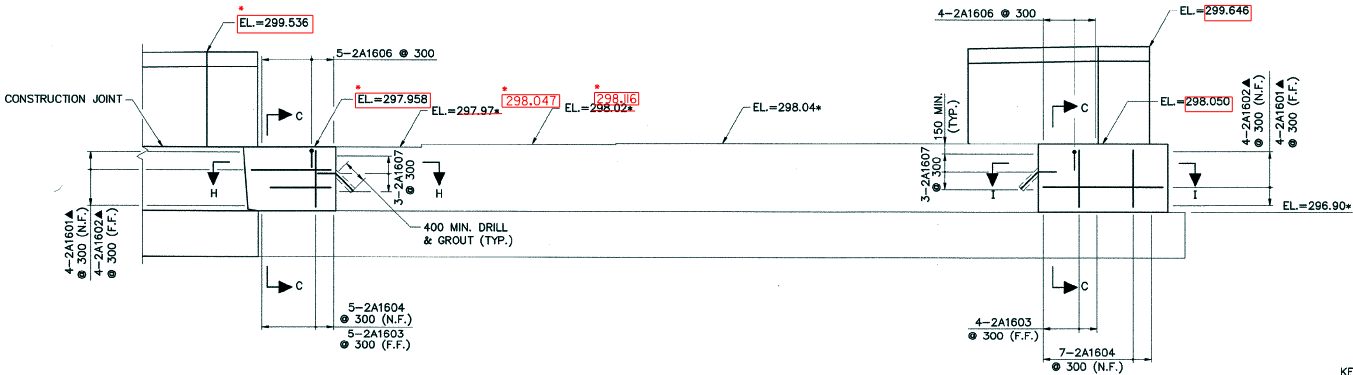
**SECTION H-H**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
SCALE: 1:40



**SECTION I-I**  
(VERTICAL REINFORCEMENT NOT SHOWN FOR CLARITY)  
SCALE: 1:40

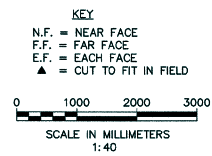
\* APPROXIMATE EXISTING ELEVATION OR DIMENSION

\* = NOTE: \*AS BUILT ELEVATION

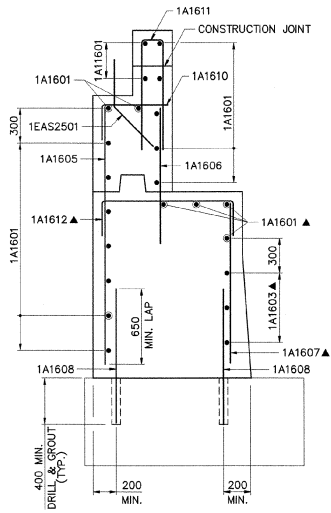


**ABUTMENT NO. 2 ELEVATION**  
SCALE: 1:40

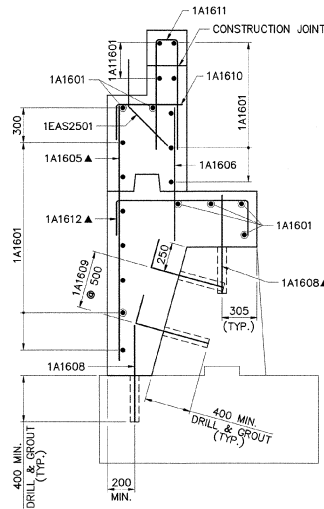
**NOTE:**  
EXISTING ABUTEMENT CONCRETE REMOVED 150<sup>2</sup> MM DOWELS AND RE-BAR CLEANED AND POURED TO NOTED ELEVATIONS.



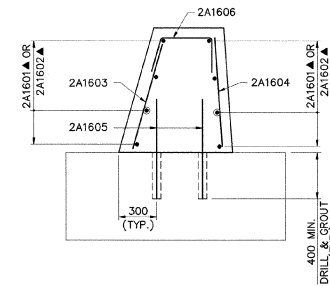
STATE OF VERMONT AGENCY OF TRANSPORTATION		
Town Of	CONCORD	Bridge No. 117
		Log Sta.
Highway No.	US 2	Surv. Sta.
US 2 OVER MOOSE RIVER		
<b>ABUTMENT NO. 2</b>		
Designed By	C.R. WILSON	Drawn By B.J. MASSE
Checked By	M.A. COLGAN	Bridge Design Supervisor S.M. GUNN
	Date 9/99	Date 9/99
PROJECT	CONCORD	PROJECT NO. BHF 028-4(22)
I.G.C. Info. 93b067/sb067ab2		
Bridge Sheet No. 50541AB2		Sheet 32 of 50



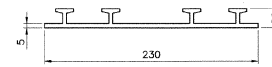
**SECTION A-A**  
SCALE: 1:20



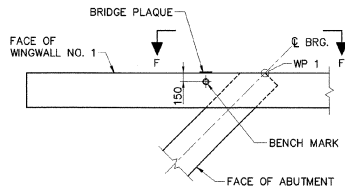
**SECTION B-B**  
SCALE: 1:20



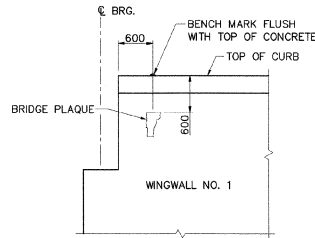
**SECTION C-C**  
SCALE: 1:20



**P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS**  
N.T.S.



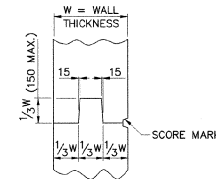
**PLAN**



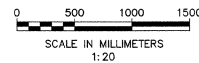
**VIEW F-F**

**BENCH MARK AND BRIDGE PLAQUE LOCATION**  
N.T.S.

THE BENCH MARK AND BRIDGE PLAQUE SHALL BE INSTALLED BY THE CONTRACTOR AT WINGWALL NO. 1 AS SHOWN OR AS DIRECTED BY THE ENGINEER.

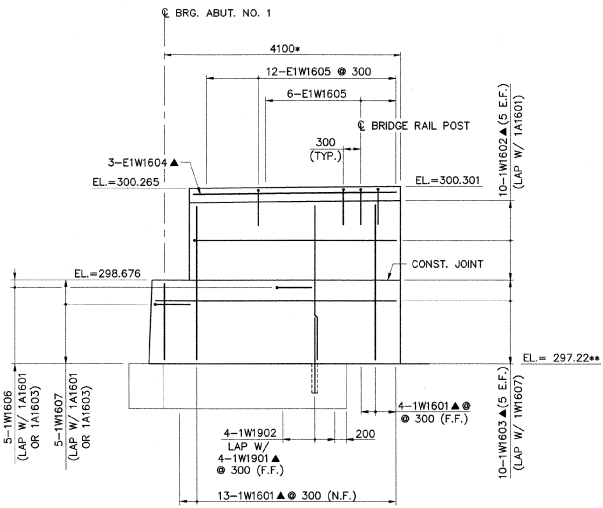


**TYPICAL CONCRETE CONSTRUCTION JOINT**  
N.T.S.

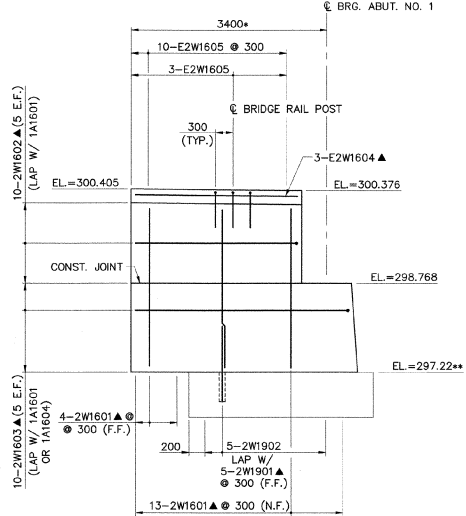


**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

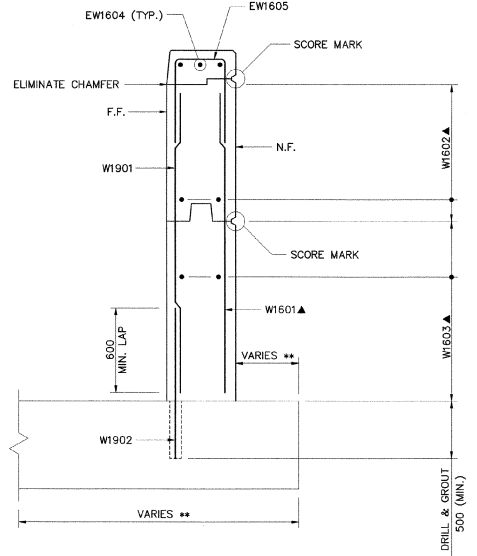
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>SUBSTRUCTURE DETAILS</b>			
Designed By	C.R. WILSON	Drawn By	B.J. MASSE
Checked By	Date	Bridge Design Supervisor	
M.A. COLGAN	9/99	S.M. GUNN	Date 9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067sub		
Bridge Sheet No.	50541SD1	Sheet	33 of 50



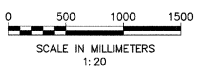
**WINGWALL NO. 1 ELEVATION**  
SCALE: 1:40



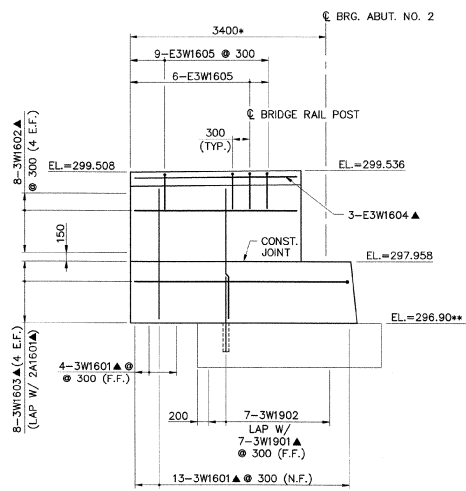
**WINGWALL NO. 2 ELEVATION**  
SCALE: 1:40



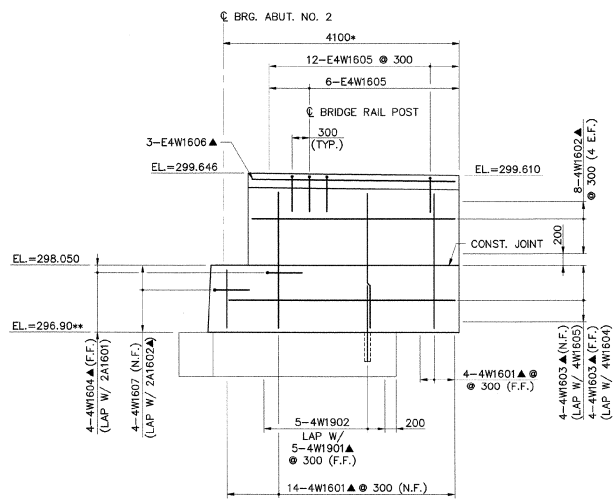
**TYPICAL SECTION**  
SCALE: 1:20



\* DIMENSIONS ALONG FACE OF WINGWALL  
\*\* APPROXIMATE EXISTING ELEVATION OR DIMENSION

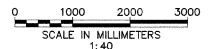


**WINGWALL NO. 3 ELEVATION**  
SCALE: 1:40



**WINGWALL NO. 4 ELEVATION**  
SCALE: 1:40

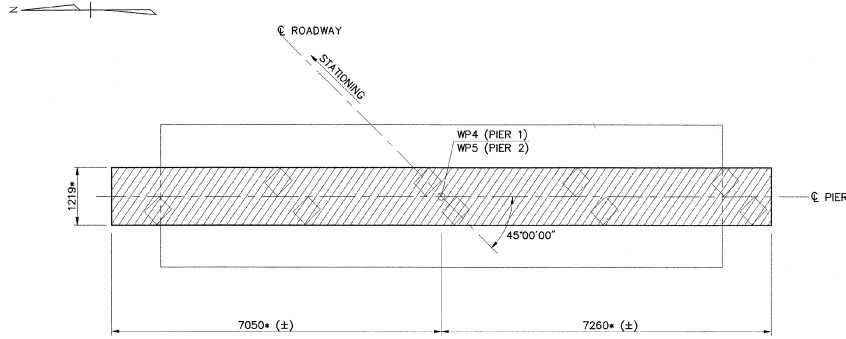
**KEY**  
N.F. = NEAR FACE  
F.F. = FAR FACE  
E.F. = EACH FACE  
▲ = CUT TO FIT IN FIELD



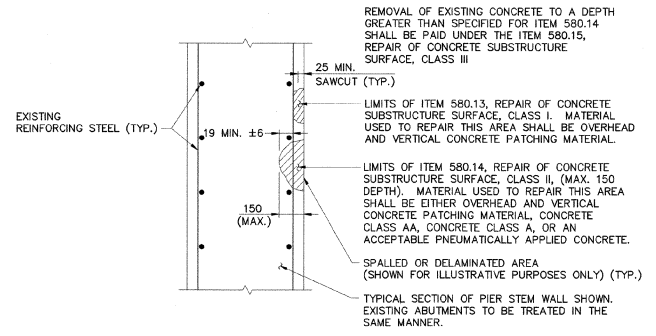
- NOTES:**
- SEE STANDARD SHEET BR1-97M FOR REINFORCING STEEL DETAIL AT BRIDGE RAIL POSTS.
  - SEE SHEET 15 FOR TYPICAL CURB DETAIL.

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

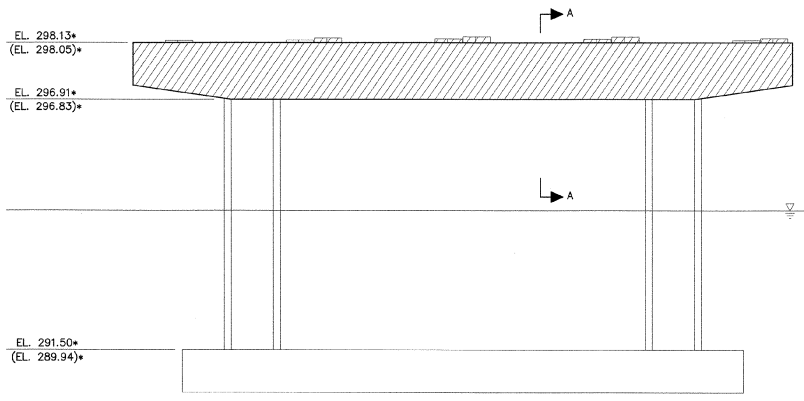
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>WINGWALL DETAILS</b>			
Designed By	C.R. WILSON	Drawn By	R.F. CLARK
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info. 93b067/sbc67wwd		Sheet 34 of 50	
Bridge Sheet No. 50541WWR			



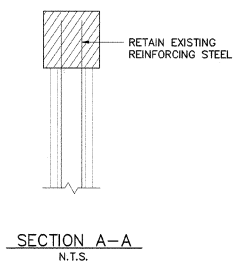
**PLAN**  
N.T.S.



**REPAIR OF CONCRETE SUBSTRUCTURE SURFACE**  
**CLASS I OR CLASS II**  
N.T.S.



**ELEVATION**  
(SPALLS, DELAMINATIONS AND CRACKS NOT SHOWN)  
N.T.S.



**SECTION A-A**  
N.T.S.

DENOTES LIMIT OF REMOVAL

\* APPROXIMATE EXISTING ELEVATION OR DIMENSION

**CONCRETE REPAIR NOTE:**

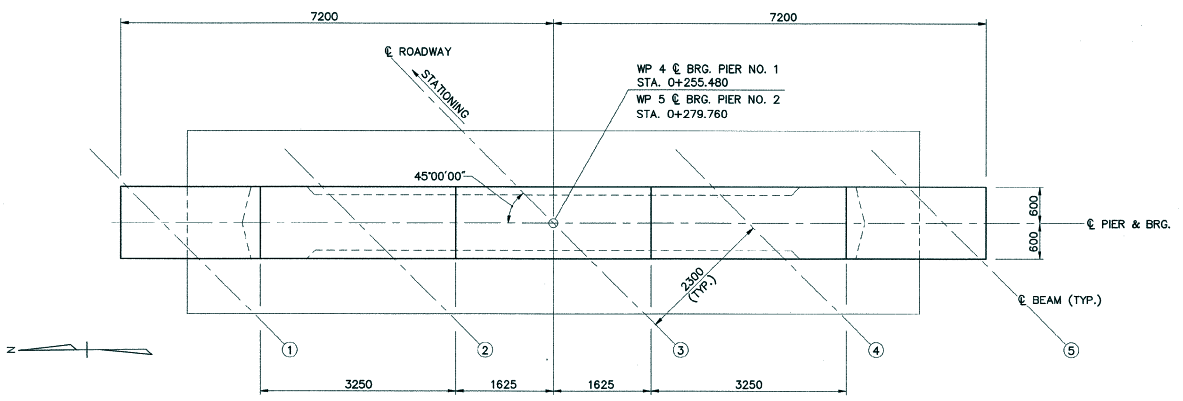
1. THE ENGINEER SHALL ESTABLISH ACTUAL REPAIR LIMITS AFTER A COOPERATIVE INSPECTION BY THE CONTRACTOR AND THE ENGINEER. AREAS OF CONCRETE FOUND TO BE SPALLED, DELAMINATED OR OTHERWISE UNSOUND WILL BE REPAIRED. THE CONTRACTOR SHALL SUPPLY ANY STAGING AND LADDERS REQUIRED FOR THIS INSPECTION. ALL COSTS SHALL BE INCLUDED UNDER ITEM 580.14, REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II.

**NOTE:**

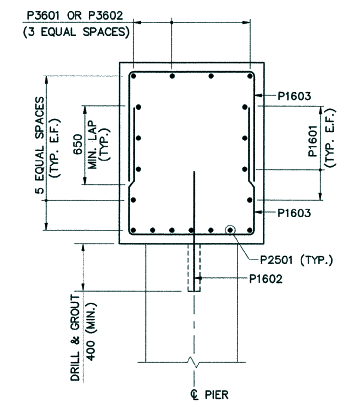
1. SEE SHEET 30 FOR REMOVAL NOTES.
2. PIER NO. 1 IS SHOWN. PIER NO. 2 ELEVATIONS ARE SHOWN IN PARENTHESSES.

**STATE OF VERMONT**  
**AGENCY OF TRANSPORTATION**

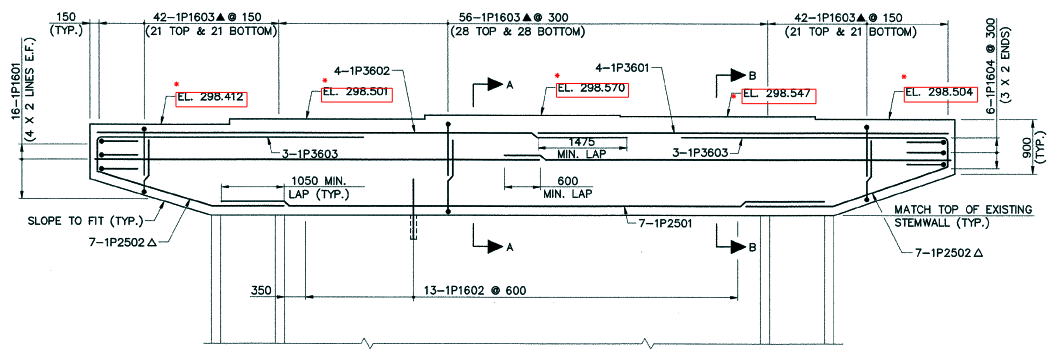
Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
<b>PIER REMOVAL AND REPAIR</b>			
Designed By	C.R. WILSON	Drawn By	B.J. MASSE
Checked By	M.A. COLGAN	Bridge Design Supervisor	S.M. GUNN
Date	9/99	Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067pr		
Bridge Sheet No.	50541PR	Sheet	35 of 50



TYPICAL PLAN  
SCALE: 1:40

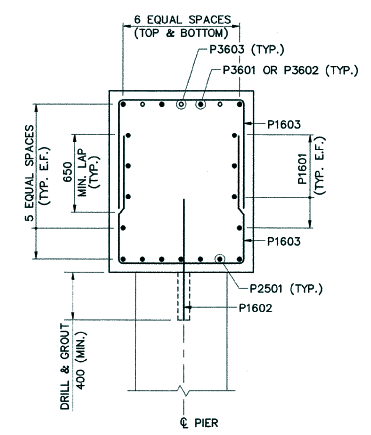


SECTION A-A  
N.T.S.

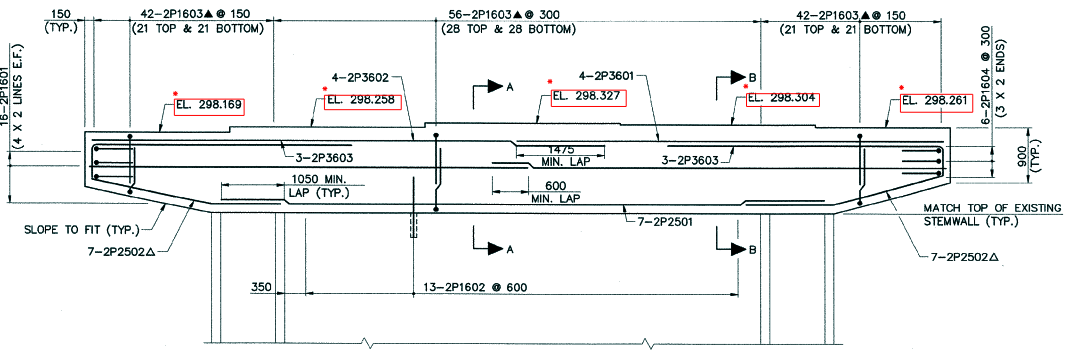


PIER NO. 1  
SCALE: 1:40

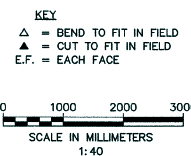
NOTE: \* = AS BUILT ELEVATIONS



SECTION B-B  
N.T.S.



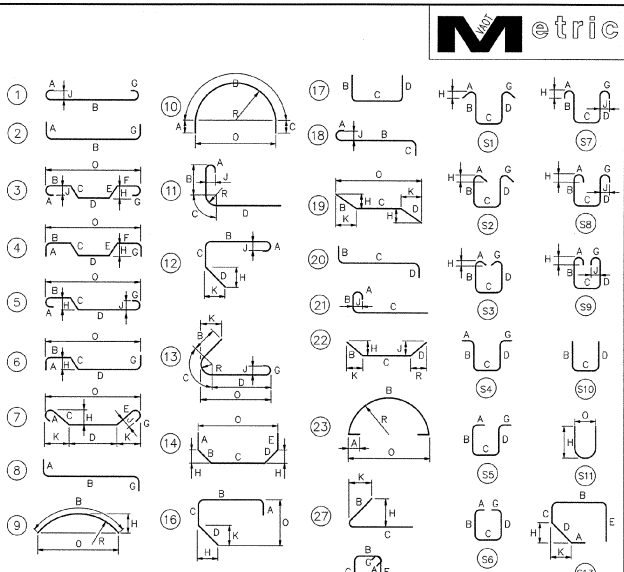
PIER NO. 2  
SCALE: 1:40



STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of	CONCORD	Bridge No.	117
Highway No.	US 2	Log Sta.	
		Surv. Sta.	
US 2 OVER MOOSE RIVER			
PIER NO. 1 AND PIER NO. 2			
Designed By	C.R. WILSON	Drawn By	B.J. MASSE
Checked By	M.A. COLGAN	Date	9/99
		Bridge Design Supervisor	S.M. GUNN
		Date	9/99
PROJECT	CONCORD	PROJECT NO.	BHF 028-4(22)
I.G.C. Info.	93b067/sb067p12		
Bridge Sheet No.	50541P1	Sheet	36 of 50

ITEM NO.	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O
DECK SLAB																	
1	968	16	10925	ES1601	STR	▲											
2	568	16	11750	ES1603	STR												
3	98	16	5875	ES1604	STR												
4	56	16	13600	ES1605	STR												
5	10	16	2125	ES1607	STR												
6	4	16	700	ES1608	STR												
7	8	16	15450	ES1609	STR												
8	4	16	13750	ES1611	STR												
9																	
10	670	16	2100	ES1602	SS		450	400	400	400		450					
11	28	16	3150	ES1606	SS		450	1125	125	1000		450					
12	32	16	1725	ES1612	SS		450	200	425	200		450					
13																	
14	33	16	1225	ES1610	12		400	150	675				800		300		
15																	
16	66	19	13800	EA1901	STR												
APPROACH SLAB NO. 1																	
17	28	16	13875	1EA1601	STR												
18	16	16	4750	1EA1802	STR	▲											
19																	
20																	
21	45	29	7725	1EA2901	1	400	7325							250			
22																	
23	49	16	2350	1EA1603	SS		450	525	400	525		450					
24																	
25	30	16	1250	1EA1804	19		700	550					500		500		1050
26																	
27	17	25	1000	1EA2501	19		500	500					350		350		850
28																	
APPROACH SLAB NO. 2																	
29	29	16	13875	2EA1601	STR												
30	16	16	4250	2EA1602	STR	▲											
31																	
32	45	29	7725	2EA2901	1	400	7325							250			
33																	
34	43	16	2350	2EA1603	SS		450	525	400	525		450					
35																	
36	28	16	1250	2EA1604	19		700	550					500		500		1050
37																	
38	17	25	1000	2EA2501	19		500	500					350		350		850
39																	
ABUTMENT NO. 1																	
40	40	16	8075	1A1601	STR	▲											
41				1A1602	(NOT USED)												
42	6	16	2275	1A1603	STR	▲											
43				1A1604	(NOT USED)												
44	47	16	2275	1A1605	STR	▲											
45	48	16	1050	1A1606	STR	▲											
46	13	16	1250	1A1607	STR	▲											
47	49	16	1150	1A1608	STR	▲											
48																	
49	34	16	900	1A1609	17		250	650									
50	47	16	875	1A1610	17		350	525									
51	47	16	2025	1A1611	17		925	175	925								
52																	
53	52	16	1825	1A1612	2	350	1125		▲			350					
54																	
55	6	16	800	1A1613	19		400	400					300		300		700
56																	
WINGWALL NO. 1																	
57	18	16	2575	1W1601	STR	▲											
58	10	16	3850	1W1603	STR	▲											
59																	
60	4	19	2575	1W1901	STR	▲											
61	6	19	1300	1W1902	STR	▲											
62																	
63	5	16	3800	1W1606	22		800	2800	800				425	600	425		
64	5	16	1350	1W1607	22		600	150	800				425	600	425		
65																	
66	10	16	4100	1W1602	27		▲	600	3500				425		425		
67																	
68	4	16	3500	E1W1604	STR	▲											
69																	
70	18	16	2050	E1W1605	S10		825	400	825								
71																	
WINGWALL NO. 2																	
72	17	16	2675	2W1601	STR	▲											
73																	
74	5	19	2675	2W1901	STR	▲											
75	7	19	1300	2W1902	STR	▲											
76																	
77	10	16	4100	2W1602	19		▲	800	3500				425		425		3925
78	10	16	4850	2W1603	19		▲	600	4250				425		425		4675
79																	
80	4	16	3400	E2W1604	STR	▲											
81																	
82	13	16	2050	E2W1605	S10		825	400	825								
83																	
84																	
85																	
86																	
87																	



- NOTES:**
- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING 55M SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 420, UNLESS OTHERWISE DESIGNATED.
  - FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
  - BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
  - ALL DIMENSIONS ARE CUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180° AND 135° HOOKS.
  - "J" DIMENSION ON 180° HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
  - "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
  - "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.
  - WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
  - \* DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
  - \*\* DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
  - ▲ DENOTES BARS TO BE BENT TO FIT IN FIELD.
  - ▲ DENOTES BARS TO BE CUT TO FIT IN FIELD.

ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	MASS (kg/m)	NOMINAL DIMENSIONS ROUND SECTION (mm)	CROSS SECTIONAL AREA (mm <sup>2</sup> )	PERIMETER (mm)
#10	0.560	9.5	71	29.9
#13	0.994	12.7	129	39.9
#16	1.552	15.9	199	49.9
#19	2.235	19.1	284	59.8
#22	3.042	22.2	387	69.8
#25	3.973	25.4	510	79.9
#29	5.060	28.7	645	90.0
#32	6.404	32.3	819	101.3
#36	7.907	35.8	1006	112.5
#43	11.38	43.0	1452	135.1
#57	20.24	57.3	2581	180.1

**STATE OF VERMONT  
AGENCY OF TRANSPORTATION**

Town Of CONCORD Bridge No. 117  
 Highway No. US 2 Log Sta.             
 Surv. Sta.           

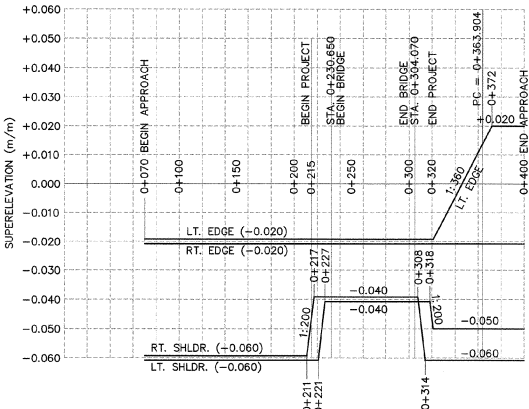
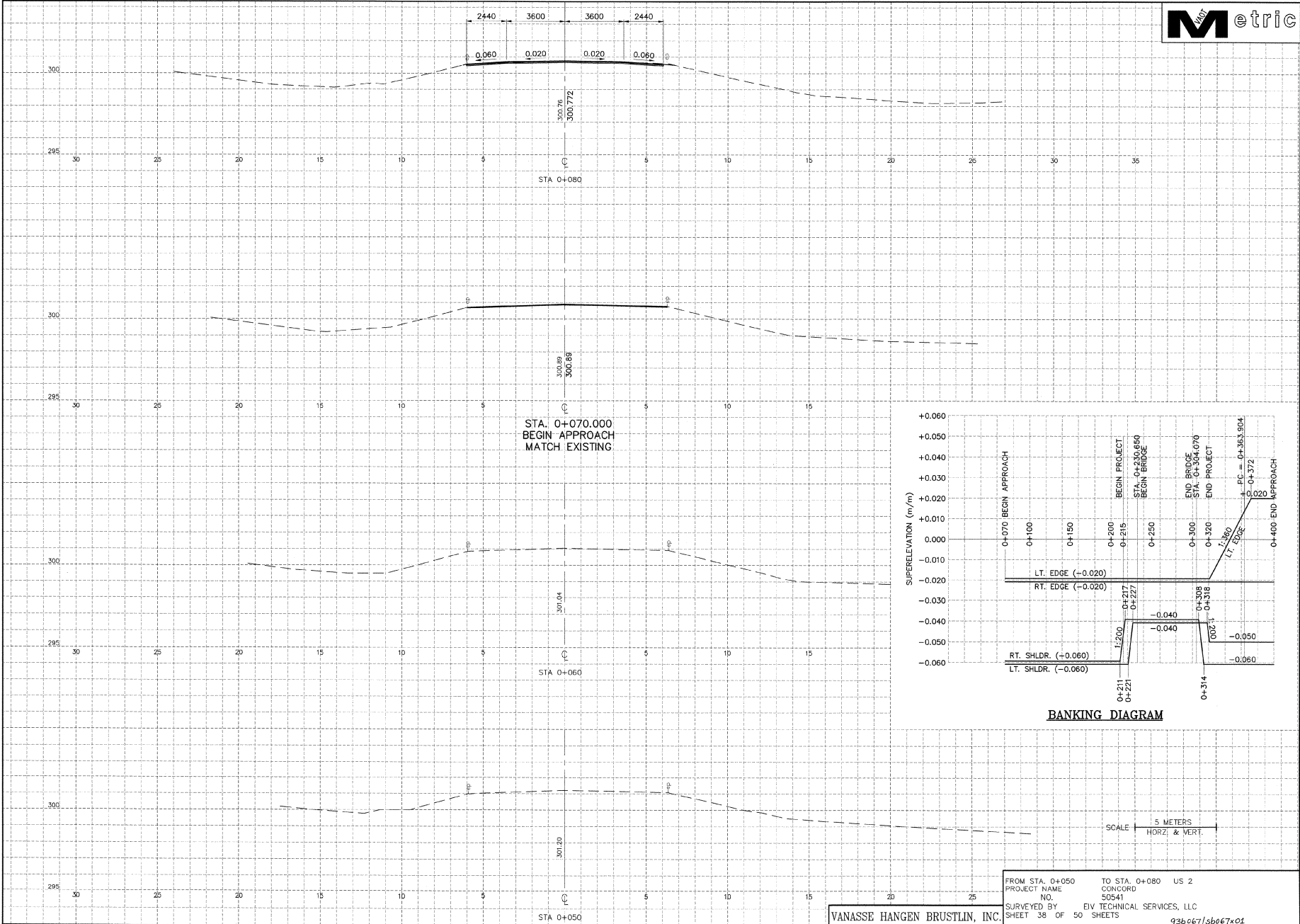
US 2 OVER MOOSE RIVER

**REINFORCING STEEL SCHEDULE**

Designed By M.A. COLGAN Drawn By B.J. MASSE  
 Checked By C.R. WILSON Date 9/99 Bridge Design Supervisor            Date 9/99

CONCORD PROJECT NO. BHF 028-4(22)

I.G.C. Info. 93b067/sb067r9s  
 Bridge Sheet No. 50541REF Sheet 37 of 48

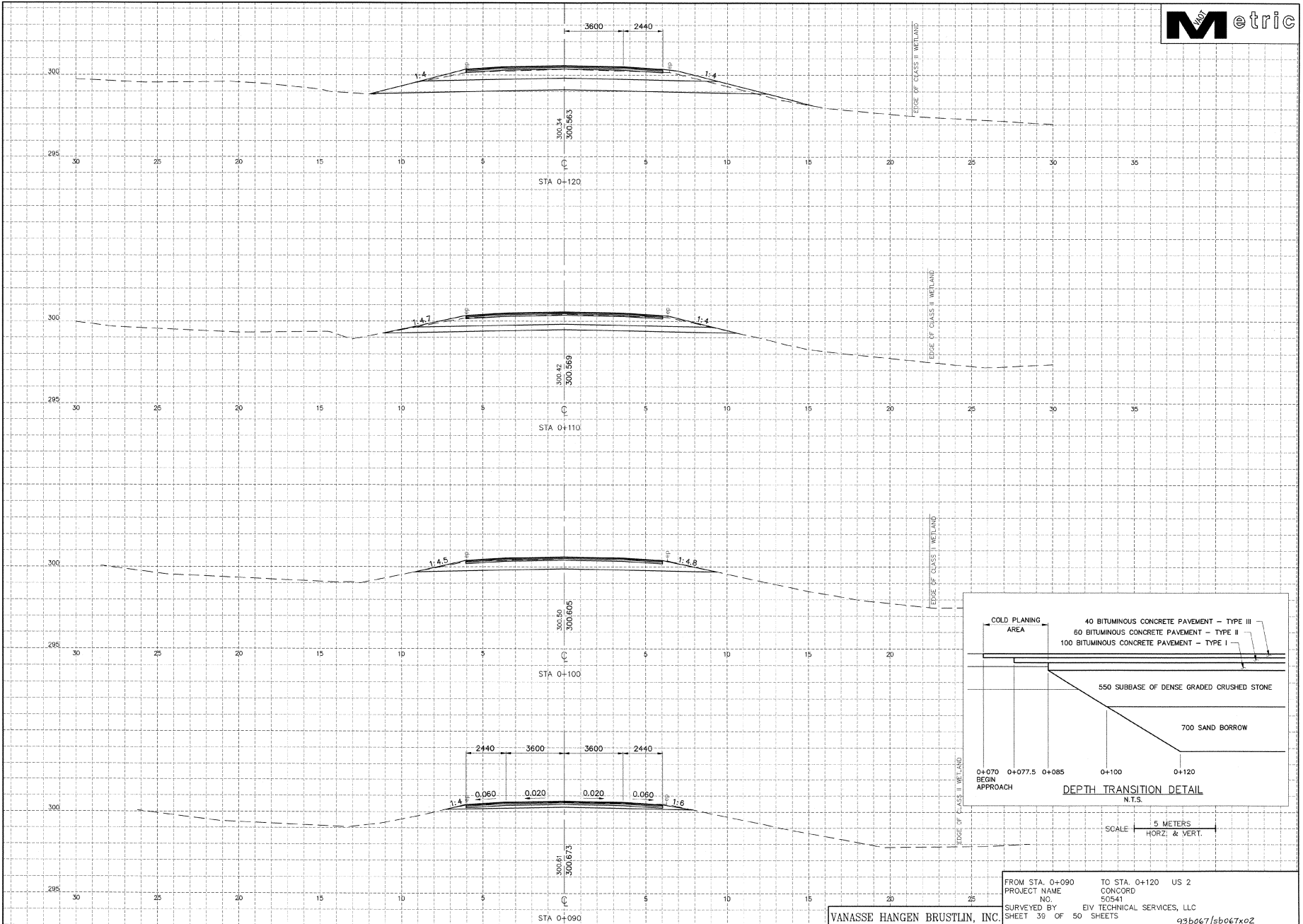


**BANKING DIAGRAM**

SCALE 5 METERS  
HORZ & VERT.

FROM STA. 0+050 TO STA. 0+080 US 2  
 PROJECT NAME CONCRD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 38 OF 50 SHEETS

VANASSE HANGEN BRUSTLIN, INC.



**DEPTH TRANSITION DETAIL**  
N.T.S.

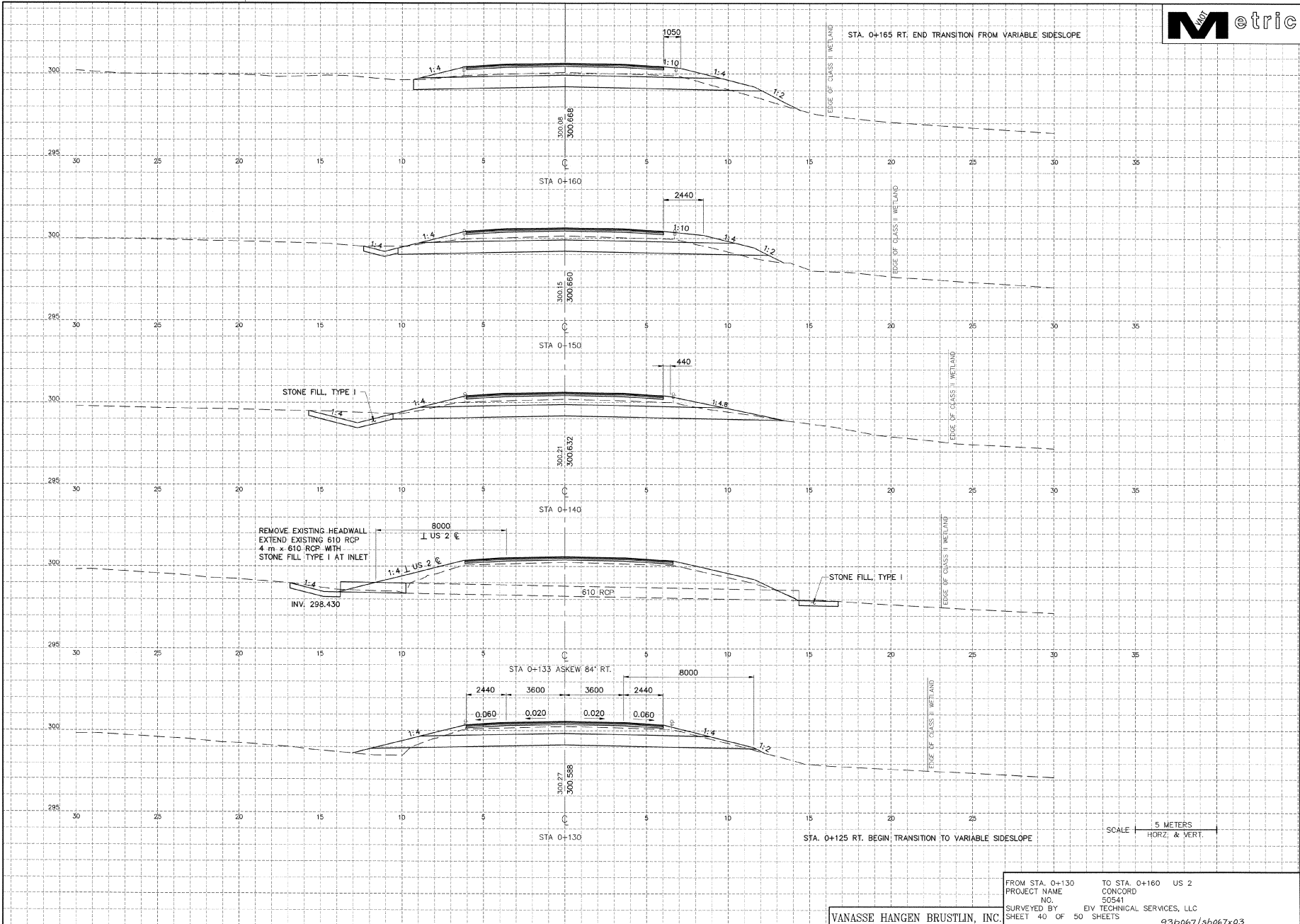
FROM STA. 0+070 TO STA. 0+085  
BEGIN APPROACH

40 BITUMINOUS CONCRETE PAVEMENT - TYPE III  
60 BITUMINOUS CONCRETE PAVEMENT - TYPE II  
100 BITUMINOUS CONCRETE PAVEMENT - TYPE I

550 SUBBASE OF DENSE GRADED CRUSHED STONE

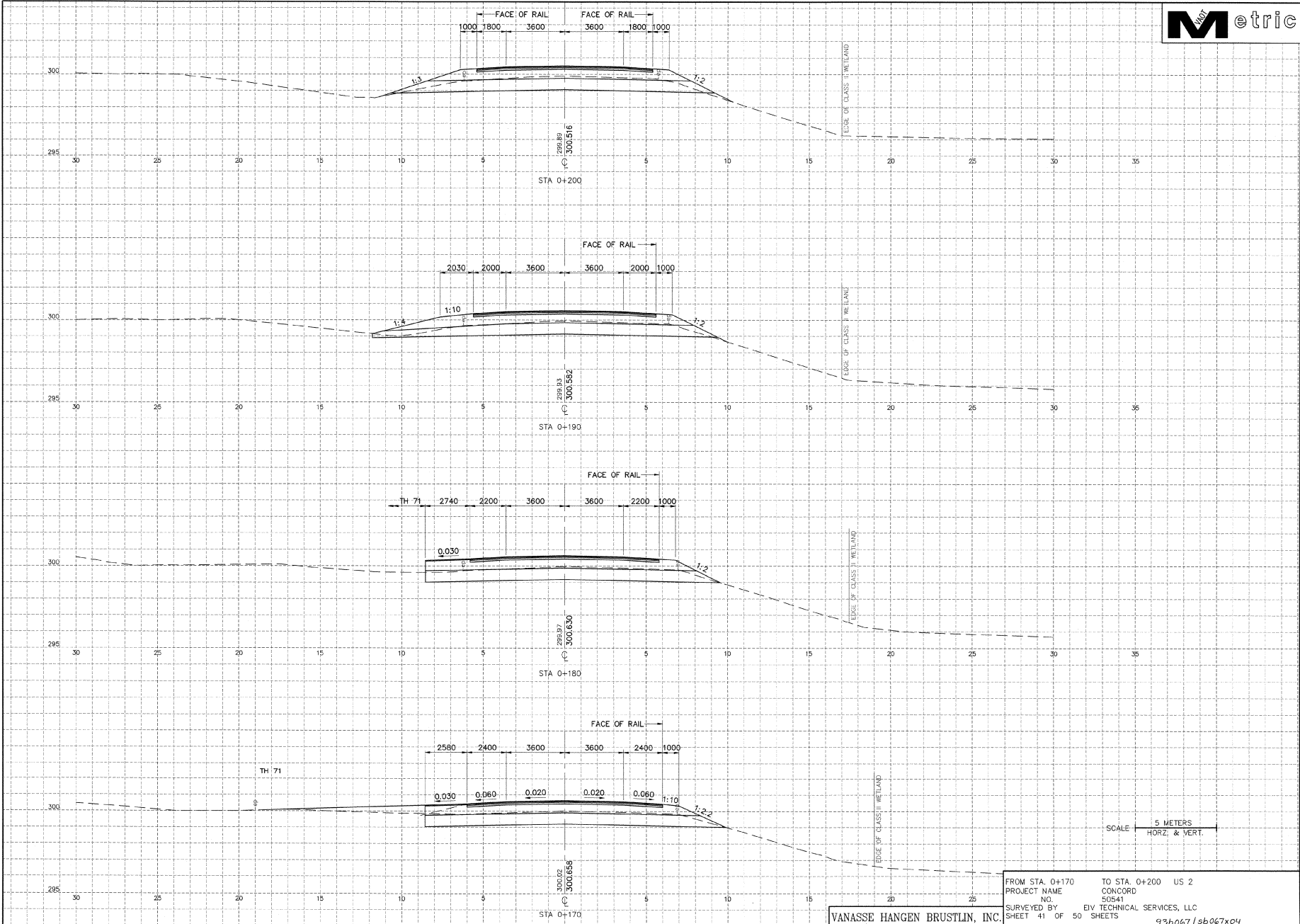
700 SAND BORROW

SCALE 5 METERS  
HORZ. & VERT.



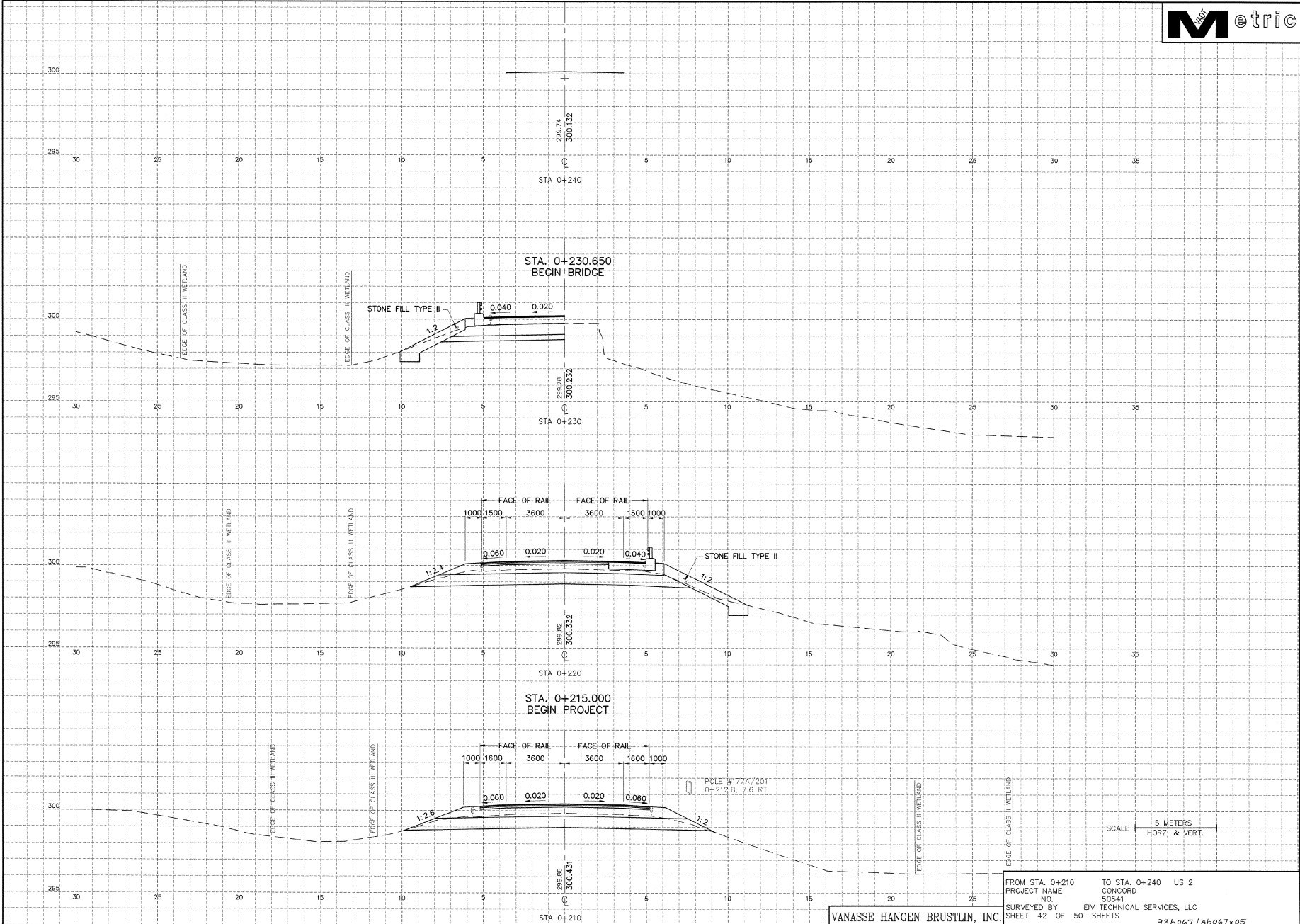
FROM STA. 0+130 TO STA. 0+160 US 2  
 PROJECT NAME CONCORD  
 NO. 50641  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 40 OF 50 SHEETS  
 93067/sb067x03

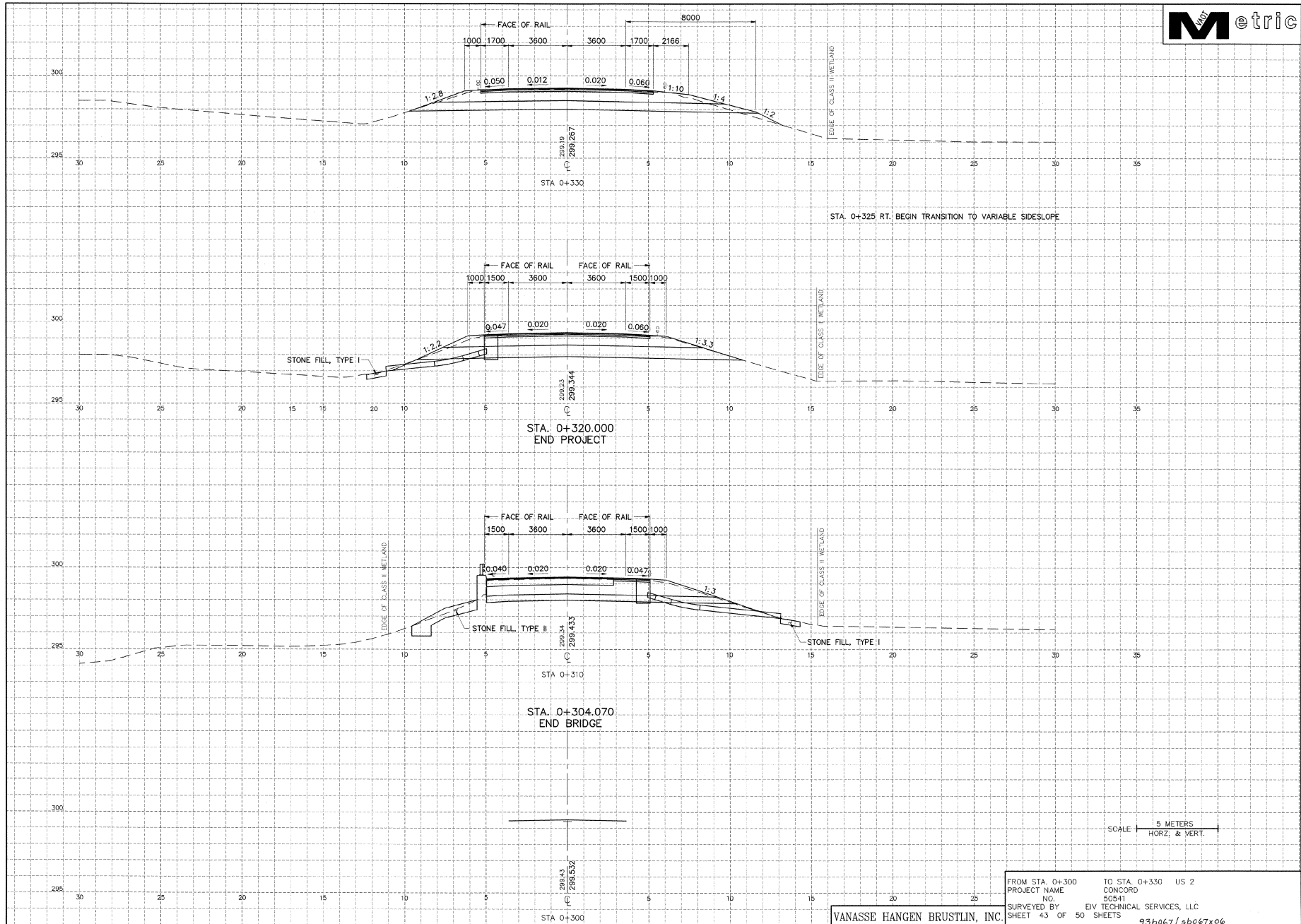
VANASSE HANGEN BRUSTLIN, INC.

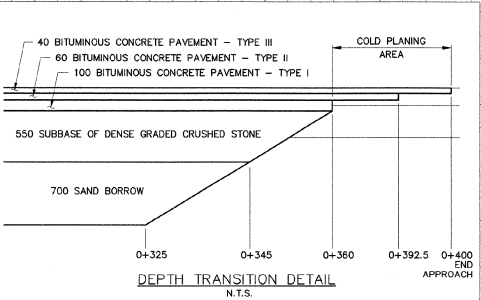
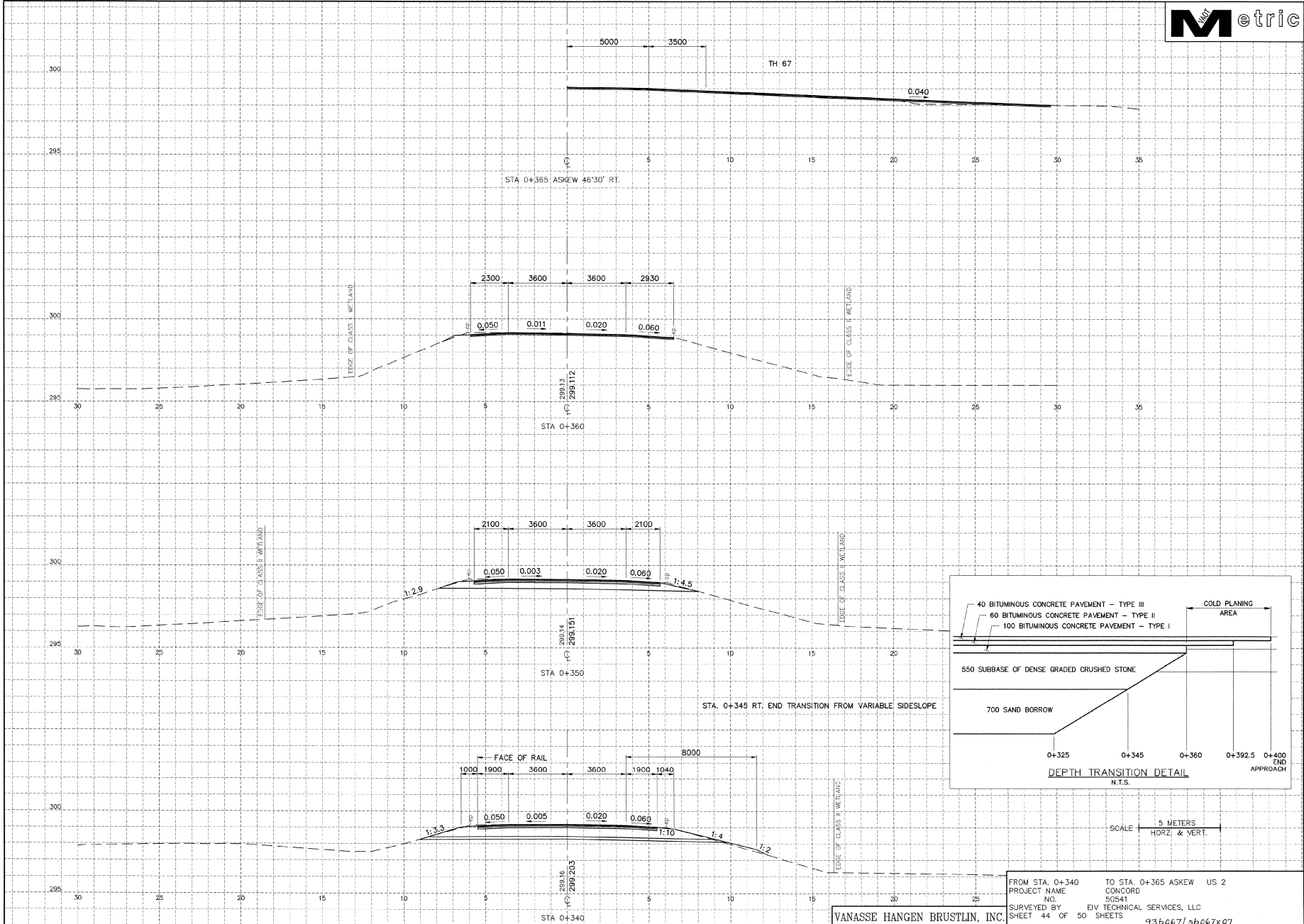


FROM STA. 0+170 TO STA. 0+200 US 2  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 41 OF 50 SHEETS  
 93b0671sb067x04

VANASSE HANGEN BRUSTLIN, INC.



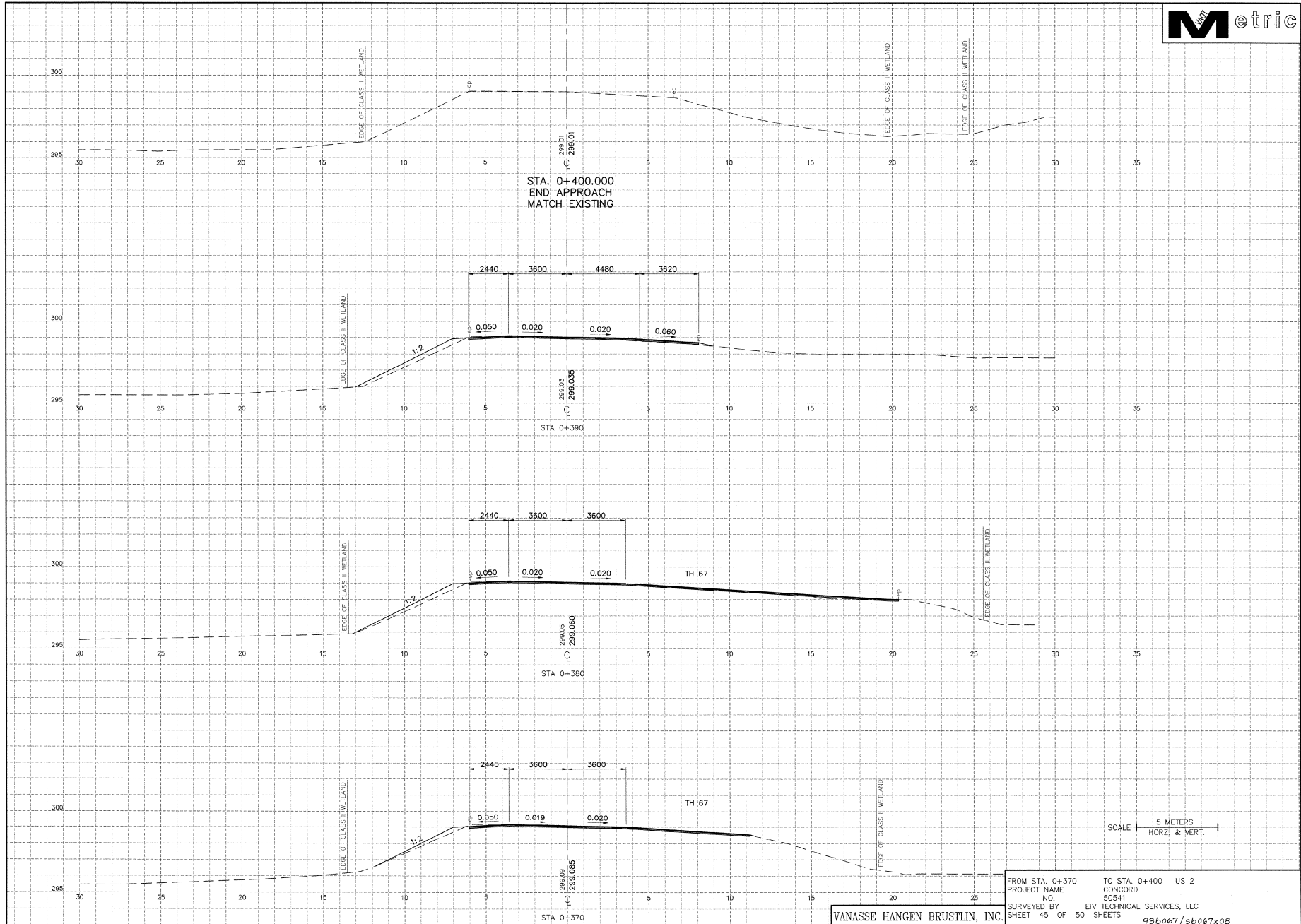




SCALE 5 METERS  
HORZ & VERT.

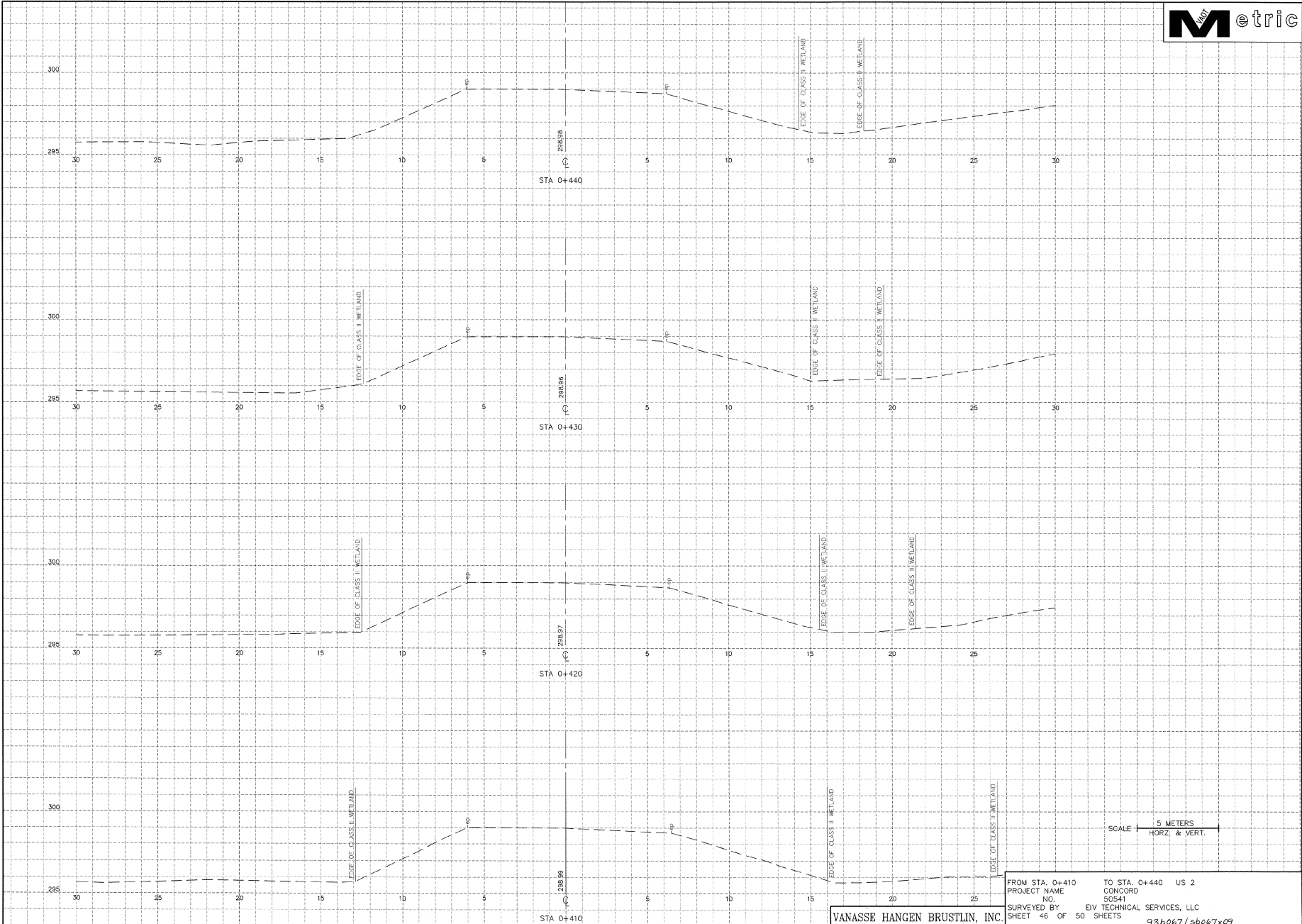
FROM STA. 0+340 TO STA. 0+365 ASKEW US 2  
PROJECT NAME CONCORD  
NO. 50541  
SURVEYED BY EIV TECHNICAL SERVICES, LLC  
SHEET 44 OF 50 SHEETS 93b067/sb067x07

VANASSE HANGEN BRUSTLIN, INC.



FROM STA. 0+370 TO STA. 0+400 US 2  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 45 OF 50 SHEETS 93b067/sb067x08

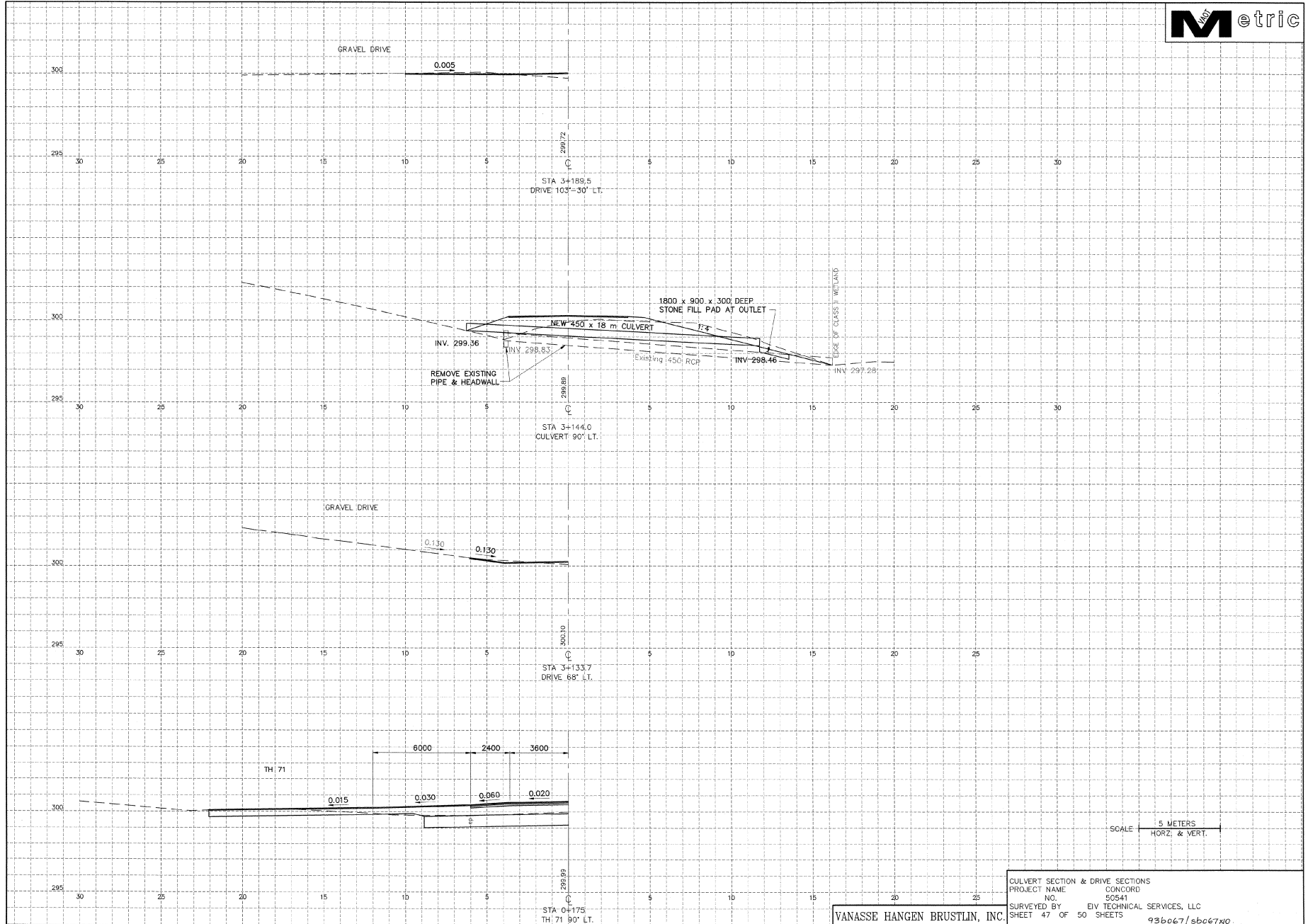
VANASSE HANGEN BRUSTLIN, INC.



FROM STA. 0+410 TO STA. 0+440 US 2  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 46 OF 50 SHEETS 93b067/5b067x09

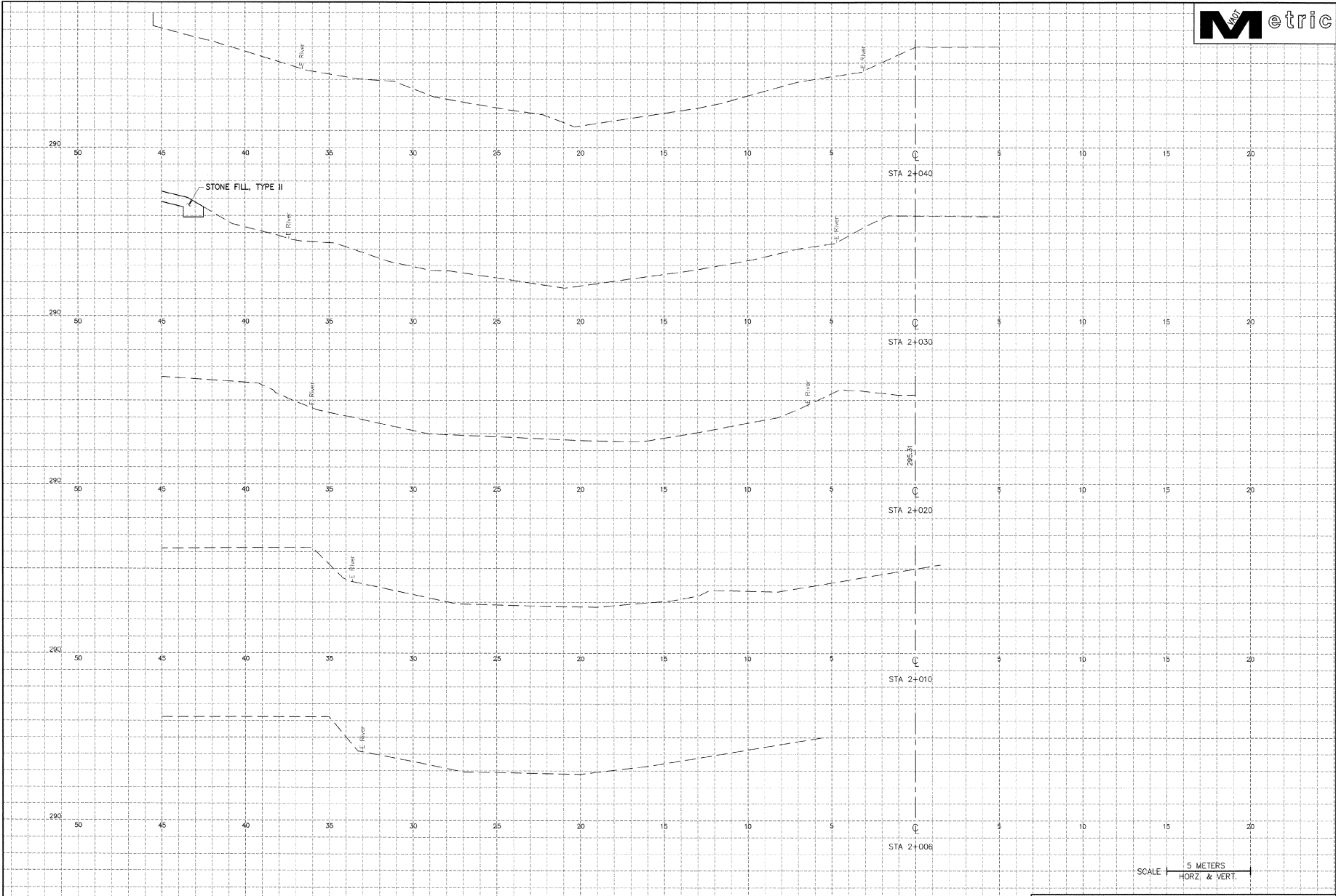
VANASSE HANGEN BRUSTLIN, INC.

SCALE 1" = 5 METERS  
 HORZ. & VERT.



CULVERT SECTION & DRIVE SECTIONS  
 PROJECT NAME: CONCORD  
 NO. 50541  
 SURVEYED BY: EIV TECHNICAL SERVICES, LLC  
 SHEET 47 OF 50 SHEETS  
 93b067/sb067NO.

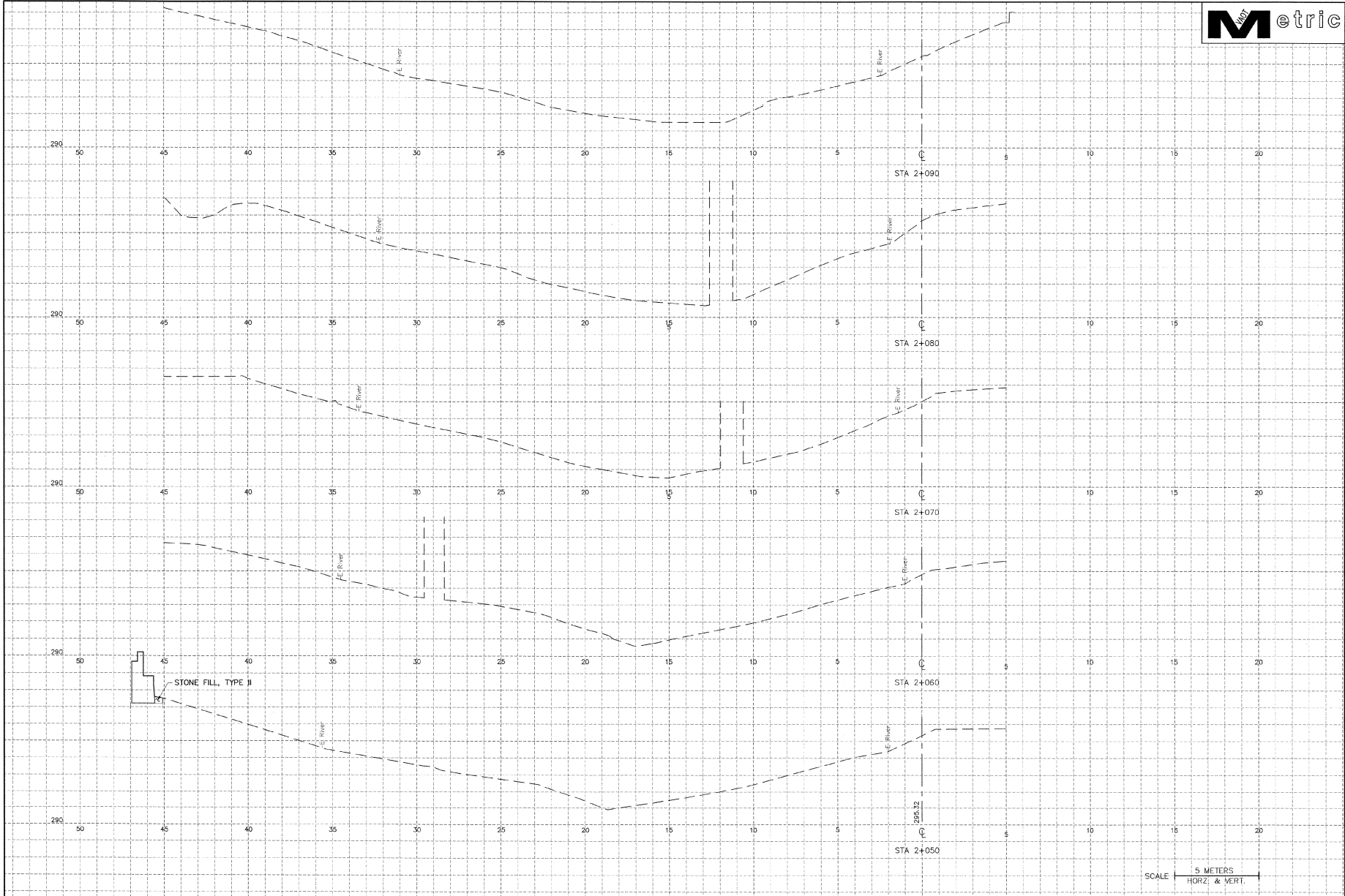
VANASSE HANGEN BRUSTLIN, INC.



FROM STA. 2+006 TO STA. 2+040 CHANNEL CROSS SECTIONS  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 48 OF 50 SHEETS

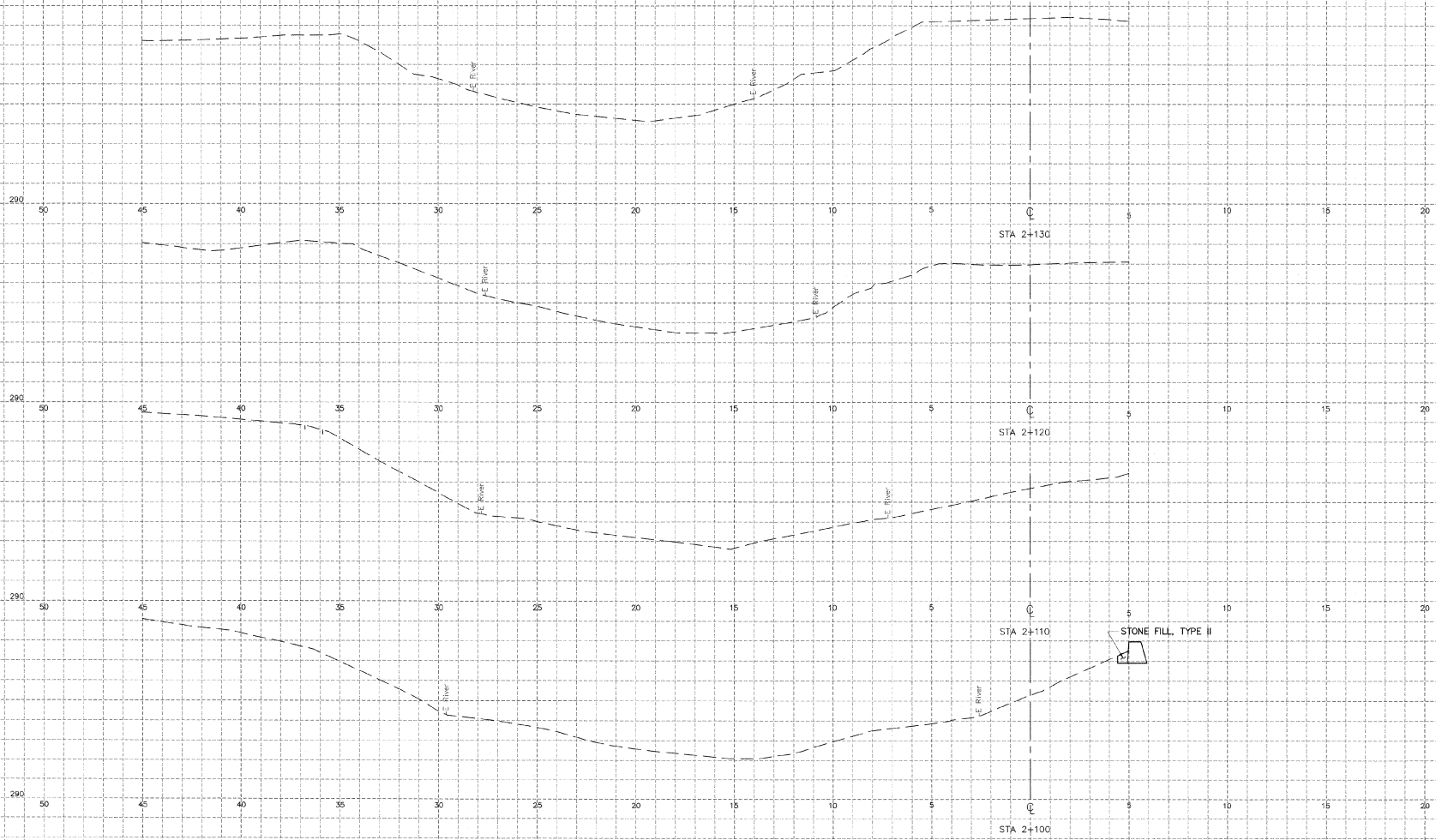
VANASSE HANGEN BRUSTLIN, INC.

SCALE 5 METERS  
 HORZ. & VERT.



VANASSE HANGEN BRUSTLIN, INC.

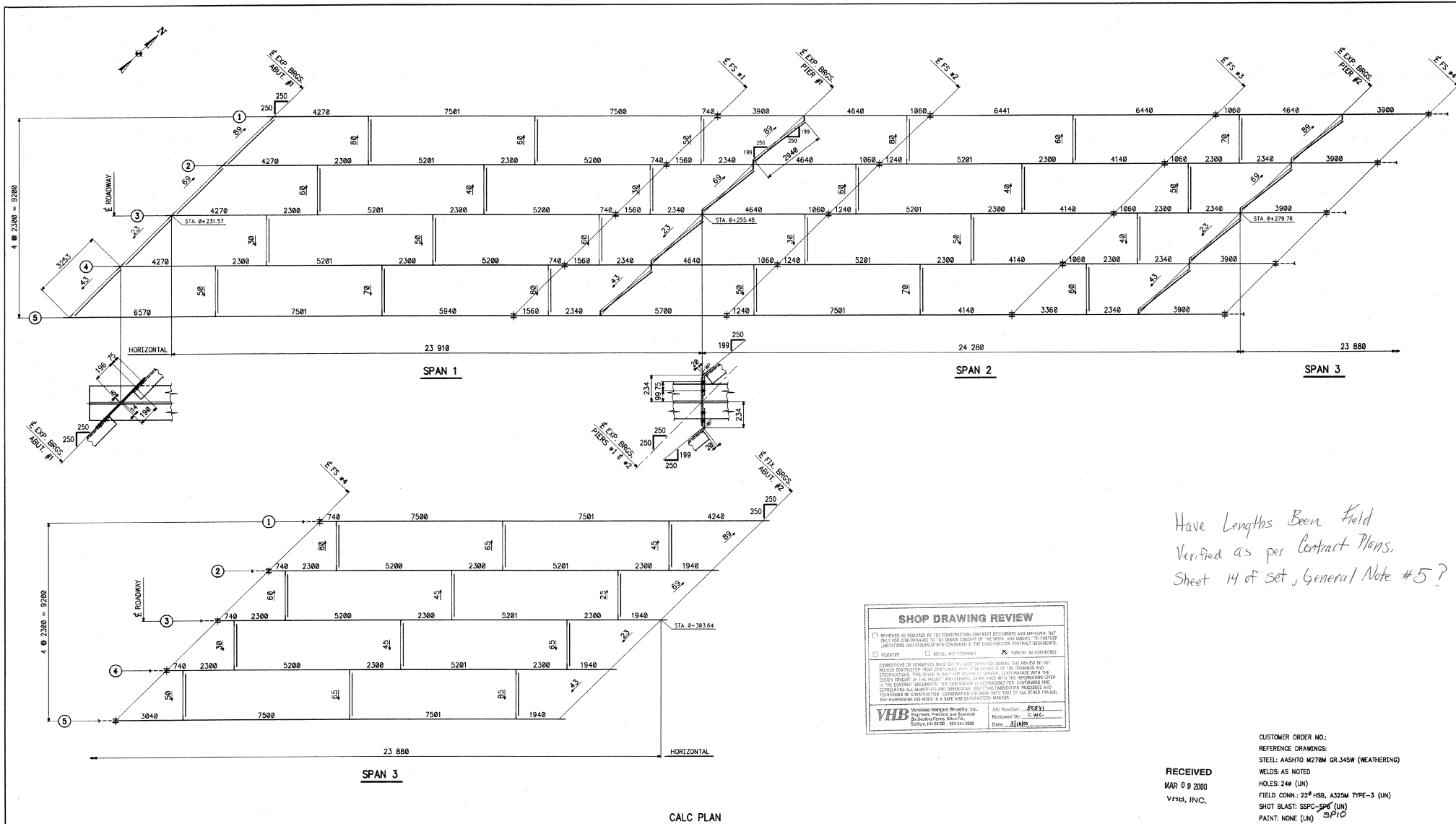
FROM STA. 2+050 TO STA. 2+090 CHANNEL CROSS SECTIONS  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 49 OF 50 SHEETS 93b067/sb067cx2



SCALE 5 METERS  
HORZ. & VERT.

FROM STA. 2+100 TO STA. 2+130 CHANNEL CROSS SECTIONS  
 PROJECT NAME CONCORD  
 NO. 50541  
 SURVEYED BY EIV TECHNICAL SERVICES, LLC  
 SHEET 50 OF 50 SHEETS 93b067/ab067cx3

VANASSE HANGEN BRUSTLIN, INC.



Have Lengths Been Field  
Verified as per Contract Plans.  
Sheet 14 of set, General Note #5?

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER VARIATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED  REVIEW NOT NECESSARY  REVIEW AS CORRECTED

CONTRACTOR OR SUBMITTER WAIVES THE SHOP DRAWING REVIEW THIS REVIEW DOES NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH ALL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR DESIGN CONFORMANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL OF ALL SHOP DRAWINGS FROM THE ARCHITECT/ENGINEER BEFORE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL OF ALL SHOP DRAWINGS FROM THE ARCHITECT/ENGINEER BEFORE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL OF ALL SHOP DRAWINGS FROM THE ARCHITECT/ENGINEER BEFORE CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL OF ALL SHOP DRAWINGS FROM THE ARCHITECT/ENGINEER BEFORE CONSTRUCTION.

**VHB** Vermont Highway Builders, Inc.      300 Main Street, #202  
 200 North Main Street,      Montpelier, VT 05602  
 Phone: 802-244-0000      Fax: 802-244-1888

Reviewed By: CSJ      Date: 3/1/00

- NOTES:**
1. ALL LONGITUDINAL LENGTHS ARE DEVELOPED ALONG THE BOTTOM OF BEAM.
  2. ALL TRANSVERSE DIMENSIONS ARE IN A HORIZONTAL PLANE.
  3. ——— POINTS TO LOW END.

**RECEIVED**  
 MAR 09 2000  
 VTHS, INC.

CUSTOMER ORDER NO:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 244 (UN)  
 FIELD CONN.: 22" HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SPC-56 (UN)  
 PAINT: NONE (UN) SP10

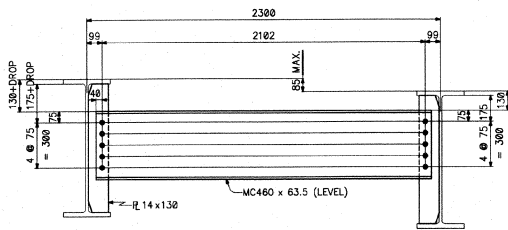
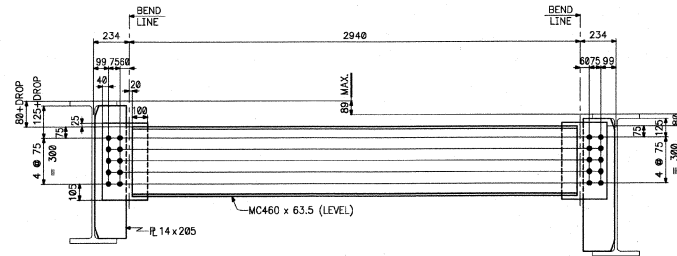
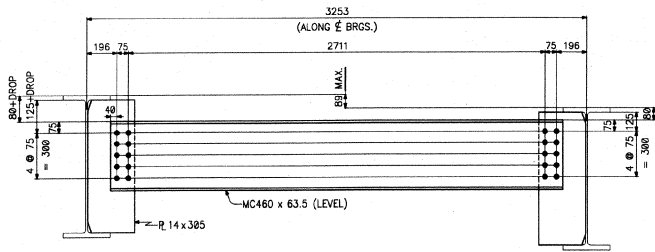
APPR	BY	DATE	CALC PLAN
APPR			
APPR			
APPR			
APPR	<u>CSJ</u>	<u>2-10-00</u>	
SHOP			
TRAC			
DWG	<u>AV</u>	<u>1/00</u>	
CHKD	<u>LD</u>	<u>1/00</u>	
REV 1			
REV 2			
REV 3			
REV 4			
REV 5			

**MEGQUIER & JONES**  
 P.O. BOX 2848 1156 BROADWAY  
 SOUTH PORTLAND, MAINE 04168  
 PHONE (207)798-8555 FAX (207)787-2117

US 2 OVER MOOSE RIVER, BRIDGE NO. 117  
 PROJ. NO.: BRP 428-4(22)  
 CONCORD, VERMONT

CUSTOMER: BECK AND BELLUCCI, INC.  
 ENGINEER: STATE OF VERMONT, AGENCY OF TRANSPORTATION

JOB NO. J-92      DWG. NO. WS1



CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS: M370M  
 STEEL: ASTM A709M, GR. 50W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 24# (LN)  
 FIELD CONNL: 22# HSB (LN), A325M TYPE-3  
 SHOT BLAST: SSPC-SP6 (LN)  
 PAINT: NONE (LN) SPIO

APPR	SP	DATE	LAYOUTS
APPR		2-7-00	
APPR			
APPR			
APPR	2-10-00		
CHKD	LD	1/00	
CHKD	LD	1/00	
REV 1			
REV 2			
REV 3			
REV 4			
REV 5			

MEQUIER & JONES  
 P.O. BOX 2549 1156 BROADWAY  
 SOUTH PORTLAND, MAINE 04106  
 PHONE (207)798-8555 FAX (207)767-2117

US 2 OVER MOOSE RIVER, BRIDGE NO. 117  
 PROJ. NO.: SHF 828-4(22)  
 CONCORD, VERMONT

CUSTOMER: BECK AND BELLUCCI  
 ENGINEER: STATE OF VERMONT, DEPARTMENT OF TRANSPORTATION

JOB NO. J-92 DWG. NO. WS2

## GENERAL NOTES

### CONSTRUCTION SPECIFICATIONS

- 1). ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 1995, AND IT'S LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 16TH EDITION, DATED 1996, AND IT'S LATEST REVISIONS.

### MATERIAL SPECIFICATIONS

- 1). ALL STRUCTURAL STEEL SHALL BE AASHTO M270M GRADE 345W
- 2). HIGH STRENGTH BOLTS IN NON-PAINTED AREAS SHALL CONFORM TO THE FOLLOWING:  
HIGH STRENGTH BOLTS: AASHTO M164 TYPE-3  
HARD FLAT WASHERS: AASHTO M293 TYPE-3  
HEAVY HEX NUTS: AASHTO M291 TYPE-3
- 3). HIGH STRENGTH BOLTS IN PAINTED AREAS SHALL BE MECHANICALLY GALVANIZED AND CONFORM TO THE FOLLOWING:  
HIGH STRENGTH BOLTS: AASHTO M164 TYPE-1  
HARD FLAT WASHERS: AASHTO M293 TYPE-1  
HEAVY HEX NUTS: AASHTO M291 TYPE-1

ALL HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH AASHTO M298, CLASS 50. HEAVY HEX NUTS SHALL BE TAPPED OVERSIZE TO THE MINIMUM AMOUNT REQUIRED FOR THE FASTENER ASSEMBLY.

BOLTS & NUTS SHALL BE ROTATIONAL CAPACITY TESTED AND MEET ALL OTHER REQUIREMENTS OF SUBSECTION 11.3.2 OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. DO NOT MIX NUTS & BOLTS FROM DIFFERENT CONTAINERS UNLESS ALL BOLTS & NUTS HAVE THE SAME LOT NUMBER.

- 4). MAIN LOAD CARRYING MEMBERS SHALL MEET THE FOLLOWING CHARPY V-NOTCH TESTING REQUIREMENTS OF ZONE 2, H FREQUENCY:

20J AT 4' C (UP TO 50mm WELDED)

DRAWINGS SHALL CALL OUT 'CVN' FOR EACH APPLICABLE ITEM IN THE BILLS OF MATERIAL.

- 5). ALL MATERIAL SUBSTITUTIONS SHALL BE SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL PRIOR TO FABRICATION.

### FABRICATION

ALL WELDING AND DIMENSIONAL TOLERANCES OF WELDED MEMBERS SHALL CONFORM TO THE LATEST ANSI/AASHTO/AWS BRIDGE WELDING CODE AND IT'S LATEST REVISIONS.

### FIELD CONNECTIONS

- 1). FIELD BOLTS SHALL HAVE HEAVY HEX NUT, HEX HEAD AND ONE HARD WASHER EACH.
- 2). PIECE MARKS WILL BE LOCATED AS SHOWN ON ERECTION DRAWINGS. ALL ERECTION MARKS, MATCH MARKS AND WEIGHT MARKS MUST NOT BE EXPOSED IN THE FINISHED STRUCTURE.

### SURFACE PREPARATION

- 1). ALL SHARP CORNERS AND EDGES THAT ARE MARRED, CUT OR ROUGHENED IN HANDLING SHALL BE ROUNDED TO 1.6mm RADIUS BY GRINDING.
- 2). ALL NON-PAINTED STEEL SURFACES ARE TO BE BLAST CLEANED, IN ACCORDANCE WITH THE PROVISIONS OF SSPC-~~SP6~~ "COMMERCIAL BLAST CLEANING".
- 3). ALL PAINTED STEEL SURFACES ARE TO BE BLAST CLEANED, IN ACCORDANCE WITH THE PROVISIONS OF SSPC-SP10 "NEAR-WHITE BLAST CLEANING".

### PAINT

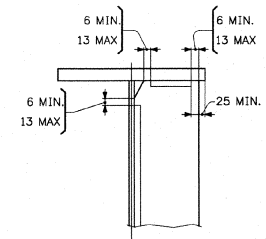
ALL STEEL 1600mm FROM THE END OF BEAMS AT ABUT. #1 SHALL BE PAINTED WITH THE FOLLOWING THREE COAT PAINT SYSTEM, EXCEPT AS NOTED IN ITEM #4:

- 1). PRIME COAT: CARBOLINE 859ZR EPOXY PRIMER (ORGANIC), 3.0-6.0 MILS DFT.
- 2). INTERMEDIATE COAT: CARBOLINE 888 EPOXY, 3.0-10.0 MILS DFT
- 3). TOP COAT: CARBOLINE 133HB ALIPHATIC POLYURETHANE, 3.0-5.0 MILS DFT  
THE COLOR OF THE TOP COAT SHALL BE ~~BRONZE~~ #2248 BROWN, COLOR 20059 (per VTTRANS)
- 4). THE FOLLOWING SURFACES SHALL RECEIVE THE PRIME COAT ONLY:

- ALL SURFACES WITHIN 75mm OF OPEN HOLES.
- ALL SURFACES IN CONTACT WITH CONCRETE.

- ALL SURFACES TO BE FIELD WELDED.

- 5). INTERMEDIATE AND TOP COATS SHALL BE STAGGERED A MINIMUM OF 12.7 mm FROM THE FAYING SURFACES AND EACH OTHER.



TYP. WELD TERMINATION DETAIL

CUSTOMER ORDER NO.:  
REFERENCE DRAWINGS:  
STEEL: AASHTO M270M GR.345W (WEATHERING)  
WELDS: AS NOTED  
HOLES: 24# (LN)  
FIELD CONN.: 22# HSB, A325M TYPE-3 (LN)  
SHOT BLAST: AS NOTED  
PAINT: AS NOTED

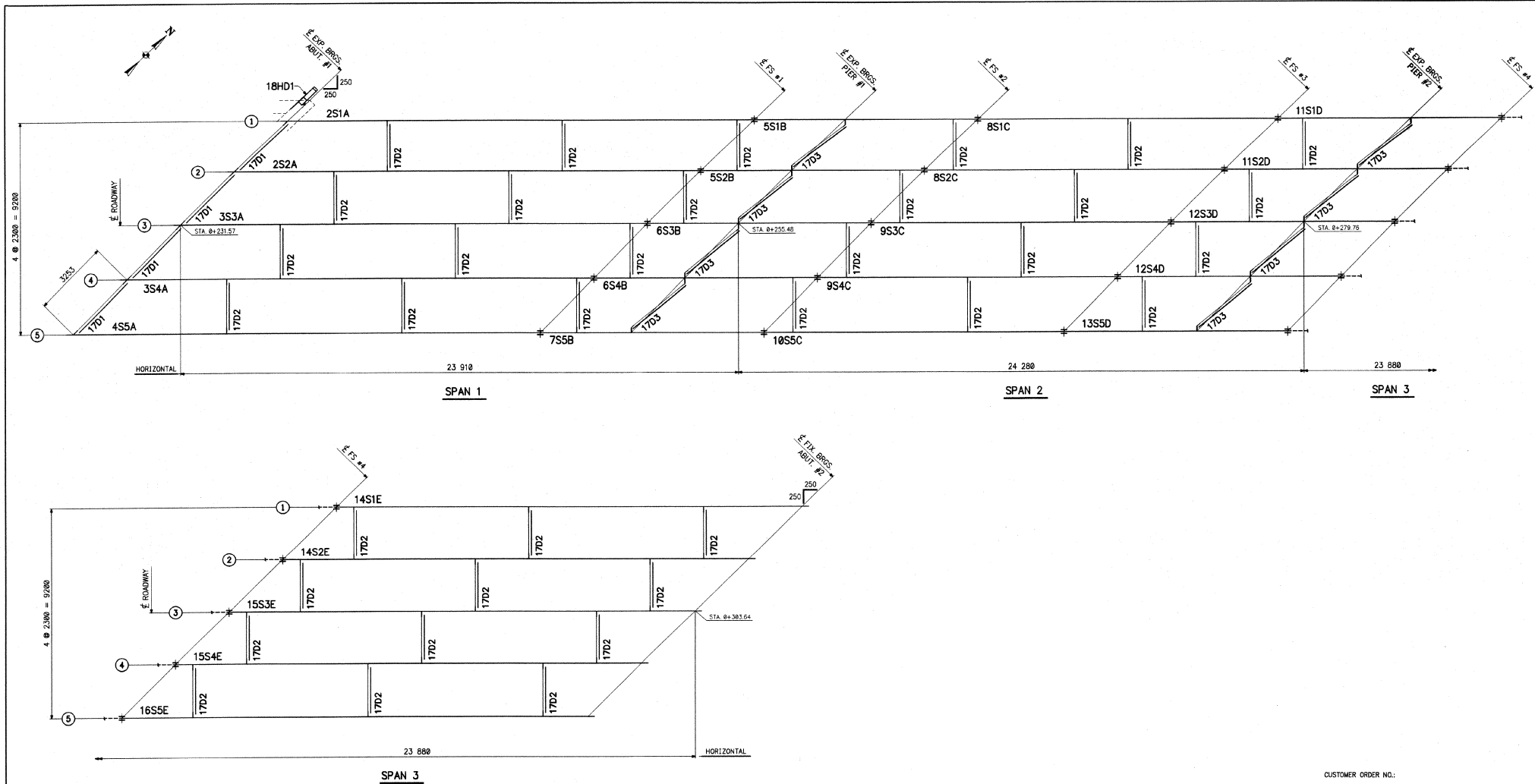
GENERAL NOTES		
APPR	Sp	2-7-00
APPR		
APPR		
APPR	ZHP	2-10-00
SHOP		
TBD		
DWG	AV	1/00
CHD	LD	1/00
REV 1		
REV 2		
REV 3		
REV 4		
REV 5		

MEGQUIER & JONES  
P.O. BOX 2640 1155 BROADWAY  
SOUTH PORTLAND, MAINE 04106  
PHONE (207)799-8555 FAX (207)767-2117

US 2 OVER MOOSE RIVER, BRIDGE NO. 117  
PROJ. No.: BNF 828-4(22)  
CONCORD, VERMONT

CUSTOMER: BECK AND BELLUCCI, INC.  
ENGINEER: STATE OF VERMONT, AGENCY OF TRANSPORTATION

JOB NO. J-92      DWG. NO. GN1



FIELD BOLT LIST										M164 TYPE-1 BOLTS, MECH. GALV., w/1 HVY. HEX NUT AND HARD. WASH. EACH			
No. REQD.	BOLT DIA.	BOLT LEN.	BOLTS /CONN.	No. OF CONN.	GRIP	THICKNESS OF PLS. CONNECTED		Pcs. CONNECTED AND REMARKS					
80	22 <sup>#</sup>	64	20	4	28	14	14				ABUT. DIAPHS.		

FIELD BOLT LIST										M164 TYPE-3 BOLTS, w/1 HVY. HEX NUT AND HARD. WASH. EACH			
No. REQD.	BOLT DIA.	BOLT LEN.	BOLTS /CONN.	No. OF CONN.	GRIP	THICKNESS OF PLS. CONNECTED		Pcs. CONNECTED AND REMARKS					
1440	22 <sup>#</sup>	83	72	20	46	14	18	14			WEB SPLICE		
800	22 <sup>#</sup>	108	20	40	70	20	30	20			TOP & BOT. FLG. SPLICE		
160	22 <sup>#</sup>	64	20	8	28	14	14				PIER DIAPHS.		
360	22 <sup>#</sup>	64	10	36	28	14	14				INT. DIAPHS.		

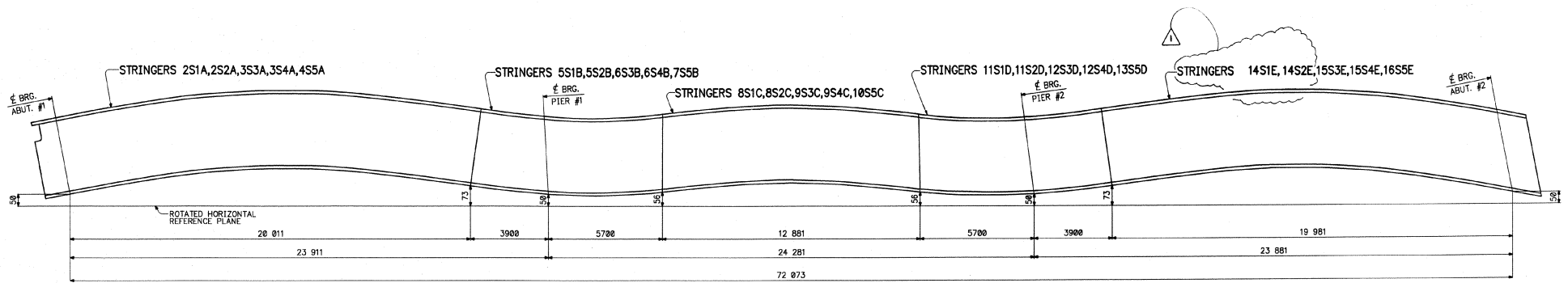
**METRIC TO ENGLISH BOLT LENGTH CONVERSION**

- 64mm = 2 1/2" LONG H.S.B.
- 83mm = 3 1/8" LONG H.S.B.
- 108mm = 4 1/4" LONG H.S.B.

**FRAMING PLAN**

CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO W270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 2# (LN)  
 FIELD CONN.: 22<sup>#</sup> HSB, A325M TYPE-3 (LN)  
 SHOT BLAST: SSPC-SP10 (LN)  
 PAINT: NONE (LN) SP10

APPR	Sp	2-1-00	FRAMING PLAN	
APPR			<b>MEGQUIER &amp; JONES</b> P.O. BOX 2649 1165 BROADWAY SOUTH PORTLAND, MAINE 04106 PHONE (207)799-8555 FAX (207)767-2117	
APPR				
APPR	2-1-00	2-10-00		
SHOP				
ENG				
DWG	AV	1/80	US 2 OVER MOOSE RIVER, BRIDGE NO. 117	
CHD	LD	1/80	PROJ. No.: BR 829-4(22)	
REV 1			CONCORD, VERMONT	
REV 2			CUSTOMER BECK AND BELLUCCI, INC.	
REV 3			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION	
REV 4				
REV 5				
JOB NO. J-92			DWG. NO. E1	



VERTICAL BLOCKING DIAGRAM FOR STRINGER LINES 1 THRU 5

CUSTOMER ORDER NO:  
 REFERENCE DRAWINGS:  
 STEEL- AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 24# (UN)  
 FIELD CONN: 22# HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE (UN) *SP10*

**BLOCKING NOTES:**

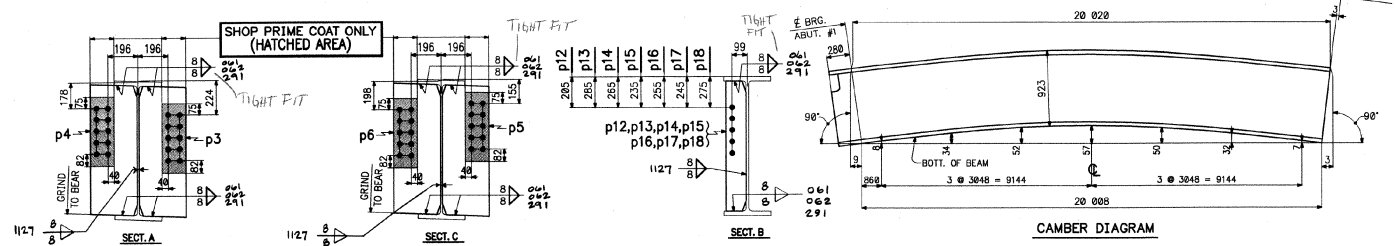
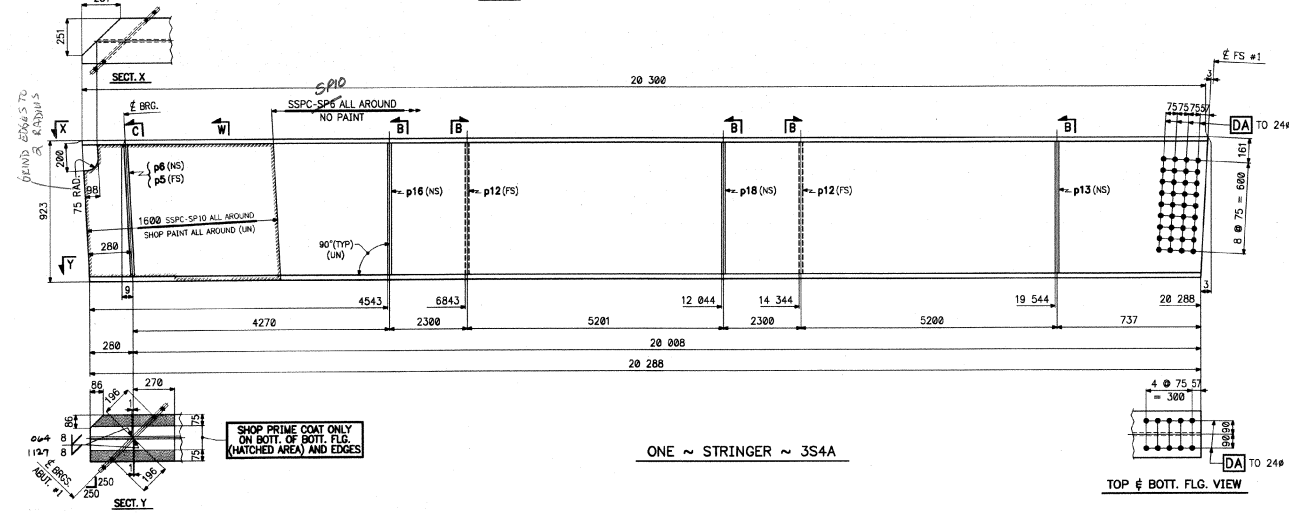
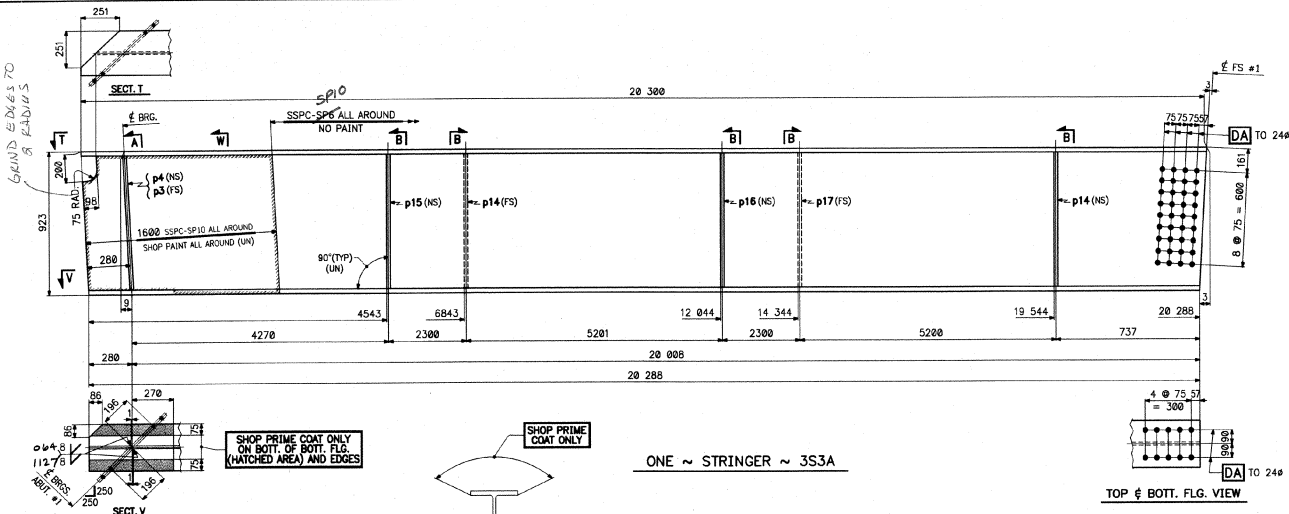
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. ALL DIMENSIONS ARE MEASURED ALONG OR TAKEN AT  $\bar{E}$  STRINGERS.
3. ALL VERTICAL BLOCKING DIMENSIONS ARE GIVEN TO THE BOT. OF BOT. FLANGE OF STRINGERS.

APPR	SP	DATE	DESCRIPTION
APPR			VERTICAL BLOCKING DIAGRAM
APPR			MEGQUIER & JONES
APPR			P.O. BOX 2849 1156 BROADWAY
APPR			SOUTH PORTLAND, MAINE 04106
APPR			PHONE (207)799-8555 FAX (207)767-2117
SHIP			
TRK			US 2 OVER WOOSE RIVER, BRIDGE NO. 117
DWG	AV	1/00	PROJ. No: BIF 828-4(22)
CHD	LD	1/00	CONCORD, VERMONT
REV 1		2-10-02	CUSTOMER BECK AND BELLUCCI, INC.
REV 2			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 3			
REV 4			
REV 5			

JOB NO. J-92 DWG. NO. SA1







PAGE	LINE	SHIP MARK	BILL OF MATERIAL NO. MARK	SHAPE	LENGTH	WT.	JOB NO. J-82	DWG. NO. 3	REMARKS
1	D	3S3A	1	W928 x 271	20 300				CWN
1	O		1	p3	PL 14 x 305	865			
1	O		1	p4	PL 14 x 305	865			
1	Q		2	p14	PL 14 x 138	863			
1	Q		1	p15	PL 14 x 138	863			
1	Q		1	p16	PL 14 x 138	863			
1	Q		1	p17	PL 14 x 138	863			
STRINGER									
1	D	3S4A	1	W928 x 271	20 300				CWN
1	O		1	p5	PL 14 x 305	865			
1	O		1	p6	PL 14 x 305	865			
1	Q		2	p12	PL 14 x 138	863			
1	Q		1	p13	PL 14 x 138	863			
1	Q		1	p16	PL 14 x 138	863			
1	Q		1	p18	PL 14 x 138	863			

**SHOP NOTE:**

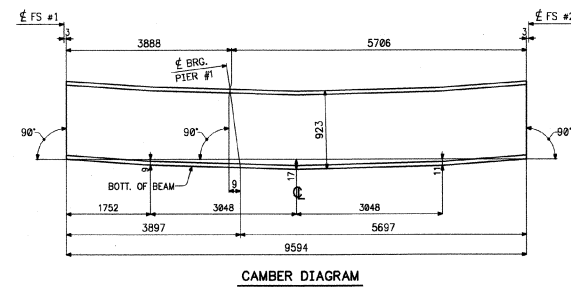
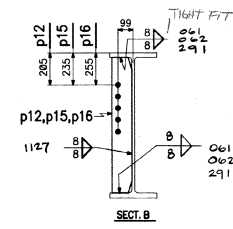
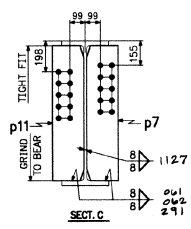
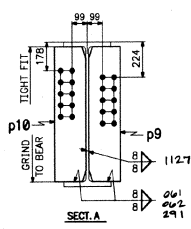
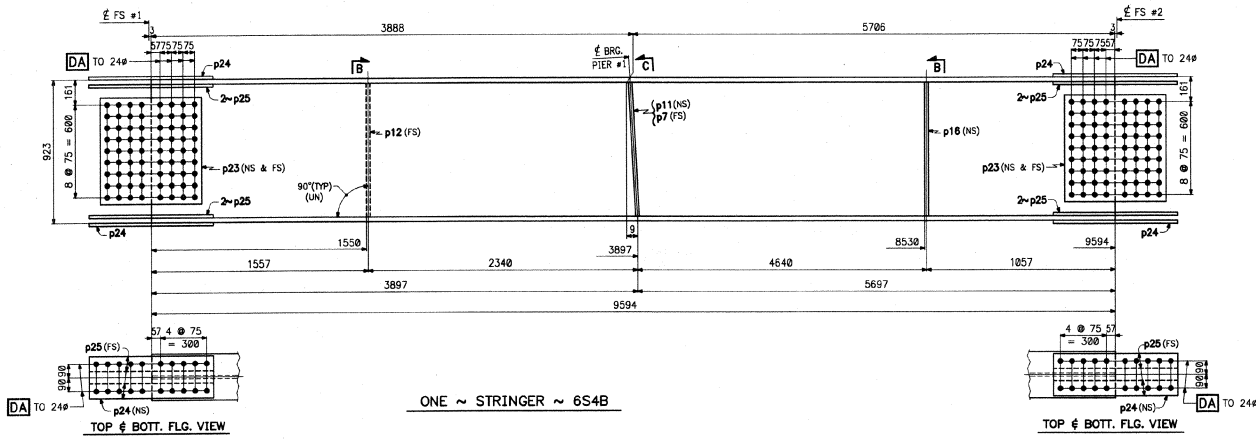
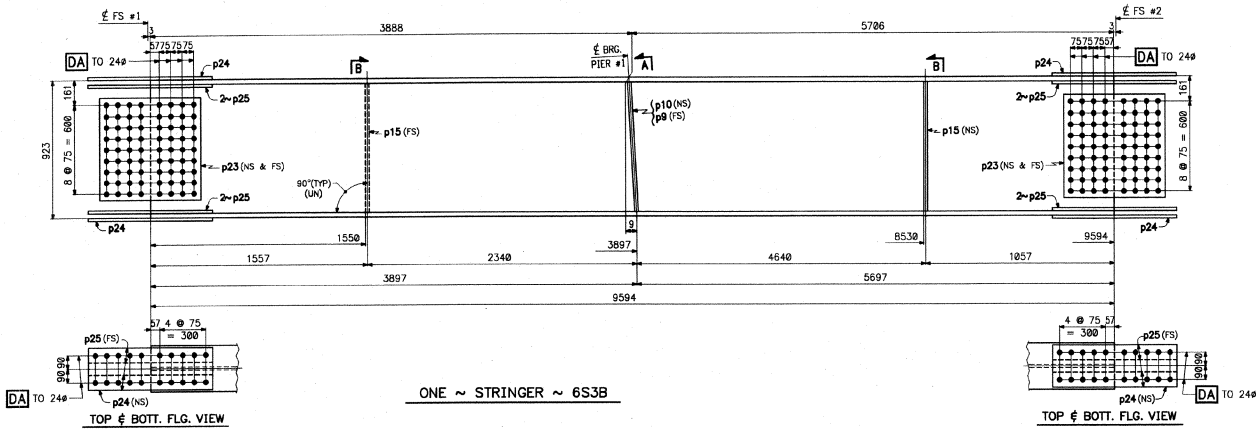
1. (DA) DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
2. CWN DENOTES CHAMPY V-NOTCH TESTING REQ'D.
3. SHOP PAINT DENOTES THE FULL THREE COAT PAINT SYSTEM AS DESCRIBED ON QN1.

CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 240 (UN)  
 FIELD CONN.: 22#HSR, A325M TYPE-3 (UN)  
 SHOT BLAST: AS NOTED  
 PAINT: AS NOTED

APPR	Sp	1-7-00	STRINGERS ~ 3S3A & 3S4A
APPR			MECQUIER & JONES
APPR			P.O. BOX 2640 1156 BROADWAY
APPR			SOUTH PORTLAND, MAINE 04106
SHOP			PHONE (207)798-8555 FAX (207)767-2117
F&D			US 2 OVER MOOSE RIVER, BRIDGE NO. 117
DWN	JY	1/00	PROJ. NO.: SHP 828-4(22)
CHD	JD	1/00	CONCORD, VERMONT
REV 1			CUSTOMER BECK AND BELLUCCI, INC.
REV 2			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 3			
REV 4			
REV 5			







PAGE	LINE	BILL OF MATERIAL				JOB NO. J-92		DWG. NO. 6
		SHIP MARK	NO.	MARK	SHAPE	LENGTH	WT.	REMARKS
1	E	6S3B	1		W920 x 271	9594		CWN
1	L		4	p23	PL 14 x 654	624		CWN
1	J		4	p24	PL 20 x 280	884		CWN
1	K		8	p25	PL 20 x 100	884		CWN
1	P		1	p9	PL 14 x 285	863		
1	P		1	p10	PL 14 x 285	863		
1	Q		2	p15	PL 14 x 130	863		
- STRINGER -								
1	E	6S4B	1		W920 x 271	9594		CWN
1	L		4	p23	PL 14 x 654	624		CWN
1	J		4	p24	PL 20 x 280	884		CWN
1	K		8	p25	PL 20 x 100	884		CWN
1	P		1	p7	PL 14 x 285	863		
1	P		1	p11	PL 14 x 285	863		
1	Q		1	p12	PL 14 x 130	863		
1	Q		1	p16	PL 14 x 130	863		

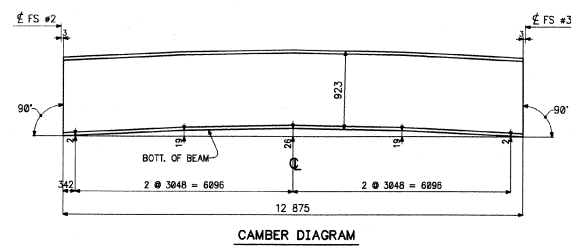
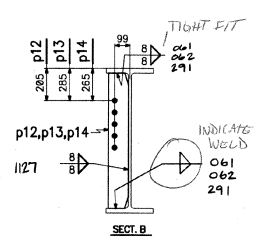
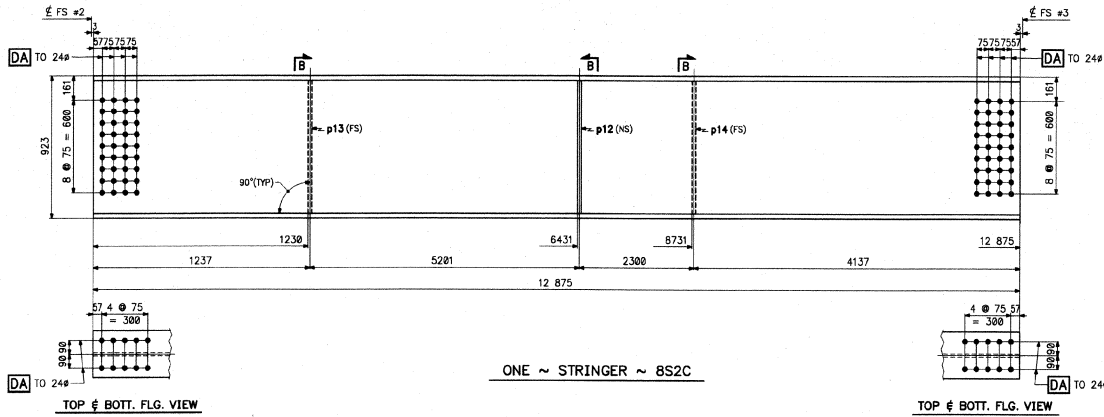
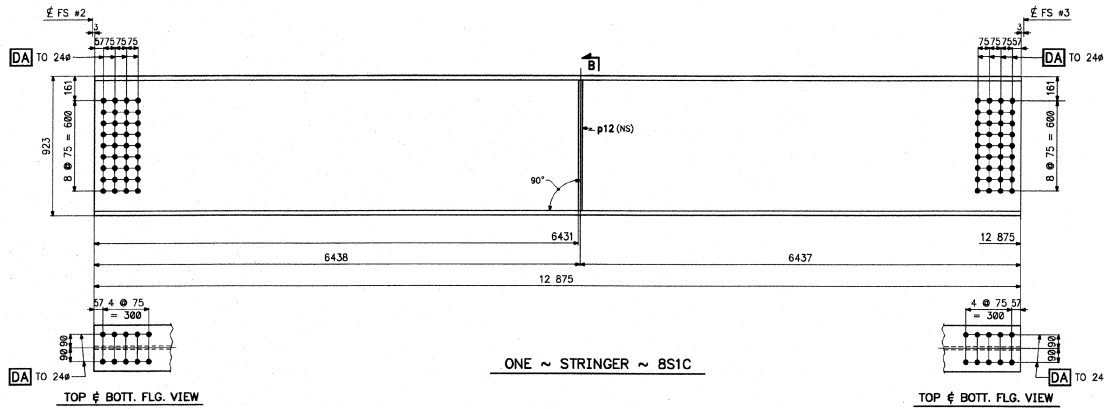
**SHOP NOTE:**  
 1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.  
 2. CWN DENOTES CHARPY V-NOTCH TESTING REQ'D.

CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 2# (UN)  
 FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE

APPR	Sp	1-1-00	STRINGERS ~ 6S3B & 6S4B
APPR			MEGQUIER & JONES
APPR			P.O. BOX 2640 1156 BROADWAY
APPR	2-10-20		SOUTH PORTLAND, MAINE 04106
SHOP			PHONE (207)799-8555 FAX (207)767-2117
ENG			US 2 OVER MOOSE RIVER, BRIDGE NO. 117
DWG	AV	1/80	PROJ. No.: BNF 828-4(22)
CHKD	LD	1/80	CONCORD, VERMONT
REV 1			CUSTOMER BECK AND BELLUCCI, INC.
REV 2			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 3			
REV 4			
REV 5			



PAGE	LINE	SHIP MARK	BILL OF MATERIAL	JOB NO. J-92	DWG. NO. 8		
			NO. MARK	SHAPE	LENGTH	WT.	REMARKS
1	F	BS1C	1	W928 x 271	12 875		CWN
1	Q		1	p12 PL14 x 130	863		
STRINGER							
1	F	BS2C	1	W928 x 271	12 875		CWN
1	Q		1	p12 PL14 x 130	863		
1	Q		1	p13 PL14 x 130	863		
1	Q		1	p14 PL14 x 130	863		

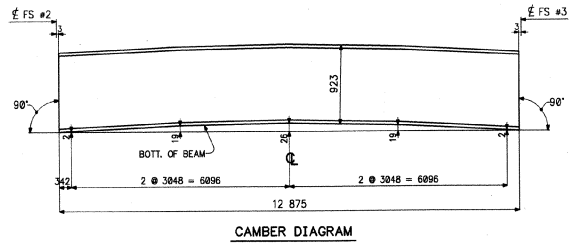
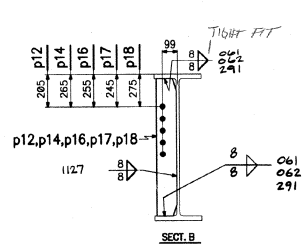
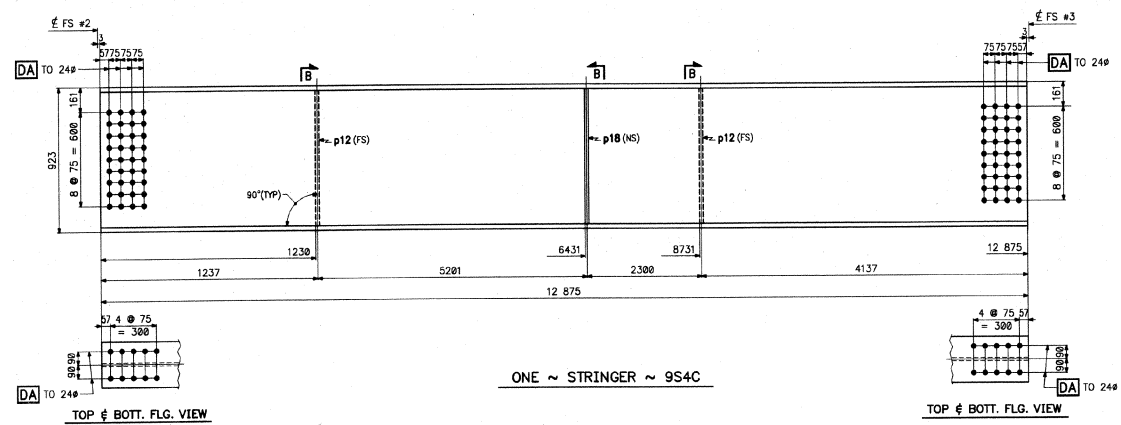
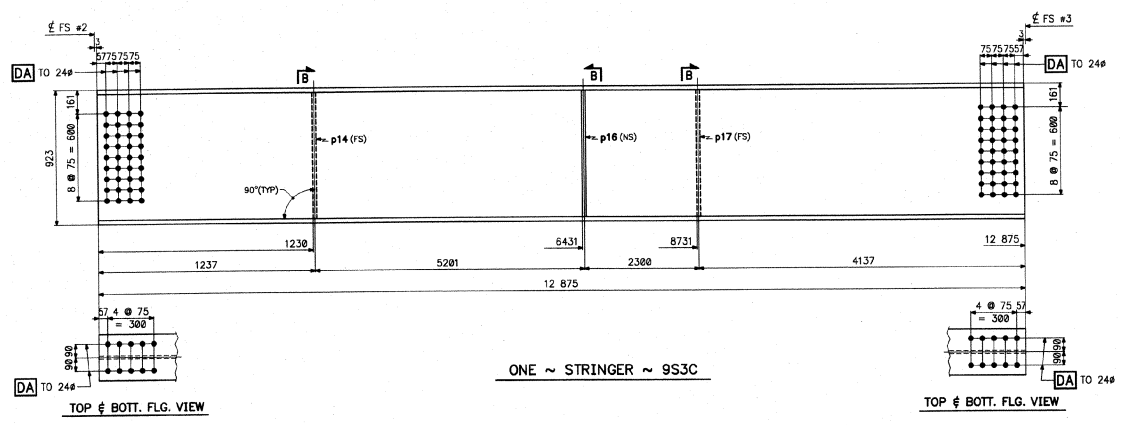


SHOP NOTE:  
 1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.  
 2. CWN DENOTES CHAMPY V-NOTCH TESTING REQ'D.

CUSTOMER ORDER NO:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO W270W GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 24# (UN)  
 FIELD CORN.: 22# HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE

APPR	5p	1-1-00	STRINGERS ~ BS1C & BS2C
APPR			
APPR			
APPR	2-10-00	2-10-00	
SHOP			
FMO			
CHKD	AV	1/20	US 2 OVER MOOSE RIVER, BRIDGE NO. 117
REV 1	LD	1/20	PRJL No.: BIF 028-4(22)
REV 2			CONCORD, VERMONT
REV 3			CUSTOMER: BECK AND BELLUCCI, INC.
REV 4			ENGINEER: STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 5			JOB NO. J-92

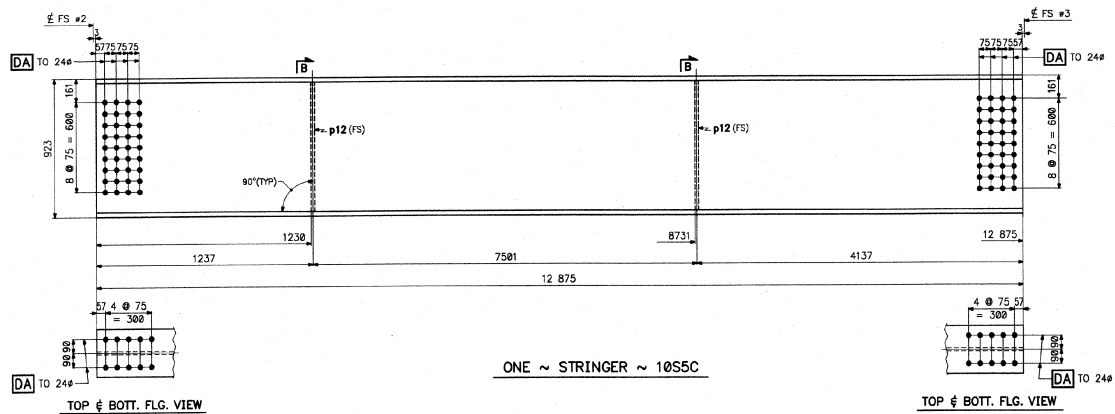
PAGE	LINE	BILL OF MATERIAL				JOB NO. J-92	DWG. NO. 9	REMARKS
		SHIP MARK	NO.	MARK	SHAPE			
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1	Q		1	p14	PL 14 x 130	863		
1	Q		1	p16	PL 14 x 130	863		
1	Q		1	p17	PL 14 x 130	863		
1	F	9S4C	1		W920 x 271	12 875		CWN
1	Q		2	p12	PL 14 x 130	863		
1	Q		1	p18	PL 14 x 130	863		



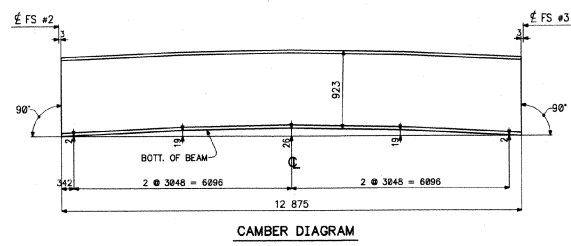
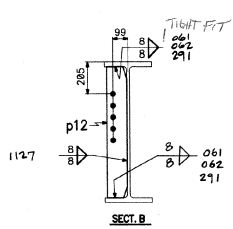
- SHOP NOTE:**
1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
  2. CWN DENOTES CHAMPY V-NOTCH TESTING REQ'D.

CUSTOMER ORDER NO.:  
REFERENCE DRAWINGS:  
STEEL: AASHTO M270M GR.345W (WEATHERING)  
WELDS: AS NOTED  
HOLES: 24# (UN)  
FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
SHOT BLAST: SSPC-SP6 SPO  
PAINT: NONE

APPR	DATE	BY	REVISION	DESCRIPTION
APPR	5/9	J.T.		STRINGERS ~ 9S3C & 9S4C
APPR				MEGQUIER & JONES
APPR				P.O. BOX 2649 1156 BROADWAY
APPR				SOUTH PORTLAND, MAINE 04106
APPR				PHONE (207)799-8550 FAX (207)767-2117
APPR				US 2 OVER MOOSE RIVER BRIDGE NO. 117
APPR				CONCORD, VERMONT
APPR				CUSTOMER BECK AND BELLUCCI, INC.
APPR				ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
APPR				JOB NO. J-92
APPR				DWG. NO. 9



PAGE	LINE	BILL OF MATERIAL				JOB NO. J-92	DWG. NO. 10
		SHIP MARK	NO. MARK	SHAPE	LENGTH		
1	F	10S5C	1	W928 x 271	12 875		CVN
1	G		2	p12 PL 14 x 138	863		



**SHOP NOTE:**

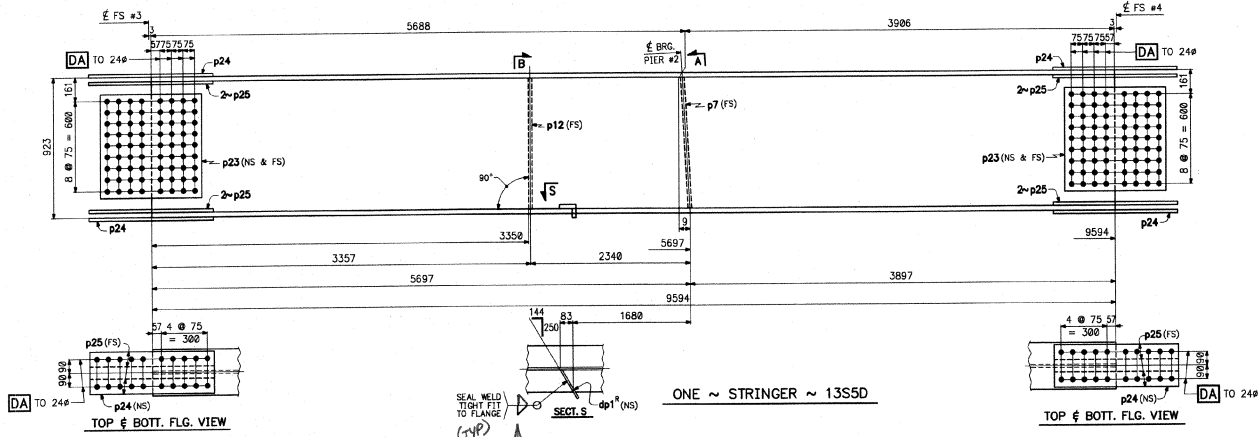
1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
2. CVN DENOTES CHARPY V-NOTCH TESTING REQD.

CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HOLES: 24# (UN)  
 FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE

APPR	DATE	DESCRIPTION
APPR	2-1-00	STRINGER ~ 10S5C
APPR		MEGQUIER & JONES
APPR		P.O. BOX 2849 1156 BROADWAY
APPR		SOUTH PORTLAND, MAINE 04106
APPR		PHONE (207)799-8555 FAX (207)767-2117
SHOP	2-16-00	
CHKD	J.D.	1/00
REV 1		US 2 OVER MOOSE RIVER, BRIDGE NO. 117
REV 2		PROJ. No.: SHF 828-4(22)
REV 3		CONCORD, VERMONT
REV 4		CUSTOMER BECK AND BELLUCCI, INC.
REV 5		ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
		JOB NO. J-92
		DWG. NO. 10

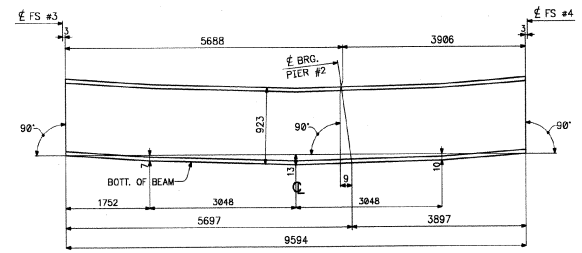
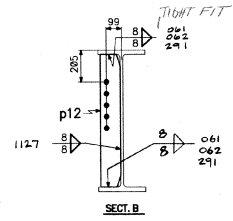
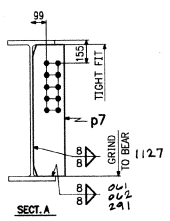






SEAL WELD  
TIGHT FIT  
TO FLANGE  
(11P)  
NOTE

ONE ~ STRINGER ~ 13S5D



CAMBER DIAGRAM

PAGE	LINE	BILL OF MATERIAL				JOB NO. J-92	DWG. NO. 13
		SHIP MARK	NO. MARK	SHAPE	LENGTH		
1	E	13S5D	1	STRINGER W920 x 271	9594		CWN
1	L	4	p23	PL 14 x 684	624		CWN
1	J	4	p24	PL 28 x 288	684		CWN
1	K	8	p25	PL 28 x 180	684		CWN
1	P	1	p7	PL 14 x 285	863		
1	Q	1	p12	PL 14 x 138	863		
1	R	1	dp1	PL 6 x 88	217		

SHOP NOTE:

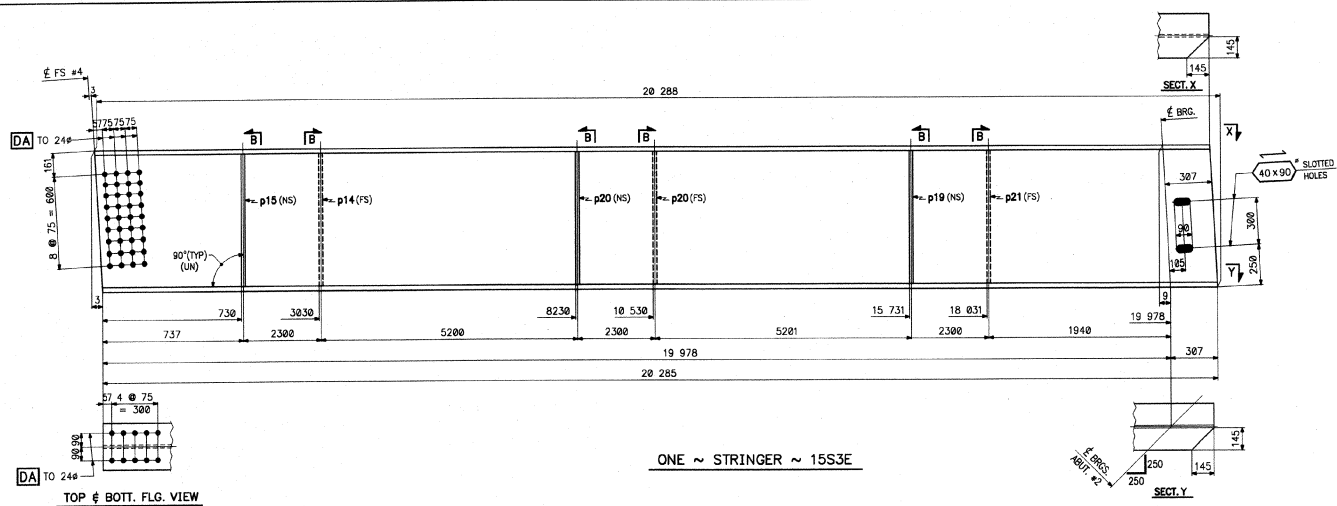
1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
2. CWN DENOTES CHAMFY V-NOTCH TESTING REQD.

CUSTOMER ORDER NO:  
REFERENCE DRAWINGS:  
STEEL: AASHTO M270M GR.345W (WEATHERING)  
WELDS: AS NOTED  
HOLES: 244 (UN)  
FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
SHOT BLAST: SSPC-SP6 SP10  
PAINT: NONE

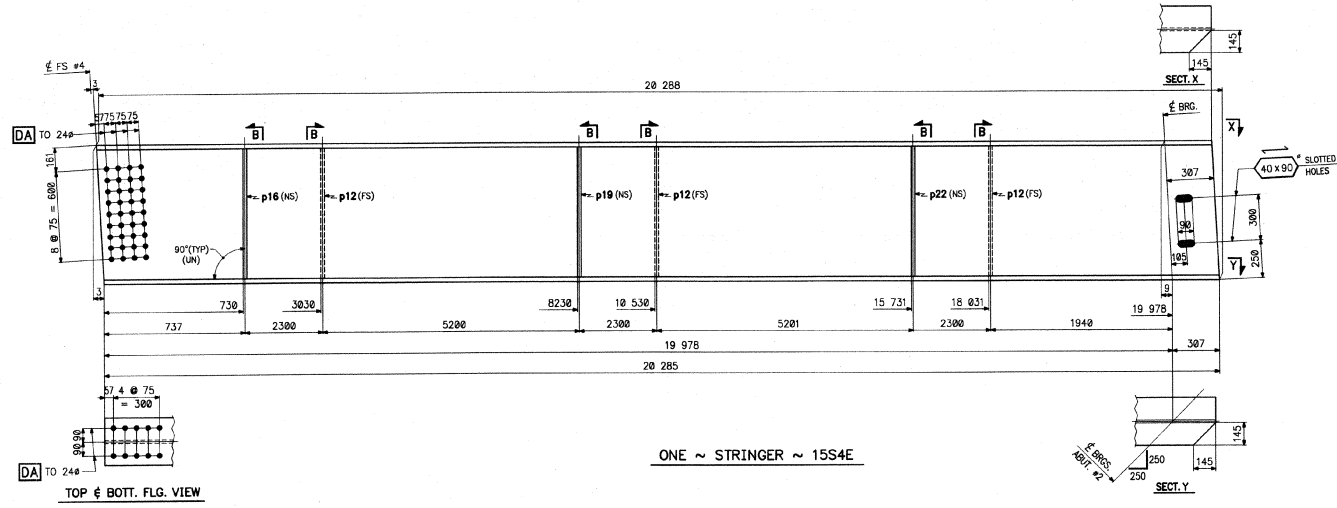
APPR	DATE	REVISION	DESCRIPTION
APPR	EP	2-1-00	
APPR			
APPR			
APPR	2-11-00	2-10-00	
SHIP			
FAC			
DWN	AV	1/00	
DWR	LD	1/00	
REV 1			
REV 2			
REV 3			
REV 4			
REV 5			

STRINGER ~ 13S5D  
**MEQUITER & JONES**  
P.O. BOX 2649 1156 BROADWAY  
SOUTH PORTLAND, MAINE 04106  
PHONE (207)799-8555 FAX (207)767-2117  
US 2 OVER MOOSE RIVER, BRIDGE NO. 117  
PROJ. NO.: SHF 028-4(22)  
CONCORD, VERMONT  
CUSTOMER: BECK AND BELLUCCI, INC.  
ENGINEER: STATE OF VERMONT, AGENCY OF TRANSPORTATION  
JOB NO. J-92 DWG. NO. 13

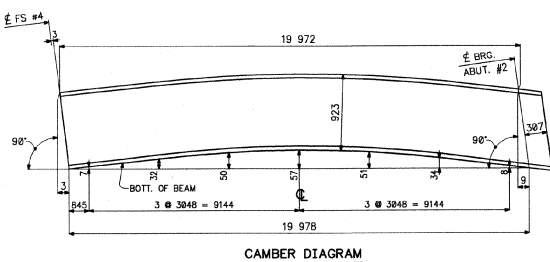
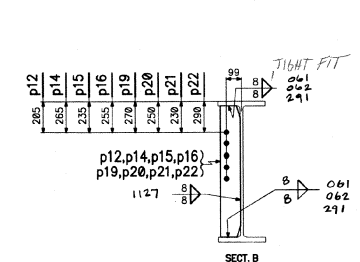




ONE ~ STRINGER ~ 15S3E



ONE ~ STRINGER ~ 15S4E



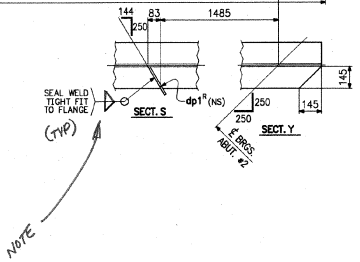
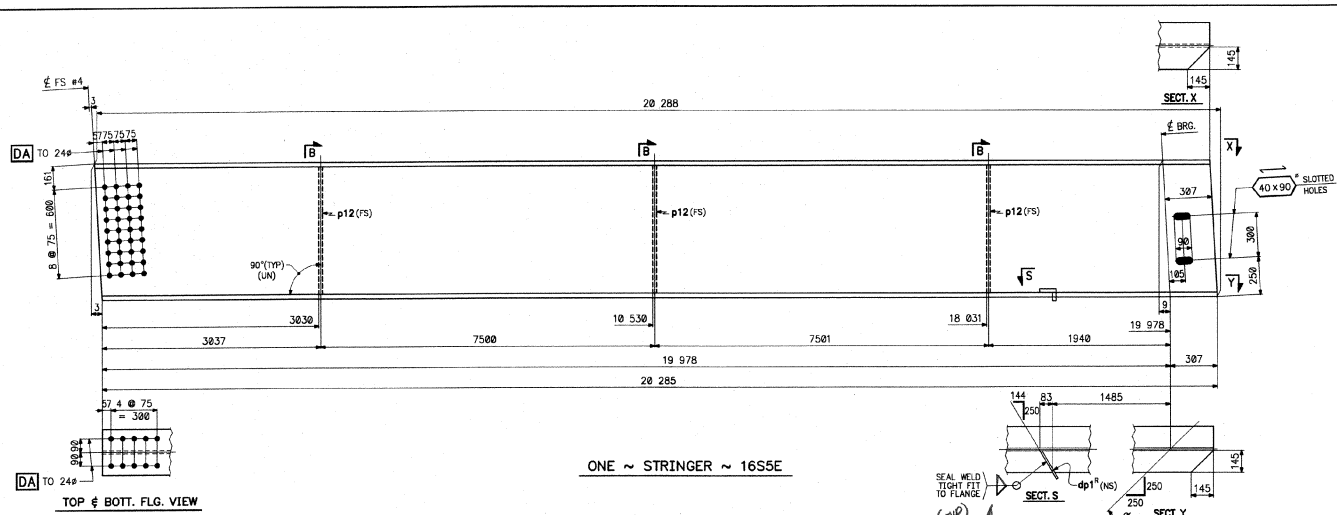
PAGE	LINE	SHIP MARK	BELL OF MATERIAL NO.	MARK	SHAPE	LENGTH	WT.	REMARKS
1	G	15S3E	1		-STRINGER	20 288		CWN
1	Q		1	p14	PL 14 x 130	863		
1	Q		1	p15	PL 14 x 130	863		
1	Q		1	p18	PL 14 x 130	863		
1	Q		2	p20	PL 14 x 130	863		
1	Q		1	p21	PL 14 x 130	863		
1	G	15S4E	1		-STRINGER	20 288		CWN
1	Q		3	p12	PL 14 x 130	863		
1	Q		1	p16	PL 14 x 130	863		
1	Q		1	p18	PL 14 x 130	863		
1	Q		1	p22	PL 14 x 130	863		

SHOP NOTE:

1. [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
2. CWN DENOTES CHARPY V-NOTCH TESTING REQ'D.

CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS AS NOTED  
 HOLES 246 (UN)  
 FIELD CONN.: 2" HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE

APPR	Sp	2-7-00	STRINGERS ~ 15S3E & 15S4E
APPR			MEGQUIER & JONES
APPR			P.O. BOX 2648 1156 BROADWAY
APPR			SOUTH PORTLAND, MAINE 04105
APPR	CHP	2-18-00	PHONE (207)799-8555 FAX (207)787-2117
SHO	LD	1/00	
DWN	AV	1/00	US 2 OVER MOOSE RIVER, BRIDGE NO. 117
CHKD	LD	1/00	PROJ. NO.: BHF 008-4(22)
REV 1			CONCORD, VERMONT
REV 2			CUSTOMER BECK AND BELLUCCI, INC.
REV 3			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 4			
REV 5			



NOTE

TOP & BOTT. FLG. VIEW

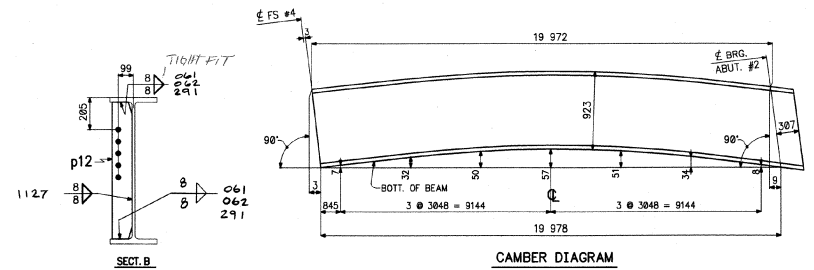
ONE ~ STRINGER ~ 16SSE

PHASE	LINE	BILL OF MATERIAL				JOB NO. J-92	DWG. NO. 18	
		SHIP MARK	NO.	MARK	SHAPE			LENGTH
1	G	16SSE	1		W920 x 271	20 288		CVN
1	Q		3	p12	PL 14 x 130	863		
1	R		1	dp1	PL 6 x 80	217		

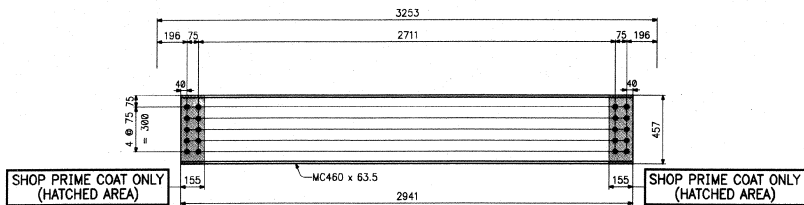
SHOP NOTE:

- [DA] DENOTES HOLES TO BE DRILLED FULL SIZE AT ASSEMBLY.
- CVN DENOTES CHARPY V-NOTCH TESTING REQ'D.

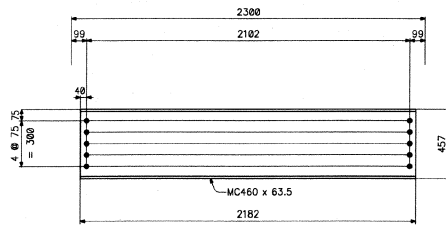
CUSTOMER ORDER NO.:  
 REFERENCE DRAWINGS:  
 STEEL: AASHTO M270M GR.345W (WEATHERING)  
 WELDS: AS NOTED  
 HES: 24# (UN)  
 FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
 SHOT BLAST: SSPC-SP10  
 PAINT: NONE



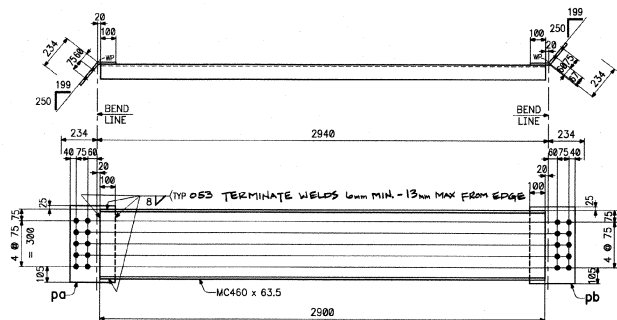
APPR	5 p	2-7-00	STRINGER ~ 16SSE
APPR			MEQUIER & JONES
APPR			P.O. BOX 2649 1156 BROADWAY
APPR			SOUTH PORTLAND, MAINE 04106
SHOP			PHONE (207)798-8555 FAX (207)767-2117
T&E			PROJ. NO.: SH7 825-4(22)
OWN	AV	1/00	US 2 OVER MOOSE RIVER, BRIDGE NO. 117
CHKD	LD	1/00	CONCORD, VERMONT
REV 1			CUSTOMER BECK AND BELLUCCI, INC.
REV 2			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 3			
REV 4			
REV 5			



4 ~ ABUTMENT DIAPHRAGMS ~ 17D1  
(SHOP PAINT)



36 ~ INTERMEDIATE DIAPHRAGMS ~ 17D2  
(NO PAINT)

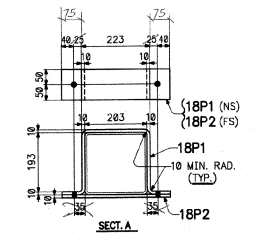
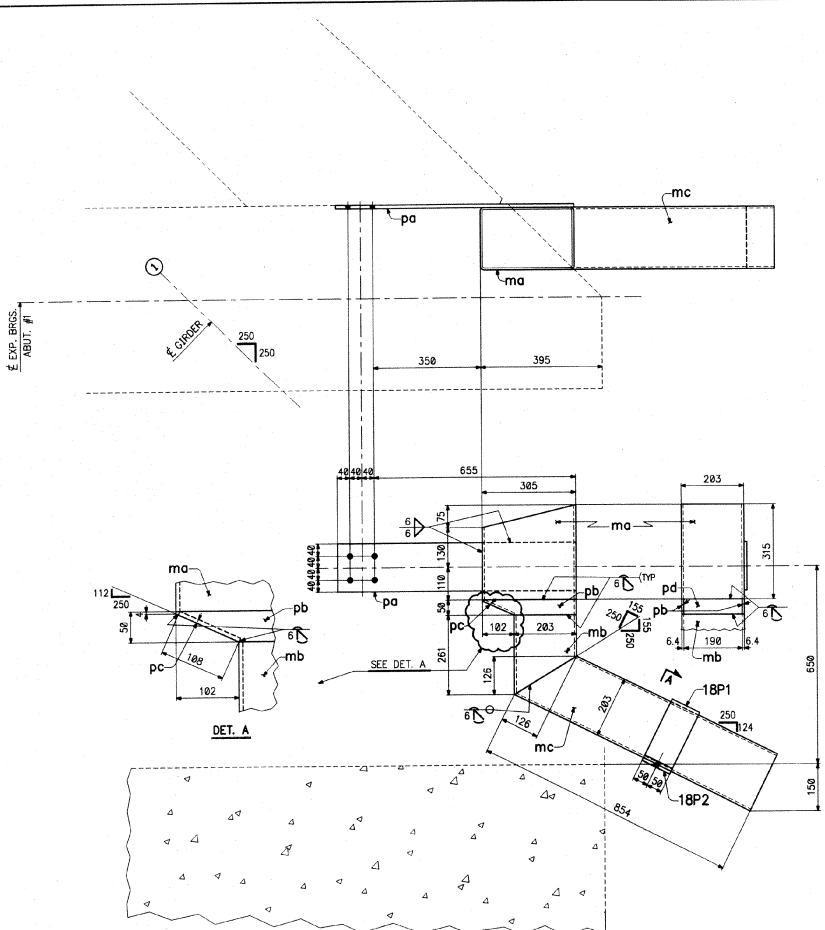


8 ~ PIER DIAPHRAGMS ~ 17D3  
(NO PAINT)

PAGE	LINE	BILL OF MATERIAL				JOB NO. J-92	DWG. NO. 17
		SHIP MARK	NO. MARK	SHAPE	LENGTH		
1	Y	17D1	4	ABUT. DIAPHRG. MC460 x 63.5	2941		
1	AA	17D2	36	INT. DIAPHRG. MC460 x 63.5	2182		
1	Z	17D3	8	PIER DIAPHRG. MC460 x 63.5	2900		
1	BB		8	PL14 x 505	295		BENT
1	BB		8	PL14 x 505	309		BENT

CUSTOMER ORDER NO.:  
REFERENCE DRAWINGS:  
STEEL: AASHTO W270M GR.345W (WEATHERING)  
WELDS: AS NOTED  
HOLES: 24# (UN)  
FIELD CONN.: 22# HSB, A325M TYPE-3 (UN)  
SHOT BLAST: AS NOTED  
PAINT: AS NOTED

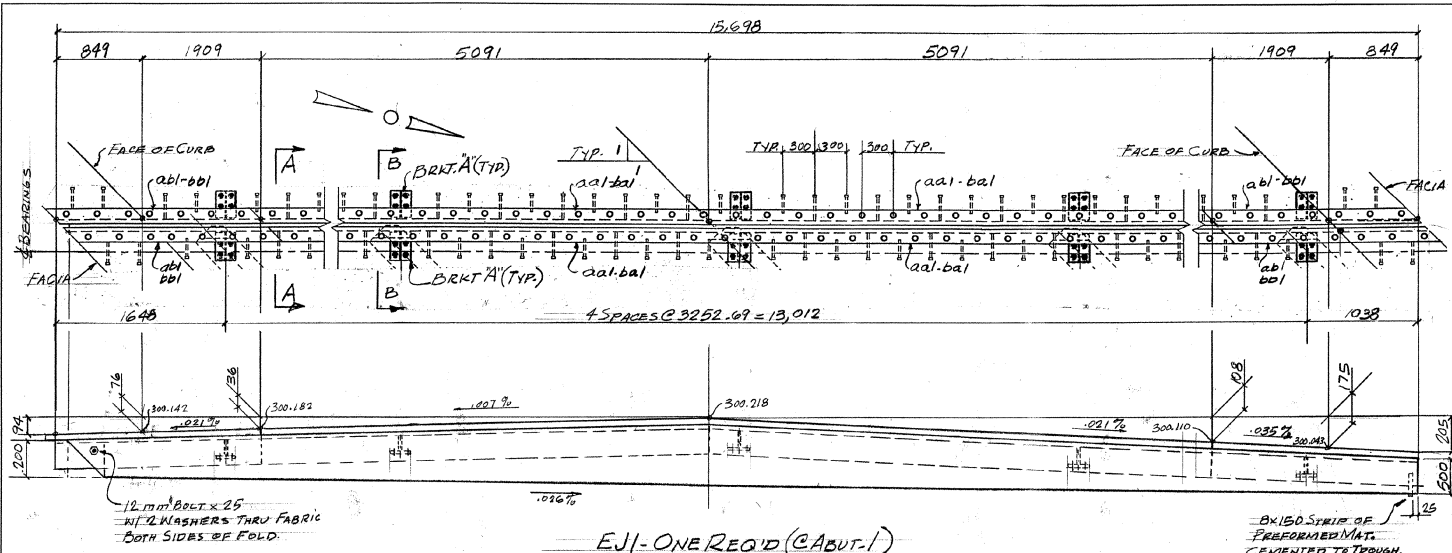
APPR		2-7-00		DIAPHRAGM DETAILS	
APPR	Sp			<b>MEGQUIER &amp; JONES</b> P.O. BOX 3849 1158 BROADWAY SOUTH PORTLAND, MAINE 04106 PHONE (207)799-8555 FAX (207)767-2117	
APPR					
APPR	ELIP		2-10-00		
SHOP					
FAC					
DWG	AV	1/00		US 2 OVER MOOSE RIVER, BRIDGE NO. 117 PROJ. NO.: BHF 028-4(22) CONCORD, VERMONT	
DWG	LD	1/00		CUSTOMER: BECK AND BELLUCCI, INC. ENGINEER: STATE OF VERMONT, AGENCY OF TRANSPORTATION	
REV 1				JOB NO. J-92      DWG. NO. 17	
REV 2					
REV 3					
REV 4					
REV 5					



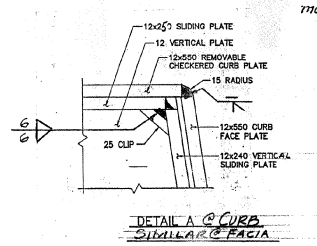
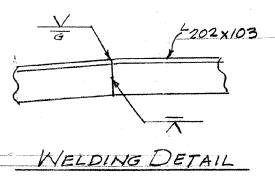
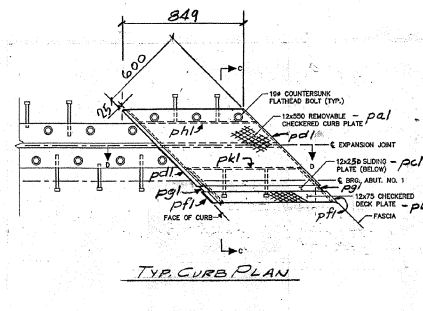
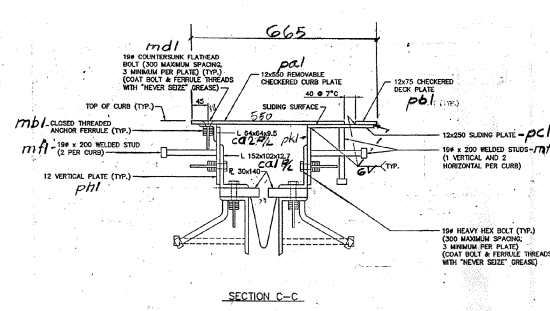
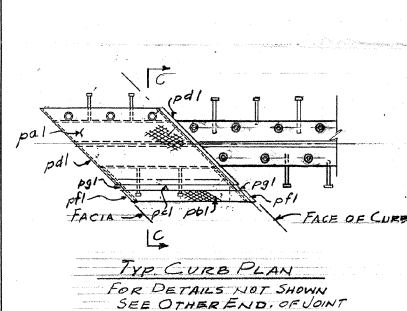
PAGE	LINE	BILL OF MATERIAL					JOB NO. J-92	DWG. NO. 18
		SHP MARK	NO	MARK	SHAPE	LENGTH		
		18HD1	1		HOPPER/DOWNSPOUT			GALV.
U	B	1	ma	TS305x203x6.4	315			GALV. ASTM A500
U	C	1	mb	TS203x203x6.4	261			GALV. ASTM A500
U	D	1	ma	TS203x203x6.4	854			GALV. ASTM A500
U	G	1	pa	PL12 x 180	775			GALV. ASTM A307 G.P.A.
U	H	2	pb	PL6.4 x 50	306			GALV. ASTM A307 G.P.A.
U	I	1	pc	PL6.4 x 108	190			GALV. ASTM A307 G.P.A.
U	J	1	pd	PL6.4 x 50	190			GALV. ASTM A307 G.P.A.
STRAP PLATES								
3	L	18P1	1	PL10 x 100	735			GALV. BENT
3	M	18P2	1	PL10 x 100	353			GALV.

CUSTOMER ORDER NO.:  
REFERENCE DRAWINGS:  
STEEL: AASHTO M270M GR.258  
WELDS AS NOTED  
HOLES: 16#  
FIELD CONN.: 12# BOLTS A307 GR. A  
PAINT: NONE (GALVANIZED)

APPR	DATE	REVISION	DESCRIPTION
sp	2-17-00		HOPPER & DOWNSPOUT DETAILS
APP			
APP			
APP	2/17/00	2-10-00	
SHP			
ENG			
DWN	AY	1/00	US 2 OVER MOOSE RIVER, BRIDGE NO. 117
CHD	LD	1/00	PROJ. No.: BHF 608-4(22) CONCORD, VERMONT
REV 1			CUSTOMER BECK AND BELLUCCI, INC.
REV 2			ENGINEER STATE OF VERMONT, AGENCY OF TRANSPORTATION
REV 3			
REV 4			
REV 5			



ADM. INFO		SHOP BILL		JOB NO.	DRG. NO.		
				082	01		
PAGE	LINE	NO.	DESCRIPTION	QUANTITY	UNIT	REMARKS	WEIGHT
1	1		EXP JOINT	15,700		EJ1	
	4		2"X12X10 3X12.7	5194	bol		
	4		DO	2861	bol		
	4		BAR 30 X 140	5231	bol		
	4		DO	2898	bol		
	10		1/2" X 200	265	bol		
	10		1/2" X 152	265	bol		
	1		PROFORMED PRECAST	16,000			
	2		TABLE 1, AX 7.5	18,000			
	106		1 1/4" X 205	60	mat		
	106		1 1/4" X 205	255	mat		
	107		1 1/4" X 205	255	mat		
	5		1 1/4" X 205	205	API		
	20		1 1/4" X 205	255	mat		
	20		2 1/2" X 205	180	751		
	20		DO	275	752		
	80		2 1/2" HEX NUTS	75	w1		
	80		DO	75	w1		
	2		CURB 12 X 250	1328	pal		
	2		CURB 12 X 175	853	bol		
	2		1/2" X 250	1014	bol		
	4		1/2" X 205	778	bol		
	4		1/2" X 100	208	bol		
	4		1/2" X 95	324	bol		
	2		1/2" X 230	800	bol		
	2		DO	152	bol		
	4		1/2" X 102 X 17	916	bol		
	2		6.4 X 6.4 X 9.5	278	bol		
	6		1 1/4" X 100 BOLTS	52	mat		
	12		1 1/4" X 100 BOLTS	60	mat		
	12		1 1/4" X 100 BOLTS	60	mat		
	10		1 1/4" X 100 BOLTS	200	mat		
	12		1 1/4" X 100 BOLTS	92	mat		
	10		1 1/4" X 102 X 10	430	bol		
	20		1 1/4" BOLTS	90			



**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONTRACTOR FOR THE CONTRACT DOCUMENTS AND APPROVED, BUT DOES NOT CONSTITUTE AN ENDORSEMENT OF THE WORK, AND IS SUBJECT TO THE CONTRACT DOCUMENTS AND REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.

DATE: 4/20/10

BY: [Signature]

PLANS DRAWN USING  
**METRIC**  
DIMENSIONS

RECEIVED  
MAR 27 2000  
VHB, Inc.

**PAY ITEM 516.10**

**WORK THIS DWG. w/ DWG. J2**

DATE: 4/22/10

PROJECT NO. **BHF-02B-4(22) STATE PROJECT NO. 117**

MATERIAL: GALVANIZED PER SUBJECT 506.15

DESCRIPTION: **EXP. JOINT- ABUT. NO. 1**

DRAWN BY: **JPF**

DATE: **3-00**

CHCK BY: **EU**

APPROV BY: [Signature]

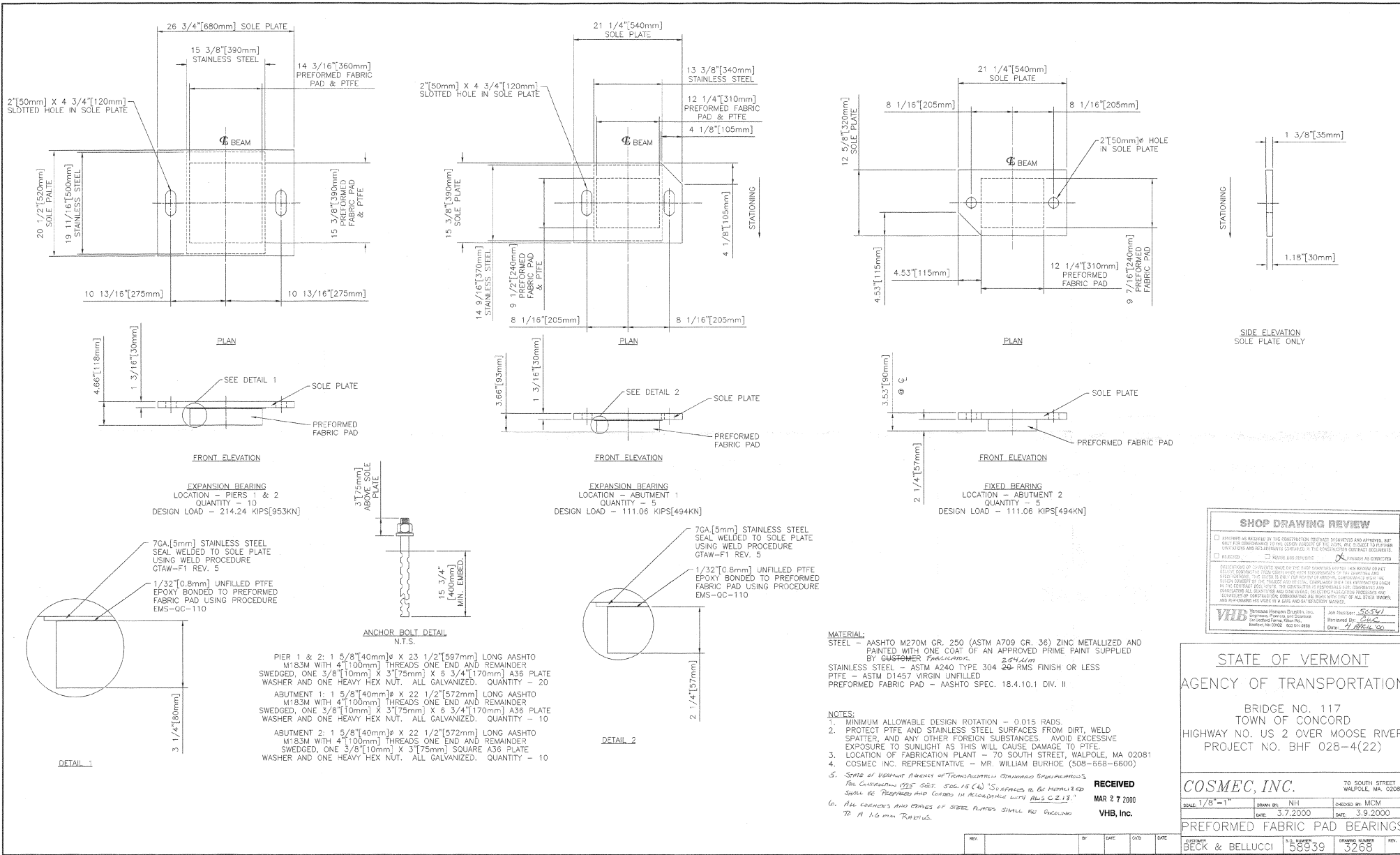
CUSTOMER: **BECK & BELLUCCI**

**CASCO BAY STEEL STRUCTURES, INC.**

5 INDUSTRY ROAD SOUTH PORTLAND, ME 04108  
PHONE (207) 772-2533 FAX (207) 772-0580

JOB NO. **082** DRG. NO. **01**





**EXPANSION BEARING**  
 LOCATION - PIERS 1 & 2  
 QUANTITY - 10  
 DESIGN LOAD - 214.24 KIPS[953KN]

**EXPANSION BEARING**  
 LOCATION - ABUTMENT 1  
 QUANTITY - 5  
 DESIGN LOAD - 111.06 KIPS[494KN]

**FIXED BEARING**  
 LOCATION - ABUTMENT 2  
 QUANTITY - 5  
 DESIGN LOAD - 111.06 KIPS[494KN]

- PIER 1 & 2: 1 5/8" [40mm] Ø X 23 1/2" [597mm] LONG AASHTO M183M WITH 4" [100mm] THREADS ONE END AND REMAINDER SWEDGED, ONE 3/8" [10mm] X 3" [75mm] X 6 3/4" [170mm] A36 PLATE WASHER AND ONE HEAVY HEX NUT. ALL GALVANIZED. QUANTITY - 20
- ABUTMENT 1: 1 5/8" [40mm] Ø X 22 1/2" [572mm] LONG AASHTO M183M WITH 4" [100mm] THREADS ONE END AND REMAINDER SWEDGED, ONE 3/8" [10mm] X 3" [75mm] X 6 3/4" [170mm] A36 PLATE WASHER AND ONE HEAVY HEX NUT. ALL GALVANIZED. QUANTITY - 10
- ABUTMENT 2: 1 5/8" [40mm] Ø X 22 1/2" [572mm] LONG AASHTO M183M WITH 4" [100mm] THREADS ONE END AND REMAINDER SWEDGED, ONE 3/8" [10mm] X 3" [75mm] X 6 3/4" [170mm] A36 PLATE WASHER AND ONE HEAVY HEX NUT. ALL GALVANIZED. QUANTITY - 10

**SHOP DRAWING REVIEW**

APPROVED AS REQUIRED IN THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED, BUT NOT BE RESPONSIBLE FOR THE DESIGN QUALITY OF THE WORK, AND SUBJECT TO OTHER LIMITATIONS AND RESTRICTIONS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REVIEWED  REVIEWED AND APPROVED  REVIEWED AND APPROVED

REVISIONS BY CONTRACTOR MADE ON THE SHOP DRAWINGS SHOWN ARE REVIEWED BY THE ACTIVE ENGINEER OF RECORD AND APPROVED WITH THE UNDERSTANDING THAT THE DESIGN ENGINEER OF THE PROJECT ASSUMES FULL LIABILITY FOR THE ACCURACY OF THE DESIGN AND THE QUALITY OF THE CONSTRUCTION. THE ENGINEER OF RECORD AND THE CONTRACTOR ARE RESPONSIBLE FOR THE DESIGN AND THE QUALITY OF THE CONSTRUCTION AND THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND THE QUALITY OF THE CONSTRUCTION. ALL REVISED SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. ANY REVISED SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

VHB  
 VERRILLI HUBBARD & BROWN  
 ENGINEERS ARCHITECTS  
 100 STATE STREET  
 WASHINGTON, VT 05676  
 Phone: 802-533-1100  
 Fax: 802-533-1101  
 Date: 4/11/00

**STATE OF VERMONT**  
 AGENCY OF TRANSPORTATION

BRIDGE NO. 117  
 TOWN OF CONCORD  
 HIGHWAY NO. US 2 OVER MOOSE RIVER  
 PROJECT NO. BHF 028-4(22)

**COSMEC, INC.** 70 SOUTH STREET  
 WALPOLE, MA 02081

SCALE: 1/8" = 1" DRAWN BY: NH CHECKED BY: MCM  
 DATE: 3.7.2000 DATE: 3.9.2000

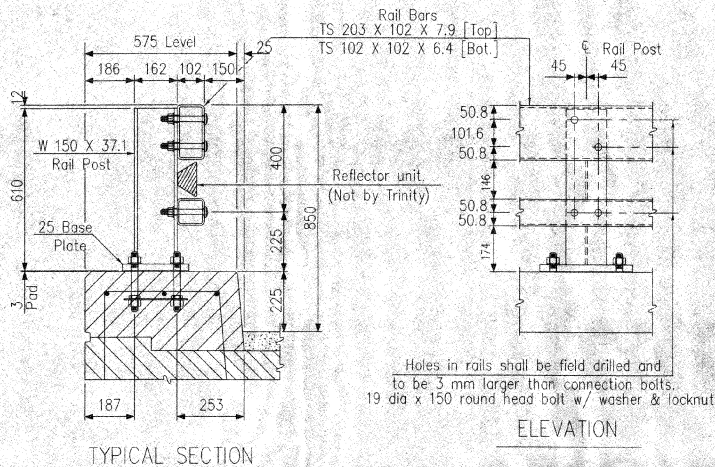
**PREFORMED FABRIC PAD BEARINGS**

CUSTOMER: BECK & BELLUCCI S.D. NUMBER: 58939 DRAWING NUMBER: 3268

**MATERIAL:**  
 STEEL - AASHTO M270M GR. 250 (ASTM A709 GR. 36) ZINC METALLIZED AND PAINTED WITH ONE COAT OF AN APPROVED PRIME PAINT SUPPLIED BY CUSTOMER. *FRANGLIARIC 2504.11M*  
 STAINLESS STEEL - ASTM A240 TYPE 304 2B FINISH OR LESS  
 PTFE - ASTM D1457 VIRGIN UNFILLED  
 PREFORMED FABRIC PAD - AASHTO SPEC. 18.4.10.1 DIV. II

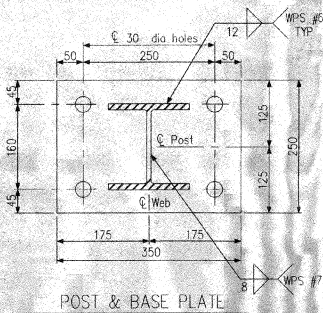
- NOTES:**
- MINIMUM ALLOWABLE DESIGN ROTATION = 0.015 RADS.
  - PROTECT PTFE AND STAINLESS STEEL SURFACES FROM DIRT, WELD SPATTER, AND ANY OTHER FOREIGN SUBSTANCES. AVOID EXCESSIVE EXPOSURE TO SUNLIGHT AS THIS WILL CAUSE DAMAGE TO PTFE.
  - LOCATION OF FABRICATION PLANT - 70 SOUTH STREET, WALPOLE, MA 02081
  - COSMEC, INC. REPRESENTATIVE - MR. WILLIAM BURHOE (508-688-8600)
  - STATE OF VERMONT AGENCY OF TRANSPORTATION CONTRACT DOCUMENTS SPECIFICATION'S FOR CONSTRUCTION 1997, SEC. 506.15 (4) "SURFACES TO BE PAINTED SHALL BE RECEIVED AND CHECKED IN ACCORDANCE WITH AASHTO 11.7"
  - ALL CORNERS AND EDGES OF STEEL PLATES SHALL BE ROUNDED TO A 1/8" MIN. RADIUS.
- RECEIVED  
 MAR 27 2000  
 VHB, Inc.

REV.	BY	DATE	QTY	DATE

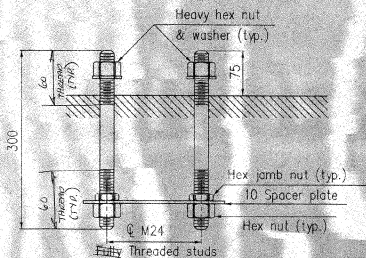


TYPICAL SECTION

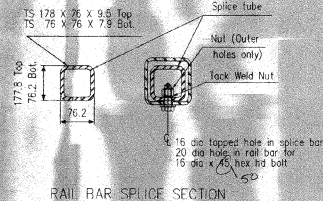
ELEVATION



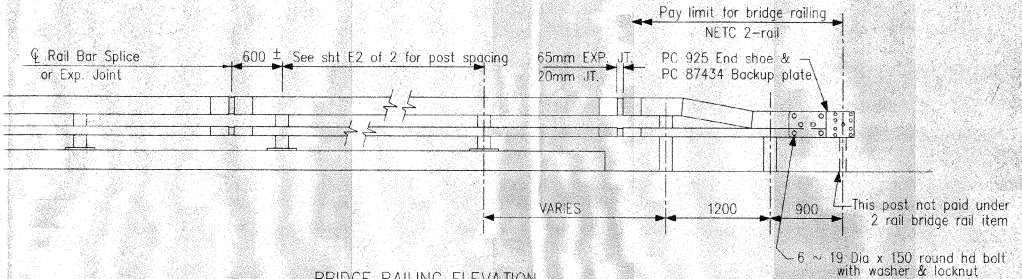
POST & BASE PLATE



RAIL POST ANCHORAGE

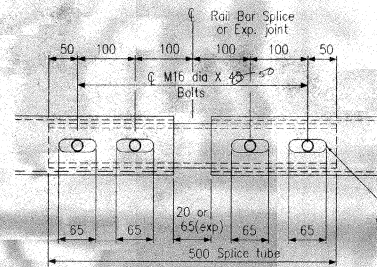


RAIL BAR SPLICE SECTION



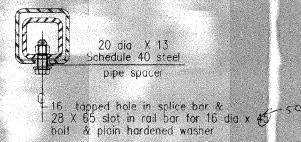
BRIDGE RAILING ELEVATION

See sht E2 of 2 for railing layout.



RAIL BAR SPLICE & EXP. JOINT DETAIL

[Bottom View]



EXPANSION JOINT SECTION

For details not shown, see "Rail Bar Splice Section"

**SHOP DRAWING REVIEW**

Changes to drawings are the responsibility of the contractor and approved only after written approval by the engineer. The contractor shall be responsible for the accuracy of the drawings and documents.

Revisions shall be indicated by a revision table.

**VHB** Bridge & Highway Division  
 1170 N. STATE STREET  
 GRAND, OHIO 44040  
 PHONE: 419-285-2000  
 FAX: 419-285-2001

Job Number: 52-531  
 Reviewed By: [Signature]  
 Date: 6/11/00

NOTES

- All work and materials shall conform to the provisions of Section 525 - Railings of the Standard Specifications for Construction.
- Rail posts shall be set normal to grade.
- Sections of rail bar shall be attached to a minimum of two (2) rail posts and preferably to at least four (4) posts.
- Rail bar expansion joints shall be provided in any rail bar spanning a superstructure expansion joint. Expansion joint width shall be 60mm at 7 °C and will be adjusted in the field by the Engineer.
- All parts shall be galvanized after fabrication in accordance with AASHTO M111, except that hardware shall meet the requirements of AASHTO M270. *Paints, Primers and Coatings shall conform to the requirements of the Standard Specifications for Construction.*
- Rail posts anchoring nuts shall be tightened to a snug fit and given an additional 45 degree turn.
- Any bending of rail shall be by shop procedure only.
- ANCHOR BOLTS - ASTM F436H CLASS 7.9*
- ALL OTHER BOLTS, UNLESS NOTED, - AASHTO HIGHWAY TYPE II*

GRAND ENGINEERING DEPT.

ISSUED

APPROVAL DRAWING

MAR 08 2000

TRINITY INDUSTRIES, INC.  
 1170 N. STATE STREET  
 GRAND, OHIO 44040

SHOP DETAILS ARE ON D1 AND D2 OF 2

REV	CHG	BY	DATE	REMARKS

PAY ITEM 525.33 - NETC 2-RAIL

STATE OF VERMONT AGENCY OF TRANSPORTATION U.S. ROUTE 2, OVER MOOSE RIVER TOWN OF CONCORD, COUNTY OF ESSEX STATE PROJECT NO. BHF-028-4(22) BRIDGE NO. 117	DRAWN: DOC CHECKED: TP APPROVED: [Signature]
CUSTOMER: BECK & GELUGGI, INC. P.O. No. [ ]	DATE: 02/18/00 ENL. FILE # 22-102334-E1
TRINITY INDUSTRIES, INC. DALLAS, TX GRAND, OH CENTERVILLE, VT UMA, OH	SHRINK: ET OF 2 TRINITY SALES ORDER NO. (22) 102334 REV: 0

RECEIVED  
 MAR 3 0 2000  
 VHB, INC.

SHOP DRAWING USING  
**METRIC**  
 DIMENSIONS

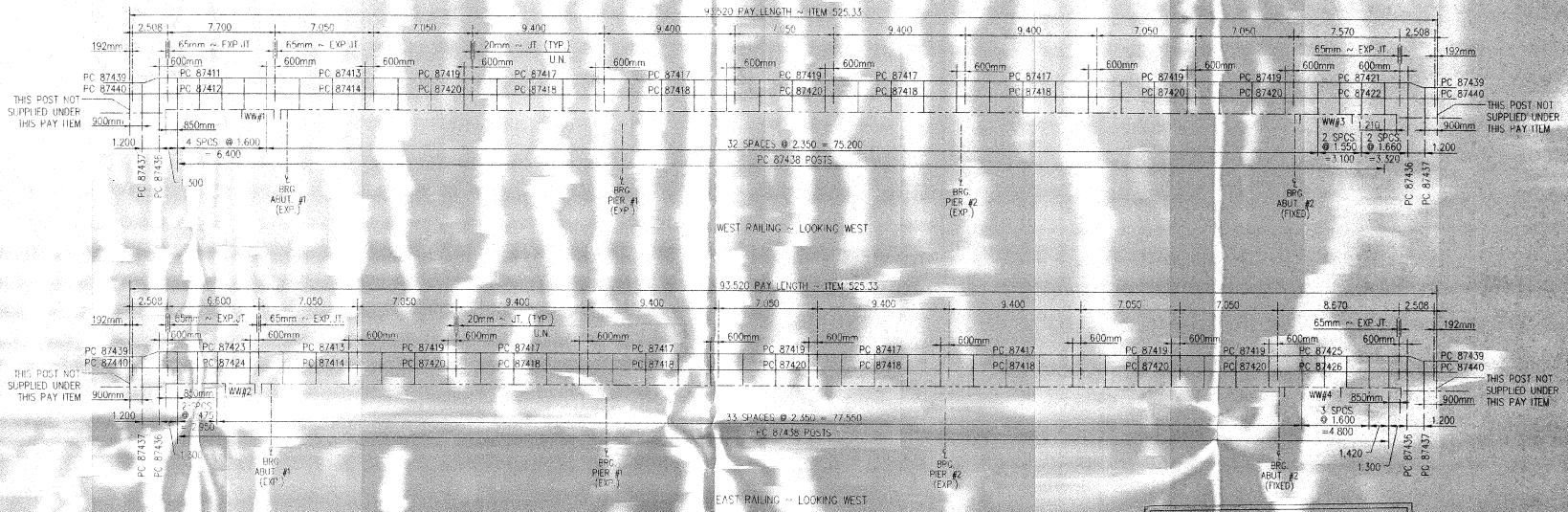
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TRINITY INDUSTRIES, INC.  
 GRAND, OH  
 44040



FOR WORTH, TX  
 EL PASO, TEXAS



POST & RAIL ERECTION DETAIL

**SHOP DRAWING REVIEW**

IT IS HEREBY APPROVED BY THE SHOP DRAWING CHECKING OFFICER AND APPROVED FOR THE PROJECT BY THE PROJECT ENGINEER AS SHOWN ON THESE DRAWINGS. THE REVIEWING AND APPROVING OFFICERS ARE THE PROPERTY OF THE PROJECT ENGINEER'S FIRM.

DATE: 02/18/00

BY: [Signature]

FOR: [Signature]

GRANDENGINEERINGDEPT.  
**ISSUED**  
MAR 05 2000

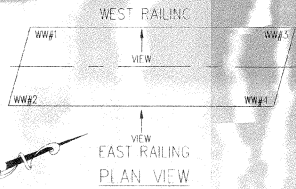
**APPROVAL DRAWING** TRINITY INDUSTRIES, INC.  
1170N. STATE STREET  
GIRARD, OHIO 44420

SHOP DETAILS ARE ON D1 AND D2 OF 2

REV	CHKD	BY	DATE	REMARKS

**PAY ITEM 525.33 NETC 2-RAIL**

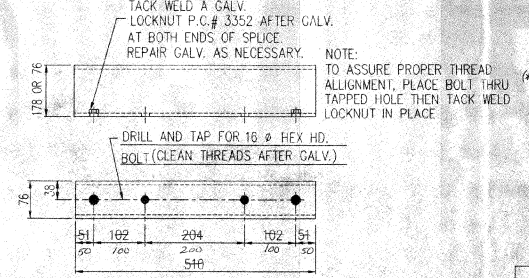
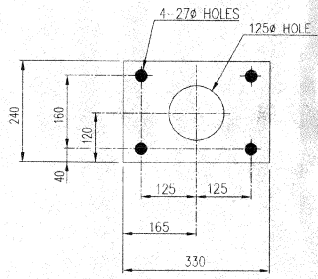
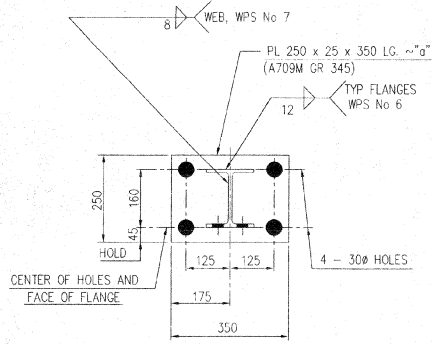
STATE OF VERMONT AGENCY OF TRANSPORTATION	DRAWN	DOC
T.W. ROUTE 2 OVER MOOSE RIVER	CHECKED	TP
COUNTY OF ESSEX	APPROVED	
STATE PROJECT NO. BH-028-4(22) BRIDGE, IN-D 117	DATE	02/18/00
CONTRACTOR: BELK & BELLUCCI, INC.	TRINITY INDUSTRIES, INC.	DWG FILE # 22-102334-E2
1700 WEST HAVEN DRIVE, INC.	HIGHWAY CONSTRUCTION PRODUCTS	SHEET # E2 OF 2
1000 HANCOCK BUSINESS CENTER	2525 STEMMONS FREEWAY, DALLAS, TX 75207	TRINITY SALES ORDER NO. (22) 102334
PO BOX 1000		REV D



- NOTES:
- 1) RAILING LAYOUT DIMENSIONS ARE IN METERS U.N.O.
  - 2) ALL T.S. 203 x 102 RAIL SPLICES ARE P.C. 35103
  - 3) ALL T.S. 102 x 102 RAIL SPLICES ARE P.C. 35103
  - 4) TOTAL PAY LENGTH 187.04 M.
  - 5) FIELD DRILL 22mm DIA. HOLES IN TUBES FOR THE POST CONNECTION.
  - 6) FINISH GALV. A-123, HARDWARE A133

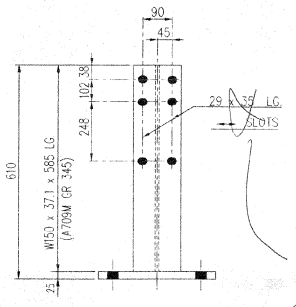
SHOP DRAWING USING  
**METRIC**  
DIMENSIONS

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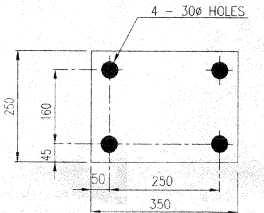


(\*) PC 87435 ANCHOR PLATE  
PL 240 x 10 x 330 LG.  
(A 36M)

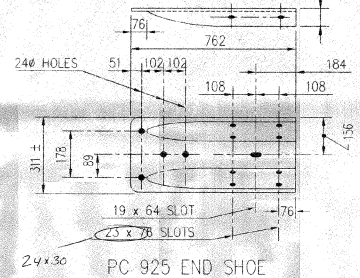
MK - 35107 SPLICE TS 178 x 76 x 9.5 x 510 (A500 GR B)  
MK - 35103 SPLICE TS 76 x 76 x 7.9 x 510 (A500 GR B)



PC 87438 POST



PC 3619 BEARING PAD  
3 THICK ELASTOMERIC PAD



PC 925 END SHOE  
(AASHTO M180)

FINISH: GALV. (ASTM A123) / AASHTO M111

METRIC MEASUREMENTS NOTE:  
ALL HARDWARE, STEEL PLATES, SECTIONS, TUBE SHAPES, AND REQUIRED HOLES FOR THE HARDWARE USED IN FABRICATION OF THE BRIDGE RAILS WILL BE CONVERTED WITH "HARD CONVERSION" TO NEAREST AVAILABLE ENGLISH MEASUREMENTS.  
ALL DIM. ARE IN MILLIMETERS UNLESS NOTED.

**SHOP DRAWING REVIEW**

REVIEWED AND APPROVED BY THE CONTRACTOR CONTRACT DOCUMENTS AND APPROVED, BUT NOT NECESSARILY APPROVED BY THE OWNER CONTRACT DOCUMENTS. THIS DRAWING IS THE PROPERTY OF THE CONTRACTOR CONTRACT DOCUMENTS. IT IS TO BE USED ONLY FOR THE PROJECT AND NOT TO BE REPRODUCED OR COPIED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN PERMISSION OF THE CONTRACTOR CONTRACT DOCUMENTS. SIGNATURE: [Signature]

REVIEWED AND REJECTED  REVIEWED AND COMMENTS

EXPLANATION ON COMMENTS: [Blank]

DATE: 02/18/00

DESIGNED BY: [Signature]

CHECKED BY: [Signature]

DATE: 02/18/00

SHOP DRAWING USING  
**METRIC**  
DIMENSIONS

BILL OF MATERIAL				
PRODUCT CODE	QTY.	DESCRIPTION	WT./EA	REMARKS
87438A	80	POST x 610	42 kg.	
87437G	4	POST x 1990	79 kg.	
87436G	4	POST x 2135	84 kg.	
87436G	80	ANCHOR PLATE	7 kg.	
3619B	80	BEARING PAD	1 kg.	
87434G	4	BACK-UP PLATE	8 kg.	
35107A	24	SPLICE 178 x 76 x 9.5	17.7 kg.	
35103A	24	SPLICE 76 x 76 x 7.9	8.5 kg.	
925C	4	END SHOE (10 GA.)	10 kg.	GUARDRAIL TERMINAL CONNECTOR

HARDWARE				
3391G	192	1/2" x 45 mm. HEX. HD. BOLT (5/8" x 1.314") HEX. HD. BOLT	A325 GRA	A153
3446G	192	1/2" WASHER, 45 OD. (3/4" x 1.125")	TYPE A HARDENED	F436 A153
3310G	192	1/2" LOCKWASHER (5/8") LOCKWASHER		F436 A153
3637G	368	1/2" x 150 HD. HEX. BOLT (3/4" x 37") NO. HD. BOLT	SLOTTED HEAD	A307 A153
3702G	368	19 PLAIN WASHER, 85 OD. (3/4" PLAIN WASHER, 2" O.D.)	TYPE A HARDENED	F436 A153
4700G	368	19 LOCK HEX NUT (3/4") LOCK HEX NUT		A563 GRA A153
4914G	320	24# x 300 ANCHOR STUD (1 1/2" x 12") ANCHOR STUD	FULLY THREADED	A449 A153
4902G	320	24 PLAIN WASHER (1") PLAIN WASHER		F436 A153
3910G	320	24 HEX NUT (1") HEX NUT		A563 GRA A153
3908G	320	24 HEX NUT (1") HEX NUT		A563 DH A153
4910G	320	24 HEX JAM NUT (1") HEX JAM NUT		A563 GRA A153
35209G	48	1/2" x 50 HD. HEX. BOLT (3/4" x 1.27")	0.1#	A53 A153 NOT DETAILED

PAY QUANTITY		
187.04M	ITEM NO. 525.33	STEEL BRIDGE RAIL (NETC)

(\*) ANCHORAGE TO BE SHIPPED PRIOR TO REMAINDER OF MATERIAL.  
(\*\*) HARDWARE TO BE SUPPLIED IN ENGLISH.

**NOTES:**  
Tubing and posts shall meet the requirements of Section 732 - Rolling materials of the Standard Specifications for Construction. All exposed cut or sheared edges shall be rounded to a 1.6 mm radius and be free of burrs. GALVANIZED SURFACES SHALL HAVE A UNIFORM APPEARANCE AND GALVANIZED MATERIAL SHALL BE PROPERLY STORED WITH WOOD BLOCKING BETWEEN PIECES. Rail bars.....ASTM A500, Grade B or ASTM A501 SEE SECTION 732.03, SUBSECTION 3 Rail posts.....ASTM A709/A709M, Grade 345 CWN SEE SECTION 732.03, SUBSECTION 2 All other shapes & plates.....AS NOTED ON DETAILS (NO CWN REQ) BEARING PAD SHALL COMPLY WITH 731.01 OR 731.02.

ERECTOR DETAILS ARE ON E1 AND E2 OF 2.

**APPROVAL DRAWING**  
MAR. 08. 2000  
TRINITY INDUSTRIES, INC.  
1700L STATE STREET  
GRAND SHIPBOARDS

REV	CHG'D	BY	DATE	REMARKS

PAY ITEM 525.33 NETC 2-RAIL

STATE OF VERMONT AGENCY OF TRANSPORTATION U.S. ROUTE 2 OVER MOOSE CREEK TOWN OF CONCORD COUNTY OF ESSEX STATE PROJECT NO. BHF-028-(122) BRIDGE NO. 117	DRAWN: DDC CHECKED: IP APPROVED:
CUSTOMER: BECK & BELLUCCI, INC. P.O. No.	DATE: 02/18/00
TRINITY INDUSTRIES, INC. HIGHWAY CONSTRUCTION PRODUCTS 2525 STEMMONS FREEWAY, DALLAS, TX 75207	
ENG. FILE # 22-102334-01 SHEET NO: 01 OF 2 TRINITY SALES ORDER NO: (22) 102334	REV: 0

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PC 87436 POST

PC 87437 POST

PC 87434 BACK-UP PLATE  
PL 260 x 10 x 385 LG.  
(A709M GR 250)

